DOE/EIA-0384(2000)
August 2001

Annual Energy Review 2000

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Energy Information Administration

Annual Energy Review 2000

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Released for Printing: August 8, 2001

GPO Stock No.: 061-003-01121-7.

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Printed with soy ink on recycled paper.

DOE/EIA-0384(00)

Annual Energy Review 2000

August 2001

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Preface

Twenty years ago, Energy Information Administration analysts studied the information that was available to them, ran a series of models that took into account a wide range of assumptions about growth in the economy and population as well as many other variables, and then published their best guesses on what the energy picture would look like in the United States in 2000. They foresaw a nation using 102.5 quadrillion British thermal units (Btu) of energy with a resource mix that was 79 percent fossil fuels, 11 percent nuclear electric power, and 10 percent renewable energy.[1]

Year 2000 is over and is recorded, in preliminary form, in this edition of the *Annual Energy Review.* We can now test that forecast against reality. The Nation, in fact, consumed 98.8 quadrillion Btu in 2000, remarkably only 3.7 quadrillion Btu under the 1981 long-range forecast. The resource mix recorded in 2000 was 85 percent fossil fuels, 8 percent nuclear electric power, and 7 percent renewable energy—more fossil fuels and less nuclear electric power and renewable energy than had been projected.

[1] Energy Information Administration, *1980 Annual Report to Congress, Volume Three: Forecasts* (March 18, 1981), Table 4.7.

The historical time series presented in the *Annual Energy Review 2000* record what has already happened and is known about our Nation's energy usage. The information contained in this report will be combined with a multitude of assumptions about our resources, the economy, and technology expectations to create contemporary scenarios that look into the years now ahead of us.

The Energy Information Administration invites you to read the report's new section called "Energy Perspectives" for a broad overview of U.S. energy history, thumb (or surf) through the whole document to see the extent of material available to you, and study the figures for patterns, relationships, and milestones in the data. In doing so, you will join today's energy analysts who are working to understand where we are now so that we can better anticipate the future.

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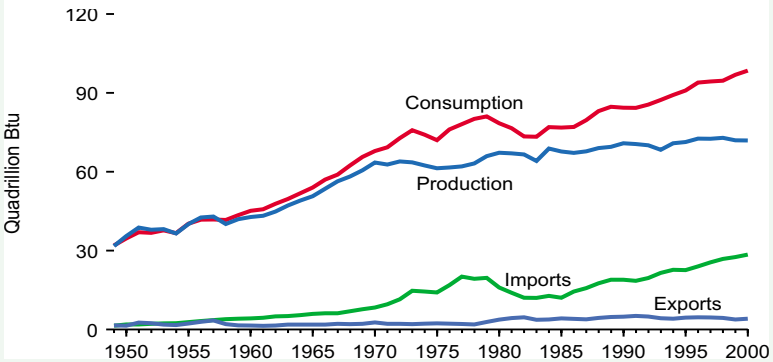
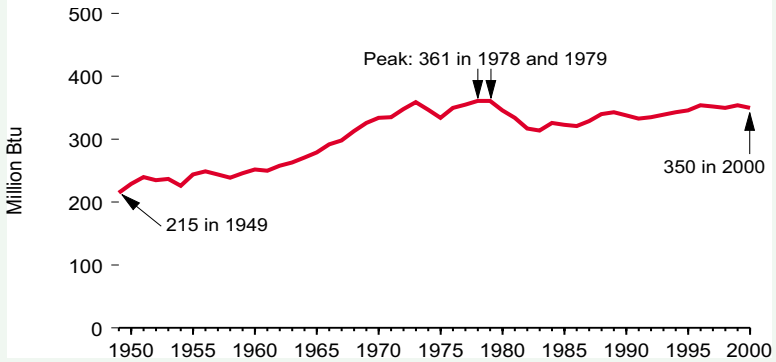


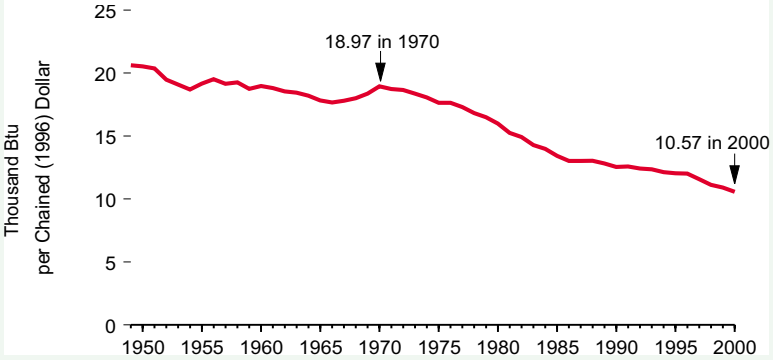
The United States was self-sufficient in energy until the late 1950s when energy consumption began to outpace domestic production. From 1970 to 2000, U.S. energy consumption grew 45 percent while production rose 13 percent. The Nation imported more energy to fill the gap.

Figure 2. Energy Consumption per Person



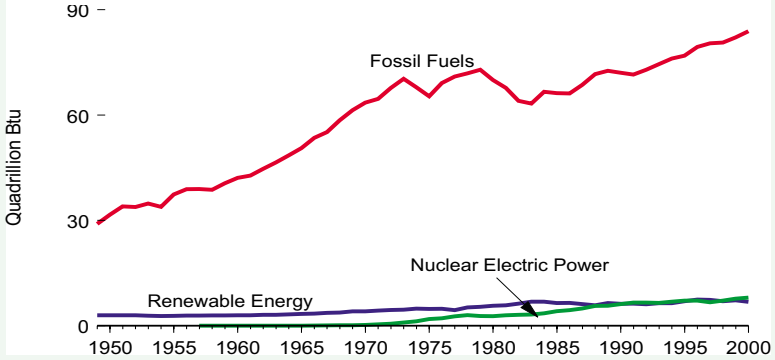
Energy use per person stood at 215 million Btu in 1949. The rate generally increased until the oil price shocks of the mid-1970s and early 1980s caused the pattern to reverse for a few years. The trend in the 1990s was upward again, reaching 350 million Btu per person in 2000.

Figure 3. Energy Use per Dollar of Gross Domestic Product



Over the second half of the 20th century, the rate at which energy was consumed per dollar of the economy's output of goods and services fell dramatically. By the end of the century, the rate was half of the mid-century level. The rate in 2000 was 44 percent below that in 1970.

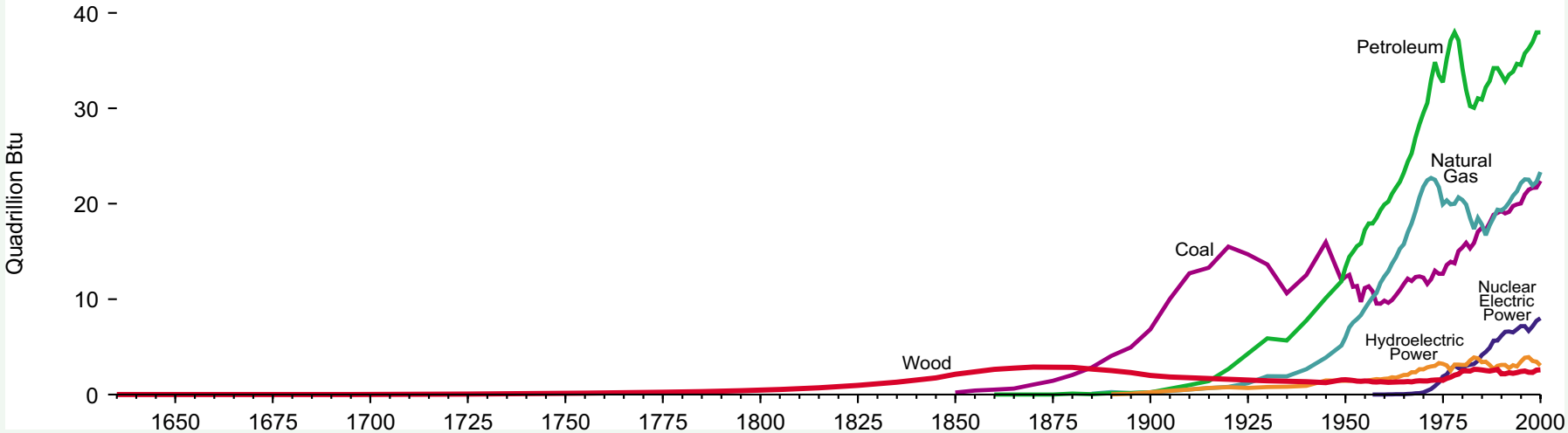
Figure 4. Energy Consumption by Source



Most energy consumed in the United States has come from fossil fuels. Renewable energy resources have supplied a relatively small but steady portion. In the late 1950s, nuclear fuel began to be used to generate electricity, and, by the late 1980s, contributed about the same share as renewable energy.

Consumption by Source

Figure 5. Energy Consumption by Source, 1635-2000



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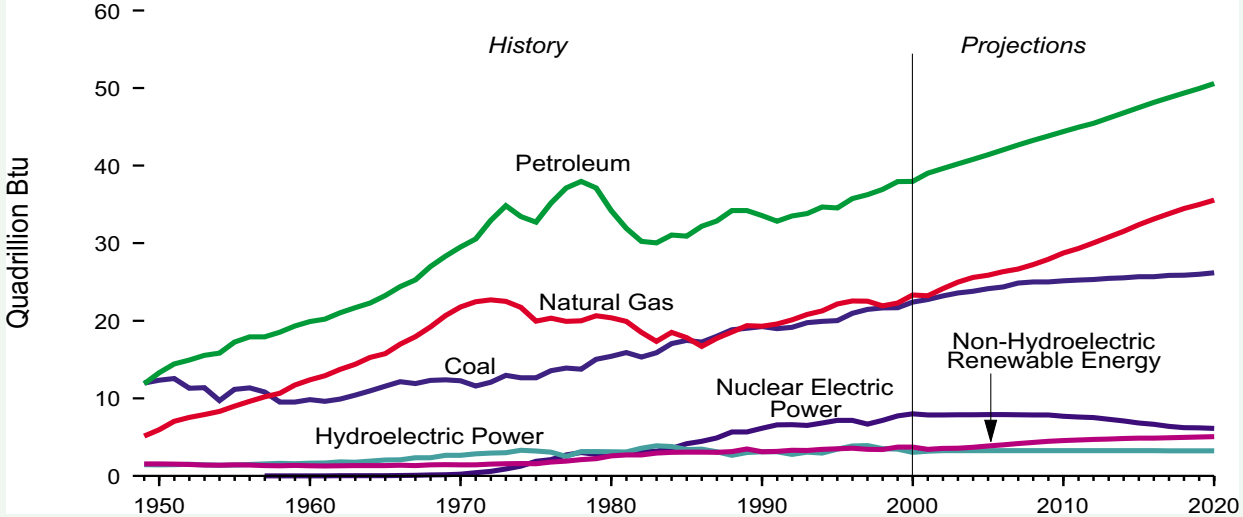
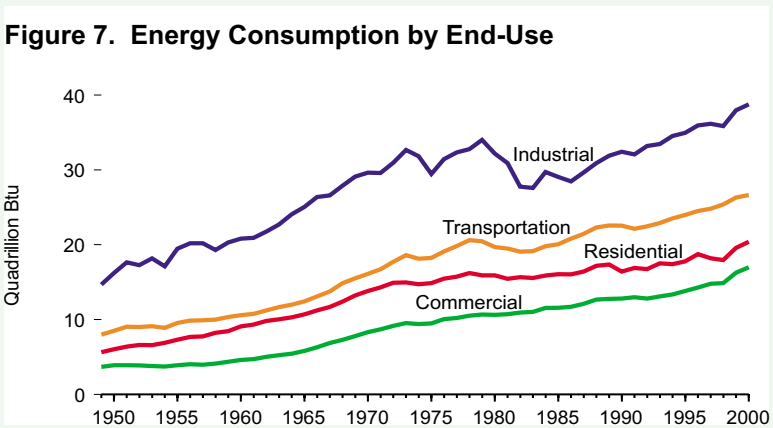


In the long view of American history, wood served as the preeminent form of energy for about half of the Nation's history. Around 1885, coal surpassed wood's usage. Despite its tremendous and rapid expansion, coal was, in turn, overtaken by petroleum in the middle of the 20th century. Natural gas, too, experienced rapid development into the second half of the 20th century, and coal began to expand again. Late in the 20th century still another form of energy, nuclear electric power, was developed and made significant contributions.

While the Nation's energy history is one of large-scale change as new forms of energy were developed, the outlook for the next couple of decades (assuming current laws, regulations, and policies) is for continued growth and reliance on the three major fossil fuels—petroleum, natural gas, and coal—and for dwindling use of nuclear electric power and modest expansion in renewable resources.

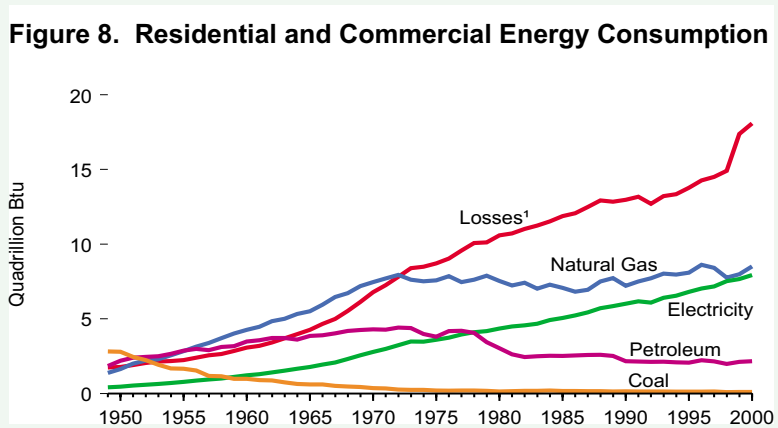
Consumption by Sector

Figure 7. Energy Consumption by End-Use



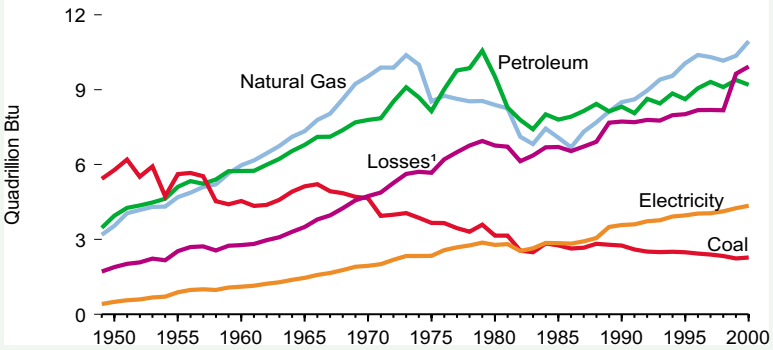
The industrial sector of the economy used the largest share of energy and showed the greatest volatility. In particular, steep drops occurred in 1975 and 1980-83 in response to high oil prices. Transportation was the next largest energy consuming sector, followed by residential use and commercial use.

Figure 8. Residential and Commercial Energy Consumption



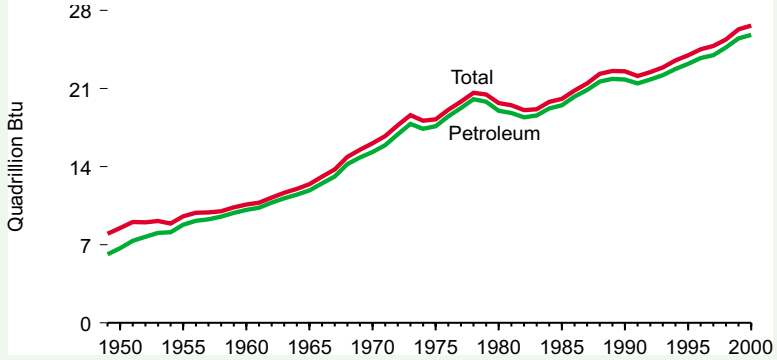
Coal, once important to residential and commercial consumers, was gradually replaced by other forms of energy. Petroleum use peaked in the early 1970s. Natural gas grew fast until the early 1970s and then fluctuated around the 1970 level over the next three decades. Meanwhile, electricity's use expanded dramatically.

Figure 9. Industrial Energy Consumption



Coal, once the prominent form of energy in the industrial sector, gave way to natural gas and petroleum in the late 1950s. Both natural gas and petroleum expanded rapidly until the early 1970s; after that, large swings occurred. The use of electricity grew tenfold over five decades.

Figure 10. Transportation Energy Consumption

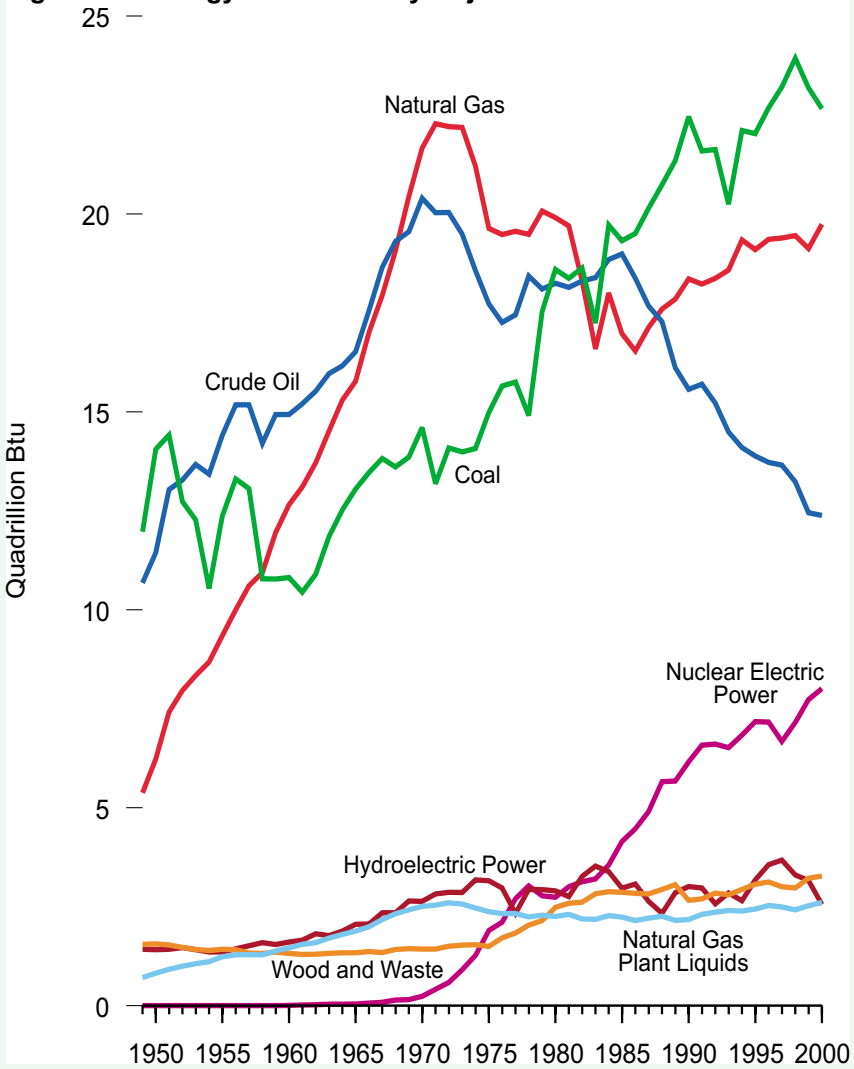


The transportation sector's use of energy, which is overwhelmingly petroleum, more than tripled from 1949 to 2000. Motor gasoline accounts for about two-thirds of the petroleum consumed in the sector. Distillate fuel oil and jet fuel are other important petroleum products used in the sector.

[1] Energy lost during generation, transmission, and distribution of electricity. See Tables 2.1b-2.1d, footnote 7, about a data discontinuity between 1998 and 1999.

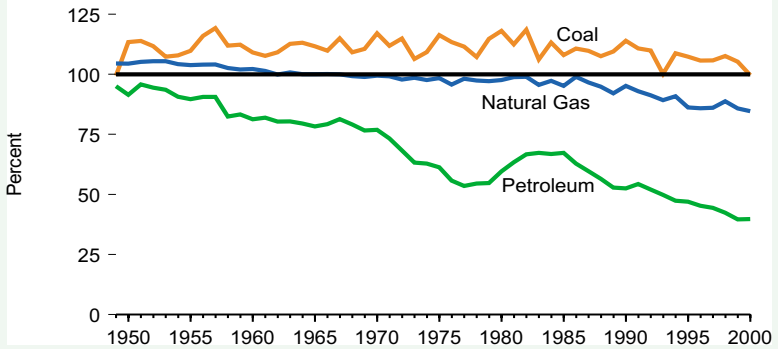
Production and Trade

Figure 11. Energy Production by Major Source



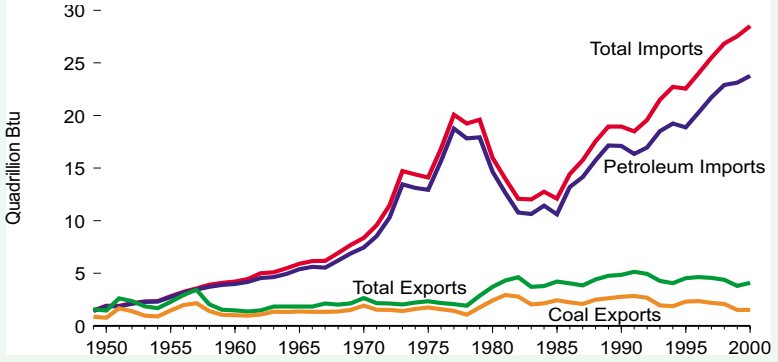
Most energy produced in the United States comes from fossil fuels—coal, natural gas, and crude oil. Coal, the leading source at the middle of the 20th century, was surpassed by crude oil and natural gas for many years, but again became the leading source of energy in the mid-1980s.

Figure 12. Fossil Fuel Production as Share of Consumption



The Nation almost always produced more than enough coal for our own requirements. For many years, we were self-sufficient in natural gas, too, but after 1967, we produced less than we consumed each year. Petroleum production fell far short of domestic requirements.

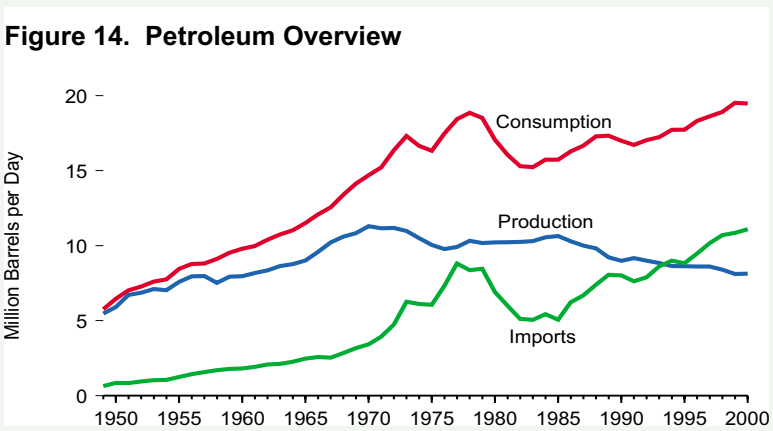
Figure 13. Energy Imports and Exports



When domestically produced energy could not meet demand, imports filled the gap. In 2000, net imported energy supplied one-quarter of all U.S. energy consumed, mostly in the form of petroleum. When the Nation had excess energy, it was often exported to buyers in other countries. U.S. energy exports were mostly coal.

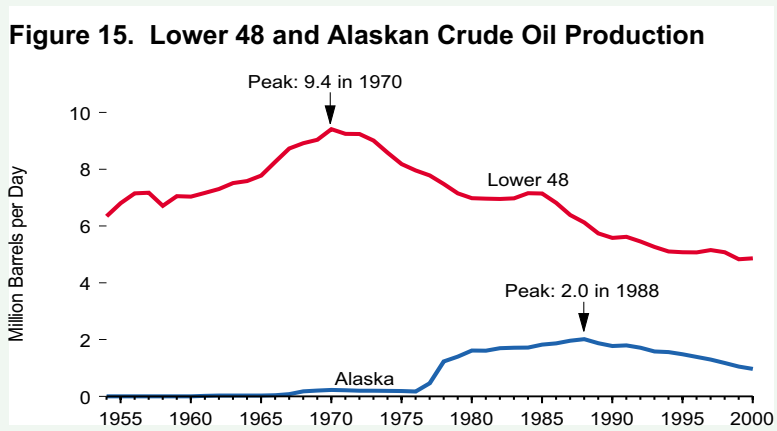
Crude Oil Production

Figure 14. Petroleum Overview



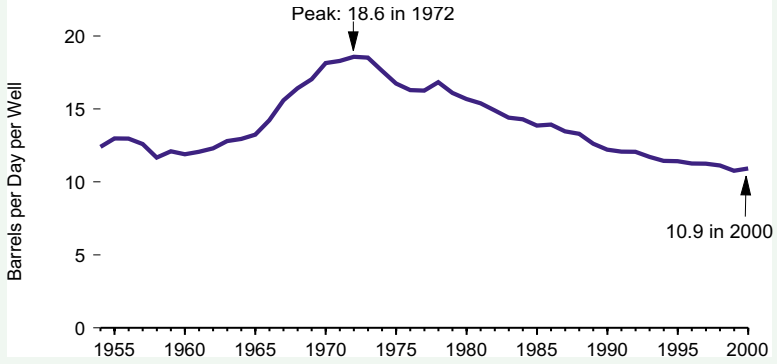
U.S. production of crude oil and natural gas plant liquids peaked in 1970 at 11.3 million barrels per day. By 2000, production was down to 8.1 million barrels per day. While domestic production fell, consumption continued to expand. Beginning in 1994, the Nation imported more petroleum than it produced.

Figure 15. Lower 48 and Alaskan Crude Oil Production



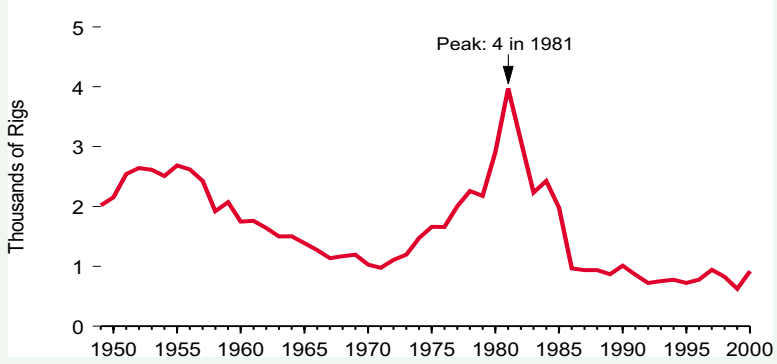
Crude oil production peaked in the U.S. lower 48 States at 9.4 million barrels per day in 1970. As lower 48 production fell, Alaska's production came on line and helped supply U.S. needs. Alaskan production peaked at 2.0 million barrels per day in 1988 and fell to less than half the peak rate by 2000.

Figure 16. Oil Well Productivity



The amount of crude oil produced per day per well rose sharply in the 1960s, reached a peak of 18.6 barrels per day per well in 1972, and, except for a brief recovery in 1978, fell steadily in the following years. By 2000, productivity measured 10.9 million barrels per day per well, 41 percent below the peak.

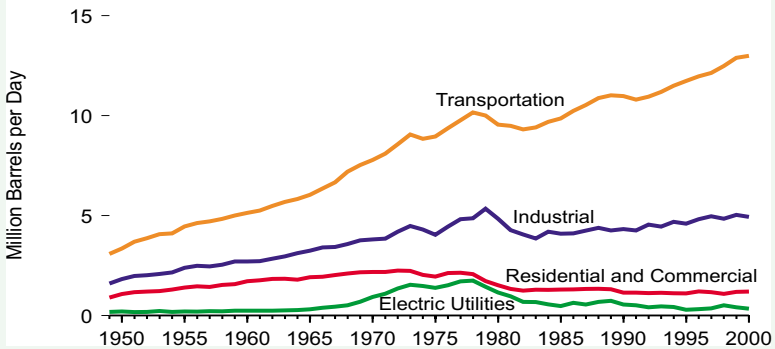
Figure 17. Rotary Rigs in Operation



Rotary rig activity declined sharply in the period from 1955 to 1971. After 1971, the number of rigs in operation began to climb again, and a peak of 4 thousand rigs in operation was registered in 1981. A sharp decline occurred after the peak, and rigs in operation in 2000 stood at 918, 77 percent below the peak.

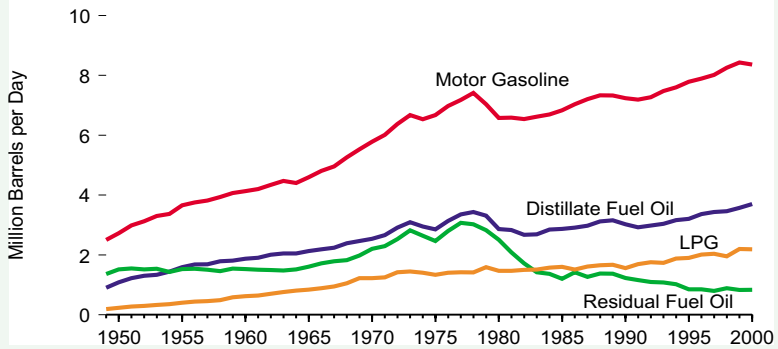
Petroleum Consumption and Prices

Figure 18. Petroleum Consumption by Sector



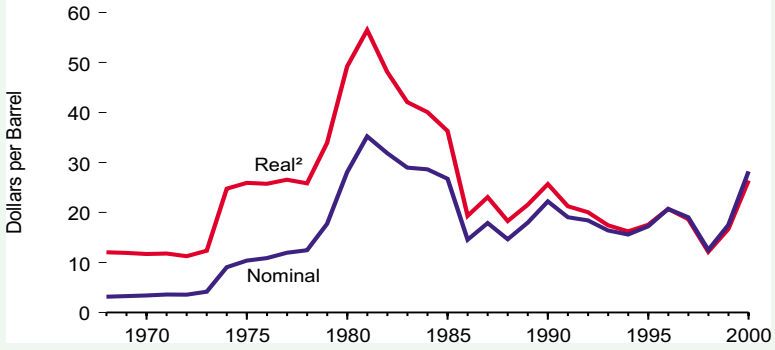
Transportation was the largest consuming sector of petroleum and the one showing the greatest expansion over the second half of the 20th century. In 2000, 13 million barrels per day of petroleum products were consumed for transportation purposes, accounting for 67 percent of all petroleum used.

Figure 19. Petroleum Consumption by Selected Product



Motor gasoline is the single largest petroleum product consumed in the United States. Its consumption stood at 8.4 million barrels per day in 2000, 43 percent of all petroleum consumption. Distillate fuel oil and liquefied petroleum gases (LPG) are other important products. The use of residual fuel oil fell off sharply after 1977.

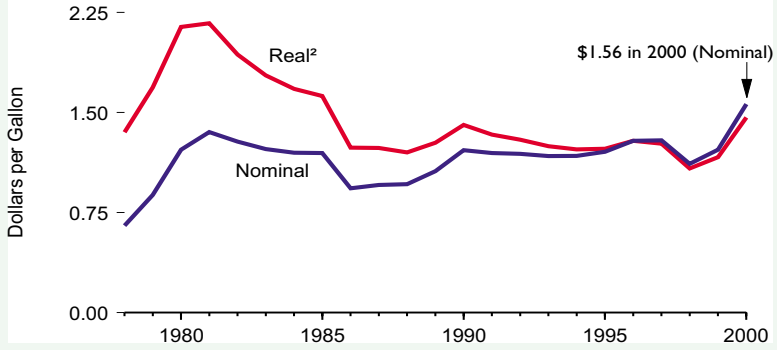
Figure 20. Crude Oil Refiner Acquisition Cost[1]



The refiner acquisition composite (domestic and foreign) cost of crude oil in nominal (unadjusted for inflation) dollars peaked at $35 per barrel in 1981. The price fell dramatically over the years that followed, then rose from $18 per barrel in 1999 to $28 per barrel in 2000. Adjusted for inflation, the 2000 price was 53 percent below the peak.

[1] Composite of domestic and imported crude oil.

Figure 21. Price of Motor Gasoline

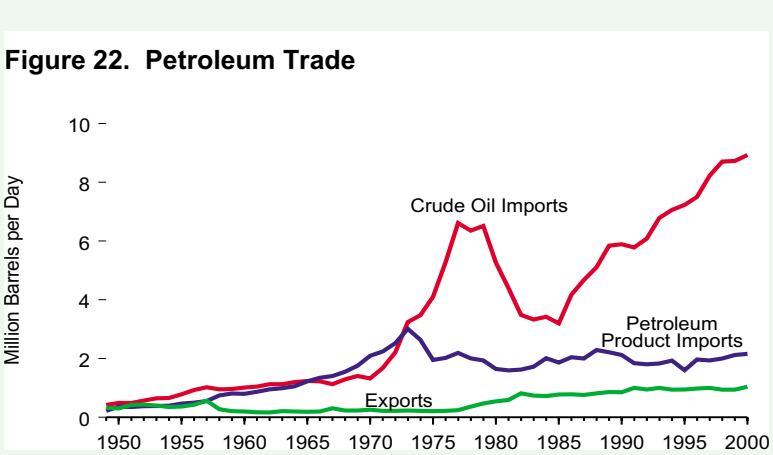


In nominal (unadjusted for inflation) dollars, Americans paid an average of 65¢ per gallon for motor gasoline in 1978. The 2000 average price of $1.56 was 140 percent higher than the 1978 rate but, adjusted for inflation, it was only 8 percent higher.

[2] In chained (1996) dollars, calculated by using gross domestic product implicit price deflator.

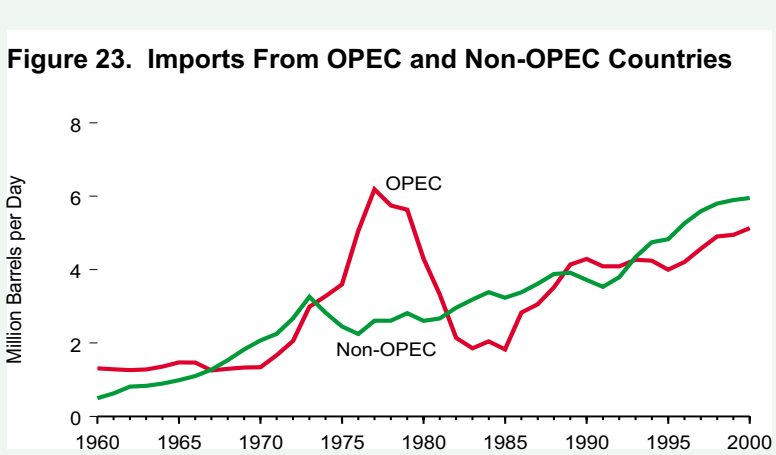
Petroleum Trade

Figure 22. Petroleum Trade



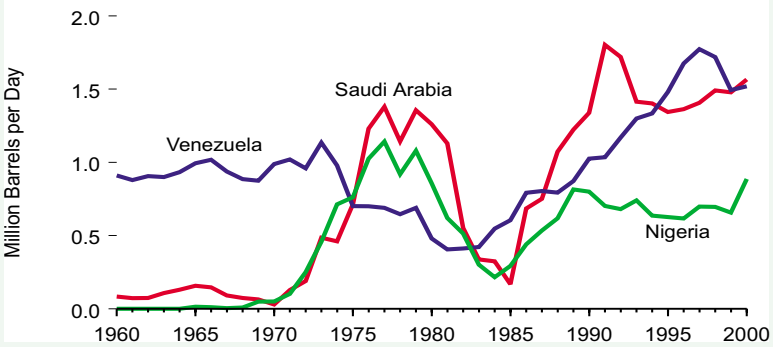
U.S. imports of crude oil rose dramatically from mid-century until the late 1970s, fell sharply until 1985, and then resumed a trend of rapid increases. In 2000, a record-high level of 9 million barrels per day of imported crude oil was registered, and imports of petroleum products stood at 2 million barrels per day.

Figure 23. Imports From OPEC and Non-OPEC Countries



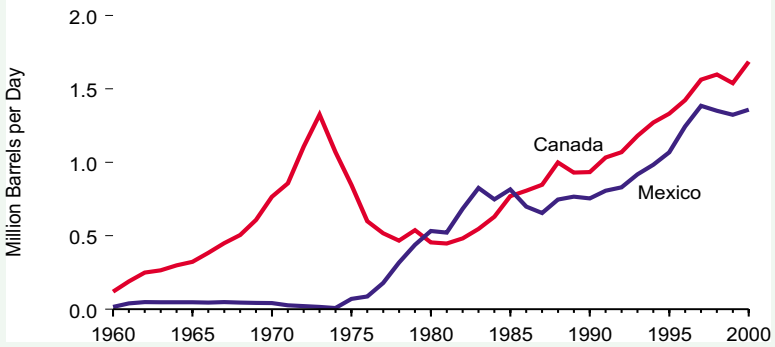
As U.S. petroleum imports rose sharply in the late 1970s, the Nation's reliance on petroleum from the Organization of Petroleum Exporting Countries (OPEC) grew. In 1977, 70 percent of U.S. petroleum imports came from OPEC countries. After 1992, most petroleum imports came from non-OPEC countries.

Figure 24. Imports From Selected OPEC Countries



Among OPEC countries, Saudi Arabia, Venezuela, and Nigeria—nations from three different continents—were key suppliers of petroleum to the American market. Even as our leading suppliers, those countries experienced tremendous fluctuation in the amount of petroleum sold to the United States over the decades.

Figure 25. Imports From Canada and Mexico

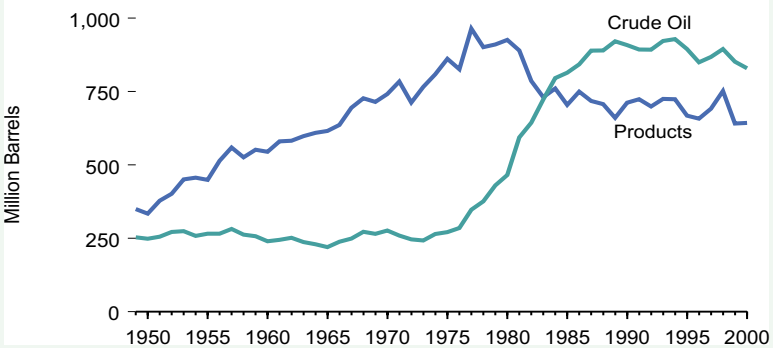


Canada and Mexico, our national neighbors, supplied the largest quantities of petroleum from non-OPEC countries. Imports from Mexico were insignificant until the mid-1970s when they began to play a key role in U.S. supplies. In 2000, Canada and Mexico together provided over one-fourth of all U.S. petroleum imports.

OPEC = Organization of Petroleum Exporting Countries.

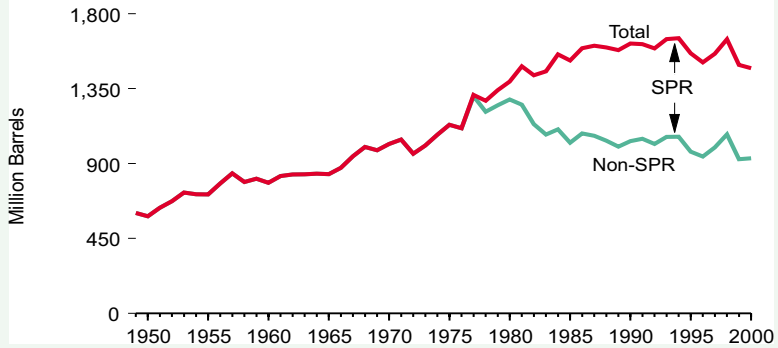
Petroleum Stocks

Figure 26. Stocks of Crude Oil and Products



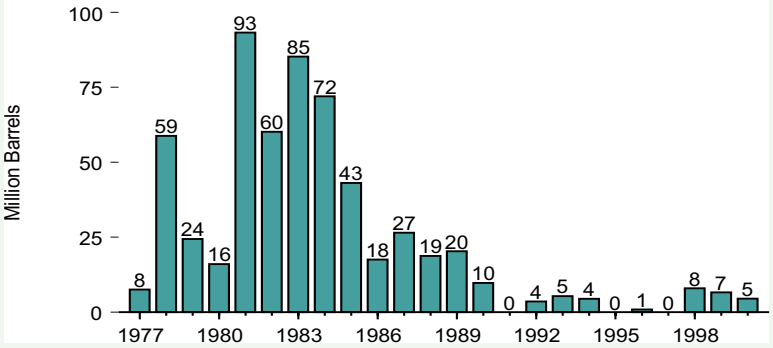
Through 1983, the Nation held most of its petroleum storage in the form of products, which are ready for the market. After that, most petroleum in storage was in the form of crude oil. At the end of 2000, petroleum stocks totaled 1.5 billion barrels, 56 percent crude oil and 44 percent products.

Figure 27. Strategic Petroleum Reserve (SPR) Stocks



In 1977, the United States began building a national reserve of petroleum stocks in case of emergency. The amount of crude oil held in the Strategic Petroleum Reserve (SPR) peaked at 592 million barrels in 1994 and 1995. The level at the end of 2000 was 541 million barrels. As SPR stocks were built, non-SPR stocks were reduced.

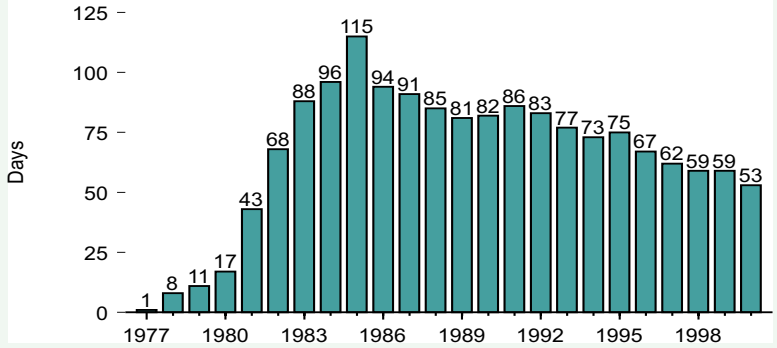
Figure 28. Crude Oil Imports for SPR[1]



Most of the crude oil in SPR is imported oil, and most of it came in during the early 1980s. In fact, from 1991 through 1997, only 14 million barrels were imported for the reserve, and in 3 of those years, no oil at all was imported for the reserve. In 2000, 4.5 million barrels of crude oil were imported for SPR.

[1]Imported by SPR and imported by others for SPR.

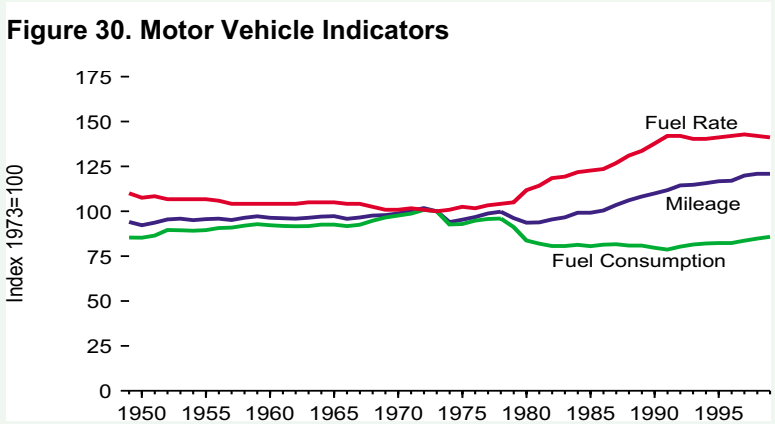
Figure 29. SPR Stocks as Days' Worth of Net Imports



An important SPR measure is the number of days' worth of total net imports of petroleum that could be met by the reserve in an emergency. The peak level occurred in 1985 when the reserve could have supplied 115 days of petroleum net imports, at the 1985 level. The rate trended down since then and stood at 53 days at the end of 2000.

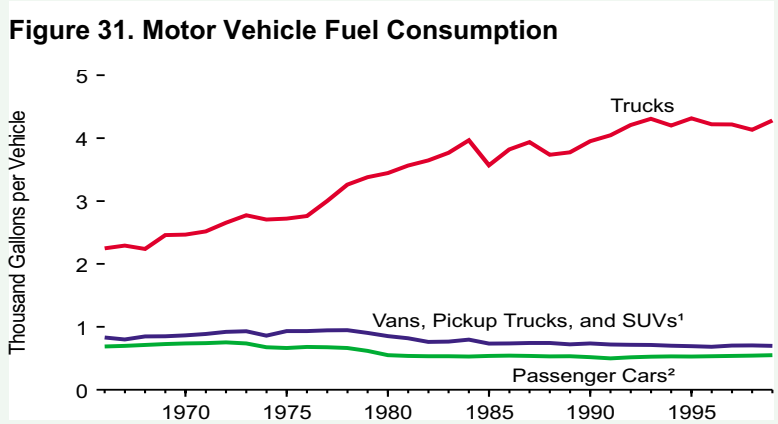
Motor Vehicles

Figure 30. Motor Vehicle Indicators



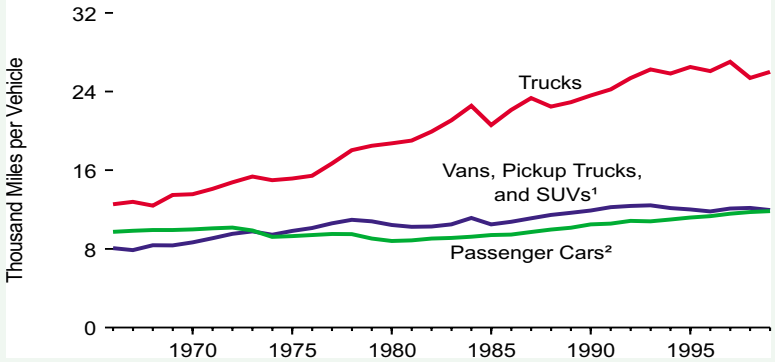
The composite motor vehicle fuel rate (miles per gallon) soared 42 percent from 1973 to 1991 but remained nearly flat over succeeding years. Miles driven per vehicle grew steadily from 1980 to 1998, but fell slightly in 1999. Fuel use per vehicle fell 21 percent from 1973 to 1991, but rebounded 9 percent by 1999.

Figure 31. Motor Vehicle Fuel Consumption



From 1966 to 1999, truck fuel consumption rates rose 90 percent from 2.3 thousand gallons per truck to 4.3 thousand gallons per truck. Fuel consumption rates of other vehicle types fell: passenger cars down 20 percent and other vehicles down 16 percent.

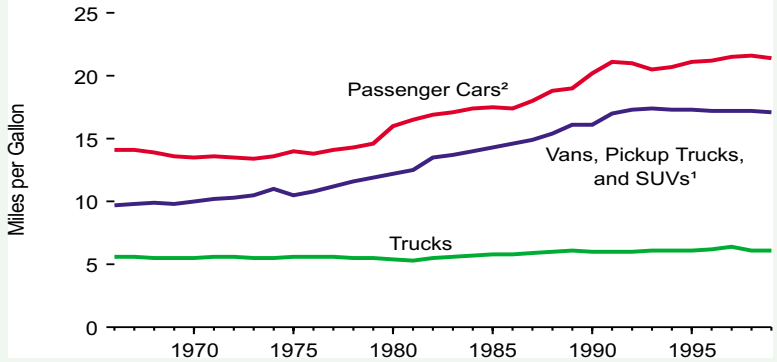
Figure 32. Motor Vehicle Mileage



Truck miles traveled per year exceeded that of other vehicle types and grew sharply from 1966 to 1999, up 108 percent. In 1999, trucks averaged 26 thousand miles per vehicle per year, while passenger cars, vans, pickup trucks, and sport utility vehicles averaged just under 12 thousand miles per year.

[1] Sport-utility vehicle.
[2] Motorcycles are included through 1989.

Figure 33. Motor Vehicle Fuel Rates

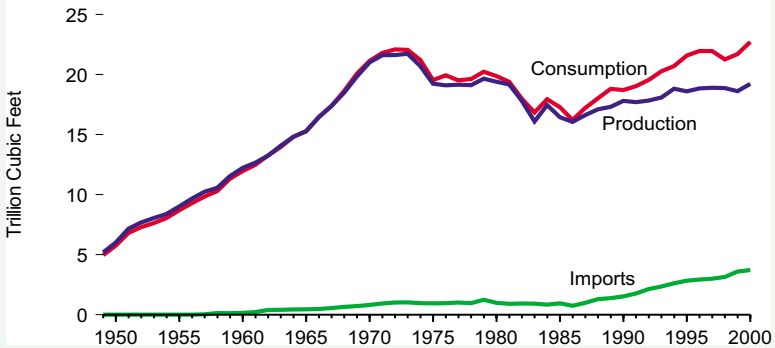


Since 1976, the average fuel rates (miles per gallon) of passenger cars and vans, pickup trucks, and sport utility vehicles trended upward, ending the 1990s with much better rates than they had a quarter century earlier. The truck fuel rate, however, showed little change.

Note: Motor vehicles include passenger cars, motorcycles, vans, pickup trucks, sport utility vehicles, trucks, and buses.

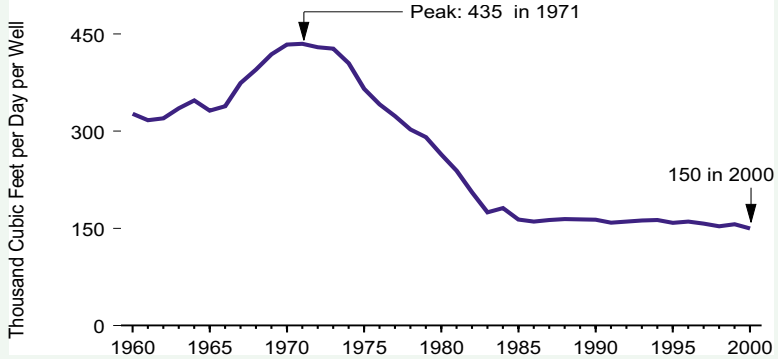
Natural Gas

Figure 34. Natural Gas Overview



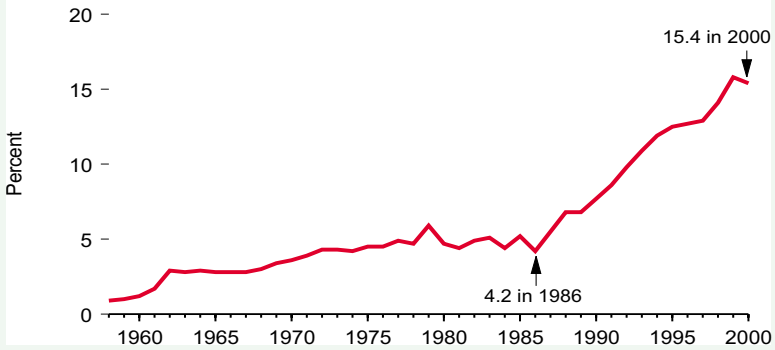
U.S. natural gas production and consumption were nearly in balance through 1986. When consumption began to outpace production, imports of natural gas rose to meet U.S. requirements for the fuel. In 2000, consumption stood at 22.7 trillion cubic feet (Tcf), production at 19.2 Tcf, and net imports at 3.5 Tcf.

Figure 35. Natural Gas Well Productivity



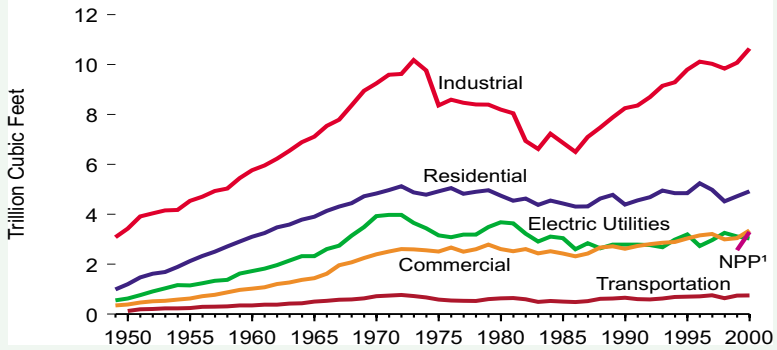
Gas well productivity, measured as gross withdrawals per day per well, grew rapidly in the late 1960s, peaked in 1971, and then fell sharply until the mid-1980s. Productivity remained nearly steady after 1985. The 2000 rate of 150 thousand cubic feet per day per well was 66 percent below the 1971 peak level.

Figure 36. Net Imports as Share of Consumption



Net imports as a share of consumption registered in the 4-to-5 percent range in the 1970s and early 1980s. Net imports measured 4.2 percent of consumption in 1986, which was followed by consumption increases that outpaced production growth. Net imports expanded, and in 2000 accounted for 15.4 percent of consumption.

Figure 37. Natural Gas Consumption by Sector

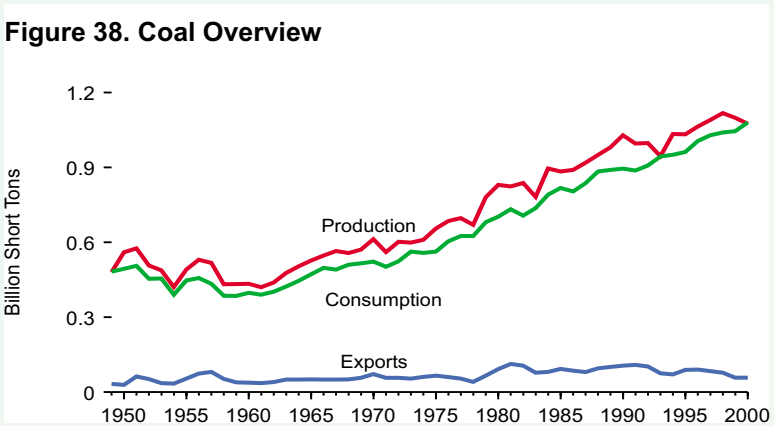


[1]Nonutility power producers; data available for 1999 and 2000 only.

The industrial sector was both the largest consuming sector of natural gas and the sector with the greatest volatility over the years. The electric power sector (electric utilities and nonutility power producers) accounted for over one-fourth of all natural gas consumption in 2000.

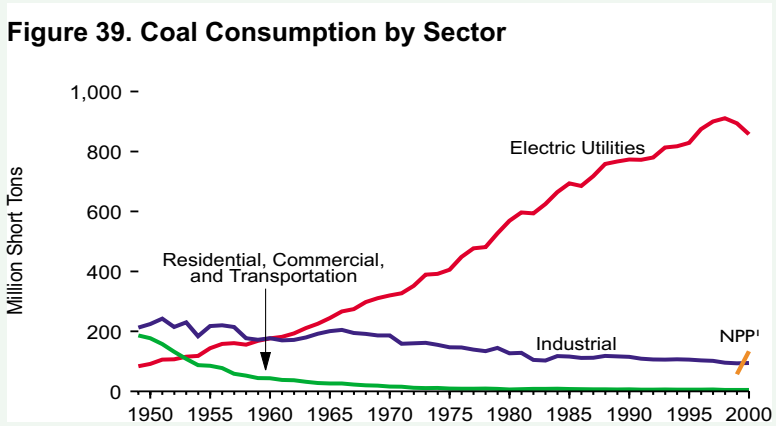
Coal

Figure 38. Coal Overview



Unlike petroleum or natural gas, domestic supplies of coal nearly always outpaced U.S. consumption of the resource. Excess production of coal was available for export to other countries. About one-third of U.S. exported coal went to Canada.

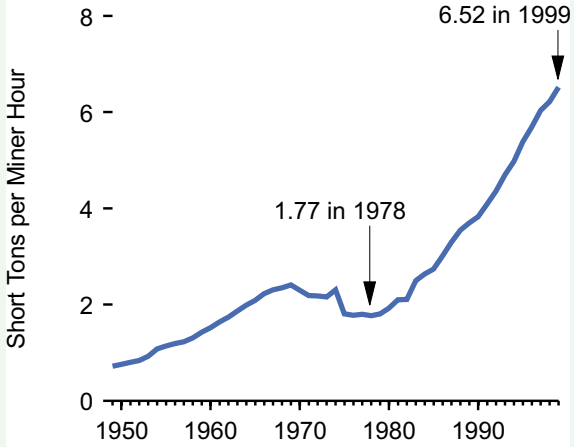
Figure 39. Coal Consumption by Sector



[1]Nonutility power producers; data available for 1999 and 2000 only.

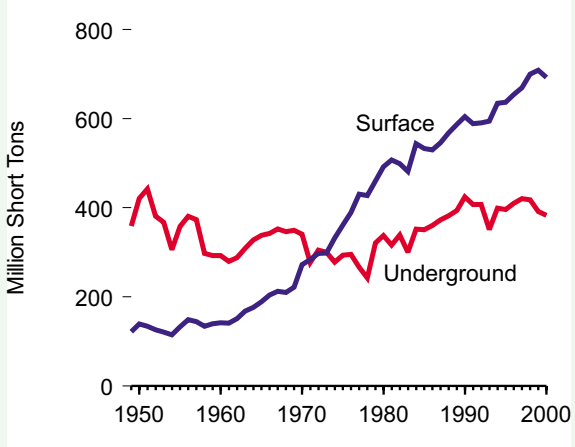
In the 1950s, most coal was consumed in the industrial sector, many homes were still heated by coal, and the transportation sector consumed coal in steam-driven trains and ships. By the 1960s, most coal was used for generating electricity and by 2000 electricity's share stood at 92 percent of all coal consumption.

Figure 40. Coal Mining Productivity



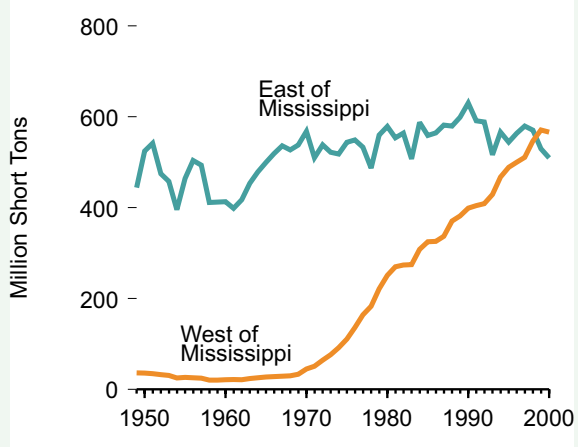
Improved mining technology and the shift toward more surface-mined coal promoted increased productivity from the Nation's mines after 1978.

Figure 41. Production by Mining Method



Most growth of coal production came from surface mines, which surpassed underground production after 1973.

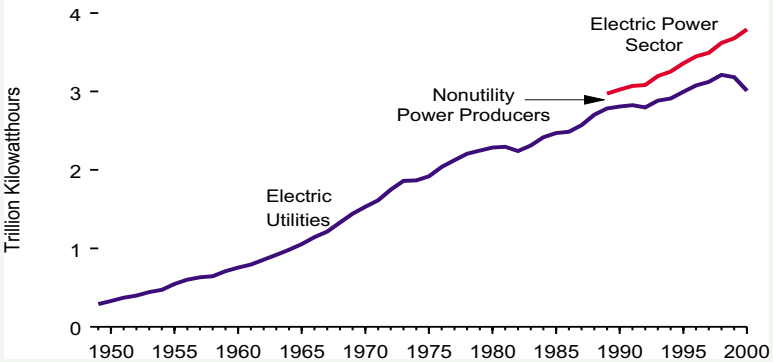
Figure 42. Production by Location



Western coal production expanded tremendously after 1969 and exceeded production from the East in 1999 and 2000.

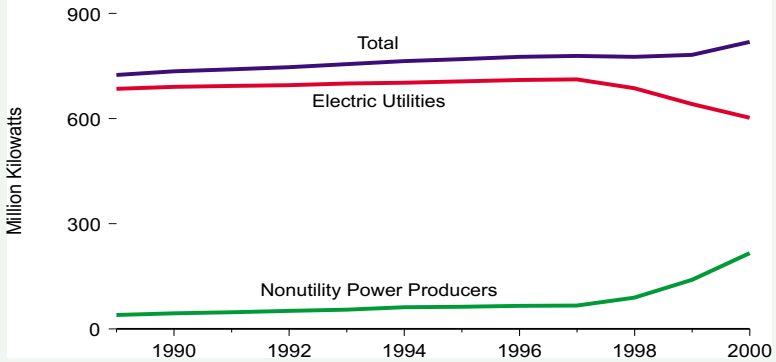
Electricity Generation

Figure 43. Electric Power Sector Net Generation



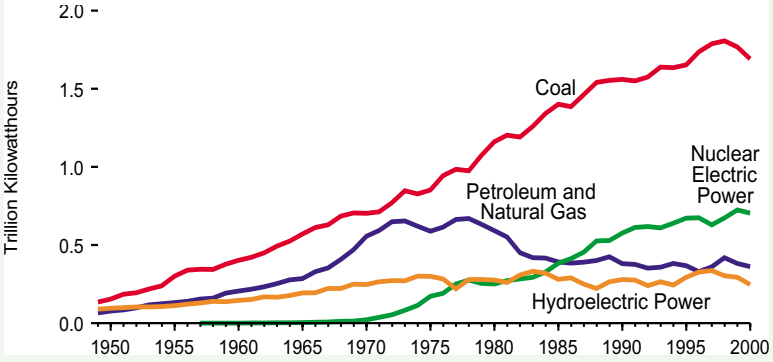
Electric power generation grew from 0.3 trillion kilowatthours in 1949 to 3.8 trillion kilowatthours in 2000. Over the entire span, electricity failed to increase in only one year, 1982, when a 2-percent decrease was recorded.

Figure 44. Electric Power Sector Net Summer Capability



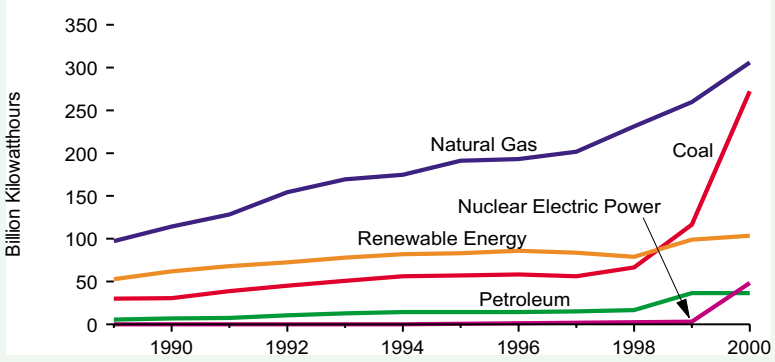
Since 1949, total capability fell in only one year, 1998, when a 0.3-percent decrease was recorded. In recent years, industry deregulation caused capacity to shift from utilities to nonutility power producers, but in 2000 about 74 percent of capacity was still owned by utilities.

Figure 45. Electric Utilities Net Generation



Most utility generation came from coal. In fact, in 2000, fossil fuels (coal, petroleum, and natural gas) accounted for 68 percent of all net generation, while nuclear electric power contributed 23 percent, and renewable energy resources 8 percent. Most net generation from renewable energy resources was derived from hydroelectric power.

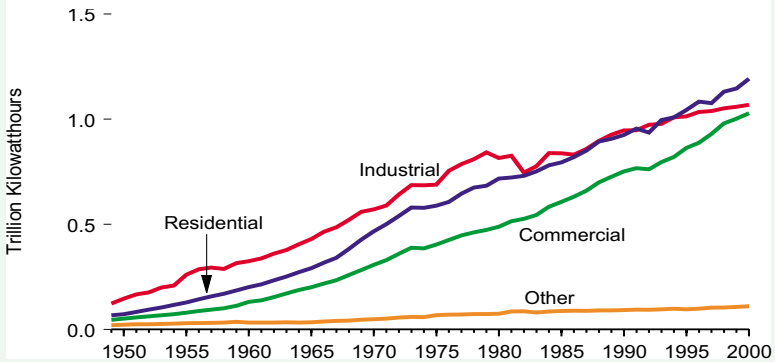
Figure 46. Nonutility Power Producers Net Generation



Nonutility power producer net generation expanded rapidly from 188 billion kilowatthours in 1989 to 782 billion kilowatthours in 2000. In 2000, fossil fuels accounted for 81 percent of all nonutility net generation; nuclear electric power 6 percent; and renewable energy resources 13 percent.

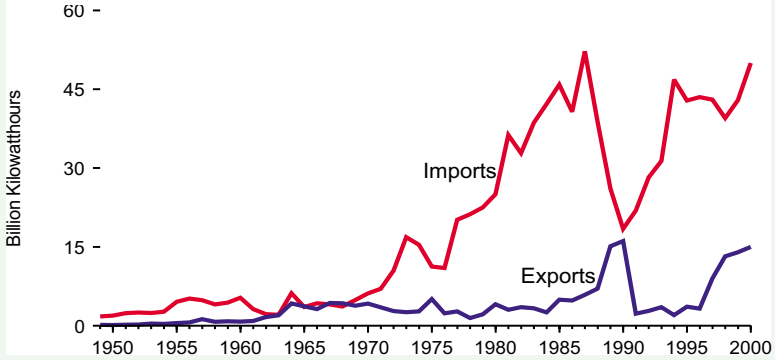
Electricity Sales, Prices, and Trade

Figure 47. Electric Utility Retail Sales by Sector



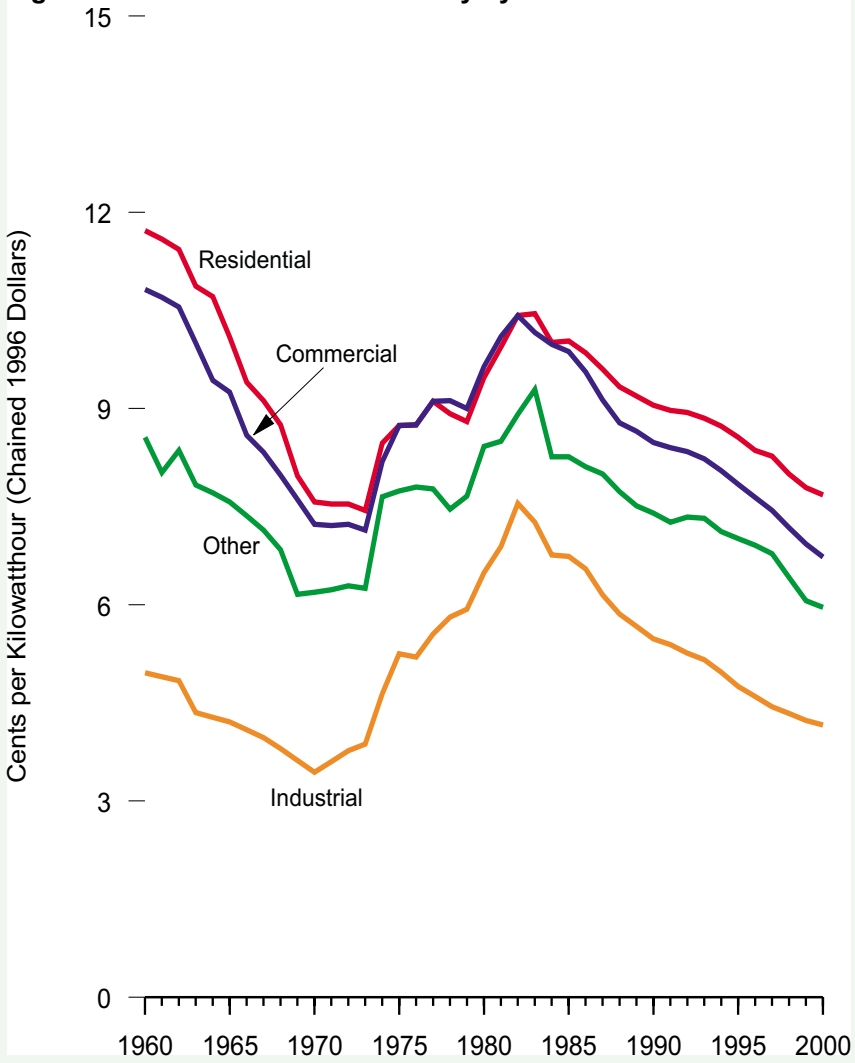
After mid-century, enormous growth occurred in energy sales in all three major sectors—residential, industrial, and commercial. Beginning in 1993, residential sales surpassed industrial sales. The industrial sector's use of electricity showed the greatest volatility, especially from the late 1970s through the mid 1980s.

Figure 49. Electricity Trade



Except for a few years in the 1960s when imported and exported electricity were nearly equal, the United States imported more electricity than it exported. In 2000, net imported electricity was less than 1 percent of all electricity used.

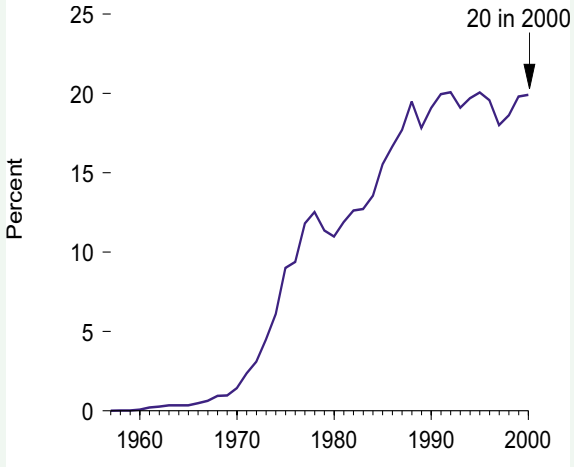
Figure 48. Retail Prices of Electricity by Sector



In inflation-adjusted terms, all sector prices for electricity fell steeply in the 1960s, reversed course around 1970 to rise sharply through the early 1980s, and then returned to a pattern of rapid decline. Over the decades, industrial consumers paid the lowest rates for electricity; residential customers usually paid the highest prices. In 2000, all sectors paid lower rates than they had in 1960.

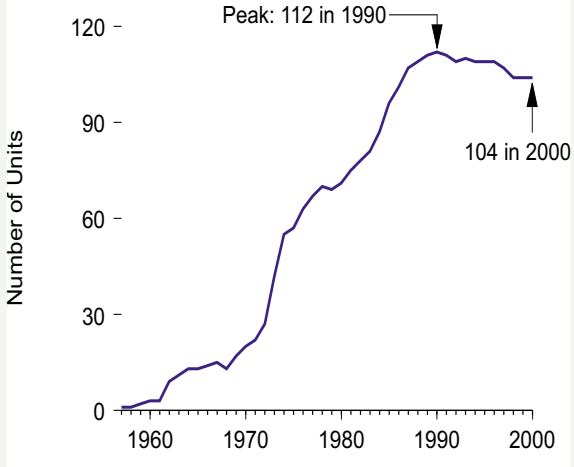
Nuclear Electric Power

Figure 50. Nuclear's Share of Electricity



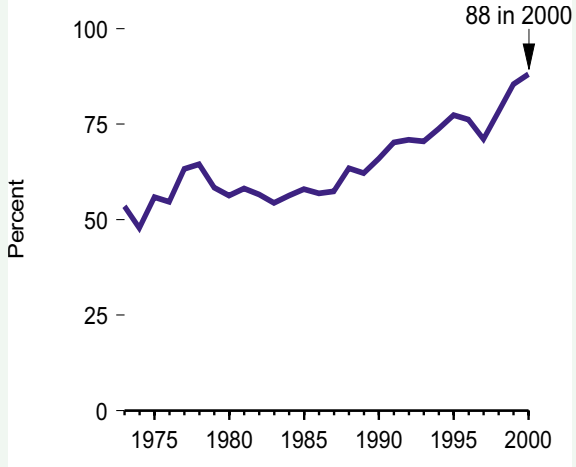
Nuclear-generated electricity came on line in the United States in 1957. Rapid development occurred in the 1970s and 1980s. In 2000, 20 percent of U.S. electricity came from nuclear power.

Figure 51. Number of Operable Units



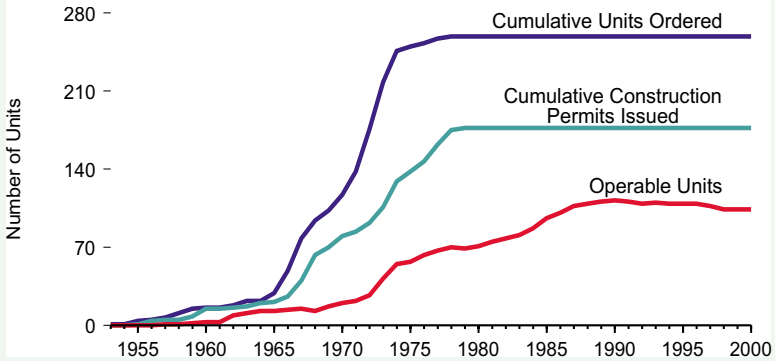
As the new industry developed, the number of operable nuclear units grew, peaking at 112 in 1990. Unit closures since then reduced the number of operable units to 104 by 2000.

Figure 52. Capacity Factors



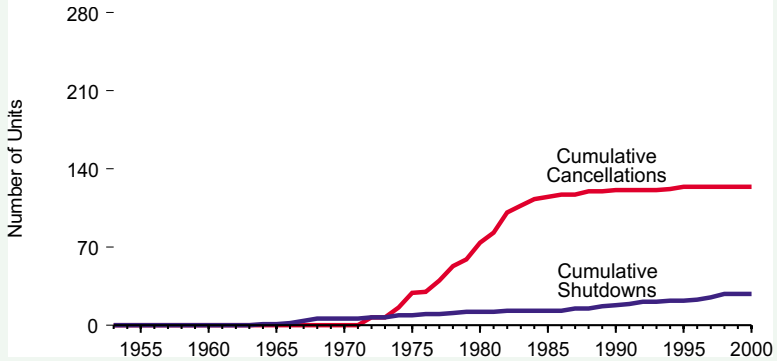
Capacity factors measure actual power generation as a share of maximum possible output. Factors for the industry were in the 50-to-60 percent range through the 1980s, but improved to 88 percent by 2000.

Figure 53. Nuclear Generating Unit Orders and Permits



Through 1978, 259 units were ordered in the United States; no more units were ordered after that date. Of the total ordered, 177 resulted in the issuance of a construction permit, but, ultimately, many fewer units were actually built. In 2000, there were 104 operable units.

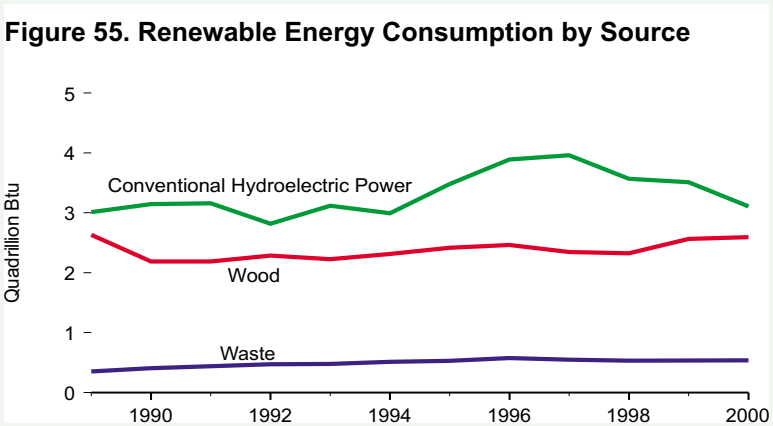
Figure 54. Unit Cancellations and Shutdowns



A cumulative total of 124 of the ordered units were cancelled and never built. Of those built, 28 were eventually shut down permanently. Three units still hold construction permits but are not expected to be built.

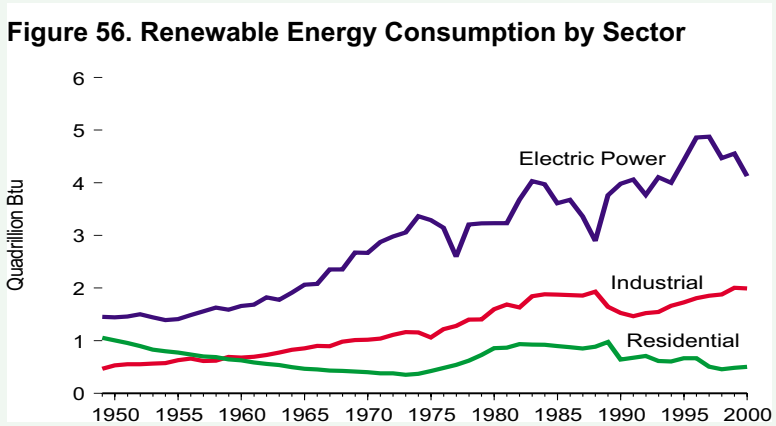
Renewable Energy

Figure 55. Renewable Energy Consumption by Source



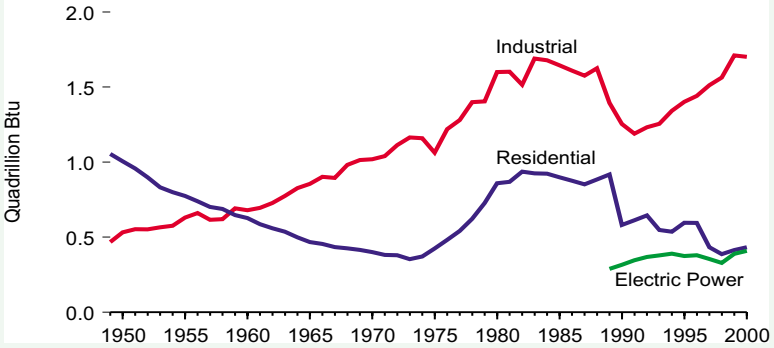
U.S. renewable energy consumption stood at about 7 quadrillion Btu per year from 1995 to 2000. Conventional hydroelectric power accounted for about half of all renewable energy. Wood was the next largest source of renewable energy, followed by waste and geothermal. Smaller quantities came from alcohol fuels, solar, and wind.

Figure 56. Renewable Energy Consumption by Sector



Most renewable energy was consumed by the electric power sector to generate electricity. After 1958, the industrial sector was the second largest consuming sector of renewable energy, mostly wood. Residential sector usage of renewable energy (also mostly wood) was the next largest consuming sector.

Figure 57. Wood Consumption by Selected Sector



Over the second half of the 20th century, residential use of wood generally declined while the industrial sector's use of wood expanded. Commercial use was very small. In the last decade nonutility power producers' wood consumption boosted the electric power sector's total.

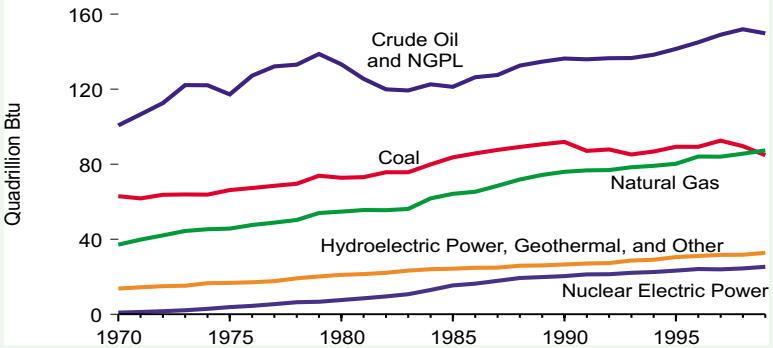
Figure 58. Solar Collector Shipments and Trade

Note: Data were not collected for 1985.

Solar collector total shipments peaked in 1981 at 21 million square feet. From 1991 through 1998, the level of shipments was 7 to 8 million square feet per year; shipments reached nearly 9 million square feet in 1999. Since 1983, imports of solar collectors exceeded exports, and the imports trend was generally increasing.

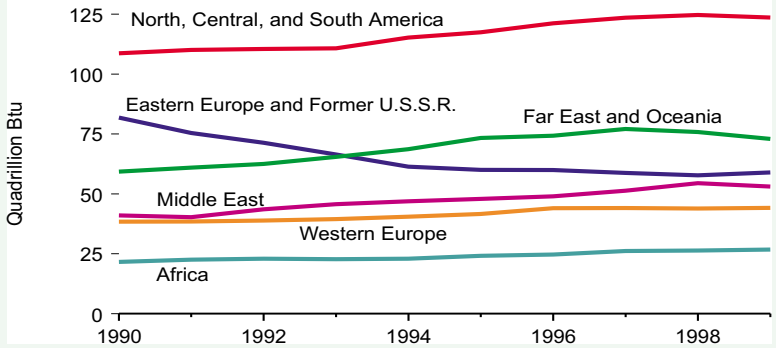
International Energy

Figure 59. World Primary Energy Production by Source



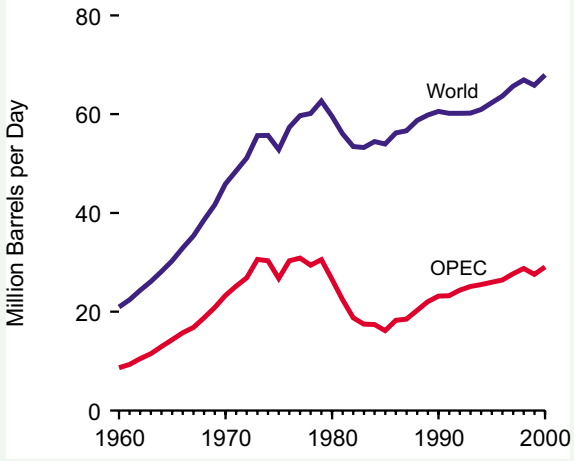
From 1970 to 1999, world primary energy production grew by 76 percent. Growth occurred in all types of energy. In 1999, fossil fuels accounted for 85 percent of all energy produced worldwide, renewable energy 9 percent, and nuclear power 7 percent.

Figure 60. World Primary Energy Production by Region



One-third of the 380 quadrillion Btu of energy produced worldwide in 1999 came from North, Central, and South America. Between 1990 and 1999, total primary energy production grew in all major regions of the world except Eastern Europe and the Former U.S.S.R., where production fell by 28 percent.

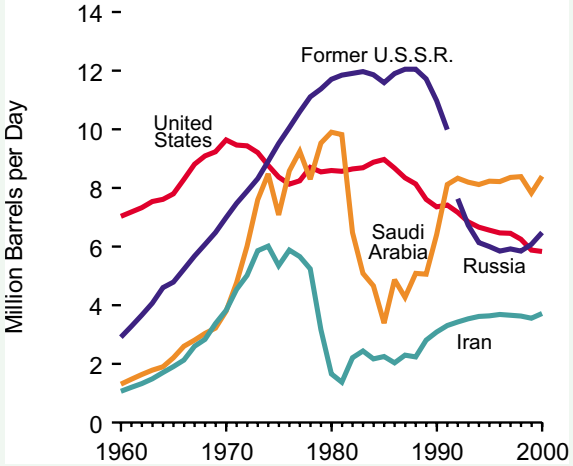
Figure 61. World Crude Oil Production



OPEC = Organization of Petroleum Exporting Countries.

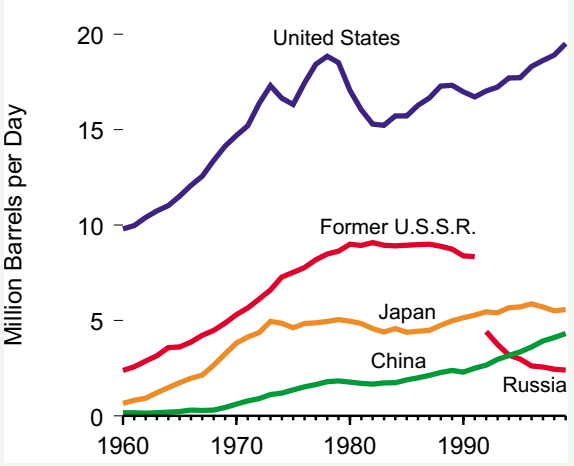
World crude oil production reached a record 68 million barrels per day in 2000. OPEC's share fell from 55 percent in 1973 to 43 percent in 2000.

Figure 62. Leading Crude Oil Producers



After 1991, Saudi Arabia was the largest producer. U.S. production peaked in 1970. Russia's production surpassed U.S. output in 1999 and 2000.

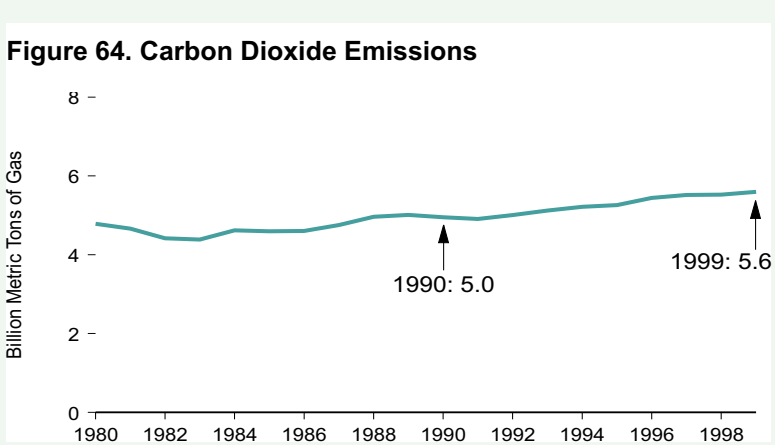
Figure 63. Leading Petroleum Consumers



The United States accounted for 26 percent of world consumption of petroleum in 1999. Japan and China accounted for 7 and 6 percent, respectively.

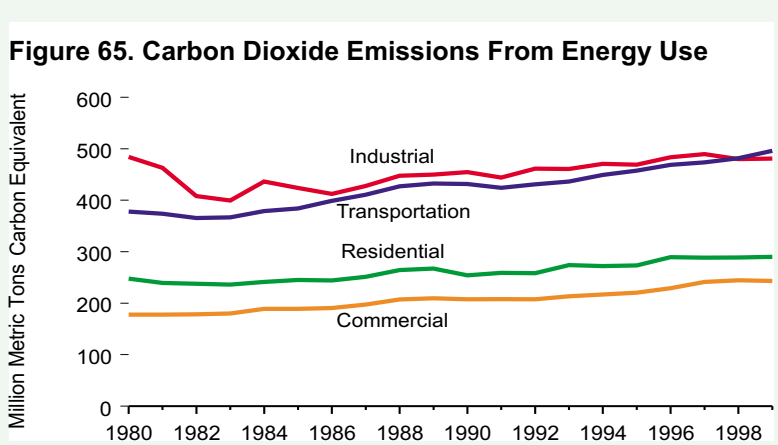
Carbon Dioxide Emissions

Figure 64. Carbon Dioxide Emissions



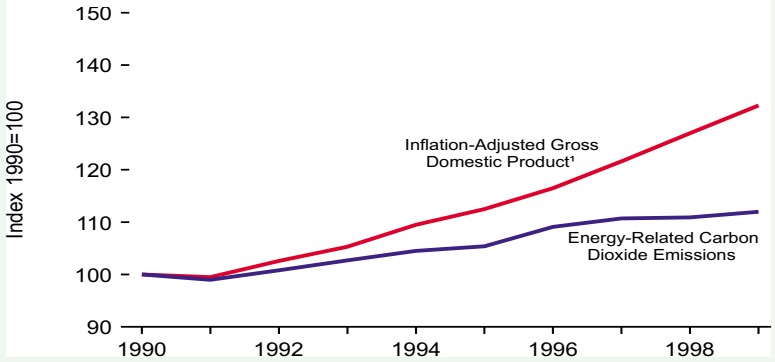
In the United States, fossil fuel combustion is responsible for 98 percent of all emissions from carbon dioxide, which is the most significant greenhouse gas. Total carbon dioxide emissions reached 5.6 billion metric tons of gas in 1999, 13 percent higher than the 1990 level.

Figure 65. Carbon Dioxide Emissions From Energy Use



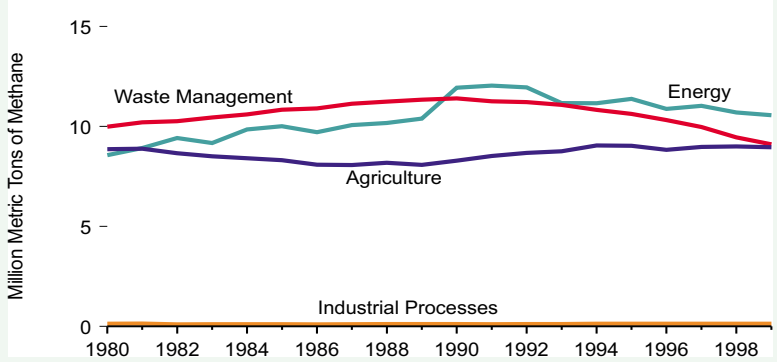
The level of carbon dioxide emissions generated by the industrial sector exceeded other sector levels until 1998 when it was surpassed by transportation emissions. Commercial sector emissions, the smallest of the four sectors, registered the largest percentage gain, 17, from 1990 to 1999.

Figure 66. GDP Growth and Carbon Dioxide Emissions



While gross domestic product (GDP) grew by 32 percent from 1990 to 1999, energy-related carbon dioxide emissions grew by 12 percent. It was primarily the use of less energy per unit of economic output, rather than the use of low-carbon fuels, that held the rate of carbon dioxide emissions growth below that of the inflation-adjusted gross domestic product.

Figure 67. Methane Emissions by Sector



In 2000, methane emissions accounted for 9 percent of total U.S. greenhouse gas emissions, weighted by global warming potential. Most methane emissions come from energy, waste management, and agricultural activities. The production, processing, and distribution of natural gas accounted for over half of all energy-related methane emissions in 2000.

[1] Based on chained (1996) dollars.

Figure Sources

Data for "Energy Perspectives" figures and text are derived from the following *Annual Energy Review 2000* tables and other sources as cited.

1. Table 1.1.
2. Table 1.5.
3. Table 1.5.
4. Table 1.3.
5. Tables F1a and F1b.
6. Historical data: Table 1.3; projections: Energy Information Administration (EIA), *Annual Energy Outlook 2001*, Table A1, National Energy Modeling System run AEO2001. D101600A.
7. Table 2.1a.
8. Tables 2.1b and 2.1c.
9. Table 2.1d.
10. Table 2.1e and 5.12c.
11. Table 1.2.
12. Tables 5.1, 6.1, and 7.1.
13. Table 1.4.
14. Table 5.1.
15. Table 5.2.
16. Table 5.2.
17. Table 4.3.
18. Tables 5.12a, 5.12b, 5.12c, and 5.12d.
19. Table 5.11.
20. Table 5.19.
21. Table 5.22.
22. Table 5.1.
23. Table 5.4.
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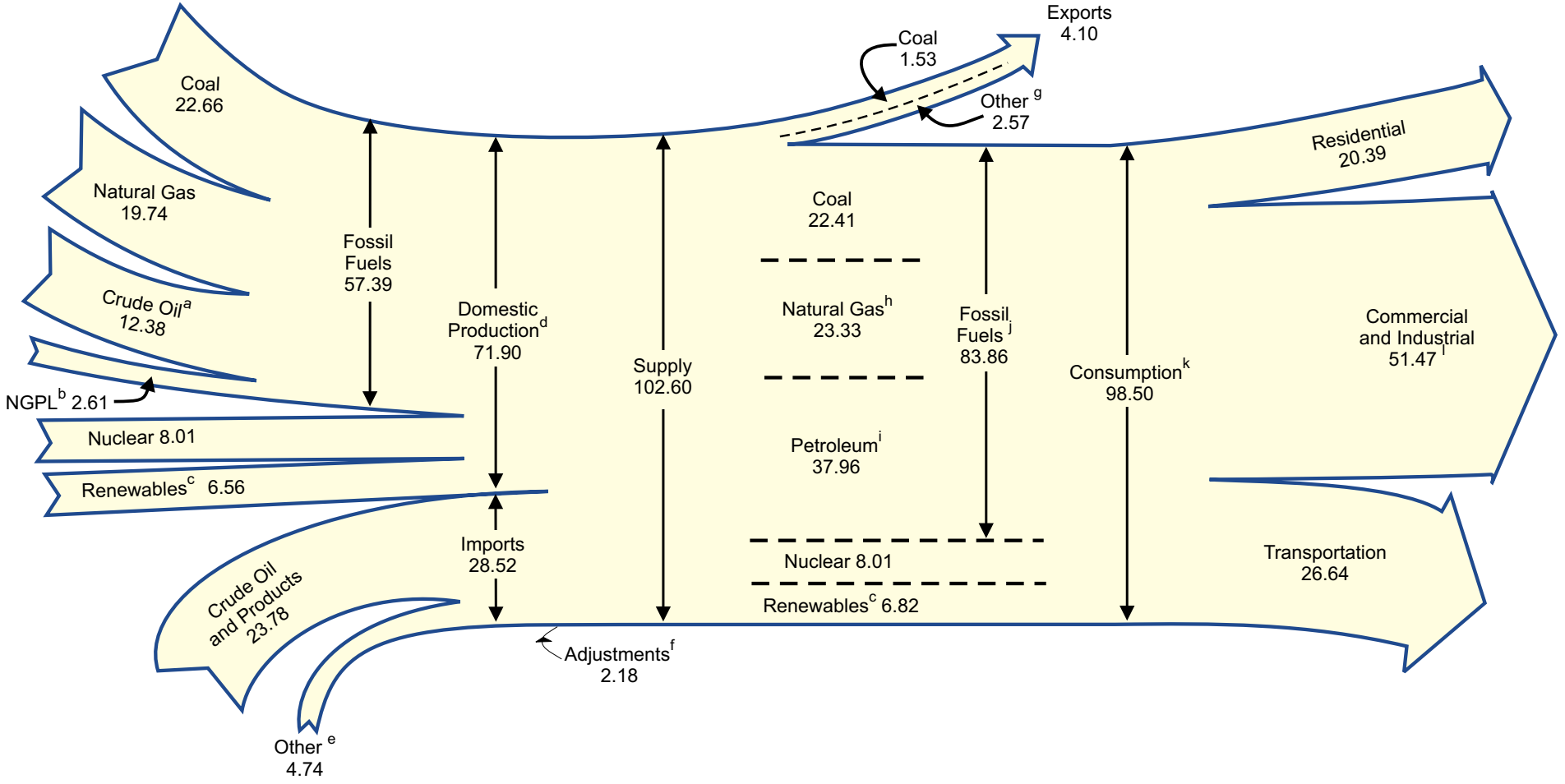
25. Table 5.4.
26. Table 5.14.
27. Table 5.14.
28. Table 5.15.
29. Table 5.15.
30. Table 2.8.
31. Table 2.8.
32. Table 2.8.
33. Table 2.8.
34. Table 6.1.
35. Table 6.4.
36. Table 6.3.
37. Table 6.5.
38. Tables 7.1 and 7.4.
39. Table 7.3.
40. Table 7.6.
41. Table 7.2.
42. Table 7.2.
43. Table 8.1.
44. Tables 8.5, 8.6, and 8.7.
45. Table 8.3.
46. Table 8.4.
47. Table 8.12.
48. Table 8.15.
49. Table 8.1.
50. Table 9.2.
51. Table 9.1.
52. Table 9.2.
53. Table 9.1.
54. Table 9.1.
55. Table 10.1.
56 Tables 10.2a and 10.2b.
57. Tables 10.2a and 10.2.b.
58. Table 10.3.
59. Table 11.2.
60. Table 11.1.
61. Table 11.4.
62. Table 11.4.
63. Table 11.9.
64. Table 12.1, and EIA, *Emissions of Greenhouse Gases in the United States 1999* (October 2000), page 13.
65. Table 12.2.
66. Tables 1.5 and 12.2, and EIA, *Emissions of Greenhouse Gases in the United States 1999* (October 2000), page 20.
67. Tables 12.1 and 12.4, and EIA, *Emissions of Greenhouse Gases in the United States 1999* (October 2000), Table 14.

1 Energy Overview

The United States at night from orbit. Source: National Oceanographic and Atmospheric Administration satellite imagery; mosaic provided by U.S. Geological Survey.

Diagram 1. Energy Flow, 2000
(Quadrillion Btu)



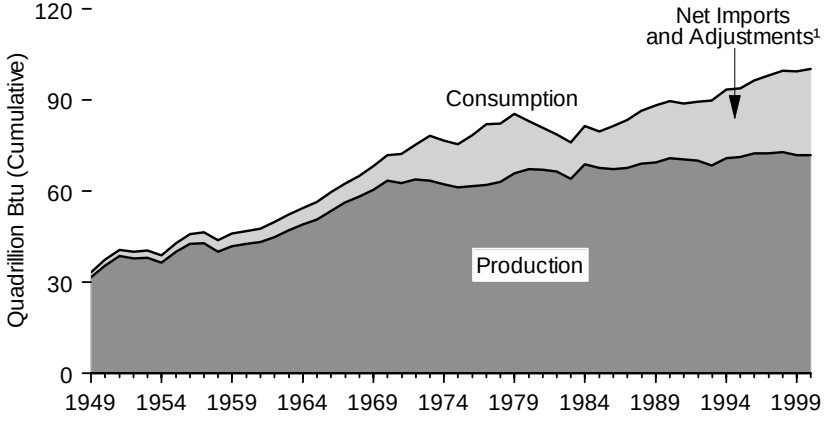
[a] Includes lease condensate.
[b] Natural gas plant liquids.
[c] Conventional hydroelectric power, wood, waste, ethanol blended into motor gasoline, geothermal, solar, and wind.
[d] Includes -0.06 quadrillion Btu hydroelectric pumped storage.
[e] Natural gas, coal, coal coke, and electricity.
[f] Stock changes, losses, gains, miscellaneous blending components, and unaccounted-for supply.
[g] Crude oil, petroleum products, natural gas, electricity, and coal coke.
[h] Includes supplemental gaseous fuels.
[i] Petroleum products, including natural gas plant liquids.
[j] Includes 0.07 quadrillion Btu coal coke net imports and 0.10 electricity net imports from fossil fuels.
[k] Includes, in quadrillion Btu, 0.10 electricity net imports from fossil fuels; -0.06 hydroelectric pumped storage; and -0.14 ethanol blended into motor gasoline, which is accounted for in both fossil fuels and renewables and removed once from this total to avoid double-counting.
[l] Commercial and industrial sector totals plus adjustments to avoid double-counting the amount of petroleum, natural gas, and coal that is included under both "End-Use Sectors" and "Electric Power Sector." See Tables 5.12d, 6.5, and 7.3.

Notes: • Data are preliminary. • Totals may not equal sum of components due to independent rounding.

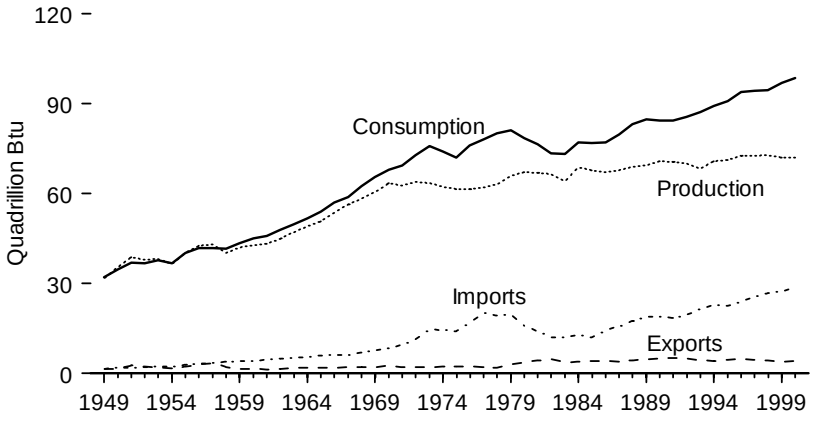
Sources: Tables 1.1, 1.2, 1.3, 1.4, and 2.1a-2.1f.

Figure 1.1 Energy Overview

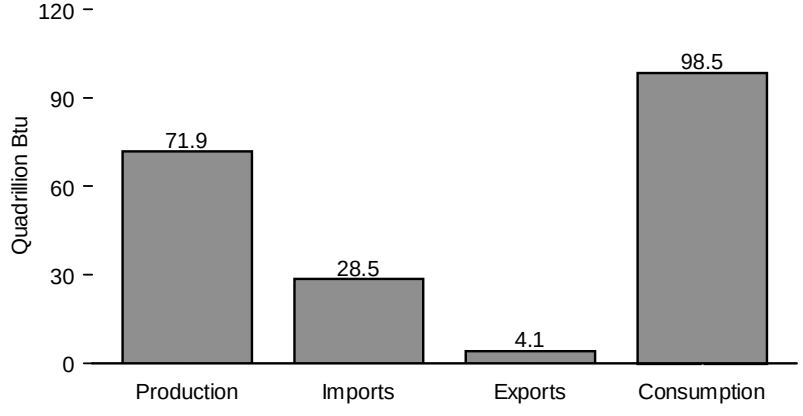
Overview, 1949-2000



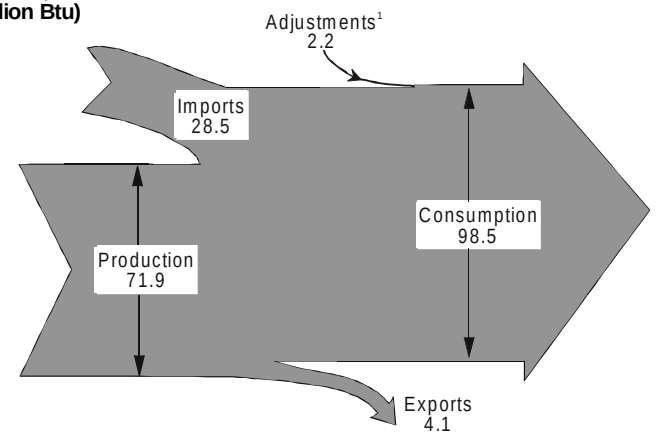
Overview, 1949-2000



Overview, 2000



Energy Flow, 2000 (Quadrillion Btu)



[1] Stock changes, losses, gains, miscellaneous blending components, and unaccounted-for supply.

Source: Table 1.1.

Table 1.1 Energy Overview, 1949-2000

(Quadrillion Btu)

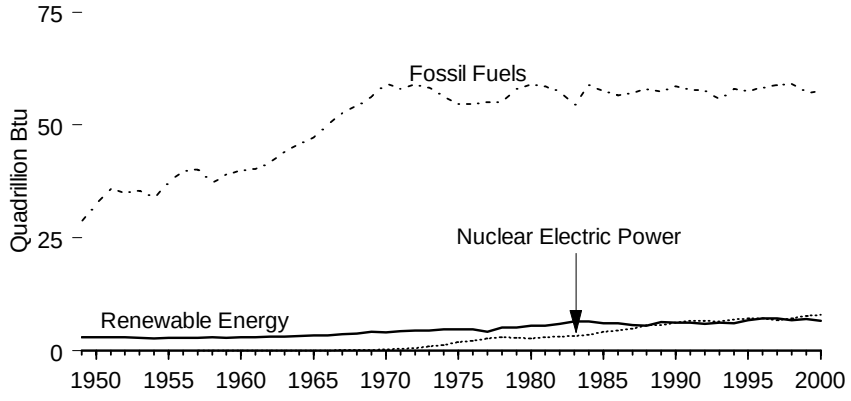
Year	Production				Imports		Exports		Adjustments [8]	Consumption			
	Fossil Fuels [1]	Nuclear Electric Power [2]	Renewable Energy [3]	Total [4]	Petroleum [5]	Total [6]	Coal	Total [7]		Fossil Fuels [9]	Nuclear Electric Power [2]	Renewable Energy [10]	Total [4,11]
1949	28.75	0	2.97	31.72	1.43	1.47	0.88	1.59	0.40	29.00	0	3.00	32.00
1950	32.56	0	2.98	35.54	1.89	1.93	0.79	1.47	-1.37	31.63	0	3.00	34.63
1951	35.79	0	2.96	38.75	1.87	1.92	1.68	2.62	-1.05	34.01	0	2.99	37.00
1952	34.98	0	2.94	37.92	2.11	2.17	1.40	2.37	-0.95	33.80	0	2.97	36.77
1953	35.35	0	2.83	38.18	2.28	2.34	0.98	1.87	-0.96	34.83	0	2.86	37.68
1954	33.76	0	2.75	36.52	2.32	2.37	0.91	1.70	-0.53	33.88	0	2.78	36.66
1955	37.36	0	2.78	40.15	2.75	2.83	1.46	2.29	-0.44	37.41	0	2.83	40.24
1956	39.77	0	2.85	42.62	3.17	3.25	1.98	2.95	-1.13	38.89	0	2.90	41.79
1957	40.13	(s)	2.85	42.98	3.46	3.57	2.17	3.45	-1.29	38.93	(s)	2.89	41.82
1958	37.22	(s)	2.92	40.13	3.72	3.92	1.42	2.06	-0.32	38.72	(s)	2.95	41.67
1959	39.05	(s)	2.90	41.95	3.91	4.11	1.05	1.54	-1.03	40.55	(s)	2.94	43.49
1960	39.87	0.01	2.93	42.80	4.00	4.23	1.02	1.48	-0.43	42.14	0.01	2.98	45.12
1961	40.31	0.02	2.95	43.28	4.19	4.46	0.98	1.38	-0.60	42.76	0.02	2.98	45.76
1962	41.73	0.03	3.12	44.88	4.56	5.01	1.08	1.48	-0.57	44.68	0.03	3.12	47.83
1963	44.04	0.04	3.10	47.17	4.65	5.10	1.36	1.85	-0.78	46.51	0.04	3.10	49.65
1964	45.79	0.04	3.23	49.06	4.96	5.49	1.34	1.84	-0.87	48.54	0.04	3.25	51.83
1965	47.23	0.04	3.40	50.68	5.40	5.92	1.38	1.85	-0.72	50.58	0.04	3.40	54.02
1966	50.04	0.06	3.43	53.53	5.63	6.18	1.35	1.85	-0.83	53.51	0.06	3.45	57.02
1967	52.60	0.09	3.69	56.38	5.56	6.19	1.35	2.15	-1.52	55.13	0.09	3.69	58.91
1968	54.31	0.14	3.78	58.23	6.21	6.93	1.38	2.03	-0.71	58.50	0.14	3.77	62.41
1969	56.29	0.15	4.10	60.54	6.90	7.71	1.53	2.15	-0.47	61.36	0.15	4.11	65.63
1970	59.19	0.24	R4.08	63.50	7.47	8.39	1.94	2.66	-1.37	63.52	0.24	R4.10	67.86
1971	58.04	0.41	4.27	62.72	8.54	9.58	1.55	2.18	-0.82	64.60	0.41	R4.31	69.31
1972	58.94	0.58	4.40	63.92	10.30	11.46	1.53	2.14	-0.48	67.70	0.58	4.48	72.76
1973	58.24	0.91	4.43	63.58	13.47	14.73	1.43	2.05	-0.46	70.32	0.91	4.58	75.81
1974	56.33	1.27	4.77	62.37	13.13	14.41	1.62	2.22	-0.48	67.91	1.27	4.90	74.08
1975	54.73	1.90	4.72	R61.36	12.95	14.11	1.76	2.36	-1.07	65.35	1.90	4.79	72.04
1976	54.72	2.11	4.77	61.60	15.67	16.84	1.60	2.19	-0.18	69.10	2.11	4.86	76.07
1977	55.10	2.70	4.25	62.05	18.76	20.09	1.44	2.07	-1.95	70.99	2.70	4.43	78.12
1978	55.07	3.02	5.04	63.14	17.82	19.25	1.08	1.93	-0.34	71.86	3.02	5.24	80.12
1979	58.01	2.78	R5.17	65.95	17.93	19.62	1.75	2.87	-1.65	72.89	2.78	R5.38	81.04
1980	59.01	2.74	5.49	67.24	14.66	15.97	2.42	3.72	-1.05	69.98	2.74	5.71	R78.44
1981	58.53	3.01	5.47	67.01	12.64	13.97	2.94	4.33	-0.08	67.75	3.01	5.82	76.57
1982	57.46	3.13	5.99	66.57	10.78	12.09	2.79	4.63	-0.59	64.04	3.13	6.29	73.44
1983	54.42	3.20	6.49	64.11	10.65	12.03	2.04	3.72	0.90	63.29	3.20	6.86	73.32
1984	58.85	3.55	6.43	68.83	11.43	12.77	2.15	3.80	-0.82	66.62	3.55	6.84	76.97
1985	57.54	4.15	6.03	67.72	10.61	12.10	2.44	4.23	1.19	66.22	4.15	6.46	76.78
1986	56.58	4.47	6.13	67.18	13.20	14.44	2.25	4.06	-0.50	66.15	4.47	6.51	R77.07
1987	57.17	4.91	5.69	67.76	14.16	15.76	2.09	3.85	-0.04	68.63	4.91	6.17	79.63
1988	57.87	5.66	5.49	R69.02	15.75	17.56	2.50	4.42	0.89	71.66	5.66	5.82	83.07
1989	57.47	5.68	6.32	R69.47	17.16	18.96	2.64	4.77	R1.06	R72.62	5.68	R6.49	R84.72
1990	58.56	6.16	R6.14	R70.83	17.12	18.95	2.77	4.87	R-0.58	R72.03	6.16	R6.25	R84.34
1991	57.83	6.58	R6.17	R70.53	16.35	18.50	2.85	5.16	R0.43	R71.52	6.58	R6.32	R84.30
1992	57.59	6.61	R5.91	R70.07	16.97	19.58	2.68	4.96	R0.82	R72.90	6.61	R6.13	85.51
1993	55.74	6.52	R6.16	R68.38	18.51	21.50	1.96	4.28	R1.71	R74.51	6.52	R6.41	R87.30
1994	57.95	6.84	R6.09	R70.85	19.24	22.73	1.88	4.08	R-0.29	R76.09	6.84	R6.43	R89.21
1995	57.46	7.18	R6.69	R71.30	R18.88	R22.57	2.32	4.54	R1.61	R76.92	7.18	R6.99	90.94
1996	58.30	7.17	R7.16	R72.60	R20.29	R24.01	2.37	4.66	R1.98	R79.41	7.17	R7.47	R93.93
1997	58.76	6.68	R7.15	R72.55	21.74	R25.51	2.19	R4.58	R0.86	R80.41	6.68	R7.39	R94.34
1998	R59.05	7.16	R6.75	R72.91	22.91	26.86	R2.09	R4.39	R-0.77	R80.64	7.16	6.98	R94.61
1999	R57.29	R7.74	R7.02	R71.98	R23.13	R27.55	1.53	R3.81	R1.15	R82.09	R7.74	R7.23	R96.87
2000P	57.39	8.01	6.56	71.90	23.78	28.52	1.53	4.10	2.18	83.86	8.01	6.82	98.50

[1] Coal, natural gas (dry), crude oil, and natural gas plant liquids.
[2] See Note 1 at end of section.
[3] End-use consumption, and electric utility and nonutility electricity net generation.
[4] Also includes hydroelectric pumped storage.
[5] Crude oil and petroleum products.
[6] Also includes natural gas, coal, coal coke, and electricity.
[7] Also includes natural gas, petroleum, coal coke, and electricity.
[8] A balancing item. Includes stock changes, losses, gains, miscellaneous blending components, and unaccounted-for supply.
[9] Coal, coal coke net imports, natural gas, petroleum, and electricity net imports derived from fossil fuels.
[10] End-use consumption, electric utility and nonutility electricity net generation, and electricity net imports derived from renewable energy.
[11] Alcohol (ethanol blended into motor gasoline) is included in consumption values for both "Fossil Fuels" and "Renewable Energy," but is counted only once in total energy consumption.

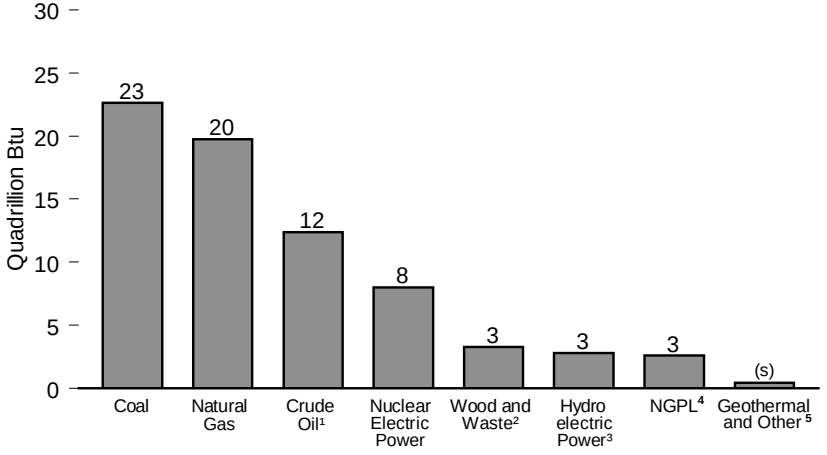
R=Revised. P=Preliminary. (s)=Less than 0.005 quadrillion Btu.
Note: Totals may not equal sum of components due to independent rounding.
Sources: Tables 1.2, 1.3, and 1.4.

Figure 1.2 Energy Production by Source

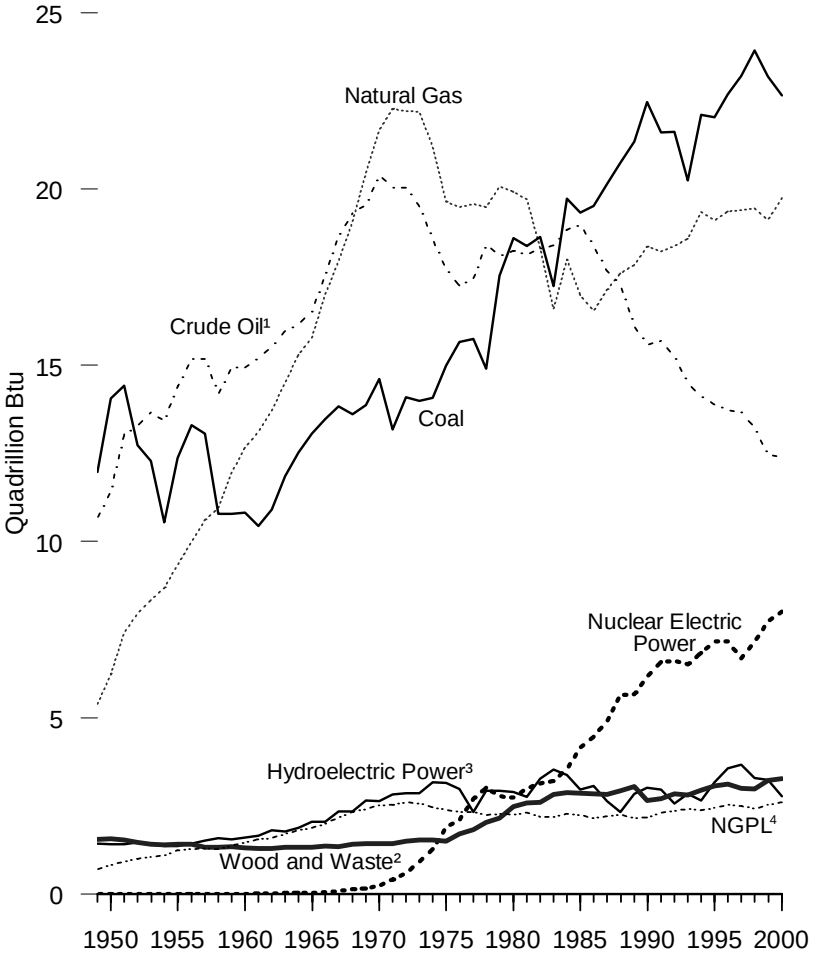
By Fossil Fuels, Nuclear Electric Power, and Renewable Energy, 1949-2000



By Source, 2000



By Major Source, 1949-2000



[1] Includes lease condensate.
[2] Includes ethanol blended into motor gasoline.
[3] Conventional and pumped-storage hydroelectric power.
[4] Natural gas plant liquids.
[5] Solar and wind.
(s)=Less than 0.5 quadrillion Btu.
Note: Because vertical scales differ, graphs should not be compared.
Source: Table 1.2.

Table 1.2 Energy Production by Source, 1949-2000

(Quadrillion Btu)

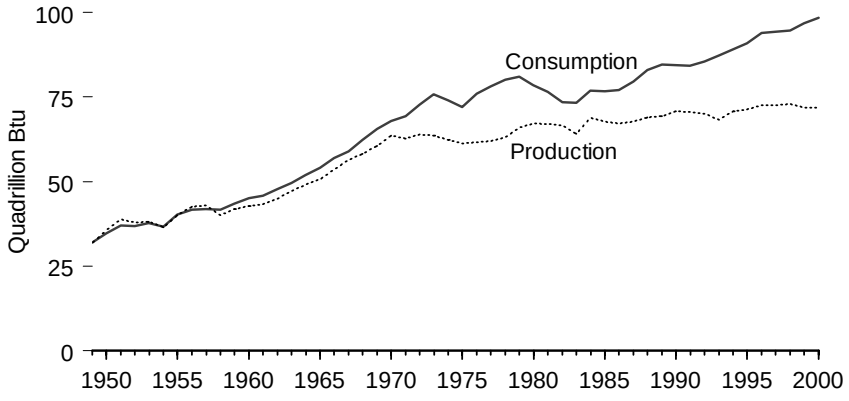
Year	Fossil Fuels					Nuclear Electric Power [3]	Hydroelectric Pumped Storage [4]	Renewable Energy [1]						Total
	Coal	Natural Gas (Dry)	Crude Oil [2]	Natural Gas Plant Liquids	Total			Conventional Hydroelectric Power	Wood, Waste, Alcohol [5]	Geothermal	Solar	Wind	Total	
1949	11.974	5.377	10.683	0.714	28.748	0	([6])	1.425	1.549	0	NA	NA	2.974	31.722
1950	14.060	6.233	11.447	0.823	32.563	0	([6])	1.415	1.562	0	NA	NA	2.978	35.540
1951	14.419	7.416	13.037	0.920	35.792	0	([6])	1.424	1.535	0	NA	NA	2.958	38.751
1952	12.734	7.964	13.281	0.998	34.977	0	([6])	1.466	1.474	0	NA	NA	2.940	37.917
1953	12.278	8.339	13.671	1.062	35.349	0	([6])	1.413	1.419	0	NA	NA	2.831	38.181
1954	10.542	8.682	13.427	1.113	33.764	0	([6])	1.360	1.394	0	NA	NA	2.754	36.518
1955	12.370	9.345	14.410	1.240	37.364	0	([6])	1.360	1.424	0	NA	NA	2.784	40.148
1956	13.306	10.002	15.180	1.283	39.771	0	([6])	1.435	1.416	0	NA	NA	2.851	42.622
1957	13.061	10.605	15.178	1.289	40.133	(s)	([6])	1.516	1.334	0	NA	NA	2.849	42.983
1958	10.783	10.942	14.204	1.287	37.216	0.002	([6])	1.592	1.323	0	NA	NA	2.915	40.133
1959	10.778	11.952	14.933	1.383	39.045	0.002	([6])	1.548	1.353	0	NA	NA	2.901	41.949
1960	10.817	12.656	14.935	1.461	39.869	0.006	([6])	1.608	1.320	0.001	NA	NA	2.929	42.804
1961	10.447	13.105	15.206	1.549	40.307	0.020	([6])	1.656	1.295	0.002	NA	NA	2.953	43.280
1962	10.901	13.717	15.522	1.593	41.732	0.026	([6])	1.816	1.300	0.002	NA	NA	3.119	44.877
1963	11.849	14.513	15.966	1.709	44.037	0.038	([6])	1.771	1.323	0.004	NA	NA	3.098	47.174
1964	12.524	15.298	16.164	1.803	45.789	0.040	([6])	1.886	1.337	0.005	NA	NA	3.228	49.056
1965	13.055	15.775	16.521	1.883	47.235	0.043	([6])	2.059	1.335	0.004	NA	NA	3.398	50.676
1966	13.468	17.011	17.561	1.996	50.035	0.064	([6])	2.062	1.369	0.004	NA	NA	3.435	53.534
1967	13.825	17.943	18.651	2.177	52.597	0.088	([6])	2.347	1.340	0.007	NA	NA	3.694	56.379
1968	13.609	19.068	19.308	2.321	54.306	0.142	([6])	2.349	1.419	0.009	NA	NA	3.778	58.225
1969	13.863	20.446	19.556	2.420	56.286	0.154	([6])	2.648	1.440	0.013	NA	NA	4.102	60.541
1970	14.607	21.666	20.401	2.512	59.186	0.239	([6])	2.634	R1.431	0.011	NA	NA	R4.076	R63.501
1971	13.186	22.280	20.033	2.544	58.042	0.413	([6])	2.824	R1.432	0.012	NA	NA	R4.268	R62.723
1972	14.092	22.208	20.041	2.598	58.938	0.584	([6])	2.864	R1.503	0.031	NA	NA	R4.398	R63.920
1973	13.992	22.187	19.493	2.569	58.241	0.910	([6])	2.861	R1.529	0.043	NA	NA	R4.433	R63.585
1974	14.074	21.210	18.575	2.471	56.331	1.272	([6])	3.177	R1.540	0.053	NA	NA	R4.769	R62.372
1975	14.989	19.640	17.729	2.374	54.733	1.900	([6])	3.155	R1.499	0.070	NA	NA	R4.723	R61.357
1976	15.654	19.480	17.262	2.327	54.723	2.111	([6])	2.976	R1.713	0.078	NA	NA	R4.768	R61.602
1977	15.755	19.565	17.454	2.327	55.101	2.702	([6])	2.333	R1.838	0.077	NA	NA	R4.249	R62.052
1978	14.910	19.485	18.434	2.245	55.074	3.024	([6])	2.937	R2.038	0.064	NA	NA	R5.039	R63.137
1979	17.540	20.076	18.104	2.286	58.006	2.776	([6])	2.931	R2.152	0.084	NA	NA	R5.166	R65.948
1980	18.598	19.908	18.249	2.254	59.008	2.739	([6])	2.900	R2.485	0.110	NA	NA	R5.494	R67.241
1981	18.377	19.699	18.146	2.307	58.529	3.008	([6])	2.758	2.590	0.123	NA	NA	5.471	67.007
1982	18.639	18.319	18.309	2.191	57.458	3.131	([6])	3.266	2.615	0.105	NA	NA	5.985	66.574
1983	17.247	16.593	18.392	2.184	54.416	3.203	([6])	3.527	2.831	0.129	NA	(s)	6.488	64.106
1984	19.719	18.008	18.848	2.274	58.849	3.553	([6])	3.386	2.880	0.165	(s)	(s)	6.431	68.832
1985	19.325	16.980	18.992	2.241	57.539	4.149	([6])	2.970	R2.864	0.198	(s)	(s)	R6.033	R67.720
1986	19.509	16.541	18.376	2.149	56.575	4.471	([6])	3.071	R2.841	0.219	(s)	(s)	R6.132	R67.178
1987	20.141	17.136	17.675	2.215	57.167	4.906	([6])	2.635	R2.823	0.229	(s)	(s)	R5.687	R67.760
1988	20.738	17.599	17.279	2.260	57.875	5.661	([6])	2.334	R2.937	0.217	(s)	(s)	R5.489	R69.025
1989	21.346	17.847	16.117	2.158	57.468	5.677	([6])	2.855	R3.060	R0.323	0.059	0.024	R6.322	R69.467
1990	22.456	18.362	15.571	2.175	58.564	6.162	-0.036	3.048	R2.660	R0.343	0.063	0.032	R6.145	R70.835
1991	21.594	18.229	15.701	2.306	57.829	6.580	-0.047	3.021	R2.700	R0.348	0.066	0.032	R6.167	R70.528
1992	21.629	18.375	15.223	2.363	57.590	6.608	-0.043	2.617	R2.845	R0.355	R0.067	0.030	R5.915	R70.069
1993	20.249	18.584	14.494	2.408	55.736	6.520	-0.042	2.892	R2.803	R0.369	0.071	0.031	R6.165	R68.378
1994	22.111	19.348	14.103	2.391	57.952	6.838	-0.035	2.684	R2.938	R0.364	0.072	0.036	R6.093	R70.848
1995	22.029	19.101	13.887	2.442	57.458	7.177	-0.028	3.207	R3.066	R0.314	0.073	0.033	R6.694	R71.301
1996	22.684	19.363	13.723	2.530	58.299	7.168	-0.032	3.593	R3.126	R0.332	0.075	0.035	R7.160	R72.595
1997	23.211	19.394	13.658	2.495	58.758	6.678	-0.042	3.718	R3.004	R0.322	0.074	R0.033	R7.151	R72.545
1998	R23.935	R19.456	13.235	2.420	R59.047	7.157	-0.046	3.345	R2.976	R0.327	0.074	0.031	R6.752	R72.910
1999	R23.186	R19.126	R12.451	R2.528	R57.291	R7.736	R-0.065	3.305	R3.221	R0.373	R0.073	R0.046	R7.018	R71.980
2000P	22.663	19.741	12.383	2.607	57.395	8.009	-0.058	2.841	3.275	0.319	0.070	0.051	6.556	71.902

[1] End-use consumption, and electric utility and nonutility electricity net generation.
[2] Includes lease condensate.
[3] See Note 1 at end of section.
[4] Pumped storage facility production minus energy used for pumping.
[5] Alcohol is ethanol blended into motor gasoline.
[6] Included in conventional hydroelectric power.

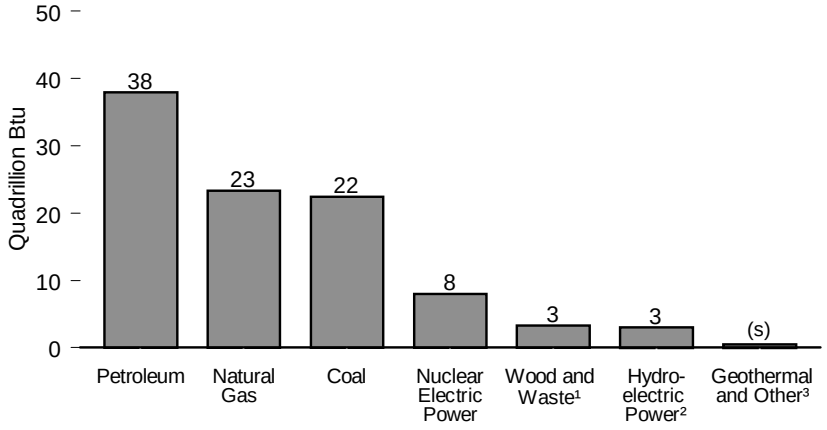
R=Revised. P=Preliminary. (s)=Less than 0.0005 quadrillion Btu. NA=Not available.
Note: Totals may not equal sum of components due to independent rounding.
Sources: Tables 5.1, 6.1, 7.1, 8.2, 10.2a, 10.2b, and A2-A6.

Figure 1.3 Energy Consumption by Source

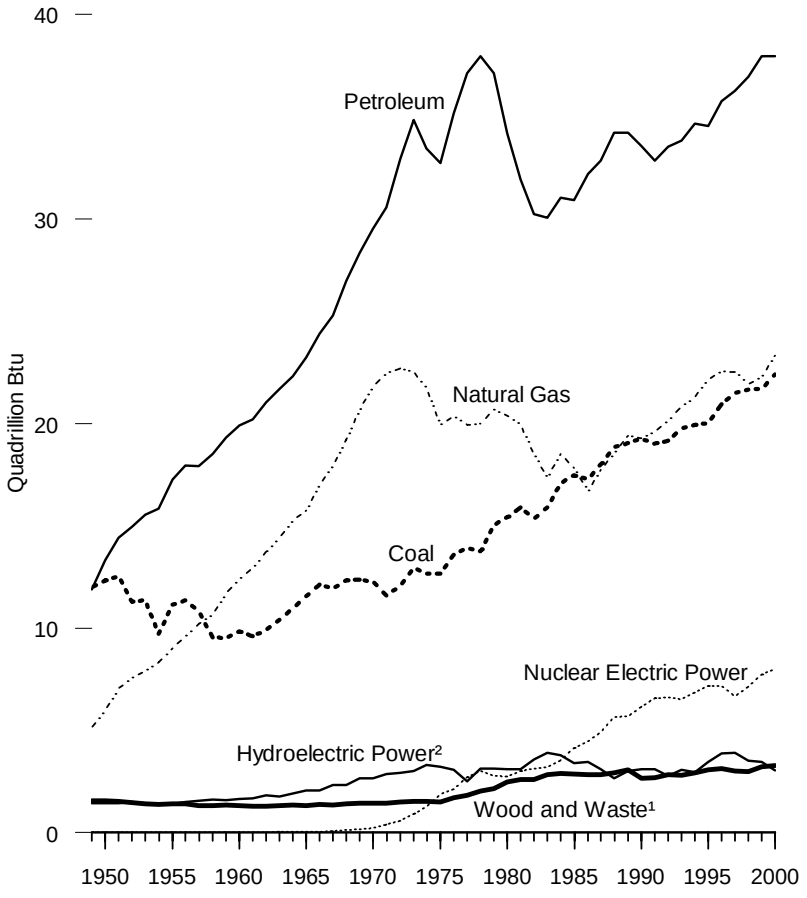
Production and Consumption, 1949-2000



By Source, 2000



By Major Source, 1949-2000



[1] Includes ethanol blended into motor gasoline.
[2] Conventional and pumped-storage hydroelectric power.
[3] Solar and wind.

(s)=Less than 0.5 quadrillion Btu.
Note: Because vertical scales differ, graphs should not be compared.
Sources: Tables 1.2 and 1.3.

Table 1.3 Energy Consumption by Source, 1949-2000

(Quadrillion Btu)

Year	Fossil Fuels						Nuclear Electric Power	Hydro-electric Pumped Storage [5]	Renewable Energy [1]						Total [7]
	Coal	Coal Coke Net Imports	Natural Gas [2]	Petroleum [3]	Electricity Net Imports [4]	Total			Conventional Hydroelectric Power [6]	Wood, Waste, Alcohol [7]	Geothermal [8]	Solar	Wind	Total	
1949	11.981	-0.007	5.145	11.883	([9])	29.002	0	([9])	1.449	1.549	NA	NA	NA	2.998	32.000
1950	12.347	0.001	5.968	13.315	([9])	31.632	0	([9])	1.440	1.562	NA	NA	NA	3.003	34.635
1951	12.553	-0.021	7.049	14.428	([9])	34.008	0	([9])	1.454	1.535	NA	NA	NA	2.988	36.996
1952	11.306	-0.012	7.550	14.956	([9])	33.800	0	([9])	1.496	1.474	NA	NA	NA	2.970	36.770
1953	11.373	-0.009	7.907	15.556	([9])	34.826	0	([9])	1.439	1.419	NA	NA	NA	2.857	37.684
1954	9.715	-0.007	8.330	15.839	([9])	33.877	0	([9])	1.388	1.394	NA	NA	NA	2.783	36.660
1955	11.167	-0.010	8.998	17.255	([9])	37.410	0	([9])	1.407	1.424	NA	NA	NA	2.832	40.242
1956	11.350	-0.013	9.614	17.937	([9])	38.888	0	([9])	1.487	1.416	NA	NA	NA	2.903	41.791
1957	10.821	-0.017	10.191	17.932	([9])	38.926	(s)	([9])	1.557	1.334	NA	NA	NA	2.890	41.816
1958	9.533	-0.007	10.663	18.527	([9])	38.717	0.002	([9])	1.629	1.323	NA	NA	NA	2.952	41.670
1959	9.518	-0.008	11.717	19.323	([9])	40.550	0.002	([9])	1.587	1.353	NA	NA	NA	2.940	43.493
1960	9.838	-0.006	12.385	19.919	([9])	42.137	0.006	([9])	1.657	1.320	0.001	NA	NA	2.977	45.120
1961	9.623	-0.008	12.926	20.216	([9])	42.758	0.020	([9])	1.680	1.295	0.002	NA	NA	2.977	45.755
1962	9.906	-0.006	13.731	21.049	([9])	44.681	0.026	([9])	1.822	1.300	0.002	NA	NA	3.124	47.832
1963	10.413	-0.007	14.403	21.701	([9])	46.509	0.038	([9])	1.772	1.323	0.004	NA	NA	3.099	49.647
1964	10.964	-0.010	15.288	22.301	([9])	48.543	0.040	([9])	1.907	1.337	0.005	NA	NA	3.248	51.831
1965	11.581	-0.018	15.769	23.246	([9])	50.577	0.043	([9])	2.058	1.335	0.004	NA	NA	3.397	54.016
1966	12.143	-0.025	16.995	24.401	([9])	53.514	0.064	([9])	2.073	1.369	0.004	NA	NA	3.446	57.024
1967	11.914	-0.015	17.945	25.284	([9])	55.127	0.088	([9])	2.344	1.340	0.007	NA	NA	3.691	58.906
1968	12.331	-0.017	19.210	26.979	([9])	58.502	0.142	([9])	2.342	1.419	0.009	NA	NA	3.771	62.415
1969	12.382	-0.036	20.678	28.338	([9])	61.362	0.154	([9])	2.659	1.440	0.013	NA	NA	4.113	65.628
1970	12.265	-0.058	21.795	29.521	([9])	63.522	0.239	([9])	2.654	R1.431	0.011	NA	NA	R4.096	R67.858
1971	11.598	-0.033	22.469	30.561	([9])	64.596	0.413	([9])	2.861	R1.432	0.012	NA	NA	R4.305	R69.314
1972	12.077	-0.026	22.698	32.947	([9])	67.696	0.584	([9])	2.944	R1.503	0.031	NA	NA	R4.478	R72.758
1973	12.971	-0.007	22.512	34.840	([9])	70.316	0.910	([9])	3.010	R1.529	0.043	NA	NA	R4.581	R75.808
1974	12.663	0.056	21.732	33.455	([9])	67.906	1.272	([9])	3.309	R1.540	0.053	NA	NA	R4.902	R74.080
1975	12.663	0.014	19.948	32.731	([9])	65.355	1.900	([9])	3.219	R1.499	0.070	NA	NA	R4.788	R72.042
1976	13.584	(s)	20.345	35.175	([9])	69.104	2.111	([9])	3.066	R1.713	0.078	NA	NA	R4.857	R76.072
1977	13.922	0.015	19.931	37.122	([9])	70.989	2.702	([9])	2.515	R1.838	0.077	NA	NA	R4.431	R78.122
1978	13.766	0.125	20.000	37.965	([9])	71.856	3.024	([9])	3.141	R2.038	0.064	NA	NA	R5.243	R80.123
1979	15.040	0.063	20.666	37.123	([9])	72.892	2.776	([9])	3.141	R2.152	0.084	NA	NA	R5.377	R81.044
1980	15.423	-0.035	20.394	34.202	([9])	69.984	2.739	([9])	3.118	R2.485	0.110	NA	NA	R5.712	R78.435
1981	15.908	-0.016	19.928	31.931	([9])	67.750	3.008	([9])	3.105	2.590	0.123	NA	NA	5.818	76.569
1982	15.322	-0.022	18.505	30.232	([9])	64.037	3.131	([9])	3.572	2.615	0.105	NA	NA	6.292	73.441
1983	15.894	-0.016	17.357	30.054	([9])	63.290	3.203	([9])	3.899	2.831	0.129	NA	(s)	6.860	73.317
1984	17.071	-0.011	18.507	31.051	([9])	66.617	3.553	([9])	3.800	2.880	0.165	(s)	(s)	6.845	76.972
1985	17.478	-0.013	17.834	30.922	([9])	66.221	4.149	([9])	3.398	R2.864	0.198	(s)	(s)	R6.460	R76.778
1986	17.260	-0.017	16.708	32.196	([9])	66.148	4.471	([9])	3.446	R2.841	0.219	(s)	(s)	R6.507	77.065
1987	18.008	0.009	17.744	32.865	([9])	68.626	4.906	([9])	3.117	R2.823	0.229	(s)	(s)	R6.170	79.633
1988	18.846	0.040	18.552	34.222	([9])	71.660	5.661	([9])	2.662	R2.937	0.217	(s)	(s)	R5.817	R83.068
1989	R19.043	0.030	19.384	34.211	R-0.050	R72.618	5.677	([9])	R3.014	R3.060	R0.334	0.059	0.024	R6.492	R84.716
1990	R19.253	0.005	19.296	33.553	R-0.080	R72.027	6.162	-0.036	R3.146	R2.660	R0.355	0.063	0.032	R6.254	R84.344
1991	R18.998	0.010	19.606	32.845	R0.059	R71.519	6.580	-0.047	R3.159	R2.700	R0.363	0.066	0.032	R6.320	R84.298
1992	R19.152	0.035	20.131	33.527	R0.053	R72.897	6.608	-0.043	R2.818	R2.845	R0.374	R0.067	0.030	R6.134	R85.513
1993	R19.763	0.027	20.827	33.841	R0.050	R74.508	6.520	-0.042	R3.119	R2.803	R0.387	0.071	0.031	R6.410	R87.300
1994	R19.933	0.058	21.288	34.670	R0.140	R76.089	6.838	-0.035	R2.993	R2.938	R0.391	0.072	0.036	R6.429	R89.213
1995	R20.025	0.061	22.163	34.553	R0.121	R76.924	7.177	-0.028	R3.481	R3.066	R0.333	0.073	0.033	R6.986	R90.943
1996	R20.957	0.023	22.559	35.757	R0.109	R79.406	7.168	-0.032	R3.892	R3.126	R0.346	0.075	0.035	R7.473	R93.931
1997	R21.464	0.046	22.530	36.266	R0.109	R80.415	6.678	-0.042	R3.961	R3.004	R0.322	0.074	R0.033	R7.395	R94.340
1998	R21.667	0.067	21.921	36.934	R0.048	R80.637	7.157	-0.046	R3.569	R2.976	R0.328	0.074	0.031	R6.977	R94.608
1999	R21.693	0.058	R22.289	R37.960	R0.092	R82.090	R7.736	R-0.065	R3.512	R3.221	R0.373	R0.073	R0.046	R7.226	R96.866
2000P	22.407	0.065	23.325	37.964	0.102	83.863	8.009	-0.058	3.107	3.275	0.319	0.070	0.051	6.823	98.498

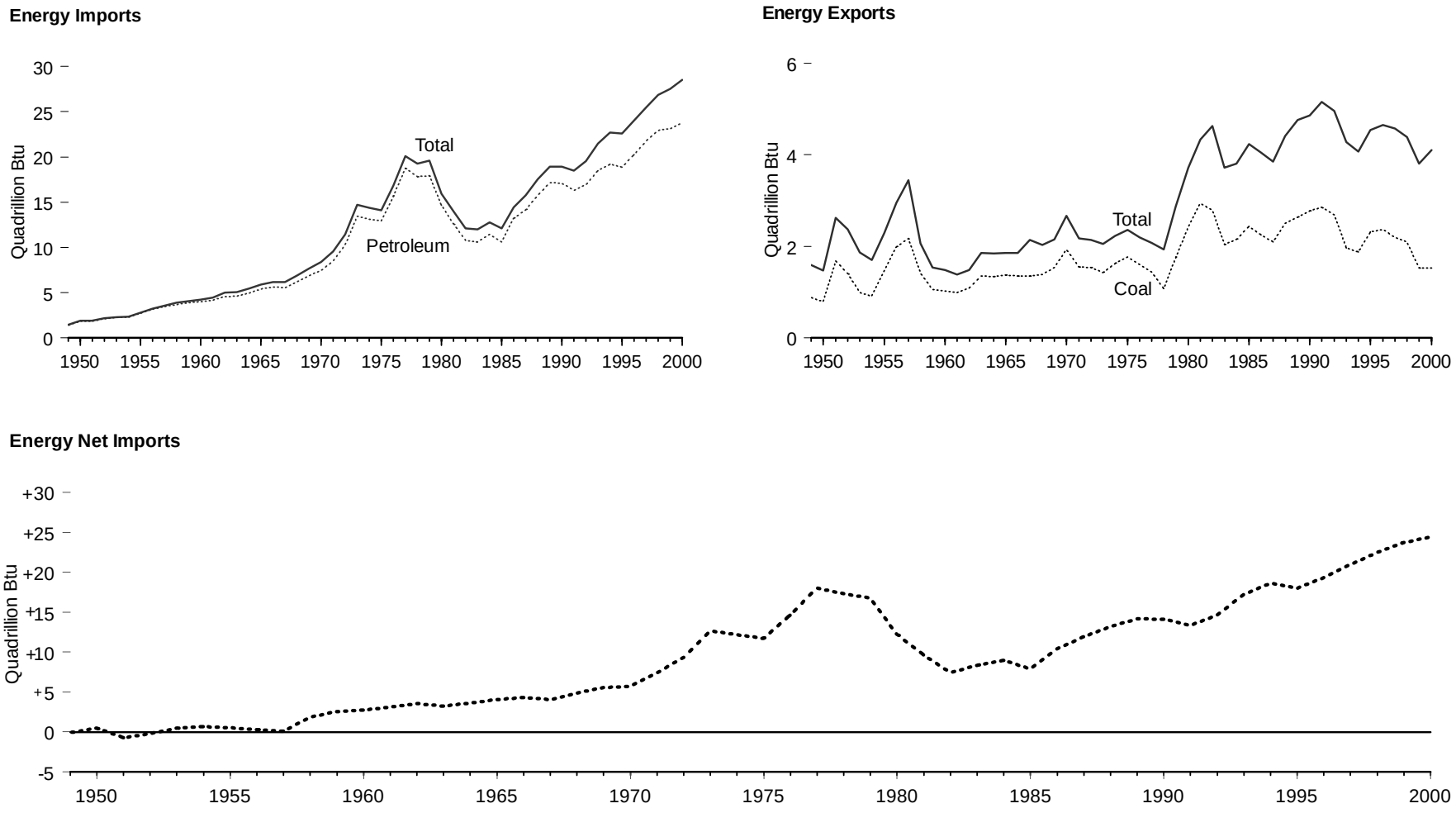
[1] End-use consumption, electric utility and nonutility electricity net generation, and net imports of electricity from renewable energy.
[2] Includes supplemental gaseous fuels.
[3] Petroleum products supplied, including natural gas plant liquids and crude oil burned as fuel.
[4] Electricity net imports from fossil fuels. May include some nuclear-generated electricity.
[5] Pumped storage facility production minus energy used for pumping.
[6] Through 1988, includes all electricity net imports. From 1989, includes only electricity net imports derived from hydroelectric power.
[7] Alcohol (ethanol blended into motor gasoline) is included in both "Petroleum" and "Alcohol," but is counted only once in total energy consumption.
[8] From 1989, includes electricity imports from Mexico that are derived from geothermal energy.
[9] Included in conventional hydroelectric power.

R=Revised. P=Preliminary. (s)=Less than 0.0005 and greater than -0.0005 quadrillion Btu. NA=Not available.

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

Sources: Tables 5.1, 6.1, 7.1, 7.7, 8.1, 8.2, 10.2a, 10.2b, and A2-A6.

Figure 1.4 Energy Imports, Exports, and Net Imports, 1949-2000



Notes: • Negative net imports are net exports. • Because vertical scales differ, graphs should not be compared.

Source: Table 1.4.

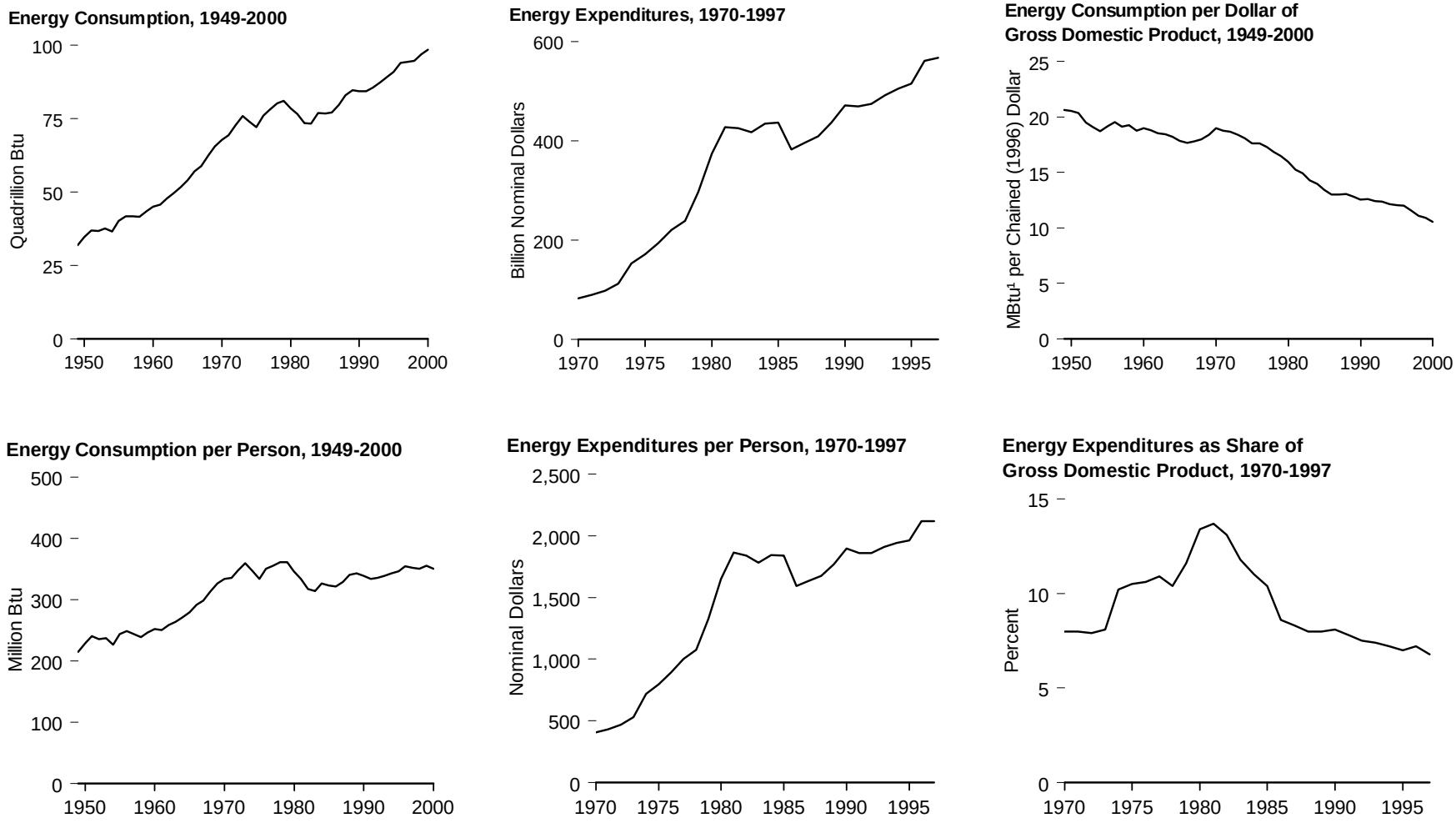
Table 1.4 Energy Imports, Exports, and Net Imports, 1949-2000

(Quadrillion Btu)

Year	Imports					Exports					Net Imports				
	Coal	Natural Gas	Petroleum [1]	Other [2]	Total	Coal	Natural Gas	Petroleum	Other [2]	Total	Coal	Natural Gas	Petroleum [1]	Other [2]	Total
1949	0.01	0.00	1.43	0.03	1.47	0.88	0.02	0.68	0.02	1.59	-0.87	-0.02	0.75	0.02	-0.13
1950	0.01	0.00	1.89	0.04	1.93	0.79	0.03	0.64	0.01	1.47	-0.78	-0.03	1.24	0.03	0.47
1951	0.01	0.00	1.87	0.04	1.92	1.68	0.03	0.89	0.03	2.62	-1.67	-0.03	0.98	0.01	-0.71
1952	0.01	0.01	2.11	0.04	2.17	1.40	0.03	0.91	0.02	2.37	-1.40	-0.02	1.20	0.02	-0.20
1953	0.01	0.01	2.28	0.04	2.34	0.98	0.03	0.84	0.02	1.87	-0.97	-0.02	1.44	0.02	0.47
1954	0.01	0.01	2.32	0.04	2.37	0.91	0.03	0.75	0.01	1.70	-0.91	-0.02	1.58	0.02	0.67
1955	0.01	0.01	2.75	0.06	2.83	1.46	0.03	0.77	0.02	2.29	-1.46	-0.02	1.98	0.04	0.54
1956	0.01	0.01	3.17	0.06	3.25	1.98	0.04	0.91	0.02	2.95	-1.98	-0.03	2.26	0.04	0.30
1957	0.01	0.04	3.46	0.06	3.57	2.17	0.04	1.20	0.03	3.45	-2.16	(s)	2.26	0.02	0.12
1958	0.01	0.14	3.72	0.05	3.92	1.42	0.04	0.58	0.02	2.06	-1.41	0.10	3.14	0.03	1.86
1959	0.01	0.14	3.91	0.05	4.11	1.05	0.02	0.45	0.02	1.54	-1.04	0.12	3.46	0.03	2.57
1960	0.01	0.16	4.00	0.06	4.23	1.02	0.01	0.43	0.02	1.48	-1.02	0.15	3.57	0.04	2.74
1961	(s)	0.23	4.19	0.04	4.46	0.98	0.01	0.37	0.02	1.38	-0.98	0.22	3.82	0.02	3.08
1962	0.01	0.42	4.56	0.03	5.01	1.08	0.02	0.36	0.03	1.48	-1.08	0.40	4.20	(s)	3.53
1963	0.01	0.42	4.65	0.03	5.10	1.36	0.02	0.44	0.03	1.85	-1.35	0.40	4.21	-0.01	3.25
1964	0.01	0.46	4.96	0.07	5.49	1.34	0.02	0.43	0.06	1.84	-1.33	0.44	4.53	0.01	3.65
1965	(s)	0.47	5.40	0.04	5.92	1.38	0.03	0.39	0.06	1.85	-1.37	0.44	5.01	-0.02	4.06
1966	(s)	0.50	5.63	0.05	6.18	1.35	0.03	0.41	0.06	1.85	-1.35	0.47	5.21	-0.01	4.32
1967	0.01	0.58	5.56	0.04	6.19	1.35	0.08	0.65	0.06	2.15	-1.35	0.50	4.91	-0.02	4.04
1968	0.01	0.67	6.21	0.04	6.93	1.38	0.10	0.49	0.06	2.03	-1.37	0.58	5.73	-0.02	4.90
1969	(s)	0.75	6.90	0.06	7.71	1.53	0.05	0.49	0.08	2.15	-1.53	0.70	6.42	-0.02	5.56
1970	(s)	0.85	7.47	0.07	8.39	1.94	0.07	0.55	0.11	2.66	-1.93	0.77	6.92	-0.04	5.72
1971	(s)	0.96	8.54	0.08	9.58	1.55	0.08	0.47	0.07	2.18	-1.54	0.88	8.07	(s)	7.41
1972	(s)	1.05	10.30	0.11	11.46	1.53	0.08	0.47	0.06	2.14	-1.53	0.97	9.83	0.05	9.32
1973	(s)	1.06	13.47	0.20	14.73	1.43	0.08	0.49	0.06	2.05	-1.42	0.98	12.98	0.14	12.68
1974	0.05	0.99	13.13	0.25	14.41	1.62	0.08	0.46	0.06	2.22	-1.57	0.91	12.66	0.19	12.19
1975	0.02	0.98	12.95	0.16	14.11	1.76	0.07	0.44	0.08	2.36	-1.74	0.90	12.51	0.08	11.75
1976	0.03	0.99	15.67	0.15	16.84	1.60	0.07	0.47	0.06	2.19	-1.57	0.92	15.20	0.09	14.65
1977	0.04	1.04	18.76	0.26	20.09	1.44	0.06	0.51	0.06	2.07	-1.40	0.98	18.24	0.20	18.02
1978	0.07	0.99	17.82	0.36	19.25	1.08	0.05	0.77	0.03	1.93	-1.00	0.94	17.06	0.33	17.32
1979	0.05	1.30	17.93	0.33	19.62	1.75	0.06	1.00	0.06	2.87	-1.70	1.24	16.93	0.27	16.75
1980	0.03	1.01	14.66	0.28	15.97	2.42	0.05	1.16	0.09	3.72	-2.39	0.96	13.50	0.18	12.25
1981	0.03	0.92	12.64	0.39	13.97	2.94	0.06	1.26	0.06	4.33	-2.92	0.86	11.38	0.33	9.65
1982	0.02	0.95	10.78	0.35	12.09	2.79	0.05	1.73	0.06	4.63	-2.77	0.90	9.05	0.28	7.46
1983	0.03	0.94	10.65	0.41	12.03	2.04	0.06	1.57	0.05	3.72	-2.01	0.89	9.08	0.36	8.31
1984	0.03	0.85	11.43	0.46	12.77	2.15	0.06	1.54	0.05	3.80	-2.12	0.79	9.89	0.40	8.96
1985	0.05	0.95	10.61	0.49	12.10	2.44	0.06	1.66	0.08	4.23	-2.39	0.90	8.95	0.41	7.87
1986	0.06	0.75	13.20	0.43	14.44	2.25	0.06	1.67	0.08	4.06	-2.19	0.69	11.53	0.36	10.38
1987	0.04	0.99	14.16	0.57	15.76	2.09	0.05	1.63	0.08	3.85	-2.05	0.94	12.53	0.49	11.91
1988	0.05	1.30	15.75	0.47	17.56	2.50	0.07	1.74	0.10	4.42	-2.45	1.22	14.01	0.37	13.15
1989	0.07	1.39	17.16	0.34	18.96	2.64	0.11	1.84	0.18	4.77	-2.57	1.28	15.33	0.15	14.19
1990	0.07	1.55	17.12	0.22	18.95	2.77	0.09	1.82	0.18	4.87	-2.70	1.46	15.29	0.03	14.09
1991	0.08	1.80	16.35	0.27	18.50	2.85	0.13	2.13	0.04	5.16	-2.77	1.67	14.22	0.22	13.34
1992	0.10	2.16	16.97	0.35	19.58	2.68	0.22	2.01	0.05	4.96	-2.59	1.94	14.96	0.31	14.62
1993	0.20	2.40	18.51	0.39	21.50	1.96	0.14	2.12	0.06	4.28	-1.76	2.25	16.40	0.32	17.22
1994	0.22	2.68	19.24	0.58	22.73	1.88	0.16	1.99	0.05	4.08	-1.66	2.52	17.26	0.53	18.65
1995	0.24	2.90	R18.88	0.55	R22.57	2.32	0.16	1.99	0.07	4.54	-2.08	2.74	R16.89	0.47	R18.03
1996	0.20	3.00	R20.29	0.52	R24.01	2.37	0.16	2.06	0.07	4.66	-2.17	2.85	R18.23	0.45	R19.35
1997	0.19	3.06	21.74	0.52	R25.51	2.19	0.16	2.10	0.12	R4.58	-2.01	2.90	19.64	0.40	20.94
1998	0.22	3.22	22.91	0.50	26.86	R2.09	0.16	1.97	0.16	R4.39	R-1.87	3.06	20.94	0.34	R22.47
1999	0.23	R3.66	R23.13	0.52	R27.55	1.53	0.16	R1.95	0.17	R3.81	R-1.30	R3.50	R21.18	0.36	R23.74
2000P	0.31	3.81	23.78	0.61	28.52	1.53	0.24	2.15	0.18	4.10	-1.21	3.57	21.63	0.43	24.42

[1] Includes imports into the Strategic Petroleum Reserve, which began in 1977.
[2] Coal coke and small amounts of electricity transmitted across U.S. borders with Canada and Mexico.
R=Revised. P=Preliminary. (s)=Less than 0.005 quadrillion Btu and greater than -0.005 quadrillion Btu.
Notes: • Includes trade between the United States (50 States and the District of Columbia) and its territories and possessions. • Totals or net import items may not equal sum of components due to independent rounding.
Sources: Tables 5.1, 6.1, 7.1, 7.7, 8.1, 10.2b, and A2-A6.

Figure 1.5 Energy Consumption and Expenditures Indicators



[1] Thousand Btu.

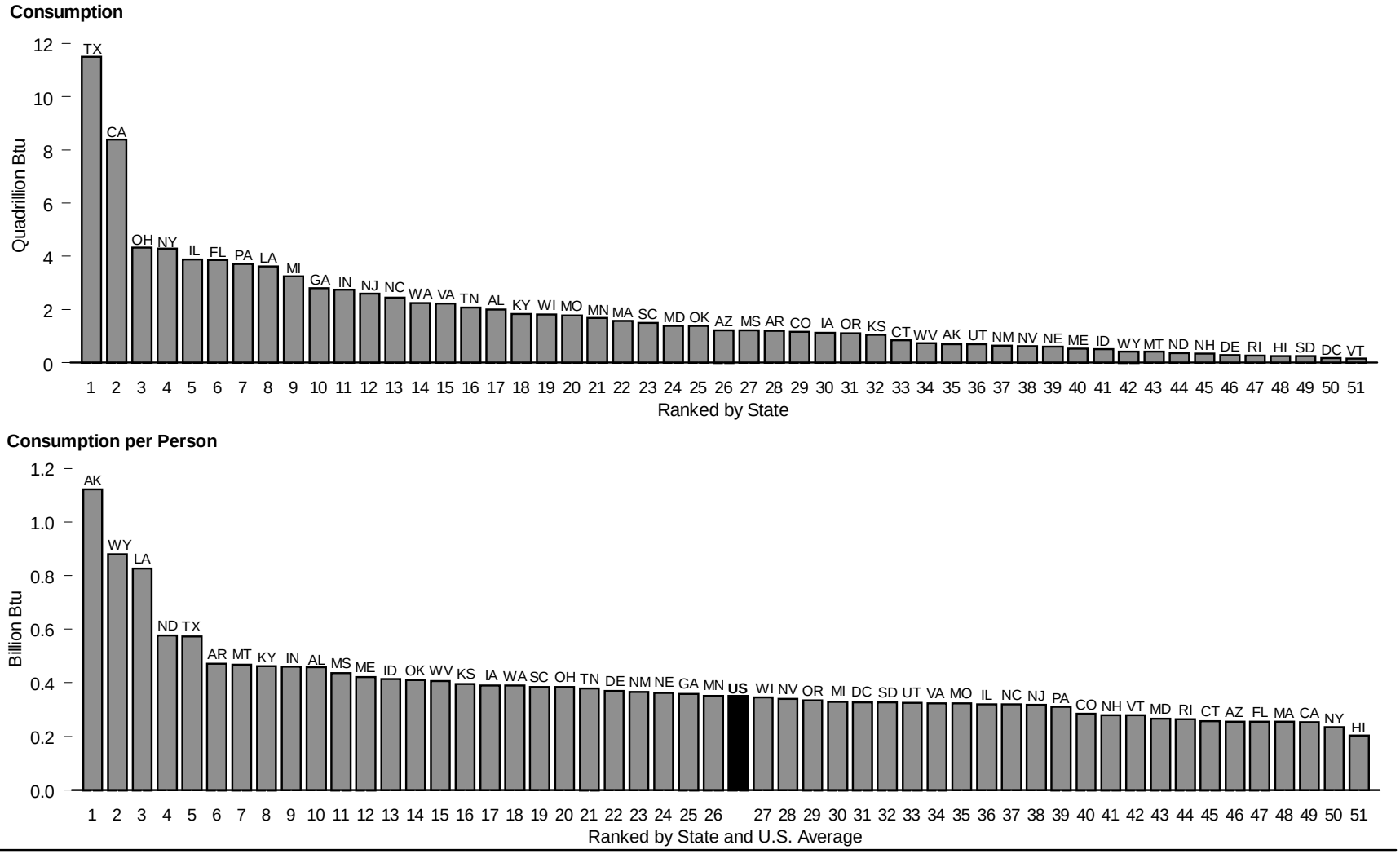
Source: Table 1.5.

Table 1.5 Energy Consumption and Expenditures Indicators, 1949-2000

Year	Energy Consumption Quadrillion Btu	Energy Consumption per Person Million Btu	Energy Expenditures Million Nominal Dollars	Energy Expenditures per Person Nominal Dollars	Gross Domestic Product (GDP) Billion Nominal Dollars	Energy Expenditures as Share of GDP Percent	Gross Domestic Product (GDP) Billion Chained (1996) Dollars	Energy Consumption per Dollar of GDP Thousand Btu per Chained (1996) Dollar
1949	32.00	215	NA	NA	267.7	NA	1,550.9	20.63
1950	34.63	229	NA	NA	294.3	NA	1,686.6	20.54
1951	37.00	240	NA	NA	339.5	NA	1,815.1	20.38
1952	36.77	235	NA	NA	358.6	NA	1,887.3	19.48
1953	37.68	237	NA	NA	379.9	NA	1,973.9	19.09
1954	36.66	226	NA	NA	381.1	NA	1,960.5	18.70
1955	40.24	244	NA	NA	415.2	NA	2,099.5	19.17
1956	41.79	249	NA	NA	438.0	NA	2,141.1	19.52
1957	41.82	244	NA	NA	461.5	NA	2,183.9	19.15
1958	41.67	239	NA	NA	467.9	NA	2,162.8	19.27
1959	43.49	246	NA	NA	507.4	NA	2,319.0	18.75
1960	45.12	252	NA	NA	527.4	NA	2,376.7	18.98
1961	45.76	250	NA	NA	545.7	NA	2,432.0	18.81
1962	47.83	258	NA	NA	586.5	NA	2,578.9	18.55
1963	49.65	263	NA	NA	618.7	NA	2,690.4	18.45
1964	51.83	271	NA	NA	664.4	NA	2,846.5	18.21
1965	54.02	279	NA	NA	720.1	NA	3,028.5	17.84
1966	57.02	292	NA	NA	789.3	NA	3,227.5	17.67
1967	58.91	298	NA	NA	834.1	NA	3,308.3	17.81
1968	62.41	313	NA	NA	911.5	NA	3,466.1	18.01
1969	65.63	326	NA	NA	985.3	NA	3,571.4	18.38
1970	67.86	334	82,862	408	1,039.7	8.0	3,578.0	[R]18.97
1971	69.31	335	90,032	435	1,128.6	8.0	3,697.7	[R]18.75
1972	72.76	348	98,084	469	1,240.4	7.9	3,898.4	18.66
1973	75.81	359	111,918	530	1,385.5	8.1	4,123.4	18.38
1974	74.08	347	153,377	719	1,501.0	10.2	4,099.0	18.07
1975	72.04	334	171,828	797	1,635.2	10.5	4,084.4	17.64
1976	76.07	350	193,880	891	1,823.9	10.6	4,311.7	17.64
1977	78.12	355	220,423	1,003	2,031.4	10.9	4,511.8	[R]17.32
1978	80.12	361	239,219	1,077	2,295.9	10.4	4,760.6	16.83
1979	81.04	361	297,563	1,325	2,566.4	11.6	4,912.1	16.50
1980	[R]78.44	346	374,359	1,652	2,795.6	13.4	4,900.9	16.00
1981	76.57	334	427,769	1,864	3,131.3	13.7	5,021.0	15.25
1982	73.44	317	426,187	1,840	3,259.2	13.1	4,919.3	14.93
1983	73.32	314	417,124	1,784	3,534.9	11.8	5,132.3	14.29
1984	76.97	326	434,460	1,842	3,932.7	11.0	5,505.2	13.98
1985	76.78	323	437,292	1,838	4,213.0	10.4	5,717.1	13.43
1986	[R]77.07	321	382,766	1,594	4,452.9	8.6	5,912.4	13.03
1987	79.63	329	395,689	1,633	4,742.5	8.3	6,113.3	13.03
1988	83.07	340	409,468	1,675	5,108.3	8.0	6,368.4	13.04
1989	[R]84.72	343	436,463	1,768	5,489.1	8.0	6,591.8	[R]12.85
1990	[R]84.34	[R]339	471,786	1,897	5,803.2	8.1	6,707.9	[R]12.57
1991	[R]84.30	[R]334	469,507	1,862	5,986.2	7.8	6,676.4	[R]12.63
1992	85.51	335	474,515	1,861	6,318.9	7.5	6,880.0	12.43
1993	[R]87.30	339	491,904	1,908	6,642.3	7.4	7,062.6	12.36
1994	[R]89.21	343	505,518	1,942	7,054.3	7.2	7,347.7	12.14
1995	90.94	346	515,321	1,961	7,400.5	7.0	7,543.8	[R]12.06
1996	[R]93.93	354	561,473	2,117	7,813.2	7.2	7,813.2	12.02
1997	[R]94.34	352	567,318	2,119	8,318.4	6.8	[R]8,159.5	[R]11.56
1998	[R]94.61	350	NA	NA	8,790.2	NA	[R]8,515.7	[R]11.11
1999	[R]96.87	[R]355	NA	NA	9,299.2	NA	[R]8,875.8	[R]10.91
2000[P]	98.50	350	NA	NA	9,963.1	NA	9,318.5	10.57

R=Revised. P=Preliminary. NA=Not available.
Note: See "Chained Dollars" in the Glossary.
Sources: **Energy Consumption:** Table 1.3. **Energy Expenditures:** Energy Information Administration (EIA), *State Energy Price and Expenditure Report 1997* (July 2000), Table 1. **Gross Domestic Product:** Table E1. **Population Data:** Table E1. **Other Columns:** Calculated by EIA.

Figure 1.6 State-Level Energy Consumption and Consumption per Person, 1999



Source: Table 1.6.

Table 1.6 State-Level Energy Consumption, Expenditures, and Prices

Rank	Consumption, 1999		Consumption per Person, 1999		Expenditures, 1997		Expenditures per Person, 1997		Prices, 1997	
	State	Trillion Btu	State	Million Btu	State	Million Dollars	State	Dollars	State	Dollars per Million Btu
1	Texas	11,501.0	Alaska	1,121.5	California	55,187	Wyoming	3,902	Hawaii	13.34
2	California	8,375.4	Wyoming	879.4	Texas	55,070	Alaska	3,575	District of Columbia	12.84
3	Ohio	4,323.4	Louisiana	826.9	New York	34,089	Louisiana	3,473	Connecticut	12.56
4	New York	4,283.0	North Dakota	577.1	Pennsylvania	25,810	Texas	2,841	Arizona	11.75
5	Illinois	3,882.6	Texas	573.8	Ohio	25,556	North Dakota	2,651	New Hampshire	11.58
6	Florida	3,852.9	Arkansas	471.8	Florida	25,117	Maine	2,543	Vermont	11.36
7	Pennsylvania	3,715.5	Montana	467.1	Illinois	25,089	District of Columbia	2,518	Massachusetts	11.35
8	Louisiana	3,615.4	Kentucky	462.1	Michigan	19,758	Montana	2,471	New York	11.18
9	Michigan	3,239.6	Indiana	460.3	New Jersey	18,764	Indiana	2,405	Rhode Island	11.04
10	Georgia	2,798.1	Alabama	458.8	North Carolina	15,823	Iowa	2,330	Florida	10.99
11	Indiana	2,735.8	Mississippi	436.5	Georgia	15,642	New Jersey	2,329	Maryland	10.27
12	New Jersey	2,588.7	Maine	421.9	Louisiana	15,120	Vermont	2,324	California	10.27
13	North Carolina	2,446.9	Idaho	414.1	Indiana	14,106	Kentucky	2,313	North Carolina	10.11
14	Washington	2,240.8	Oklahoma	410.2	Virginia	13,451	Arkansas	2,304	Delaware	9.98
15	Virginia	2,227.3	West Virginia	407.0	Massachusetts	13,087	Nebraska	2,302	Nevada	9.81
16	Tennessee	2,070.5	Kansas	395.6	Tennessee	11,604	Delaware	2,301	New Jersey	9.46
17	Alabama	2,004.8	Iowa	390.9	Missouri	11,533	Ohio	2,283	New Mexico	9.45
18	Kentucky	1,830.2	Washington	389.3	Washington	10,330	Alabama	2,271	Pennsylvania	9.32
19	Wisconsin	1,810.5	South Carolina	384.2	Wisconsin	10,156	Kansas	2,249	Virginia	9.32
20	Missouri	1,768.0	Ohio	384.1	Minnesota	9,869	Connecticut	2,219	Missouri	9.15
21	Minnesota	1,675.3	Tennessee	377.6	Alabama	9,816	South Dakota	2,208	Illinois	9.03
22	Massachusetts	1,569.1	Delaware	370.0	Maryland	9,583	Oklahoma	2,208	Ohio	9.01
23	South Carolina	1,493.0	New Mexico	365.0	Kentucky	9,045	West Virginia	2,204	South Dakota	8.98
24	Maryland	1,378.2	Nebraska	361.3	Arizona	8,574	Mississippi	2,183	Georgia	8.86
25	Oklahoma	1,377.5	Georgia	359.3	South Carolina	8,177	Nevada	2,166	Maine	8.82
26	Arizona	1,219.8	Minnesota	350.8	Oklahoma	7,333	Tennessee	2,160	South Carolina	8.77
27	Mississippi	1,208.5	Wisconsin	344.8	Connecticut	7,248	South Carolina	2,159	Kansas	8.77
28	Arkansas	1,203.7	Nevada	340.1	Colorado	6,881	New Hampshire	2,154	Colorado	8.68
29	Colorado	1,155.5	Oregon	334.5	Iowa	6,649	Pennsylvania	2,149	Arkansas	8.65
30	Iowa	1,121.7	Michigan	328.4	Oregon	6,058	Massachusetts	2,140	Tennessee	8.60
31	Oregon	1,109.2	District of Columbia	327.1	Mississippi	5,963	Missouri	2,132	Mississippi	8.59
32	Kansas	1,050.0	South Dakota	326.0	Kansas	5,850	North Carolina	2,129	Nebraska	8.47
33	Connecticut	839.3	Utah	325.8	Arkansas	5,812	Idaho	2,109	Minnesota	8.46
34	West Virginia	735.4	Virginia	324.1	West Virginia	4,002	Minnesota	2,105	Montana	8.41
35	Alaska	694.7	Missouri	323.3	Nebraska	3,814	Illinois	2,093	Oregon	8.40
36	Utah	693.9	Illinois	320.1	Utah	3,708	Georgia	2,088	Wisconsin	8.25
37	New Mexico	635.0	North Carolina	319.8	Nevada	3,637	Rhode Island	2,070	Michigan	8.18
38	Nevada	615.3	New Jersey	317.9	New Mexico	3,428	Michigan	2,020	Iowa	8.10
39	Nebraska	602.0	Pennsylvania	309.8	Maine	3,158	Virginia	1,996	Oklahoma	8.07
40	Maine	528.6	Colorado	284.9	Idaho	2,550	New Mexico	1,988	Idaho	8.01
41	Idaho	518.3	New Hampshire	279.2	New Hampshire	2,525	Wisconsin	1,953	Alabama	7.81
42	Wyoming	421.8	Vermont	277.9	Hawaii	2,288	Hawaii	1,920	Kentucky	7.72
43	Montana	412.4	Maryland	266.5	Alaska	2,180	Arizona	1,883	Washington	7.64
44	North Dakota	365.7	Rhode Island	263.5	Montana	2,171	Maryland	1,881	Utah	7.58
45	New Hampshire	335.4	Connecticut	255.7	Rhode Island	2,044	New York	1,879	West Virginia	7.33
46	Delaware	278.8	Arizona	255.3	Wyoming	1,873	Oregon	1,868	Indiana	7.31
47	Rhode Island	261.1	Florida	255.0	North Dakota	1,699	Washington	1,840	Texas	6.94
48	Hawaii	241.4	Massachusetts	254.1	Delaware	1,692	Utah	1,795	Alaska	6.69
49	South Dakota	239.0	California	252.7	South Dakota	1,629	Colorado	1,768	Wyoming	6.51
50	District of Columbia	169.8	New York	235.4	Vermont	1,368	California	1,715	North Dakota	6.25
51	Vermont	165.0	Hawaii	203.7	District of Columbia	1,334	Florida	1,711	Louisiana	5.81
	United States	[1] **95,682.4**	**United States**	**350.9**	**United States**	[2] **567,318**	**United States**	**2,119**	**United States**	**8.82**

[1] Includes 57.7 trillion Btu of coal coke net imports, which are not allocated to the States. Does not include 1,042 trillion Btu of coal consumed by nonutility wholesale power producers and cogeneration plants and not reported in the end-use sectors.

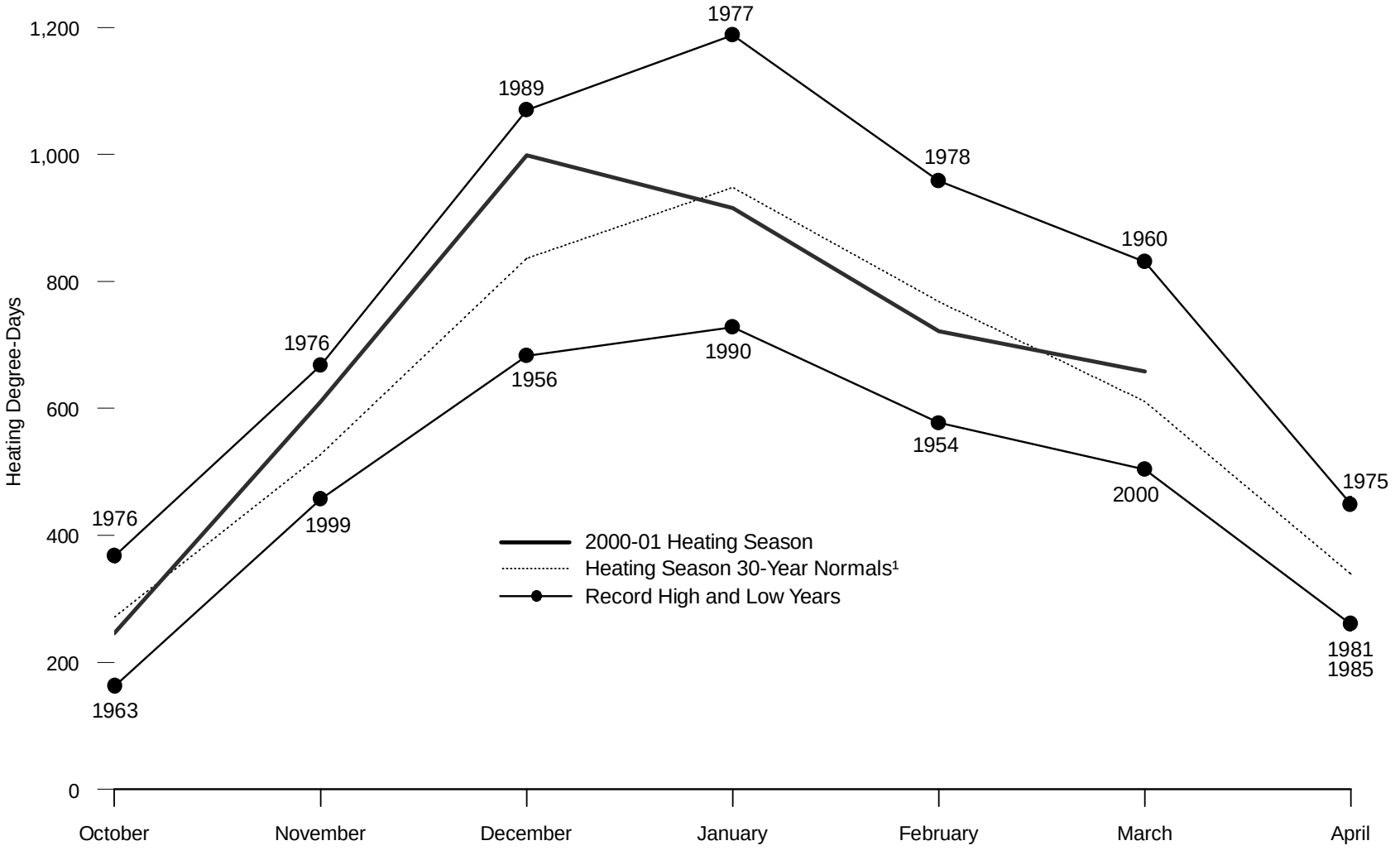
[2] Includes $72 million for coal coke net imports, which are not allocated to the States.

Note: Rankings based on unrounded data.

Web Page: http://www.eia.doe.gov/emeu/states/_states.html.

Sources: • **Consumption:** Energy Information Administration (EIA), *State Energy Data Report 1999, Consumption Estimates* (May 2001), Tables 9 and 10. • **Expenditures and Prices:** EIA, *State Energy Price and Expenditure Report 1997* (July 2000), Table 1. • Both publications include State-level data by end-use sector and type of energy. Consumption estimates are annual 1960 through 1999, and price and expenditures estimates are annual 1970 through 1997.

Figure 1.7 Heating Degree-Days by Month, 1949-2001



¹ Based on calculations of data from 1961 through 1990.
Source: Table 1.7.

Table 1.7 Heating Degree-Days by Month, 1949-2001

Year	January	February	March	April	May	June	July	August	September	October	November	December	Total
1949	858	701	611	330	128	21	7	9	94	209	503	763	4,234
1950	761	721	693	412	162	40	11	18	85	196	565	872	4,536
1951	863	724	632	359	135	45	8	17	74	231	645	814	4,547
1952	807	677	670	315	154	32	5	11	54	324	540	785	4,374
1953	754	667	557	378	142	33	5	11	51	208	492	765	4,063
1954	886	577	646	261	192	32	8	18	56	224	523	809	4,232
1955	927	759	600	272	121	48	9	6	56	237	600	886	4,521
1956	900	723	648	387	157	27	10	14	82	215	541	683	4,387
1957	977	628	610	308	148	23	6	16	61	315	536	711	4,339
1958	909	866	690	324	143	54	7	8	60	250	484	917	4,712
1959	944	762	619	305	112	26	4	6	48	249	594	734	4,403
1960	884	780	831	278	160	33	7	11	48	254	502	936	4,724
1961	982	670	565	413	199	29	5	7	48	238	532	852	4,540
1962	976	747	689	337	118	35	14	13	91	234	554	886	4,694
1963	1,061	841	562	325	163	35	8	18	76	162	471	1,012	4,734
1964	871	803	636	339	124	39	5	22	72	301	489	814	4,515
1965	907	780	738	355	114	48	11	14	78	271	494	739	4,549
1966	1,010	790	580	377	188	30	6	14	81	298	496	830	4,700
1967	816	820	600	352	229	34	8	17	82	270	588	793	4,609
1968	979	832	567	309	192	35	6	14	59	240	548	894	4,675
1969	939	778	735	307	134	47	7	9	60	296	564	860	4,736
1970	1,063	758	685	344	120	31	4	9	55	253	541	801	4,664
1971	976	760	681	375	194	29	10	12	47	187	553	723	4,547
1972	890	785	608	377	137	49	7	12	65	330	613	832	4,705
1973	893	772	504	356	182	22	6	9	61	212	497	799	4,313
1974	838	754	556	310	171	42	6	13	94	303	524	795	4,406
1975	821	742	686	449	117	37	5	13	100	235	462	805	4,472
1976	974	609	544	309	178	28	8	19	81	367	668	941	4,726
1977	1,188	751	529	270	119	38	6	13	59	295	493	844	4,605
1978	1,061	958	677	350	157	31	7	11	59	283	517	847	4,958
1979	1,079	950	575	364	148	37	6	15	58	271	528	750	4,781
1980	887	831	680	338	142	49	5	10	54	316	564	831	4,707
1981	984	689	620	260	165	25	6	11	76	327	504	845	4,512
1982	1,067	776	620	408	114	62	7	19	75	264	515	692	4,619
1983	874	706	588	421	189	35	6	5	53	251	509	990	4,627
1984	1,000	645	704	371	172	28	7	7	88	223	565	704	4,514
1985	1,057	807	557	260	123	47	5	17	69	243	506	951	4,642
1986	859	734	542	295	123	30	9	18	76	258	558	793	4,295
1987	920	714	573	309	107	20	8	13	61	345	491	773	4,334
1988	1,004	778	594	344	134	30	3	5	72	352	506	831	4,653
1989	789	832	603	344	163	32	5	14	73	259	542	1,070	4,726
1990	728	655	535	321	184	29	6	10	56	246	457	789	4,016
1991	921	639	564	287	98	30	6	7	69	242	586	751	4,200
1992	852	644	603	345	152	46	14	24	74	301	564	822	4,441
1993	860	827	664	368	128	38	11	9	89	302	580	824	4,700
1994	1,031	813	594	293	174	21	6	16	65	268	479	723	4,483
1995	847	750	556	375	174	31	4	7	77	233	605	872	4,531
1996	945	748	713	360	165	27	8	9	72	276	630	760	4,713
1997	932	672	552	406	198	31	7	16	63	273	592	800	4,542
1998	765	623	596	331	109	41	4	5	33	245	482	717	3,951
1999	861	R647	R645	R319	R139	R31	5	R12	R62	R275	R413	R760	R4,169
2000P	R879	R636	493	345	121	34	5	6	85	246	611	999	4,460
2001P	915	721	658	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Normals[1]	948	768	611	339	150	36	7	13	69	271	528	836	4,576

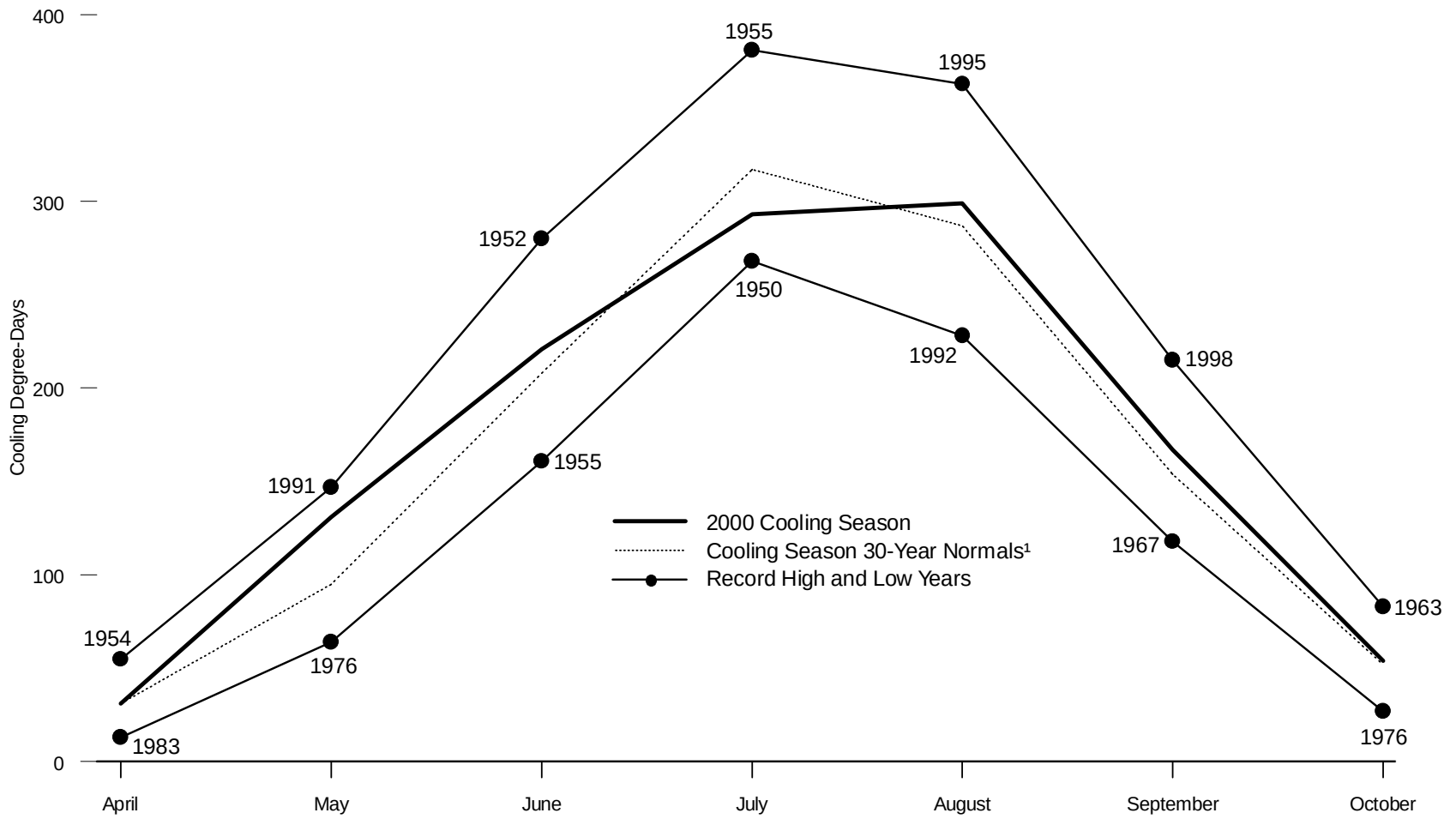
[1] Based on calculations of data from 1961 through 1990.

R=Revised. P=Preliminary. NA=Not available.

Notes: • This table excludes Alaska and Hawaii. • Degree-days are relative measurements of outdoor air temperature. Heating degree-days are deviations below the mean daily temperature of 65° F. For example, a weather station recording a mean daily temperature of 40° F would report 25 heating degree-days. • Temperature information recorded by weather stations is used to calculate State-wide degree-day averages based on resident State population estimated for 1990. The population-weighted State figures are aggregated into Census divisions and the national average.

Sources: • 1949-1999 and Normals—U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Climatic Data Center, Asheville, North Carolina. Historical Climatology Series 5-1. • 2000 and 2001—Energy Information Administration, *Monthly Energy Review,* June 2000-April 2001 issues, Table 1.11, which reports data from NOAA, National Weather Service Climate Analysis Center, Camp Springs, Maryland.

Figure 1.8 Cooling Degree-Days by Month, 1949-2000



¹ Based on calculations of data from 1961 through 1990.
Source: Table 1.8.

Table 1.8 Cooling Degree-Days by Month, 1949-2001

Year	January	February	March	April	May	June	July	August	September	October	November	December	Total
1949	16	14	14	27	110	253	367	294	131	70	12	10	1,318
1950	27	12	13	21	105	201	268	244	128	78	9	4	1,110
1951	8	5	15	22	95	198	318	293	158	65	7	11	1,195
1952	17	8	15	20	96	280	368	303	159	38	10	4	1,318
1953	12	8	26	25	118	263	338	292	168	58	11	7	1,326
1954	11	12	11	55	65	241	356	296	195	60	9	4	1,315
1955	6	7	20	45	121	161	381	355	182	50	10	6	1,344
1956	4	12	14	23	112	232	297	290	151	66	9	11	1,221
1957	12	17	13	33	96	243	337	275	155	30	13	6	1,230
1958	3	1	8	27	101	187	315	304	166	53	18	6	1,189
1959	6	12	13	31	129	228	325	344	179	64	12	5	1,348
1960	7	4	6	37	76	215	301	302	181	59	15	3	1,206
1961	5	9	23	20	71	195	306	287	186	47	12	7	1,168
1962	6	15	9	26	144	204	276	289	136	64	7	3	1,179
1963	5	5	22	42	94	213	308	266	153	83	11	2	1,204
1964	6	3	14	37	114	214	327	256	146	42	17	9	1,185
1965	9	7	10	42	125	179	280	273	155	48	19	6	1,153
1966	4	5	12	28	81	201	353	273	132	43	12	4	1,148
1967	9	5	24	48	70	206	278	253	118	45	12	9	1,077
1968	6	3	9	32	75	204	307	292	145	53	7	4	1,137
1969	7	4	4	33	94	200	331	304	153	48	8	4	1,190
1970	3	4	10	36	104	201	323	313	185	48	6	9	1,242
1971	8	7	10	22	68	244	288	269	182	77	12	17	1,204
1972	15	6	22	36	88	174	299	276	169	44	9	8	1,146
1973	7	3	24	18	75	236	318	303	166	66	21	4	1,241
1974	21	6	28	29	101	173	317	267	120	40	10	5	1,117
1975	14	11	14	24	117	203	301	296	120	55	12	5	1,172
1976	5	11	23	27	64	208	282	243	127	27	8	4	1,029
1977	2	5	21	35	121	212	351	293	180	44	15	6	1,285
1978	3	1	10	31	93	218	310	300	180	52	19	9	1,226
1979	4	4	13	32	82	187	295	266	160	53	11	6	1,113
1980	9	4	13	23	95	199	374	347	192	42	10	5	1,313
1981	3	6	10	52	75	257	333	275	138	43	12	5	1,209
1982	6	10	21	26	115	165	318	262	140	47	15	11	1,136
1983	6	5	9	13	72	193	353	362	172	58	12	5	1,260
1984	5	6	14	24	92	233	291	312	143	70	9	15	1,214
1985	3	5	22	39	108	193	313	269	145	68	25	4	1,194
1986	8	10	17	33	106	231	340	259	161	52	23	9	1,249
1987	5	7	13	23	127	244	334	298	156	40	14	8	1,269
1988	5	5	13	28	89	218	359	348	149	45	18	6	1,283
1989	15	7	19	36	88	208	312	266	138	49	16	2	1,156
1990	15	14	21	29	86	234	316	291	172	57	16	9	1,260
1991	10	9	19	42	147	235	336	305	149	62	8	9	1,331
1992	6	10	15	29	77	170	286	228	150	49	13	7	1,040
1993	13	5	11	19	91	207	347	317	146	47	11	4	1,218
1994	7	9	18	37	76	262	328	263	141	50	20	9	1,220
1995	7	7	18	29	91	202	348	363	150	61	12	5	1,293
1996	7	6	8	26	116	226	299	287	139	45	14	7	1,180
1997	8	11	31	19	81	189	315	268	171	48	10	5	1,156
1998	12	7	10	23	135	228	350	337	215	62	20	11	1,410
1999	R12	R11	R12	R40	R94	R219	R374	R305	R152	R55	R17	R6	R1,297
2000P	R6	R8	20	31	131	221	293	299	167	54	11	4	1,245
2001P	2	10	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Normals[1]	7	7	16	31	95	208	317	287	154	52	13	7	1,193

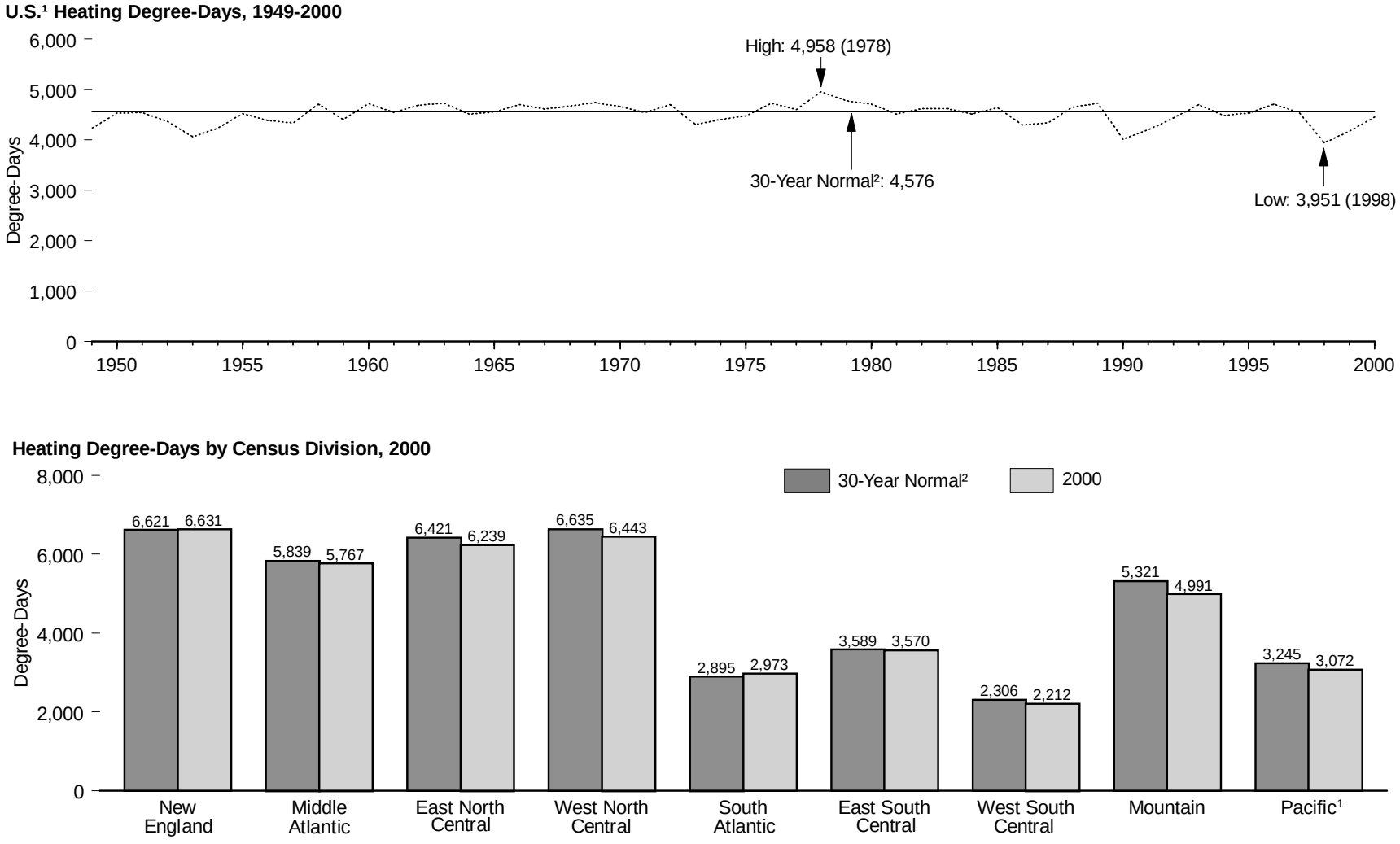
[1] Based on calculations of data from 1961 through 1990.

R=Revised. P=Preliminary. NA=Not available.

Notes: • This table excludes Alaska and Hawaii. • Degree-days are relative measurements of outdoor air temperature. Cooling degree-days are deviations above the mean daily temperature of 65° F. For example, a weather station recording a mean daily temperature of 78° F would report 13 cooling degree-days. • Temperature information recorded by weather stations is used to calculate State-wide degree-day averages based on resident State population estimated for 1990. The population-weighted State figures are aggregated into Census divisions and the national average.

Sources: • 1949-1999 and Normals—U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Climatic Data Center, Asheville, North Carolina. Historical Climatology Series 5-2. • 2000 and 2001—Energy Information Administration, *Monthly Energy Review,* June 2000-April 2001 issues, Table 1.12, which reports data from NOAA, National Weather Service Climate Analysis Center, Camp Springs, Maryland.

Figure 1.9 Heating Degree-Days by Census Division



[1] Excludes Alaska and Hawaii.

[2] Normals are based on calculations of data from 1961 through 1990.

Note: See Appendix D for Census Divisions.

Source: Table 1.9.

Table 1.9 Heating Degree-Days by Census Division, 1949-2000

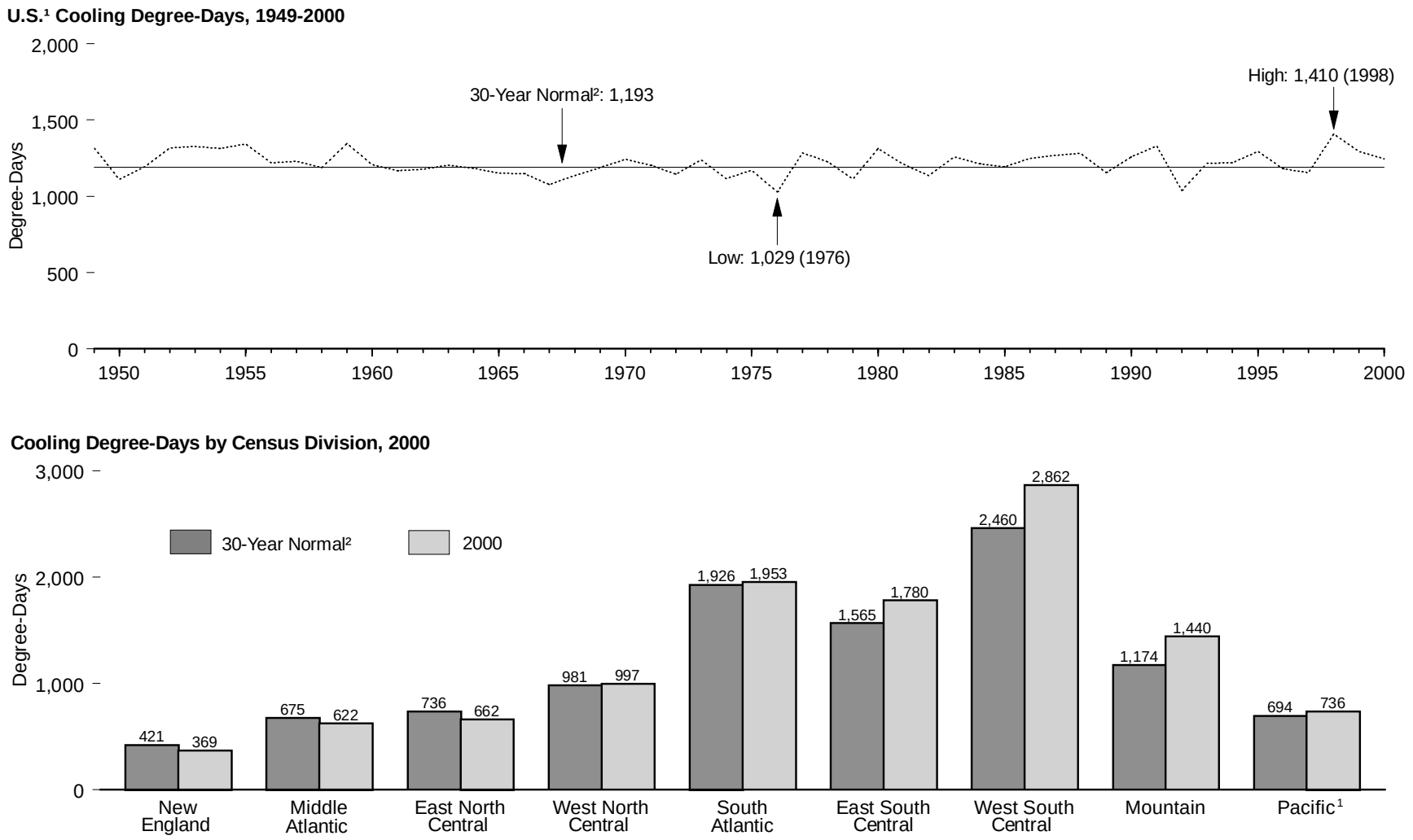
Year	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific [1]	United States [1]
1949	5,829	5,091	5,801	6,479	2,367	2,942	2,133	5,483	3,729	4,234
1950	6,470	5,765	6,619	7,136	2,713	3,315	1,974	4,930	3,355	4,536
1951	6,137	5,497	6,549	7,246	2,728	3,340	2,154	5,513	3,469	4,547
1952	6,180	5,443	5,977	6,386	2,684	3,276	2,074	5,404	3,586	4,374
1953	5,650	5,027	5,626	5,994	2,486	3,132	2,024	4,925	3,224	4,063
1954	6,291	5,473	5,841	6,063	2,713	3,211	1,876	4,679	3,296	4,232
1955	6,577	5,708	6,101	6,630	2,786	3,314	2,083	5,517	3,723	4,521
1956	6,702	5,731	6,019	6,408	2,642	3,113	2,032	5,146	3,382	4,387
1957	6,158	5,469	6,166	6,525	2,594	3,112	2,068	5,203	3,322	4,339
1958	6,907	6,237	6,585	6,585	3,271	4,004	2,590	4,929	2,819	4,712
1959	6,363	5,535	6,303	6,665	2,698	3,415	2,398	5,138	2,925	4,403
1960	6,561	5,901	6,544	6,884	3,147	3,958	2,551	5,328	3,309	4,724
1961	6,632	5,895	6,275	6,591	2,869	3,497	2,296	5,299	3,221	4,540
1962	6,981	6,089	6,545	6,691	3,022	3,627	2,264	5,165	3,400	4,694
1963	6,816	6,103	6,691	6,485	3,138	3,890	2,438	5,060	3,326	4,734
1964	6,594	5,694	6,030	6,303	2,828	3,462	2,272	5,769	3,583	4,515
1965	6,825	5,933	6,284	6,646	2,830	3,374	2,078	5,318	3,378	4,549
1966	6,662	6,012	6,606	6,872	3,118	3,758	2,416	5,275	3,170	4,700
1967	6,987	6,127	6,477	6,569	2,864	3,403	2,082	5,232	3,316	4,609
1968	6,800	5,981	6,331	6,556	3,160	3,927	2,522	5,415	3,198	4,675
1969	6,593	5,933	6,603	6,903	3,205	3,910	2,325	5,324	3,377	4,736
1970	6,839	5,943	6,455	6,835	2,997	3,685	2,396	5,436	3,257	4,664
1971	6,695	5,761	6,236	6,594	2,763	3,395	1,985	5,585	3,698	4,547
1972	7,001	6,064	6,772	7,094	2,759	3,438	2,259	5,352	3,376	4,705
1973	6,120	5,327	5,780	6,226	2,718	3,309	2,256	5,562	3,383	4,313
1974	6,621	5,670	6,259	6,478	2,551	3,171	2,080	5,281	3,294	4,406
1975	6,362	5,477	6,169	6,678	2,640	3,336	2,187	5,693	3,623	4,472
1976	6,839	6,097	6,768	6,670	3,040	3,881	2,446	5,303	3,115	4,726
1977	6,579	5,889	6,538	6,506	3,047	3,812	2,330	5,060	3,135	4,605
1978	7,061	6,330	7,095	7,324	3,187	4,062	2,764	5,370	3,168	4,958
1979	6,348	5,851	6,921	7,369	2,977	3,900	2,694	5,564	3,202	4,781
1980	6,900	6,143	6,792	6,652	3,099	3,855	2,378	5,052	2,986	4,707
1981	6,612	5,989	6,446	6,115	3,177	3,757	2,162	4,671	2,841	4,512
1982	6,697	5,866	6,542	7,000	2,721	3,357	2,227	5,544	3,449	4,619
1983	6,305	5,733	6,423	6,901	3,057	3,892	2,672	5,359	3,073	4,627
1984	6,442	5,777	6,418	6,582	2,791	3,451	2,194	5,592	3,149	4,514
1985	6,571	5,660	6,546	7,119	2,736	3,602	2,466	5,676	3,441	4,642
1986	6,517	5,665	6,150	6,231	2,686	3,294	2,058	4,870	2,807	4,295
1987	6,546	5,699	5,810	5,712	2,937	3,466	2,292	5,153	3,013	4,334
1988	6,715	6,088	6,590	6,634	3,122	3,800	2,346	5,148	2,975	4,653
1989	6,887	6,134	6,834	6,996	2,944	3,713	2,439	5,173	3,061	4,726
1990	5,848	4,998	5,681	6,011	2,230	2,929	1,944	5,146	3,148	4,016
1991	5,960	5,177	5,906	6,319	2,503	3,211	2,178	5,259	3,109	4,200
1992	6,844	5,964	6,297	6,262	2,852	3,498	2,145	5,054	2,763	4,441
1993	6,728	5,948	6,646	7,168	2,981	3,768	2,489	5,514	3,052	4,700
1994	6,672	5,934	6,378	6,509	2,724	3,394	2,108	5,002	3,155	4,483
1995	6,559	5,831	6,664	6,804	2,967	3,626	2,145	4,953	2,784	4,531
1996	6,679	5,986	6,947	7,345	3,106	3,782	2,285	5,011	2,860	4,713
1997	6,662	5,809	6,617	6,762	2,845	3,664	2,418	5,189	2,754	4,542
1998	5,680	4,812	5,278	5,774	2,429	3,025	2,021	5,059	3,255	3,951
1999	[R]5,952	[R]5,351	[R]5,946	[R]5,921	[R]2,652	[R]3,142	[R]1,835	[R]4,768	[R]3,158	[R]4,169
2000[P]	6,631	5,767	6,239	6,443	2,973	3,570	2,212	4,991	3,072	4,460
Normals[2]	6,621	5,839	6,421	6,635	2,895	3,589	2,306	5,321	3,245	4,576

[1] Excludes Alaska and Hawaii.
[2] Normals are based on calculations of data from 1961 through 1990.
R=Revised. P=Preliminary.

Notes: • Degree-days are relative measurements of outdoor air temperature. Heating degree-days are deviations below the mean daily temperature of 65° F. For example, a weather station recording a mean daily temperature of 40° F would report 25 heating degree-days. • Temperature information recorded by weather stations is used to calculate State-wide degree-day averages based on resident State population estimated for 1990. The population-weighted State figures are aggregated into Census divisions and the national average. • See Appendix D for Census divisions.

Sources: • 1949-1999 and Normals—U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Climatic Data Center, Asheville, North Carolina. Historical Climatology Series 5-1. • 2000—Energy Information Administration, *Monthly Energy Review (MER)*, February 2000-January 2001 issues, Table 1.11, which reports data from NOAA, National Weather Service Climate Analysis Center, Camp Springs, Maryland. Census Division data for 2000 are the sums of the current year monthly statistics shown in the cited issues of the *MER*. The U.S. total comes from Table 1.7.

Figure 1.10 Cooling Degree-Days by Census Division



[1] Excludes Alaska and Hawaii.

[2] Normals are based on calculations from 1961 through 1990.

Note: See Appendix D for Census Divisions.

Source: Table 1.10.

Table 1.10 Cooling Degree-Days by Census Division, 1949-2000

Year	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific [1]	United States [1]
1949	654	901	949	1,038	2,128	1,776	2,510	1,198	593	1,318
1950	353	542	602	729	1,919	1,568	2,473	1,120	597	1,110
1951	400	653	644	777	2,028	1,781	2,684	1,137	593	1,195
1952	581	825	897	1,109	2,097	1,864	2,543	1,278	657	1,318
1953	441	768	945	1,183	2,137	1,893	2,727	1,193	571	1,326
1954	303	646	858	1,250	2,082	1,998	2,907	1,292	590	1,315
1955	602	934	1,043	1,238	2,045	1,791	2,643	1,124	560	1,344
1956	336	566	750	1,155	1,913	1,685	2,833	1,247	596	1,221
1957	428	738	754	1,004	2,050	1,692	2,465	1,155	660	1,230
1958	344	592	638	878	1,922	1,582	2,517	1,328	836	1,189
1959	532	903	997	1,083	2,128	1,745	2,456	1,258	776	1,348
1960	368	640	722	961	1,926	1,613	2,492	1,308	770	1,206
1961	482	787	745	867	1,888	1,370	2,230	1,223	709	1,168
1962	264	561	742	974	1,908	1,738	2,700	1,147	559	1,179
1963	373	571	712	1,196	1,812	1,580	2,899	1,235	605	1,204
1964	312	634	787	1,030	1,905	1,591	2,608	1,095	574	1,185
1965	352	638	688	914	1,931	1,634	2,579	961	542	1,153
1966	421	731	724	919	1,788	1,440	2,309	1,239	680	1,148
1967	420	602	548	713	1,697	1,257	2,385	1,120	817	1,077
1968	410	725	740	902	1,842	1,517	2,247	1,015	632	1,137
1969	447	706	701	940	1,887	1,572	2,505	1,228	680	1,190
1970	479	779	827	1,066	2,007	1,662	2,375	1,163	689	1,242
1971	465	730	783	960	1,932	1,577	2,448	1,074	685	1,204
1972	364	614	643	908	1,843	1,525	2,513	1,141	698	1,146
1973	551	830	864	1,009	2,000	1,665	2,359	1,123	624	1,241
1974	393	614	626	878	1,842	1,382	2,342	1,188	690	1,117
1975	467	708	788	1,003	2,011	1,520	2,261	1,031	547	1,172
1976	402	597	619	939	1,675	1,232	2,035	1,058	620	1,029
1977	407	689	823	1,122	2,020	1,808	2,720	1,256	715	1,285
1978	378	615	741	1,027	1,972	1,685	2,638	1,174	738	1,226
1979	434	588	618	871	1,833	1,412	2,242	1,164	770	1,113
1980	487	793	816	1,217	2,075	1,834	2,734	1,202	658	1,313
1981	436	657	658	924	1,889	1,576	2,498	1,331	876	1,209
1982	321	541	643	859	1,958	1,537	2,502	1,121	619	1,136
1983	538	799	934	1,178	1,925	1,579	2,288	1,174	776	1,260
1984	468	649	724	955	1,865	1,508	2,469	1,190	956	1,214
1985	372	627	643	830	2,004	1,596	2,599	1,210	737	1,194
1986	301	626	738	1,021	2,149	1,792	2,618	1,188	664	1,249
1987	406	729	918	1,115	2,067	1,718	2,368	1,196	706	1,269
1988	545	782	975	1,230	1,923	1,582	2,422	1,320	729	1,283
1989	426	658	652	864	1,977	1,417	2,295	1,330	685	1,156
1990	477	656	647	983	2,143	1,622	2,579	1,294	827	1,260
1991	511	854	959	1,125	2,197	1,758	2,499	1,182	672	1,331
1992	276	460	449	637	1,777	1,293	2,201	1,206	905	1,040
1993	486	764	735	817	2,092	1,622	2,369	1,113	708	1,218
1994	548	722	664	887	2,005	1,448	2,422	1,436	801	1,220
1995	507	803	921	985	2,081	1,671	2,448	1,234	754	1,293
1996	400	623	629	821	1,867	1,474	2,515	1,381	856	1,180
1997	395	586	574	873	1,886	1,393	2,361	1,335	921	1,156
1998	505	788	889	1,138	2,277	1,928	3,026	1,271	732	1,410
1999	R631	R882	R855	R970	R2,024	R1,733	R2,645	R1,242	R635	R1,280
2000P	369	622	662	997	1,953	1,780	2,862	1,440	736	1,245
Normals[2]	421	675	736	981	1,926	1,565	2,460	1,174	694	1,193

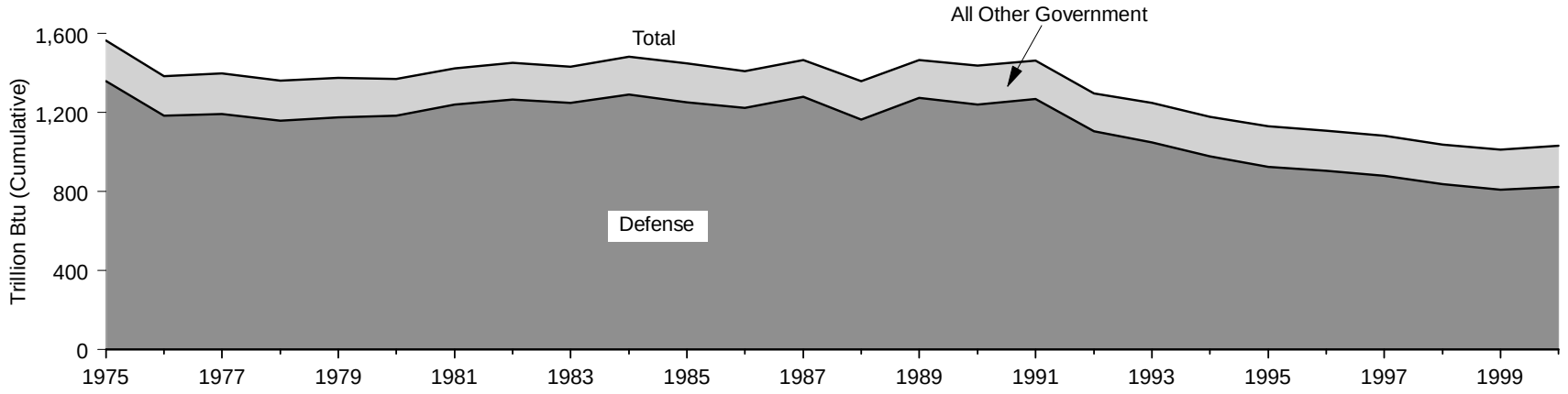
[1] Excludes Alaska and Hawaii.
[2] Normals are based on calculations of data from 1961 through 1990.
R=Revised. P=Preliminary.

Notes: • Degree-days are relative measurements of outdoor air temperature. Cooling degree-days are deviations above the mean daily temperature of 65° F. For example, a weather station recording a mean daily temperature of 78° F would report 13 cooling degree-days. • Temperature information recorded by weather stations is used to calculate State-wide degree-day averages based on resident State population estimated for 1990. The population-weighted State figures are aggregated into Census divisions and the national average. • See Appendix D for Census divisions.

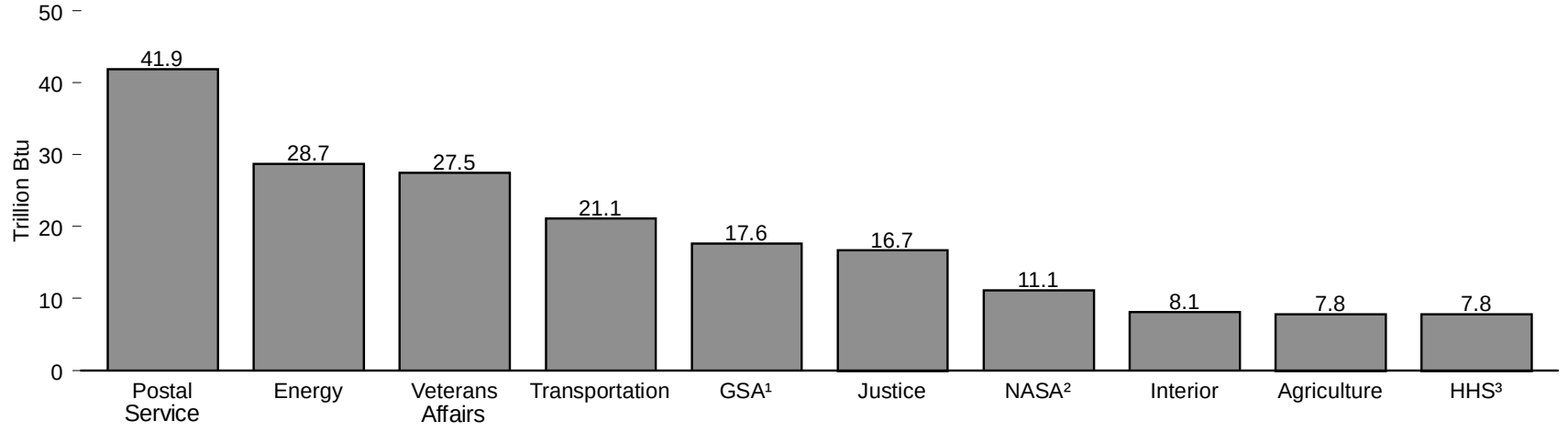
Sources: • 1949-1999 and Normals—U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Climatic Data Center, Asheville, North Carolina. Historical Climatology Series 5-2. • 2000—Energy Information Administration, *Monthly Energy Review,* January 2001 issue, Table 1.12, which reports Census Division data from NOAA, National Weather Service Climate Analysis Center, Camp Springs, Maryland. The U.S. total comes from Table 1.8.

Figure 1.11 U.S. Government Energy Consumption by Agency

Total and U.S. Department of Defense, Fiscal Years 1975-2000



Selected Non-Defense Agencies, Fiscal Year 2000



[1] General Services Administration.
[2] National Aeronautics and Space Administration.
[3] Health and Human Services.

Notes: • The U.S. Government's fiscal year was October 1 through September 30, except in 1975 and 1976 when it was July 1 through June 30. • Because vertical scales differ, graphs should not be compared.

Source: Table 1.11.

Table 1.11 U.S. Government Energy Consumption by Agency, Fiscal Years 1975-2000

(Trillion Btu)

Year	Agencies												
	Agriculture	Defense	Energy	GSA [1]	HHS [2]	Interior	Justice	NASA [3]	Postal Service	Trans-portation	Veterans Affairs	Other [4]	Total
1975	9.5	1,360.2	50.4	22.3	6.5	9.4	5.9	13.4	30.5	19.3	27.1	10.5	1,565.0
1976	9.3	1,183.3	50.3	20.6	6.7	9.4	5.7	12.4	30.0	19.5	25.0	11.2	1,383.4
1977	8.9	1,192.3	51.6	20.4	6.9	9.5	5.9	12.0	32.7	20.4	25.9	11.9	1,398.5
1978	9.1	1,157.8	50.1	20.4	6.5	9.2	5.9	11.2	30.9	20.6	26.8	12.4	1,360.9
1979	9.2	1,175.8	49.6	19.6	6.4	10.4	6.4	11.1	29.3	19.6	25.7	12.3	1,375.4
1980	8.6	1,183.1	47.4	18.1	6.0	8.5	5.7	10.4	27.2	19.2	24.8	12.3	1,371.2
1981	7.9	1,239.5	47.3	18.0	6.7	7.6	5.4	10.0	27.9	18.8	24.0	11.1	1,424.2
1982	7.6	1,264.5	49.0	18.1	6.4	7.4	5.8	10.1	27.5	19.1	24.2	11.6	1,451.4
1983	7.4	1,248.3	49.5	16.1	6.2	7.7	5.5	10.3	26.5	19.4	24.1	10.8	1,431.8
1984	7.9	1,292.1	51.6	16.2	6.4	8.4	6.4	10.6	27.7	19.8	24.6	10.7	1,482.5
1985	8.4	1,250.6	51.5	17.3	6.0	7.8	8.2	10.8	27.8	19.5	25.1	R15.4	R1,448.4
1986	6.8	1,222.8	50.4	14.0	6.2	6.9	8.6	11.2	28.0	19.4	25.0	10.8	1,410.1
1987	7.3	1,280.5	48.6	13.1	6.6	6.6	8.1	11.1	28.5	19.0	24.9	11.9	1,466.2
1988	7.8	1,165.8	49.9	12.4	6.4	7.0	9.4	11.1	29.6	18.7	26.3	15.8	1,360.2
1989	8.7	1,274.4	44.3	12.7	6.7	7.1	7.7	12.1	30.3	18.5	26.2	15.6	1,464.5
1990	9.5	1,241.7	43.5	14.2	8.0	7.4	7.0	12.3	30.6	19.0	24.9	R19.6	R1,437.6
1991	9.6	1,269.3	42.2	14.0	7.1	7.1	8.0	12.5	30.8	19.0	25.1	R18.0	R1,462.5
1992	9.1	1,104.0	44.3	13.8	8.0	7.0	7.5	12.5	31.7	17.0	25.3	R15.6	R1,295.8
1993	9.3	1,048.8	43.7	14.1	8.1	7.5	9.1	12.4	33.7	19.4	25.7	R16.1	R1,247.9
1994	9.4	977.0	42.3	14.0	8.4	7.9	10.3	12.6	35.0	19.8	25.6	17.0	1,179.2
1995	9.7	926.0	47.1	13.7	6.1	6.4	10.2	12.4	36.2	18.7	25.4	17.0	1,129.7
1996	9.1	904.2	44.4	14.5	6.6	4.3	12.1	11.5	36.4	19.6	26.8	18.4	1,107.9
1997	7.4	880.0	33.9	14.4	7.9	6.6	12.0	12.0	40.8	19.1	27.3	R21.8	R1,083.1
1998	7.9	837.1	31.5	14.1	7.4	6.4	15.8	11.7	39.5	18.5	27.6	R20.5	R1,038.0
1999	7.8	810.7	R30.4	14.3	7.0	7.5	15.4	11.4	39.8	20.5	27.5	R20.5	R1,012.7
2000P	7.8	824.4	28.7	17.6	7.8	8.1	16.7	11.1	41.9	21.1	27.5	20.9	1,033.5

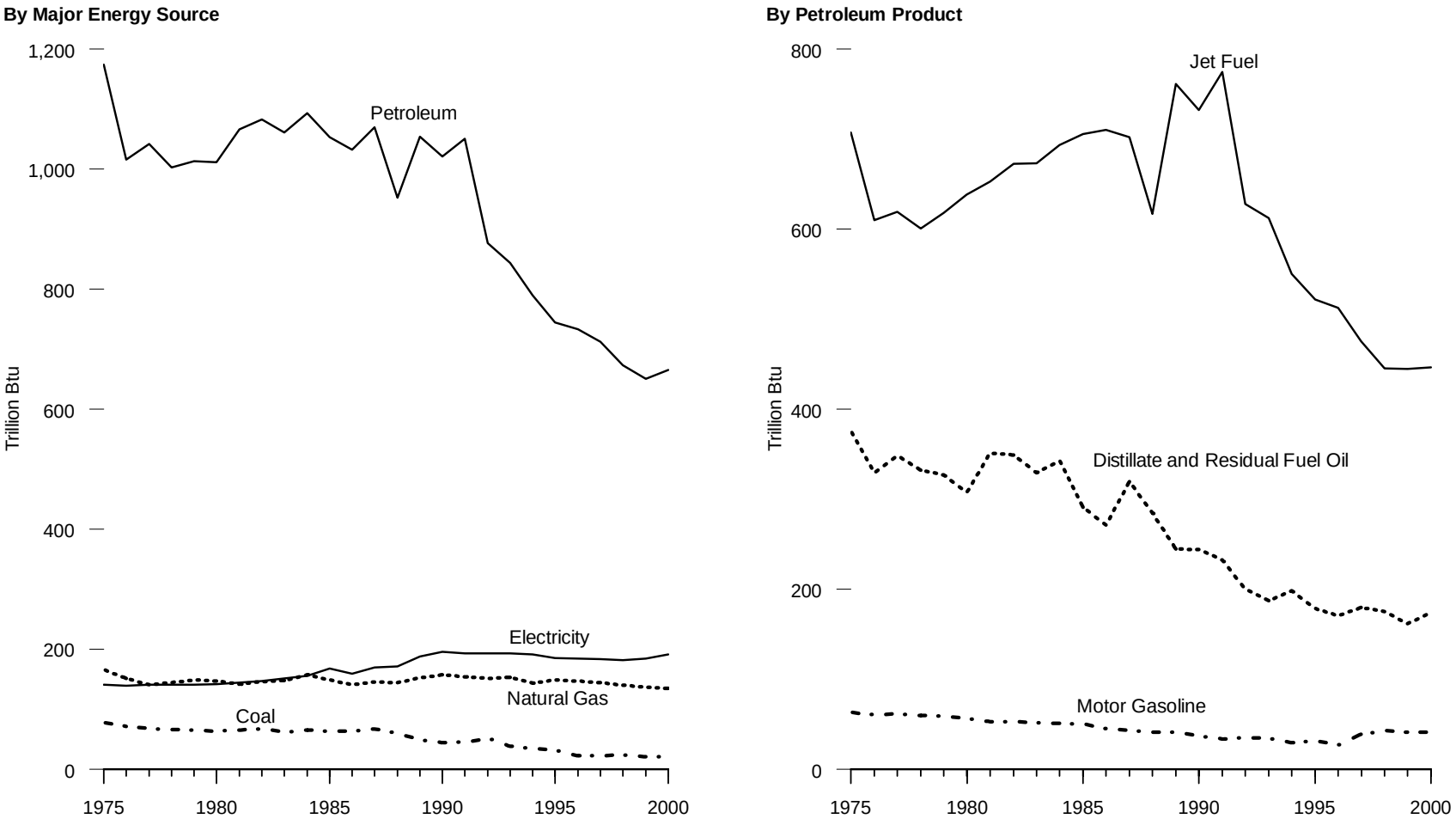
[1] General Services Administration.
[2] Health and Human Services.
[3] National Aeronautics and Space Administration.
[4] Includes National Archives and Records Administration, U.S. Department of Commerce, Panama Canal Commission, Tennessee Valley Authority, U.S. Department of Labor, National Science Foundation, Federal Trade Commission, Federal Communications Commission, Environmental Protection Agency, U.S. Department of Housing and Urban Development, Railroad Retirement Board, Commodity Futures Trading Commission, Equal Employment Opportunity Commission, Nuclear Regulatory Commission, U.S. Department of State, U.S. Department of the Treasury, Small Business Administration, Office of Personnel Management, Federal Emergency Management Agency, and U.S. Information Agency.

R = Revised. P = Preliminary.

Notes: • The U.S. Government's fiscal year was October 1 through September 30, except in 1975 and 1976, when it was July 1 through June 30. • Data include energy consumed at foreign installations and in foreign operations, including aviation and ocean bunkering, primarily by the U.S. Department of Defense. U.S. Government energy use for electricity generation and uranium enrichment is excluded. • Totals may not equal sum of components due to independent rounding.

Source: U.S. Department of Energy, Energy Efficiency and Renewable Energy, Office of Federal Energy Management Programs.

Figure 1.12 U.S. Government Energy Consumption by Source, Fiscal Years 1975-2000



Notes: • The U.S. Government's fiscal year was October 1 through September 30, except in 1975 and 1976 when it was July 1 through June 30. • Because vertical scales differ, graphs should not be compared.

Source: Table 1.12.

Table 1.12 U.S. Government Energy Consumption by Source, Fiscal Years 1975-2000

(Trillion Btu)

Year	Coal	Natural Gas	Petroleum						Electricity	Purchased Steam	Total
			Aviation Gasoline	Distillate and Residual Fuel Oil	Jet Fuel	LPG [1] and Other	Motor Gasoline	Total			
1975	77.9	166.2	22.0	376.0	707.4	5.6	63.2	1,174.2	141.5	5.1	1,565.0
1976	71.3	151.8	11.6	329.7	610.0	4.7	60.4	1,016.4	139.3	4.6	1,383.4
1977	68.4	141.2	8.8	348.5	619.2	4.1	61.4	1,042.1	141.1	5.7	1,398.5
1978	66.0	144.7	6.2	332.3	601.1	3.0	60.1	1,002.9	141.0	6.4	1,360.9
1979	65.1	148.9	4.7	327.1	618.6	3.7	59.1	1,013.1	141.2	7.1	1,375.4
1980	63.5	147.3	4.9	307.7	638.7	4.0	56.5	1,011.8	141.9	6.8	1,371.2
1981	65.1	142.2	4.6	351.3	653.3	3.7	53.2	1,066.2	144.5	6.2	1,424.2
1982	68.6	146.2	3.6	349.4	672.7	3.9	53.1	1,082.8	147.5	6.2	1,451.4
1983	62.4	147.8	2.6	329.5	673.4	4.0	51.6	1,061.1	151.5	9.0	1,431.8
1984	65.3	157.4	1.9	342.9	693.7	4.1	51.2	1,093.8	155.9	10.1	1,482.5
1985	64.0	R149.4	1.9	R291.2	705.7	4.0	R50.4	R1,053.2	R167.9	13.9	R1,448.4
1986	63.8	140.9	1.4	271.6	710.2	3.9	45.3	1,032.4	159.2	13.7	1,410.1
1987	67.0	145.6	1.0	319.5	702.3	4.0	43.1	1,069.8	169.9	13.9	1,466.2
1988	60.2	144.6	6.0	284.7	617.2	3.2	41.2	952.3	171.2	32.0	1,360.2
1989	48.7	152.4	0.8	245.1	761.7	5.7	41.1	1,054.4	188.5	20.6	1,464.5
1990	44.2	R157.8	0.5	R244.5	732.4	6.3	37.2	R1,020.9	R195.8	R19.0	R1,437.6
1991	45.9	R154.2	0.4	R232.7	774.5	9.0	34.1	R1,050.7	R193.3	18.4	R1,462.5
1992	51.7	151.3	1.0	200.5	628.2	11.4	35.6	876.8	R193.2	22.8	R1,295.8
1993	38.5	153.1	0.7	187.1	612.4	9.3	34.5	843.9	R193.7	18.7	R1,247.9
1994	35.0	144.0	0.6	198.6	550.7	10.9	29.5	790.3	191.6	18.3	1,179.2
1995	31.7	149.2	0.3	178.5	522.3	11.4	31.9	744.4	185.5	18.9	1,129.7
1996	23.3	147.4	0.2	170.6	513.0	21.7	27.6	733.2	184.3	19.8	1,107.9
1997	22.5	R145.0	0.3	R180.1	475.7	17.2	39.0	R712.2	R184.1	19.3	R1,083.1
1998	23.9	R140.5	0.2	R175.1	445.5	9.4	43.1	R673.2	R181.9	R18.5	R1,038.0
1999	21.2	R137.1	0.1	R161.9	R444.7	2.9	41.1	R650.7	R184.4	19.3	R1,012.7
2000P	20.7	134.9	0.2	174.4	446.9	3.3	41.1	665.9	191.8	20.2	1,033.5

[1] Liquefied petroleum gases.

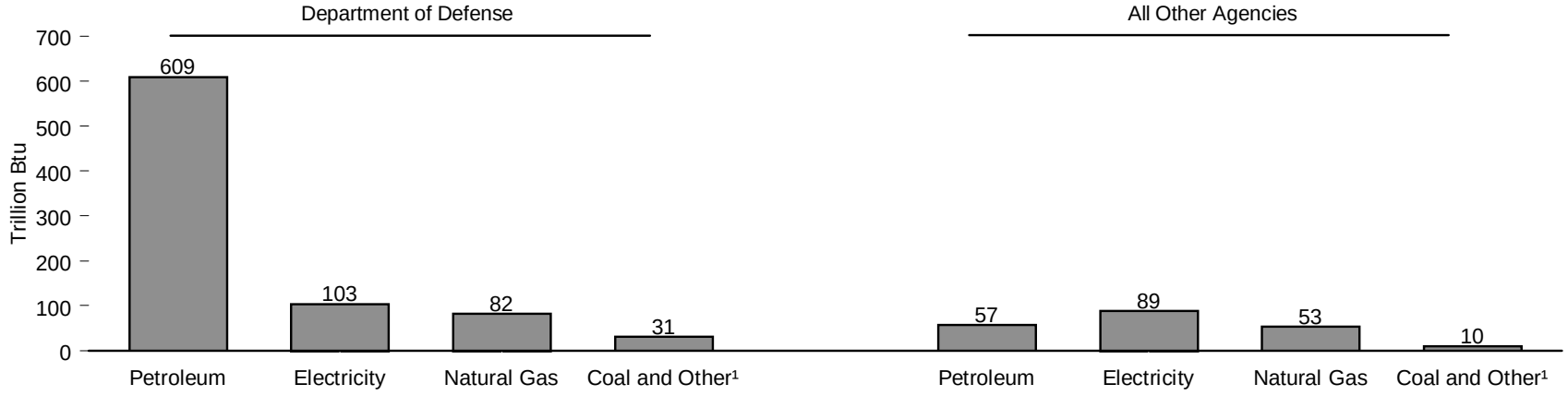
R = Revised. P = Preliminary.

Notes: • The U.S. Government's fiscal year was October 1 through September 30, except in 1975 and 1976, when it was July 1 through June 30. • This table uses a conversion factor for electricity of 3,412 Btu per kilowatthour and a conversion factor for purchased steam of 1,000 Btu per pound. • Data include energy consumed at foreign installations and in foreign operations, including aviation and ocean bunkering, primarily by the U.S. Department of Defense. U.S. Government energy use for electricity generation and uranium enrichment is excluded. • Totals may not equal sum of components due to independent rounding.

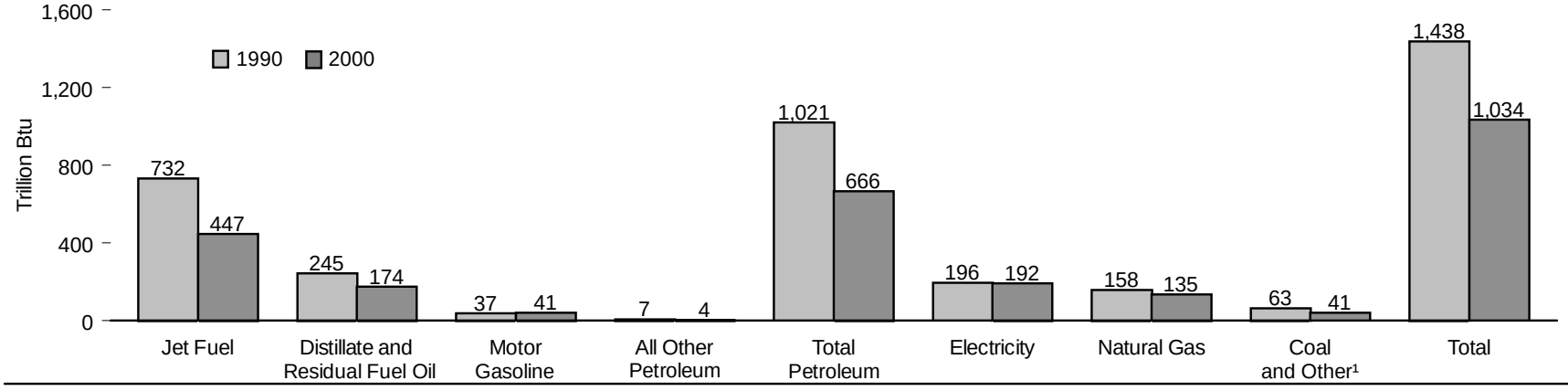
Source: U.S. Department of Energy, Energy Efficiency and Renewable Energy, Office of Federal Energy Management Programs.

Figure 1.13 U.S. Government Energy Consumption by Agency and Source

By Agency, Fiscal Year 2000



By Source, Fiscal Years 1990 and 2000



[1] Purchased steam and other.

Source: Table 1.13.

Notes: • The U.S. Government's fiscal year runs from October 1 through September 30.

• Because vertical scales differ, graphs should not be compared.

Table 1.13 U.S. Government Energy Consumption by Agency and Source, Fiscal Years 1990 and 2000

(Trillion Btu)

Agency	Coal and Other [2]	Natural Gas	Petroleum						Electricity	Total
			Aviation Gasoline	Distillate and Residual Fuel Oil	Jet Fuel	LPG [1] and Other	Motor Gasoline	Total		
Total, 1990	**63.1**	**157.8**	**0.5**	**244.5**	**732.4**	**6.3**	**37.2**	**1,020.9**	**195.8**	**1,437.6**
Defense	47.7	114.5	0.1	218.0	723.8	4.4	12.5	958.9	120.6	1,241.7
Postal Service	0.6	4.6	0.0	4.5	0.0	0.2	8.9	13.6	11.8	30.6
Energy	10.0	9.6	0.0	2.9	0.4	0.2	1.2	4.8	19.1	43.5
Veterans Affairs	1.2	13.0	0.0	2.3	0.0	0.0	0.4	2.7	7.9	24.9
Transportation	0.1	1.1	0.1	6.5	5.4	0.1	1.8	13.8	3.9	19.0
General Services Administration	1.9	2.4	0.0	0.7	0.0	0.0	0.1	0.8	9.1	14.2
Justice	0.4	2.2	0.1	0.4	0.1	0.0	1.8	2.5	1.9	7.0
NASA	0.3	2.8	0.0	0.9	1.5	0.0	0.2	2.6	6.6	12.3
Interior	0.2	1.2	0.1	1.2	0.2	1.1	2.1	4.6	1.4	7.4
Agriculture	0.1	1.7	0.1	0.8	0.0	0.2	4.6	5.7	2.0	9.5
Health and Human Services	0.2	2.2	0.0	2.1	0.0	0.0	0.0	2.1	3.4	8.0
Other [3]	0.5	2.4	0.1	4.2	0.9	0.0	3.5	8.7	8.1	19.6
Total, 2000 [P]	**40.9**	**134.9**	**0.2**	**174.4**	**446.9**	**3.3**	**41.1**	**665.9**	**191.8**	**1,033.5**
Defense	30.9	81.7	0.0	154.4	439.1	1.6	13.5	608.6	103.2	824.4
Postal Service	0.4	7.4	0.0	5.0	0.0	0.0	10.4	15.4	18.6	41.9
Energy	4.3	5.9	0.0	1.2	0.2	0.1	1.0	2.6	15.9	28.7
Veterans Affairs	1.5	14.2	0.0	1.2	0.0	0.0	1.2	2.4	9.3	27.5
Transportation	0.0	0.9	0.0	7.3	4.0	0.1	0.8	12.1	8.0	21.1
General Services Administration	1.5	6.1	0.0	0.1	0.0	0.0	0.1	0.2	9.8	17.6
Justice	0.5	5.3	0.1	0.4	1.4	0.0	4.8	6.7	4.3	16.7
NASA	0.3	3.1	0.0	0.4	1.1	0.0	0.2	1.8	6.0	11.1
Interior	0.1	1.3	0.1	0.9	0.1	1.1	2.8	5.0	1.7	8.1
Agriculture	0.3	1.9	0.0	0.2	0.0	0.1	3.3	3.6	2.0	7.8
Health and Human Services	0.4	3.3	0.0	0.6	0.0	0.1	0.4	1.2	2.9	7.8
Other [4]	0.6	3.9	0.0	2.8	0.9	0.0	2.4	6.2	10.2	20.9

[1] Liquefied petroleum gases.

[2] Purchased steam and other.

[3] Includes U.S. Department of Commerce, Panama Canal Commission, Tennessee Valley Authority, U.S. Department of Labor, National Science Foundation, U.S. Department of Housing and Urban Development, Federal Communications Commission, Office of Personnel Management, U.S. Department of State, U.S. Department of the Treasury, Small Business Administration, and Environmental Protection Agency.

[4] Includes National Archives and Records Administration, U.S. Department of Commerce, U.S. Department of Labor, U.S. Department of State, Environmental Protection Agency, Federal Communications Commission, Federal Trade Commission, Panama Canal Commission, Equal Employment Opportunity Commission, Nuclear Regulatory Commission, Office of Personnel Management, U.S. Department of Housing and Urban Development, U.S. Department of the Treasury, Railroad Retirement Board, Tennessee Valley Authority, Federal Emergency Management Agency, and U.S. Information Agency.

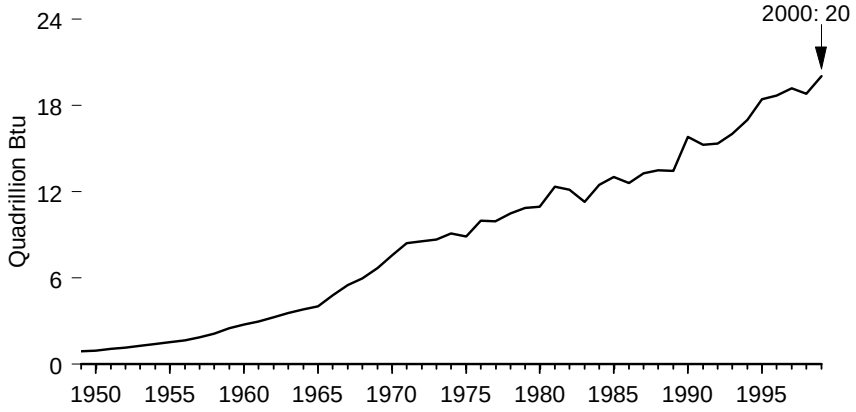
P=Preliminary.

Notes: • This table uses a conversion factor for electricity of 3,412 Btu per kilowatthour and a conversion factor for purchased steam of 1,000 Btu per pound. • Data include energy consumed at foreign installations and in foreign operations, including aviation and ocean bunkering, primarily by the U.S. Department of Defense. U.S. Government energy use for electricity generation and uranium enrichment is excluded. • The U.S. Government's fiscal year runs from October 1 through September 30. • Totals may not equal sum of components due to independent rounding.

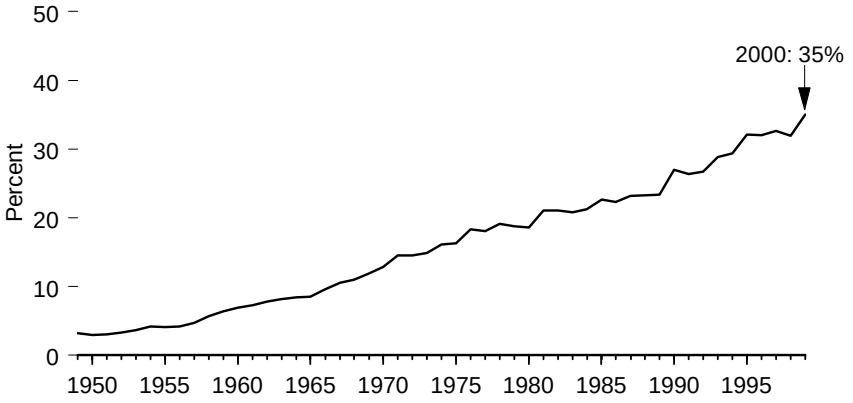
Source: U.S. Department of Energy, Energy Efficiency and Renewable Energy, Office of Federal Energy Management Programs.

Figure 1.14 Fossil Fuel Production on Federally Administered Lands

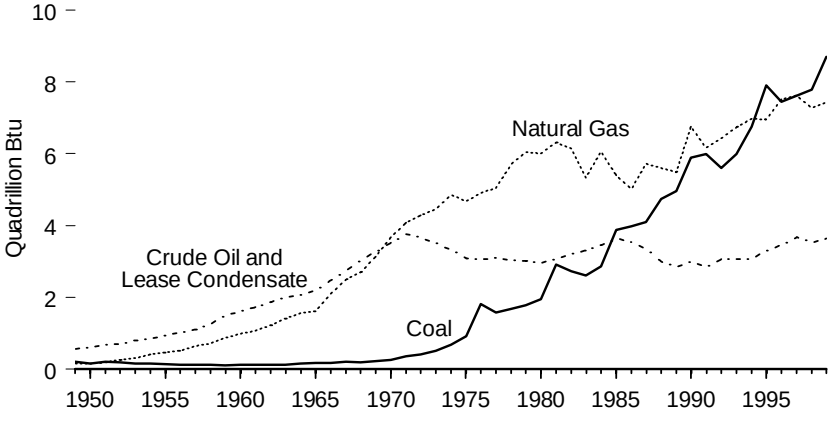
Total, 1949-1999



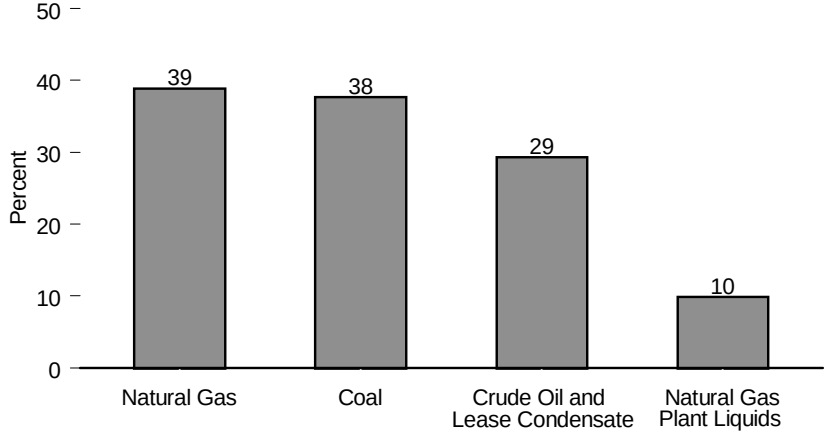
Federal Lands Fossil Fuel Production as a Share of U.S. Fossil Fuel Production, 1949-1999



By Source, 1949-1999



Federal Lands Fossil Fuel Production as a Share of U.S. Fossil Fuel Production, By Source, 1999



Notes: • Federally Administered Lands include all classes of land owned by the Federal Government, including acquired military, Outer Continental Shelf, and public lands. • Because vertical scales differ, graphs should not be compared.

Source: Table 1.14.

Table 1.14 Fossil Fuel Production on Federally Administered Lands, 1949-1999

Year	Crude Oil and Lease Condensate [1]			Natural Gas Plant Liquids [2]			Natural Gas [3]			Coal [4]			Fossil Fuels	
	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	33.5	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	32.1	124.3	2.61	15.9	11.30	20.8
1984	595.8	3.46	18.3	25.4	0.10	4.3	5.88	6.07	33.7	136.3	2.86	15.2	12.48	21.2
1985	628.3	3.64	19.2	26.6	0.10	4.5	5.24	5.41	31.8	184.6	3.88	20.9	13.03	22.6
1986	608.4	3.53	19.2	23.3	0.09	4.1	4.87	5.01	30.3	189.7	3.98	21.3	12.61	22.3
1987	577.3	3.35	18.9	23.7	0.09	4.1	5.56	5.73	33.4	195.2	4.10	21.2	13.27	23.2
1988	516.3	2.99	17.3	37.0	0.14	6.2	5.45	5.61	31.9	225.4	4.73	23.7	13.48	23.3
1989	488.9	2.84	17.6	45.1	0.17	8.0	5.32	5.49	30.7	236.3	4.96	24.1	13.46	23.4
1990	515.9	2.99	19.2	50.9	0.19	8.9	6.55	6.75	36.8	280.6	5.89	27.3	15.83	27.0
1991	491.0	2.85	18.1	72.7	0.28	12.0	5.99	6.17	33.8	285.1	5.99	28.6	15.28	26.4
1992	529.1	3.07	20.2	70.7	0.27	11.4	6.25	6.43	35.0	266.7	5.60	26.7	15.37	26.7
1993	529.3	3.07	21.2	64.4	0.24	10.2	6.56	6.74	36.3	285.7	6.00	30.2	16.05	28.8
1994	527.7	3.06	21.7	60.0	0.23	9.5	6.78	6.97	36.0	321.4	6.75	31.1	17.01	29.4
1995	567.4	3.29	23.7	74.0	0.28	11.5	6.78	6.96	36.4	376.9	7.91	36.5	18.45	32.1
1996	596.5	3.46	25.2	71.2	0.27	10.6	7.31	7.51	38.8	354.5	7.44	33.3	18.68	32.0
1997	632.8	3.67	26.9	74.7	0.28	11.3	7.43	7.62	39.3	362.6	7.61	33.3	19.18	32.6
1998	[6]606.3	3.52	26.6	[6]60.3	0.23	9.4	[6]7.06	7.27	R37.4	371.1	7.79	33.2	18.81	R31.9
1999	[7]628.9	[7]3.65	[7]29.3	[7]66.5	[7]0.25	[7]9.9	[7]7.24	[7]7.44	[7]38.9	414.5	8.70	37.7	[7]20.04	[7]35.0

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

[2] Includes only those quantities for which the royalties were paid on the basis of 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 some quantities of natural gas processed into liquids at natural gas processing plants and fractionators.

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

[5] Based on physical units.

[6] There is a discontinuity in this time series between 1997 and 1998 due to the sale of "Elk Hills," Naval Petroleum Reserve No. 1.

[7] There is a discontinuity in this time series between 1998 and 1999; beginning in 1999 Naval Petroleum Reserve data have become insignificant and are no longer included.

R=Revised.

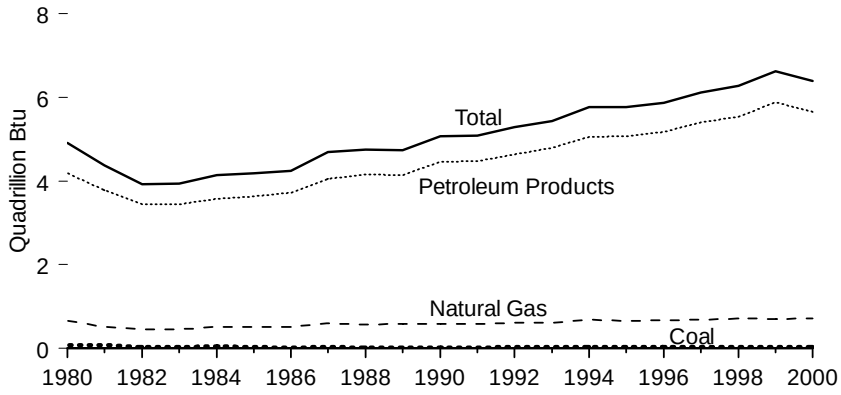
Note: Federally Administered Lands include all classes of land owned by the Federal Government, including acquired military, Outer Continental Shelf, and public lands.

Web Page: http://www.mrm.mms.gov.

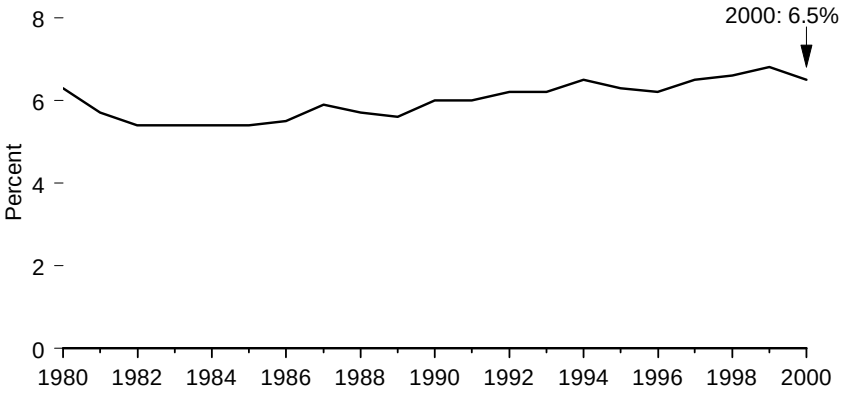
Sources: • 1949-1980—U.S. Geological Survey, *Oil and Gas Production, Royalty Income, and Production, Royalty Income, and Related Statistics,* and *Coal, Phosphate, Potash, Sodium, and Other Mineral Production, Royalty Income, and Related Statistics* (June 1981); Department of Energy, Office of Naval Petroleum and Oil Shale Reserves, unpublished data; and U.S. Geological Survey, National Petroleum Reserve in Alaska, unpublished data. • 1981-1983—U.S. Minerals Management Service, *Mineral Revenues Report on Receipts from Federal and Indian Leases,* (annual); Department of Energy, Office of Naval Petroleum and Oil Shale Reserves, unpublished data; and U.S. Geological Survey, National Petroleum Reserve in Alaska, unpublished data. • 1984-1998—U.S. Minerals Management Service, *Mineral Revenues Report on Receipts from Federal and Indian Leases,* annual reports; and Department of Energy, Office of Naval Petroleum and Oil Shale Reserves, unpublished data. • 1999—U.S. Minerals Management Service, *Mineral Revenues 1999 Report on Receipts from Federal and American Indian Leases,* Table 9.

Figure 1.15 Fossil Fuel Consumption for Nonfuel Use

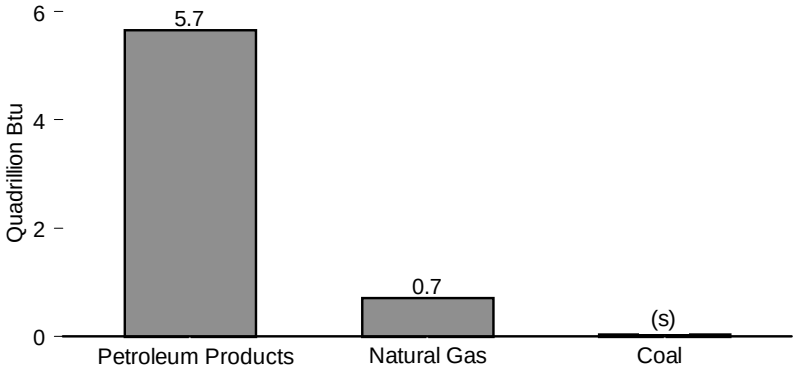
Total, 1980-2000



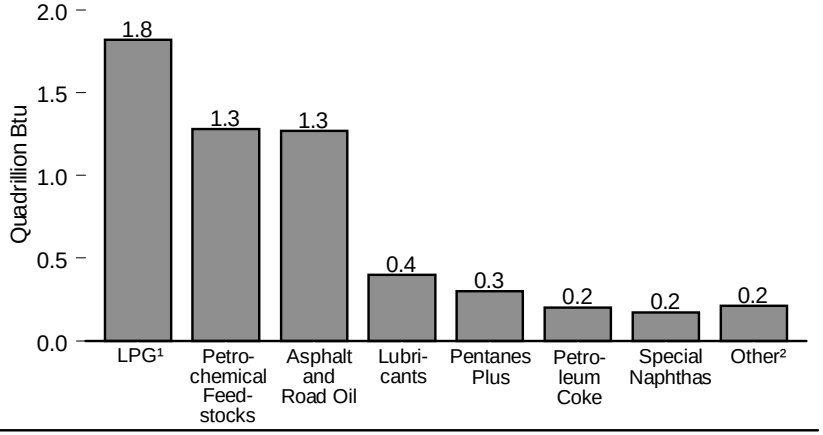
As Share of Total Energy Consumption, 1980-2000



By Fuel, 2000



By Petroleum Product, 2000



¹ Liquefied petroleum gases.
² Distillate fuel oil, residual fuel oil, waxes, and miscellaneous products.
(s) = less than 0.05 quadrillion Btu.

Notes: • See Note 2 at end of section for a discussion of "nonfuel use." • Because vertical scales differ, graphs should not be compared.
Source: Table 1.15.

Table 1.15 Fossil Fuel Consumption for Nonfuel Use, 1980-2000

Year	Petroleum Products									Natural Gas	Coal	Total	Percent of Total Energy Consumption
	Asphalt and Road Oil	Liquefied Petroleum Gases	Pentanes Plus	Lubricants	Petro-chemical Feedstocks	Petroleum Coke	Special Naphthas	Other [1]	Total				
	Physical Units [2]												
1980	145	230	([3])	58	253	24	37	58	805	639	2.4	—	—
1981	125	229	([3])	56	216	29	27	54	736	507	2.1	—	—
1982	125	256	([3])	51	157	23	25	48	686	438	1.4	—	—
1983	136	264	([3])	53	151	10	30	45	689	441	1.2	—	—
1984	150	247	10	57	145	16	40	41	705	495	1.5	—	—
1985	156	265	13	53	144	15	30	41	718	500	1.1	—	—
1986	164	248	17	52	169	14	25	38	727	496	0.7	—	—
1987	170	303	12	59	170	24	28	36	802	578	0.8	—	—
1988	171	319	21	57	173	25	22	40	827	554	0.7	—	—
1989	165	332	17	58	172	23	20	39	827	563	0.6	—	—
1990	176	344	18	60	199	30	20	39	887	572	0.6	—	—
1991	162	394	10	53	200	27	17	44	907	573	0.6	—	—
1992	166	397	13	54	214	41	20	35	940	594	1.2	—	—
1993	174	389	60	55	216	27	20	33	976	R596	0.9	—	—
1994	176	437	56	58	222	30	15	35	1,029	673	0.9	—	—
1995	178	450	66	57	215	32	13	26	1,037	R647	0.9	—	—
1996	177	470	69	55	217	34	14	27	1,063	R656	0.9	—	—
1997	184	473	65	58	250	29	14	27	1,102	R677	0.9	—	—
1998	190	454	58	61	252	51	20	31	1,117	R684	0.8	—	—
1999	R200	R512	R72	62	R237	R62	R28	28	R1,200	R678	0.8	—	—
2000P	192	518	67	61	230	37	32	29	1,166	692	0.8	—	—
	Quadrillion Btu												
1980	0.96	0.78	([3])	0.35	1.43	0.14	0.19	0.34	4.19	0.65	0.08	4.92	6.3
1981	0.83	0.77	([3])	0.34	1.21	0.17	0.14	0.31	3.78	0.52	0.07	4.37	5.7
1982	0.83	0.87	([3])	0.31	0.88	0.14	0.13	0.28	3.44	0.45	0.04	3.93	5.4
1983	0.90	0.89	([3])	0.32	0.85	0.06	0.16	0.26	3.45	0.45	0.04	3.94	5.4
1984	0.99	0.84	0.05	0.35	0.82	0.09	0.21	0.24	3.58	0.51	0.05	4.14	5.4
1985	1.03	0.90	0.06	0.32	0.82	0.09	0.16	0.24	3.63	0.52	0.03	4.18	5.4
1986	1.09	0.85	0.08	0.31	0.95	0.08	0.13	0.22	3.72	0.51	0.02	4.25	5.5
1987	1.13	1.06	0.06	0.36	0.96	0.14	0.14	0.21	4.06	0.60	0.03	4.69	5.9
1988	1.14	1.11	0.10	0.34	0.97	0.15	0.11	0.23	4.16	0.57	0.02	4.75	5.7
1989	1.10	1.18	0.08	0.35	0.96	0.14	0.11	0.23	4.14	0.58	0.02	4.74	5.6
1990	1.17	1.20	0.08	0.36	1.12	0.18	0.11	0.23	4.46	0.59	0.02	5.07	6.0
1991	1.08	1.38	0.04	0.32	1.15	0.16	0.09	0.26	4.48	0.59	0.02	5.09	R6.0
1992	1.10	1.39	0.06	0.33	1.20	0.25	0.10	0.20	4.64	0.61	0.04	5.29	6.2
1993	1.15	1.35	0.28	0.34	1.22	0.17	0.10	0.20	4.80	0.61	0.03	5.44	6.2
1994	1.17	1.55	0.26	0.35	1.26	0.18	0.08	0.20	5.05	0.69	0.03	5.77	6.5
1995	1.18	1.59	0.30	0.35	1.21	0.19	0.07	0.20	5.08	R0.66	0.03	R5.77	R6.3
1996	1.18	1.65	0.32	0.34	1.21	0.21	0.07	0.19	5.17	R0.67	0.03	R5.87	R6.2
1997	1.22	1.67	0.30	0.35	1.40	0.18	0.07	0.20	5.40	R0.69	0.03	R6.12	6.5
1998	1.26	1.60	0.27	0.37	1.40	0.31	0.11	0.22	5.54	R0.71	0.03	R6.28	R6.6
1999	1.32	R1.81	0.33	R0.37	1.33	0.37	R0.15	R0.21	R5.89	R0.70	R0.03	6.62	R6.8
2000P	1.27	1.82	0.31	0.37	1.28	0.23	0.17	0.21	5.66	0.71	0.03	6.40	6.5

[1] Distillate fuel oil, residual fuel oil, waxes, and miscellaneous products.
[2] Petroleum - million barrels; natural gas - billion cubic feet; and coal - million short tons.
[3] Included in liquefied petroleum gases.
R=Revised. P=Preliminary. — = Not applicable.

Notes: • See Note 2 at end of section for a discussion of "Nonfuel Use." • Because of changes in methodology, data series may be revised annually. • See Energy Information Administration (EIA), *Emissions of Greenhouse Gases in the United States 1999* (October 2000), Appendix A, for a discussion of the estimates in the table. • Totals may not equal sum of components due to independent rounding.

Sources: **Petroleum Products:** • 1980—EIA, Energy Data Reports, *Petroleum Statement, Annual* and *Sales of Liquefied Petroleum Gases and Ethane in 1980.* • 1981-1999—EIA, *Petroleum Supply Annual,* annual reports, and unpublished data. • 2000—EIA, *Petroleum Supply Monthly* (February 2001), and EIA estimates. **Natural Gas:** • 1980—Bureau of the Census, 1980 Survey of Manufactures, *Hydrocarbon, Coal, and Coke Materials Consumed.* • 1981 forward—U.S. Department of Commerce. **Coal:** • 1960-1995—U.S. International Trade Commission, *Synthetic Organic Chemicals, United States Production and Sales, 1995* (January 1997). • 1996 forward—Estimated because the data series has been discontinued. **Percent of Total Energy Consumption:** Derived by dividing total by total consumption on Table 1.3.

Note 1. Data on the generation of electricity in the United States represent net generation, which is gross output of electricity (measured at the generator terminals) minus power plant use. Nuclear electricity generation data identified by individual countries in Section 11 are gross outputs of electricity.

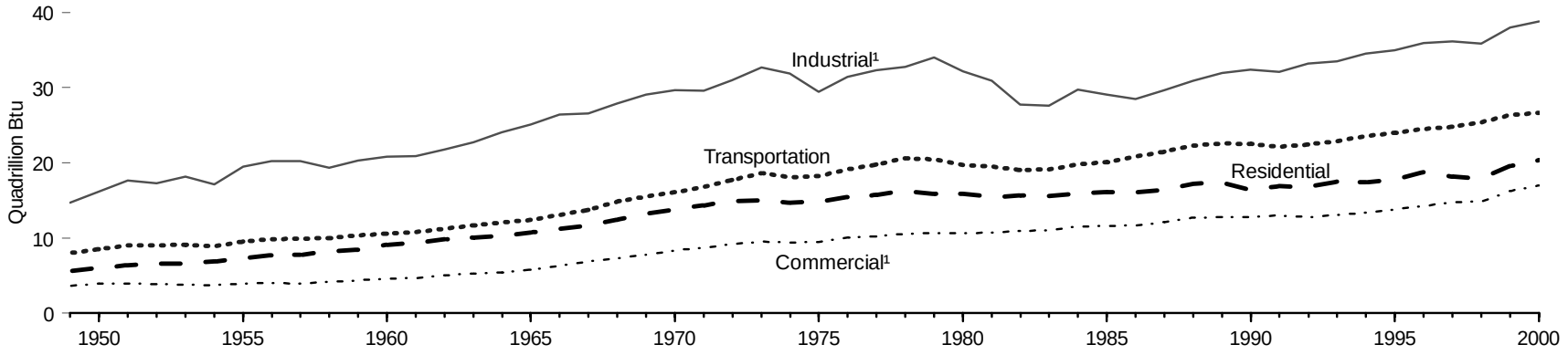
Note 2. Most fossil fuels consumed in the United States and elsewhere are combusted to produce heat and power. However, some are used directly for nonfuel use as construction materials, lubricants, chemical feedstocks, solvents, and waxes. For example, asphalt and road oil are used for roofing and paving; liquefied petroleum gases are used to create intermediate products that are used in making plastics; lubricants, including motor oil and greases, are used in vehicles and various industrial processes; petrochemical feedstocks are used to make plastics, synthetic fabrics, and related products; and natural gas is used to make nitrogenous fertilizers and as feedstock in the chemical industry.

2 Energy Consumption by Sector

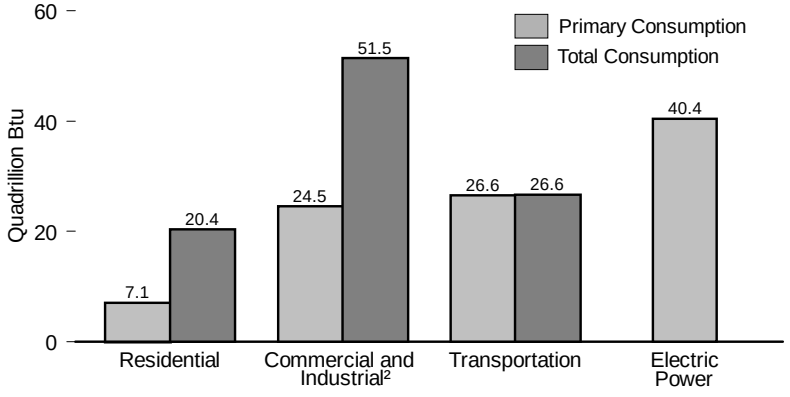
Office buildings, industries, residences, and transport systems, Baltimore, Maryland; east view from the Inner Harbor.
Source: U.S. Department of Energy.

Figure 2.1a Energy Consumption by Sector Overview

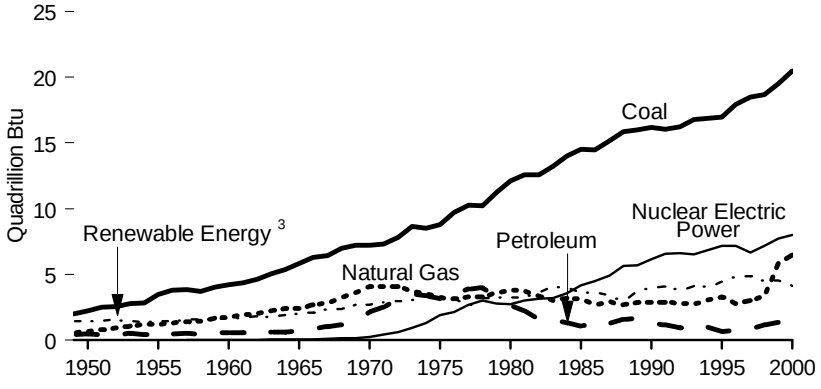
Total Consumption by Sector, 1949-2000



By Sector, 2000



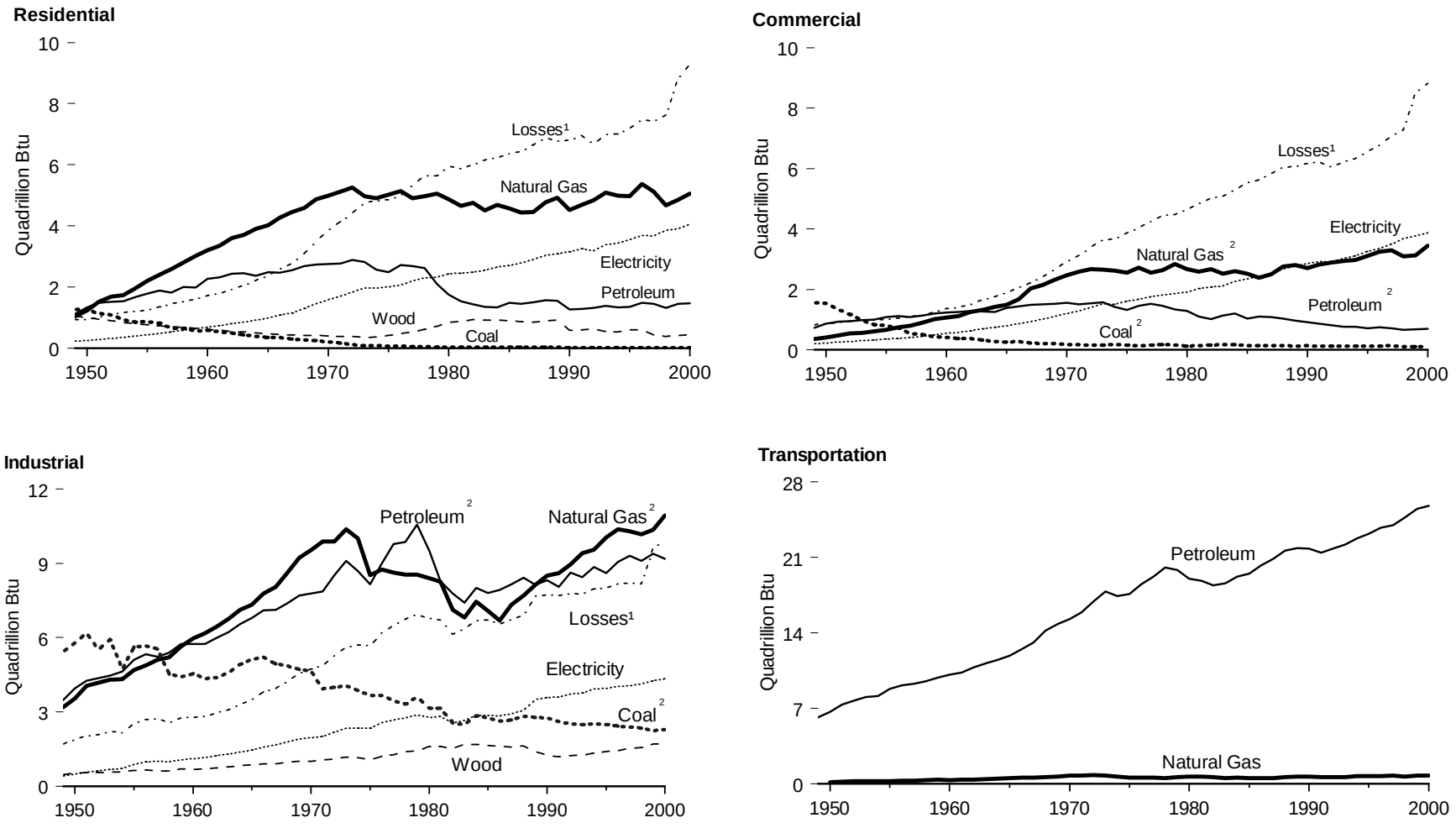
Electric Power Sector, 1949-2000



[1] Includes some fossil fuels that are also counted in nonutility power producers in the electric power sector.
[2] Includes "Adjustments." See Table 2.1a.
[3] Conventional hydroelectric power, wood, waste, geothermal, solar, and wind.
Note: Because vertical scales differ, graphs should not be compared.

Sources: Tables 2.1a and 2.1f.

Figure 2.1b Energy Consumption by End-Use Sectors, 1949-2000



¹ Electrical system energy losses associated with the generation, transmission, and distribution of energy in the form of electricity. See Tables 2.1b, 2.1c, and 2.1d for footnote about a data discontinuity between 1998 and 1999.

² Includes some nonutility consumption that is also counted in the electric power sector.

Note: Because vertical scales differ, graphs should not be compared.
Sources: Tables 2.1b-2.1e.

Table 2.1a Energy Consumption by Sector, 1949-2000

(Trillion Btu)

Year	End-Use Sectors								Electric Power Sector	Adjustments [2]	Total
	Residential		Commercial [1]		Industrial [1]		Transportation				
	Primary	Total	Primary	Total	Primary	Total	Primary	Total	Primary		
1949	4,475	5,639	2,661	3,683	12,552	R14,687	7,880	R7,993	4,433	-1	32,000
1950	4,848	6,029	2,824	3,903	13,811	R16,208	8,384	R8,495	4,768	(s)	34,635
1951	5,099	6,397	2,754	3,909	15,055	R17,650	8,934	R9,044	5,156	R-2	36,996
1952	5,179	6,603	2,662	3,881	14,599	R17,280	8,907	R9,005	5,422	1	36,770
1953	5,056	6,582	2,520	3,795	15,273	R18,184	9,031	R9,125	5,806	-2	37,684
1954	5,286	6,891	2,445	3,737	14,250	R17,128	8,823	8,904	5,856	(s)	36,660
1955	5,633	7,322	2,548	3,896	16,052	R19,471	9,476	9,552	6,533	(s)	40,242
1956	5,851	7,694	2,608	4,039	16,527	R20,199	9,792	9,861	7,016	-2	41,791
1957	5,772	7,757	2,434	3,959	16,479	R20,204	9,837	9,897	7,295	-1	41,816
1958	6,143	8,237	2,553	4,128	15,762	R19,301	9,952	10,005	7,261	(s)	41,670
1959	6,224	8,466	2,630	4,367	16,483	R20,311	10,299	10,350	7,858	-1	43,493
1960	6,689	9,099	2,702	4,606	16,939	R20,819	10,561	10,598	8,230	-1	45,120
1961	6,815	9,341	2,744	4,719	16,956	R20,924	10,734	10,770	8,505	2	45,755
1962	7,113	9,828	2,910	5,032	17,554	R21,750	11,187	11,221	9,069	-1	47,832
1963	7,135	10,045	2,897	5,235	18,332	R22,711	11,621	R11,655	9,661	1	49,647
1964	7,161	10,305	2,949	5,450	19,391	R24,076	11,964	11,998	10,363	R2	51,831
1965	7,334	10,705	3,144	5,821	20,091	R25,056	12,400	12,434	11,046	(s)	54,016
1966	7,549	11,231	3,384	6,309	20,996	R26,382	13,069	13,102	12,026	1	57,024
1967	7,741	11,680	3,738	6,879	20,975	R26,593	13,717	13,751	12,732	2	58,906
1968	7,968	12,383	3,861	7,300	21,835	R27,865	14,830	14,865	13,918	3	62,415
1969	8,277	13,219	4,046	7,806	22,621	R29,099	15,472	15,507	15,216	-3	65,628
1970	8,353	13,814	4,196	8,319	22,942	R29,628	16,062	16,099	16,307	-3	R67,858
1971	8,460	14,301	4,279	8,693	22,701	R29,594	16,693	16,729	17,183	-2	R69,314
1972	8,655	14,920	4,369	9,168	23,499	R30,954	17,683	17,718	18,554	R-2	R72,758
1973	8,250	14,975	4,381	9,542	24,704	R32,670	18,575	18,611	19,887	R10	R75,808
1974	7,928	14,725	4,221	9,394	23,783	R31,834	18,087	18,120	20,055	R6	R74,080
1975	8,006	14,867	4,023	9,486	21,424	R29,446	18,211	18,245	20,382	R-2	R72,042
1976	8,408	15,471	4,333	10,060	22,656	R31,438	19,065	19,099	21,607	5	R76,072
1977	8,207	15,740	4,217	10,218	23,162	R32,338	19,783	19,819	22,746	7	R78,122
1978	8,272	16,212	4,269	10,525	23,243	R32,768	20,579	20,613	23,755	R5	R80,123
1979	7,934	15,900	4,333	10,673	24,176	R33,998	20,435	20,469	24,162	R5	R81,044
1980	7,504	15,909	4,097	10,642	22,643	R32,192	19,657	19,695	24,538	-3	R78,435
1981	7,103	15,442	3,831	10,712	21,372	R30,907	19,468	19,505	24,793	3	76,569
1982	7,163	15,661	3,859	10,950	19,080	R27,757	19,031	19,068	24,303	5	73,441
1983	6,834	15,559	3,827	11,034	18,563	R27,578	19,097	19,140	24,989	6	73,317
1984	6,990	15,881	3,991	11,555	20,176	R29,725	19,762	19,810	26,053	(s)	76,972
1985	6,988	16,059	3,712	11,585	19,509	R29,069	20,024	20,071	26,552	R-7	R76,778
1986	6,807	16,052	3,652	11,719	19,101	R28,475	20,768	20,818	26,735	2	77,065
1987	6,841	16,405	3,743	12,110	20,012	R29,663	21,405	21,456	27,633	-1	79,633
1988	7,244	17,178	3,953	12,675	20,927	R30,901	22,261	22,313	28,681	2	R83,068
1989	7,492	17,358	3,922	12,757	20,724	R31,904	22,515	R22,567	29,934	R128	R84,716
1990	6,458	16,414	3,778	12,810	21,109	R32,420	22,489	R22,540	30,350	R160	R84,344
1991	6,689	16,904	3,834	12,977	20,755	R32,062	22,077	22,128	30,715	R227	R84,298
1992	6,883	16,737	3,866	12,815	21,677	R33,200	22,419	R22,468	30,376	R292	R85,513
1993	7,123	17,514	3,861	13,103	21,929	R33,461	22,842	R22,892	31,216	R330	R87,300
1994	6,956	17,404	3,900	13,359	22,640	R34,542	23,468	R23,520	31,861	R388	R89,213
1995	7,027	17,781	3,994	13,826	22,963	R34,948	23,921	R23,972	32,621	R417	R90,943
1996	7,559	18,744	4,166	14,292	23,719	R35,938	24,467	R24,518	33,581	R439	R93,931
1997	7,093	18,187	4,192	14,778	23,920	R36,161	24,768	R24,819	33,970	R396	R94,340
1998	6,465	17,953	3,909	14,867	23,554	R35,865	25,338	R25,389	34,807	R533	R94,608
1999	6,814	319,572	3,962	316,261	24,063	R,337,958	26,255	R,326,312	339,009	R-3,237	R,396,866
2000P	7,053	20,391	4,310	16,994	24,477	38,763	26,580	26,639	40,368	-4,291	98,498

[1] Includes some fossil-fuel consumption at nonutilities.

[2] A balancing item. The sum of primary consumption in the five energy-use sectors equals the sum of total consumption in the four end-use sectors. However, total energy consumption does not equal the sum of the sectoral components due to: 1) for 1949 forward, the use of sector-specific conversion factors for natural gas and coal; 2) for 1989 forward, the undercounting of coal consumption at "Other Power Producers" in the energy-use sectors (see Table 7.3); and 3) for 1999 and 2000, the double-counting of fossil-fuel consumption at nonutilities in both the electric power sector and the end-use sectors (see Tables 5.12d, 6.5, and 7.3).

[3] There is a discontinuity in this time series between 1998 and 1999; beginning in 1999, nonutility consumption of fossil fuels is included in electric power sector consumption and the calculation for electrical system energy losses. See Table 2.1f.

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

Notes: • Primary consumption includes coal, natural gas, petroleum, nuclear electric power, hydroelectric power, wood, waste, alcohol fuels, geothermal, solar, wind, net imports of coal coke, and net imports of electricity. • Total consumption includes primary consumption, electricity end-use, and electrical system energy losses. • Totals may not equal sum of components due to independent rounding.

Sources: Tables 2.1b-2.1f.

Table 2.1b Residential Sector Energy Consumption, 1949-2000

(Trillion Btu)

Year	Primary Consumption								Total Primary	Electricity [5]	Electrical System Energy Losses [6]	Total
	Fossil Fuels				Renewable Energy							
	Coal	Natural Gas [1]	Petroleum	Total	Wood [2]	Geothermal [3]	Solar [4]	Total				
1949	1,272	1,027	1,121	3,420	1,055	NA	NA	1,055	4,475	228	936	5,639
1950	1,261	1,240	1,340	3,842	1,006	NA	NA	1,006	4,848	246	935	6,029
1951	1,134	1,526	1,481	4,141	958	NA	NA	958	5,099	284	1,014	6,397
1952	1,079	1,679	1,522	4,279	899	NA	NA	899	5,179	319	1,105	6,603
1953	946	1,744	1,533	4,224	832	NA	NA	832	5,056	355	1,171	6,582
1954	858	1,961	1,667	4,486	800	NA	NA	800	5,286	397	1,208	6,891
1955	867	2,198	1,792	4,858	775	NA	NA	775	5,633	438	1,251	7,322
1956	823	2,409	1,880	5,112	739	NA	NA	739	5,851	490	1,353	7,694
1957	654	2,588	1,828	5,070	702	NA	NA	702	5,772	535	1,451	7,757
1958	652	2,809	1,994	5,455	688	NA	NA	688	6,143	578	1,515	8,237
1959	573	3,015	1,989	5,577	647	NA	NA	647	6,224	630	1,612	8,466
1960	585	3,212	2,265	6,062	627	NA	NA	627	6,689	687	1,722	9,099
1961	534	3,362	2,332	6,228	587	NA	NA	587	6,815	732	1,795	9,341
1962	512	3,600	2,441	6,553	560	NA	NA	560	7,113	794	1,921	9,828
1963	438	3,700	2,459	6,598	537	NA	NA	537	7,135	856	2,054	10,045
1964	379	3,908	2,375	6,662	499	NA	NA	499	7,161	928	2,216	10,305
1965	358	4,028	2,481	6,866	468	NA	NA	468	7,334	993	2,377	10,705
1966	349	4,275	2,471	7,094	455	NA	NA	455	7,549	1,081	2,600	11,231
1967	299	4,451	2,557	7,307	434	NA	NA	434	7,741	1,160	2,779	11,680
1968	269	4,588	2,685	7,543	426	NA	NA	426	7,968	1,302	3,113	12,383
1969	248	4,875	2,739	7,862	415	NA	NA	415	8,277	1,456	3,486	13,219
1970	209	4,987	2,755	7,952	401	NA	NA	401	8,353	1,591	3,870	13,814
1971	175	5,126	2,777	8,078	382	NA	NA	382	8,460	1,704	4,136	14,301
1972	116	5,264	2,895	8,276	380	NA	NA	380	8,655	1,838	4,427	14,920
1973	94	4,977	2,825	7,896	354	NA	NA	354	8,250	1,976	4,749	14,975
1974	82	4,901	2,573	7,557	371	NA	NA	371	7,928	1,973	4,824	14,725
1975	63	5,023	2,495	7,580	425	NA	NA	425	8,006	2,007	4,855	14,867
1976	59	5,147	2,720	7,927	482	NA	NA	482	8,408	2,069	4,994	15,471
1977	57	4,913	2,695	7,666	542	NA	NA	542	8,207	2,202	5,331	15,740
1978	49	4,981	2,620	7,651	622	NA	NA	622	8,272	2,301	5,639	16,212
1979	37	5,055	2,114	7,206	728	NA	NA	728	7,934	2,330	5,636	15,900
1980	31	4,866	1,748	6,645	R859	NA	NA	859	7,504	2,448	5,958	15,909
1981	30	4,660	1,543	6,234	869	NA	NA	869	7,103	2,464	5,876	15,442
1982	32	4,753	1,441	6,226	937	NA	NA	937	7,163	2,489	6,008	15,661
1983	31	4,516	1,362	5,909	925	NA	NA	925	6,834	2,562	6,162	15,559
1984	38	4,692	1,337	6,067	923	NA	NA	923	6,990	2,662	6,229	15,881
1985	35	4,571	1,483	6,089	899	NA	NA	899	6,988	2,709	6,362	16,059
1986	35	4,439	1,457	5,931	876	NA	NA	876	6,807	2,795	6,450	16,052
1987	32	4,449	1,508	5,989	852	NA	NA	852	6,841	2,902	6,662	16,405
1988	32	4,765	1,563	6,359	885	NA	NA	885	7,244	3,046	6,887	17,178
1989	28	4,929	1,560	6,516	918	R5	53	976	7,492	3,090	6,777	17,358
1990	26	4,523	1,266	5,816	581	R6	56	642	6,458	3,153	6,803	16,414
1991	23	4,697	1,293	6,013	613	R6	58	677	6,689	3,260	6,954	16,904
1992	24	4,835	1,312	6,172	645	R6	60	711	6,883	3,193	6,660	16,737
1993	24	5,095	1,387	6,507	548	R7	62	616	7,123	3,394	6,997	17,514
1994	21	4,988	1,340	6,349	537	R6	64	607	6,956	3,441	7,007	17,404
1995	17	4,981	1,361	6,360	596	R7	65	667	7,027	3,557	7,196	17,781
1996	17	5,383	1,492	6,891	595	R7	66	668	7,559	3,694	7,492	18,744
1997	16	5,118	1,454	6,588	433	R7	65	506	7,093	3,671	7,422	18,187
1998	13	4,669	1,324	6,006	R387	R8	65	459	6,465	3,856	7,632	17,953
1999	14	4,858	1,456	6,328	R414	R8	R64	486	6,814	3,906	[7]8,851	[7]19,572
2000P	14	5,061	1,475	6,550	433	9	62	503	7,053	4,066	9,272	20,391

[1] Includes supplemental gaseous fuels.
[2] Wood only.
[3] Geothermal heat pump and direct use energy.
[4] Solar thermal direct use and photovoltaic energy. Includes small amounts of commercial sector use.
[5] Electric utility retail sales of electricity, including nonutility sales of electricity to utilities for distribution to end users; beginning in 1996, also includes sales to ultimate consumers by power marketers.
[6] Total losses are calculated as the energy consumed to generate electricity by the electric power sector minus the electricity consumed by end users (see Tables 2.1f, 8.12, A6; Diagram 5; and Glossary). Total losses are allocated to the end-use sectors in proportion to each sector's share of total electricity use. (Nonutility direct use of electricity and nonutility sales of electricity to end users are allocated totally to the industrial sector.)
[7] There is a discontinuity in this time series between 1998 and 1999; beginning in 1999, nonutility consumption of fossil fuels is included in electric power sector consumption and the calculation for electrical system energy losses. See Table 2.1f.

R=Revised. P=Preliminary. NA=Not available.

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

Sources: Tables 2.1f, 5.12a, 6.5, 7.3, 8.12, 10.2a, A1, and A4-A6.

Table 2.1c Commercial Sector Energy Consumption, 1949-2000

(Trillion Btu)

Year	Primary Consumption								Electricity [5]	Electrical System Energy Losses [6]	Total
	Fossil Fuels				Renewable Energy			Total Primary			
	Coal [1]	Natural Gas [1,2]	Petroleum [1]	Total	Wood [3]	Geothermal [4]	Total				
1949	1,554	360	727	2,641	20	NA	20	2,661	200	822	3,683
1950	1,542	401	862	2,805	19	NA	19	2,824	225	854	3,903
1951	1,331	481	924	2,736	18	NA	18	2,754	252	902	3,909
1952	1,169	534	942	2,645	17	NA	17	2,662	273	946	3,881
1953	985	549	970	2,504	16	NA	16	2,520	297	978	3,795
1954	825	605	1,000	2,430	15	NA	15	2,445	319	973	3,737
1955	801	651	1,081	2,533	15	NA	15	2,548	350	999	3,896
1956	730	742	1,122	2,594	14	NA	14	2,608	380	1,051	4,039
1957	535	803	1,083	2,421	13	NA	13	2,434	411	1,114	3,959
1958	512	902	1,125	2,540	13	NA	13	2,553	435	1,140	4,128
1959	415	1,009	1,194	2,618	12	NA	12	2,630	488	1,249	4,367
1960	407	1,056	1,228	2,690	12	NA	12	2,702	543	1,361	4,606
1961	371	1,115	1,247	2,733	11	NA	11	2,744	572	1,403	4,719
1962	371	1,249	1,280	2,899	11	NA	11	2,910	621	1,501	5,032
1963	317	1,307	1,262	2,887	10	NA	10	2,897	688	1,651	5,235
1964	274	1,419	1,247	2,940	9	NA	9	2,949	738	1,763	5,450
1965	259	1,490	1,386	3,135	9	NA	9	3,144	789	1,888	5,821
1966	263	1,676	1,436	3,375	9	NA	9	3,384	859	2,066	6,309
1967	225	2,022	1,483	3,730	8	NA	8	3,738	925	2,216	6,879
1968	203	2,140	1,510	3,853	8	NA	8	3,861	1,014	2,424	7,300
1969	195	2,323	1,520	4,038	8	NA	8	4,046	1,108	2,652	7,806
1970	165	2,473	1,551	4,189	8	NA	8	4,196	1,201	2,922	8,319
1971	175	2,587	1,510	4,272	7	NA	7	4,279	1,288	3,126	8,693
1972	153	2,678	1,530	4,362	7	NA	7	4,369	1,408	3,391	9,168
1973	160	2,649	1,565	4,374	7	NA	7	4,381	1,517	3,644	9,542
1974	175	2,617	1,423	4,214	7	NA	7	4,221	1,501	3,672	9,394
1975	147	2,558	1,310	4,015	8	NA	8	4,023	1,598	3,865	9,486
1976	144	2,718	1,461	4,323	9	NA	9	4,333	1,678	4,049	10,060
1977	148	2,548	1,511	4,207	10	NA	10	4,217	1,754	4,247	10,218
1978	165	2,643	1,450	4,257	12	NA	12	4,269	1,813	4,443	10,525
1979	149	2,836	1,334	4,319	14	NA	14	4,333	1,854	4,485	10,673
1980	115	2,674	1,287	4,076	21	NA	21	4,097	1,906	4,639	10,642
1981	137	2,583	1,090	3,810	21	NA	21	3,831	2,033	4,848	10,712
1982	155	2,673	1,008	3,837	22	NA	22	3,859	2,077	5,014	10,950
1983	162	2,508	1,136	3,805	22	NA	22	3,827	2,116	5,090	11,034
1984	171	2,600	1,198	3,969	22	NA	22	3,991	2,264	5,300	11,555
1985	141	2,508	1,039	3,688	24	NA	24	3,712	2,351	5,522	11,585
1986	141	2,386	1,099	3,625	27	NA	27	3,652	2,439	5,628	11,719
1987	129	2,505	1,079	3,714	29	NA	29	3,743	2,539	5,829	12,110
1988	136	2,748	1,037	3,921	32	NA	32	3,953	2,675	6,047	12,675
1989	118	2,802	966	3,886	34	3	37	3,922	2,767	6,068	12,757
1990	129	2,701	907	3,738	37	3	40	3,778	2,860	6,172	12,810
1991	118	2,813	861	3,792	39	3	42	3,834	2,918	6,225	12,977
1992	118	2,890	813	3,821	42	3	45	3,866	2,900	6,049	12,815
1993	119	2,942	753	3,813	44	3	47	3,861	3,019	6,223	13,103
1994	118	2,979	753	3,850	45	4	49	3,900	3,116	6,344	13,359
1995	117	3,113	715	3,945	45	5	50	3,994	3,252	6,579	13,826
1996	122	3,244	747	4,112	49	5	54	4,166	3,344	6,783	14,292
1997	129	3,302	709	4,140	47	6	53	4,192	3,503	7,082	14,778
1998	92	3,098	665	3,855	47	7	54	3,909	3,678	7,280	14,867
1999	103	3,130	672	3,904	[R]51	7	58	3,962	3,766	[7]8,533	[7]16,261
2000[P]	102	3,452	696	4,250	52	8	60	4,310	3,867	8,818	16,994

[1] Includes some consumption at nonutilities.
[2] Includes supplemental gaseous fuels.
[3] Wood only.
[4] Geothermal heat pump and direct use energy.
[5] Electric utility retail sales of electricity, including nonutility sales of electricity to utilities for distribution to end users; beginning in 1996, also includes sales to ultimate consumers by power marketers.
[6] Total losses are calculated as the energy consumed to generate electricity by the electric power sector minus the electricity consumed by end users (see Tables 2.1f, 8.12, A6; Diagram 5; and Glossary). Total losses are allocated to the end-use sectors in proportion to each sector's share of total electricity use. (Nonutility direct use of electricity and nonutility sales of electricity to end users are allocated totally to the industrial sector.)
[7] There is a discontinuity in this time series between 1998 and 1999; beginning in 1999, nonutility consumption of fossil fuels is included in electric power sector consumption and the calculation for electrical system energy losses. See Table 2.1f.

R=Revised. P=Preliminary. NA=Not available.

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

Sources: Tables 2.1f, 5.12a, 6.5, 7.3, 8.12, 10.2a, A1, and A3-A6.

Table 2.1d Industrial Sector Energy Consumption, 1949-2000

(Trillion Btu)

Year	Primary Consumption										Electricity [5]	Electrical System Energy Losses [6]	Total
	Fossil Fuels					Renewable Energy				Total Primary			
	Coal [1]	Coal Coke Net Imports	Natural Gas [1,2]	Petroleum [1]	Total	Wood [3]	Waste [3]	Geothermal [4]	Total				
1949	5,433	-7	3,188	3,469	12,084	468	NA	NA	R468	12,552	418	R1,717	R14,687
1950	5,781	1	3,546	3,951	13,279	532	NA	NA	R532	13,811	500	R1,896	R16,208
1951	6,202	-21	4,052	4,270	14,503	553	NA	NA	R553	15,055	567	R2,027	R17,650
1952	5,517	-12	4,181	4,362	14,047	552	NA	NA	R552	14,599	601	R2,080	R17,280
1953	5,931	-9	4,304	4,481	14,707	566	NA	NA	R566	15,273	678	R2,233	R18,184
1954	4,730	-7	4,319	4,632	13,674	576	NA	NA	R576	14,250	711	R2,167	R17,128
1955	5,620	-10	4,701	5,110	15,421	631	NA	NA	R631	16,052	887	R2,532	R19,471
1956	5,667	-13	4,874	5,337	15,865	661	NA	NA	R661	16,527	976	R2,697	R20,199
1957	5,536	-17	5,107	5,237	15,863	616	NA	NA	R616	16,479	1,003	R2,722	R20,204
1958	4,533	-7	5,208	5,408	15,142	620	NA	NA	R620	15,762	978	R2,561	R19,301
1959	4,413	-8	5,647	5,740	15,791	692	NA	NA	R692	16,483	1,075	R2,753	R20,311
1960	4,543	-6	5,973	5,748	16,259	680	NA	NA	R680	16,939	1,107	R2,774	R20,819
1961	4,345	-8	6,170	5,753	16,261	695	NA	NA	R695	16,956	1,149	R2,819	R20,924
1962	4,385	-6	6,451	5,996	16,826	728	NA	NA	R728	17,554	1,228	R2,969	R21,750
1963	4,590	-7	6,748	6,226	17,557	775	NA	NA	R775	18,332	1,288	R3,092	R22,711
1964	4,915	-10	7,114	6,546	18,564	827	NA	NA	R827	19,391	1,382	R3,303	R24,076
1965	5,127	-18	7,339	6,789	19,236	855	NA	NA	R855	20,091	1,463	R3,502	R25,056
1966	5,215	-25	7,795	7,109	20,094	902	NA	NA	R902	20,996	1,582	R3,804	R26,382
1967	4,934	-15	8,043	7,119	20,081	895	NA	NA	R895	20,975	1,655	R3,963	R26,593
1968	4,855	-17	8,626	7,389	20,853	982	NA	NA	R982	21,835	1,778	R4,252	R27,865
1969	4,712	-36	9,234	7,697	21,606	1,014	NA	NA	R1,014	22,621	1,909	R4,570	R29,099
1970	4,656	-58	9,536	7,789	21,923	1,019	NA	NA	R1,019	22,942	1,948	R4,738	R29,628
1971	3,944	-33	9,892	7,859	21,661	1,040	NA	NA	R1,040	22,701	2,011	R4,881	R29,594
1972	3,993	-26	9,884	8,534	22,386	1,113	NA	NA	R1,113	23,499	2,187	R5,269	R30,954
1973	4,057	-7	10,388	9,102	23,539	1,165	NA	NA	R1,165	24,704	2,341	R5,625	R32,670
1974	3,870	56	10,004	8,694	22,624	1,159	NA	NA	R1,159	23,783	2,337	R5,715	R31,834
1975	3,667	14	8,532	8,148	20,360	1,063	NA	NA	R1,063	21,424	2,346	R5,676	R29,446
1976	3,661	(s)	8,762	9,014	21,436	1,220	NA	NA	R1,220	22,656	2,573	R6,209	R31,438
1977	3,454	15	8,635	9,776	21,880	1,281	NA	NA	R1,281	23,162	2,682	R6,494	R32,338
1978	3,314	125	8,539	9,866	21,843	1,400	NA	NA	R1,400	23,243	2,761	R6,764	R32,768
1979	3,593	63	8,549	10,566	22,771	1,405	NA	NA	R1,405	24,176	2,873	R6,949	R33,998
1980	3,155	-35	8,395	9,528	21,043	1,600	NA	NA	R1,600	22,643	2,781	R6,768	R32,192
1981	3,157	-16	8,257	8,286	19,684	1,602	87	NA	R1,689	21,372	2,817	R6,717	R30,907
1982	2,552	-22	7,121	7,795	17,446	1,516	118	NA	R1,634	19,080	2,542	R6,135	R27,757
1983	2,490	-16	6,826	7,417	16,718	1,690	155	NA	R1,845	18,563	2,648	R6,368	R27,578
1984	2,842	-11	7,448	8,015	18,293	1,679	204	NA	R1,883	20,176	2,859	R6,691	R29,725
1985	2,760	-13	7,080	7,807	17,634	1,645	230	NA	R1,875	19,509	2,855	R6,705	R29,069
1986	2,641	-17	6,690	7,921	17,235	1,610	256	NA	R1,866	19,101	2,834	R6,540	R28,475
1987	2,673	9	7,323	8,150	18,154	1,576	282	NA	R1,858	20,012	2,928	R6,723	R29,663
1988	2,828	40	7,696	8,431	18,995	1,625	308	NA	R1,933	20,927	3,059	R6,915	R30,901
1989	2,787	30	8,131	8,130	19,078	R1,394	250	R2	R1,646	20,724	3,501	R7,679	R31,904
1990	2,756	5	8,502	8,319	19,582	R1,254	271	R2	R1,527	21,109	3,582	R7,729	R32,420
1991	2,601	10	8,619	R8,058	19,288	R1,190	275	R2	R1,467	20,755	3,609	R7,698	R32,062
1992	2,515	35	8,967	8,635	20,152	R1,233	289	R2	R1,525	21,677	3,734	R7,789	R33,200
1993	2,496	27	9,410	8,450	20,383	R1,255	288	R2	R1,546	21,929	3,767	R7,766	R33,461
1994	2,510	58	9,560	8,848	20,977	R1,342	318	R3	R1,663	22,640	3,920	R7,982	R34,542
1995	2,488	61	10,064	R8,622	R21,236	R1,402	322	R3	R1,727	22,963	3,964	R8,020	R34,948
1996	R2,434	23	10,393	R9,061	R21,912	R1,441	363	R3	R1,807	23,719	4,035	R8,184	R35,938
1997	R2,395	46	10,307	R9,318	R22,066	R1,513	338	R3	R1,854	23,920	4,051	R8,190	R36,161
1998	R2,335	67	10,168	R9,104	R21,675	R1,564	312	R3	R1,879	23,554	4,132	R8,179	R35,865
1999	R2,243	58	R10,360	R9,394	R22,056	R1,711	291	R4	R2,007	24,063	4,255	R,7 9,641	R,7 37,958
2000P	2,280	65	10,943	9,197	22,485	1,702	287	4	1,993	24,477	4,355	9,931	38,763

[1] Includes some consumption at nonutilities.
[2] Includes supplemental gaseous fuels.
[3] See Table 10.2a for wood and waste components.
[4] Geothermal heat pump and direct use energy.
[5] Electric utility retail sales of electricity, including nonutility sales of electricity to utilities for distribution to end users; beginning in 1989, also includes nonutility facility use of onsite net electricity generation, and electricity sold by nonutilities directly to end users; beginning in 1996, also includes sales to ultimate consumers by power marketers.
[6] Total losses are calculated as the energy consumed to generate electricity by the electric power sector minus the electricity consumed by end users (see Tables 2.1f, 8.12, A6; Diagram 5; and Glossary). Total losses are allocated to the end-use sectors in proportion to each sector's share of total electricity use. (Nonutility direct use of electricity and nonutility sales of electricity to end users are allocated totally to the industrial sector.)
[7] There is a discontinuity in this time series between 1998 and 1999; beginning in 1999, nonutility consumption of fossil fuels is included in electric power sector consumption and the calculation for electrical system energy losses. See Table 2.1f.

R=Revised. P=Preliminary. NA=Not available. (s)=Less than +0.5 trillion Btu and greater than -0.5 trillion Btu.

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

Sources: Tables 2.1f, 5.12b, 6.5, 7.3, 8.12, 10.2a, A1, and A3-A6.

Table 2.1e Transportation Sector Energy Consumption, 1949-2000

(Trillion Btu)

Year	Primary Consumption						Electricity [3]	Electrical System Energy Losses [4]	Total [2]
	Fossil Fuels				Renewable Energy				
	Coal	Natural Gas [1]	Petroleum	Total	Alcohol Fuels [2]	Total Primary [2]			
1949	1,727	NA	6,152	7,880	NA	7,880	22	91	R7,993
1950	1,564	130	6,690	8,384	NA	8,384	23	88	R8,495
1951	1,379	199	7,356	8,934	NA	8,934	24	86	R9,044
1952	984	214	7,709	8,907	NA	8,907	22	76	R9,005
1953	733	238	8,060	9,031	NA	9,031	22	72	R9,125
1954	461	239	8,123	8,823	NA	8,823	20	61	8,904
1955	421	254	8,801	9,476	NA	9,476	20	57	9,552
1956	340	306	9,145	9,792	NA	9,792	19	51	9,861
1957	241	310	9,286	9,837	NA	9,837	16	44	9,897
1958	115	323	9,514	9,952	NA	9,952	15	38	10,005
1959	88	362	9,849	10,299	NA	10,299	14	37	10,350
1960	75	359	10,127	10,561	NA	10,561	10	26	10,598
1961	19	391	10,324	10,734	NA	10,734	10	25	10,770
1962	17	396	10,774	11,187	NA	11,187	10	25	11,221
1963	16	437	11,167	11,621	NA	11,621	10	24	R11,655
1964	17	450	11,497	11,964	NA	11,964	10	24	11,998
1965	16	517	11,867	12,400	NA	12,400	10	24	12,434
1966	15	553	12,501	13,069	NA	13,069	10	23	13,102
1967	11	594	13,112	13,717	NA	13,717	10	24	13,751
1968	10	609	14,211	14,830	NA	14,830	10	24	14,865
1969	7	651	14,814	15,472	NA	15,472	10	25	15,507
1970	7	745	15,311	16,062	NA	16,062	11	26	16,099
1971	5	766	15,923	16,693	NA	16,693	10	25	16,729
1972	4	787	16,892	17,683	NA	17,683	10	25	17,718
1973	3	743	17,829	18,575	NA	18,575	11	25	18,611
1974	2	685	17,400	18,087	NA	18,087	10	24	18,120
1975	1	595	17,615	18,211	NA	18,211	10	25	18,245
1976	(s)	559	18,506	19,065	NA	19,065	10	24	19,099
1977	(s)	543	19,240	19,783	NA	19,783	10	25	19,819
1978	([5])	539	20,040	20,579	NA	20,579	10	25	20,613
1979	([5])	612	19,823	20,435	NA	20,435	10	24	20,469
1980	([5])	650	19,007	19,657	NA	19,657	11	27	19,695
1981	([5])	658	18,810	19,468	7	19,468	11	26	19,505
1982	([5])	612	18,419	19,031	19	19,031	11	27	19,068
1983	([5])	505	18,591	19,097	35	19,097	13	30	19,140
1984	([5])	545	19,218	19,762	43	19,762	14	33	19,810
1985	([5])	519	19,505	20,024	52	20,024	14	33	20,071
1986	([5])	499	20,269	20,768	60	20,768	15	35	20,818
1987	([5])	535	20,870	21,405	69	21,405	16	36	21,456
1988	([5])	632	21,629	22,261	70	22,261	16	36	22,313
1989	([5])	649	21,867	22,515	71	22,515	16	36	R22,567
1990	([5])	680	21,809	22,489	63	22,489	16	35	R22,540
1991	([5])	620	21,456	22,077	73	22,077	16	35	22,128
1992	([5])	606	21,812	22,419	83	22,419	16	33	R22,468
1993	([5])	643	22,199	22,842	97	22,842	16	34	R22,892
1994	([5])	707	22,761	23,468	109	23,468	17	35	R23,520
1995	([5])	722	23,199	23,921	117	23,921	17	34	R23,972
1996	([5])	734	R23,734	24,467	84	24,467	17	34	R24,518
1997	([5])	776	R23,992	R24,768	106	24,768	17	34	R24,819
1998	([5])	662	R24,677	R25,338	117	25,338	17	34	R25,389
1999	([5])	R762	R25,493	R26,255	122	26,255	17	[6]40	R,[6]26,312
2000P	([5])	774	25,807	26,580	139	26,580	18	41	26,639

[1] Natural gas consumed in the operation of pipelines (primarily in compressors) and small amounts consumed as vehicle fuel. See Table 6.5.

[2] Alcohol (ethanol blended into motor gasoline) is included in both "Petroleum" and "Alcohol Fuels," but is counted only once in both total primary consumption and total consumption.

[3] Electric utility retail sales of electricity, including nonutility sales of electricity to utilities for distribution to end users; beginning in 1996, also includes sales to ultimate consumers by power marketers.

[4] Total losses are calculated as the energy consumed to generate electricity by the electric power sector minus the electricity consumed by end users (see Tables 2.1f, 8.12, A6; Diagram 5; and Glossary). Total losses are allocated to the end-use sectors in proportion to each sector's share of total electricity use. (Nonutility direct use of electricity and nonutility sales of electricity to end users are allocated totally to the industrial sector.)

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

[6] There is a discontinuity in this time series between 1998 and 1999; beginning in 1999, nonutility consumption of fossil fuels is included in electric power sector consumption and the calculation for electrical system energy losses. See Table 2.1f.

R=Revised. P=Preliminary. NA=Not available. (s)=Less than 0.5 trillion Btu.

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

Sources: Tables 2.1f, 5.12c, 6.5, 7.3, 8.12, 10.2a, and A3-A6.

Table 2.1f Electric Power Sector Energy Consumption, 1949-2000

(Trillion Btu)

Year	Primary Consumption														
	Fossil Fuels					Nuclear Electric Power	Hydroelectric Pumped Storage [5]	Renewable Energy [1]							Total Primary
	Coal [2]	Natural Gas [2,3]	Petroleum [2]	Other [4]	Total			Conventional Hydroelectric Power [6]	Wood	Waste	Geothermal [7]	Solar	Wind	Total	
1949	1,995	569	415	([8])	2,979	0	([8])	1,449	6	NA	NA	NA	NA	1,454	4,433
1950	2,199	651	472	([8])	3,322	0	([8])	1,440	5	NA	NA	NA	NA	1,446	4,768
1951	2,507	791	400	([8])	3,697	0	([8])	1,454	5	NA	NA	NA	NA	1,459	5,156
1952	2,557	942	420	([8])	3,920	0	([8])	1,496	6	NA	NA	NA	NA	1,503	5,422
1953	2,777	1,070	514	([8])	4,362	0	([8])	1,439	5	NA	NA	NA	NA	1,444	5,806
1954	2,841	1,206	417	([8])	4,464	0	([8])	1,388	3	NA	NA	NA	NA	1,391	5,856
1955	3,458	1,194	471	([8])	5,123	0	([8])	1,407	3	NA	NA	NA	NA	1,411	6,533
1956	3,790	1,283	455	([8])	5,527	0	([8])	1,487	2	NA	NA	NA	NA	1,489	7,016
1957	3,855	1,383	498	([8])	5,737	(s)	([8])	1,557	2	NA	NA	NA	NA	1,559	7,295
1958	3,721	1,421	486	([8])	5,628	2	([8])	1,629	2	NA	NA	NA	NA	1,631	7,261
1959	4,029	1,686	552	([8])	6,267	2	([8])	1,587	2	NA	NA	NA	NA	1,589	7,858
1960	4,228	1,785	553	([8])	6,565	6	([8])	1,657	2	NA	1	NA	NA	1,659	8,230
1961	4,355	1,889	557	([8])	6,801	20	([8])	1,680	1	NA	2	NA	NA	1,684	8,505
1962	4,622	2,035	560	([8])	7,217	26	([8])	1,822	1	NA	2	NA	NA	1,825	9,069
1963	5,050	2,211	585	([8])	7,846	38	([8])	1,772	1	NA	4	NA	NA	1,777	9,661
1964	5,380	2,397	634	([8])	8,411	40	([8])	1,907	2	NA	5	NA	NA	1,913	10,363
1965	5,821	2,395	722	([8])	8,938	43	([8])	2,058	3	NA	4	NA	NA	2,065	11,046
1966	6,302	2,696	883	([8])	9,881	64	([8])	2,073	3	NA	4	NA	NA	2,081	12,026
1967	6,445	2,834	1,011	([8])	10,290	88	([8])	2,344	3	NA	7	NA	NA	2,354	12,732
1968	6,994	3,245	1,181	([8])	11,421	142	([8])	2,342	4	NA	9	NA	NA	2,355	13,918
1969	7,219	3,596	1,571	([8])	12,386	154	([8])	2,659	3	NA	13	NA	NA	2,676	15,216
1970	7,227	4,054	2,117	([8])	13,399	239	([8])	2,654	1	2	11	NA	NA	2,669	16,307
1971	7,299	4,099	2,495	([8])	13,893	413	([8])	2,861	1	2	12	NA	NA	2,876	17,183
1972	7,811	4,084	3,097	([8])	14,992	584	([8])	2,944	1	2	31	NA	NA	2,979	18,554
1973	8,658	3,748	3,515	([8])	15,921	910	([8])	3,010	1	2	43	NA	NA	3,056	19,887
1974	8,534	3,519	3,365	([8])	15,418	1,272	([8])	3,309	1	2	53	NA	NA	3,365	20,055
1975	8,786	3,240	3,166	([8])	15,191	1,900	([8])	3,219	(s)	2	70	NA	NA	3,291	20,382
1976	9,720	3,152	3,477	([8])	16,349	2,111	([8])	3,066	1	2	78	NA	NA	3,146	21,607
1977	10,262	3,284	3,901	([8])	17,446	2,702	([8])	2,515	3	2	77	NA	NA	2,597	22,746
1978	10,238	3,297	3,987	([8])	17,522	3,024	([8])	3,141	2	1	64	NA	NA	3,209	23,755
1979	11,260	3,613	3,283	([8])	18,156	2,776	([8])	3,141	3	2	84	NA	NA	3,230	24,162
1980	12,123	3,810	2,634	([8])	18,567	2,739	([8])	3,118	3	2	110	NA	NA	3,232	24,538
1981	12,583	3,768	2,202	([8])	18,553	3,008	([8])	3,105	3	1	123	NA	NA	3,232	24,793
1982	12,582	3,342	1,568	([8])	17,491	3,131	([8])	3,572	2	1	105	NA	NA	3,680	24,303
1983	13,213	2,998	1,544	([8])	17,754	3,203	([8])	3,899	2	2	129	NA	(s)	4,032	24,989
1984	14,019	3,220	1,286	([8])	18,526	3,553	([8])	3,800	5	4	165	(s)	(s)	3,974	26,053
1985	14,542	3,160	1,090	([8])	18,792	4,149	([8])	3,398	8	7	198	(s)	(s)	3,611	26,552
1986	14,444	2,691	1,452	([8])	18,586	4,471	([8])	3,446	5	7	219	(s)	(s)	3,678	26,735
1987	15,173	2,935	1,257	([8])	19,365	4,906	([8])	3,117	8	7	229	(s)	(s)	3,362	27,633
1988	15,850	2,709	1,563	([8])	20,123	5,661	([8])	2,662	10	8	217	(s)	(s)	2,897	28,681
1989	15,988	2,871	1,685	R-50	20,494	5,677	([8])	R,1 3,014	1 289	1 104	R,1 325	1 7	1 24	3,763	29,934
1990	16,190	2,882	1,250	R-80	20,242	6,162	-36	R 3,146	316	137	R 344	7	32	3,982	30,350
1991	16,028	2,856	1,178	R 59	20,121	6,580	-47	R 3,159	346	164	R 352	8	32	4,061	30,715
1992	16,211	2,826	951	R 53	20,041	6,608	-43	R 2,818	368	184	R 362	8	30	3,769	30,376
1993	16,790	2,741	1,052	R 50	20,634	6,520	-42	R 3,119	379	191	R 374	9	31	4,104	31,216
1994	16,895	3,053	968	R 140	21,056	6,838	-35	R 2,993	390	197	R 378	8	36	4,002	31,861
1995	16,990	3,276	658	R 121	21,046	7,177	-28	R 3,481	375	209	R 319	8	33	4,426	32,621
1996	17,953	2,798	725	R 109	21,585	7,168	-32	R 3,892	380	214	R 331	9	35	4,861	33,581
1997	18,501	3,025	822	R 109	22,456	6,678	-42	R 3,961	355	213	R 306	9	33	4,877	33,970
1998	18,685	3,330	1,166	R 48	23,228	7,157	-46	R 3,569	329	220	R 310	9	31	4,468	34,807
1999	2 19,533	2 5,811	2 1,349	R 92	9 26,785	R 7,736	R -65	R 3,512	389	243	R 354	9	46	4,554	9 39,009
2000 P	20,503	6,475	1,209	102	28,289	8,009	-58	3,107	409	254	298	9	51	4,128	40,368

[1] Beginning in 1989, includes expanded coverage of nonutility consumption.

[2] Data for 1949-1998 are for electric utility consumption to produce electricity only; data for 1999 and 2000 are for electric utility and nonutility consumption to produce electricity only. See Tables 5.12d, 6.5, and 7.3.

[3] Includes supplemental gaseous fuels.

[4] Electricity net imports from fossil fuels; may include some nuclear-generated electricity.

[5] Pumped storage facility production minus energy used for pumping.

[6] Through 1988, includes all electricity net imports. From 1989, includes electricity net imports derived from hydroelectric power only.

[7] From 1989, includes electricity imports from Mexico that are derived from geothermal energy.

[8] Included in conventional hydroelectric power.

[9] There is a discontinuity in this time series between 1998 and 1999; beginning in 1999, nonutility consumption of fossil fuels is included in electric power sector consumption and the calculation for electrical system energy losses. See Note 4 at end of Electricity section.

R=Revised. P=Preliminary. (s)=Less than 0.5 trillion Btu. NA=Not available.

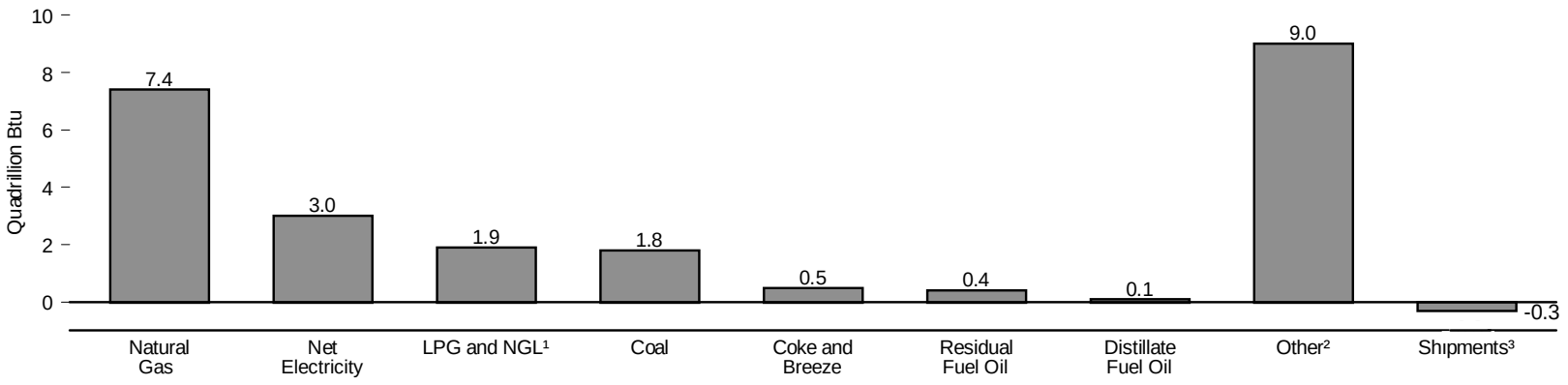
Note: Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/fuelrenewable.html.

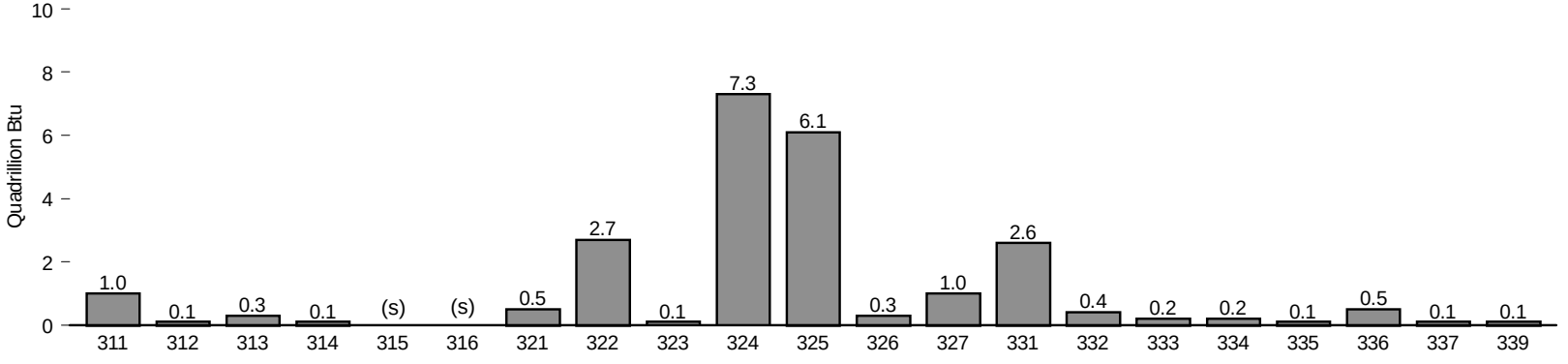
Sources: Tables 5.12d, 6.5, 7.3, 8.1, 8.2, 10.2b, A1, and A4-A6.

Figure 2.2 Manufacturing Total First Use of Energy for All Purposes, 1998

By Energy Source



By North American Industry Classification System (NAICS)[4]



[1] Liquefied petroleum gas and natural gas liquids.
[2] Includes all other types of energy that respondents indicated were consumed.
[3] Energy sources produced onsite from the use of other energy sources but sold to another entity.
[4] See Table 2.2 for Major Group titles of industries that correspond to the 3-digit NAICS codes.
(s) = Less than 0.5 quadrillion Btu.
Source: Table 2.2.

Table 2.2 Manufacturing Total First Use of Energy for All Purposes, 1998

(Trillion Btu)

NAICS [1] Code	Major Group	Coal	Coke and Breeze	Natural Gas	Distillate Fuel Oil	LPG and NGL [2]	Residual Fuel Oil	Net Electricity [3]	Other [4]	Shipments of Energy Sources [5]	Total [6]
311	Food	129	2	568	16	5	14	213	97	0	1,044
312	Beverage and Tobacco Products	29	0	45	2	1	2	24	4	0	108
313	Textile Mills	20	0	103	4	2	12	102	14	0	256
314	Textile Product Mills	3	0	25	Q	(s)	3	18	(s)	0	50
315	Apparel	1	0	23	1	1	2	18	4	0	48
316	Leather and Allied Products	0	0	4	(s)	(s)	(s)	3	(s)	0	8
321	Wood Products	2	0	73	13	4	1	72	343	0	509
322	Paper	277	0	586	9	5	151	240	1,478	0	2,747
323	Printing and Related Support	(s)	0	44	(s)	1	(s)	51	2	0	98
324	Petroleum and Coal Products	12	0	1,007	28	39	72	126	6,082	47	7,320
325	Chemicals	300	7	2,709	10	1,796	98	577	677	110	6,064
326	Plastics and Rubber Products	3	0	126	1	5	5	183	5	0	328
327	Nonmetallic Mineral Products	284	11	444	17	3	4	134	82	0	979
331	Primary Metals	715	437	933	9	3	30	545	82	192	2,560
332	Fabricated Metal Products	3	3	241	6	5	2	176	10	0	445
333	Machinery	6	0	99	3	3	1	96	7	0	217
334	Computer and Electronic Products	(s)	0	64	1	(s)	1	137	1	0	205
335	Electrical Equipment, Appliances, and Components	1	(s)	53	1	2	1	55	30	0	143
336	Transportation Equipment	29	1	212	15	4	5	195	31	0	492
337	Furniture and Related Products	2	0	27	1	1	(s)	30	28	0	88
339	Miscellaneous	(s)	0	40	2	1	1	40	4	0	89
—	Total Manufacturing	1,814	461	7,426	142	1,882	406	3,035	8,980	349	23,796

[1] The Standard Industrial Classification (SIC) system has been replaced by the North American Industry Classification System (NAICS).

[2] Liquefied petroleum gases and natural gas liquids.

[3] "Net Electricity" is obtained by summing purchases, transfers in, and generation from noncombustible renewable resources, minus quantities sold and transferred out. It excludes electricity generated from combustible fuels.

[4] Includes all other types of energy that respondents indicated were consumed.

[5] Energy sources produced onsite from the use of other energy sources but sold or transferred to another entity.

[6] The sum of net electricity, residual and distillate fuel oil, natural gas, liquefied petroleum gas, natural gas liquids, coal, coke and breeze, and other, minus shipments of energy sources.

(s)=Less than 0.5 trillion Btu. Q=Data withheld because the relative standard error was greater than 50 percent.

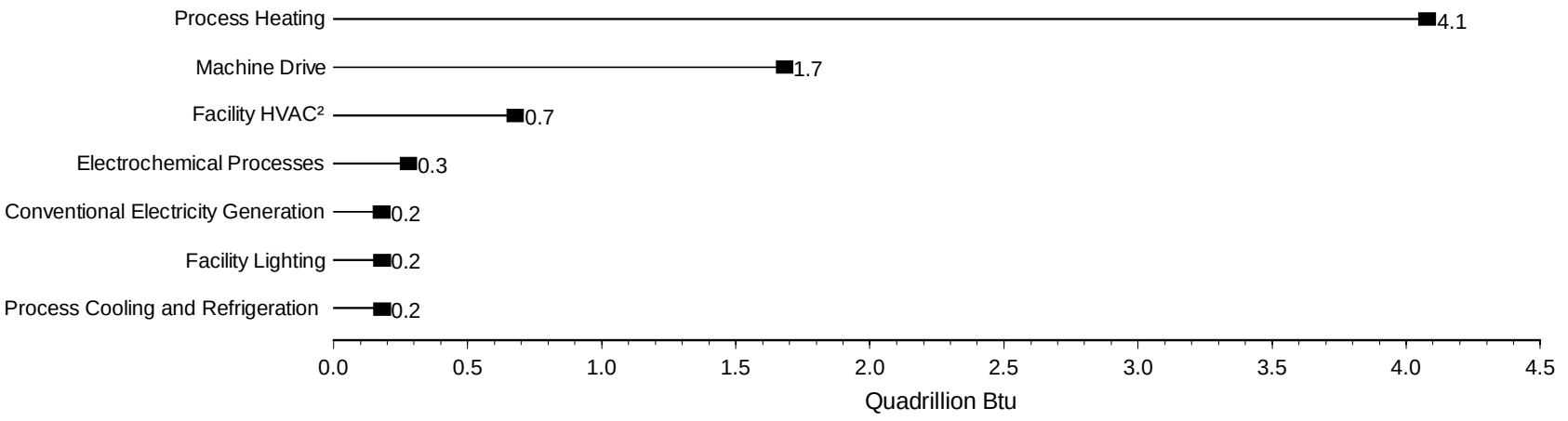
Notes: • "First Use" was "Primary Consumption" in previous releases of this table. The estimates are for the first use of energy for heat and power and as feedstocks or raw material inputs. First use is defined as the consumption of the energy that was originally produced offsite or was produced onsite from input materials not classified as energy. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/emeu/mecs.

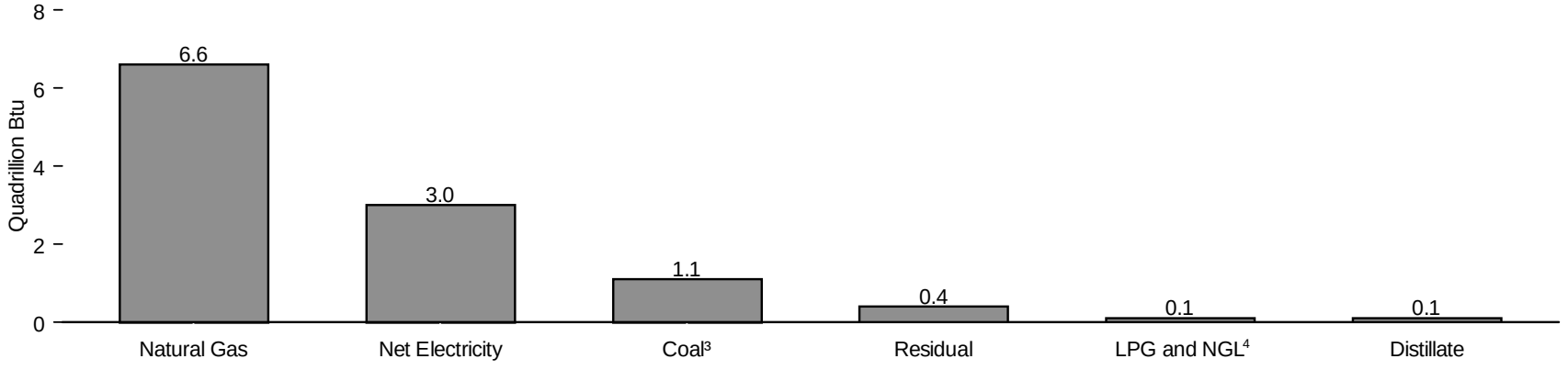
Source: Energy Information Administration, Form EIA-846, "1998 Manufacturing Energy Consumption Survey."

Figure 2.3 Manufacturing Sector Inputs for Heat, Power, and Electricity Generation, 1998

By Selected End Use[1]



By Energy Source



[1]Excludes inputs of unallocated energy sources (6,248 trillion Btu).
[2]Heating, ventilation, and air conditioning.
[3]Excluding coal coke and breeze.
[4] Liquefied petroleum gases and natural gas liquids.
Source: Table 2.3.

Table 2.3 Manufacturing Sector Inputs for Heat, Power, and Electricity Generation by End Use, 1998

End-Use Category	Net Electricity [1]	Residual Fuel Oil	Distillate Fuel Oil	Liquefied Petroleum Gases and Natural Gas Liquids	Natural Gas	Coal (Excluding Coal Coke and Breeze)	Total [2]
	Million Kilowatthours	Million Barrels			Billion Cubic Feet	Million Short Tons	
Indirect End Use (Boiler Fuel)	**5,568**	**39**	**6**	**7**	**2,471**	**35**	
Direct End Use							
All Process Uses	**705,697**	**16**	**6**	**22**	**3,272**	**15**	
Process Heating	103,299	15	3	19	3,104	15	
Process Cooling and Refrigeration	54,473	(s)	(s)	1	21	(s)	
Machine Drive	457,344	1	2	2	96	(s)	
Electrochemical Processes	87,200	—	—	—	—	—	
Other Process Uses	3,380	(s)	1	(s)	51	(s)	
All Non-Process Uses	**157,739**	1	**9**	**8**	**656**	**1**	
Facility Heating, Ventilation, and Air Conditioning [3]	79,357	1	1	1	393	(s)	
Facility Lighting	61,966	—	—	—	—	—	
Other Facility Support	14,339	(s)	1	(s)	39	(s)	
Onsite Transportation	1,380	—	6	7	5	—	
Conventional Electricity Generation	—	(s)	1	(s)	204	1	
Other Non-Process Use	696	(s)	(s)	(s)	Q	0	
End Use Not Reported	**20,510**	(s)	**1**	**1**	**70**	(s)	
Total	**889,513**	**57**	**23**	**38**	**6,469**	**51**	
	Trillion Btu						
Indirect End Use (Boiler Fuel)	**19**	**246**	**38**	**24**	**2,538**	**770**	**3,635**
Direct End Use							
All Process Uses	**2,408**	**103**	**37**	**78**	**3,361**	**338**	**6,325**
Process Heating	352	97	20	68	3,187	331	4,055
Process Cooling and Refrigeration	186	(s)	(s)	2	22	(s)	210
Machine Drive	1,560	5	13	7	99	7	1,691
Electrochemical Processes	298	—	—	—	—	—	298
Other Process Uses	12	1	3	1	52	(s)	69
All Non-Process Uses	**538**	**8**	**52**	**29**	**673**	**30**	**1,330**
Facility Heating, Ventilation, and Air Conditioning [3]	271	4	6	4	403	4	692
Facility Lighting	211	—	—	—	—	—	211
Other Facility Support	49	1	6	(s)	40	(s)	96
Onsite Transportation	5	—	35	24	5	—	69
Conventional Electricity Generation	—	3	3	(s)	210	27	243
Other Non-Process Use	2	(s)	1	(s)	Q	0	3
End Use Not Reported	**70**	**1**	**7**	**4**	**72**	3	**157**
Total	**3,035**	**357**	**133**	**135**	**6,644**	**1,143**	**11,447**

[1] "Net Electricity" is obtained by summing purchases, transfers in, and generation from noncombustible renewable resources, minus quantities sold and transferred out.

[2] Total of listed energy sources. Excludes inputs of unallocated energy sources (6,248 trillion Btu). The top half of the "Total" column is blank because different physical units cannot be added.

[3] Excludes steam and hot water.

— = Not applicable. (s)=Estimate less than 0.5. Q=Withheld because relative standard error is greater than 50 percent.

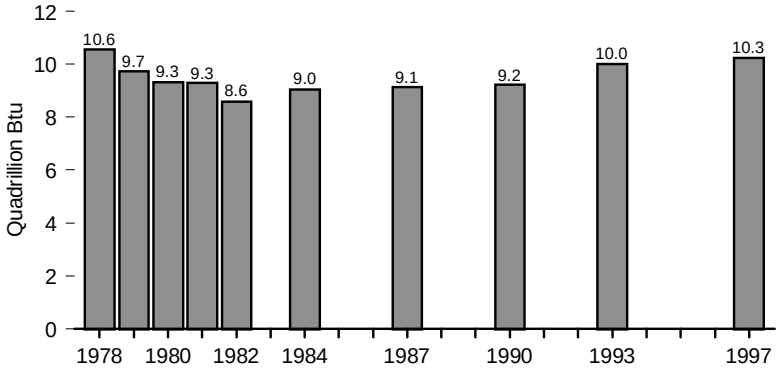
Notes: • Totals may not equal sum of components due to independent rounding. • The estimates presented in this table are for the total consumption of energy for the production of heat, power, and electricity generation, regardless of where the energy was produced. Specifically, the estimates include the quantities of energy that were originally produced offsite and purchased by or transferred to the establishment, plus those that were produced onsite from other energy or input materials not classified as energy, or were extracted from captive (onsite) mines or wells. • Allocations to end uses are made on the basis of reasonable approximations by respondents.

Web Page: http://www.eia.doe.gov/emeu/consumption.

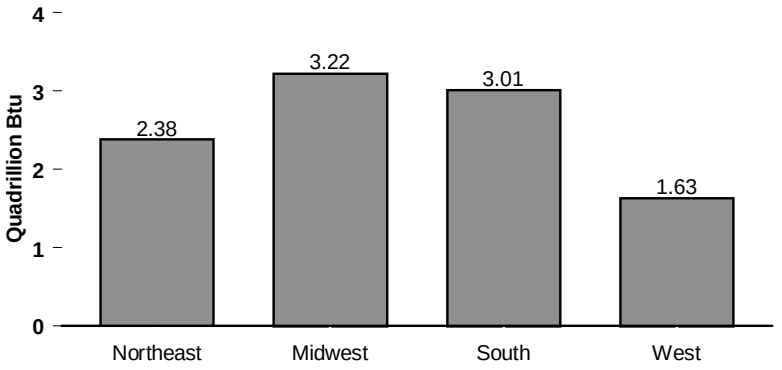
Source: Energy Information Administration, Form EIA-846, "1998 Manufacturing Energy Consumption Survey."

Figure 2.4 Household Energy Consumption

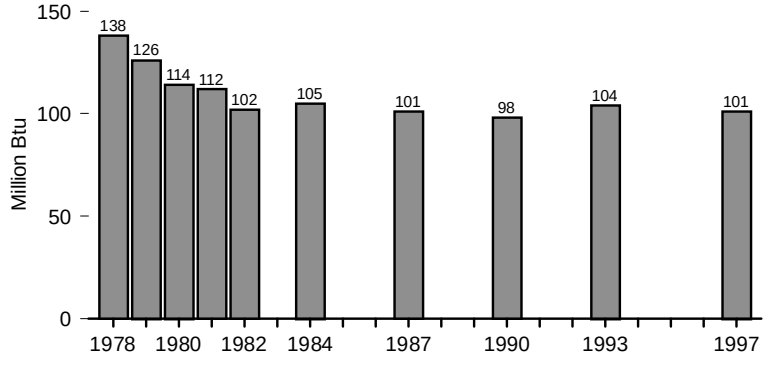
Consumption by All Households, Selected Years, 1978-1997



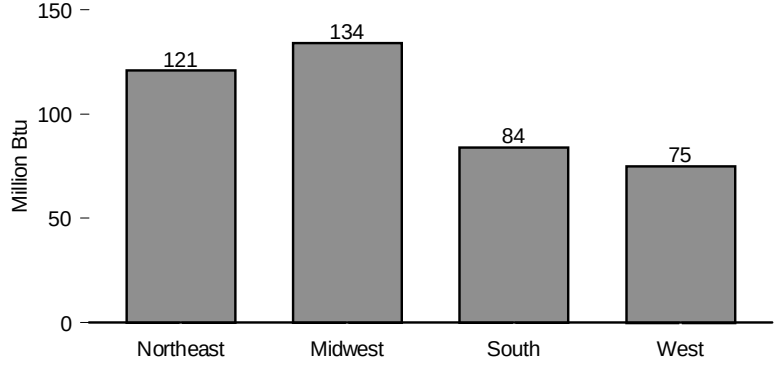
Consumption by All Households, by Census Region, 1997



Consumption per Household, Selected Years, 1978-1997



Consumption per Household, by Census Region, 1997



Notes: • No data are available for years not shown. Data for 1978 through 1984 are for April of the year shown through March of the following year; data for 1987, 1990, 1993, and 1997 are for the calendar year. • Because vertical scales differ, graphs should not be compared. • See Appendix D for Census regions.

Source: Table 2.4.

Table 2.4 Household Energy Consumption by Census Region, Selected Years, 1978-1997

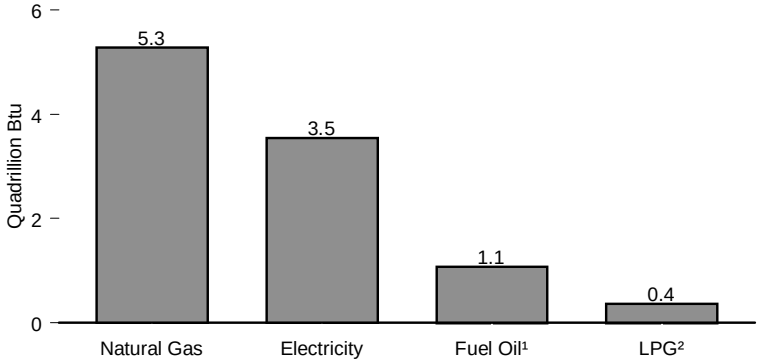
(Quadrillion Btu, Except as Noted)

Census Region [1]	1978	1979	1980	1981	1982	1984	1987	1990	1993	1997
Northeast	**2.89**	**2.50**	R**2.44**	R**2.36**	R**2.19**	**2.29**	**2.37**	**2.30**	**2.38**	**2.38**
Natural Gas	1.14	1.05	R0.94	R1.01	R0.96	0.93	1.03	1.03	1.11	1.03
Electricity [2]	0.39	0.39	R0.41	R0.40	R0.37	0.41	0.44	0.47	0.47	0.49
Distillate Fuel Oil and Kerosene	1.32	1.03	R1.07	R0.93	R0.83	0.93	0.87	0.78	0.78	0.84
Liquefied Petroleum Gases	0.03	0.03	0.03	0.03	0.02	0.03	0.02	0.02	0.03	0.03
Consumption per Household (million Btu)	166	145	138	R132	122	125	124	120	122	121
Midwest	**3.70**	**3.48**	R**2.96**	R**3.09**	R**2.61**	**2.80**	**2.73**	**2.81**	**3.13**	**3.22**
Natural Gas	2.53	2.48	R2.05	R2.22	R1.78	1.99	1.83	1.88	2.07	2.20
Electricity [2]	0.60	0.59	0.60	R0.56	R0.56	0.55	0.61	0.66	0.74	0.75
Distillate Fuel Oil and Kerosene	0.46	0.31	R0.17	R0.19	R0.16	0.13	0.16	0.13	0.13	0.11
Liquefied Petroleum Gases	0.12	0.10	0.15	0.13	0.11	0.13	0.13	0.13	0.19	0.17
Consumption per Household (million Btu)	180	168	R141	R146	122	129	123	122	134	134
South	**2.43**	**2.30**	R**2.57**	R**2.41**	R**2.45**	**2.50**	**2.61**	**2.60**	**2.95**	**3.01**
Natural Gas	0.96	0.91	R1.12	R1.15	R1.14	1.15	1.09	1.03	1.18	1.13
Electricity [2]	1.00	0.97	1.06	R1.01	R1.01	1.06	1.22	1.36	1.51	1.67
Distillate Fuel Oil and Kerosene	0.32	0.28	R0.25	R0.14	R0.18	0.16	0.17	0.11	0.13	0.10
Liquefied Petroleum Gases	0.15	0.14	R0.14	0.12	0.12	0.12	0.12	0.10	0.13	0.12
Consumption per Household (million Btu)	99	92	R95	R87	R87	85	84	81	88	84
West	**1.54**	**1.47**	R**1.34**	R**1.42**	R**1.33**	**1.45**	**1.42**	**1.51**	**1.55**	**1.63**
Natural Gas	0.95	0.88	R0.86	R0.90	R0.85	0.91	0.88	0.92	0.91	0.93
Electricity [2]	0.48	0.47	0.41	0.46	R0.41	0.47	0.48	0.54	0.56	0.64
Distillate Fuel Oil and Kerosene	0.09	0.09	0.04	0.03	0.03	0.04	0.02	0.02	0.03	0.03
Liquefied Petroleum Gases	0.03	0.04	0.04	0.04	0.04	0.03	0.05	0.03	0.04	0.04
Consumption per Household (million Btu)	110	100	R84	R87	R81	85	78	78	76	75
United States	**10.56**	**9.74**	**9.32**	R**9.29**	R**8.58**	**9.04**	**9.13**	**9.22**	**10.01**	**10.25**
Natural Gas	5.58	5.31	R4.97	R5.27	R4.74	4.98	4.83	4.86	5.27	5.28
Electricity [2]	2.47	2.42	R2.48	R2.42	R2.35	2.48	2.76	3.03	3.28	3.54
Distillate Fuel Oil and Kerosene	2.19	1.71	R1.52	R1.28	R1.20	1.26	1.22	1.04	1.07	1.07
Liquefied Petroleum Gases	0.33	0.31	R0.35	0.31	0.29	0.31	0.32	0.28	0.38	0.36
Consumption per Household (million Btu)	138	126	114	R112	R102	105	101	98	104	101

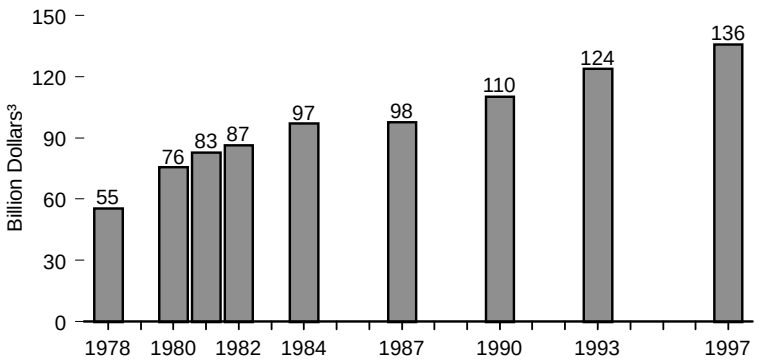
[1] See Appendix D for Census regions.
[2] Site electricity. One kilowatthour = 3,412 Btu.
R=Revised data.
Notes: • This table shows major energy items only. • No data are available for years not shown. • Data for 1978-1984 are for April of year shown through March of following year; data for 1987, 1990, 1993, and 1997 are for the calendar year. • Totals may not equal sum of components due to independent rounding.
Web Page: http://www.eia.doe.gov/emeu/consumption.
Sources: • 1978 and 1979—Energy Information Administration (EIA), Form EIA-84, "Residential Energy Consumption Survey." • 1980 forward—EIA, Form EIA-457, "Residential Energy Consumption Survey."

Figure 2.5 Household Energy Consumption and Expenditures

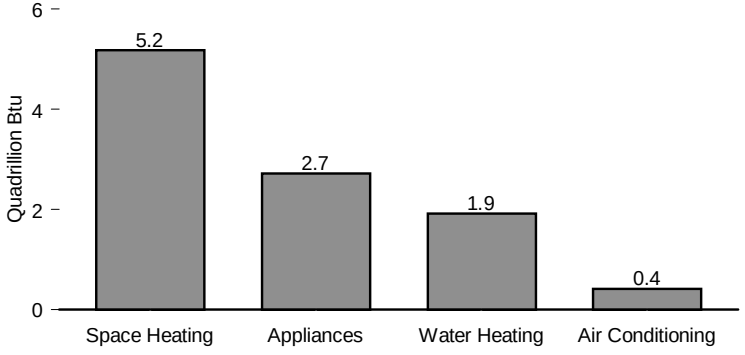
Consumption by Energy Source, 1997



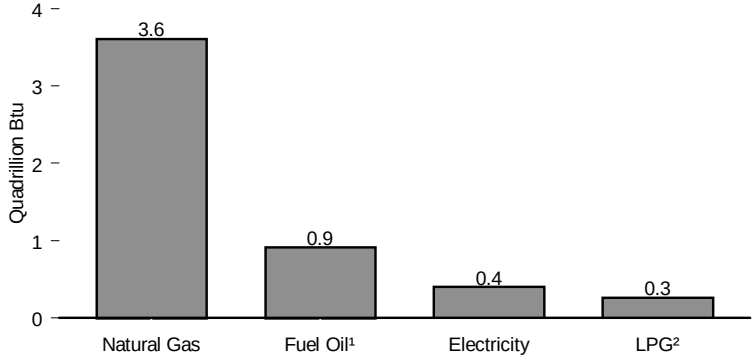
Expenditures, Selected Years, 1978-1997



Consumption by End Use, 1997



Consumption for Space Heating, 1997



¹ Distillate fuel oil and kerosene.
² Liquefied petroleum gases.
³ Nominal dollars.

Notes: • No data are available for years not shown. • Because vertical scales differ, graphs should not be compared.
Source: Table 2.5.

Table 2.5 Household Energy Consumption and Expenditures by End Use and Energy Source, Selected Years, 1978-1997

Year	Space Heating				Air Conditioning [1]	Water Heating				Appliances [2]			Total [1,2]			
	Natural Gas	Electricity [3]	Fuel Oil [4]	LPG [5]	Electricity [3]	Natural Gas	Electricity [3]	Fuel Oil [4]	LPG [5]	Natural Gas	Electricity [3]	LPG [5]	Natural Gas	Electricity [3]	Fuel Oil [4]	LPG [5]
	Consumption (quadrillion Btu)															
1978	4.26	0.40	2.05	0.23	R0.32	1.04	0.29	0.14	0.06	0.28	R1.45	0.03	5.58	2.47	2.19	0.33
1980	R3.41	R0.27	R1.30	R0.23	R0.36	R1.15	R0.30	R0.22	0.07	R0.36	R1.54	R0.05	R4.97	R2.48	R1.52	R0.35
1981	R3.69	R0.26	R1.06	R0.21	R0.34	R1.13	R0.30	R0.22	0.06	R0.43	R1.52	R0.05	R5.27	R2.42	R1.28	0.31
1982	R3.14	R0.25	R1.04	0.19	R0.31	R1.15	R0.28	R0.15	0.06	R0.43	R1.50	R0.05	R4.74	R2.35	R1.20	0.29
1984	3.51	R0.25	1.11	0.21	R0.32	1.10	0.32	0.15	0.06	0.35	R1.59	0.04	4.98	2.48	1.26	0.31
1987	3.38	0.28	1.05	0.22	0.44	1.10	0.31	0.17	0.06	0.34	1.72	0.04	4.83	2.76	1.22	0.32
1990	3.37	0.30	0.93	0.19	0.48	1.16	0.34	0.11	0.06	0.33	1.91	0.03	4.86	3.03	1.04	0.28
1993	3.67	0.41	0.95	0.30	0.46	1.31	0.34	0.12	0.05	0.29	2.08	0.03	5.27	3.28	1.07	0.38
1997	3.61	0.40	0.91	0.26	0.42	1.29	0.39	0.16	0.08	0.37	2.33	0.02	5.28	3.54	1.07	0.36
	Expenditures (billion dollars [6])															
1978	11.49	3.53	8.06	1.05	R4.12	2.88	R3.14	0.56	0.36	0.93	R19.10	0.25	15.30	29.89	8.62	1.66
1980	R13.22	R3.78	R10.48	R1.78	R5.84	R4.51	R4.45	R1.76	R0.57	R1.91	R26.74	R0.44	R19.77	R40.81	R12.24	R2.80
1981	R16.62	R3.93	R9.44	R1.78	R6.23	R5.13	R4.94	R1.94	R0.51	R2.17	R29.70	R0.52	R24.03	R44.80	R11.29	R2.81
1982	R17.74	R4.21	R8.80	R1.69	R6.23	R6.51	R5.00	R1.28	R0.54	R2.58	R31.29	R0.52	R26.96	R46.74	R10.07	R2.75
1984	20.66	R4.62	8.51	2.00	R7.06	6.63	6.44	1.09	0.58	2.31	R36.36	0.54	29.78	54.48	9.60	3.12
1987	18.05	5.53	6.25	1.85	9.77	6.02	6.45	0.94	0.50	2.02	39.83	0.46	26.15	61.58	7.21	2.81
1990	18.59	6.16	7.42	2.01	11.23	6.59	7.21	0.83	0.65	2.03	46.95	0.48	27.26	71.54	8.25	3.14
1993	21.95	8.66	6.24	2.81	11.31	8.08	7.58	0.74	0.58	1.98	53.52	0.42	32.04	81.08	6.98	3.81
1997	24.11	8.56	6.57	2.79	10.20	8.84	8.99	1.04	0.89	2.86	60.57	0.36	35.81	88.33	7.61	4.04

[1] A small amount of natural gas used for air conditioning is included in "Natural Gas" under "Total."
[2] Includes refrigerators. A small amount of fuel oil or kerosene used for appliances is included in "Fuel Oil" under "Total."
[3] Site electricity. One kilowatthour = 3,412 Btu.
[4] Fuel oil is distillate fuel oil and kerosene.
[5] Liquefied petroleum gases.
[6] Nominal dollars.

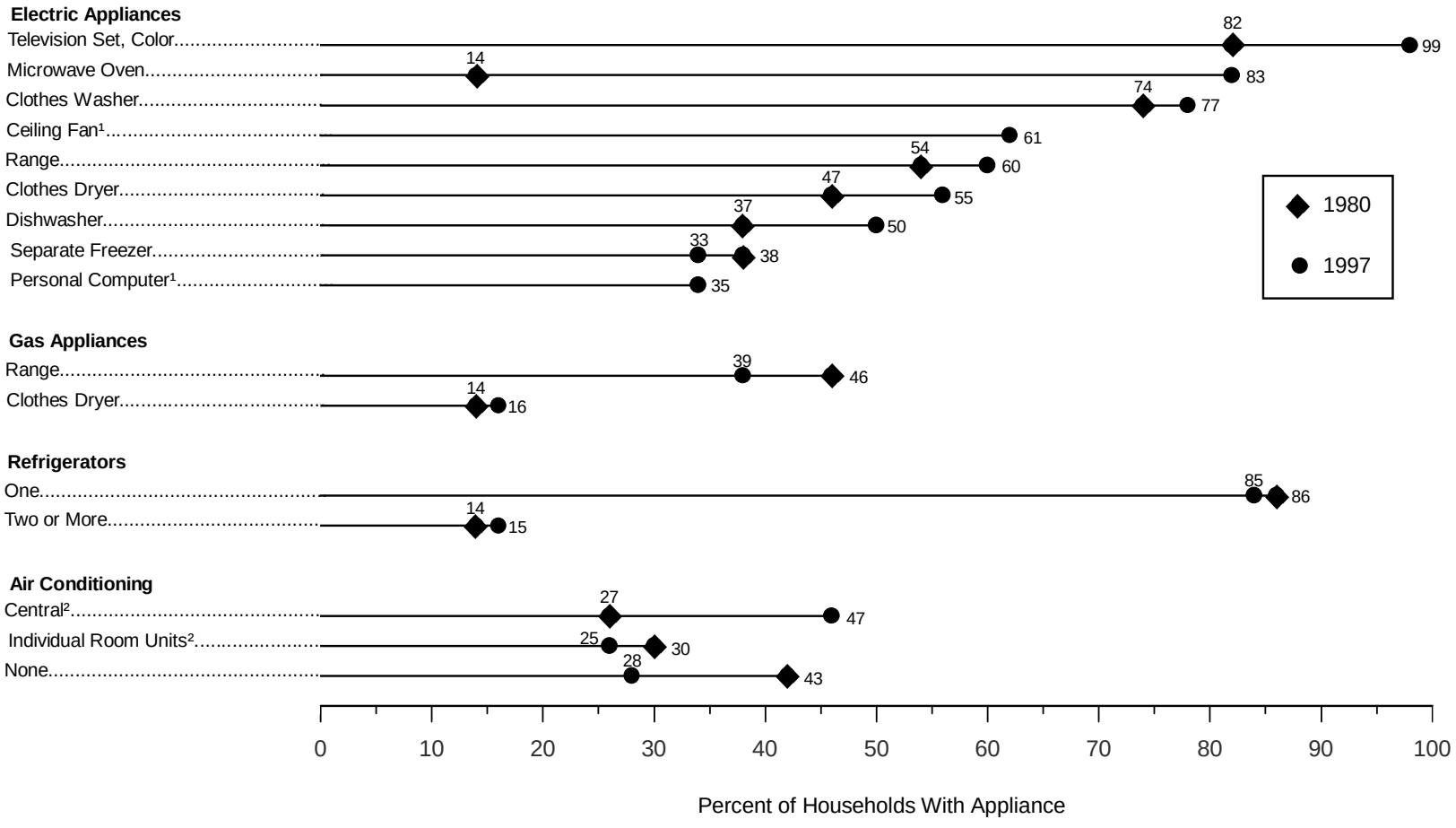
R=Revised.

Notes: • No data are available for years not shown. Consumption data by energy source for 1979 are available on Table 2.4. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/emeu/consumption.

Sources: • 1978—Energy Information Administration (EIA), Form EIA-84, "Residential Energy Consumption Survey." • 1980 forward—EIA, Form EIA-457, "Residential Energy Consumption Survey."

Figure 2.6 Households With Selected Appliances, 1980 and 1997



[1] Not collected in 1980.
[2] Households with both central and individual room units are counted only under "central."

Source: Table 2.6.

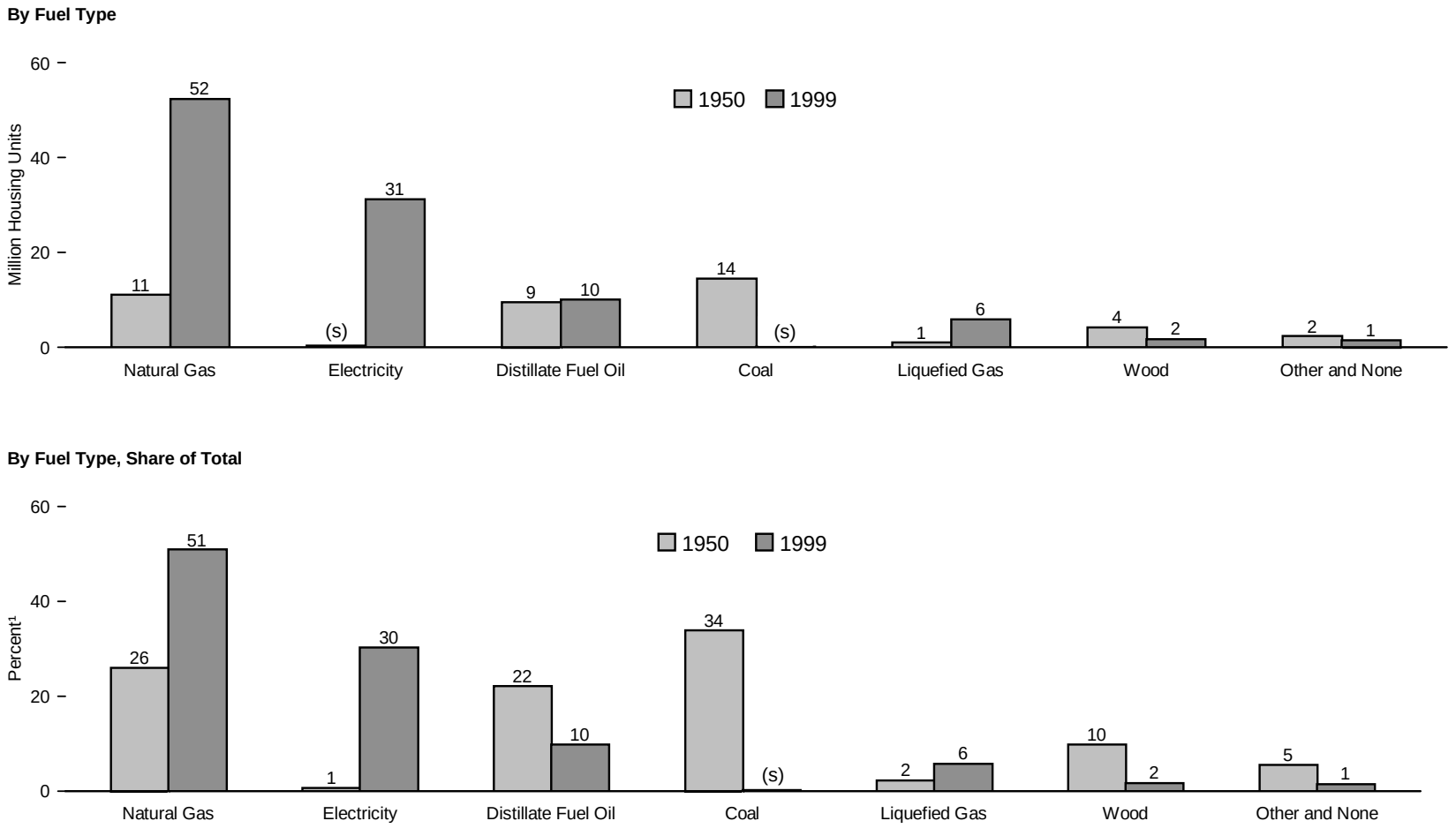
Table 2.6 Household Main Heating Fuel and Presence of Selected Appliances, Selected Years, 1978-1997

Appliance	Year										Change
	1978	1979	1980	1981	1982	1984	1987	1990	1993	1997	1980 to 1997
Total Households (millions)	77	78	82	83	84	86	91	94	97	101	+20
	Percent of Households										
Type of Main Heating Fuel											
Natural Gas	55	55	55	56	57	55	55	55	53	53	-2
Electricity	16	17	18	17	16	17	20	23	26	29	+12
Liquefied Petroleum Gas	4	5	5	4	5	5	5	5	5	5	0
Fuel Oil	20	17	15	14	13	12	12	11	11	9	-6
Wood	2	4	6	6	7	7	6	4	3	2	-4
Type of Appliances											
Electric Appliances											
Television Set (Color)	NA	NA	82	83	85	88	93	96	98	99	+17
Television Set (B/W)	NA	NA	51	48	46	43	36	31	20	NA	NA
Television Set (Any)	NA	NA	98	98	98	98	98	99	99	NA	NA
Clothes Washer	74	NA	74	73	71	73	75	76	77	77	+3
Range (Stove-Top Burner)	53	NA	54	54	53	54	57	58	61	60	+7
Oven, Microwave	8	NA	14	17	21	34	61	79	84	83	+69
Clothes Dryer	45	NA	47	45	45	46	51	53	57	55	+8
Separate Freezer	35	NA	38	38	37	37	34	34	35	33	-5
Dishwasher	35	NA	37	37	36	38	43	45	45	50	+13
Dehumidifier	NA	NA	9	9	9	9	10	12	9	NA	NA
Waterbed Heaters	NA	NA	NA	NA	NA	10	14	15	12	8	NA
Window or Ceiling Fan	NA	NA	NA	NA	28	35	46	51	60	NA	NA
Ceiling Fan	NA	NA	NA	NA	NA	NA	NA	NA	54	61	NA
Whole House Fan	NA	NA	NA	NA	8	8	9	10	4	NA	NA
Evaporative Cooler	NA	NA	4	4	4	4	3	4	3	NA	NA
Personal Computer	NA	NA	NA	NA	NA	NA	NA	16	23	35	NA
Pump for Well Water	NA	NA	NA	NA	NA	NA	NA	15	13	14	NA
Swimming-Pool Pump [1]	NA	NA	3	4	3	NA	NA	5	5	5	+2
Gas Appliances [2]											
Range (Stove-Top or Burner)	48	NA	46	46	47	45	43	42	38	39	-7
Clothes Dryer	14	NA	14	16	15	16	15	16	15	16	+2
Outdoor Gas Grill	6	NA	9	9	11	13	20	26	29	NA	NA
Outdoor Gas Light	2	NA	2	2	2	1	1	1	1	1	-1
Swimming Pool Heater [3]	NA	NA	(s)	(s)	(s)	1	1	1	1	1	0
Refrigerators [4]											
One	86	NA	86	87	86	88	86	84	85	85	-1
Two or More	14	NA	14	13	13	12	14	15	15	15	+1
Air Conditioning (A/C)											
Central [5]	23	24	27	27	28	30	34	39	44	47	20
Individual Room Units [5]	33	31	30	31	30	30	30	29	25	25	-5
None	44	45	43	42	42	40	36	32	32	28	-15
Portable Kerosene Heaters	(s)	NA	(s)	1	3	6	6	5	3	2	+2

[1] All reported swimming pools were assumed to have an electric pump for filtering and circulating the water, except for 1993 and 1997, when a filtering system was made explicit.
[2] Includes natural gas or liquefied petroleum gases.
[3] In 1984 and 1987, also includes heaters for jacuzzis and hot tubs.
[4] Fewer than 0.5 percent of the households do not have a refrigerator.
[5] Households with both central and individual room units are counted only under "Central."

NA=Not available. (s)=Less than 0.5 percent.
Note: No data are available for years not shown.
Web Page: http://www.eia.doe.gov/emeu/consumption.
Sources: • 1978 and 1979—Energy Information Administration (EIA), Form EIA-84, "Residential Energy Consumption Survey." • 1980 forward—EIA, Form EIA-457, "Residential Energy Consumption Survey."

Figure 2.7 Type of Heating in Occupied Housing Units, 1950 and 1999



[1] Sum of components may not equal 100 percent due to independent rounding.
[2] Kerosene, solar, and other.
(s)=Less than 0.5.

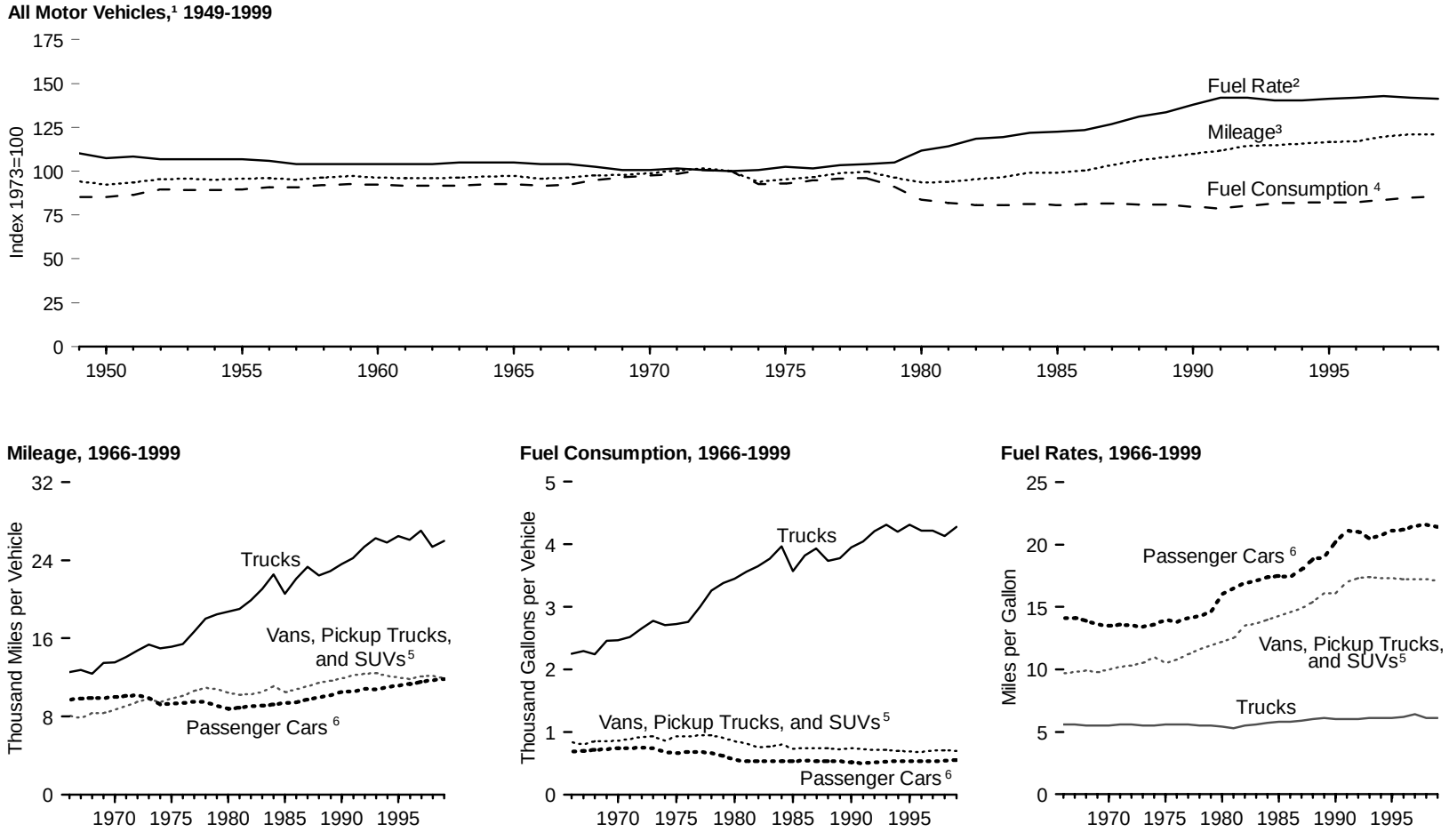
Source: Table 2.7.

Table 2.7 Type of Heating in Occupied Housing Units, Selected Years, 1950-1999

Year	Coal [1]	Natural Gas	Liquefied Gas	Distillate Fuel Oil	Kerosene	Electricity	Wood	Solar	Other	None [2]	Total
					Million						
1950	14.48	11.12	0.98	9.46	([3])	0.28	4.17	NA	0.77	1.57	42.83
1960	6.46	22.85	2.69	17.16	([3])	0.93	2.24	NA	0.22	0.48	53.02
1970	1.82	35.01	3.81	16.47	([3])	4.88	0.79	NA	0.27	0.40	63.45
1973	0.80	38.46	4.42	17.24	([3])	7.21	0.60	NA	0.15	0.45	69.34
1974	0.74	39.47	4.14	16.84	([3])	8.41	0.66	NA	0.09	0.48	70.83
1975	0.57	40.93	4.15	16.30	([3])	9.17	0.85	NA	0.08	0.47	72.52
1976	0.48	41.22	4.24	16.45	([3])	10.15	0.91	NA	0.09	0.46	74.01
1977	0.45	41.54	4.18	15.62	0.44	11.15	1.24	NA	0.15	0.51	75.28
1978	0.40	42.52	4.13	15.65	0.42	12.26	1.07	NA	0.12	0.60	77.17
1979	0.36	43.32	4.13	15.30	0.41	13.24	1.14	NA	0.10	0.57	78.57
1980	0.33	44.40	4.17	14.50	0.37	14.21	1.38	NA	0.11	0.61	80.07
1981	0.36	46.08	4.17	14.13	0.37	15.49	1.89	NA	0.10	0.59	83.18
1983 [4]	0.43	46.70	3.87	12.59	0.45	15.68	4.09	NA	0.16	0.68	84.64
1985	0.45	45.33	3.58	12.44	1.06	18.36	6.25	0.05	0.37	0.53	88.43
1987	0.41	45.96	3.66	12.74	1.08	20.61	5.45	0.05	0.28	0.66	90.89
1989	0.34	47.40	3.66	12.47	1.07	23.06	4.59	0.04	0.40	0.66	93.68
1991	0.32	47.02	3.88	11.47	0.99	23.71	4.44	0.03	0.41	0.86	93.15
1993	0.30	47.67	3.92	11.17	1.02	25.11	4.10	0.03	0.50	0.91	94.73
1995	0.21	49.20	4.25	10.98	1.06	26.77	3.53	0.02	0.64	1.04	97.69
1997	0.18	51.05	5.40	10.10	0.75	29.20	1.79	0.03	0.36	0.62	99.49
1999	0.17	52.37	5.91	10.03	0.72	31.14	1.70	0.02	0.21	0.54	102.80
					Percent						
1950	33.8	26.0	2.3	22.1	([3])	0.6	9.7	NA	1.8	3.7	100.0
1960	12.2	43.1	5.1	32.4	([3])	1.8	4.2	NA	0.4	0.9	100.0
1970	2.9	55.2	6.0	26.0	([3])	7.7	1.3	NA	0.4	0.6	100.0
1973	1.2	55.5	6.4	24.9	([3])	10.4	0.9	NA	0.2	0.7	100.0
1974	1.0	55.7	5.8	23.8	([3])	11.9	0.9	NA	0.1	0.7	100.0
1975	0.8	56.4	5.7	22.5	([3])	12.6	1.2	NA	0.1	0.6	100.0
1976	0.7	55.7	5.7	22.2	([3])	13.7	1.2	NA	0.1	0.6	100.0
1977	0.6	55.2	5.6	20.7	0.6	14.8	1.6	NA	0.2	0.7	100.0
1978	0.5	55.1	5.4	20.3	0.5	15.9	1.4	NA	0.2	0.8	100.0
1979	0.5	55.1	5.3	19.5	0.5	16.9	1.4	NA	0.1	0.7	100.0
1980	0.4	55.4	5.2	18.1	0.5	17.7	1.7	NA	0.1	0.8	100.0
1981	0.4	55.4	5.0	17.0	0.4	18.6	2.3	NA	0.1	0.7	100.0
1983 [4]	0.5	55.2	4.6	14.9	0.5	18.5	4.8	NA	0.2	0.8	100.0
1985	0.5	51.3	4.1	14.1	1.2	20.8	7.1	0.1	0.4	0.6	100.0
1987	0.4	50.6	4.0	14.0	1.2	22.7	6.0	0.1	0.3	0.7	100.0
1989	0.4	50.6	3.9	13.3	1.1	24.6	4.9	(s)	0.4	0.7	100.0
1991	0.3	50.5	4.2	12.3	1.1	25.5	4.8	(s)	0.4	0.9	100.0
1993	0.3	50.3	4.1	11.8	1.1	26.5	4.3	(s)	0.5	1.0	100.0
1995	0.2	50.4	4.4	11.2	1.1	27.4	3.6	(s)	0.7	1.1	100.0
1997	0.2	51.3	5.4	10.2	0.8	29.4	1.8	(s)	0.4	0.6	100.0
1999	0.2	50.9	5.7	9.8	0.7	30.3	1.7	(s)	0.2	0.5	100.0

[1] Includes coal coke.
[2] Includes nonreporting units in 1950 and 1960, which totaled 997 and 2,000 units, respectively.
[3] Included in distillate fuel oil.
[4] Since 1983, the *American Housing Survey for the United States* has been a biennial survey.
NA=Not available. (s)=Less than 0.05 percent.
Notes: • 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. • Totals may not equal sum of components due to independent rounding.
Sources: • 1950, 1960, and 1970—Bureau of the Census, *Census of Population and Housing.* • 1973 forward—Bureau of the Census, *American Housing Survey for the United States,* biennial surveys, Table 2-5.

Figure 2.8 Motor Vehicle Mileage, Fuel Consumption, and Fuel Rates



[1] Passenger cars, motorcycles, vans, pickup trucks, sport utility vehicles, trucks, and buses.
[2] Miles per gallon.
[3] Miles per vehicle.
[4] Gallons per vehicle.
[5] Sport utility vehicles.
[6] Motorcycles are included with passenger cars through 1989.
Source: Table 2.8.

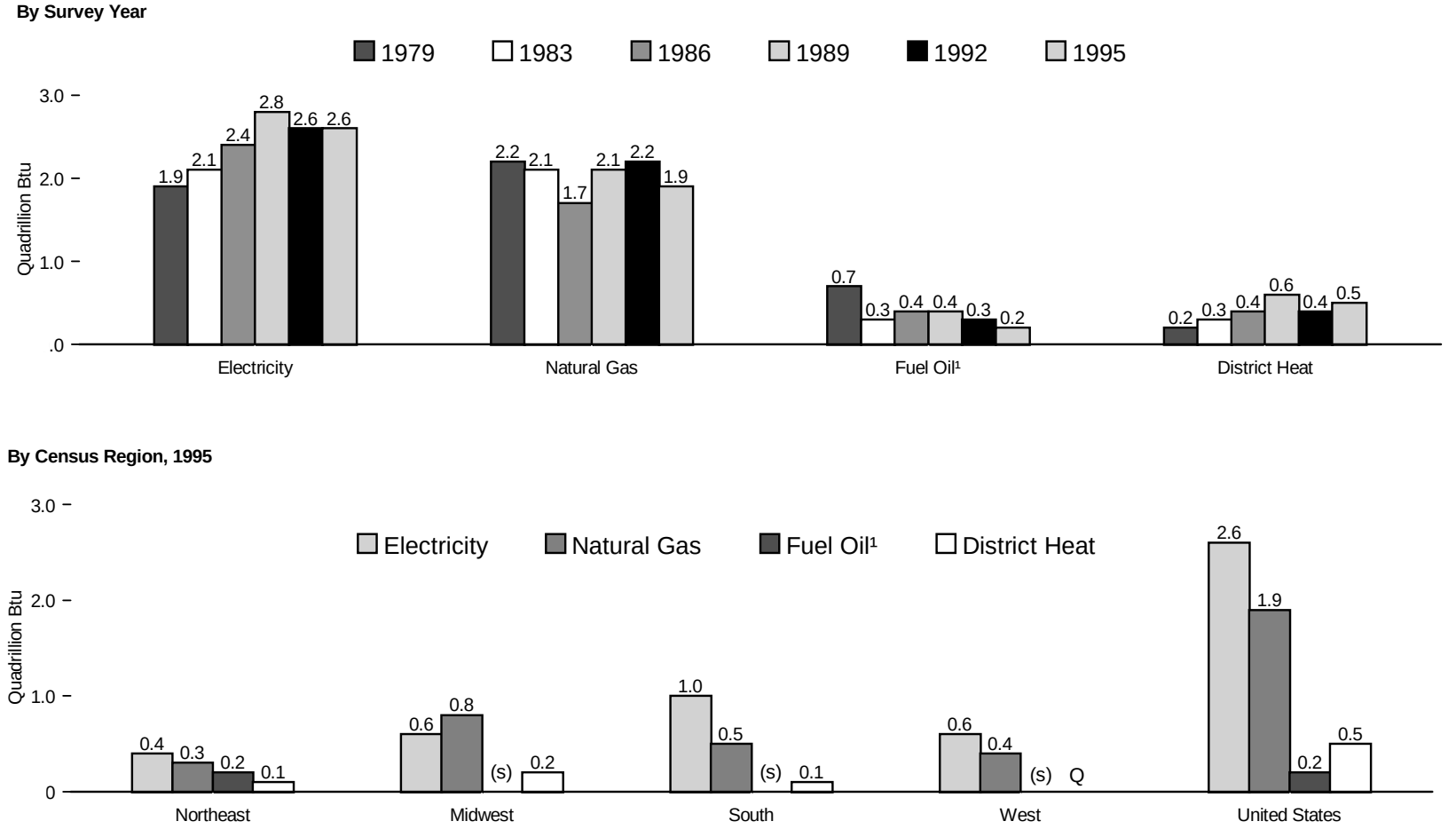
Table 2.8 Motor Vehicle Mileage, Fuel Consumption, and Fuel Rates, 1949-1999

Year	Passenger Cars			Vans, Pickup Trucks, and Sport Utility Vehicles [1]			Trucks [2]			All Motor Vehicles [3]		
	Mileage (miles per vehicle)	Fuel Consumption (gallons per vehicle)	Fuel Rate (miles per gallon)	Mileage (miles per vehicle)	Fuel Consumption (gallons per vehicle)	Fuel Rate (miles per gallon)	Mileage (miles per vehicle)	Fuel Consumption (gallons per vehicle)	Fuel Rate (miles per gallon)	Mileage (miles per vehicle)	Fuel Consumption (gallons per vehicle)	Fuel Rate (miles per gallon)
1949	[4]9,388	[4]627	[4]15.0	([5])	([5])	([5])	[6]9,712	[6]1,080	[6]9.0	9,498	726	13.1
1950	[4]9,060	[4]603	[4]15.0	([5])	([5])	([5])	[6]10,316	[6]1,229	[6]8.4	9,321	725	12.8
1951	[4]9,186	[4]614	[4]15.0	([5])	([5])	([5])	[6]10,545	[6]1,242	[6]8.5	9,460	735	12.9
1952	[4]9,360	[4]639	[4]14.7	([5])	([5])	([5])	[6]10,769	[6]1,288	[6]8.4	9,642	762	12.7
1953	[4]9,377	[4]640	[4]14.6	([5])	([5])	([5])	[6]10,963	[6]1,283	[6]8.5	9,684	760	12.7
1954	[4]9,349	[4]641	[4]14.6	([5])	([5])	([5])	[6]10,682	[6]1,281	[6]8.3	9,605	758	12.7
1955	[4]9,447	[4]645	[4]14.6	([5])	([5])	([5])	[6]10,576	[6]1,293	[6]8.2	9,661	761	12.7
1956	[4]9,496	[4]654	[4]14.5	([5])	([5])	([5])	[6]10,511	[6]1,309	[6]8.0	9,688	771	12.6
1957	[4]9,348	[4]658	[4]14.2	([5])	([5])	([5])	[6]10,774	[6]1,304	[6]8.3	9,609	773	12.4
1958	[4]9,500	[4]670	[4]14.2	([5])	([5])	([5])	[6]10,768	[6]1,303	[6]8.3	9,732	782	12.4
1959	[4]9,615	[4]674	[4]14.3	([5])	([5])	([5])	[6]10,702	[6]1,328	[6]8.1	9,817	789	12.4
1960	[4]9,518	[4]668	[4]14.3	([5])	([5])	([5])	[6]10,693	[6]1,333	[6]8.0	9,732	784	12.4
1961	[4]9,521	[4]663	[4]14.4	([5])	([5])	([5])	[6]10,537	[6]1,341	[6]7.9	9,708	781	12.4
1962	[4]9,494	[4]662	[4]14.3	([5])	([5])	([5])	[6]10,554	[6]1,337	[6]7.9	9,687	779	12.4
1963	[4]9,587	[4]655	[4]14.6	([5])	([5])	([5])	[6]10,395	[6]1,380	[6]7.5	9,737	780	12.5
1964	[4]9,665	[4]661	[4]14.6	([5])	([5])	([5])	[6]10,408	[6]1,389	[6]7.5	9,805	787	12.5
1965	[4]9,603	[4]661	[4]14.5	([5])	([5])	([5])	[6]10,851	[6]1,387	[6]7.8	9,826	787	12.5
1966	[4]9,733	[4]688	[4]14.1	8,077	833	9.7	12,537	2,250	5.6	9,675	780	12.4
1967	[4]9,849	[4]699	[4]14.1	7,877	801	9.8	12,789	2,294	5.6	9,751	786	12.4
1968	[4]9,922	[4]714	[4]13.9	8,376	849	9.9	12,402	2,240	5.5	9,864	805	12.2
1969	[4]9,921	[4]727	[4]13.6	8,355	851	9.8	13,484	2,459	5.5	9,885	821	12.0
1970	[4]9,989	[4]737	[4]13.5	8,676	866	10.0	13,565	2,467	5.5	9,976	830	12.0
1971	[4]10,097	[4]743	[4]13.6	9,082	888	10.2	14,117	2,519	5.6	10,133	839	12.1
1972	[4]10,171	[4]754	[4]13.5	9,534	922	10.3	14,780	2,657	5.6	10,279	857	12.0
1973	[4]9,884	[4]737	[4]13.4	9,779	931	10.5	15,370	2,775	5.5	10,099	850	11.9
1974	[4]9,221	[4]677	[4]13.6	9,452	862	11.0	14,995	2,708	5.5	9,493	788	12.0
1975	[4]9,309	[4]665	[4]14.0	9,829	934	10.5	15,167	2,722	5.6	9,627	790	12.2
1976	[4]9,418	[4]681	[4]13.8	10,127	934	10.8	15,438	2,764	5.6	9,774	806	12.1
1977	[4]9,517	[4]676	[4]14.1	10,607	947	11.2	16,700	3,002	5.6	9,978	814	12.3
1978	[4]9,500	[4]665	[4]14.3	10,968	948	11.6	18,045	3,263	5.5	10,077	816	12.4
1979	[4]9,062	[4]620	[4]14.6	10,802	905	11.9	18,502	3,380	5.5	9,722	776	12.5
1980	[4]8,813	[4]551	[4]16.0	10,437	854	12.2	18,736	3,447	5.4	9,458	712	13.3
1981	[4]8,873	[4]538	[4]16.5	10,244	819	12.5	19,016	3,565	5.3	9,477	697	13.6
1982	[4]9,050	[4]535	[4]16.9	10,276	762	13.5	19,931	3,647	5.5	9,644	686	14.1
1983	[4]9,118	[4]534	[4]17.1	10,497	767	13.7	21,083	3,769	5.6	9,760	686	14.2
1984	[4]9,248	[4]530	[4]17.4	11,151	797	14.0	22,550	3,967	5.7	10,017	691	14.5
1985	[4]9,419	[4]538	[4]17.5	10,506	735	14.3	20,597	3,570	5.8	10,020	685	14.6
1986	[4]9,464	[4]543	[4]17.4	10,764	738	14.6	22,143	3,821	5.8	10,143	692	14.7
1987	[4]9,720	[4]539	[4]18.0	11,114	744	14.9	23,349	3,937	5.9	10,453	694	15.1
1988	[4]9,972	[4]531	[4]18.8	11,465	745	15.4	22,485	3,736	6.0	10,721	688	15.6
1989	[4]10,157	[4]533	[4]19.0	11,676	724	16.1	22,926	3,776	6.1	10,932	688	15.9
1990	10,504	520	20.2	11,902	738	16.1	23,603	3,953	6.0	11,107	677	16.4
1991	10,571	501	21.1	12,245	721	17.0	24,229	4,047	6.0	11,294	669	16.9
1992	10,857	517	21.0	12,381	717	17.3	25,373	4,210	6.0	11,558	683	16.9
1993	10,804	527	20.5	12,430	714	17.4	26,262	4,309	6.1	11,595	693	16.7
1994	10,992	531	20.7	12,156	701	17.3	25,838	4,202	6.1	11,683	698	16.7
1995	11,203	530	21.1	12,018	694	17.3	26,514	4,315	6.1	11,793	700	16.8
1996	11,330	534	21.2	11,811	685	17.2	26,092	4,221	6.2	11,813	700	16.9
1997	11,581	539	21.5	12,115	703	17.2	27,032	4,218	6.4	12,107	711	17.0
1998	[R]11,754	[R]544	[R]21.6	[R]12,173	[R]707	[R]17.2	[R]25,397	[R]4,135	[R]6.1	[R]12,211	[R]721	[R]16.9
1999[P]	11,850	552	21.4	11,958	700	17.1	26,015	4,282	6.1	12,208	729	16.8

[1] Includes a small number of trucks with 2 axles and 4 tires, such as step vans.
[2] Single-unit trucks with 2 axles and 6 or more tires, and combination trucks.
[3] Includes buses and motorcycles, which are not shown separately.
[4] Includes motorcycles.
[5] Included in "Trucks."
[6] Includes vans, pickup trucks, and sport utility vehicles.
R=Revised. P=Preliminary.

Note: For vehicle registrations data see the "Sources" or the "Web Page."
Web Page: http://www.fhwa.dot.gov/ohim.
Sources: **Passenger Cars:** • 1990-1994—U.S. Department of Transportation, Bureau of Transportation Statistics, *National Transportation Statistics 1998,* Table 4-13. **All Other Data:** • 1949-1994—Federal Highway Administration (FHWA), *Highway Statistics Summary to 1995,* Table VM-201A. • 1995 forward—FHWA, *Highway Statistics,* annual reports, Table VM-1.

Figure 2.9 Commercial Buildings Consumption by Energy Source



[1] Distillate fuel oil, residual fuel oil, and kerosene.

Q=Data withheld because either the relative standard error was greater than 50 percent or fewer than 20 buildings were sampled.

(s)=Less than 0.05 quadrillion Btu.

Note: See Appendix D for Census regions.

Source: Table 2.9.

Table 2.9 Commercial Buildings Consumption by Energy Source, Selected Years, 1979-1995

(Trillion Btu)

Energy Source and Year	Square Footage Category			Principal Building Activity				Census Region [1]				All Buildings
	1,001 to 10,000	10,001 to 100,000	Over 100,000	Mercantile and Service	Office	Education	All Other	Northeast	Midwest	South	West	
Major Sources [2]												
1979	1,255	2,202	1,508	894	861	511	2,699	1,217	1,826	1,395	526	4,965
1983	1,242	1,935	1,646	812	1,018	480	2,513	858	1,821	1,462	682	4,823
1986	1,273	2,008	1,696	985	1,008	633	2,351	1,037	1,585	1,459	896	4,977
1989	1,259	2,402	2,127	1,048	1,230	704	2,806	1,354	1,659	1,648	1,126	5,788
1992	1,258	2,301	1,932	892	1,247	637	2,714	1,090	1,578	1,825	998	5,490
1995 [3]	1,332	2,152	1,838	973	1,019	614	2,716	1,035	1,497	1,684	1,106	5,321
Electricity												
1979	429	872	608	361	424	163	961	425	593	662	227	1,908
1983	469	903	758	426	509	152	1,041	324	673	801	331	2,129
1986	654	927	809	536	641	179	1,035	430	584	867	510	2,390
1989	572	1,145	1,056	550	781	217	1,225	586	609	975	604	2,773
1992	586	991	1,033	444	704	235	1,226	419	622	1,002	566	2,609
1995 [3]	618	1,064	926	508	676	221	1,204	436	558	1,027	587	2,608
Natural Gas												
1979	646	996	532	422	272	214	1,266	443	1,007	470	255	2,174
1983	684	809	597	327	365	246	1,152	278	978	523	311	2,091
1986	485	715	523	332	258	254	879	244	742	426	311	1,723
1989	568	836	670	417	238	323	1,095	353	831	498	391	2,073
1992	572	1,017	586	381	388	291	1,115	354	747	697	376	2,174
1995 [3]	535	830	580	395	239	245	1,066	297	750	528	371	1,946
Fuel Oil [4]												
1979	177	272	231	103	107	107	364	285	133	237	26	681
1983	85	140	90	43	75	61	135	172	28	104	Q	314
1986	114	206	121	105	39	103	194	270	63	86	23	442
1989	101	170	86	76	43	71	167	237	61	50	Q	357
1992	86	111	75	55	47	62	109	194	26	48	Q	272
1995 [3]	71	104	60	49	28	57	101	168	16	45	7	235
District Heat [5]												
1979	Q	61	136	Q	58	27	108	64	93	Q	Q	201
1983	Q	83	202	Q	68	21	184	84	141	34	30	289
1986	Q	159	243	12	71	97	243	94	196	81	51	422
1989	19	252	315	Q	167	Q	319	179	159	126	121	585
1992	Q	182	238	Q	109	49	264	123	183	78	51	435
1995 [3]	Q	154	271	Q	75	91	346	135	173	83	Q	533
Propane												
1979	23	15	5	10	Q	2	29	Q	16	15	10	43
1983	20	12	2	6	Q	2	24	Q	7	21	Q	34
1986	44	18	1	17	Q	3	42	9	19	26	Q	63

[1] See Appendix D for Census regions.

[2] For 1979, 1983, and 1986 includes electricity, natural gas, fuel oil, district heat, and propane. For 1989, 1992, and 1995 includes electricity, natural gas, fuel oil, and district heat. Propane consumption statistics were not collected after 1986.

[3] Beginning with the 1995 survey, commercial buildings on multibuilding manufacturing facilities and parking garages were excluded.

[4] Distillate fuel oil, residual fuel oil, and kerosene.

[5] For 1979 and 1983, includes only purchased steam. Beginning with the 1986 survey, includes purchased and nonpurchased steam and purchased and nonpurchased hot water.

Q=Data withheld because either the relative standard error was greater than 50 percent or fewer than 20 buildings were sampled.

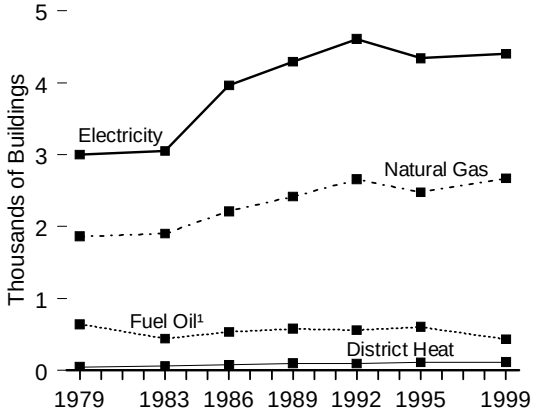
Note: Statistics for individual fuels are for all buildings using each fuel. Statistics for major sources are for the sum of electricity, natural gas, fuel oil, and district heat, across all buildings using any of those fuels.

Web Page: http://www.eia.doe.gov/emeu/consumption.

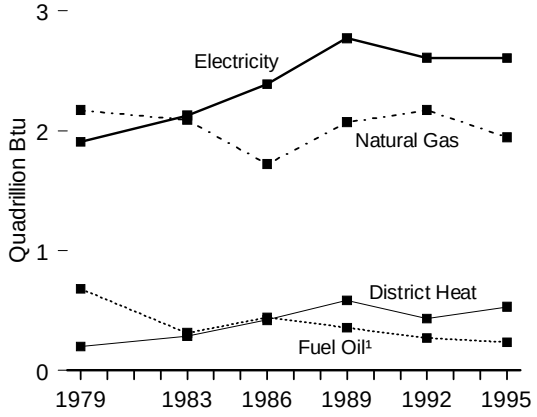
Sources: • 1979—Energy Information Administration (EIA), Form EIA-143, "Nonresidential Buildings Energy Consumption Survey."• 1983—EIA, Form EIA-788, "Nonresidential Buildings Energy Consumption Survey." • 1986—EIA, Form EIA-871, "Nonresidential Buildings Energy Consumption Survey." • 1989, 1992, and 1995—EIA, Form EIA-871A-F, "Commercial Buildings Energy Consumption Survey."

Figure 2.10 Commercial Buildings Energy Consumption and Expenditure Indicators, Selected Years

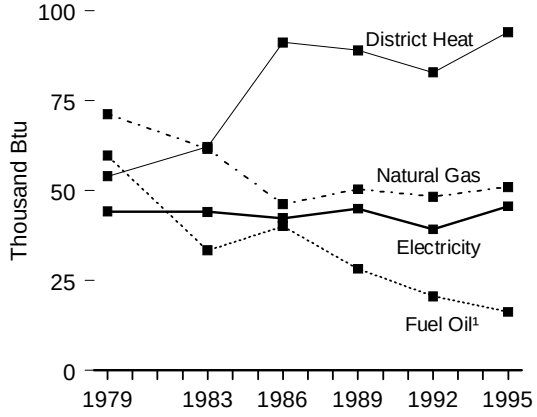
Buildings by Energy Source Used, 1979-1999



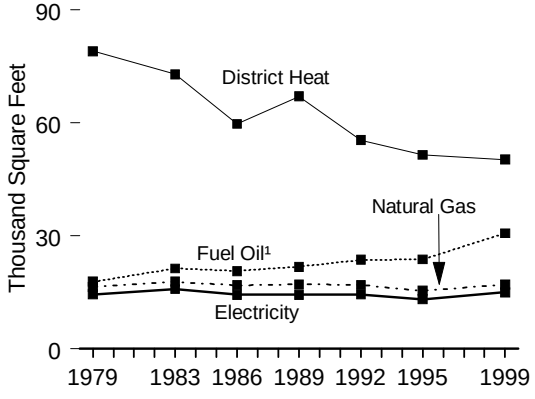
Consumption, 1979-1995



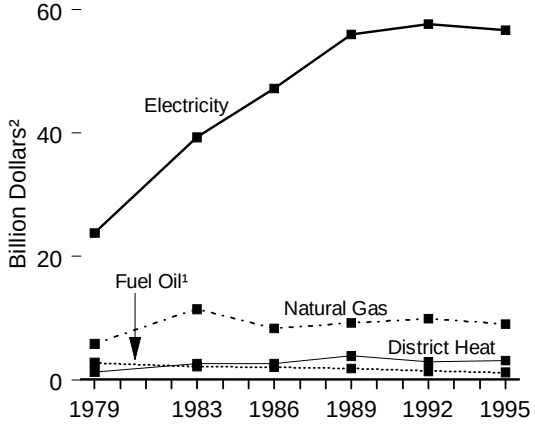
Consumption per Square Foot, 1979-1995



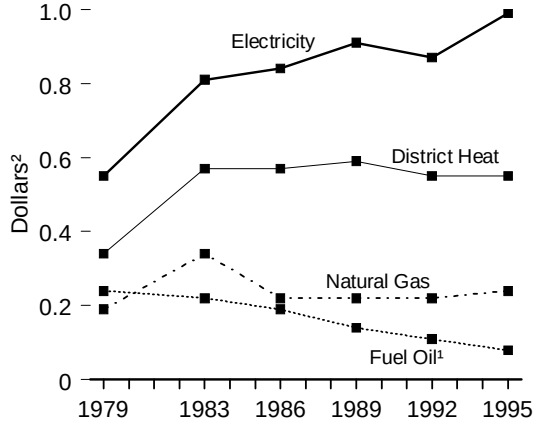
Square Footage per Building by Energy Source Used, 1979-1999



Expenditures, 1979-1995



Expenditures per Square Foot, 1979-1995



¹ Distillate fuel oil, residual fuel oil, and kerosene.

² Nominal dollars.

Note: No data are available for years not shown. Because vertical scales differ, graphs should not be compared.

Source: Table 2.10.

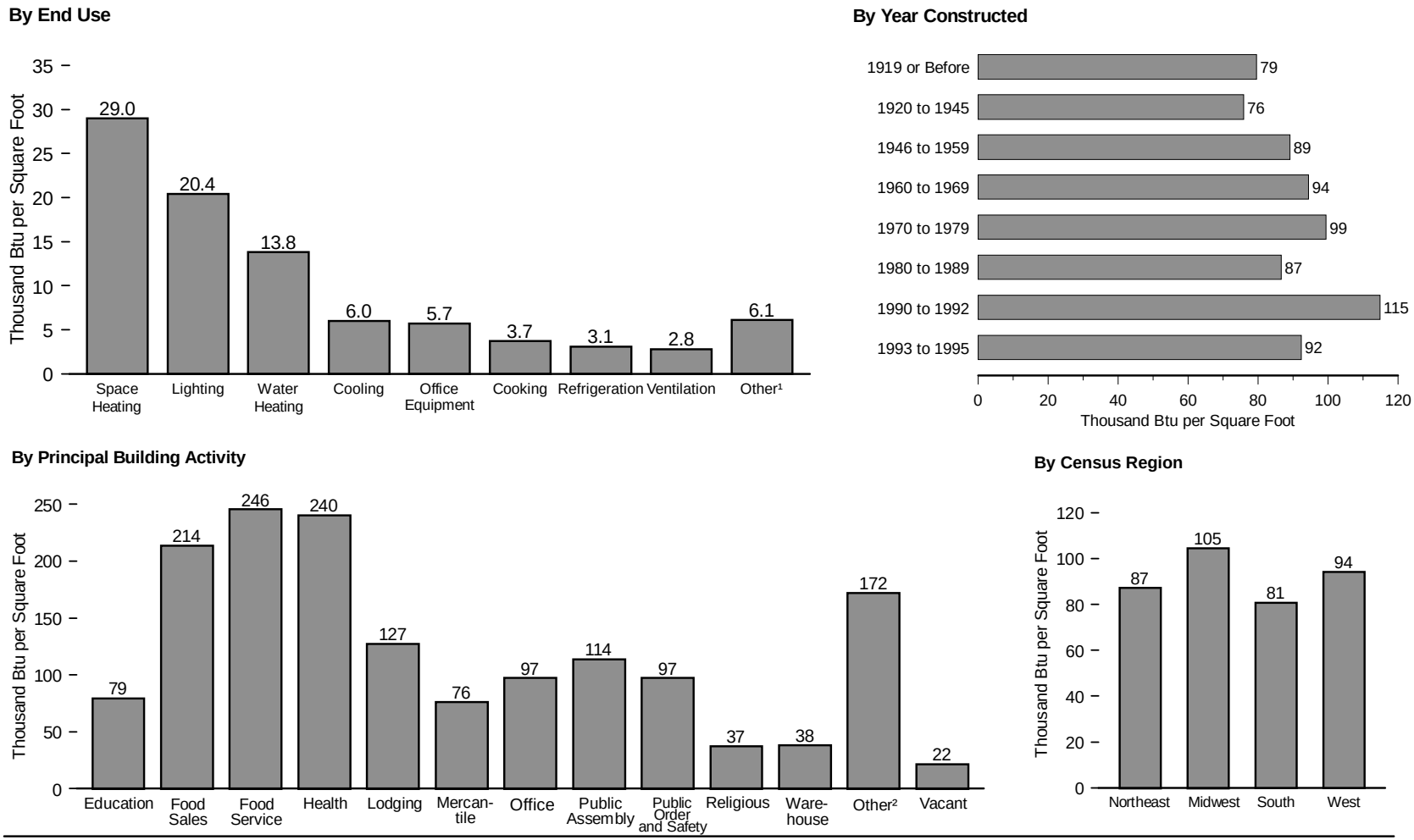
Table 2.10 Commercial Buildings Energy Consumption and Expenditure Indicators, Selected Years, 1979-1999

Energy Source and Year	Building Characteristics			Energy Consumption				Energy Expenditures			
	Number of Buildings (thousand)	Total Square Feet (million)	Square Feet per Building (thousand)	Total (trillion Btu)	Per Building (million Btu)	Per Square Foot (thousand Btu)	Per Employee (million Btu)	Total (million dollars[1])	Per Building (thousand dollars[1])	Per Square Foot (dollars[1])	Per Million Btu (dollars[1])
Major Sources [2]											
1979	3,073	43,546	14.2	5,008	1,630	115.0	85.0	33,821	11.0	0.78	6.75
1983	3,185	49,471	15.5	4,856	1,525	98.2	65.7	55,764	17.5	1.13	11.48
1986	4,154	58,199	14.0	5,040	1,213	86.6	68.6	60,762	14.6	1.04	12.06
1989	4,528	63,184	14.0	5,788	1,278	91.6	81.9	70,826	15.6	1.12	12.24
1992	4,806	67,876	14.1	5,490	1,142	80.9	77.1	71,821	14.9	1.06	13.08
1995 [3]	4,579	58,772	12.8	5,321	1,162	90.5	69.3	69,918	15.3	1.19	13.14
1999	4,411	65,759	14.9	NA	NA	NA	NA	NA	NA	NA	NA
Electricity											
1979	3,001	43,153	14.4	1,908	636	44.2	32.4	23,751	7.9	0.55	12.45
1983	3,052	48,327	15.8	2,129	697	44.1	28.9	39,279	12.9	0.81	18.45
1986	3,965	56,508	14.3	2,390	603	42.3	32.7	47,186	11.9	0.84	19.74
1989	4,294	61,563	14.3	2,773	646	45.0	39.3	55,943	13.0	0.91	20.17
1992	4,611	66,525	14.4	2,609	566	39.2	36.6	57,619	12.5	0.87	22.09
1995 [3]	4,343	57,076	13.1	2,608	600	45.7	34.1	56,621	13.0	0.99	21.71
1999	4,403	65,722	14.9	NA	NA	NA	NA	NA	NA	NA	NA
Natural Gas											
1979	1,864	30,477	16.4	2,174	1,167	71.3	52.5	5,814	3.1	0.19	2.67
1983	1,904	33,935	17.8	2,091	1,098	61.6	40.6	11,443	6.0	0.34	5.47
1986	2,214	37,263	16.8	1,723	778	46.2	35.2	8,355	3.8	0.22	4.85
1989	2,420	41,143	17.0	2,073	857	50.4	43.2	9,204	3.8	0.22	4.44
1992	2,657	44,994	16.9	2,174	818	48.3	42.5	9,901	3.7	0.22	4.55
1995 [3]	2,478	38,145	15.4	1,946	785	51.0	38.7	9,018	3.6	0.24	4.63
1999	2,675	45,525	17.0	NA	NA	NA	NA	NA	NA	NA	NA
Fuel Oil [4]											
1979	641	11,397	17.8	681	1,063	59.7	40.5	2,765	4.3	0.24	4.06
1983	441	9,409	21.3	314	714	33.4	19.8	2,102	4.8	0.22	6.68
1986	534	11,005	20.6	442	827	40.1	27.7	2,059	3.9	0.19	4.66
1989	581	12,600	21.7	357	614	28.3	21.0	1,822	3.1	0.14	5.11
1992	560	13,215	23.6	272	487	20.6	15.1	1,400	2.5	0.11	5.14
1995 [3]	607	14,421	23.7	235	387	16.3	10.2	1,175	1.9	0.08	5.00
1999	434	13,292	30.6	NA	NA	NA	NA	NA	NA	NA	NA
District Heat [5]											
1979	47	3,722	79.0	201	4,267	54.0	26.5	1,267	26.9	0.34	6.30
1983	64	4,643	72.9	289	4,530	62.1	34.4	2,627	41.2	0.57	9.10
1986	77	4,625	59.7	422	5,446	91.2	52.4	2,620	33.8	0.57	6.21
1989	98	6,578	67.0	585	5,964	89.0	56.5	3,857	39.3	0.59	6.59
1992	95	5,245	55.4	435	4,596	82.9	60.9	2,901	30.7	0.55	6.67
1995 [3]	110	5,658	51.5	533	4,849	94.1	51.2	3,103	28.3	0.55	5.83
1999	117	5,891	50.2	NA	NA	NA	NA	NA	NA	NA	NA
Propane											
1979	214	2,797	13.1	43	202	15.5	12.9	225	1.1	0.08	5.19
1983	191	2,562	13.4	34	176	13.1	8.5	313	1.6	0.12	9.29
1986	344	3,213	9.3	63	184	19.7	17.6	543	1.6	0.17	8.59
1989	348	4,695	13.5	NA	NA	NA	NA	NA	NA	NA	NA
1992	337	3,393	10.1	NA	NA	NA	NA	NA	NA	NA	NA
1995	589	5,344	9.1	NA	NA	NA	NA	NA	NA	NA	NA
1999	451	6,276	13.9	NA	NA	NA	NA	NA	NA	NA	NA

[1] Nominal dollars.
[2] For 1979, 1983, and 1986 includes electricity, natural gas, fuel oil, district heat, and propane. For 1989, 1992, 1995, and 1999 includes electricity, natural gas, fuel oil, and district heat. Propane consumption statistics were not collected after 1986.
[3] Beginning with the 1995 survey, commercial buildings on multibuilding manufacturing facilities and parking garages were excluded.
[4] Distillate fuel oil, residual fuel oil, and kerosene.
[5] For 1979 and 1983, includes only purchased steam. Beginning with the 1986 survey, includes purchased and nonpurchased steam and purchased and nonpurchased hot water.

NA=Not available.
Note: Statistics for individual fuels are for all buildings using each fuel. Statistics for major sources are for all buildings, even buildings using no major fuel.
Web Page: http://www.eia.doe.gov/emeu/consumption.
Sources: • 1979—Energy Information Administration (EIA), Form EIA-143, "Nonresidential Buildings Energy Consumption Survey." • 1983—EIA, Form EIA-788, "Nonresidential Buildings Energy Consumption Survey." • 1986—EIA, Form EIA-871, "Nonresidential Buildings Energy Consumption Survey." • 1989, 1992, 1995, and 1999—EIA, Form EIA-871A-F, "Commercial Buildings Energy Consumption Survey."

Figure 2.11 Commercial Buildings Energy Intensities by Building Characteristic, 1995



[1] See Table 2.11, footnote 1, for description of "Other."

[2] Includes buildings that do not fit into any of the other categories.

Notes: • See Appendix D for Census Regions. • Because vertical scales differ, graphs should not be compared.

Source: Table 2.11

Table 2.11 Commercial Buildings Energy Intensities by Building Characteristic, 1995

(Thousand Btu per Square Foot)

Building Characteristic	Space Heating	Cooling	Ventilation	Water Heating	Lighting	Cooking	Refrigeration	Office Equipment	Other [1]	All End Uses
All Buildings	**29.0**	**6.0**	**2.8**	**13.8**	**20.4**	**3.7**	**3.1**	**5.7**	**6.1**	**90.5**
Building Floorspace (square feet)										
1,001 to 5,000	39.5	7.0	2.9	9.7	22.7	8.9	10.4	5.4	5.1	111.7
5,001 to 10,000	38.5	4.4	1.7	11.1	13.6	4.3	2.5	3.8	2.9	82.8
10,001 to 25,000	27.4	4.8	1.7	9.1	14.7	2.6	2.5	4.3	3.7	70.9
25,001 to 50,000	28.2	6.7	2.1	11.6	18.5	2.1	2.5	5.0	5.2	82.0
50,001 to 100,000	27.0	7.0	3.2	12.9	21.3	2.0	2.1	6.1	6.0	87.6
100,001 to 200,000	26.6	6.2	3.3	19.6	25.0	3.1	1.4	7.2	8.9	101.4
200,001 to 500,000	24.0	6.7	4.5	25.2	27.4	4.6	1.6	8.5	11.9	114.6
Over 500,000	18.5	6.0	3.9	18.0	28.6	3.5	2.2	7.0	9.1	96.8
Principal Building Activity										
Education	32.8	4.8	1.6	17.4	15.8	1.4	1.0	1.5	2.9	79.3
Food Sales	27.5	13.4	4.4	9.1	33.9	5.6	110.9	1.3	7.4	213.5
Food Service	30.9	19.5	5.3	27.5	37.0	77.5	31.6	2.6	13.7	245.5
Health Care	55.2	9.9	7.2	63.0	39.3	11.2	4.7	15.5	34.4	240.4
Lodging	22.7	8.1	1.7	51.4	23.2	6.6	2.3	3.8	7.5	127.3
Mercantile and Service	30.6	5.8	2.5	5.1	23.4	1.5	0.9	2.9	3.7	76.4
Office	24.3	9.1	5.2	8.7	28.1	1.1	0.4	15.1	5.2	97.2
Public Assembly	53.6	6.3	3.5	17.5	21.9	2.8	1.8	2.4	3.8	113.7
Public Order and Safety	27.8	6.1	2.3	23.4	16.4	Q	0.2	5.8	12.7	97.2
Religious Worship	23.7	1.9	0.9	3.2	5.0	0.5	0.6	0.4	1.1	37.4
Warehouse and Storage	15.7	0.9	0.3	2.0	9.8	0.0	1.7	4.4	3.4	38.3
Other [2]	59.6	9.3	8.3	15.3	26.7	Q	0.7	15.2	35.9	172.2
Vacant	11.9	0.6	0.3	2.4	3.6	Q	0.2	0.5	1.9	21.5
Year Constructed										
1919 or Before	34.2	2.6	1.6	10.0	14.9	4.0	1.3	3.2	7.5	79.4
1920 to 1945	37.0	3.4	1.6	10.7	12.3	1.8	1.6	3.3	4.1	75.7
1946 to 1959	37.2	4.4	2.1	14.1	15.5	3.0	2.7	4.6	5.2	88.9
1960 to 1969	30.2	5.7	2.7	16.8	20.4	4.0	3.0	5.3	6.1	94.3
1970 to 1979	26.0	7.2	3.6	15.8	25.6	3.2	3.7	6.7	7.5	99.3
1980 to 1989	19.8	7.8	3.2	11.5	23.5	4.2	3.0	7.6	5.9	86.5
1990 to 1992	26.6	8.4	3.5	17.2	28.7	9.3	5.6	7.9	7.4	114.6
1993 to 1995	24.3	7.9	3.2	11.7	22.7	3.3	7.4	4.9	6.8	92.2
Census Region [3]										
Northeast	32.4	4.0	2.0	14.2	17.7	2.7	3.0	4.5	6.4	87.1
Midwest	46.7	4.3	2.5	15.6	18.8	3.5	2.4	5.1	5.6	104.5
South	18.0	8.4	3.2	10.5	21.3	4.0	3.4	5.9	6.0	80.8
West	23.4	5.5	3.1	17.0	23.6	4.3	3.4	7.2	6.5	94.2

[1] Examples of "other" include medical, electronic, and testing equipment; conveyors, wrappers, hoists, and compactors; washers, disposals, dryers and cleaning equipment; escalators, elevators, dumb waiters, and window washers; shop tools and electronic testing equipment; sign motors, time clocks, vending machines, phone equipment, and sprinkler controls; scoreboards, fire alarms, intercoms, television sets, radios, projectors, and door operators.

[2] Includes buildings that do not fit into any of the other named categories.

[3] See Appendix D for Census regions.

Q=Data withheld because either the relative standard error was greater than 50 percent or fewer than 20 buildings were sampled.

Web Page: http://www.eia.doe.gov/emeu/consumption.

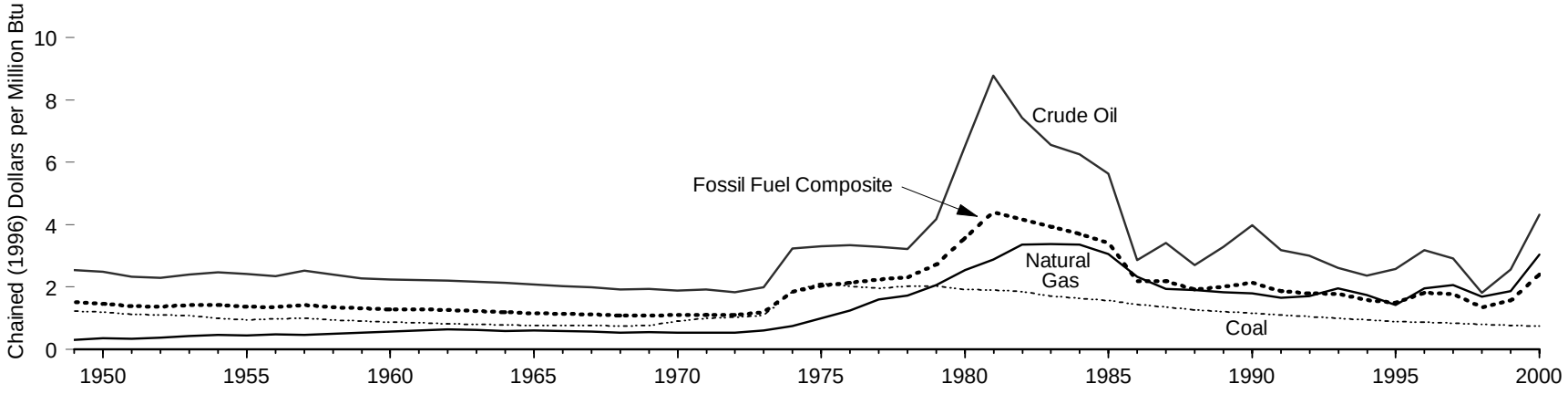
Source: Energy Information Administration, *A Look at Commercial Buildings in 1995: Characteristics, Energy Consumption, and Energy Expenditures* (October 1998), Table EU-2.

3 Financial Indicators

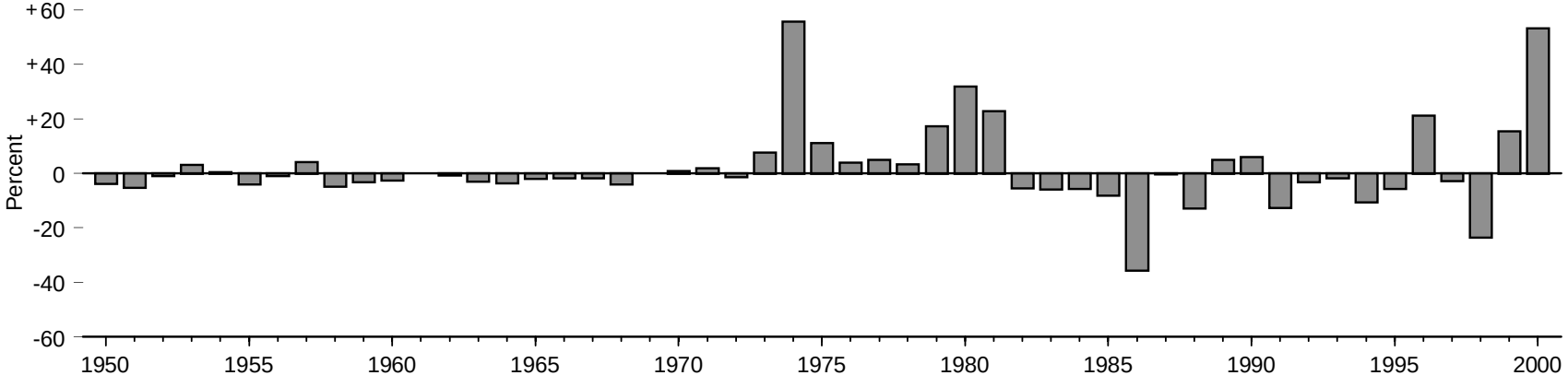
Gas Station, North Carolina, April 1999.

Figure 3.1 Fossil Fuel Production Prices

Prices, 1949-2000



Fossil Fuel Composite Price, Change From Previous Year, 1950-2000



Note: Prices are in chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.

Source: Table 3.1.

Table 3.1 Fossil Fuel Production Prices, 1949-2000

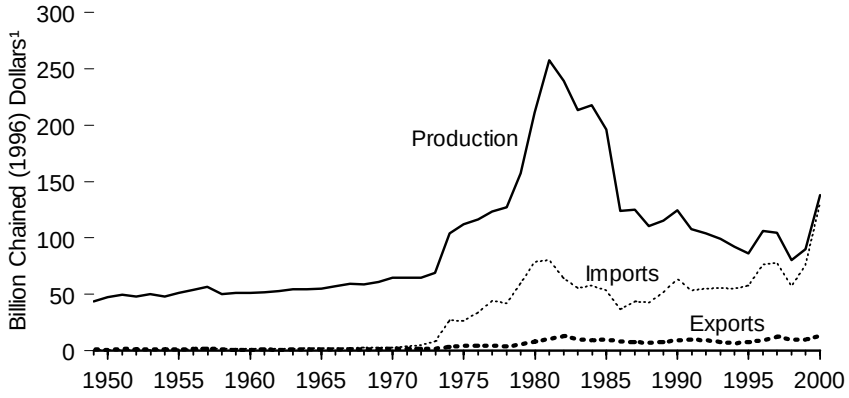
(Dollars per Million Btu)

Year	Coal [1]		Natural Gas [2]		Crude Oil [3]		Fossil Fuel Composite [4]		
	Nominal	Real [5]	Nominal	Real [5]	Nominal	Real [5]	Nominal	Real [5]	Percent Change [6]
1949	0.21	1.22	0.05	0.31	0.44	2.54	0.26	1.52	—
1950	0.21	1.19	0.06	0.36	0.43	2.48	0.26	1.46	-3.8
1951	0.21	1.13	0.06	0.34	0.44	2.33	0.26	1.38	-5.3
1952	0.21	1.10	0.07	0.38	0.44	2.30	0.26	1.37	-0.7
1953	0.21	1.08	0.08	0.42	0.46	2.40	0.27	1.42	3.2
1954	0.19	0.99	0.09	0.46	0.48	2.46	0.28	1.42	0.5
1955	0.19	0.94	0.09	0.45	0.48	2.42	0.27	1.37	-3.9
1956	0.20	0.97	0.10	0.48	0.48	2.35	0.28	1.36	-0.8
1957	0.21	0.99	0.10	0.47	0.53	2.52	0.30	1.42	4.1
1958	0.20	0.94	0.11	0.50	0.52	2.40	0.29	1.35	-4.7
1959	0.20	0.91	0.12	0.54	0.50	2.28	0.29	1.31	-3.1
1960	0.19	0.87	0.13	0.57	0.50	2.24	0.28	1.28	-2.4
1961	0.19	0.85	0.14	0.60	0.50	2.22	0.29	1.28	0.0
1962	0.19	0.82	0.14	0.64	0.50	2.20	0.29	1.27	-0.7
1963	0.18	0.80	0.14	0.63	0.50	2.16	0.28	1.23	-2.8
1964	0.18	0.79	0.14	0.58	0.50	2.13	0.28	1.19	-3.5
1965	0.18	0.77	0.14	0.61	0.49	2.07	0.28	1.16	-1.9
1966	0.19	0.77	0.14	0.59	0.50	2.03	0.28	1.14	-1.7
1967	0.19	0.76	0.14	0.58	0.50	2.00	0.28	1.13	-1.6
1968	0.19	0.74	0.14	0.54	0.51	1.93	0.28	1.08	-3.8
1969	0.21	0.76	0.15	0.56	0.53	1.93	0.30	1.08	0.0
1970	0.27	0.92	0.15	0.53	0.55	1.89	0.32	1.09	0.9
1971	0.30	1.00	0.16	0.53	0.58	1.91	0.34	1.11	1.8
1972	0.33	1.04	0.17	0.54	0.58	1.84	0.35	1.10	-1.3
1973	0.37	1.09	0.20	0.60	0.67	2.00	0.40	1.18	7.7
1974	0.69	1.87	0.27	0.74	1.18	3.23	0.68	1.85	55.8
1975	0.84	2.11	0.40	1.00	1.32	3.30	0.82	2.05	11.1
1976	0.86	2.02	0.53	1.26	1.41	3.34	0.90	2.13	3.9
1977	0.88	1.96	0.72	1.61	1.48	3.28	1.01	2.24	5.0
1978	0.98	2.04	0.84	1.73	1.55	3.22	1.12	2.31	3.3
1979	1.06	2.02	1.08	2.07	2.18	4.17	1.42	2.71	17.3
1980	1.10	1.93	1.45	2.54	3.72	6.52	2.04	3.58	32.0
1981	1.18	1.90	1.80	2.88	5.48	8.78	2.74	4.40	22.9
1982	1.22	1.85	2.22	3.35	4.92	7.42	2.76	4.16	-5.4
1983	1.18	1.71	2.32	3.37	4.52	6.56	2.70	3.92	-5.8
1984	1.16	1.63	2.40	3.36	4.46	6.25	2.65	3.70	-5.5
1985	1.15	1.56	2.26	3.06	4.15	5.64	2.51	3.41	-8.0
1986	1.09	1.44	1.75	2.32	2.16	2.86	1.65	2.20	-35.6
1987	1.05	1.36	1.50	1.94	2.66	3.42	1.70	2.19	-0.2
1988	1.01	1.26	1.52	1.90	2.17	2.70	1.53	1.91	-12.8
1989	1.00	1.20	1.53	1.83	2.73	3.28	1.67	2.01	5.0
1990	1.00	1.15	1.55	1.79	3.45	3.99	1.84	2.13	6.1
1991	0.99	1.10	1.48	1.65	2.85	3.18	1.67	1.86	-12.5
1992	0.97	1.06	1.57	1.71	2.76	3.00	1.66	1.80	-3.1
1993	0.93	0.99	1.84	1.96	2.46	2.61	1.67	1.78	-1.6
1994	0.91	0.94	1.67	1.74	2.27	2.37	1.53	1.59	-10.5
1995	0.88	0.90	1.40	1.43	2.52	2.57	1.47	1.50	-5.5
1996	0.87	0.87	1.96	1.96	3.18	3.18	1.82	1.82	21.3
1997	0.85	0.84	2.10	2.06	2.97	R2.91	1.81	1.77	R-2.7
1998	0.82	R0.80	1.75	R1.69	1.87	1.82	R1.40	R1.36	R-23.3
1999	R0.80	R0.76	R1.95	R1.86	2.68	R2.56	R1.64	R1.57	R15.5
2000P	70.80	70.74	3.24	3.03	4.61	4.31	72.57	72.40	753.2

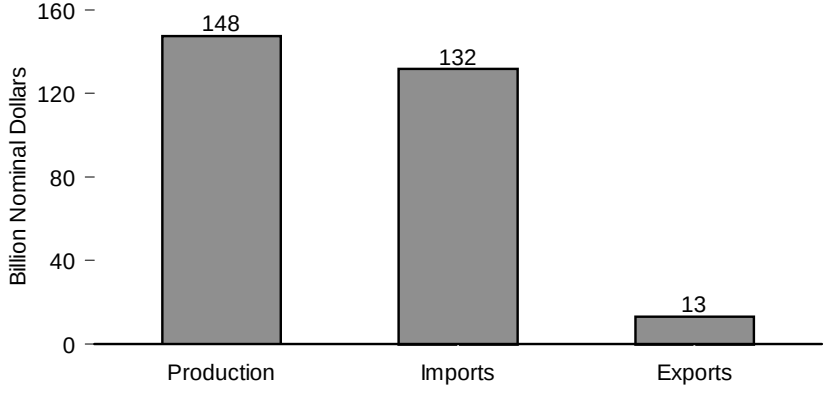
[1] Bituminous coal, subbituminous coal, and lignite prices are based on the value of coal produced at free-on-board (f.o.b.) mines; anthracite prices through 1978 are f.o.b. preparation plants and for 1979 forward are f.o.b. mines.
[2] Wellhead prices.
[3] Domestic first purchase prices.
[4] Derived 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.
[5] In chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.
[6] Based on real values.
[7] Calculated using the 1999 coal price for the 2000 value.
R=Revised. P=Preliminary. — = Not applicable.
Sources: Tables 5.16, 6.8, 7.8, A2, A4, and A5.

Figure 3.2 Value of Fossil Fuel Production

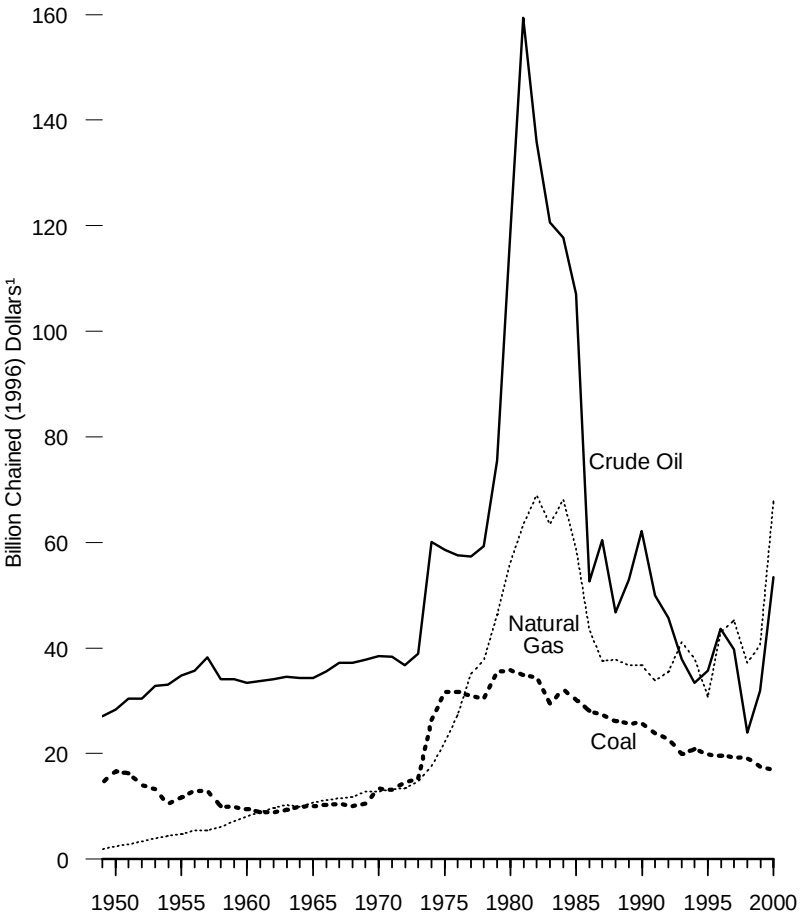
Overview, 1949-2000



Overview, 2000



Production by Fuel, 1949-2000



¹ Prices are in chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.

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

Sources: Tables 3.2, 3.5, and 3.6.

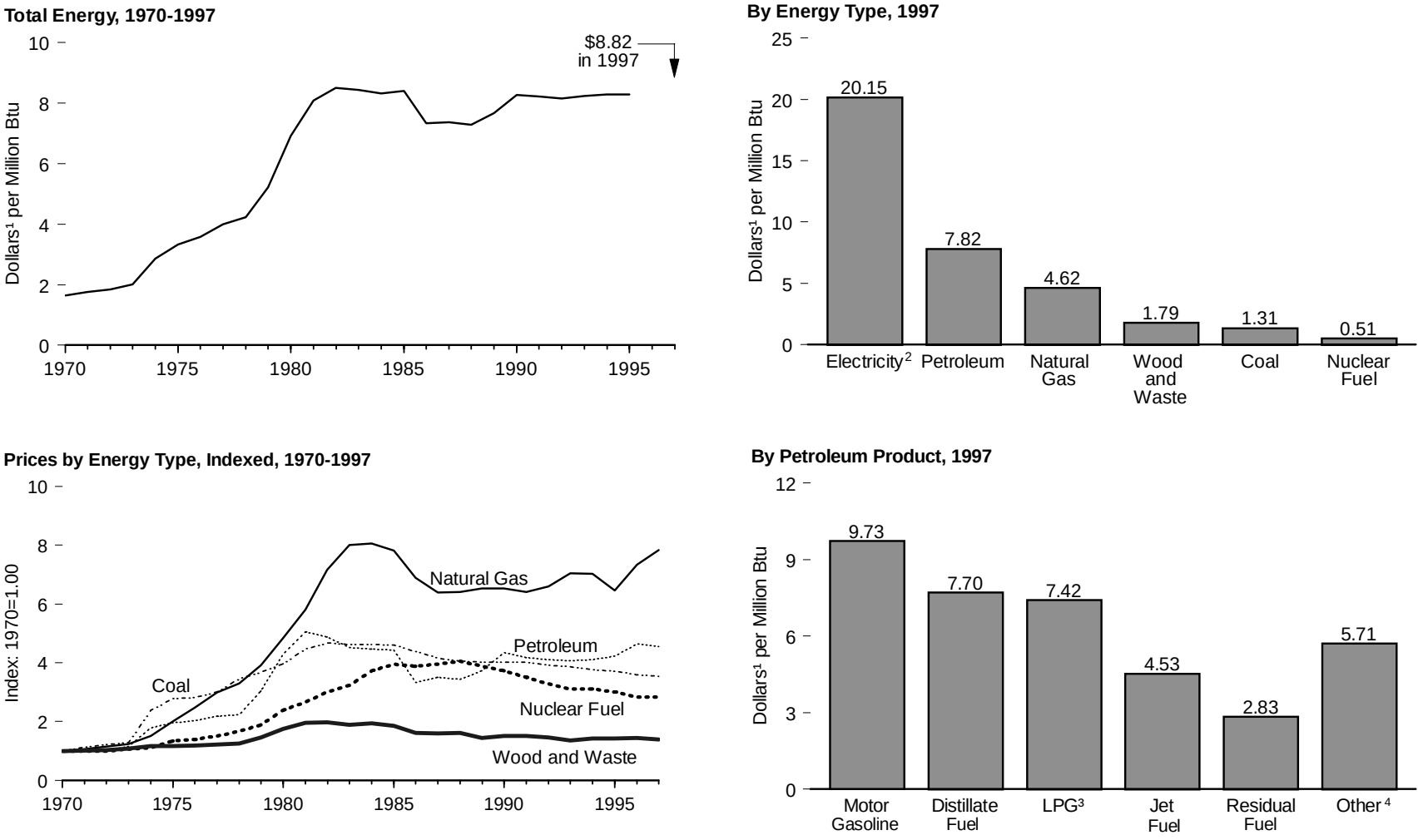
Table 3.2 Value of Fossil Fuel Production, 1949-2000

(Billion Dollars)

Year	Coal		Natural Gas [1]		Crude Oil [2]		Total	
	Nominal	Real [3]	Nominal	Real [3]	Nominal	Real [3]	Nominal	Real [3]
1949	2.52	14.60	0.33	1.91	4.68	27.11	7.53	43.62
1950	2.91	16.68	0.44	2.52	4.95	28.37	8.30	47.57
1951	3.05	16.30	0.52	2.78	5.69	30.41	9.26	49.49
1952	2.67	14.05	0.64	3.37	5.79	30.47	9.10	47.89
1953	2.55	13.25	0.76	3.95	6.32	32.83	9.63	50.03
1954	2.02	10.39	0.87	4.48	6.44	33.13	9.33	48.00
1955	2.30	11.63	0.94	4.75	6.88	34.78	10.12	51.16
1956	2.65	12.96	1.11	5.43	7.30	35.70	11.06	54.09
1957	2.74	12.97	1.17	5.54	8.09	38.29	12.00	56.80
1958	2.19	10.12	1.32	6.10	7.37	34.06	10.88	50.28
1959	2.14	9.78	1.57	7.18	7.47	34.14	11.18	51.10
1960	2.10	9.46	1.79	8.07	7.42	33.44	11.31	50.97
1961	1.99	8.87	1.99	8.87	7.58	33.78	11.56	51.52
1962	2.03	8.93	2.22	9.76	7.76	34.12	12.01	52.81
1963	2.17	9.43	2.36	10.26	7.96	34.61	12.49	54.30
1964	2.32	9.94	2.33	9.98	8.03	34.40	12.68	54.32
1965	2.40	10.09	2.57	10.81	8.15	34.27	13.12	55.17
1966	2.53	10.34	2.75	11.24	8.72	35.65	14.00	57.23
1967	2.65	10.51	2.91	11.54	9.39	37.25	14.95	59.30
1968	2.64	10.04	3.09	11.75	9.79	37.22	15.52	59.01
1969	2.90	10.51	3.52	12.76	10.42	37.77	16.84	61.04
1970	3.88	13.35	3.73	12.84	11.19	38.51	18.80	64.70
1971	4.01	13.14	4.05	13.27	11.71	38.37	19.77	64.78
1972	4.65	14.61	4.28	13.45	11.71	36.80	20.64	64.86
1973	5.14	15.30	4.98	14.82	13.07	38.90	23.19	69.02
1974	9.65	26.35	6.48	17.70	22.00	60.08	38.13	104.13
1975	12.67	31.65	8.85	22.11	23.45	58.58	44.97	112.34
1976	13.40	31.68	11.57	27.35	24.37	57.61	49.34	116.64
1977	13.91	30.90	15.82	35.14	25.79	57.29	55.52	123.33
1978	14.65	30.38	18.18	37.69	28.60	59.30	61.43	127.37
1979	18.55	35.50	24.16	46.24	39.45	75.50	82.16	157.24
1980	20.45	35.85	32.09	56.26	67.93	119.09	120.47	211.20
1981	21.75	34.87	39.51	63.35	99.40	159.37	160.66	257.59
1982	22.84	34.48	45.71	69.00	90.03	135.89	158.58	239.37
1983	20.32	29.50	43.73	63.49	83.05	120.57	147.10	213.56
1984	22.94	32.11	48.69	68.16	84.10	117.72	155.73	217.99
1985	22.27	30.22	43.35	58.83	78.88	107.04	144.50	196.09
1986	21.18	28.12	32.71	43.43	39.63	52.62	93.52	124.17
1987	21.20	27.33	29.11	37.52	46.93	60.49	97.24	125.34
1988	20.97	26.14	30.28	37.75	37.48	46.73	88.73	110.62
1989	21.40	25.70	30.58	36.72	44.07	52.92	96.05	115.34
1990	22.39	25.88	31.80	36.76	53.77	62.15	107.96	124.79
1991	21.40	23.87	30.39	33.89	44.77	49.93	96.56	107.69
1992	20.98	22.84	32.56	35.45	41.97	45.70	95.51	103.99
1993	18.77	19.96	38.72	41.17	35.61	37.86	93.10	98.99
1994	20.06	20.89	36.46	37.98	32.07	33.40	88.59	92.27
1995	19.45	19.83	30.24	30.83	35.00	35.68	84.69	86.34
1996	19.68	19.68	42.99	42.99	43.68	43.68	106.35	106.35
1997	19.77	[R]19.39	46.09	[R]45.21	40.57	[R]39.79	106.43	[R]104.39
1998	19.75	[R]19.13	[R]38.43	[R]37.23	24.80	[R]24.03	[R]82.98	[R]80.39
1999	[R]18.44	[R]17.60	[R]42.52	[R]40.58	[R]33.40	[R]31.88	[R]94.36	[R]90.06
2000[P]	[4]18.03	[4]16.86	72.54	67.85	57.07	53.38	[4]147.64	[4]138.09

[1] Marketed production.
[2] Includes lease condensate.
[3] In chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.
[4] Calculated using the 1999 coal price for the 2000 value.
R=Revised. P=Preliminary.
Note: Value is based on fuel prices taken as closely as possible to the point of production.
Sources: Tables 5.1, 5.16, 6.2, 6.8, 7.2, and 7.8.

Figure 3.3 Consumer Price Estimates for Energy



[1] Nominal dollars.
[2] Electricity purchased by end users.
[3] Liquefied petroleum gases.
[4] Asphalt and road oil, aviation gasoline, kerosene, lubricants, petrochemical feedstocks, petroleum coke, special naphthas, waxes, and miscellaneous petroleum products.

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

Source: Table 3.3.

Table 3.3 Consumer Price Estimates for Energy, 1970-1997

(Nominal Dollars per Million Btu)

Year	Primary Energy [1]												Electric Utility Fuel	Electricity Purchased by End-Users	Total Energy [4]
	Coal	Natural Gas	Petroleum							Nuclear Fuel	Wood and Waste	Total [4]			
			Distillate Fuel	Jet Fuel	LPG [2]	Motor Gasoline	Residual Fuel	Other [3]	Total						
1970	0.37	0.59	1.16	0.73	1.46	2.85	0.42	1.38	1.72	0.18	1.29	1.08	0.32	4.98	1.65
1971	0.42	0.63	1.22	0.77	1.49	2.90	0.58	1.44	1.79	0.18	1.31	1.15	0.38	5.30	1.76
1972	0.45	0.68	1.22	0.79	1.52	2.88	0.62	1.49	1.78	0.18	1.33	1.18	0.41	5.54	1.84
1973	0.48	0.73	1.46	0.92	2.02	3.10	0.75	1.57	1.97	0.19	1.39	1.29	0.46	5.86	2.02
1974	0.88	0.89	2.44	1.58	2.81	4.32	1.82	2.59	3.06	0.20	1.50	1.94	0.86	7.42	2.87
1975	1.03	1.18	2.60	2.05	2.97	4.65	1.93	2.92	3.35	0.24	1.50	2.19	0.96	8.61	3.33
1976	1.04	1.46	2.77	2.25	3.21	4.84	1.90	3.07	3.47	0.25	1.53	2.34	1.02	9.13	3.57
1977	1.11	1.76	3.11	2.59	3.65	5.13	2.14	3.25	3.73	0.27	1.58	2.57	1.16	10.11	3.98
1978	1.28	1.95	3.26	2.87	3.60	5.24	2.08	3.44	3.84	0.30	1.61	2.71	1.25	10.92	4.23
1979	1.36	2.31	4.69	3.90	4.50	7.11	2.83	4.69	5.23	0.34	1.88	3.47	1.48	11.78	5.21
1980	1.47	2.86	6.70	6.36	5.64	9.84	3.88	7.02	7.40	0.43	2.26	4.57	1.75	13.95	6.89
1981	1.65	3.43	8.03	7.57	6.18	10.94	4.91	8.63	8.68	0.48	2.53	5.24	2.00	16.14	8.03
1982	1.73	4.23	7.78	7.23	6.66	10.39	4.65	7.83	8.39	0.54	2.54	5.32	2.01	18.16	8.46
1983	1.71	4.72	7.32	6.53	7.17	9.12	4.50	7.58	7.77	0.58	2.43	5.11	1.98	18.62	8.39
1984	1.71	4.75	7.36	6.25	6.93	8.89	4.75	7.64	7.67	0.67	2.50	5.02	1.97	18.50	8.28
1985	1.70	4.61	7.18	5.91	6.54	9.01	4.30	7.52	7.62	0.71	2.40	4.90	1.85	19.05	8.36
1986	1.62	4.07	5.66	3.92	6.42	6.79	2.37	5.77	5.72	0.70	2.09	3.95	1.55	19.05	7.30
1987	1.54	3.77	5.94	4.03	6.06	7.22	2.86	5.59	6.03	0.71	2.06	3.97	1.51	18.74	7.33
1988	1.50	3.78	5.80	3.80	5.86	7.32	2.35	5.23	5.90	0.73	2.07	3.87	1.45	18.68	7.26
1989	1.49	3.85	6.45	4.39	5.53	8.01	2.72	5.47	6.42	0.70	[5]1.85	[5]4.09	1.48	18.98	[5]7.61
1990	1.49	3.85	7.70	5.68	6.75	9.12	3.16	5.80	7.47	0.67	1.95	4.50	1.46	19.33	8.29
1991	1.49	3.78	7.28	4.83	6.79	8.93	2.62	5.72	7.19	0.63	1.96	4.32	1.37	19.85	8.24
1992	1.45	3.89	7.11	4.52	6.19	8.96	2.27	5.49	7.07	0.59	1.88	4.29	1.34	20.06	8.17
1993	1.43	4.16	7.10	4.29	6.20	8.82	2.25	5.47	7.01	0.56	1.74	4.31	1.35	20.38	8.27
1994	1.39	4.15	7.03	3.95	6.61	8.91	2.32	5.46	7.05	0.56	1.84	4.32	1.30	20.34	8.31
1995	1.37	3.81	7.02	4.00	6.54	9.14	2.46	5.72	7.26	0.54	1.84	4.29	1.23	20.30	8.29
1996	1.33	4.33	7.90	4.82	7.91	9.77	2.79	6.22	7.99	0.51	1.86	4.70	1.28	20.17	8.77
1997	1.31	4.62	7.70	4.53	7.42	9.73	2.83	5.71	7.82	0.51	1.79	4.72	1.30	20.15	8.82

[1] Primary energy is all energy, including that consumed to produce electricity but excluding the electricity produced.

[2] Liquefied petroleum gases.

[3] Asphalt and road oil, aviation gasoline, kerosene, lubricants, petrochemical feedstocks, petroleum coke, special naphthas, waxes, and miscellaneous petroleum products.

[4] The "Primary Energy Total" and "Total Energy" prices include consumption-weighted average prices for coal coke imports and coal coke exports that are not shown in the other columns. In 1997, coal coke imports averaged 3.25 dollars per million Btu and coal coke exports averaged 2.64 dollars per million Btu.

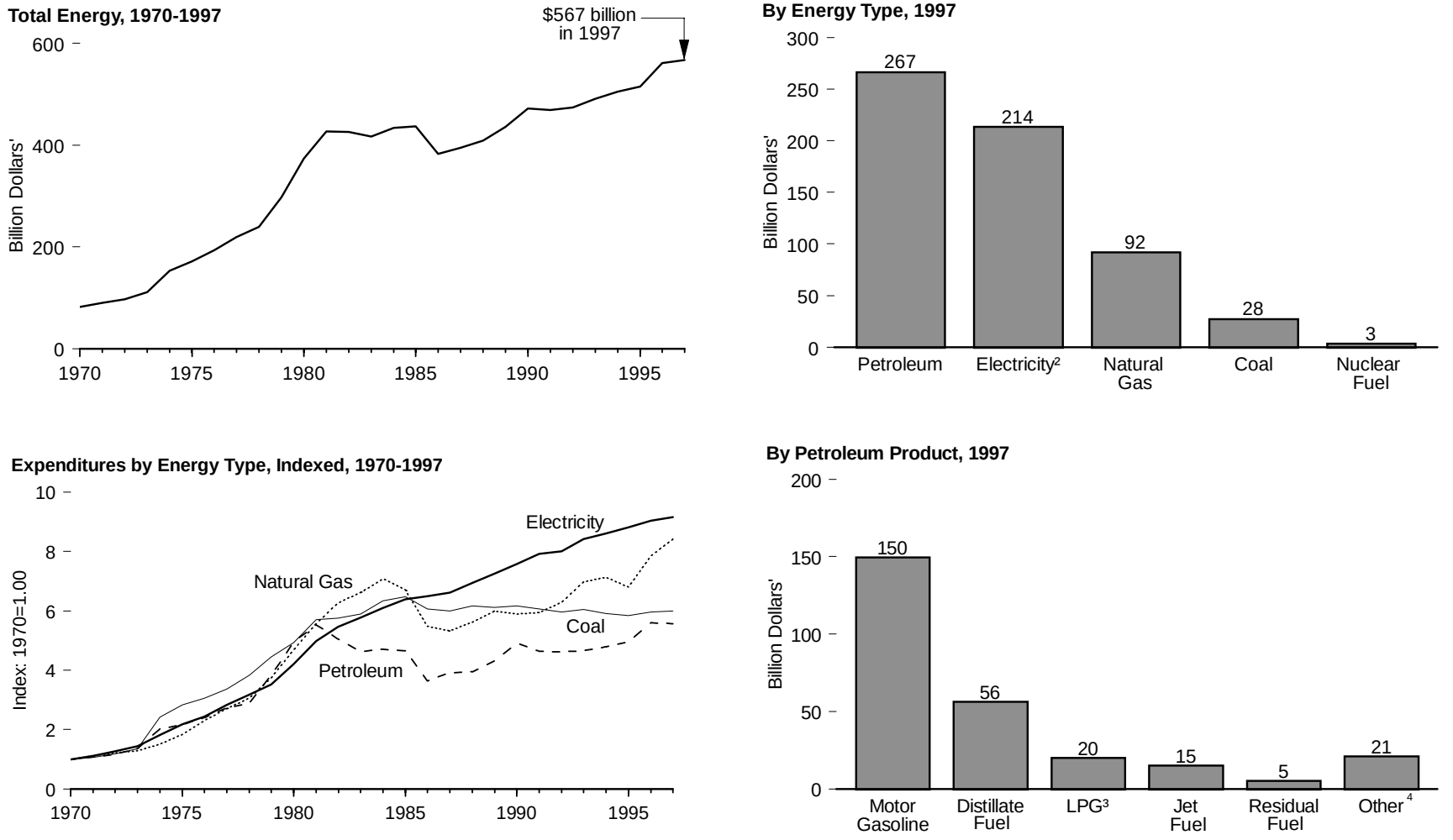
[5] There is a discontinuity in this time series between 1988 and 1989 due to expanded coverage of nonutility power producers' use of wood and waste beginning in 1989.

Note: There are no direct fuel costs for hydroelectric, geothermal, wind, or solar energy.

Web Page: http://www.eia.doe.gov/emeu/seper/contents.html.

Source: Energy Information Administration (EIA), *State Energy Price and Expenditure Report 1997* (July 2000), Table 5, and EIA, Combined State Energy Data System 1997.

Figure 3.4 Consumer Expenditure Estimates for Energy



[1] Nominal dollars.

[2] Electricity purchased by end users.

[3] Liquefied petroleum gases.

[4] Asphalt and road oil, aviation gasoline, kerosene, lubricants, petrochemical feedstocks, petroleum coke, special naphthas, waxes, and miscellaneous petroleum products.

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

Source: Table 3.4.

Table 3.4 Consumer Expenditure Estimates for Energy, 1970-1997

(Million Nominal Dollars)

Year	Primary Energy [1]													Electric Utility Fuel	Electricity Purchased by End-Users	Total Energy
				Petroleum												
	Coal	Net Imports of Coal Coke [2]	Natural Gas	Distillate Fuel	Jet Fuel	LPG [3]	Motor Gasoline	Residual Fuel	Other [4]	Total	Nuclear Fuel	Wood and Waste	Total			
1970	4,594	-75	10,891	6,253	1,441	2,446	31,596	2,046	4,160	47,942	44	438	63,833	-4,316	23,345	82,862
1971	4,883	-40	12,065	6,890	1,582	2,531	33,478	2,934	4,429	51,844	73	446	69,271	-5,441	26,202	90,032
1972	5,412	-26	13,198	7,552	1,682	2,889	35,346	3,458	4,755	55,682	104	476	74,845	-6,473	29,712	98,084
1973	6,251	7	13,933	9,524	2,001	3,933	39,667	4,667	5,299	65,091	178	502	85,961	-7,817	33,774	111,918
1974	11,145	150	16,380	15,218	3,208	5,273	54,194	10,548	8,263	96,704	259	544	125,182	-14,391	42,586	153,377
1975	13,047	82	20,061	15,680	4,193	R5,231	59,446	10,374	R8,448	103,372	448	534	137,544	-16,396	50,680	171,828
1976	14,079	44	25,097	18,402	4,567	5,993	64,977	11,648	9,881	115,468	520	622	155,830	-18,923	56,972	193,880
1977	15,448	67	29,602	22,004	5,517	6,824	70,591	14,381	11,719	131,036	743	694	177,590	-23,392	66,225	220,423
1978	17,595	362	33,185	23,587	6,205	6,621	74,513	13,747	13,294	137,967	915	782	190,806	-25,746	74,159	239,219
1979	20,421	259	40,785	32,854	8,603	9,383	95,916	17,656	18,761	183,173	941	964	246,543	-31,031	82,051	297,563
1980	22,648	-78	R51,061	40,797	13,923	10,926	124,408	21,573	26,001	237,628	1,189	1,251	313,699	-37,435	98,095	374,359
1981	26,231	-31	60,544	48,200	15,607	11,900	138,138	22,668	28,444	264,957	1,436	1,452	354,589	-43,275	116,455	427,769
1982	26,426	-52	68,292	44,087	14,974	R12,925	R130,305	17,632	R22,356	242,279	1,684	1,475	340,105	-41,311	127,393	426,187
1983	27,051	-44	72,000	41,846	13,979	14,083	115,816	14,099	R21,536	R221,359	1,859	1,504	323,728	-41,336	134,731	417,124
1984	29,093	-22	77,169	44,580	15,097	14,143	114,438	14,410	22,575	225,243	2,384	1,552	335,418	-43,378	142,420	434,460
1985	29,723	-34	72,938	43,759	14,747	13,545	R118,043	11,493	R22,004	223,591	2,930	1,471	330,618	-42,558	149,233	437,292
1986	27,895	-40	59,702	34,995	10,505	12,694	91,526	7,486	17,579	174,785	3,125	1,299	266,765	R-35,793	151,793	382,766
1987	27,566	7	58,019	37,587	11,448	12,859	99,803	8,062	17,581	187,340	3,486	1,278	277,696	-36,692	154,685	395,689
1988	R28,365	116	61,089	38,593	11,318	12,775	103,206	7,259	16,673	189,824	4,111	1,334	284,841	-37,435	162,063	409,468
1989	28,105	137	65,383	43,246	13,434	12,154	112,586	8,354	16,965	206,739	3,992	51,670	5306,125	-38,995	169,332	5436,463
1990	28,372	22	64,102	49,430	17,784	13,680	126,454	8,707	19,169	235,224	4,142	1,628	333,325	-38,276	176,737	471,786
1991	27,871	42	64,697	45,181	14,609	14,922	123,048	6,786	R18,160	R222,706	4,172	1,703	R321,225	-36,534	184,814	R469,505
1992	27,409	99	68,400	45,110	13,559	R14,161	125,156	5,575	R18,268	221,829	3,878	1,711	323,378	-35,817	186,954	474,515
1993	R27,763	56	75,941	R45,885	13,002	13,961	126,401	5,439	R18,248	222,936	3,658	1,621	332,016	-36,692	196,579	491,904
1994	27,186	92	77,716	47,240	12,474	16,253	R129,897	5,288	R18,652	229,804	3,858	1,934	340,801	-36,166	200,883	505,518
1995	26,861	104	74,150	47,845	R12,525	16,250	136,475	4,667	R19,175	236,937	R3,865	2,143	344,199	-34,810	205,932	515,321
1996	27,368	46	85,634	56,675	15,770	20,898	148,230	5,297	21,201	268,071	3,666	2,215	387,076	-36,614	211,011	561,473
1997	27,522	72	91,769	56,199	15,000	19,865	149,549	5,036	20,946	266,595	3,396	1,986	391,489	-37,815	213,645	567,318

[1] Primary energy is all energy, including that consumed to produce electricity but excluding the electricity produced.

[2] Values derive from U.S. Department of Commerce, Bureau of the Census, "Monthly Report IM-145" and "Monthly Report IM-545," and may differ slightly from those shown on Table 3.7, which derive from Bureau of the Census, *U.S. International Trade in Goods and Services.* FT600 series.

[3] Liquefied petroleum gases.

[4] Asphalt and road oil, aviation gasoline, kerosene, lubricants, petrochemical feedstocks, petroleum coke, special naphthas, waxes, and miscellaneous petroleum products.

[5] There is a discontinuity in this time series between 1988 and 1989 due to expanded coverage of nonutility power producers' use of wood and waste beginning in 1989.

R=Revised.

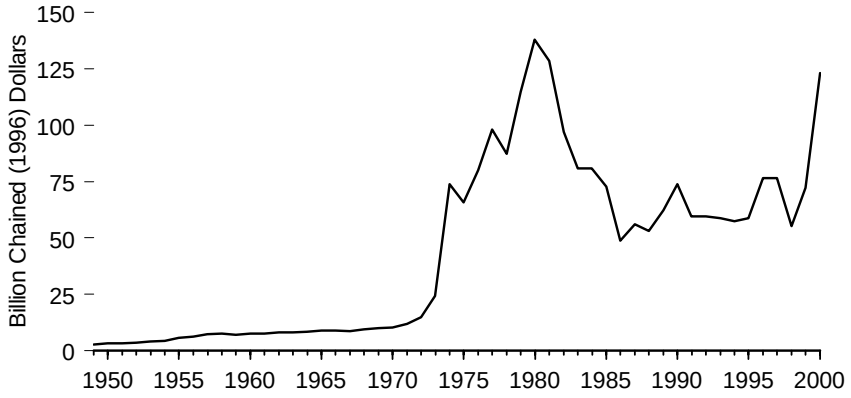
Notes: • There are no direct fuel costs for hydroelectric, geothermal, wind, or solar energy. • Totals may not equal the sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/emeu/seper/contents.html.

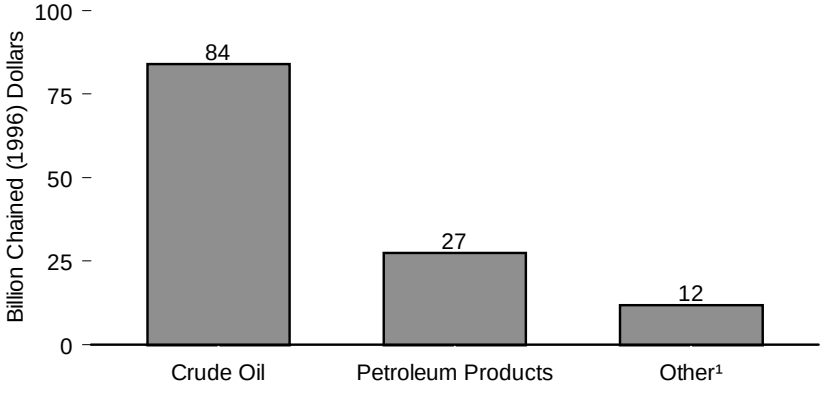
Source: Energy Information Administration (EIA), *State Energy Price and Expenditure Report 1997* (July 2000), Table 5, and EIA, Combined State Energy Data System 1997.

Figure 3.5 Value of Fossil Fuel Imports

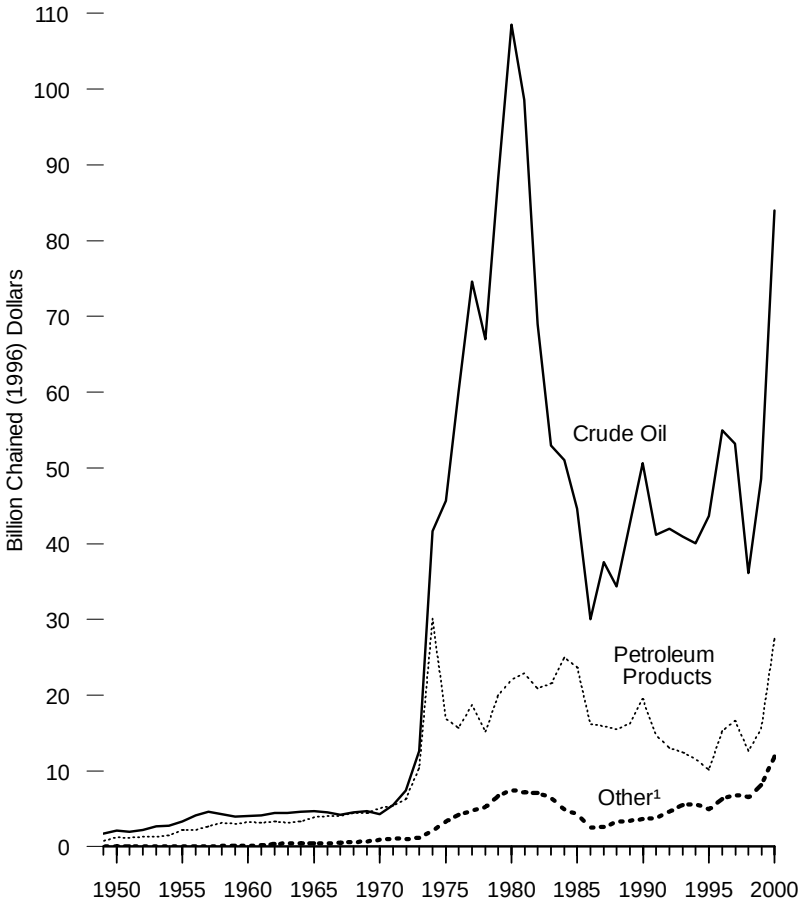
Total, 1949-2000



By Fuel, 2000



By Fuel, 1949-2000



¹ Natural gas, coal, and coal coke.

Notes: • Prices are in chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1. • Because vertical scales differ, graphs should not be compared.

Source: Table 3.5.

Table 3.5 Value of Fossil Fuel Imports, 1949-2000

(Billion Dollars)

Year	Coal		Coal Coke		Natural Gas		Crude Oil [1]		Petroleum Products [2]		Total	
	Nominal	Real [3]	Nominal	Real [3]	Nominal	Real [3]	Nominal	Real [3]	Nominal	Real [3]	Nominal	Real [3]
1949	(s)	0.01	(s)	0.02	0.00	0.00	0.30	1.77	0.14	0.79	0.45	2.60
1950	(s)	0.02	0.01	0.03	0.00	0.00	0.37	2.12	0.21	1.23	0.59	3.39
1951	(s)	0.01	(s)	0.01	0.00	0.00	0.37	2.00	0.23	1.21	0.61	3.24
1952	(s)	0.01	(s)	0.02	(s)	(s)	0.42	2.23	0.25	1.33	0.68	3.60
1953	(s)	0.01	(s)	0.01	(s)	0.01	0.51	2.65	0.25	1.31	0.77	3.98
1954	(s)	0.01	(s)	0.01	(s)	(s)	0.54	2.80	0.28	1.46	0.83	4.28
1955	(s)	0.01	(s)	0.01	(s)	0.01	0.65	3.31	0.44	2.23	1.10	5.57
1956	(s)	0.01	(s)	0.01	(s)	0.01	0.84	4.10	0.45	2.19	1.29	6.31
1957	(s)	0.01	(s)	0.01	(s)	0.02	0.98	4.64	0.57	2.69	1.56	7.36
1958	(s)	0.01	(s)	0.01	0.02	0.10	0.94	4.34	0.68	3.16	1.65	7.63
1959	(s)	0.01	(s)	0.01	0.03	0.12	0.87	3.99	0.66	3.03	1.57	7.16
1960	(s)	0.01	(s)	0.01	0.03	0.13	0.90	4.03	0.73	3.30	1.66	7.47
1961	(s)	0.01	(s)	0.01	0.04	0.20	0.93	4.16	0.71	3.16	1.69	7.54
1962	(s)	0.01	(s)	0.01	0.09	0.38	1.01	4.45	0.75	3.31	1.86	8.16
1963	(s)	0.01	(s)	0.01	0.10	0.43	1.03	4.46	0.74	3.21	1.87	8.11
1964	(s)	0.01	(s)	0.01	0.10	0.43	1.08	4.63	0.78	3.35	1.97	8.43
1965	(s)	0.01	(s)	0.01	0.11	0.44	1.12	4.71	0.92	3.88	2.15	9.05
1966	(s)	0.01	(s)	0.01	0.11	0.43	1.12	4.56	0.99	4.04	2.21	9.04
1967	(s)	0.01	(s)	0.01	0.13	0.51	1.06	4.22	1.02	4.03	2.21	8.78
1968	(s)	0.01	(s)	0.01	0.15	0.56	1.18	4.50	1.16	4.43	2.50	9.50
1969	(s)	(s)	(s)	0.01	0.20	0.71	1.30	4.71	1.24	4.49	2.74	9.92
1970	(s)	(s)	(s)	0.01	0.26	0.89	1.26	4.34	1.48	5.10	3.00	10.34
1971	(s)	0.01	0.01	0.02	0.31	1.02	1.69	5.53	1.66	5.43	3.66	12.00
1972	(s)	(s)	(s)	0.01	0.31	0.99	2.37	7.45	1.99	6.25	4.68	14.70
1973	(s)	(s)	0.04	0.12	0.36	1.08	4.24	12.62	3.50	10.41	8.14	24.23
1974	0.06	0.16	0.19	0.53	0.53	1.45	15.25	41.65	11.01	30.07	27.05	73.86
1975	0.02	0.05	0.16	0.39	1.15	2.88	18.29	45.69	6.77	16.91	26.39	65.92
1976	0.02	0.04	0.11	0.26	1.66	3.92	25.46	60.18	6.65	15.72	33.90	80.13
1977	0.04	0.09	0.13	0.29	2.00	4.44	33.59	74.61	8.42	18.70	44.18	98.13
1978	0.07	0.15	0.41	0.85	2.06	4.27	32.30	66.97	7.30	15.14	42.15	87.38
1979	0.05	0.10	0.34	0.65	3.13	5.98	46.06	88.15	10.45	20.00	60.03	114.88
1980	0.03	0.05	0.05	0.09	4.21	7.39	61.90	108.52	12.54	21.99	78.74	138.04
1981	0.03	0.05	0.04	0.07	4.41	7.07	61.46	98.54	14.30	22.92	80.24	128.65
1982	0.02	0.03	0.01	0.01	4.69	7.09	45.72	69.02	13.86	20.92	64.31	97.08
1983	0.04	0.06	(s)	(s)	4.39	6.37	36.49	52.98	14.84	21.55	55.77	80.96
1984	0.05	0.06	0.05	0.07	3.44	4.81	36.44	51.01	17.87	25.01	57.84	80.96
1985	0.07	0.10	0.04	0.06	3.05	4.14	32.90	44.65	17.47	23.70	53.53	72.64
1986	0.08	0.11	0.03	0.03	1.82	2.42	22.61	30.02	12.18	16.18	36.72	48.75
1987	0.06	0.07	0.05	0.07	1.93	2.49	29.13	37.55	12.37	15.94	43.54	56.12
1988	0.06	0.08	0.19	0.24	2.38	2.97	27.55	34.34	12.43	15.50	42.62	53.13
1989	0.10	0.12	0.22	0.26	2.51	3.01	35.53	42.67	13.50	16.21	51.85	62.26
1990	0.09	0.11	0.07	0.08	2.97	3.44	43.78	50.61	16.90	19.54	63.83	73.78
1991	0.11	0.13	0.09	0.10	3.24	3.61	36.90	41.16	13.17	14.69	53.51	59.68
1992	0.13	0.14	0.14	0.16	3.96	4.31	38.55	41.98	11.98	13.05	54.77	59.63
1993	0.25	0.27	0.17	0.18	4.77	5.07	38.47	40.90	11.74	12.48	55.40	58.90
1994	0.27	0.28	0.27	0.29	4.90	5.11	38.48	40.08	11.14	11.61	55.07	57.36
1995	0.32	0.33	0.33	0.33	4.23	4.31	42.81	43.64	9.95	10.14	57.64	58.75
1996	0.27	0.27	0.24	0.24	5.79	5.79	54.93	54.93	15.27	15.27	76.51	76.51
1997	0.26	0.25	0.25	0.25	6.50	6.37	54.23	R53.19	R,4 16.93	R,4 16.60	78.16	R76.66
1998	0.28	0.27	0.29	0.28	6.21	6.02	37.25	R36.09	13.01	R12.61	57.05	R55.27
1999	0.28	0.27	0.23	0.22	R8.03	R7.67	R50.89	R48.57	R16.28	R15.54	R75.71	R72.27
2000P	0.38	0.35	0.25	0.23	12.07	11.28	89.79	83.97	29.32	27.42	131.80	123.27

[1] Includes imports into the Strategic Petroleum Reserve, which began in 1977.
[2] Includes petroleum preparations; liquefied propane; and butane; and since 1997 other mineral fuels.
[3] In chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.
[4] There is a discontinuity in this time series between 1996 and 1997 due to the addition of the commodity category "other mineral fuels."

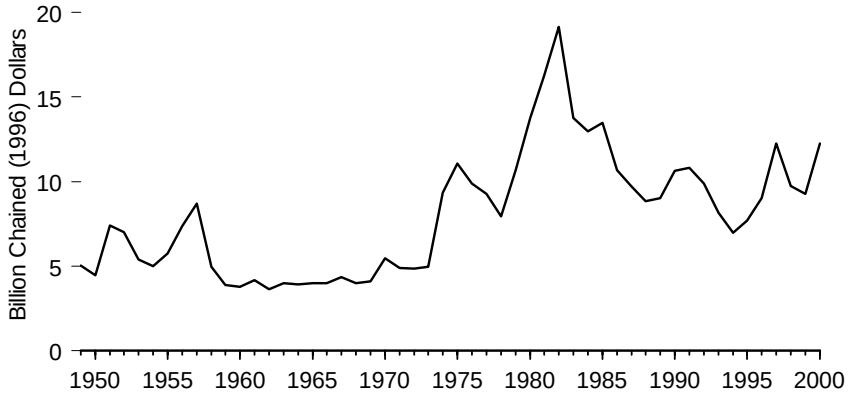
R=Revised. P=Preliminary. (s)=Less than 0.005 billion.

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

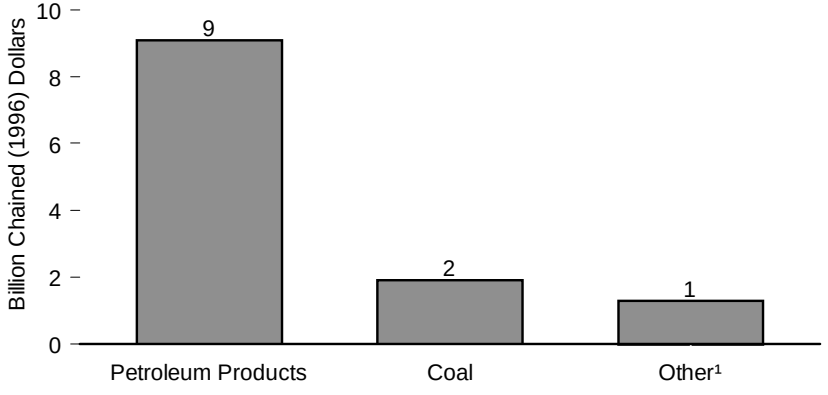
Sources: See end of section.

Figure 3.6 Value of Fossil Fuel Exports

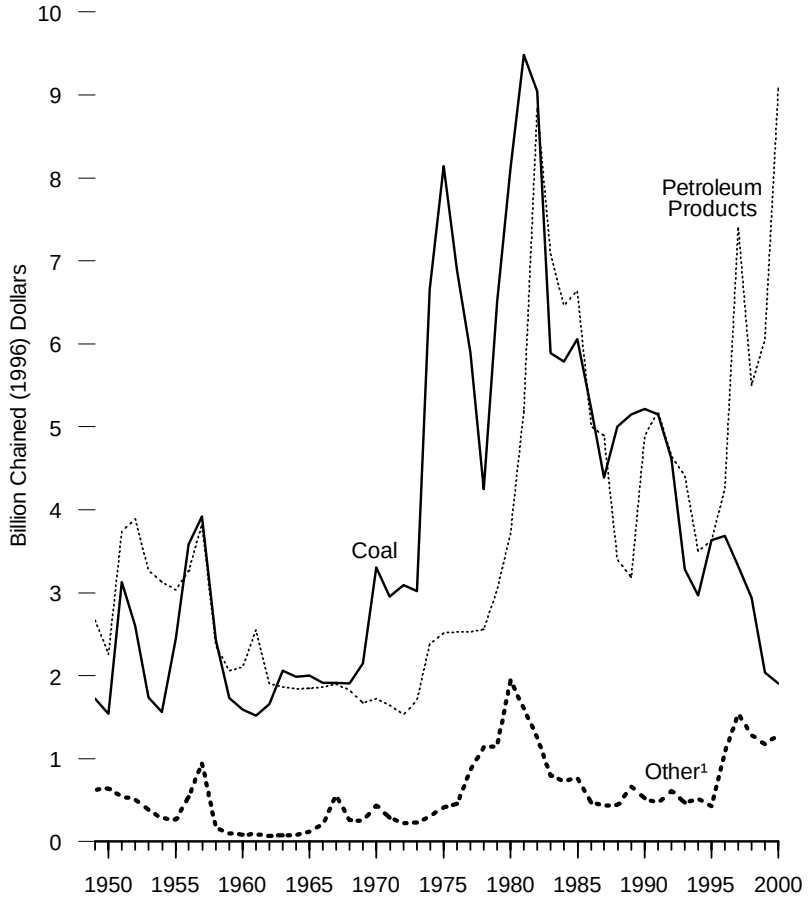
Total, 1949-2000



By Fuel, 2000



By Fuel, 1949-2000



¹ Natural gas, crude oil, and coal coke.

Notes: • Prices are in chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1. • Because vertical scales differ, graphs should not be compared.

Source: Table 3.6.

Table 3.6 Value of Fossil Fuel Exports, 1949-2000

(Billion Dollars)

Year	Coal		Coal Coke		Natural Gas		Crude Oil		Petroleum Products [1]		Total	
	Nominal	Real [2]	Nominal	Real [2]	Nominal	Real [2]	Nominal	Real [2]	Nominal	Real [2]	Nominal	Real [2]
1949	0.30	1.72	0.01	0.05	(s)	0.01	0.10	0.57	0.46	2.67	0.87	5.02
1950	0.27	1.54	0.01	0.04	(s)	0.02	0.10	0.59	0.39	2.26	0.78	4.45
1951	0.59	3.13	0.02	0.09	(s)	0.02	0.08	0.44	0.70	3.74	1.39	7.42
1952	0.49	2.60	0.01	0.07	(s)	0.02	0.08	0.41	0.74	3.89	1.33	7.00
1953	0.34	1.74	0.01	0.05	(s)	0.02	0.06	0.31	0.63	3.27	1.04	5.39
1954	0.30	1.57	0.01	0.03	(s)	0.02	0.05	0.23	0.61	3.13	0.97	4.98
1955	0.48	2.45	0.01	0.04	0.01	0.03	0.04	0.20	0.60	3.03	1.14	5.75
1956	0.73	3.58	0.01	0.06	0.01	0.04	0.09	0.44	0.67	3.26	1.51	7.38
1957	0.83	3.92	0.01	0.07	0.01	0.06	0.17	0.82	0.81	3.82	1.84	8.69
1958	0.53	2.43	0.01	0.03	0.01	0.07	0.01	0.07	0.51	2.36	1.07	4.96
1959	0.38	1.73	0.01	0.04	0.01	0.03	0.01	0.03	0.45	2.06	0.85	3.89
1960	0.35	1.59	0.01	0.03	(s)	0.02	0.01	0.04	0.47	2.10	0.84	3.78
1961	0.34	1.52	0.01	0.04	(s)	0.02	0.01	0.04	0.57	2.55	0.93	4.16
1962	0.38	1.66	0.01	0.03	(s)	0.02	0.01	0.02	0.43	1.90	0.83	3.63
1963	0.47	2.06	0.01	0.04	(s)	0.02	(s)	0.02	0.43	1.86	0.92	4.00
1964	0.46	1.98	0.01	0.04	(s)	0.02	(s)	0.02	0.43	1.84	0.91	3.90
1965	0.48	2.01	0.02	0.07	0.01	0.03	(s)	0.02	0.44	1.85	0.95	3.97
1966	0.47	1.91	0.02	0.10	0.02	0.07	0.01	0.04	0.46	1.86	0.97	3.99
1967	0.48	1.91	0.02	0.07	0.03	0.13	0.09	0.37	0.48	1.90	1.10	4.37
1968	0.50	1.91	0.02	0.07	0.04	0.15	0.01	0.04	0.48	1.83	1.05	4.00
1969	0.59	2.15	0.04	0.14	0.03	0.09	0.01	0.02	0.46	1.68	1.13	4.08
1970	0.96	3.31	0.08	0.27	0.03	0.10	0.02	0.06	0.50	1.73	1.59	5.47
1971	0.90	2.95	0.04	0.15	0.04	0.13	0.01	0.02	0.50	1.65	1.49	4.89
1972	0.98	3.09	0.03	0.10	0.04	0.12	(s)	0.01	0.49	1.54	1.55	4.86
1973	1.01	3.02	0.03	0.10	0.04	0.12	(s)	0.01	0.57	1.70	1.66	4.95
1974	2.44	6.65	0.04	0.12	0.05	0.15	0.01	0.04	0.87	2.38	3.42	9.34
1975	3.26	8.14	0.07	0.19	0.09	0.23	(s)	(s)	1.01	2.52	4.43	11.07
1976	2.91	6.88	0.07	0.16	0.10	0.24	0.03	0.06	1.07	2.53	4.17	9.87
1977	2.66	5.90	0.07	0.16	0.11	0.24	0.21	0.46	1.14	2.53	4.18	9.29
1978	2.05	4.25	0.05	0.10	0.11	0.23	0.39	0.81	1.23	2.56	3.83	7.95
1979	3.40	6.50	0.08	0.15	0.13	0.24	0.39	0.75	1.58	3.03	5.58	10.69
1980	4.63	8.11	0.13	0.23	0.23	0.40	0.75	1.32	2.12	3.72	7.86	13.78
1981	5.92	9.49	0.07	0.12	0.35	0.56	0.58	0.92	3.24	5.19	10.16	16.28
1982	5.99	9.04	0.06	0.09	0.30	0.45	0.47	0.71	5.86	8.85	12.68	19.14
1983	4.06	5.89	0.05	0.07	0.28	0.40	0.22	0.33	4.88	7.08	9.48	13.77
1984	4.13	5.78	0.07	0.10	0.27	0.38	0.19	0.26	4.62	6.46	9.27	12.98
1985	4.47	6.06	0.08	0.10	0.26	0.36	0.23	0.31	4.90	6.64	9.93	13.47
1986	3.93	5.22	0.07	0.09	0.17	0.23	0.12	0.16	3.77	5.00	8.05	10.69
1987	3.40	4.39	0.05	0.06	0.17	0.21	0.13	0.16	3.80	4.89	7.54	9.72
1988	4.01	5.00	0.08	0.10	0.20	0.25	0.08	0.10	2.72	3.40	7.09	8.84
1989	4.29	5.15	0.08	0.10	0.27	0.32	0.21	0.25	2.65	3.19	7.49	9.00
1990	4.51	5.21	0.05	0.06	0.27	0.31	0.14	0.16	4.23	4.89	9.20	10.63
1991	4.62	5.15	0.05	0.06	0.33	0.37	0.03	0.04	4.65	5.19	9.69	10.81
1992	4.24	4.61	0.04	0.05	0.49	0.53	0.03	0.04	4.27	4.65	9.07	9.88
1993	3.09	3.28	0.06	0.06	0.36	0.39	0.02	0.02	4.15	4.41	7.68	8.16
1994	2.85	2.97	0.04	0.04	0.40	0.42	0.05	0.05	3.36	3.50	6.71	6.98
1995	3.57	3.63	0.05	0.05	0.37	0.38	0.01	0.01	3.56	3.63	7.55	7.70
1996	3.69	3.69	0.06	0.06	0.46	0.46	0.56	0.56	4.25	4.25	9.02	9.02
1997	3.39	3.32	0.05	0.05	0.47	0.47	1.04	1.02	[3]7.55	[3]7.41	12.51	12.27
1998	3.04	2.94	0.04	0.04	0.39	0.38	0.90	0.87	5.68	[R]5.50	10.04	[R]9.73
1999	2.13	2.04	0.03	0.03	[R]0.43	[R]0.41	0.77	0.74	[R]6.35	6.06	[R]9.71	[R]9.27
2000[P]	2.04	1.91	0.05	0.05	0.88	0.83	0.44	0.42	9.71	9.08	13.13	12.28

[1] Includes petroleum preparations, liquefied propane and butane and since 1997 other mineral fuels.

[2] In chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.

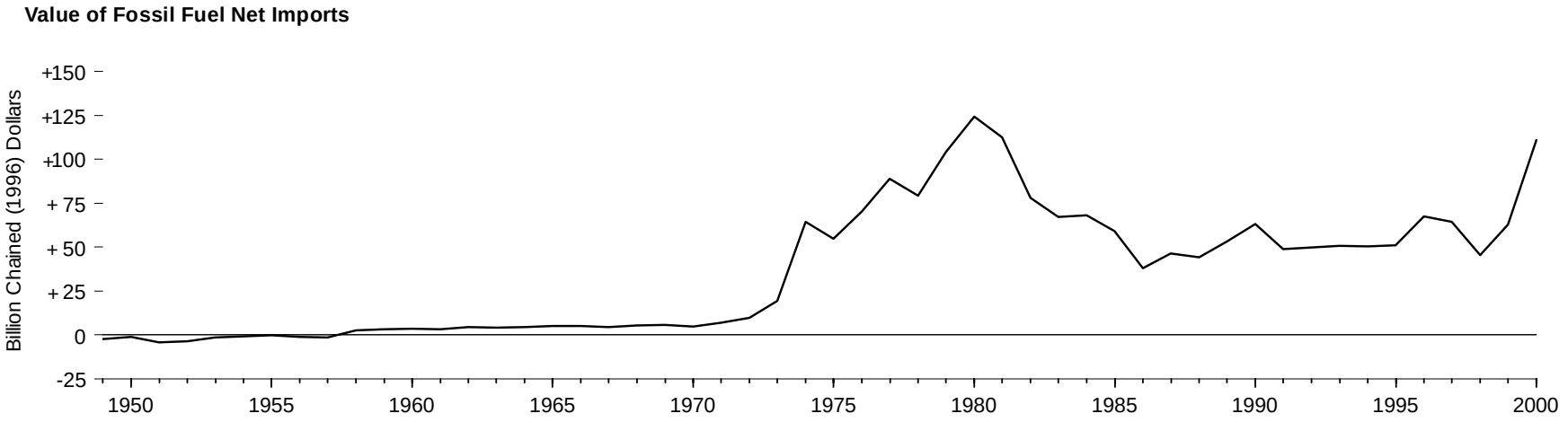
[3] There is a discontinuity in this time series between 1996 and 1997 due to the addition of the commodity category "other mineral fuels."

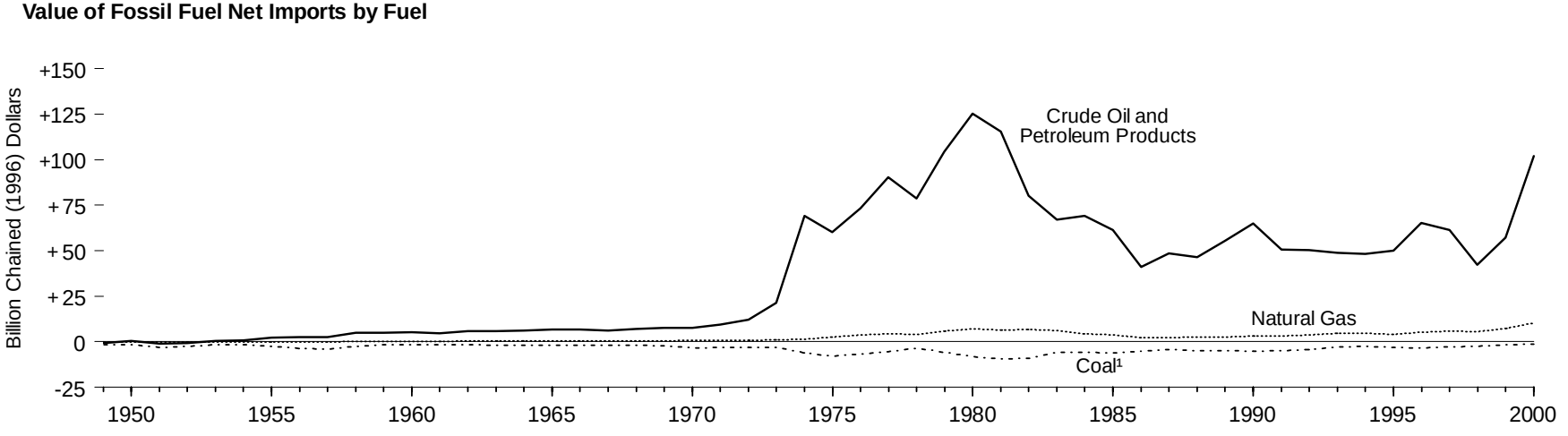
R=Revised. P=Preliminary. (s)=Less than 0.005 billion.

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

Sources: **Natural Gas:** • 1949-1971—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.* • 1974-1977—Federal Power Commission, *United States Imports and Exports of Natural Gas,* annual reports. • 1978-1981—Energy Information Administration (EIA), *U.S. Imports and Exports of Natural Gas,* annual reports. • 1982-1993—EIA, *Natural Gas Monthly,* monthly reports. • 1994-1999—EIA, *Natural Gas Monthly* (August 2000). • 2000—EIA estimates. **Crude oil and Petroleum Products:** • 1949-1988—Bureau of the Census, *U.S. Exports,* FT410. • 1989 forward—Bureau of the Census, Foreign Trade Division *U.S. Merchandise Trade,* FT900. "Exports and Imports of Goods by Principal SITC Commodity Groupings", December issues. **Coal:** • 1949 forward—Bureau of the Census, Foreign Trade Division, unpublished data.

Figure 3.7 Value of Fossil Fuel Net Imports, 1949-2000





[1] Includes small amounts of coal coke.

Notes: • Negative net imports are net exports. • Prices are in chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.

Source: Table 3.7.

Table 3.7 Value of Fossil Fuel Net Imports, 1949-2000

(Billion Dollars)

Year	Coal		Coal Coke		Natural Gas		Crude Oil		Petroleum Products [1]		Total	
	Nominal	Real [2]	Nominal	Real [2]	Nominal	Real [2]	Nominal	Real [2]	Nominal	Real [2]	Nominal	Real [2]
1949	-0.29	-1.71	(s)	-0.03	(s)	-0.01	0.21	1.19	-0.32	-1.88	-0.42	-2.43
1950	-0.27	-1.53	(s)	(s)	(s)	-0.02	0.27	1.53	-0.18	-1.03	-0.18	-1.05
1951	-0.58	-3.12	-0.02	-0.08	(s)	-0.02	0.29	1.57	-0.47	-2.53	-0.78	-4.18
1952	-0.49	-2.59	-0.01	-0.05	(s)	-0.02	0.34	1.82	-0.49	-2.56	-0.65	-3.40
1953	-0.33	-1.73	-0.01	-0.04	(s)	-0.02	0.45	2.34	-0.38	-1.96	-0.27	-1.41
1954	-0.30	-1.56	(s)	-0.03	(s)	-0.02	0.50	2.57	-0.32	-1.67	-0.14	-0.70
1955	-0.48	-2.44	-0.01	-0.03	-0.01	-0.03	0.62	3.11	-0.16	-0.80	-0.04	-0.18
1956	-0.73	-3.57	-0.01	-0.05	-0.01	-0.04	0.75	3.65	-0.22	-1.07	-0.22	-1.07
1957	-0.83	-3.91	-0.01	-0.06	-0.01	-0.04	0.81	3.82	-0.24	-1.14	-0.28	-1.33
1958	-0.52	-2.42	-0.01	-0.03	0.01	0.03	0.92	4.27	0.17	0.80	0.58	2.67
1959	-0.38	-1.72	-0.01	-0.03	0.02	0.09	0.87	3.96	0.21	0.97	0.71	3.26
1960	-0.35	-1.59	-0.01	-0.02	0.02	0.11	0.89	4.00	0.26	1.19	0.82	3.69
1961	-0.34	-1.52	-0.01	-0.03	0.04	0.18	0.92	4.12	0.14	0.61	0.76	3.37
1962	-0.38	-1.65	-0.01	-0.02	0.08	0.36	1.01	4.43	0.32	1.41	1.03	4.52
1963	-0.47	-2.05	-0.01	-0.03	0.09	0.41	1.02	4.44	0.31	1.35	0.95	4.11
1964	-0.46	-1.98	-0.01	-0.04	0.10	0.41	1.08	4.61	0.35	1.51	1.06	4.52
1965	-0.48	-2.00	-0.01	-0.06	0.10	0.41	1.11	4.69	0.48	2.03	1.21	5.07
1966	-0.47	-1.91	-0.02	-0.09	0.09	0.36	1.11	4.52	0.53	2.17	1.24	5.06
1967	-0.48	-1.91	-0.01	-0.06	0.10	0.39	0.97	3.86	0.54	2.13	1.11	4.41
1968	-0.50	-1.90	-0.02	-0.06	0.11	0.41	1.17	4.46	0.68	2.60	1.45	5.50
1969	-0.59	-2.15	-0.04	-0.13	0.17	0.61	1.29	4.68	0.78	2.82	1.61	5.84
1970	-0.96	-3.31	-0.08	-0.26	0.23	0.78	1.24	4.27	0.98	3.38	1.41	4.87
1971	-0.90	-2.95	-0.04	-0.13	0.27	0.90	1.68	5.51	1.15	3.78	2.17	7.11
1972	-0.98	-3.09	-0.03	-0.08	0.28	0.87	2.37	7.44	1.50	4.71	3.13	9.85
1973	-1.01	-3.01	0.01	0.02	0.32	0.95	4.24	12.61	2.93	8.71	6.48	19.28
1974	-2.38	-6.50	0.15	0.41	0.48	1.30	15.24	41.61	10.14	27.69	23.63	64.52
1975	-3.24	-8.09	0.08	0.20	1.06	2.65	18.29	45.69	5.76	14.39	21.96	54.85
1976	-2.89	-6.84	0.04	0.10	1.56	3.69	25.43	60.12	5.58	13.20	29.72	70.26
1977	-2.62	-5.81	0.06	0.13	1.89	4.21	33.38	74.15	7.28	16.17	40.00	88.84
1978	-1.98	-4.10	0.36	0.75	1.95	4.04	31.91	66.16	6.07	12.59	38.31	79.44
1979	-3.35	-6.40	0.26	0.50	3.00	5.74	45.66	87.40	8.87	16.97	54.44	104.20
1980	-4.60	-8.06	-0.08	-0.14	3.98	6.99	61.15	107.20	10.42	18.27	70.88	124.26
1981	-5.89	-9.44	-0.03	-0.05	4.06	6.51	60.88	97.61	11.06	17.73	70.09	112.37
1982	-5.97	-9.01	-0.05	-0.08	4.39	6.63	45.25	68.31	8.00	12.08	51.63	77.93
1983	-4.01	-5.83	-0.04	-0.06	4.11	5.97	36.27	52.65	9.96	14.47	46.28	67.20
1984	-4.09	-5.72	-0.02	-0.03	3.17	4.44	36.26	50.75	13.25	18.55	48.57	67.98
1985	-4.39	-5.96	-0.03	-0.05	2.79	3.78	32.68	44.34	12.57	17.06	43.60	59.17
1986	-3.85	-5.11	-0.04	-0.05	1.65	2.19	22.49	29.86	8.42	11.17	28.67	38.06
1987	-3.35	-4.32	0.01	0.01	1.76	2.27	29.00	37.39	8.57	11.05	36.00	46.40
1988	-3.95	-4.92	0.12	0.15	2.18	2.72	27.47	34.25	9.71	12.11	35.53	44.29
1989	-4.19	-5.03	0.14	0.16	2.24	2.69	35.32	42.42	10.85	13.02	44.35	53.27
1990	-4.42	-5.11	0.02	0.03	2.71	3.13	43.65	50.45	12.67	14.65	54.63	63.15
1991	-4.51	-5.03	0.04	0.05	2.90	3.23	36.87	41.12	8.52	9.50	43.82	48.88
1992	-4.11	-4.48	0.10	0.11	3.47	3.78	38.52	41.94	7.72	8.40	45.70	49.76
1993	-2.83	-3.01	0.11	0.11	4.41	4.69	38.45	40.88	7.59	8.07	47.72	50.74
1994	-2.58	-2.68	0.23	0.24	4.50	4.68	38.43	40.03	7.78	8.10	48.37	50.38
1995	-3.24	-3.31	0.27	0.28	3.86	3.93	42.81	43.64	6.39	6.51	50.09	51.06
1996	-3.41	-3.41	0.18	0.18	5.33	5.33	54.37	54.37	11.01	11.01	67.49	67.49
1997	-3.13	-3.07	0.20	0.19	6.02	5.91	53.19	R52.17	[3]9.37	R,[3]9.19	65.65	R64.39
1998	-2.75	-2.67	0.25	0.24	5.82	5.64	36.36	R35.22	7.33	R7.10	47.00	R45.54
1999	-1.85	-1.77	0.20	0.19	R7.61	R7.26	R50.12	R47.84	R9.94	R9.48	R66.00	R63.00
2000P	-1.66	-1.56	0.20	0.19	11.18	10.46	89.34	83.56	19.61	18.34	118.67	110.99

[1] Includes petroleum preparations, liquefied propane and butane and since 1997 other mineral fuels.

[2] In chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.

[3] There is a discontinuity in this time series between 1996 and 1997 due to the addition of the commodity category "other mineral fuels."

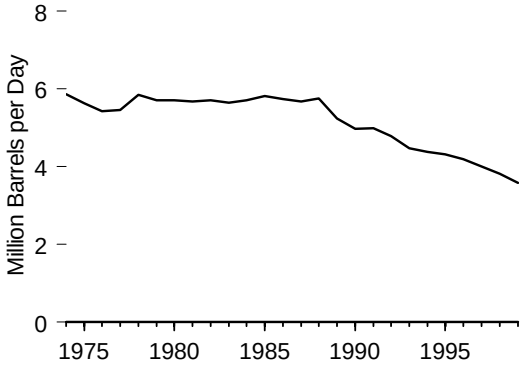
R=Revised. P=Preliminary. (s)=Less than 0.005 billion.

Notes: • Net imports = imports minus exports. • Totals may not equal sum of components due to independent rounding. Data on this table may not equal data on Table 3.5 minus data on Table 3.6 due to independent rounding.

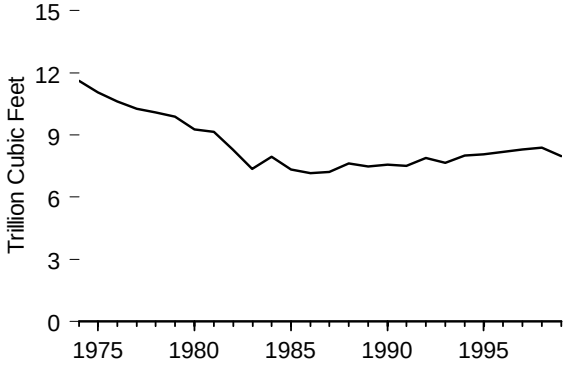
Sources: Tables 3.5 and 3.6.

Figure 3.8 Major U.S. Energy Companies' Domestic Production and Refining, 1974-1999

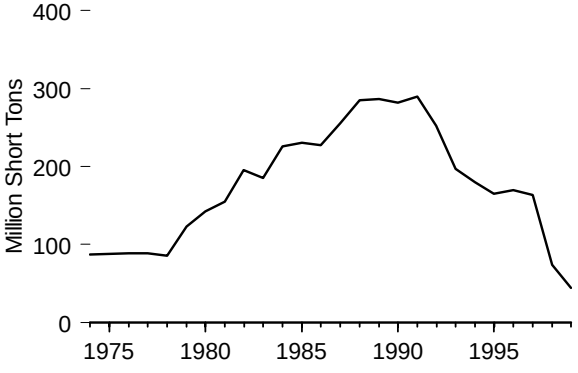
Crude Oil and Natural Gas Liquids Production by Major Energy Companies



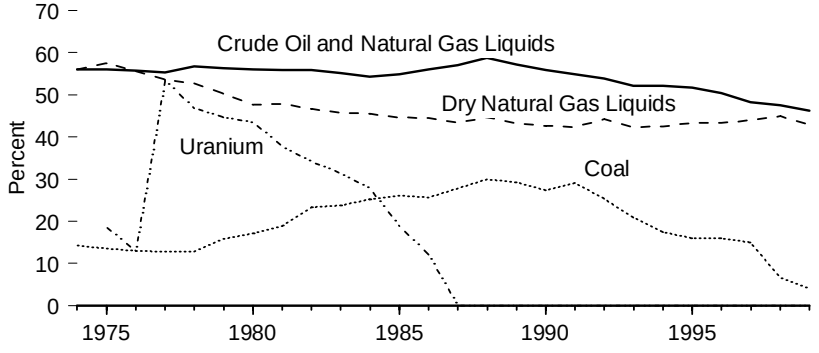
Dry Natural Gas Production by Major Energy Companies



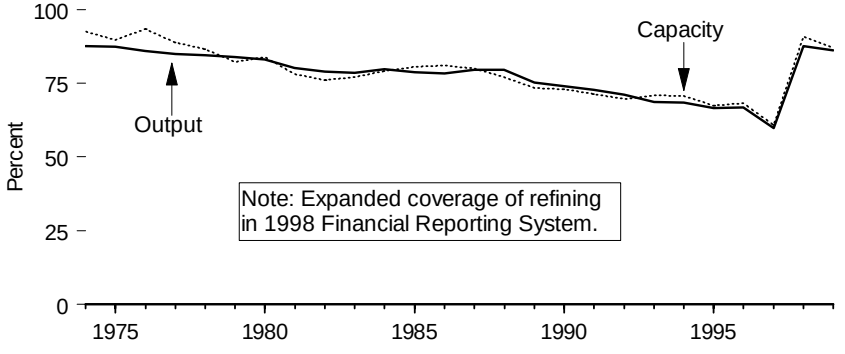
Coal Production by Major Energy Companies



Major Energy Companies' Shares of U.S. Total Production



Major Energy Companies' Shares of U.S. Refining Capacity and Output



Notes: • Major U.S. Energy Companies are the top publicly-owned crude oil and natural gas producers and petroleum refiners that form the Financial Reporting System (FRS). See Table 3.12. • Because vertical scales differ, graphs should not be compared.

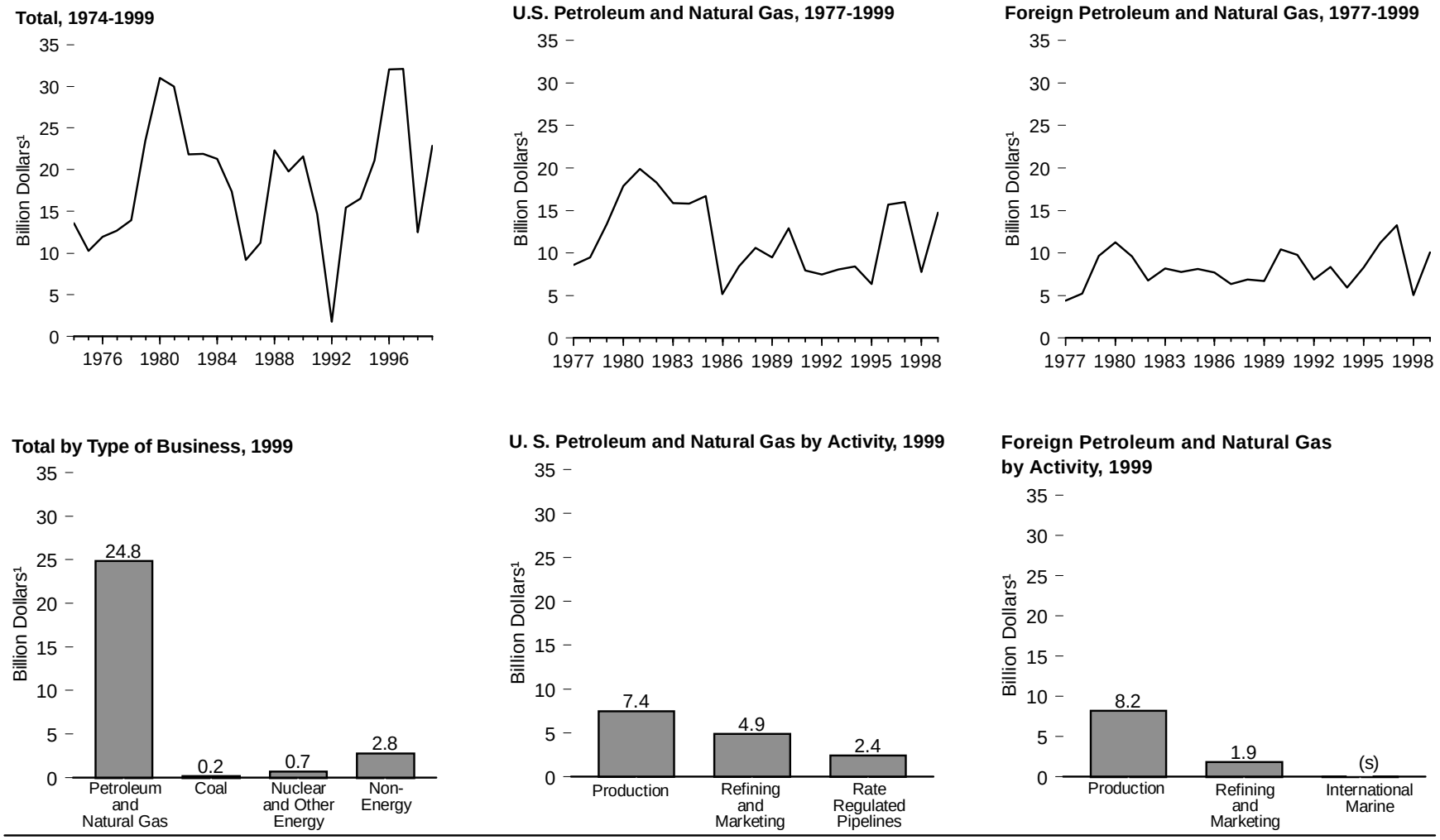
Source: Table 3.8.

Table 3.8 Major U.S. Energy Companies' Domestic Production and Refining, 1974-1999

Year	Production				Refining	
	Crude Oil and Natural Gas Liquids (million barrels per day)	Dry Natural Gas (trillion cubic feet)	Coal [1] (million short tons)	Uranium (million pounds U_3O_8)	Capacity [2,3] (million barrels per day)	Output [3] (million barrels per day)
1974	5.9	11.6	87.4	NA	13.3	11.8
1975	5.6	11.0	88.1	4.3	13.4	12.0
1976	5.4	10.6	89.0	3.3	14.2	12.6
1977	5.5	10.3	89.1	16.0	14.6	13.5
1978	5.8	10.1	85.5	17.3	14.8	13.5
1979	5.7	9.9	123.3	16.7	14.4	13.2
1980	5.7	9.3	142.3	19.0	15.1	12.2
1981	5.7	9.2	154.8	14.5	14.6	11.2
1982	5.7	8.3	195.2	9.2	13.6	10.6
1983	5.6	7.4	185.2	6.6	13.0	10.3
1984	5.7	7.9	226.0	4.1	12.8	10.9
1985	5.8	7.3	230.4	2.1	12.6	10.8
1986	5.7	7.1	227.6	1.6	12.5	11.4
1987	5.7	7.2	255.3	0.0	12.5	11.7
1988	5.7	7.6	285.3	0.0	12.3	12.0
1989	5.2	7.5	286.9	0.0	11.5	11.4
1990	5.0	7.6	282.0	0.0	11.4	11.3
1991	5.0	7.5	289.6	0.0	11.2	11.1
1992	4.8	7.9	251.9	0.0	11.0	11.0
1993	4.5	7.7	197.3	0.0	10.7	10.8
1994	4.4	8.0	179.7	0.0	10.6	10.8
1995	4.3	8.1	165.4	0.0	10.4	10.7
1996	4.2	8.2	169.4	0.0	10.5	11.0
1997	4.0	8.3	163.3	0.0	9.4	10.0
1998	3.8	8.4	73.9	0.0	[4]14.3	[4]14.9
1999	3.6	8.0	44.0	0.0	14.2	14.6
	Percent of U.S. Total					
1974	56.0	56.1	14.3	NA	92.5	87.6
1975	56.1	57.4	13.5	18.6	89.8	87.4
1976	55.7	55.6	13.0	13.0	93.4	85.9
1977	55.3	53.6	12.8	53.4	89.0	85.0
1978	56.8	52.7	12.8	46.8	86.7	84.5
1979	56.3	50.3	15.8	44.7	82.4	83.9
1980	56.1	47.7	17.2	43.5	83.9	83.1
1981	55.8	47.8	18.8	37.7	78.2	80.3
1982	55.9	46.7	23.3	34.2	76.2	79.0
1983	55.1	45.8	23.7	31.4	77.2	78.7
1984	54.3	45.5	25.2	27.8	79.1	79.8
1985	54.9	44.6	26.1	18.9	80.6	78.9
1986	56.0	44.5	25.6	12.1	81.0	78.5
1987	57.0	43.4	27.8	0.0	80.1	79.7
1988	58.8	44.6	30.0	0.0	77.2	79.7
1989	57.2	43.2	29.3	0.0	73.4	75.2
1990	55.8	42.6	27.4	0.0	73.0	74.0
1991	54.9	42.4	29.1	0.0	71.5	72.9
1992	53.9	44.2	25.3	0.0	69.8	71.2
1993	52.1	42.3	20.9	0.0	70.9	[R]68.6
1994	52.1	42.5	17.4	0.0	70.8	[R]68.5
1995	51.7	43.3	16.0	0.0	67.6	66.6
1996	50.5	43.4	15.9	0.0	68.3	66.9
1997	48.3	43.9	15.0	0.0	60.9	[R]59.9
1998	47.5	44.9	6.6	0.0	[4]90.9	[4]87.7
1999	46.3	42.9	4.0	0.0	87.1	86.2

[1] Bituminous coal, subbituminous coal, and lignite.
[2] Operable capacity as of January 1 of the following year.
[3] Includes Puerto Rico and the Virgin Islands.
[4] There is a discontinuity in this time series between 1997 and 1998 due to the expanded coverage of the Financial Reporting System (FRS).
NA=Not available.
Notes: • Major U.S. Energy Companies are the top publicly-owned, U.S.-based crude oil and natural gas producers and petroleum refiners that form the FRS. See Table 3.12. • FRS Crude Oil and Natural Gas Liquids and Dry Natural Gas production are on a net ownership interest basis (see Glossary).
Web Page: http://www.eia.doe.gov/emeu/finance.
Sources: **Production and Refining:** • 1974-1976—Energy Information Administration (EIA), Form EIA-28, "Financial Reporting System" database, November 1998. • 1977 forward—EIA, *Performance Profiles of Major Energy Producers,* annual reports. **Percent of U.S. Total:** Tables 5.1, 5.8, 5.9, 6.1, 7.1, and 9.3.

Figure 3.9 Major U.S. Energy Companies' Net Income



[1] Nominal dollars.
(s)=Less than 0.05 billion.

Note: Major U.S. Energy Companies are the top publicly-owned crude oil and natural gas producers and petroleum refiners that form the Financial Reporting System (FRS). See Table 3.12.
Source: Table 3.9.

Table 3.9 Major U.S. Energy Companies' Net Income, 1974-1999

(Billion Dollars[1])

Year	U.S. Petroleum and Natural Gas				Foreign Petroleum and Natural Gas				Type of Business				
	Production	Refining and Marketing	Rate Regulated Pipelines	Total [2]	Production	Refining and Marketing	International Marine	Total [2]	Petroleum and Natural Gas	Coal	Nuclear and Other Energy	Non-energy	Total [2]
1974	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13.6
1975	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10.3
1976	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	12.0
1977	6.4	1.5	0.8	8.6	3.6	0.7	0.1	4.4	13.0	0.2	(s)	1.7	12.7
1978	6.7	1.6	1.2	9.5	3.5	1.8	-0.1	5.2	14.7	0.1	-0.1	1.8	13.9
1979	9.4	2.3	1.7	13.4	5.2	4.3	0.1	9.7	23.0	0.3	-0.1	2.8	23.5
1980	13.8	2.5	1.7	17.9	6.9	4.3	0.1	11.2	29.1	0.3	(s)	2.3	31.0
1981	16.8	1.3	1.8	19.9	8.0	1.6	-0.1	9.6	29.5	0.4	-0.3	1.6	30.0
1982	14.1	1.9	2.3	18.3	6.1	0.8	-0.3	6.7	25.0	0.4	-0.3	0.4	21.8
1983	12.2	1.6	2.0	15.9	7.2	1.3	-0.5	8.2	24.0	0.5	(s)	1.8	21.9
1984	13.3	0.1	2.5	15.8	7.5	0.7	-0.4	7.8	23.6	0.6	-0.1	2.9	21.3
1985	12.1	2.3	2.3	16.7	8.0	0.5	-0.4	8.1	24.8	0.4	-0.3	2.5	17.4
1986	0.9	1.6	2.6	5.2	4.7	2.9	0.1	7.7	12.9	0.2	(s)	2.8	9.2
1987	4.7	1.1	2.6	8.4	5.4	1.0	-0.1	6.4	14.8	0.4	(s)	7.1	11.3
1988	3.2	5.4	2.0	10.6	4.3	2.4	0.1	6.9	17.5	0.6	-0.1	10.8	22.3
1989	3.1	4.5	1.9	9.5	4.7	1.8	0.2	6.7	16.2	0.4	-0.1	8.7	19.8
1990	8.7	2.2	2.1	12.9	7.4	2.8	0.2	10.5	23.4	0.3	0.1	4.3	21.6
1991	5.1	0.9	2.0	7.9	5.4	4.1	0.3	9.8	17.7	0.6	0.1	1.6	14.7
1992	5.6	-0.2	2.1	7.5	4.7	2.2	(s)	6.9	14.4	-0.5	0.1	1.2	1.8
1993	4.8	1.7	1.6	8.1	5.2	3.2	(s)	8.4	16.5	0.4	0.1	2.7	15.5
1994	4.8	1.8	1.8	8.5	4.0	2.0	(s)	5.9	14.4	0.2	0.2	6.2	16.5
1995	3.7	0.5	2.2	6.4	5.9	2.4	(s)	8.3	14.7	0.3	0.2	12.6	21.1
1996	11.8	2.3	1.6	15.7	9.2	2.0	(s)	11.2	26.9	0.5	0.2	8.0	32.0
1997	11.6	3.1	1.3	16.0	9.6	3.6	0.1	13.3	29.3	0.3	0.3	6.3	32.1
1998	0.5	5.9	1.4	[R]7.8	2.0	2.9	0.1	5.1	12.8	0.5	0.9	1.8	12.5
1999	7.4	4.9	2.4	14.8	8.2	1.9	(s)	10.1	24.8	0.2	0.7	2.8	22.9

[1] Nominal dollars.

[2] Total is sum of components shown, plus eliminations and nontraceables, which are defined in the glossary.

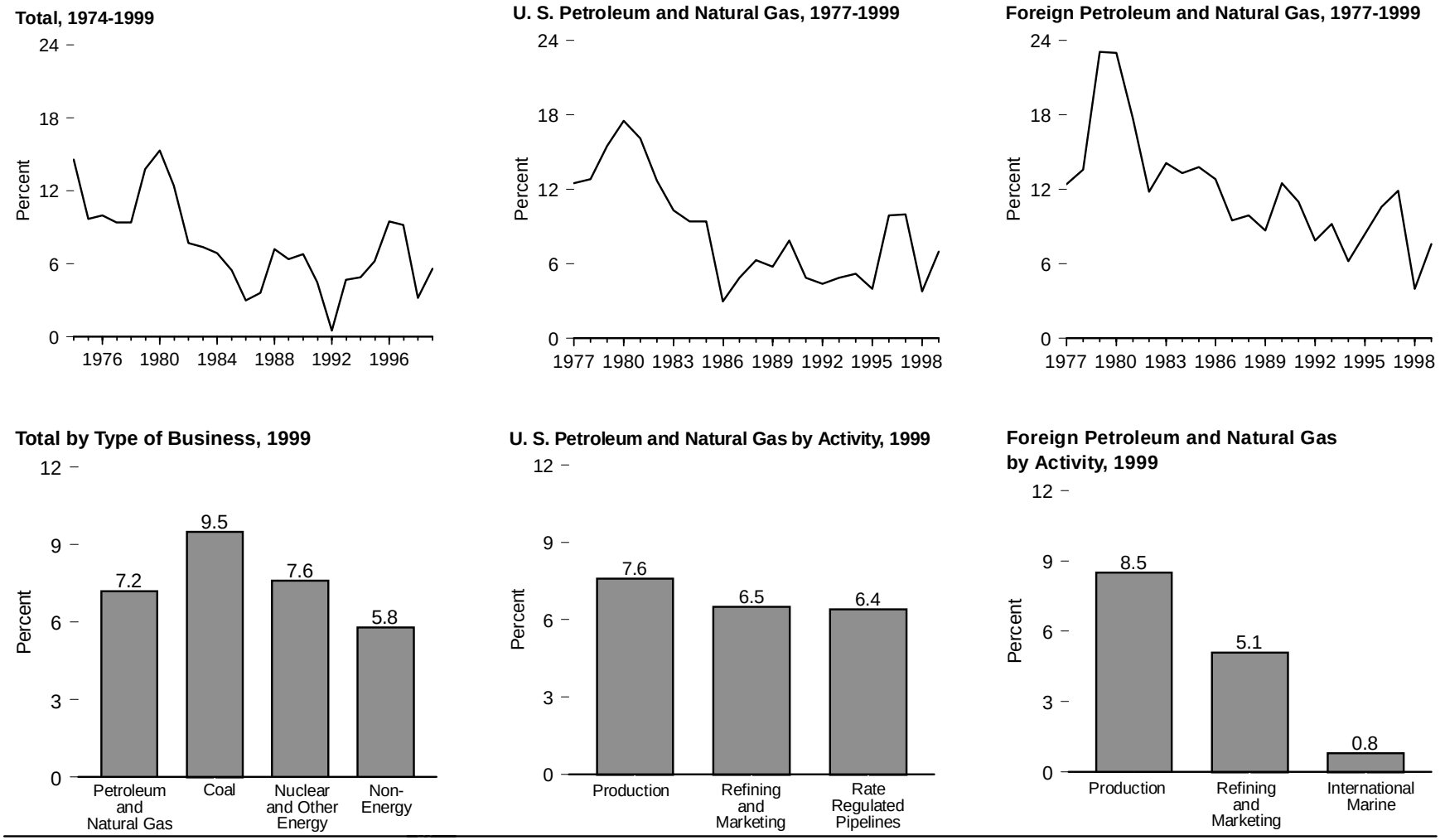
NA=Not available. (s)=Less than 0.05 billion and greater than -0.05 billion.

Note: Major U.S. Energy Companies are the top publicly-owned, U.S.-based crude oil and natural gas producers and petroleum refiners that form the Financial Reporting System (FRS). See Table 3.12.

Web Page: http://www.eia.doe.gov/finance.

Sources: • 1974-1976—Energy Information Administration (EIA), Form EIA-28, "Financial Reporting System" database, November 1997. • 1977 forward—EIA, *Performance Profiles of Major Energy Producers,* annual reports.

Figure 3.10 Major U.S. Energy Companies' Profitability



Notes: • Major U.S. Energy Companies are the top publicly-owned crude oil and natural gas producers and petroleum refiners that form the Financial Reporting System (FRS). See Table 3.12.
• Because vertical scales differ, graphs should not be compared.

Source: Table 3.10.

Table 3.10 Major U.S. Energy Companies' Profitability, 1974-1999

(Percent)

	U.S. Petroleum and Natural Gas				Foreign Petroleum and Natural Gas				Type of Business				
Year	Production	Refining and Marketing	Rate Regulated Pipelines	Total	Production	Refining and Marketing	International Marine	Total	Petroleum and Natural Gas	Coal	Nuclear and Other Energy	Non-energy	Total
1974	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14.6
1975	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.7
1976	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	10.0
1977	17.5	7.2	7.3	12.5	21.8	5.1	2.6	12.4	12.5	8.8	-2.6	7.1	9.4
1978	16.4	7.5	10.9	12.8	18.2	12.7	-1.0	13.6	13.1	4.1	-4.2	6.5	9.4
1979	18.2	9.8	15.1	15.5	23.8	29.1	2.6	23.1	18.0	6.3	-3.7	8.8	13.8
1980	20.9	9.8	15.1	17.5	25.1	26.4	2.4	23.0	19.2	5.6	-0.7	5.9	15.3
1981	20.2	4.4	15.6	16.1	25.5	9.0	-1.1	17.7	16.6	6.1	-6.8	3.5	12.4
1982	14.0	6.0	20.8	12.7	17.4	4.7	-6.3	11.8	12.5	4.4	-5.2	0.6	7.7
1983	11.3	4.8	16.6	10.3	19.6	7.7	-13.2	14.1	11.3	5.0	0.5	2.9	7.4
1984	10.8	0.3	20.8	9.4	18.8	4.5	-14.0	13.3	10.4	6.2	-1.8	4.8	6.9
1985	9.5	6.5	15.0	9.4	20.0	3.3	-19.0	13.8	10.5	4.6	-8.4	4.2	5.5
1986	0.8	4.5	13.2	3.0	11.6	16.3	5.3	12.8	5.5	2.7	-0.8	5.1	3.0
1987	4.1	2.9	12.8	4.9	12.4	4.7	-3.6	9.5	6.2	5.1	0.5	12.2	3.6
1988	2.8	14.7	9.6	6.3	9.2	11.6	6.8	9.9	7.3	6.7	-2.5	20.3	7.2
1989	2.9	11.5	10.2	5.8	8.9	8.0	12.4	8.7	6.7	5.0	-2.3	17.3	6.4
1990	8.5	5.1	11.2	7.9	13.1	11.2	11.7	12.5	9.5	3.3	2.6	7.8	6.8
1991	5.1	2.0	10.7	4.9	9.1	14.6	15.6	11.0	7.0	8.7	2.8	2.9	4.5
1992	5.9	-0.4	8.4	4.4	8.2	7.8	-1.2	7.9	5.6	-9.3	1.8	2.1	0.5
1993	5.3	3.4	6.4	4.9	8.6	10.6	1.2	9.2	6.4	7.6	4.1	4.7	4.7
1994	5.5	3.6	7.6	5.2	6.5	6.1	-2.0	6.2	5.6	4.0	4.8	10.5	4.9
1995	4.4	1.0	9.1	4.0	9.3	7.2	-2.5	8.4	5.7	6.9	6.1	19.4	6.2
1996	14.1	4.4	6.9	9.9	12.8	6.0	2.2	10.6	10.1	9.9	7.9	15.0	9.5
1997	12.5	6.6	6.7	10.0	12.5	10.5	11.8	11.9	10.8	7.2	7.0	10.9	9.2
1998	0.5	7.9	4.4	3.8	2.2	8.2	8.9	4.0	3.9	R26.4	13.2	4.5	3.2
1999	7.6	6.5	6.4	7.0	8.5	5.1	0.8	7.6	7.2	9.5	7.6	5.8	5.6

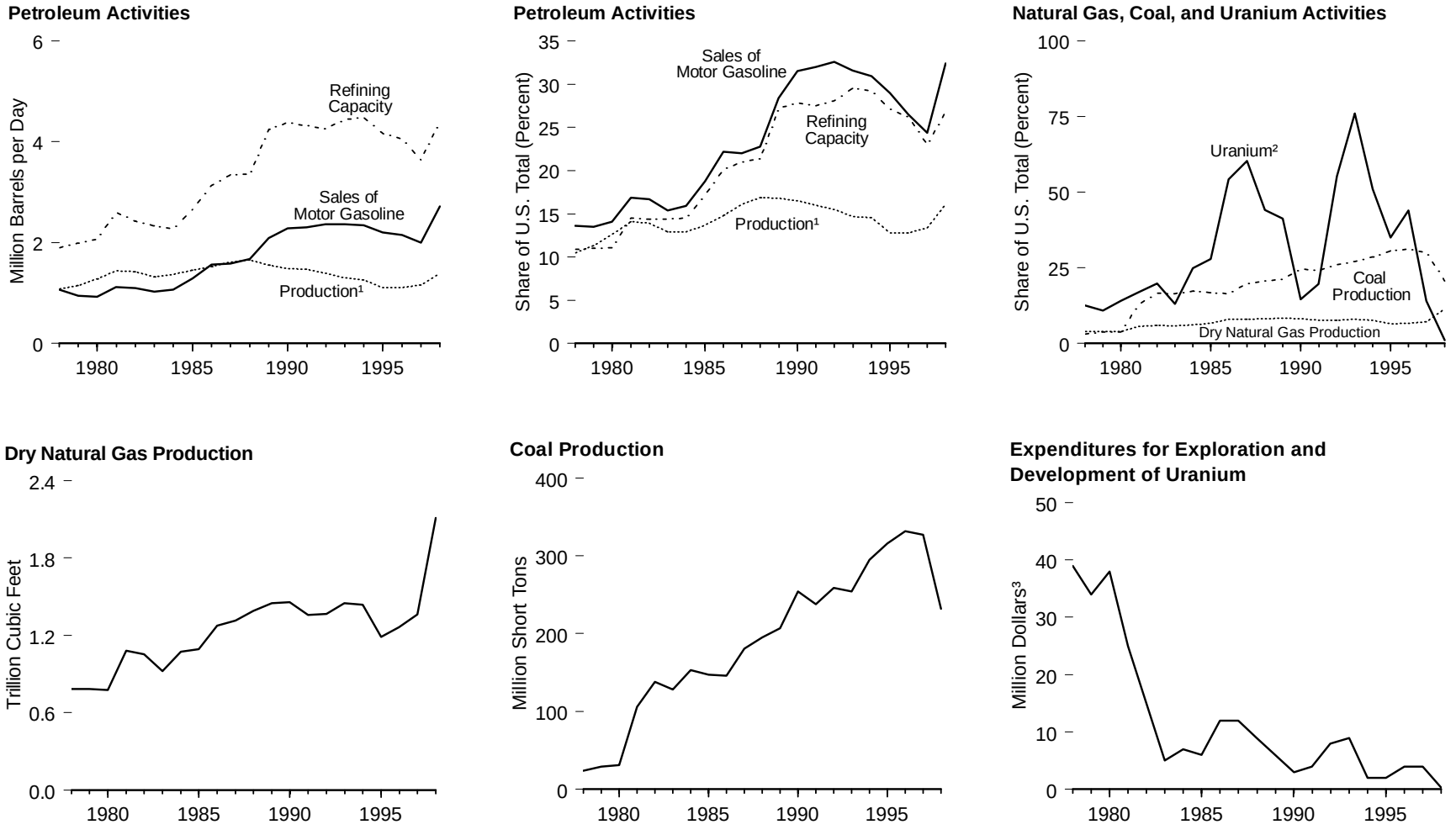
R=Revised. NA=Not available.

Notes: • Major U.S. Energy Companies are the top publicly-owned, U.S.-based crude oil and natural gas producers and petroleum refiners that form the Financial Reporting System (FRS). See Table 3.12. • Profitablity measured as contribution to net income/net investment in place.

Web Page: http://www.eia.doe.gov/emeu/finance.

Sources: • 1974-1976—Energy Information Administration (EIA), Form EIA-28, "Financial Reporting System" database, October 1996. • 1977 forward—EIA, *Performance Profiles of Major Energy Producers,* annual reports.

Figure 3.11 U.S. Energy Activities by Foreign-Affiliated Companies, 1978-1998



[1] Crude oil and natural gas liquids.
[2] Expenditures for exploration and development of uranium.
[3] Nominal dollars.

Note: Because vertical scales differ, graphs should not be compared.
Source: Table 3.11.

Table 3.11 U.S. Energy Activities by Foreign-Affiliated Companies, 1978-1998

Year	Production			Refining Capacity	Sales of Motor Gasoline	Expenditures for Exploration and Development of Uranium
	Crude Oil and Natural Gas Liquids	Dry Natural Gas	Coal			
	Thousand Barrels per Day	Billion Cubic Feet	Million Short Tons	Thousand Barrels per Day		Million Dollars [1]
1978	1,076	783	24	1,895	1,066	39
1979	1,145	786	29	1,984	948	34
1980	1,280	776	31	2,066	926	38
1981	1,438	1,080	106	2,595	1,114	25
1982	1,421	1,055	138	2,423	1,092	15
1983	1,325	924	128	2,337	1,022	5
1984	1,365	1,075	153	2,276	1,066	7
1985	1,455	1,093	147	2,656	1,285	6
1986	1,523	1,276	146	3,133	1,565	12
1987	1,614	1,318	181	3,342	1,586	12
1988	1,659	1,392	195	3,356	1,673	9
1989	1,553	1,452	207	4,243	2,084	6
1990	1,481	1,457	254	4,379	2,282	3
1991	1,469	1,360	238	4,312	2,299	4
1992	1,392	1,368	259	4,256	2,369	8
1993	1,299	1,451	254	4,440	2,362	9
1994	1,261	1,439	295	4,479	2,346	2
1995	1,103	1,191	316	4,164	2,204	2
1996	1,105	1,265	332	4,050	2,145	4
1997	R1,154	R1,361	327	3,637	1,998	4
1998	1,389	2,114	232	4,403	2,721	(s)
	Share of U.S. Total (Percent)					
1978	10.5	3.9	3.1	10.9	13.6	12.5
1979	11.3	4.0	3.8	11.0	13.5	10.8
1980	12.6	4.0	3.8	11.1	14.1	14.1
1981	14.1	5.6	12.9	14.5	16.9	17.0
1982	13.9	5.9	16.6	14.4	16.7	19.8
1983	12.9	5.8	16.5	14.4	15.4	13.0
1984	12.9	6.2	17.3	14.5	15.9	24.9
1985	13.7	6.7	16.8	17.2	18.8	27.9
1986	14.8	8.0	16.5	20.1	22.2	54.3
1987	16.1	8.0	19.8	21.0	22.0	60.4
1988	16.9	8.1	20.6	21.4	22.8	44.2
1989	16.8	8.4	21.2	27.2	28.4	41.2
1990	16.5	8.2	24.7	27.9	31.5	14.6
1991	16.0	7.7	24.0	27.5	32.0	19.7
1992	15.5	7.7	26.0	28.1	32.6	55.2
1993	14.7	8.0	27.0	29.5	31.6	76.0
1994	14.6	7.7	28.6	29.2	30.9	51.0
1995	12.8	6.4	30.7	27.1	29.0	35.0
1996	12.8	6.7	31.2	26.2	26.5	44.0
1997	13.4	R7.2	30.0	23.0	24.4	14.0
1998	16.1	11.3	20.7	26.8	32.4	1.0

[1] Nominal dollars.
R=Revised. (s)=Less than 0.5 million dollars.
Web Page: http://www.eia.doe.gov/emeu/finance.
Sources: • 1978-1992—Energy Information Administration (EIA), *Profiles of Foreign Direct Investment in U.S. Energy,* annual report. • 1993—EIA, *Profiles of Foreign Direct Investment in U.S. Energy 1993* (May 1995), Tables 7, 9, 10, 11, and 12. • 1994-1997—EIA, *Performance Profiles of Major Energy Producers,* annual reports. • 1998—EIA, *Performance Profiles of Major Energy Producers 1999* (January 2001), Tables 33, 34, 35, 38, and 39.

Table 3.12 Companies Reporting to the Financial Reporting System, 1974-1999

Company	1974-1981	1982	1983-84	1985-86	1987	1988	1989-90	1991	1992-93	1994-96	1997	1998	1999
Amerada Hess Corporation	X	X	X	X	X	X	X	X	X	X	X	X	X
American Petrofina Inc. [1]	X	X	X	X	X	X	X						
Anadarko Petroleum Corporation								X	X	X		X	X
Ashland Oil, Inc. [2]	X	X	X	X	X	X	X	X	X	X	X		
Atlantic Richfield Co. (ARCO)	X	X	X	X	X	X	X	X	X	X	X	X	X
BP America, Inc. [3,4]					X	X	X	X	X	X	X	X	X
BP Amoco, Inc [3,5]	X	X	X	X	X	X	X	X	X	X	X	X	X
Burlington Northern Inc. [6]	X	X	X	X	X								
Burlington Resources Inc. [6]						X	X	X	X	X	X	X	X
Chevron Corporation [7,8]	X	X	X	X	X	X	X	X	X	X	X	X	X
Citgo Petroleum Corporation												X	X
Cities Service [9]	X	X											
Clark Refining and Marketing, Inc.												X	X
The Coastal Corporation	X	X	X	X	X	X	X	X	X	X	X	X	X
Conoco [10,11]	X											X	X
E.I. du Pont de Nemours and Co. [10,11]		X	X	X	X	X	X	X	X	X	X		
El Paso Energy Corporation													X
Enron Corporation									X	X	X	X	X
Equilon Enterprises, LLC [12]												X	X
Exxon Mobil Corporation [13]	X	X	X	X	X	X	X	X	X	X	X	X	X
Fina, Inc. [1]								X	X	X	X	X	X
Getty Oil [14]	X	X	X										
Gulf Oil [8]	X	X	X										
Kerr-McGee Corporation [15]	X	X	X	X	X	X	X	X	X	X	X	X	X
LYONDELL-CITGO Refining, LP [16]												X	X
Marathon [17]	X												
Mobil Corporation [13,18]	X	X	X	X	X	X	X	X	X	X	X	X	
Motiva Enterprises, LLC [19]												X	X
Nerco, Inc. [20]									X				
Occidental Petroleum Corporation [9]	X	X	X	X	X	X	X	X	X	X	X	X	X
Oryx Energy Company [15,21]						X	X	X	X	X	X		
Phillips Petroleum Company	X	X	X	X	X	X	X	X	X	X	X	X	X
Shell Oil Company	X	X	X	X	X	X	X	X	X	X	X	X	X
Sonat Inc.											X	X	
Standard Oil Co. (Ohio) (Sohio) [5]	X	X	X	X									
Sun Company, Inc. [21,22]	X	X	X	X	X	X	X	X	X	X		X	X
Superior Oil [18]	X	X	X										
Tenneco Inc. [23]	X	X	X	X	X	X							
Tesoro Petroleum Corporation												X	X
Texaco Inc. [14]	X	X	X	X	X	X	X	X	X	X	X	X	X
Tosco Corporation												X	X
Total Petroleum (North America) Ltd. [24]							X	X					
Ultramar Diamond Shamrock Corporation												X	X
Union Pacific Resources Group, Inc. [25]	X	X	X	X	X	X	X	X	X	X	X	X	X
Unocal Corporation	X	X	X	X	X	X	X	X	X	X	X	X	X
USX Corporation [17]	X	X	X	X	X	X	X	X	X	X	X	X	X
Valero Energy Corporation												X	X
The Williams Companies, Inc												X	X

Footnotes: See the following page.
Note: "X" indicates that the company was included in the FRS for the year indicated.

Web Page: http://www.eia.doe.gov/emeu/finance.
Source: Energy Information Administration, Form EIA-28, "Financial Reporting System."

Footnotes for Table 3.12

[1]American Petrofina, Inc. changed its name to Fina, Inc., effective April 17, 1991.
[2]Ashland was dropped from the Financial Reporting System (FRS) for 1998 after spinning off downstream and coal operations and disposing of upstream operations.
[3]Amoco merged with British Petroleum plc and became BP Amoco plc on December 31, 1998. BP America was renamed BP Amoco, Inc. The companies reported separately for 1998.
[4]In 1987, British Petroleum acquired all shares in Standard Oil Company (Ohio) that it did not already control and renamed its U.S. affiliate, BP America, Inc.
[5]Formerly Standard Oil Company (Indiana).
[6]Burlington Resources was added to the FRS and Burlington Northern was dropped for 1988. Data for Burlington Resources covers the full year 1988 even though that company was not created until May of that year.
[7]Formerly Standard Oil Company of California.
[8]Chevron acquired Gulf Oil in 1984, but separate data for Gulf continued to be available for the full 1984 year.
[9]Occidental acquired Cities Service in 1982. Separate financial reports were available for 1982, so each company continued to be treated separately until 1983.
[10]DuPont acquired Conoco in 1981. Separate data for Conoco were available for 1981; DuPont was included in the FRS in 1982.
[11]Dupont was dropped from the FRS when Conoco was spun-off in 1998. Conoco began reporting separately again in 1998.
[12]Equilon is a joint venture combining Shell's and Texaco's western and midwestern U.S. refining and marketing businesses and nationwide trading transportation and lubricants businesses. Net income is duplicated in the FRS system since Shell and Texaco account for this investment using the equity method.
[13]In December 1998, Exxon and Mobil agreed to merge. Both companies reported separately for 1998.
[14]Texaco acquired Getty in 1984; however, Getty was treated as a separate FRS company for that year.
[15]In 1998, Kerr-McGee and Oryx merged. The financial reporting for both was consolidated under Kerr-McGee for 1998.
[16]LYONDELL-CITGO is a limited partnership owned by Lyondell Chemical Company and Citgo. There will be some duplication of net income since Citgo accounts for its investment using the equity method.
[17]U.S. Steel (now USX) acquired Marathon in 1982.
[18]Mobil acquired Superior in 1984, but both companies were treated separately for that year.
[19]Motiva is a joint venture approximately equally owned by Shell, Texaco and Saudi Refining, Inc. The joint venture combines the company's Gulf and east coast refining and marketing businesses. Duplication exists for the net income related to Shell's and Texaco's interests, which are accounted for under the equity method.
[20]RTZ America acquired the common stock of Nerco, Inc., on Feb. 17, 1994. In Sept. 1993, Nerco, Inc. sold Nerco Oil & Gas, Inc., its subsidiary. Nerco's 1993 submission includes operations of Nerco Oil & Gas, Inc., through Sept. 28, 1993.
[21]Sun Company spun off Sun Exploration and Development Company (later renamed Oryx Energy Company) during 1988. Both companies were included in the FRS system for 1988; therefore, some degree of duplication exists for that year.
[22]Sun company withdrew from oil and gas exploration and production in 1996. Sun's 1996 submission includes oil and gas exploration and production activities through September 30, 1996. Refining/marketing activities are included for the entire 1996 calendar year.
[23]Tenneco sold its worldwide oil and gas assets and its refining and marketing assets in 1988. Other FRS companies purchased approximately 70 percent of Tenneco's assets.
[24]Effective June 1, 1991, Total's exploration, production, and marketing operations in Canada were spun off to Total Oil & Gas, a new public entity.
[25]Effective October 15, 1996, Union Pacific Corporation distributed its ownership in the Union Pacific Resources Group, Inc. to its shareholders. Prior to 1996, the FRS included Union Pacific Corporation. The FRS system includes only Union Pacific Resources Group, Inc. for 1996.

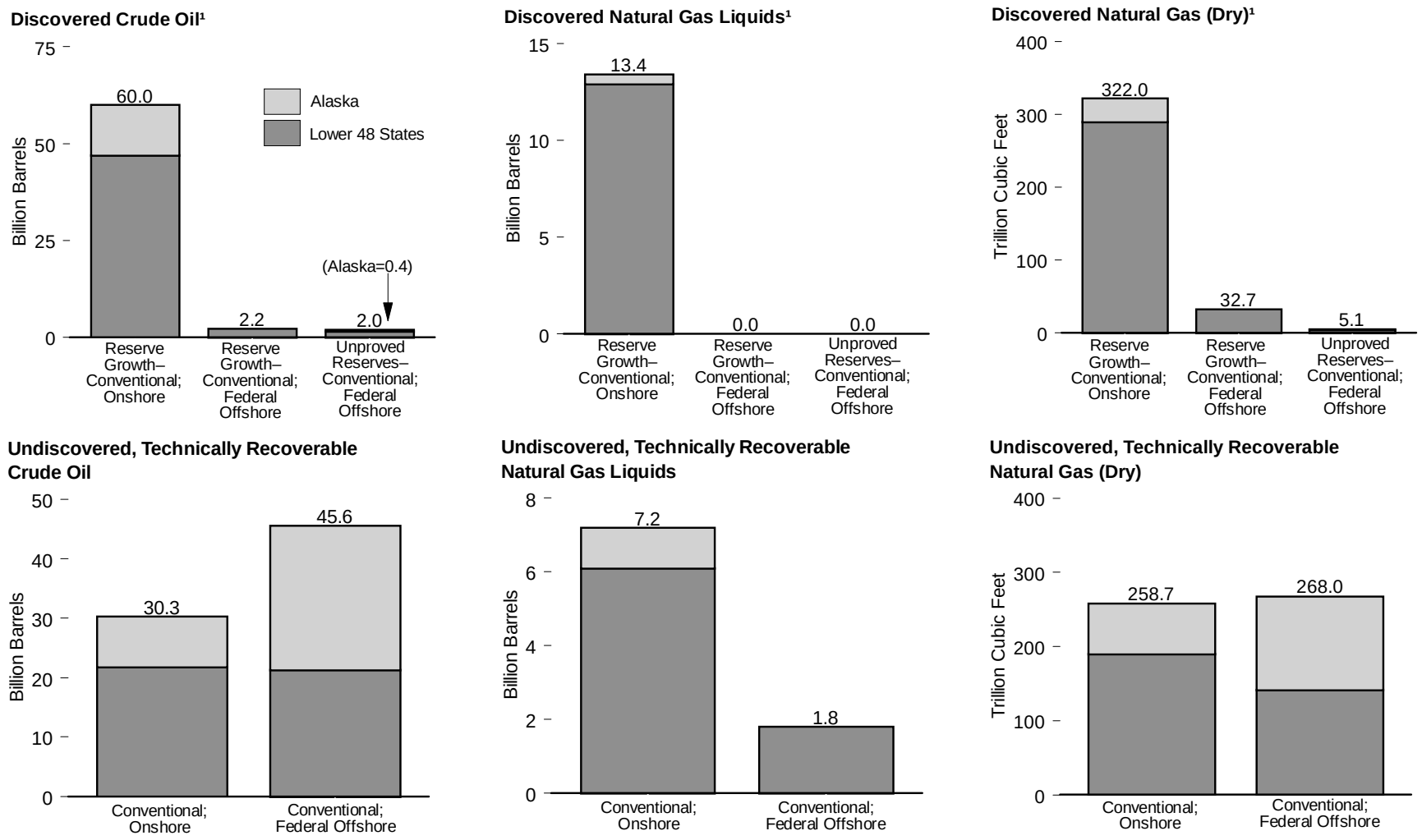
Table 3.5 Sources

Natural Gas: • 1949-1962—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. • 1964-1971—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*. • 1974-1977—Federal Power Commission, *United States Imports and Exports of Natural Gas*, annual reports. •1978-1981—Energy Information Administration (EIA), *U.S. Imports and Exports of Natural Gas*, annual reports. • 1982-1992—EIA, Natural Gas Monthly, monthly reports. 1993-1998—EIA, Natural Gas Monthly, (August 2000). • 2000—EIA estimates. **Crude oil and Petroleum Products:** • 1949-1962—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. • 1964-1988—Bureau of the Census, *U.S. Imports for Consumption*, FT135. • 1989-forward—Bureau of the Census, Foreign Trade Division, *U.S. Merchandise Trade*, FT900, "Exports and Imports of Goods by Principal SITC Commodity Groupings," December issues. **Coal:** • 1949-forward—Bureau of the Census, Foreign Trade Division, unpublished data.

4 Energy Resources

Semisubmersible drilling rig in the Gulf of Mexico. Source: U.S. Department of Energy.

Figure 4.1 Technically Recoverable Petroleum Resource Estimates, January 1, 2000



[1] Excludes proved reserves, which are more certain than the resource estimates shown here.

Notes: • See Table 4.1 for detailed notes. • Because vertical scales differ, graphs should not be compared.

Source: Table 4.1.

Table 4.1 Technically Recoverable Petroleum Resource Estimates, January 1, 2000

Region	Crude Oil [1] (million barrels)			Natural Gas Liquids (million barrels)			Natural Gas (Dry) (billion cubic feet)		
	Alaska	Lower 48 States	United States	Alaska	Lower 48 States	United States	Alaska	Lower 48 States	United States
Discovered [2]									
Reserve Growth (Conventional; Onshore)	[3] 13,000	[4] 47,000	**60,000**	500	12,900	**13,400**	32,000	290,000	**322,000**
Reserve Growth (Conventional; Federal Offshore)	0	[5] 2,238	**2,238**	NE	NE	**0**	0	[5] 32,719	**32,719**
Unproved Reserves (Conventional; Federal Offshore)	400	1,643	**2,043**	NE	NE	**0**	700	4,436	**5,136**
Undiscovered, Technically Recoverable									
Conventional (Onshore)	8,440	21,810	**30,250**	1,120	6,080	**7,200**	68,410	190,280	**258,690**
Conventional (Federal Offshore)	24,300	21,300	**45,600**	([6])	[6] 1,800	**1,800**	125,900	142,100	**268,000**
Continuous-type (in Sandstone, Shales and Chalks; Onshore)	NE	2,066	**2,066**	NE	2,119	**2,119**	NE	308,080	**308,080**
Continuous-type (in Coal Beds; Onshore)	NA	NA	**0**	NA	NA	**0**	NE	49,910	**49,910**
Net Cumulative Change Since Resource Estimation [7]	NA	NA	**-17,461**	NA	NA	**-6,634**	NA	NA	**-133,119**
Total	**NA**	**NA**	**124,736**	**NA**	**NA**	**17,835**	**NA**	**NA**	**1,111,416**

[1] Condensate is included with crude oil for Minerals Management Service (MMS) estimates in Federal Offshore regions.

[2] Excludes "proved reserves," which are more certain than the resource estimates shown in this table.

[3] Using U.S. Geological Survey (USGS) definition, 952 million barrels of indicated additional oil reserves were included (Energy Information Administration (EIA), year end 1996).

[4] Using USGS definition, 1,924 million barrels of indicated additional oil reserves were included (EIA, year end 1996)

[5] Reserve growth in the Pacific Federal offshore is not included. It was not estimated by MMS.

[6] Alaska is included in Lower 48 States.

[7] See Sources.

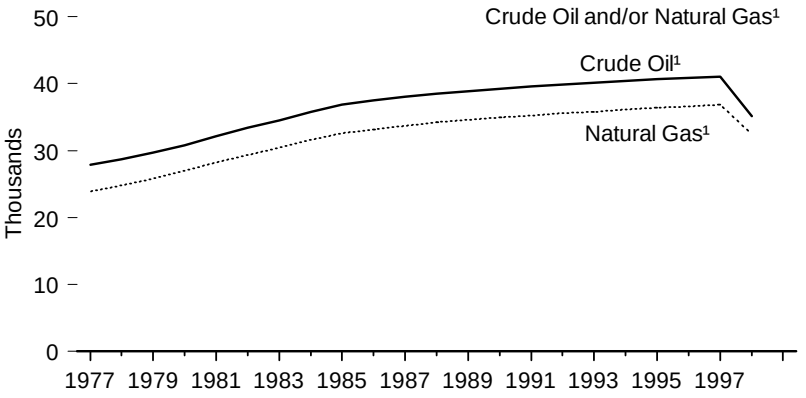
NA=Not available. NE= Not estimated.

Notes: • See Note 1 at end of section. • Onshore indicates estimates for all Onshore plus State Offshore waters (near-shore, shallow-water areas under State jurisdiction). • Federal Offshore denotes MMS estimates for Federal Offshore jurisdictions (the Outer Continental Shelf and deeper water areas seaward of the State Offshore jurisdictional boundary). • The USGS mean estimates are as of year-end 1993 (onshore and State offshore). The MMS mean estimates are as of year-end 1994. Probable and possible reserves are considered by the USGS to be part of reserve growth but are separately estimated by MMS as unproved reserves. USGS did not set a time limit for the duration of reserves growth; MMS set the year 2020 as the time limit in its estimates of reserve growth in existing fields in the Gulf of Mexico. Excluded from these resource estimates are undiscovered oil resources in tar deposits and oil shales, and undiscovered gas resources in geopressured brines and gas hydrates. • Data may not sum to totals due to independent rounding.

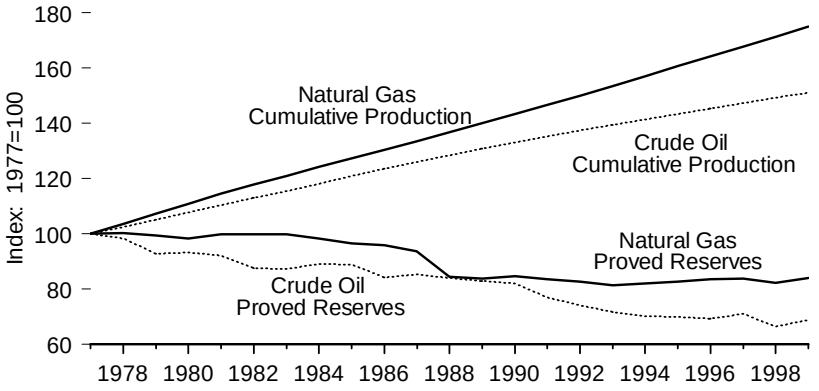
Sources: **Federal Offshore:** U.S. Department of the Interior, Minerals Management Service. *An Assessment of the Undiscovered Hydrocarbon Potential of the Nation's Outer Continental Shelf (1997),* OCS Report MMS 96-0034. **Onshore:** U.S. Department of the Interior, U.S. Geological Survey (USGS), *1996 National Assessment of United States Oil and Gas Resources,* USGS Circular 1118. **Unproved Reserves (Conventional; Onshore):** Energy Information Administration, *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves Annual Report 1999* (December 2000), Table G1.

Figure 4.2 Crude Oil and Natural Gas Field Counts, Cumulative Production, Proved Reserves, and Ultimate Recovery

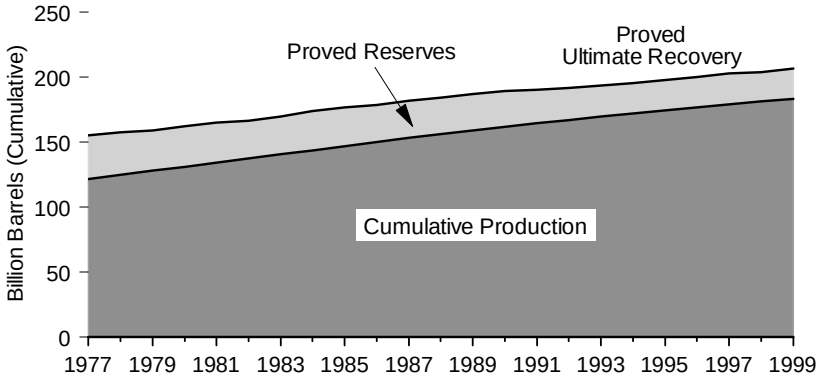
Cumulative Number of Fields, 1977-1998



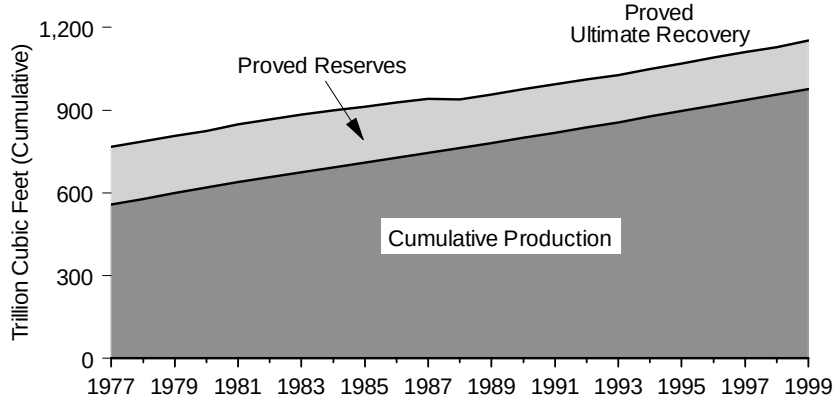
Cumulative Production and Proved Reserves, Indexed, 1977-1999



Crude Oil, 1977-1999



Natural Gas, 1977-1999



[1] There is a discontinuity in this time series between 1997 and 1998 due to the absence of updates for a subset of the data used in the past.

Notes: • Data are at end of year. • Crude oil includes lease condensate. • Natural gas is wet, after lease separation.

Source: Table 4.2.

Table 4.2 Crude Oil and Natural Gas Field Counts, Cumulative Production, Proved Reserves, and Ultimate Recovery, 1977-1999

Year	Cumulative Number of Fields with Crude Oil and/or Natural Gas	Cumulative Number of Fields with Crude Oil	Crude Oil and Lease Condensate (billion barrels)			Cumulative Number of Fields with Natural Gas	Natural Gas [1] (trillion cubic feet)		
			Cumulative Production	Proved Reserves	Proved Ultimate Recovery		Cumulative Production	Proved Reserves	Proved Ultimate Recovery
1977	31,360	27,835	121.4	33.6	155.0	23,883	558.3	209.5	767.8
1978	32,430	28,683	124.6	33.1	157.6	24,786	578.4	210.1	788.5
1979	33,644	29,671	127.7	31.2	158.9	25,823	599.1	208.3	807.4
1980	34,999	30,766	130.8	31.3	162.2	26,919	619.4	206.3	825.6
1981	36,621	32,111	133.9	31.0	165.0	28,213	639.4	209.4	848.9
1982	38,123	33,375	137.1	29.5	166.6	29,375	658.1	209.3	867.4
1983	39,489	34,495	140.3	29.3	169.6	30,419	675.1	209.0	884.1
1984	41,038	35,784	143.5	30.0	173.5	31,595	693.5	206.0	899.5
1985	42,317	36,849	146.8	29.9	176.7	32,595	710.9	202.2	913.1
1986	43,076	37,464	150.0	28.3	178.3	33,151	727.8	201.1	928.9
1987	43,742	37,982	153.0	28.7	181.7	33,657	745.4	196.4	941.8
1988	44,414	38,506	156.0	28.2	184.2	34,196	763.4	177.0	940.4
1989	44,883	38,858	158.8	27.9	186.7	34,579	781.7	175.4	957.1
1990	45,385	39,244	161.5	27.6	189.0	34,975	800.4	177.6	978.0
1991	45,776	39,558	164.2	25.9	190.1	35,254	819.1	175.3	994.4
1992	46,149	39,843	166.8	25.0	191.8	35,539	838.0	173.3	1,011.3
1993	46,513	40,124	169.3	24.1	193.4	35,798	857.2	170.5	1,027.7
1994	46,922	40,417	171.7	23.6	195.3	36,142	877.1	171.9	1,049.1
1995	47,296	40,694	174.1	23.5	197.7	36,433	896.9	173.5	1,070.4
1996	47,557	40,875	176.5	23.3	199.8	36,612	917.0	175.1	1,092.1
1997	47,854	40,977	178.9	23.9	202.8	36,830	937.1	175.7	1,112.8
1998	[2]47,664	[2]35,143	181.2	[R]22.4	[R]203.5	[2]32,458	957.0	[R]172.4	[R]1,129.4
1999	NA	NA	183.3	23.2	206.5	NA	976.8	176.2	1,153.0

[1] Wet, after lease separation.

[2] There is a discontinuity in this time series between 1997 and 1998 due to the absence of updates for a subset of the data used in the past.

Note: Data are at end of year.

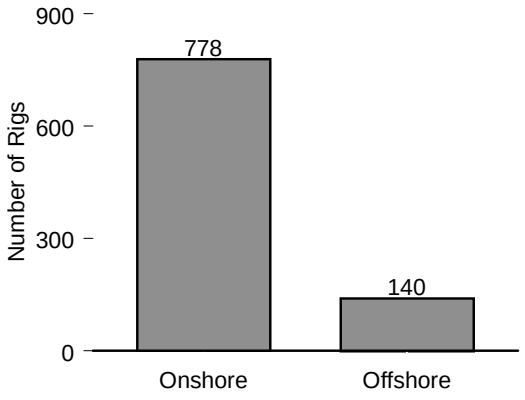
Web Page: http://www.eia.doe.gov/oil_gas/natural_gas/nat_frame.html.

Sources: **Cumulative Production:** Calculated from Energy Information Administration (EIA), *Petroleum Supply Annual,* annual reports and *Natural Gas Annual,* annual reports. **Proved Reserves:**
- 1977-1998—EIA, *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves,* annual reports.
- 1999—EIA, *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves* (December 2000), Tables 6, 9, and 16.

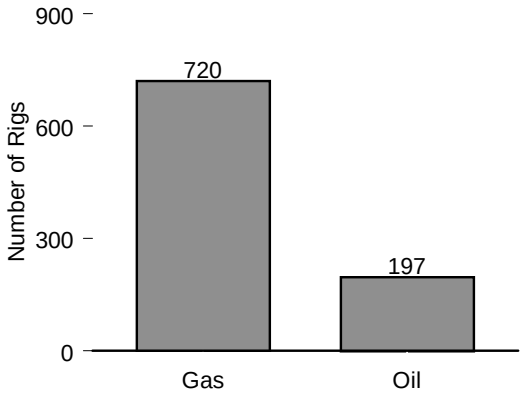
Field Counts: EIA, *Oil and Gas Field Code Master List,* annual reports, and EIA, Office of Oil and Gas, Oil and Gas Integrated Field File.

Figure 4.3 Oil and Gas Drilling Activity Measurements

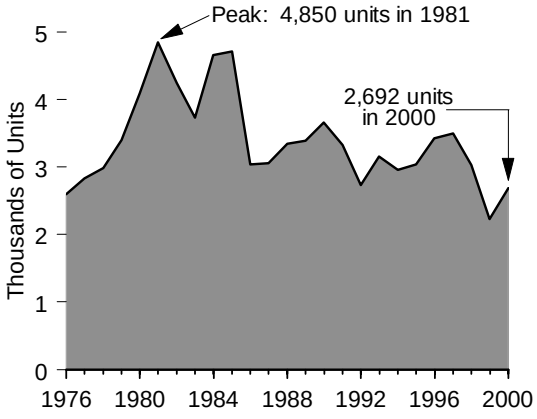
Rotary Rigs in Operation by Site, 2000



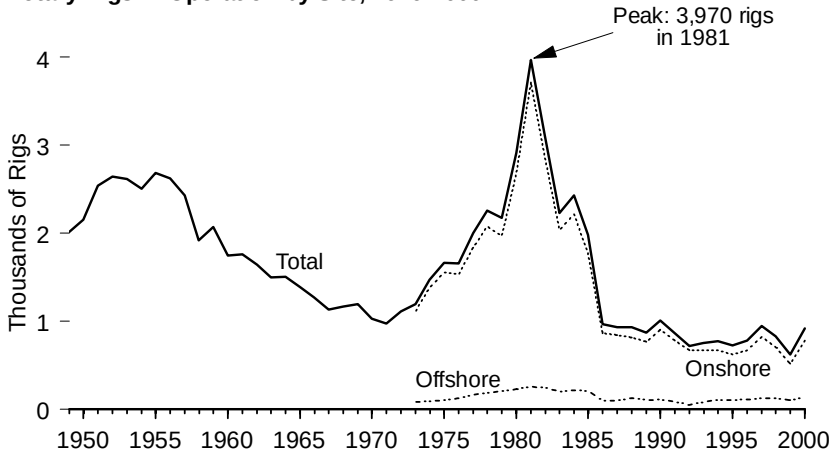
Rotary Rigs in Operation by Type, 2000



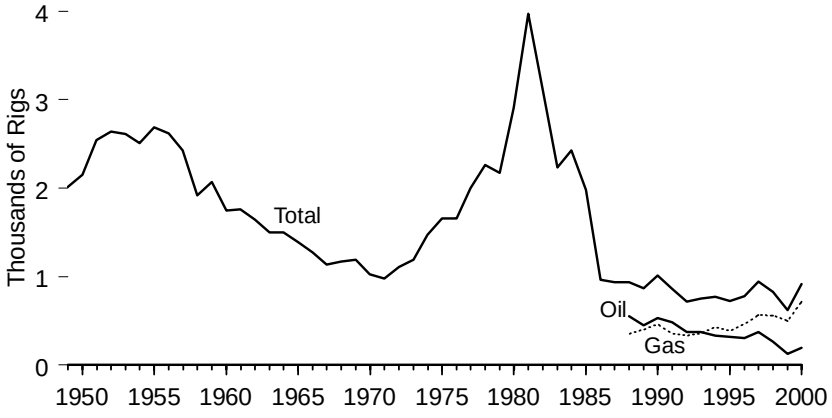
Active Well Servicing Units, 1976-2000



Rotary Rigs in Operation by Site, 1949-2000



Rotary Rigs in Operation by Type, 1949-2000



Source: Table 4.3.

Table 4.3 Oil and Gas Drilling Activity Measurements, 1949-2000

Year	Rotary Rigs in Operation [1]					Active Well Servicing Units
	By Site		By Type			
	Offshore	Onshore	Oil	Gas	Total [2]	
1949	NA	NA	NA	NA	2,017	NA
1950	NA	NA	NA	NA	2,154	NA
1951	NA	NA	NA	NA	2,543	NA
1952	NA	NA	NA	NA	2,641	NA
1953	NA	NA	NA	NA	2,613	NA
1954	NA	NA	NA	NA	2,508	NA
1955	NA	NA	NA	NA	2,686	NA
1956	NA	NA	NA	NA	2,620	NA
1957	NA	NA	NA	NA	2,426	NA
1958	NA	NA	NA	NA	1,922	NA
1959	NA	NA	NA	NA	2,071	NA
1960	NA	NA	NA	NA	1,748	NA
1961	NA	NA	NA	NA	1,761	NA
1962	NA	NA	NA	NA	1,641	NA
1963	NA	NA	NA	NA	1,499	NA
1964	NA	NA	NA	NA	1,501	NA
1965	NA	NA	NA	NA	1,388	NA
1966	NA	NA	NA	NA	1,272	NA
1967	NA	NA	NA	NA	1,135	NA
1968	NA	NA	NA	NA	1,169	NA
1969	NA	NA	NA	NA	1,194	NA
1970	NA	NA	NA	NA	1,028	NA
1971	NA	NA	NA	NA	976	NA
1972	NA	NA	NA	NA	1,107	NA
1973	84	1,110	NA	NA	1,194	NA
1974	94	1,378	NA	NA	1,472	NA
1975	106	1,554	NA	NA	1,660	NA
1976	129	1,529	NA	NA	1,658	2,601
1977	167	1,834	NA	NA	2,001	2,828
1978	185	2,074	NA	NA	2,259	2,988
1979	207	1,970	NA	NA	2,177	3,399
1980	231	2,678	NA	NA	2,909	4,089
1981	256	3,714	NA	NA	3,970	4,850
1982	243	2,862	NA	NA	3,105	4,248
1983	199	2,033	NA	NA	2,232	3,732
1984	213	2,215	NA	NA	2,428	4,663
1985	206	1,774	NA	NA	1,980	4,716
1986	99	865	NA	NA	964	3,036
1987	95	841	NA	NA	936	3,060
1988	123	813	554	354	936	3,341
1989	105	764	453	401	869	3,391
1990	108	902	532	464	1,010	3,658
1991	81	779	482	351	860	3,331
1992	52	669	373	331	721	2,732
1993	82	672	373	364	754	3,158
1994	102	673	335	427	775	2,961
1995	101	622	323	385	723	3,043
1996	108	671	306	464	779	3,425
1997	122	821	376	564	943	3,499
1998	123	703	264	560	827	3,030
1999	106	519	128	496	625	2,230
2000	140	778	197	720	918	2,692

[1] Data are not for the exact calendar year but are an average for the 52 or 53 consecutive whole weeks that most nearly coincide with the calendar year.

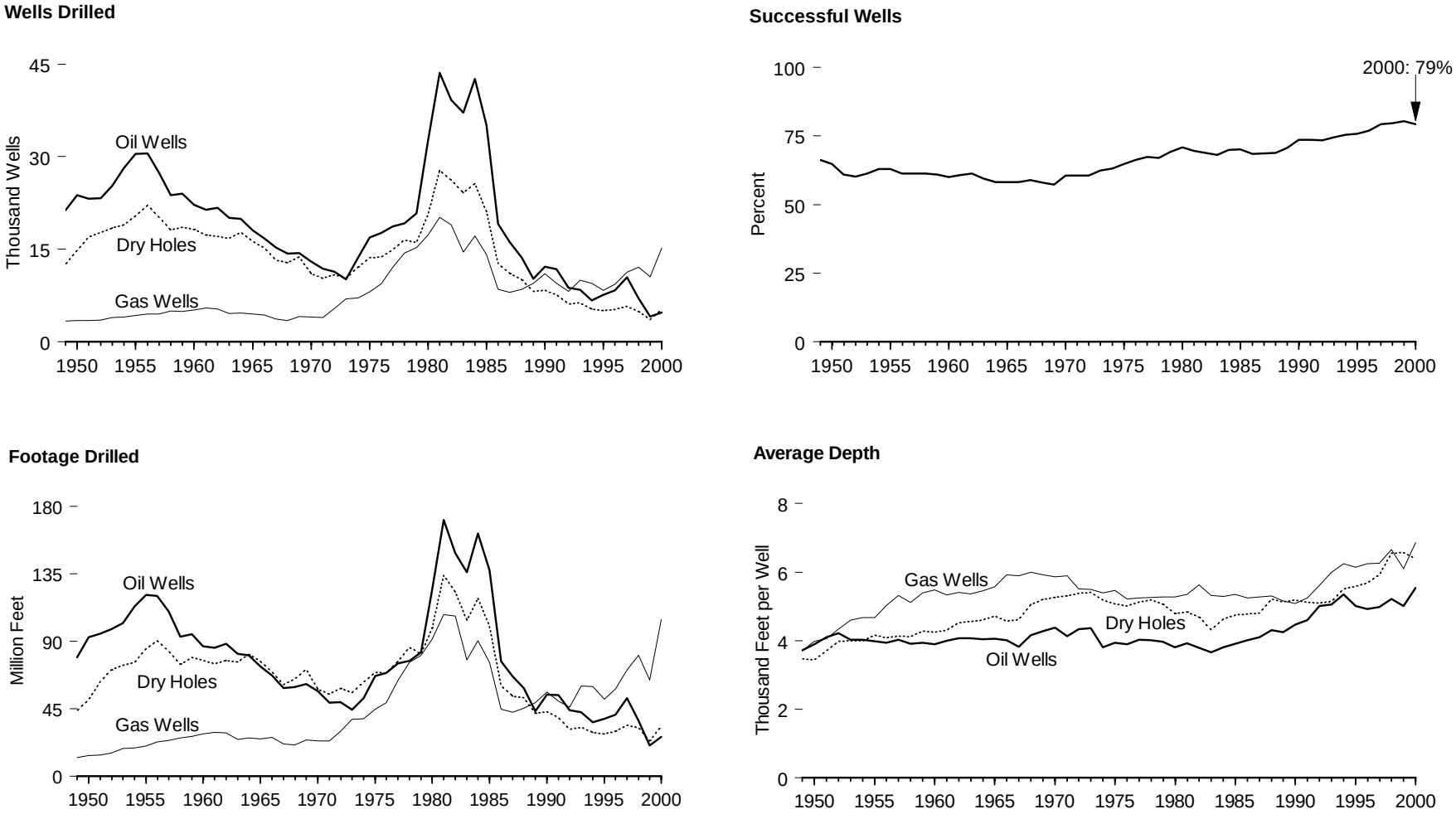
[2] Sum of oil, gas, and miscellaneous other rigs (not shown).

NA=Not available.

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

Sources: **Rotary Rigs in Operation:** Baker Hughes, Inc., Houston, Texas, *Rotary Rigs Running—By State*. **Active Well Servicing Units:** • 1976-July 1998—Association of Energy Service Companies, Dallas, Texas, *Field Reports*. • August 1998 forward—Guiberson Well Service Products, a Halliburton company, Carrollton, Texas.

Figure 4.4 Oil and Gas Exploratory and Development Wells, 1949-2000



Note: This figure depicts all wells; see Figure 4.5 for exploratory wells and Figure 4.6 for development wells.

Source: Table 4.4.

Table 4.4 Oil and Gas Exploratory and Development Wells, 1949-2000

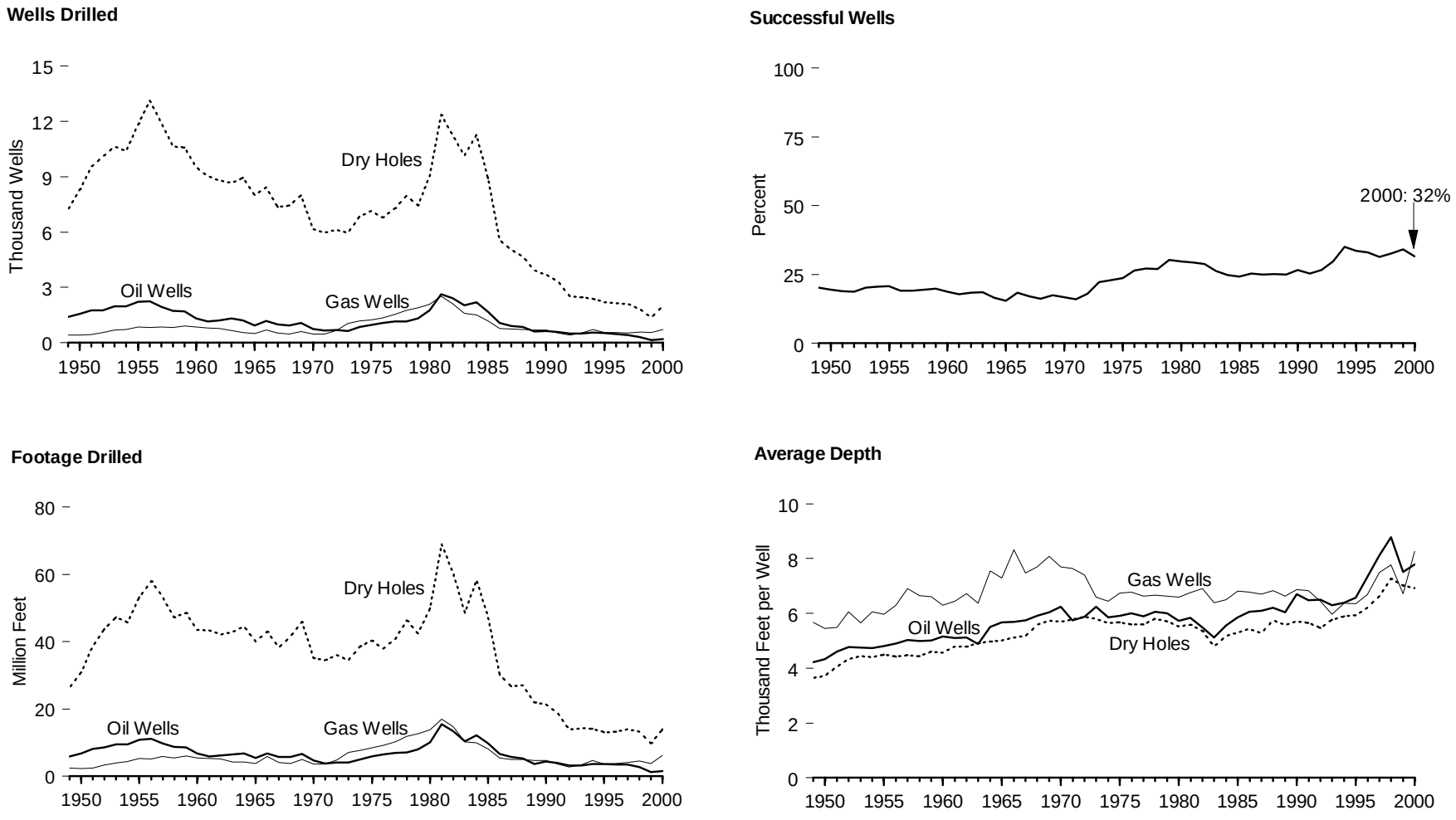
Year	Wells Drilled (thousands)				Successful Wells (percent)	Footage Drilled (million feet)				Average Depth (feet per well)			
	Oil	Gas	Dry Holes	Total		Oil	Gas	Dry Holes	Total	Oil	Gas	Dry Holes	Total
1949	21.35	3.36	12.60	37.31	66.2	79.4	12.4	43.8	135.6	3,720	3,698	3,473	3,635
1950	23.81	3.44	14.80	42.05	64.8	92.7	13.7	51.0	157.4	3,893	3,979	3,445	3,742
1951	23.18	3.44	17.03	43.64	61.0	95.1	13.9	63.1	172.1	4,103	4,056	3,706	3,944
1952	23.29	3.51	17.76	44.56	60.1	98.1	15.3	70.7	184.1	4,214	4,342	3,983	4,132
1953	25.32	3.97	18.45	47.74	61.4	102.1	18.2	73.9	194.2	4,033	4,599	4,004	4,069
1954	28.14	4.04	18.93	51.11	63.0	113.4	18.9	75.8	208.0	4,028	4,670	4,004	4,070
1955	30.43	4.27	20.45	55.15	62.9	121.1	19.9	85.1	226.2	3,981	4,672	4,161	4,101
1956	30.53	4.53	22.11	57.17	61.3	120.4	22.7	90.2	233.3	3,942	5,018	4,079	4,080
1957	27.36	4.48	20.16	52.00	61.2	110.0	23.8	83.2	217.0	4,021	5,326	4,126	4,174
1958	23.77	5.01	18.16	46.94	61.3	93.1	25.6	74.6	193.3	3,916	5,106	4,110	4,118
1959	24.04	4.93	18.59	47.56	60.9	94.6	26.6	79.5	200.7	3,935	5,396	4,275	4,220
1960	22.26	5.15	18.21	45.62	60.1	86.6	28.2	77.4	192.2	3,889	5,486	4,248	4,213
1961	21.44	5.49	17.33	44.25	60.8	85.6	29.3	74.7	189.6	3,994	5,339	4,311	4,285
1962	21.73	5.35	17.08	44.16	61.3	88.4	28.9	77.3	194.6	4,070	5,408	4,524	4,408
1963	20.14	4.57	16.76	41.47	59.6	81.8	24.5	76.3	182.6	4,063	5,368	4,552	4,405
1964	19.91	4.69	17.69	42.29	58.2	80.5	25.6	81.4	187.4	4,042	5,453	4,598	4,431
1965	18.07	4.48	16.23	38.77	58.2	73.3	24.9	76.6	174.9	4,059	5,562	4,723	4,510
1966	16.78	4.38	15.23	36.38	58.1	67.3	25.9	69.6	162.9	4,013	5,928	4,573	4,478
1967	15.33	3.66	13.25	32.23	58.9	58.6	21.6	61.1	141.4	3,825	5,898	4,616	4,385
1968	14.33	3.46	12.81	30.60	58.1	59.5	20.7	64.7	145.0	4,153	5,994	5,053	4,738
1969	14.37	4.08	13.74	32.19	57.3	61.6	24.2	71.4	157.1	4,286	5,918	5,195	4,881
1970	12.97	4.01	11.03	28.01	60.6	56.9	23.6	58.1	138.6	4,385	5,860	5,265	4,943
1971	11.85	3.97	10.31	26.13	60.6	49.1	23.5	54.7	127.3	4,126	5,890	5,305	4,858
1972	11.38	5.44	10.89	27.71	60.7	49.3	30.0	58.6	137.8	4,330	5,516	5,377	4,974
1973	10.17	6.93	10.32	27.42	62.4	44.4	38.0	55.8	138.2	R4,369	R5,488	R5,403	5,041
1974	13.65	7.14	12.12	32.90	63.2	52.0	38.4	62.9	153.4	R3,812	R5,387	R5,191	4,662
1975	16.95	8.13	13.65	38.72	64.8	66.8	R44.5	R69.2	180.5	R3,943	R5,470	R5,073	4,661
1976	17.69	9.41	13.76	40.86	66.3	R68.9	49.1	69.0	187.0	R3,895	R5,220	R5,014	4,577
1977	18.75	12.12	14.99	45.85	67.3	75.5	R63.7	R76.7	215.9	4,025	R5,254	R5,120	4,708
1978	19.18	14.41	16.55	50.15	67.0	77.0	75.8	85.8	238.7	4,016	R5,262	R5,183	4,760
1979	20.85	15.25	16.10	52.20	69.2	R82.7	80.5	R81.6	244.8	R3,966	5,275	R5,071	4,689
1980	32.64	17.33	20.64	70.61	70.8	124.3	91.5	98.9	314.7	R3,809	5,278	R4,790	4,456
1981	43.60	20.17	27.79	91.55	69.6	R171.2	107.8	R134.1	413.1	R3,926	5,346	R4,827	4,512
1982	39.20	18.98	26.22	84.40	68.9	148.8	106.7	122.8	378.3	R3,796	R5,622	R4,683	4,482
1983	37.12	14.56	24.15	75.84	68.2	136.1	77.6	104.3	318.0	3,667	5,325	4,320	4,193
1984	42.61	17.13	25.68	85.41	69.9	161.8	90.6	119.0	371.4	R3,798	5,289	R4,634	4,348
1985	35.12	14.17	21.06	70.34	70.1	R137.4	R75.9	R99.8	313.0	3,911	R5,354	R4,741	4,450
1986	19.10	8.52	12.68	40.29	68.5	76.6	44.7	60.5	181.9	4,013	R5,253	R4,771	4,514
1987	16.16	8.06	11.11	35.33	68.5	66.3	42.5	53.4	162.2	R4,103	R5,275	4,803	4,590
1988	13.64	8.56	10.04	32.23	68.8	58.7	45.3	52.3	156.4	4,305	5,298	5,211	4,851
1989	10.20	9.54	8.19	27.93	70.7	43.3	49.2	R42.0	134.4	R4,244	R5,156	R5,124	4,813
1990	12.20	11.04	8.31	31.56	73.7	R54.5	R56.1	43.1	153.7	R4,465	R5,083	R5,184	4,871
1991	11.77	9.53	7.60	28.89	73.7	R54.2	50.0	38.9	143.0	R4,601	R5,248	R5,118	4,950
1992	8.76	8.21	6.12	23.08	73.5	R43.9	R46.0	31.2	121.1	R5,015	R5,608	R5,094	5,247
1993	8.41	10.02	6.33	24.75	74.4	R42.5	R60.0	32.6	135.1	R5,055	R5,993	5,150	5,459
1994	6.72	9.54	5.31	21.57	75.4	36.0	59.6	29.2	124.8	R5,356	R6,247	R5,506	5,787
1995	7.63	8.35	5.08	21.06	75.9	38.2	R51.3	R28.3	117.8	R5,009	R6,139	R5,585	5,596
1996E	8.31	9.30	5.28	22.90	76.9	R40.9	R58.1	30.0	129.0	R4,918	R6,249	R5,685	5,636
1997E	10.44	11.33	5.70	27.47	79.2	R52.0	R70.8	R33.8	156.7	R4,986	R6,254	R5,924	5,704
1998E	7.06	12.11	4.91	24.08	79.6	R36.9	R80.6	R32.2	149.6	R5,217	R6,655	R6,557	6,213
1999E	R4.09	10.51	R3.58	R18.18	80.3	R20.5	R64.1	R23.5	R108.1	R5,012	R6,094	R6,565	R5,944
2000E	4.73	15.21	5.20	25.14	79.3	26.2	104.4	33.2	163.8	5,534	6,865	6,388	6,516

R=Revised. E=Estimate.

Notes: • This table depicts all wells; see Table 4.5 for exploratory wells and Table 4.6 for development wells. • Service wells, stratigraphic tests, and core tests are excluded. • For 1949-1959, data represent wells completed in a given year. For 1960-1969, 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. See Note 2 at end of section. • Totals may not equal sum of components due to independent rounding. Average depth may not equal average of components due to independent rounding.

Sources: • 1949-1965—Gulf Publishing Company, *World Oil*, "Forecast-Review" issue. • 1966-1969—American Petroleum Institute, *Quarterly Review of Drilling Statistics for the United States*, annual summaries and monthly reports. • 1970-1994—Energy Information Administration (EIA) computations based on well reports submitted to the American Petroleum Institute. • 1995 forward—EIA computations based on well reports submitted to the Information Handling Services Energy Group, Inc. For current data see the EIA, *Monthly Energy Review*, Section 5.

Figure 4.5 Oil and Gas Exploratory Wells, 1949-2000



Note: This figure depicts exploratory wells only; see Figure 4.4 for all wells and Figure 4.6 for development wells only.

Source: Table 4.5.

Table 4.5 Oil and Gas Exploratory Wells, 1949-2000

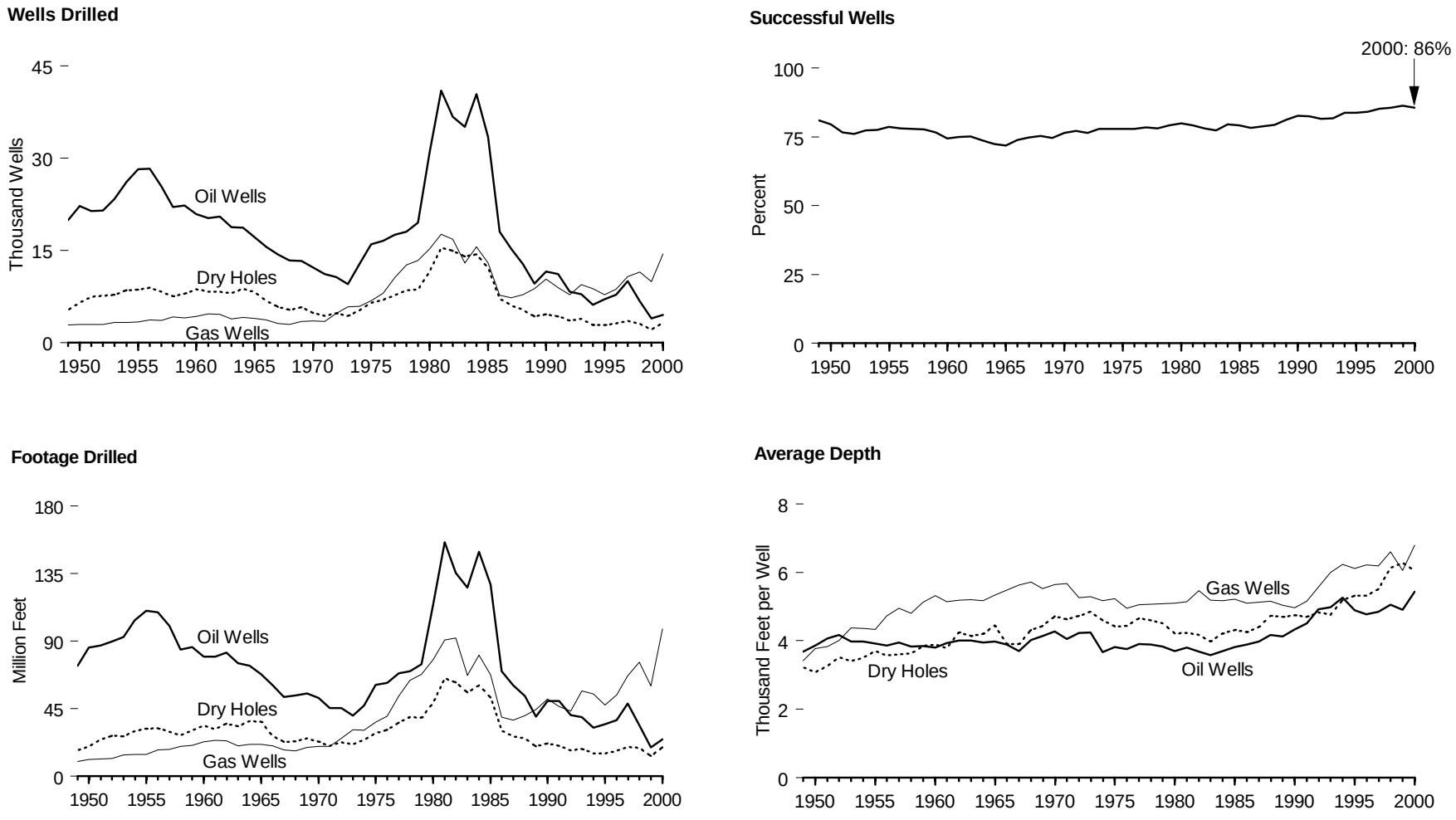
Year	Wells Drilled (thousands)				Successful Wells (percent)	Footage Drilled (million feet)				Average Depth (feet per well)			
	Oil	Gas	Dry Holes	Total		Oil	Gas	Dry Holes	Total	Oil	Gas	Dry Holes	Total
1949	1.41	0.42	7.23	9.06	20.2	6.0	2.4	26.4	34.8	4,232	5,682	3,658	3,842
1950	1.58	0.43	8.29	10.31	19.5	6.9	2.4	31.0	40.2	4,335	5,466	3,733	3,898
1951	1.76	0.45	9.54	11.76	18.9	8.1	2.5	38.7	49.3	4,609	5,497	4,059	4,197
1952	1.78	0.56	10.09	12.43	18.8	8.5	3.4	43.7	55.6	4,781	6,071	4,334	4,476
1953	1.98	0.70	10.63	13.31	20.1	9.4	4.0	47.3	60.7	4,761	5,654	4,447	4,557
1954	1.99	0.73	10.39	13.10	20.7	9.4	4.4	45.8	59.6	4,740	6,059	4,408	4,550
1955	2.24	0.87	11.83	14.94	20.8	10.8	5.2	53.2	69.2	4,819	5,964	4,498	4,632
1956	2.27	0.82	13.12	16.21	19.1	11.1	5.2	58.0	74.3	4,901	6,301	4,425	4,587
1957	1.95	0.87	11.90	14.71	19.1	9.8	6.0	53.4	69.2	5,036	6,898	4,488	4,702
1958	1.75	0.82	10.63	13.20	19.4	8.7	5.5	47.3	61.5	4,993	6,657	4,449	4,658
1959	1.70	0.91	10.58	13.19	19.8	8.5	6.0	48.7	63.3	5,021	6,613	4,602	4,795
1960	1.32	0.87	9.52	11.70	18.7	6.8	5.5	43.5	55.8	5,170	6,298	4,575	4,770
1961	1.16	0.81	9.02	10.99	17.9	5.9	5.2	43.3	54.4	5,099	6,457	4,799	4,953
1962	1.21	0.77	8.82	10.80	18.4	6.2	5.2	42.2	53.6	5,124	6,728	4,790	4,966
1963	1.31	0.66	8.69	10.66	18.5	6.4	4.2	42.8	53.5	4,878	6,370	4,933	5,016
1964	1.22	0.56	8.95	10.73	16.6	6.7	4.2	44.6	55.5	5,509	7,547	4,980	5,174
1965	0.95	0.52	8.01	9.47	15.4	5.4	3.8	40.1	49.2	5,672	7,295	5,007	5,198
1966	1.20	0.70	8.42	10.31	18.4	6.8	5.8	43.1	55.7	5,700	8,321	5,117	5,402
1967	0.99	0.53	7.36	8.88	17.1	5.7	4.0	38.2	47.8	5,758	7,478	5,188	5,388
1968	0.95	0.49	7.44	8.88	16.2	5.6	3.7	41.6	51.0	5,914	7,697	5,589	5,739
1969	1.08	0.62	8.00	9.70	17.5	6.6	5.0	45.9	57.5	6,054	8,092	5,739	5,924
1970	0.76	0.48	6.16	7.40	16.7	4.7	3.7	35.1	43.5	6,247	7,695	5,700	5,885
1971	0.66	0.47	5.95	7.08	15.9	3.8	3.6	34.5	41.9	5,745	7,649	5,796	5,915
1972	0.69	0.66	6.13	7.48	17.9	4.0	4.8	36.1	45.0	5,880	7,400	5,882	6,015
1973	0.64	1.07	5.95	7.66	22.3	4.0	7.0	34.6	45.6	R6,243	R6,596	R5,808	R5,955
1974	0.86	1.19	6.83	8.88	23.1	5.0	7.7	38.6	51.3	R5,855	R6,456	R5,649	R5,777
1975	0.98	1.25	7.13	9.36	23.8	5.8	8.4	R40.4	54.7	R5,913	R6,748	R5,674	R5,842
1976	1.09	1.35	6.77	9.20	26.4	6.5	9.1	38.0	53.6	R6,010	R6,777	R5,607	R5,825
1977	1.16	1.55	7.28	10.00	27.1	6.9	R10.3	R40.8	57.9	R5,902	R6,625	R5,605	5,798
1978	1.17	1.77	7.97	10.91	27.0	7.1	11.8	46.3	65.2	R6,067	R6,662	R5,813	R5,978
1979	1.32	1.91	7.44	10.67	30.3	7.9	12.6	R42.5	63.1	R6,011	R6,630	R5,716	R5,916
1980	1.76	2.08	9.04	12.88	29.8	10.1	13.7	R50.0	73.9	R5,727	R6,605	R5,533	R5,733
1981	2.64	2.51	12.35	17.50	29.4	15.4	17.0	68.9	101.4	R5,851	R6,763	R5,582	5,792
1982	2.43	2.13	11.25	15.80	28.8	13.4	14.7	60.3	R88.3	R5,496	R6,914	R5,358	R5,588
1983	2.02	1.59	10.15	13.76	26.3	10.4	10.2	48.6	69.2	R5,131	6,400	R4,788	R5,025
1984	2.20	1.52	11.28	15.00	24.8	12.2	9.9	58.4	80.5	R5,570	R6,499	R5,176	R5,368
1985	1.68	1.19	8.92	11.79	24.3	9.9	8.1	47.4	65.4	R5,867	R6,824	R5,315	R5,546
1986	1.08	0.79	5.55	7.43	25.3	6.6	5.4	30.1	42.1	R6,067	R6,778	5,431	R5,668
1987	0.93	0.75	5.05	6.73	25.0	5.6	5.1	26.7	37.4	R6,101	R6,709	R5,289	R5,560
1988	0.86	0.73	4.69	6.28	25.3	5.3	5.0	27.0	37.3	R6,200	R6,830	R5,751	R5,938
1989	0.61	0.71	3.92	5.24	25.1	3.7	4.7	21.9	R30.3	R6,052	R6,639	R5,580	R5,778
1990	0.65	0.69	3.72	5.06	26.6	4.4	4.7	21.3	30.4	R6,701	R6,868	R5,721	R6,004
1991	0.59	0.53	3.31	4.44	25.4	3.8	3.6	R18.7	26.2	R6,481	R6,834	R5,656	R5,908
1992	0.49	0.42	2.51	3.43	26.7	3.2	2.7	13.8	R19.7	R6,508	R6,461	R5,477	R5,747
1993	0.50	0.55	2.47	3.52	29.8	3.2	3.3	R14.2	20.7	R6,306	R5,968	R5,765	R5,874
1994	0.57	0.73	2.41	3.70	35.0	3.6	4.6	14.2	22.4	R6,386	R6,377	R5,894	R6,065
1995	0.54	0.57	2.20	3.31	33.6	3.6	3.6	13.0	R20.2	R6,587	R6,352	R5,937	R6,115
1996E	0.48	0.57	2.14	3.19	33.0	3.5	3.8	R13.3	R20.6	R7,334	R6,694	R6,211	R6,467
1997E	0.43	0.54	2.11	3.07	31.4	R3.5	4.0	R14.0	R21.5	R8,117	R7,497	R6,630	R6,988
1998E	0.30	0.58	1.82	2.70	32.7	2.7	4.5	R13.2	R20.4	R8,789	R7,771	R7,279	R7,554
1999E	R0.16	R0.57	1.39	R2.11	R34.1	R1.2	R3.8	R9.7	R14.7	R7,521	R6,725	R7,019	R6,977
2000E	0.19	0.74	2.02	2.95	31.6	1.5	6.1	14.0	21.6	7,797	8,264	6,937	7,326

R=Revised. E=Estimate.

Notes: • This table depicts exploratory wells only; see Table 4.4 for all wells and Table 4.6 for development wells only. • For 1949-1959, data represent wells completed in a given year. For 1960-1969, 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. See Note 2 at end of section. • Totals may not equal sum of components due to independent rounding. Average depth may not equal average of components due to independent rounding.

Sources: • 1949-1960—American Association of Petroleum Geologists, *Statistics on Exploratory Drilling in the United States, 1940 through 1960* (1962), pp. 4-19. • 1961-1965—*Bulletin of the American Association of Petroleum Geologists,* "North American Developments" issue. • 1966-1969—American Petroleum Institute, *Quarterly Review of Drilling Statistics for the United States,* annual summaries and monthly reports. • 1970-1994—Energy Information Administration (EIA) computations based on well reports submitted to the American Petroleum Institute. • 1995 forward—EIA computations based on well reports submitted to the Information Handling Services Energy Group, Inc. For current data see the EIA *Monthly Energy Review,* Section 5.

Figure 4.6 Oil and Gas Development Wells, 1949-2000



Note: These figures depict developed wells only; see Figure 4.4 for all wells and Figure 4.5 for exploratory wells only.

Source: Table 4.6.

Table 4.6 Oil and Gas Development Wells, 1949-2000

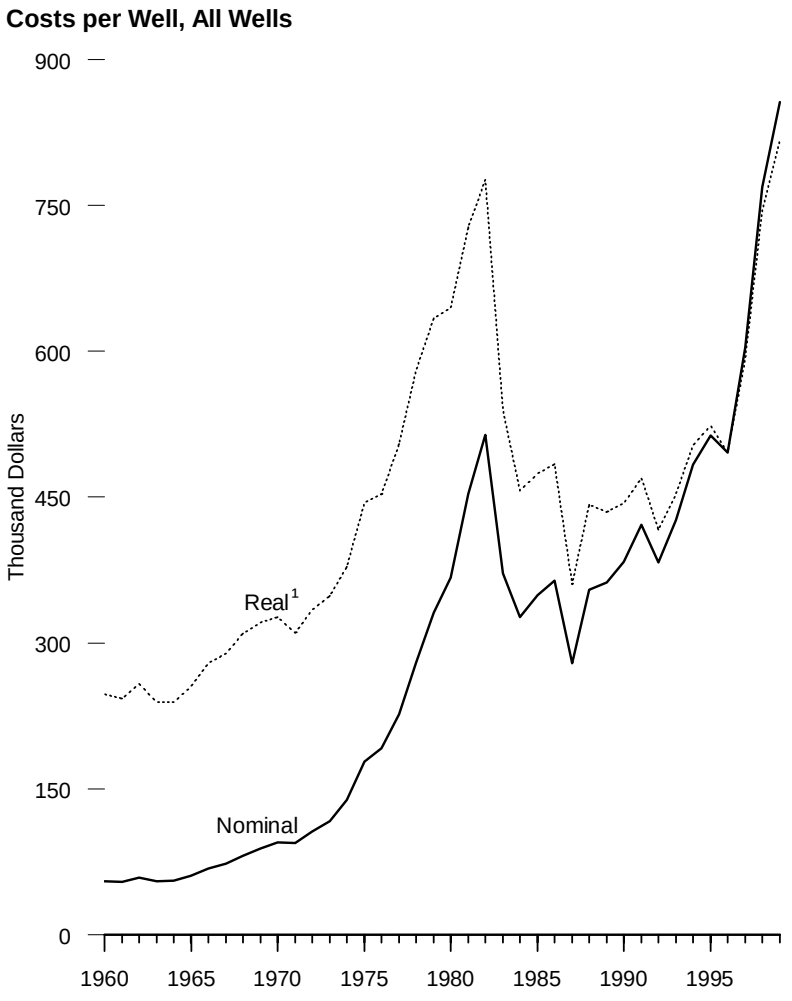
Year	Wells Drilled (thousands)				Successful Wells (percent)	Footage Drilled (million feet)				Average Depth (feet per well)			
	Oil	Gas	Dry Holes	Total		Oil	Gas	Dry Holes	Total	Oil	Gas	Dry Holes	Total
1949	19.95	2.94	5.37	28.25	81.0	73.5	10.0	17.3	100.8	3,684	3,412	3,225	3,568
1950	22.23	3.01	6.51	31.74	79.5	85.8	11.3	20.0	117.2	3,861	3,766	3,077	3,691
1951	21.42	2.98	7.49	31.89	76.5	87.0	11.5	24.4	122.8	4,061	3,837	3,255	3,851
1952	21.51	2.96	7.67	32.14	76.1	89.7	11.9	27.0	128.5	4,167	4,015	3,520	3,999
1953	23.34	3.27	7.82	34.43	77.3	92.7	14.3	26.6	133.6	3,972	4,373	3,401	3,880
1954	26.16	3.31	8.54	38.01	77.5	104.0	14.5	30.0	148.4	3,974	4,365	3,512	3,905
1955	28.20	3.39	8.62	40.21	78.6	110.4	14.7	31.9	157.0	3,915	4,339	3,699	3,904
1956	28.26	3.71	8.99	40.96	78.0	109.2	17.6	32.1	158.9	3,865	4,734	3,574	3,880
1957	25.42	3.61	8.25	37.28	77.9	100.2	17.9	29.7	147.9	3,944	4,950	3,605	3,966
1958	22.03	4.18	7.53	33.74	77.7	84.4	20.1	27.3	131.8	3,831	4,801	3,631	3,907
1959	22.34	4.02	8.01	34.37	76.7	86.1	20.6	30.8	137.4	3,852	5,120	3,844	3,999
1960	20.94	4.28	8.70	33.92	74.4	79.7	22.8	33.8	136.3	3,809	5,321	3,889	4,020
1961	20.28	4.67	8.31	33.26	75.0	79.7	24.0	31.4	135.2	3,931	5,145	3,782	4,064
1962	20.52	4.58	8.26	33.36	75.2	82.2	23.8	35.0	141.0	4,008	5,186	4,239	4,227
1963	18.82	3.91	8.08	30.80	73.8	75.4	20.3	33.5	129.2	4,006	5,198	4,143	4,193
1964	18.69	4.14	8.74	31.57	72.3	73.7	21.4	36.8	131.9	3,947	5,171	4,207	4,179
1965	17.12	3.97	8.22	29.31	71.9	68.0	21.2	36.5	125.7	3,970	5,337	4,446	4,288
1966	15.58	3.68	6.81	26.07	73.9	60.5	20.1	26.6	107.2	3,884	5,474	3,900	4,112
1967	14.34	3.13	5.89	23.36	74.8	53.0	17.6	23.0	93.5	3,692	5,629	3,901	4,004
1968	13.38	2.97	5.37	21.72	75.3	53.9	17.0	23.2	94.0	4,027	5,716	4,311	4,328
1969	13.28	3.47	5.74	22.49	74.5	55.0	19.2	25.4	99.6	4,142	5,531	4,437	4,431
1970	12.21	3.53	4.87	20.61	76.4	52.1	19.9	23.0	95.0	4,269	5,644	4,714	4,610
1971	11.19	3.50	4.36	19.05	77.1	45.3	19.8	20.2	85.4	4,049	5,670	4,633	4,480
1972	10.69	4.78	4.76	20.23	76.5	45.2	25.2	22.5	92.9	4,231	5,259	4,725	4,590
1973	9.53	5.87	4.37	19.76	77.9	40.4	31.0	21.2	92.6	R4,242	R5,286	R4,851	R4,687
1974	12.79	5.95	5.28	24.02	78.0	47.0	30.8	24.3	R102.1	R3,675	R5,173	R4,599	R4,249
1975	15.97	6.88	6.52	29.36	77.8	61.0	36.0	28.8	125.8	R3,821	R5,238	R4,415	R4,285
1976	16.60	8.06	6.99	31.65	77.9	62.4	40.0	31.0	R133.4	R3,756	4,960	R4,439	R4,214
1977	17.58	10.57	7.70	35.86	78.5	68.6	53.4	35.9	157.9	R3,901	R5,053	R4,662	4,404
1978	18.01	12.64	8.59	39.24	78.1	69.9	64.0	39.5	173.5	R3,883	R5,066	R4,600	4,421
1979	19.53	13.35	8.66	41.54	79.1	74.7	67.8	R39.1	181.7	R3,827	R5,082	R4,517	R4,374
1980	30.88	15.25	11.60	57.73	79.9	114.2	77.7	48.8	240.8	R3,699	R5,097	4,211	4,171
1981	40.96	17.65	15.44	74.05	79.2	155.7	90.8	65.2	311.8	3,802	5,145	4,224	4,210
1982	36.77	16.85	14.97	68.59	78.2	135.5	92.0	62.5	R290.0	R3,684	R5,459	R4,176	R4,228
1983	35.10	12.97	14.01	62.07	77.4	125.7	67.4	55.7	248.8	3,582	5,193	3,980	R4,009
1984	40.41	15.61	14.40	70.42	79.5	149.6	80.7	60.6	290.9	3,701	5,171	R4,209	4,131
1985	33.44	12.98	12.13	58.55	79.3	127.5	67.7	52.4	247.6	3,813	R5,219	4,320	R4,230
1986	18.01	7.72	7.13	32.87	78.3	70.1	39.4	30.3	139.8	3,889	R5,096	R4,257	4,253
1987	15.24	7.30	6.06	28.60	78.8	60.7	37.4	26.7	124.8	R3,982	R5,127	R4,398	4,362
1988	12.78	7.82	5.35	25.95	79.4	53.4	40.3	25.3	119.1	R4,178	5,155	R4,737	4,588
1989	9.60	8.83	4.26	22.70	81.2	39.6	44.5	20.1	104.2	4,129	R5,037	R4,704	4,591
1990	11.54	10.36	4.60	26.50	82.6	50.1	R51.4	21.8	123.3	R4,339	R4,965	R4,750	R4,655
1991	11.18	8.99	4.28	24.45	82.5	50.3	R46.3	20.1	116.8	R4,501	R5,154	R4,702	R4,776
1992	8.26	7.79	3.61	19.66	81.7	40.7	R43.3	17.4	101.4	R4,926	R5,562	R4,827	R5,160
1993	7.91	9.47	3.86	21.23	81.8	39.3	56.8	R18.4	114.4	R4,976	R5,995	R4,756	R5,390
1994	6.15	8.81	2.90	17.87	83.8	32.4	55.0	15.0	102.4	R5,261	R6,237	R5,185	R5,730
1995	7.09	7.78	2.88	17.75	83.8	34.6	R47.7	R15.3	R97.6	R4,888	R6,124	R5,316	R5,499
1996E	7.83	8.73	3.15	19.71	84.0	37.3	R54.3	R16.8	R108.4	R4,769	R6,220	R5,328	R5,501
1997E	10.01	10.79	3.59	24.39	85.3	48.6	R66.8	R19.8	R135.2	R4,852	R6,193	R5,510	R5,542
1998E	6.76	11.53	3.10	21.39	85.5	34.2	R76.1	R19.0	R129.2	R5,057	R6,599	R6,133	R6,044
1999E	R3.93	R9.95	R2.19	R16.07	R86.4	19.3	R60.3	R13.8	R93.3	R4,913	R6,058	R6,278	R5,808
2000E	4.54	14.47	3.19	22.19	85.6	24.7	98.3	19.2	142.2	5,439	6,793	6,041	6,408

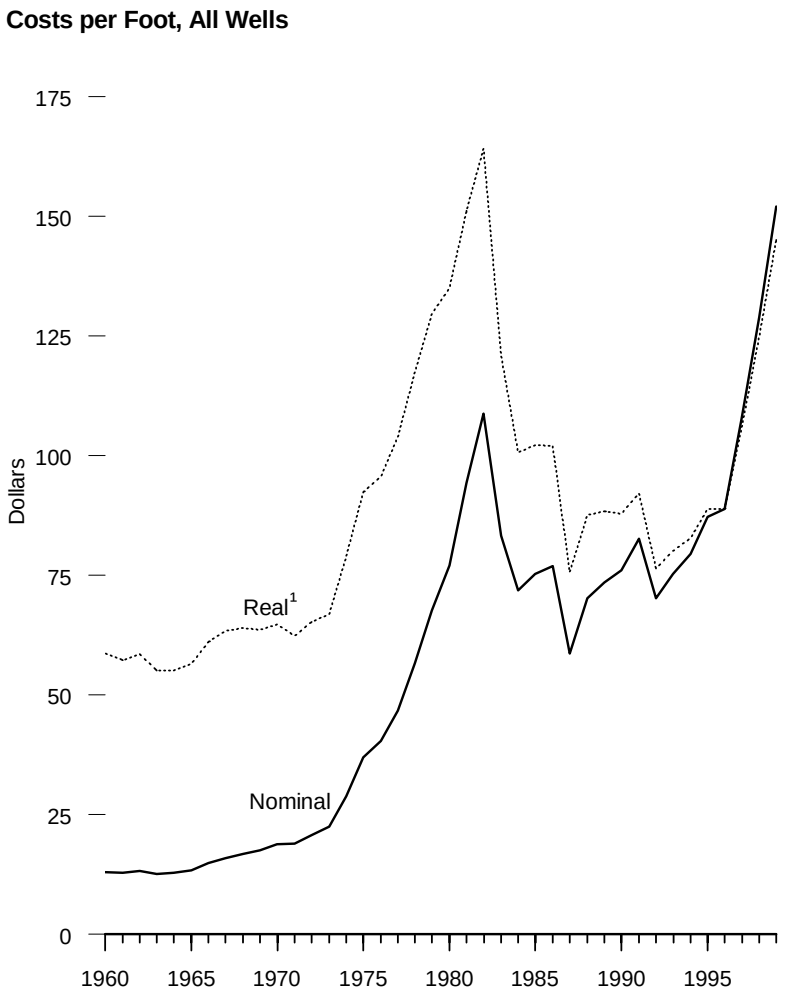
R=Revised. E=Estimate.

Notes: • This table depicts development wells only; see Table 4.4 for all wells and Table 4.5 for exploratory wells only. •Service wells, stratigraphic tests, and core tests are excluded. • For 1949-1959, data represent wells completed in a given year. For 1960-1969, 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. See Note 2 at end of section. • Totals may not equal sum of components due to independent rounding. Average depth may not equal average of components due to independent rounding.

Sources: • 1949-1965—Gulf Publishing Company, *World Oil*, "Forecast-Review" issue. • 1966-1969—American Petroleum Institute, *Quarterly Review of Drilling Statistics for the United States*, annual summaries and monthly reports. • 1970-1994—Energy Information Administration (EIA) computations based on well reports submitted to the American Petroleum Institute. • 1995 forward—EIA computations based on well reports submitted to the Information Handling Services Energy Group, Inc. For current data see the EIA *Monthly Energy Review*, Section 5.

Figure 4.7 Costs of Oil and Gas Wells Drilled, 1960-1999





[1]In chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.

Note: Because vertical scales differ, graphs should not be compared.
Source: Table 4.7.

Table 4.7 Costs of Oil and Gas Wells Drilled, 1960-1999

Year	Costs per Well (thousand dollars)					Costs per Foot (dollars)				
	Oil (nominal)	Gas (nominal)	Dry Holes (nominal)	All		Oil (nominal)	Gas (nominal)	Dry Holes (nominal)	All	
				(nominal)	(real) [1]				(nominal)	(real) [1]
1960	52.2	102.7	44.0	54.9	247.6	13.22	18.57	10.56	13.01	58.63
1961	51.3	94.7	45.2	54.5	243.0	13.11	17.65	10.56	12.85	57.26
1962	54.2	97.1	50.8	58.6	257.9	13.41	18.10	11.20	13.31	58.53
1963	51.8	92.4	48.2	55.0	239.2	13.20	17.19	10.58	12.69	55.17
1964	50.6	104.8	48.5	55.8	239.2	13.12	18.57	10.64	12.86	55.10
1965	56.6	101.9	53.1	60.6	255.0	13.94	18.35	11.21	13.44	56.52
1966	62.2	133.8	56.9	68.4	279.6	15.04	21.75	12.34	14.95	61.12
1967	66.6	141.0	61.5	72.9	289.2	16.61	23.05	12.87	15.97	63.35
1968	79.1	148.5	66.2	81.5	309.7	18.63	24.05	12.88	16.83	63.99
1969	86.5	154.3	70.2	88.6	321.0	19.28	25.58	13.23	17.56	63.65
1970	86.7	160.7	80.9	94.9	326.5	19.29	26.75	15.21	18.84	64.83
1971	78.4	166.6	86.8	94.7	310.3	18.41	27.70	16.02	19.03	62.35
1972	93.5	157.8	94.9	106.4	334.5	20.77	27.78	17.28	20.76	65.24
1973	103.8	155.3	105.8	117.2	348.7	22.54	27.46	19.22	22.50	66.96
1974	110.2	189.2	141.7	138.7	378.8	27.82	34.11	26.76	28.93	79.00
1975	138.6	262.0	177.2	177.8	444.1	34.17	46.23	33.86	36.99	92.41
1976	151.1	270.4	190.3	191.6	453.0	37.35	49.78	36.94	40.46	95.65
1977	170.0	313.5	230.2	227.2	504.6	41.16	57.57	43.49	46.81	103.98
1978	208.0	374.2	281.7	280.0	580.4	49.72	68.37	52.55	56.63	117.42
1979	243.1	443.1	339.6	331.4	634.2	58.29	80.66	64.60	67.70	129.57
1980	272.1	536.4	376.5	367.7	644.6	66.36	95.16	73.70	77.02	135.03
1981	336.3	698.6	464.0	453.7	727.4	80.40	122.17	90.03	94.30	151.19
1982	347.4	864.3	515.4	514.4	776.4	86.34	146.20	104.09	108.73	164.12
1983	283.8	608.1	366.5	371.7	539.7	72.65	108.37	79.10	83.34	120.99
1984	262.1	489.8	329.2	326.5	457.0	66.32	88.80	67.18	71.90	100.64
1985	270.4	508.7	372.3	349.4	474.1	66.78	93.09	73.69	75.35	102.25
1986	284.9	522.9	389.2	364.6	484.1	68.35	93.02	76.53	76.88	102.08
1987	246.0	380.4	259.1	279.6	360.4	58.35	69.55	51.05	58.71	75.68
1988	279.4	460.3	366.4	354.7	442.2	62.28	84.65	66.96	70.23	87.56
1989	282.3	457.8	355.4	362.2	435.0	64.92	86.86	67.61	73.55	88.33
1990	321.8	471.3	367.5	383.6	443.4	69.17	90.73	67.49	76.07	87.93
1991	346.9	506.6	441.2	421.5	470.1	73.75	93.10	83.05	82.64	92.17
1992	362.3	426.1	357.6	382.6	416.6	69.50	72.83	67.82	70.27	76.51
1993	356.6	521.2	387.7	426.8	453.8	67.52	83.15	72.56	75.30	80.06
1994	409.5	535.1	491.5	483.2	503.3	70.57	81.90	86.60	79.49	82.79
1995	415.8	629.7	481.2	513.4	523.4	78.09	95.97	84.60	87.22	88.91
1996	341.0	616.0	541.0	496.1	496.1	70.60	98.67	95.74	88.92	88.92
1997	445.6	728.6	655.6	603.9	[R]592.4	90.48	117.55	115.09	107.83	[R]105.77
1998	566.0	815.6	973.2	769.1	[R]745.1	108.88	127.94	157.79	128.97	[R]124.95
1999	783.0	798.4	1115.5	856.1	817.2	156.45	138.42	182.99	152.02	145.10

[1] In chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.

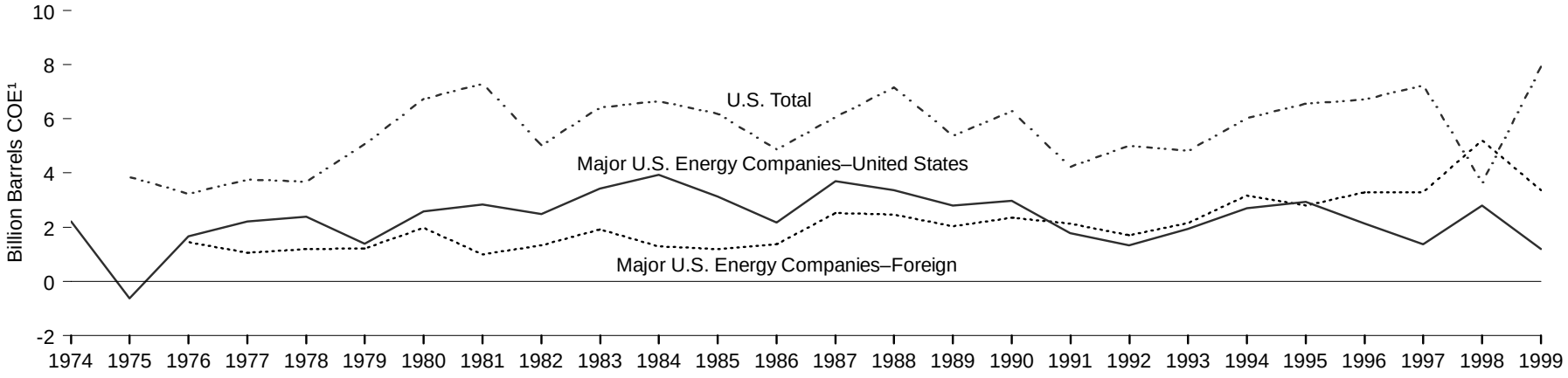
R=Revised.

Notes: • The information reported for 1965 and prior years is not strictly comparable to that in the more recent surveys. • 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.

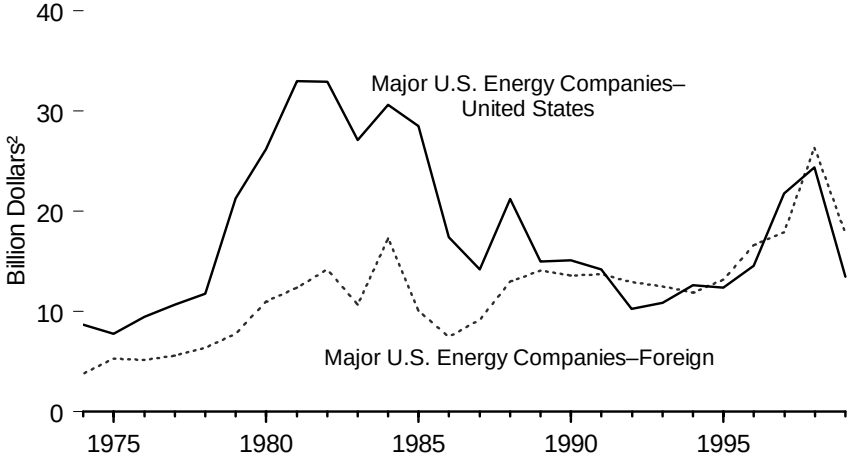
Source: American Petroleum Institute, Independent Petroleum Association of America, Mid-Continent Oil and Gas Association, *2000 Joint Association Survey on Drilling Costs.*

Figure 4.8 Gross Additions to Proved Reserves and Exploration and Development Expenditures by Geographic Area

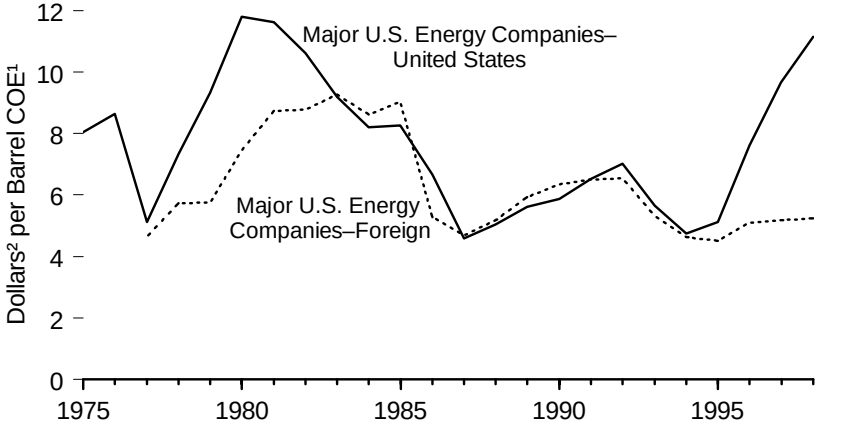
Gross Additions to Proved Reserves of Liquid and Gaseous Hydrocarbons, 1974-1999



Exploration and Development Expenditures, 1974-1999



Expenditures per Barrel of Reserve Additions, 1975-1998
Three-Year Moving Average



[1] Crude oil equivalent.
[2] Nominal dollars.

Note: Major U.S. Energy Companies are the top publicly-owned crude oil and natural gas producers and petroleum refiners that form the Financial Reporting System (FRS). See Table 3.12.

Source: Table 4.8.

Table 4.8 Gross Additions to Proved Reserves and Exploration and Development Expenditures by Geographic Area, 1974-1999

Year	Gross Additions to Proved Reserves [1] of Liquid and Gaseous Hydrocarbons [2] (million barrels COE [3])			Exploration and Development Expenditures (billion dollars [4])		Expenditures per Barrel of Reserve Additions, Three-Year Moving Average (dollars [4] per barrel COE [3])	
		Major U.S. Energy Companies [5]		Major U.S. Energy Companies [5]		Major U.S. Energy Companies [5]	
	U.S. Total	United States	Foreign	United States	Foreign	United States	Foreign
1974	NA	2,205	NA	8.7	3.8	NA	NA
1975	3,846	-634	NA	7.8	5.3	8.05	NA
1976	3,224	1,663	1,459	9.5	5.2	8.64	NA
1977	3,765	2,210	1,055	10.7	5.6	5.12	4.64
1978	3,679	2,383	1,191	11.8	6.4	7.34	5.73
1979	5,071	1,378	[6]1,208	21.3	7.8	9.34	[6]5.75
1980	6,723	2,590	1,977	26.2	11.0	11.80	7.45
1981	7,304	2,848	1,006	33.0	12.4	11.63	8.74
1982	5,030	2,482	1,332	32.9	14.2	[7]10.62	[7]8.78
1983	6,412	3,427	1,918	27.1	10.7	9.20	9.28
1984	6,653	3,941	1,298	30.6	17.3	[7]8.21	[7]8.63
1985	6,190	[8]3,129	1,192	28.5	10.1	[8]8.27	9.03
1986	4,866	2,178	[6]1,375	17.4	7.5	6.67	[6]5.28
1987	6,059	[8]3,698	2,516	14.2	9.2	[8]4.58	4.69
1988	7,156	3,359	2,460	21.2	13.0	5.05	5.18
1989	5,385	2,798	2,043	15.0	14.1	5.62	5.94
1990	6,275	2,979	2,355	15.1	13.6	5.87	6.34
1991	4,227	1,772	2,135	14.2	13.7	6.52	6.50
1992	5,006	1,332	1,694	10.3	12.9	7.02	6.55
1993	4,814	1,945	2,147	10.9	12.5	5.66	5.33
1994	6,021	2,703	3,173	12.6	11.9	4.74	4.63
1995	6,558	2,929	2,799	12.4	13.2	5.11	4.51
1996	6,707	2,131	3,280	14.6	16.6	7.61	5.10
1997	7,233	1,367	3,279	21.8	17.9	9.67	5.18
1998	3,628	[R]2,798	5,206	24.4	26.4	[R]11.15	[R]5.24
1999	7,929	1,197	3,360	13.5	17.8	NA	NA

[1] Gross additions to proved reserves equal annual change in proved reserves plus annual production.

[2] Liquid and gaseous hydrocarbons include crude oil, natural gas liquids, and natural gas.

[3] Crude oil equivalent: converted to Btu on the basis of annual average conversion factors. See Appendix A.

[4] Nominal dollars.

[5] Major U.S. Energy Companies are the top publicly-owned, U.S.-based crude oil and natural gas producers and petroleum refiners that form the Financial Reporting System (FRS) (see Table 3.12).

[6] Data for 1979 exclude downward revisions of 1,225 million barrels COE due to Iranian policies. Data for 1986 exclude downward revisions due to Libyan sanctions.

[7] Data for 1982 and 1984 are adjusted to exclude purchases of proved reserves associated with mergers among the Financial Reporting System companies.

[8] Data for 1985 and 1987 exclude downward revisions of 1,477 million barrels COE and 2,396 million barrels COE, respectively, of Alaska North Slope natural gas reserves.

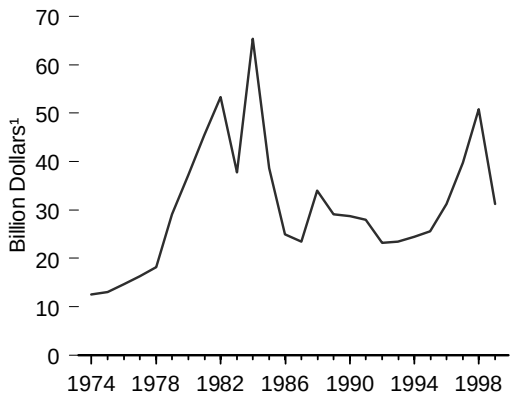
R=Revised. NA=Not available.

Web Page: http://www.eia.doe.gov/emeu/finance.

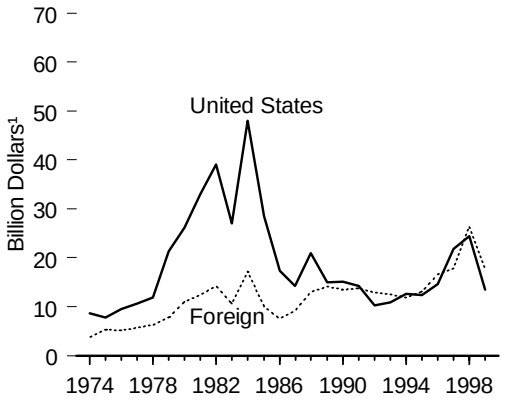
Sources: **Major U.S. Energy Companies:** • 1974-1976—Energy Information Administration (EIA), Form EIA-28, "Financial Reporting System" database, November 1997. • 1977 forward—EIA, *Performance Profiles of Major Energy Producers,* annual reports. **U.S. Total, Gross Additions to Proved Reserves of Liquid and Gaseous Hydrocarbons:** • 1975-1979—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 forward—EIA, *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves,* annual reports.

Figure 4.9 Major U.S. Energy Companies' Expenditures for Oil and Gas Exploration and Development by Region

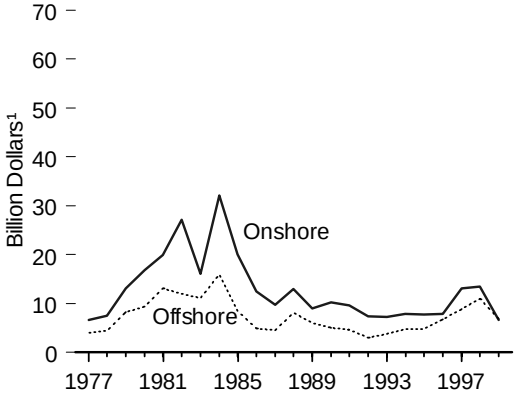
Total, 1974-1999



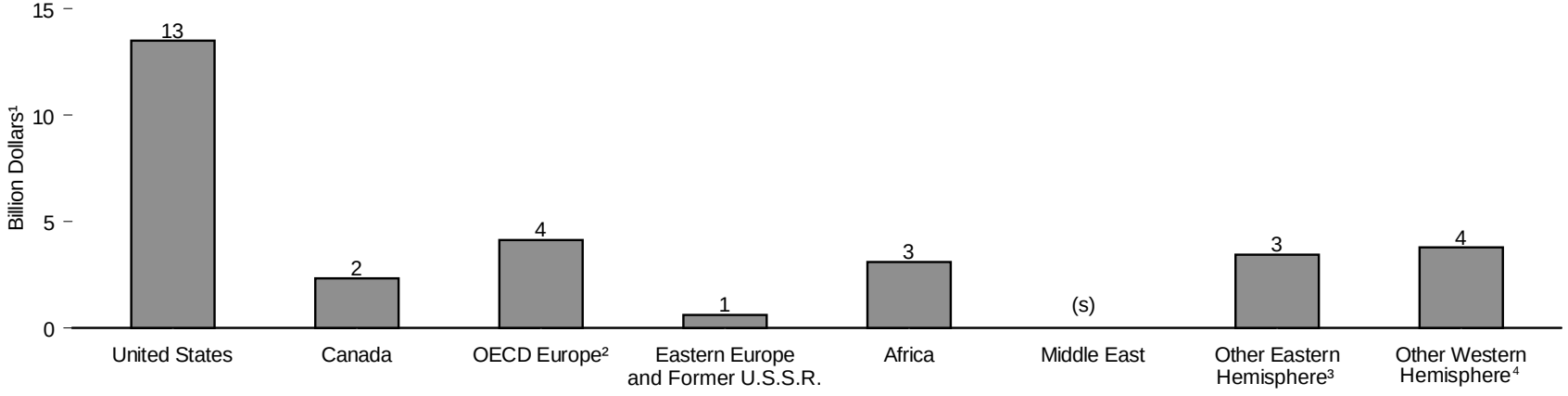
U.S. and Foreign, 1974-1999



U.S. Onshore and Offshore, 1977-1999



By Region, 1999



[1] Nominal dollars.

[2] Organization for Economic Cooperation and Development. See OECD Europe in Glossary.

[3] This region includes areas that are eastward of the Greenwich prime meridian to 180° longitude and that are not included in other specific domestic or foreign classifications.

[4] This region includes areas that are westward of the Greenwich prime meridian to 180° longitude and that are not included in other specific domestic or foreign classifications.

(s) = Less than 0.5 billion dollars.

Notes: • Major U.S. Energy Companies are the top publicly-owned crude oil producers that form the Financial Reporting System (FRS). See Table 3.12. • Because vertical scales differ, graphs should not be compared.

Source: Table 4.9.

Table 4.9 Major U.S. Energy Companies' Expenditures for Oil and Gas Exploration and Development by Region, 1974-1999

(Billion Dollars[1])

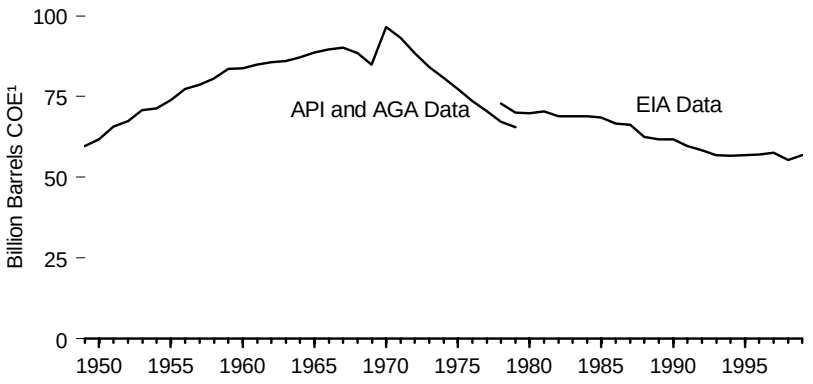
Year	United States			Foreign								Total
	Onshore	Offshore	Total	Canada	OECD [2] Europe	Eastern Europe and Former U.S.S.R.	Africa	Middle East	Other Eastern Hemisphere [3]	Other Western Hemisphere [4]	Total	
1974	NA	NA	8.7	NA	NA	—	NA	NA	NA	NA	3.8	12.5
1975	NA	NA	7.8	NA	NA	—	NA	NA	NA	NA	5.3	13.1
1976	NA	NA	9.5	NA	NA	—	NA	NA	NA	NA	5.2	14.7
1977	6.7	4.0	10.7	1.5	2.5	—	0.7	0.2	0.3	0.4	5.6	16.3
1978	7.5	4.3	11.8	1.6	2.6	—	0.8	0.3	0.4	0.6	6.4	18.2
1979	13.0	8.3	21.3	2.3	3.0	—	0.8	0.2	0.5	0.8	7.8	29.1
1980	16.8	9.4	26.2	3.1	4.3	—	1.4	0.2	0.8	1.0	11.0	37.2
1981	19.9	13.0	33.0	1.8	5.0	—	2.1	0.3	1.9	1.3	12.4	45.4
1982	27.2	11.9	39.1	1.9	6.3	—	2.1	0.4	2.4	1.1	14.2	53.3
1983	16.0	11.1	27.1	1.6	4.3	—	1.7	0.5	2.0	0.6	10.7	37.7
1984	32.1	16.0	48.1	5.4	5.5	—	3.4	0.5	2.0	0.5	17.3	65.3
1985	20.0	8.5	28.5	1.9	3.7	—	1.6	0.9	1.3	0.7	10.1	38.6
1986	12.5	4.9	17.4	1.1	3.2	—	1.1	0.3	1.2	0.6	7.5	24.9
1987	9.7	4.5	14.3	1.9	3.0	—	0.8	0.4	2.8	0.5	9.2	23.5
1988	12.9	8.1	21.0	5.4	4.3	—	0.8	0.4	1.4	0.7	13.0	34.1
1989	9.0	6.0	15.0	6.3	3.5	—	1.0	0.4	2.3	0.6	14.1	29.1
1990	10.2	4.9	15.1	1.8	6.6	—	1.4	0.6	2.4	0.7	13.6	28.7
1991	9.6	4.6	14.2	1.7	6.8	—	1.5	0.5	2.4	0.7	13.7	27.9
1992	7.3	3.0	10.3	1.1	6.8	—	1.4	0.6	2.4	0.6	12.9	23.2
1993	7.2	3.7	10.9	1.6	5.5	0.3	1.5	0.7	2.5	0.6	12.5	23.5
1994	7.8	4.8	12.6	1.8	4.4	0.3	1.4	0.4	2.8	0.7	11.9	24.5
1995	7.7	4.7	12.4	1.9	5.2	0.4	2.0	0.4	2.4	0.9	13.2	25.6
1996	7.9	6.7	14.6	1.6	5.6	0.5	2.8	0.5	4.1	1.6	16.6	31.3
1997	13.0	8.8	21.8	2.0	7.1	0.6	3.0	0.6	3.0	1.6	17.9	39.8
1998	13.5	11.0	24.4	4.8	8.6	1.3	3.1	0.9	3.9	3.7	26.4	50.8
1999	6.6	6.9	13.5	2.3	4.1	0.6	3.1	0.4	3.4	3.8	17.8	31.3

[1] Nominal dollars.
[2] Organization for Economic Cooperation and Development. See OECD Europe in Glossary.
[3] This region includes areas that are eastward of the Greenwich prime meridian to 180° longitude and that are not included in other domestic or foreign classifications.
[4] This region includes areas that are westward of the Greenwich prime meridian to 180° longitude and that are not included in other domestic or foreign classifications.
— = Not applicable. NA=Not available.

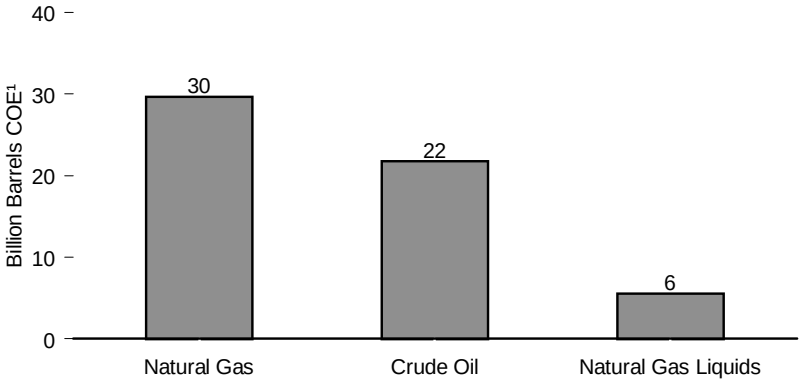
Notes: • Major U.S. Energy Companies are the top publicly-owned, U.S.-based crude oil and natural gas producers and petroleum refiners that form the Financial Reporting System (FRS). See Table 3.12. • Totals may not equal sum of components due to independent rounding.
Web Page: http://www.eia.doe.gov/emeu/finance.
Sources: • 1974-1976—Energy Information Administration (EIA), Office of Energy Markets and End Use, Financial Reporting System Database, November 1997. • 1977 forward—EIA, *Performance Profiles of Major Energy Producers,* annual reports.

Figure 4.10 Liquid and Gaseous Hydrocarbon Proved Reserves

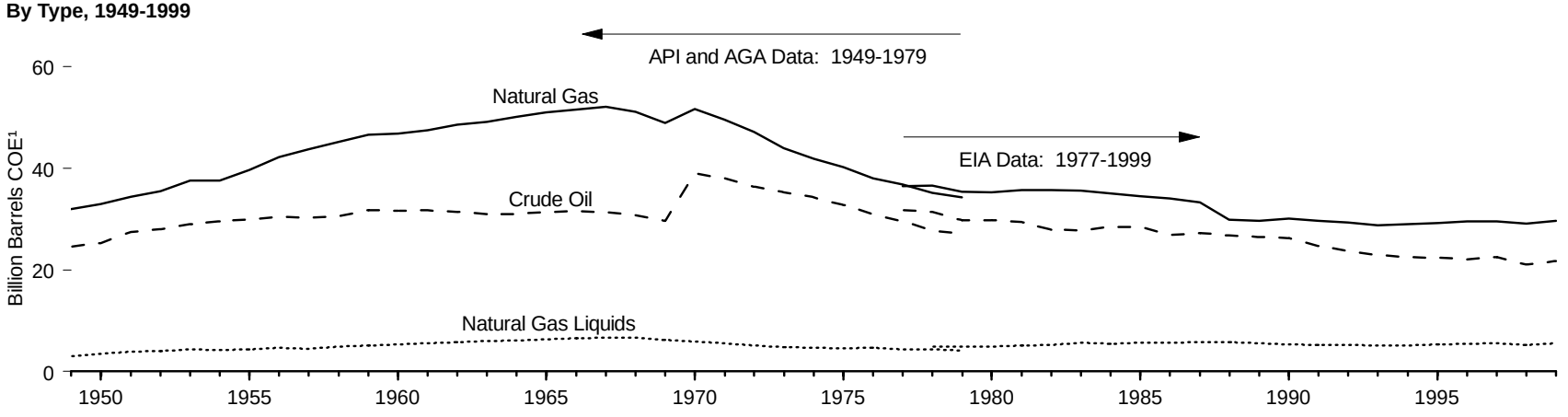
Total, 1949-1999



By Type, 1999



By Type, 1949-1999



[1] COE=crude oil equivalent.

Notes: • Data are at end of year. • API=American Petroleum Institute. AGA=American Gas Association. • EIA=Energy Information Administration.

• Because vertical scales differ, graphs should not be compared.

Source: Table 4.10.

Table 4.10 Liquid and Gaseous Hydrocarbon Proved Reserves, 1949-1999

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 [2]
	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
1984	28.4	197.5	35.1	7.6	5.5	69.0
1985	28.4	193.4	34.4	7.9	5.6	68.5
1986	26.9	191.6	34.0	8.2	5.7	66.6
1987	27.3	187.2	33.3	8.1	5.8	66.3
1988	26.8	168.0	29.8	8.2	5.8	62.5
1989	26.5	167.1	29.7	7.8	5.5	61.7
1990	26.3	169.3	30.1	7.6	5.4	61.7
1991	24.7	167.1	29.7	7.5	5.3	59.6
1992	23.7	165.0	29.3	7.5	5.2	58.3
1993	23.0	162.4	28.8	7.2	5.1	56.8
1994	22.5	163.8	29.0	7.2	5.1	56.6
1995	22.4	165.1	29.2	7.4	5.3	56.9
1996	22.0	166.5	29.5	7.8	5.5	57.0
1997	22.5	167.2	29.6	8.0	5.6	57.7
1998	21.0	164.0	29.2	7.5	5.3	55.5
1999	21.8	167.4	29.6	7.9	5.5	56.9

[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 (EIA) data do not include gas in underground storage.

[2] Crude oil equivalent. Natural gas and natural gas liquids are converted to Btu on the basis of annual average conversion factors. See Appendix A.

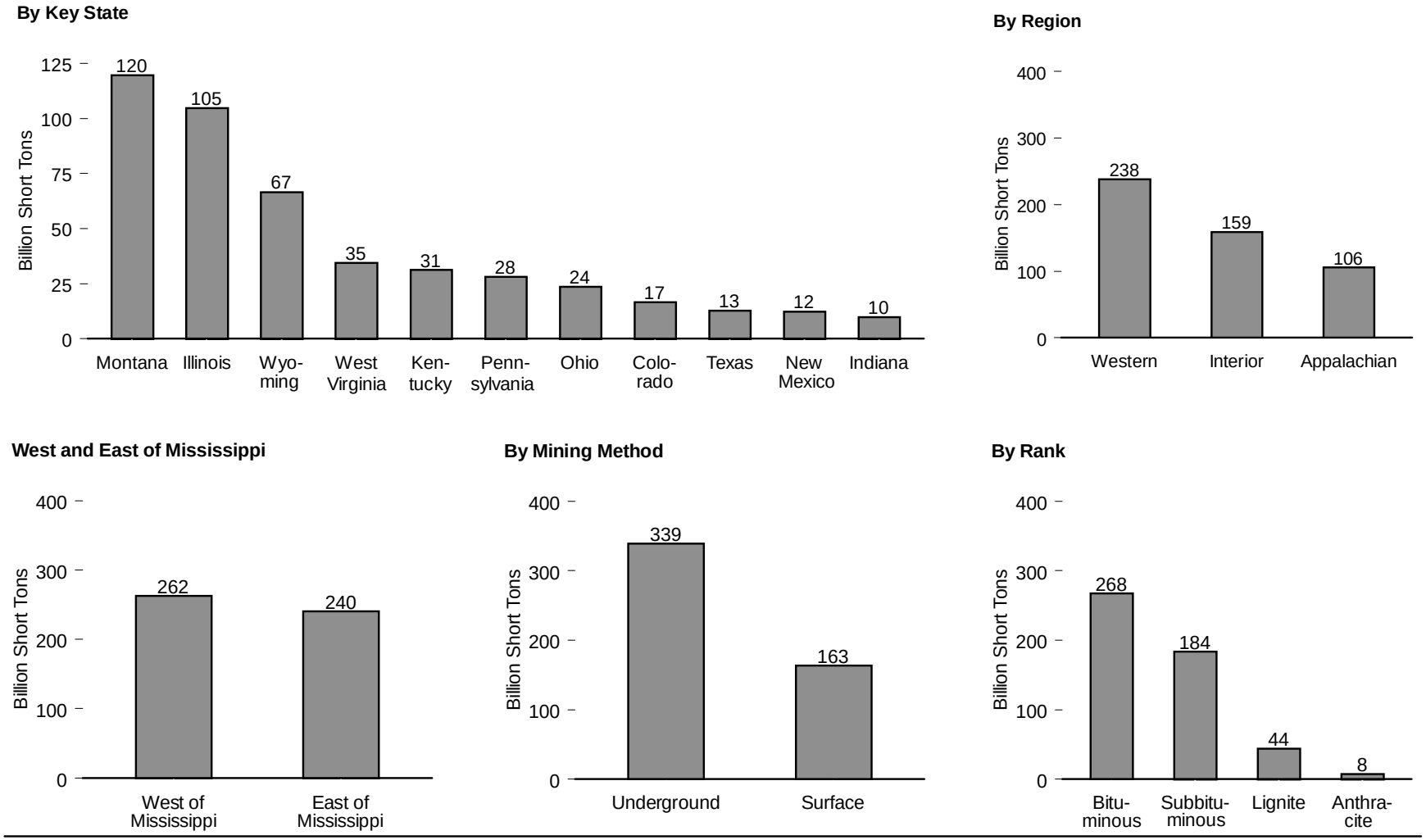
NA=Not available.

Note: Data are at end of year.

Web Page: http://www.eia.doe.gov/oil_gas/petroleum/pet_frame.html.

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:**
- 1977-1988—EIA, *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves,* annual reports.
- 1989 forward—EIA, *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves Annual Report 1999* (December 2000), Table 1.

Figure 4.11 Coal Demonstrated Reserve Base, January 1, 2000



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

Source: Table 4.11.

Table 4.11 Coal Demonstrated Reserve Base, January 1, 2000

(Billion Short Tons)

Region and State	Anthracite	Bituminous Coal		Subbituminous Coal		Lignite	Total		
		Underground	Surface	Underground	Surface	Surface [1]	Underground	Surface	Total
Appalachian	**7.3**	**73.5**	**23.8**	**0.0**	**0.0**	**1.1**	**77.4**	**28.3**	**105.7**
Alabama	0.0	1.2	2.2	0.0	0.0	1.1	1.2	3.2	4.4
Kentucky, Eastern	0.0	1.8	9.7	0.0	0.0	0.0	1.8	9.7	11.5
Ohio	0.0	17.7	5.8	0.0	0.0	0.0	17.7	5.8	23.5
Pennsylvania	7.2	20.0	1.0	0.0	0.0	0.0	23.9	4.3	28.2
Virginia	0.1	1.3	0.6	0.0	0.0	0.0	1.4	0.6	2.0
West Virginia	0.0	30.3	4.2	0.0	0.0	0.0	30.3	4.2	34.5
Other [2]	0.0	1.2	0.4	0.0	0.0	0.0	1.2	0.4	1.5
Interior	**0.1**	**118.0**	**27.6**	**0.0**	**0.0**	**13.2**	**118.0**	**40.8**	**158.8**
Illinois	0.0	88.2	16.6	0.0	0.0	0.0	88.2	16.6	104.8
Indiana	0.0	8.8	0.9	0.0	0.0	0.0	8.8	0.9	9.8
Iowa	0.0	1.7	0.5	0.0	0.0	0.0	1.7	0.5	2.2
Kentucky, Western	0.0	16.1	3.7	0.0	0.0	0.0	16.1	3.7	19.8
Missouri	0.0	1.5	4.5	0.0	0.0	0.0	1.5	4.5	6.0
Oklahoma	0.0	1.2	0.3	0.0	0.0	0.0	1.2	0.3	1.6
Texas	0.0	0.0	0.0	0.0	0.0	12.7	0.0	12.7	12.7
Other [3]	0.1	0.3	1.1	0.0	0.0	0.5	0.4	1.6	2.0
Western	**(s)**	**22.4**	**2.3**	**121.3**	**62.3**	**29.6**	**143.8**	**94.3**	**238.1**
Alaska	0.0	0.6	0.1	4.8	0.6	(s)	5.4	0.7	6.1
Colorado	(s)	8.0	0.6	3.8	0.0	4.2	11.8	4.8	16.6
Montana	0.0	1.4	0.0	69.6	32.8	15.8	71.0	48.6	119.5
New Mexico	(s)	2.7	0.9	3.5	5.2	0.0	6.2	6.2	12.4
North Dakota	0.0	0.0	0.0	0.0	0.0	9.3	0.0	9.3	9.3
Utah	0.0	5.4	0.3	0.0	0.0	0.0	5.4	0.3	5.7
Washington	0.0	0.3	0.0	1.0	(s)	(s)	1.3	0.0	1.4
Wyoming	0.0	3.8	0.5	38.7	23.7	0.0	42.5	24.1	66.6
Other [4]	0.0	0.1	0.0	(s)	(s)	0.4	0.1	0.4	0.5
U.S. Total	**7.5**	**213.8**	**53.8**	**121.3**	**62.3**	**43.9**	**339.3**	**163.4**	**502.7**
States East of the Mississippi River	7.3	186.8	45.0	0.0	0.0	1.1	190.8	49.5	240.3
States West of the Mississippi River	0.1	27.0	8.7	121.3	62.3	42.8	148.5	113.9	262.4

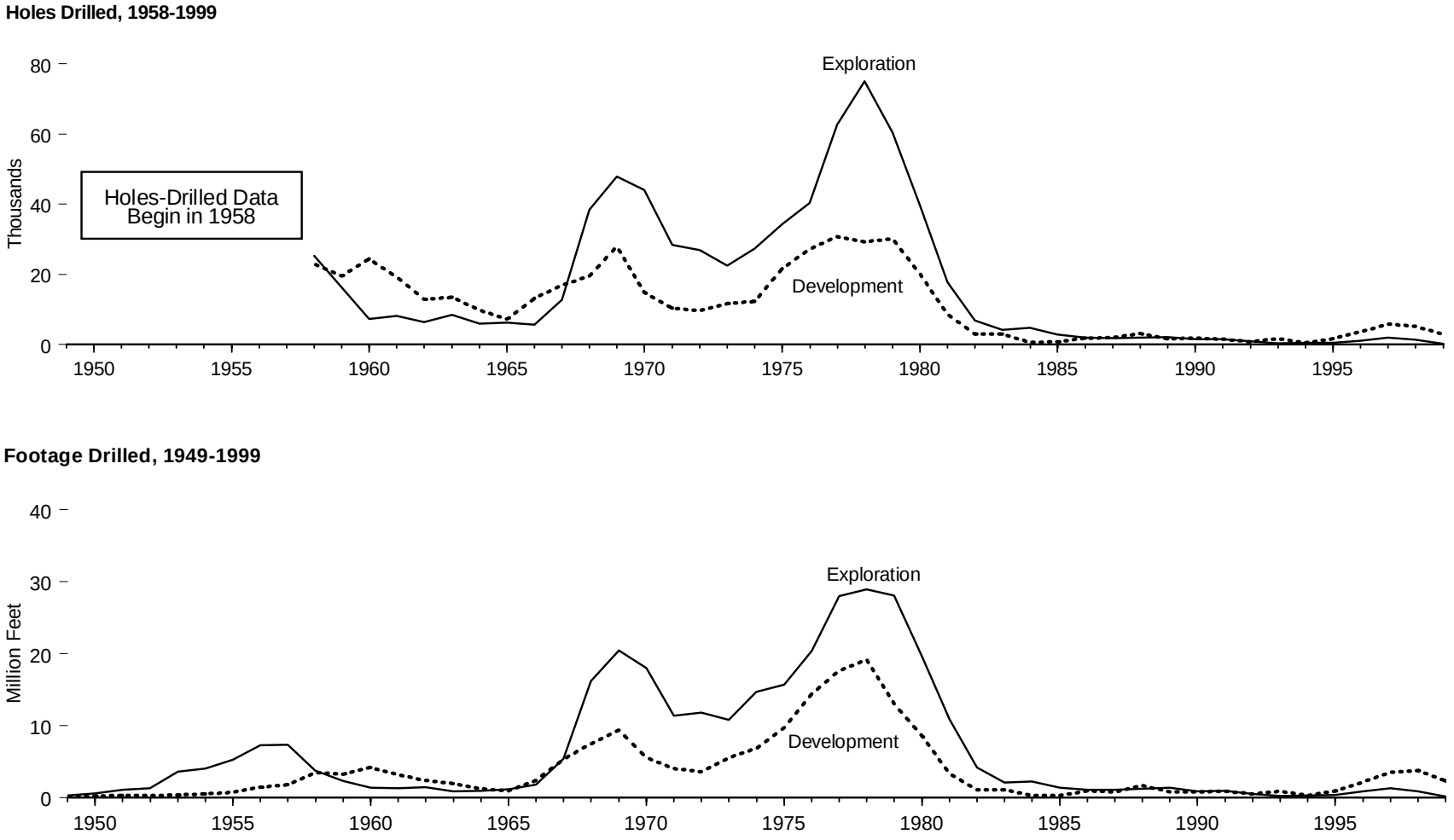
[1] Lignite resources are not mined underground in the United States.
[2] Georgia, Maryland, North Carolina, and Tennessee.
[3] Arkansas, Kansas, Louisiana, and Michigan.
[4] Arizona, Idaho, Oregon, and South Dakota.
(s)=Less than 0.05 billion short tons.

Notes: • See *U.S. Coal Reserves: 1997 Update* on the Web Page for a description of the methodology used to produce these data. • Data represent known measured and indicated coal resources meeting minimum seam and depth criteria, in the ground as of January 1, 2000. These coal resources are not totally recoverable. Net recoverability ranges from 0 percent to more than 90 percent. Fifty-four percent of the demonstrated reserve base of coal in the United States is estimated to be recoverable. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/fuelcoal.html.

Source: Energy Information Administration, Coal Reserves Database.

Figure 4.12 Uranium Exploration and Development Drilling



Source: Table 4.12.

Table 4.12 Uranium Exploration and Development Drilling, 1949-1999

Year	Exploration [1]		Development [2]		Total	
	Holes Drilled (thousands)	Footage Drilled (million feet)	Holes Drilled (thousands)	Footage Drilled (million feet)	Holes Drilled (thousands)	Footage Drilled (million feet)
1949	NA	0.36	NA	0.05	NA	0.41
1950	NA	0.57	NA	0.21	NA	0.78
1951	NA	1.08	NA	0.35	NA	1.43
1952	NA	1.36	NA	0.30	NA	1.66
1953	NA	3.65	NA	0.37	NA	4.02
1954	NA	4.06	NA	0.55	NA	4.61
1955	NA	5.27	NA	0.76	NA	6.03
1956	NA	7.29	NA	1.50	NA	8.79
1957	NA	7.35	NA	1.85	NA	9.20
1958	25.32	3.76	22.93	3.49	48.25	7.25
1959	16.25	2.37	19.59	3.28	35.84	5.65
1960	7.34	1.40	24.40	4.21	31.73	5.61
1961	8.26	1.32	19.31	3.19	27.57	4.51
1962	6.44	1.48	12.87	2.43	19.31	3.91
1963	8.47	0.88	13.53	1.98	22.01	2.86
1964	5.97	0.97	9.91	1.25	15.88	2.21
1965	6.23	1.16	7.33	0.95	13.56	2.11
1966	5.75	1.80	13.18	2.40	18.93	4.20
1967	12.79	5.44	16.95	5.33	29.74	10.76
1968	38.47	16.23	19.53	7.53	58.00	23.75
1969	47.85	20.47	28.01	9.39	75.86	29.86
1970	43.98	17.98	14.87	5.55	58.85	23.53
1971	28.42	11.40	10.44	4.05	38.86	15.45
1972	26.91	11.82	9.71	3.61	36.62	15.42
1973	22.56	10.83	11.70	5.59	34.26	16.42
1974	27.40	14.72	12.30	6.84	39.70	21.56
1975	34.29	15.69	21.60	9.73	55.89	25.42
1976	40.41	20.36	27.23	14.44	67.64	34.80
1977	62.60	27.96	30.86	17.62	93.45	45.58
1978	75.07	28.95	29.29	19.15	104.35	48.10
1979	60.46	28.07	30.19	13.01	90.65	41.08
1980	39.61	19.60	20.19	8.59	59.80	28.19
1981	17.75	10.87	8.67	3.35	26.42	14.22
1982	6.97	4.23	3.00	1.13	9.97	5.36
1983	4.29	2.09	3.01	1.08	7.30	3.17
1984	4.80	2.26	0.72	0.29	5.52	2.55
1985	2.88	1.42	0.77	0.34	3.65	1.76
1986	1.99	1.10	1.85	0.97	3.83	2.07
1987	1.82	1.11	1.99	0.86	3.81	1.97
1988	2.03	1.28	3.18	1.73	5.21	3.01
1989	2.09	1.43	1.75	0.80	3.84	2.23
1990	1.51	0.87	1.91	0.81	3.42	1.68
1991	1.62	0.97	1.57	0.87	3.20	1.84
1992	0.94	0.56	0.83	0.50	1.77	1.06
1993	0.36	0.22	1.67	0.89	2.02	1.11
1994	0.52	0.34	0.48	0.32	1.00	0.66
1995	0.58	0.40	1.73	0.95	2.31	1.35
1996	1.12	0.88	3.58	2.16	4.70	3.05
1997	1.94	1.33	5.86	3.56	7.79	4.88
1998	1.37	0.89	5.23	3.75	6.60	4.64
1999	0.27	0.18	2.91	2.33	3.18	2.50

[1] Includes surface drilling in search of new ore deposits or extensions of known deposits and drilling at the location of a discovery up to the time the company decides sufficient ore reserves are present to justify commercial exploitation.

[2] Includes all surface drilling on an ore deposit to determine more precisely size, grade, and configuration subsequent to the time that commercial exploitation is deemed feasible.

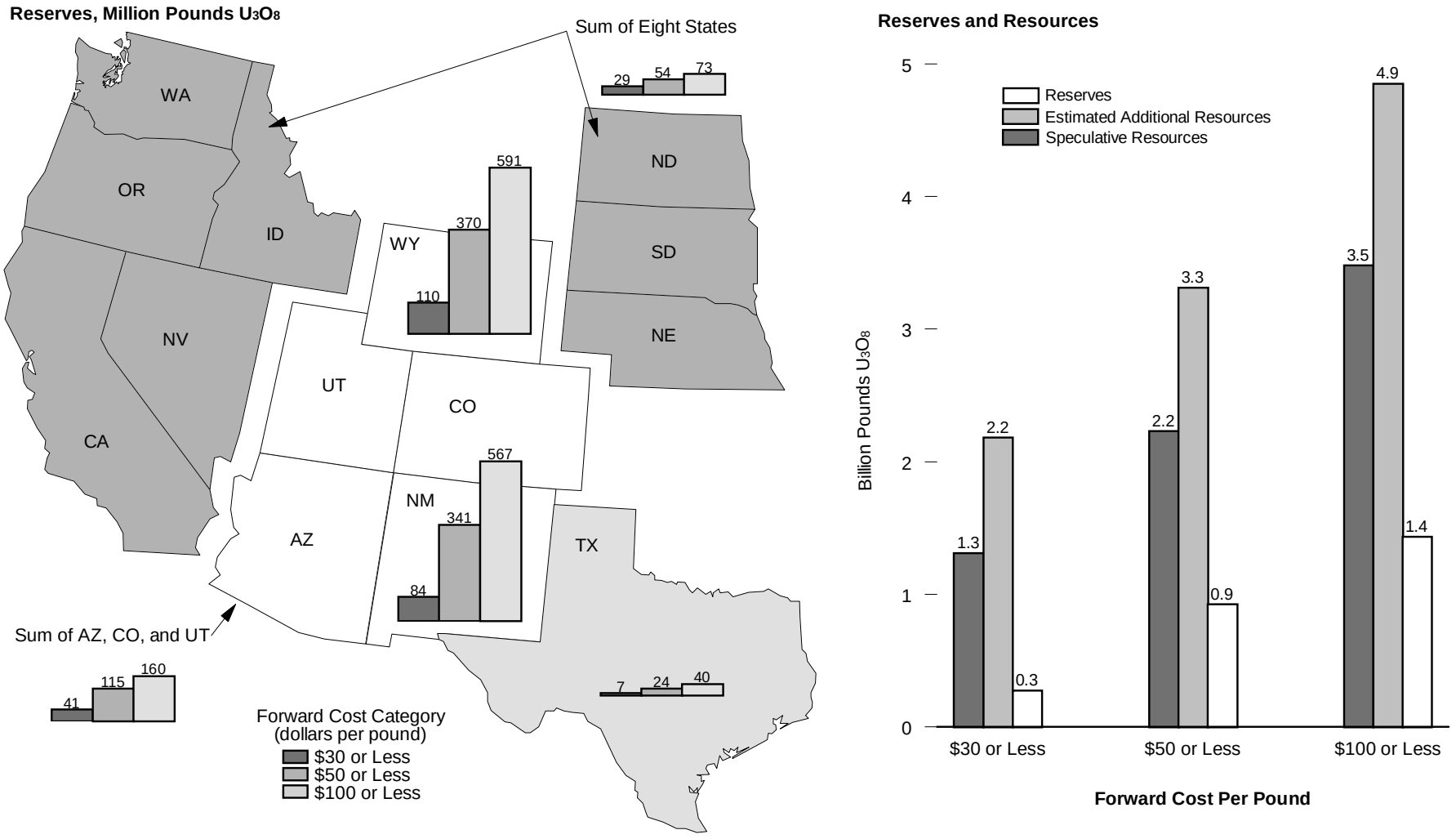
NA=Not available.

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

Web Page: http://www.eia.doe.gov/fuelnuclear.html.

Sources: • 1949-1981—U.S. Department of Energy, Grand Junction Office, *Statistical Data of the Uranium Industry,* January 1, 1983, Report No. GJO-100 (1983), Table VIII-5. • 1982 forward—Energy Information Administration, *Uranium Industry Annual,* annual reports.

Figure 4.13 Uranium Reserves and Resources, 2000



Notes: • Data are at end of year. • States shaded by group correspond to categories listed under "Reserves" on Table 4.13.

Source: Table 4.13.

Table 4.13 Uranium Reserves and Resources, 2000

(Million Pounds U_3O_8)

Resource Category and State	Forward Cost Category (dollars per pound) [1]		
	$30 or Less	$50 or Less	$100 or Less
Reserves [2]	**271**	**904**	**1,430**
New Mexico	84	341	567
Wyoming	110	370	591
Texas	7	24	40
Arizona, Colorado, Utah	41	115	160
Others [3]	29	54	73
Potential Resources [4]			
Estimated Additional Resources	2,180	3,310	4,850
Speculative Resources	1,310	2,230	3,480

[1] Forward costs are all operating and capital costs (in current dollars) yet to be incurred in the production of uranium from estimated resources. Excluded are previous expenditures (such as exploration and land acquisitions), taxes, profit, and the cost of money. Generally, forward costs are lower than market prices. Resource values in forward-cost categories are cumulative; that is, the quantity at each level of forward-cost includes all reserves/resources at the lower cost in that category.

[2] The Energy Information Administration category of uranium reserves is equivalent to the internationally reported category of Reasonably Assured Resources (RAR).

[3] California, Idaho, Nebraska, Nevada, North Dakota, Oregon, South Dakota, and Washington.

[4] Shown are the mean values for the distribution of estimates for each forward-cost category, rounded to the nearest million pounds U_3O_8.

Note: Data are at end of year.

Web Page: http://www.eia.doe.gov/fuelnuclear.html.

Sources: • Forward Costs $30 or Less or $50 or Less—Energy Information Administration (EIA), *Uranium Industry Annual 2000* (May 2001), Tables B1 and B4. • Forward Costs $100 or Less—EIA, Office of Coal, Nuclear, Electric and Alternate Fuels database as of December 31, 2000.

Note 1. These volumes are the sum of the respective mean estimates in United States Geological Survey, *1995 National Assessment of United States Oil and Gas Resources*, Circular 1118 (Washington DC, 1995), pp. 2 and 17-19, for the onshore United States and jurisdiction offshore waters, and in Minerals Management Services, *An Assessment of the Undiscovered Hydrocarbon Potential of the Nation's Outer Continental Shelf*, OCS Report MMS 96-0034 (Washington DC, 1996), pp. 14 and 18, for the Federal jurisdiction offshore.

Conventionally reservoired deposits are discrete subsurface accumulations of crude oil or natural gas usually defined, controlled, or limited by hydrocarbon/water contacts. Unconventionally reservoired deposits (continuous-type accumulations) are geographically extensive subsurface accumulations of crude oil or natural gas that generally lack well-defined hydrocarbon/water contacts. Examples include coalbed methane, "tight gas," and auto-sourced oil- and gas-shale reservoirs. Ultimate recovery appreciation (reserve growth) is the volume by which the estimate of total recovery from a known oil or gas reservoir or aggregation of such reservoirs is expected to increase during the time between discovery and permanent abandonment.

For purposes of comparison, the Potential Gas Committee, an industry-sponsored group of experts, biennially provides another geologically-based estimate of the Nation's natural gas resources. The latest mean estimate, published in "Potential Supply of Natural Gas in the United States," December 31, 1996, is 1,067 trillion cubic feet. This volume includes undiscovered conventionally reservoired deposits, expected ultimate recovery appreciation, coalbed methane, and tight gas where it is believed to be technically recoverable and marketable at reasonable costs.

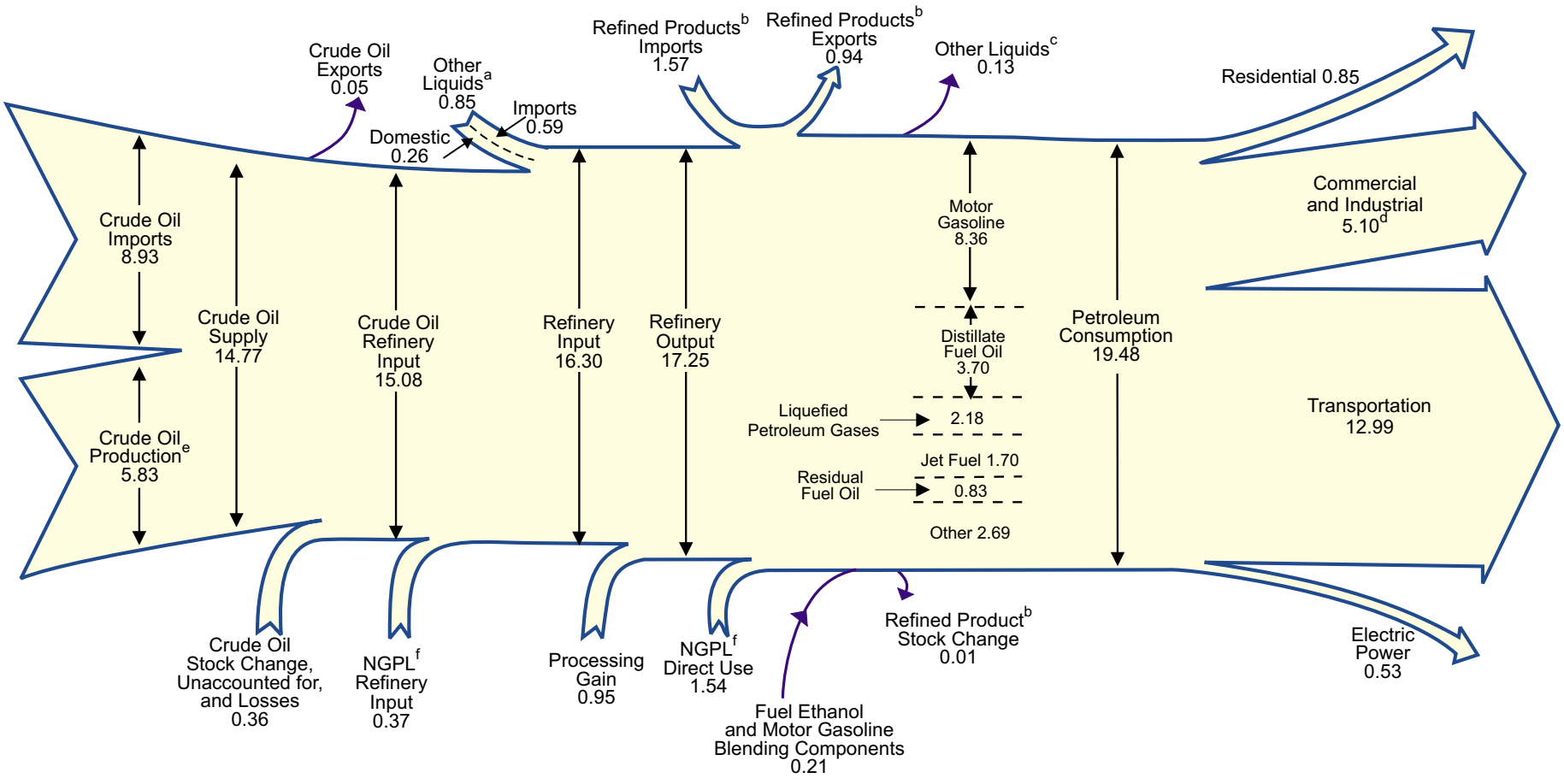
Note 2. For 1970 forward, annual well completions are estimated by EIA based on individual well reports submitted to the American Petroleum Institute (1970-1994) and to Petroleum Information/Dwights LLC (1995 forward). The as-received well completion data for recent years are incomplete due to delays in the reporting of wells drilled. EIA therefore statistically imputes the missing data to provided estimates of total well completions and footage where necessary.

5 Petroleum

Oil pumping unit and drilling rig, Texas. Source: U.S. Department of Energy.

Diagram 2. Petroleum Flow, 2000

(Million Barrels per Day)



[a] Unfinished oils, motor gasoline blending components, aviation gasoline blending components, and other hydrocarbons and oxygenates.

[b] Finished petroleum products, liquefied petroleum gases, and pentanes plus.

[c] Unfinished oils requiring further refinery processing, and aviation blending components.

[d] Commercial and industrial totals from Table 5.12a and 5.12b plus "End-Use/Nonutility Adjustment" from Table 5.12d.

[e] Includes lease condensate.

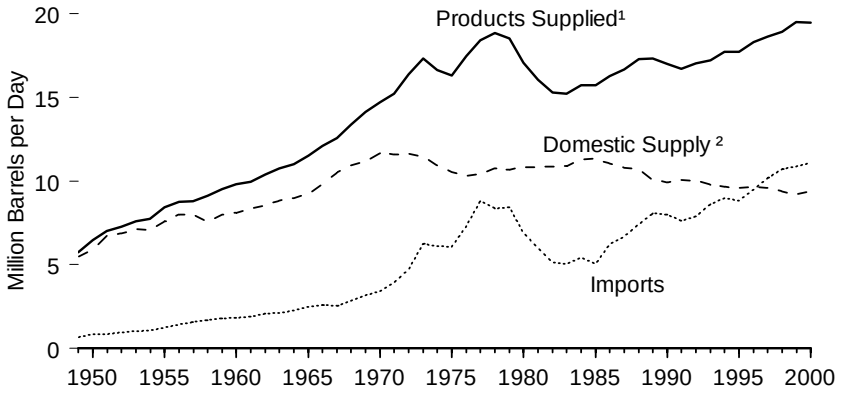
[f] Natural gas plant liquids.

Notes: • Data are preliminary. • Totals may not equal sum of components due to independent rounding.

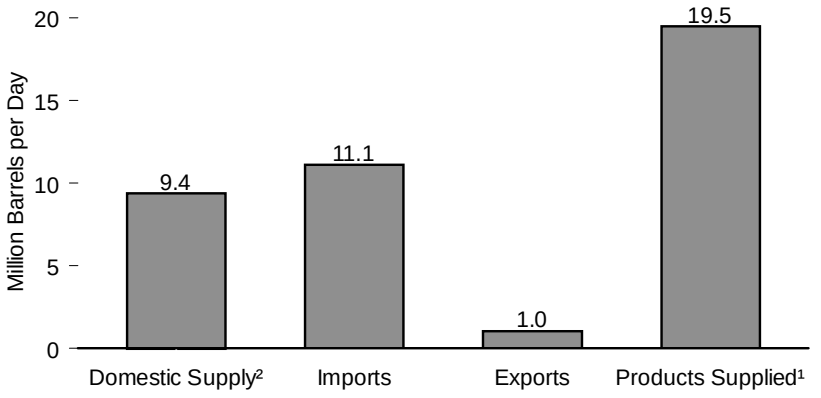
Sources: Tables 5.1, 5.5, 5.8, 5.11, 5.12a5.12d, 5.14, and *Petroleum Supply Monthly*, February 2001, Table 3.

Figure 5.1 Petroleum Overview

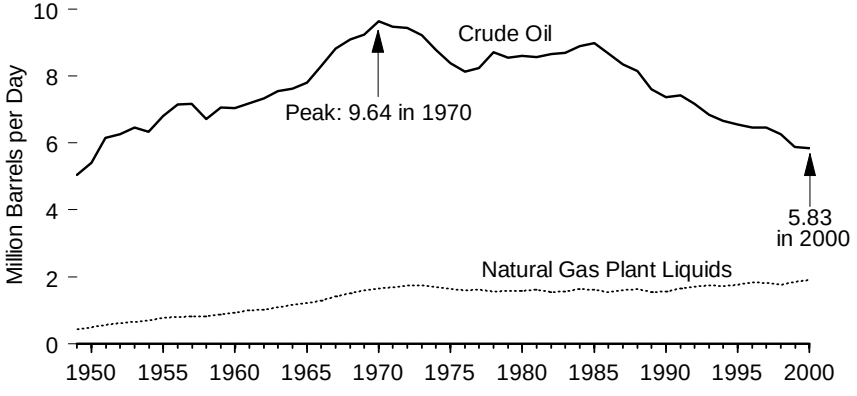
Overview, 1949-2000



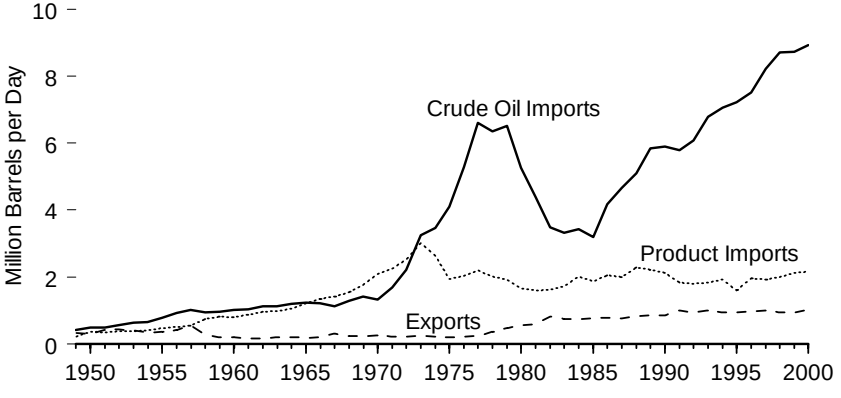
Overview, 2000



Crude Oil and Natural Gas Plant Liquids Production, 1949-2000



Trade, 1949-2000



[1] Approximate representation of petroleum consumption.
[2] Total field production, refinery processing gains, and unaccounted-for crude oil.

Note: Because vertical scales differ, graphs should not be compared.
Source: Table 5.1.

Table 5.1 Petroleum Overview, 1949-2000

(Million Barrels per Day)

Year	Domestic Supply						Trade					Crude Oil Losses	Stock Changes [6]	Petroleum Products Supplied
	Field Production				Other Domestic Supply [3]	Total	Imports			Exports	Net Imports			
	Crude Oil [1]	Natural Gas Plant Liquids	Other Liquids [2]	Total			Crude Oil [4]	Products [5]	Total					
1949	5.05	0.43	([7])	5.48	[8](s)	5.48	0.42	0.22	0.65	0.33	0.32	0.04	-0.01	5.76
1950	5.41	0.50	([7])	5.91	[8](s)	5.91	0.49	0.36	0.85	0.30	0.55	0.05	-0.06	6.46
1951	6.16	0.56	([7])	6.72	[8]0.01	6.73	0.49	0.35	0.84	0.42	0.42	0.03	0.10	7.02
1952	6.26	0.61	([7])	6.87	[8]0.01	6.88	0.57	0.38	0.95	0.43	0.52	0.02	0.11	7.27
1953	6.46	0.65	([7])	7.11	[8]0.02	7.13	0.65	0.39	1.03	0.40	0.63	0.02	0.14	7.60
1954	6.34	0.69	([7])	7.03	[8]0.02	7.06	0.66	0.40	1.05	0.36	0.70	0.03	-0.03	7.76
1955	6.81	0.77	([7])	7.58	[8]0.04	7.61	0.78	0.47	1.25	0.37	0.88	0.04	(s)	8.46
1956	7.15	0.80	([7])	7.95	[8]0.04	8.00	0.93	0.50	1.44	0.43	1.01	0.05	0.18	8.78
1957	7.17	0.81	([7])	7.98	[8]0.04	8.02	1.02	0.55	1.57	0.57	1.01	0.05	0.17	8.81
1958	6.71	0.81	([7])	7.52	[8]0.06	7.58	0.95	0.75	1.70	0.28	1.42	0.03	-0.14	9.12
1959	7.05	0.88	([7])	7.93	[8]0.09	8.02	0.97	0.81	1.78	0.21	1.57	0.01	0.05	9.53
1960	7.04	0.93	([7])	7.96	[8]0.15	8.11	1.02	0.80	1.81	0.20	1.61	0.01	-0.08	9.80
1961	7.18	0.99	([7])	8.17	[8]0.18	8.35	1.05	0.87	1.92	0.17	1.74	0.01	0.11	9.98
1962	7.33	1.02	([7])	8.35	[8]0.18	8.53	1.13	0.96	2.08	0.17	1.91	0.01	0.03	10.40
1963	7.54	1.10	([7])	8.64	[8]0.20	8.84	1.13	0.99	2.12	0.21	1.91	0.01	(s)	10.74
1964	7.61	1.15	([7])	8.77	[8]0.22	8.99	1.20	1.06	2.26	0.20	2.06	0.01	0.01	11.02
1965	7.80	1.21	([7])	9.01	[8]0.22	9.23	1.24	1.23	2.47	0.19	2.28	0.01	-0.01	11.51
1966	8.30	1.28	([7])	9.58	[8]0.25	9.82	1.22	1.35	2.57	0.20	2.37	0.01	0.10	12.08
1967	8.81	1.41	([7])	10.22	[8]0.29	10.51	1.13	1.41	2.54	0.31	2.23	0.01	0.17	12.56
1968	9.10	1.50	([7])	10.60	[8]0.35	10.95	1.29	1.55	2.84	0.23	2.61	0.01	0.15	13.39
1969	9.24	1.59	([7])	10.83	[8]0.34	11.17	1.41	1.76	3.17	0.23	2.93	0.01	-0.05	14.14
1970	9.64	1.66	([7])	11.30	[8]0.35	11.65	1.32	2.10	3.42	0.26	3.16	0.01	0.10	14.70
1971	9.46	1.69	([7])	11.16	[8]0.44	11.59	1.68	2.25	3.93	0.22	3.70	0.01	0.07	15.21
1972	9.44	1.74	([7])	11.18	[8]0.44	11.63	2.22	2.53	4.74	0.22	4.52	0.01	-0.23	16.37
1973	9.21	1.74	0.03	10.98	0.46	11.43	3.24	3.01	6.26	0.23	6.02	0.01	0.14	17.31
1974	8.77	1.69	0.04	10.50	0.46	10.95	3.48	2.64	6.11	0.22	5.89	0.01	0.18	16.65
1975	8.37	1.63	0.04	10.05	0.48	10.52	4.10	1.95	6.06	0.21	5.85	0.01	0.03	16.32
1976	8.13	1.60	0.04	9.77	0.55	10.33	5.29	2.03	7.31	0.22	7.09	0.01	-0.06	17.46
1977	8.24	1.62	0.05	9.91	0.52	10.43	6.61	2.19	8.81	0.24	8.56	0.02	0.55	18.43
1978	8.71	1.57	0.05	10.33	0.44	10.77	6.36	2.01	8.36	0.36	8.00	0.02	-0.09	18.85
1979	8.55	1.58	0.04	10.18	0.52	10.70	6.52	1.94	8.46	0.47	7.99	0.02	0.17	18.51
1980	8.60	1.57	0.04	10.21	0.63	10.85	5.26	1.65	6.91	0.54	6.36	0.01	0.14	17.06
1981	8.57	1.61	0.05	10.23	0.59	10.82	4.40	1.60	6.00	0.59	5.40	(s)	0.16	16.06
1982	8.65	1.55	0.05	10.25	0.60	10.85	3.49	1.63	5.11	0.82	4.30	(s)	-0.15	15.30
1983	8.69	1.56	0.05	10.30	0.60	10.90	3.33	1.72	5.05	0.74	4.31	(s)	-0.02	15.23
1984	8.88	1.63	0.05	10.55	0.74	11.29	3.43	2.01	5.44	0.72	4.72	(s)	0.28	15.73
1985	8.97	1.61	0.06	10.64	0.70	11.34	3.20	1.87	5.07	0.78	4.29	(s)	-0.10	15.73
1986	8.68	1.55	0.06	10.29	0.76	11.04	4.18	2.05	6.22	0.78	5.44	(s)	0.20	16.28
1987	8.35	1.60	0.06	10.01	0.78	10.79	4.67	2.00	6.68	0.76	5.91	(s)	0.04	16.67
1988	8.14	1.62	0.05	9.82	0.85	10.67	5.11	2.30	7.40	0.82	6.59	(s)	-0.03	17.28
1989	7.61	1.55	0.06	9.22	0.86	10.08	5.84	2.22	8.06	0.86	7.20	(s)	-0.04	17.33
1990	7.36	1.56	0.08	8.99	0.94	9.94	5.89	2.12	8.02	0.86	7.16	(s)	0.11	16.99
1991	7.42	1.66	0.09	9.17	0.91	10.08	5.78	1.84	7.63	1.00	6.63	(s)	-0.01	16.71
1992	7.17	1.70	0.13	9.00	1.03	10.03	6.08	1.80	7.89	0.95	6.94	(s)	-0.07	17.03
1993	6.85	1.74	0.25	8.84	0.93	9.77	6.79	1.83	8.62	1.00	7.62	(s)	0.15	17.24
1994	6.66	1.73	0.26	8.64	1.03	9.68	7.06	1.93	9.00	0.94	8.05	(s)	0.02	17.72
1995	6.56	1.76	0.30	8.63	0.97	9.59	7.23	1.61	8.83	0.95	7.89	(s)	-0.25	17.72
1996	6.46	1.83	0.31	8.61	1.05	9.66	7.51	1.97	9.48	0.98	8.50	(s)	-0.15	18.31
1997	6.45	1.82	0.34	8.61	0.99	9.61	8.23	1.94	10.16	1.00	9.16	0.00	0.14	18.62
1998	6.25	1.76	0.38	8.39	1.00	9.39	8.71	2.00	10.71	0.94	9.76	(s)	0.24	18.92
1999	[R]5.88	[R]1.85	0.38	8.11	1.08	9.18	[R]8.73	[R]2.12	[R]10.85	0.94	[R]9.91	(s)	[R]-0.42	[R]19.52
2000[P]	5.83	1.91	0.39	8.13	1.25	9.39	8.93	2.16	11.09	1.04	10.05	0.00	-0.04	19.48

[1] Includes lease condensate.
[2] Other hydrocarbons, hydrogen, oxygenates (ethers and alcohols), gasoline blending components, and finished petroleum products.
[3] For 1973 forward, refinery processing gains and unaccounted-for crude oil.
[4] Includes any imports for the Strategic Petroleum Reserve, which began in 1977.
[5] For 1981 forward, includes motor gasoline blending components and aviation gasoline blending components.
[6] A negative value indicates a net decrease in stocks; a positive value indicates a net increase in stocks. Distillate stocks in the "Northeast Heating Oil Reserve" (2 million barrels at the end of 2000) are not included.
[7] Included in "Other Domestic Supply."
[8] Includes "Other Liquids."

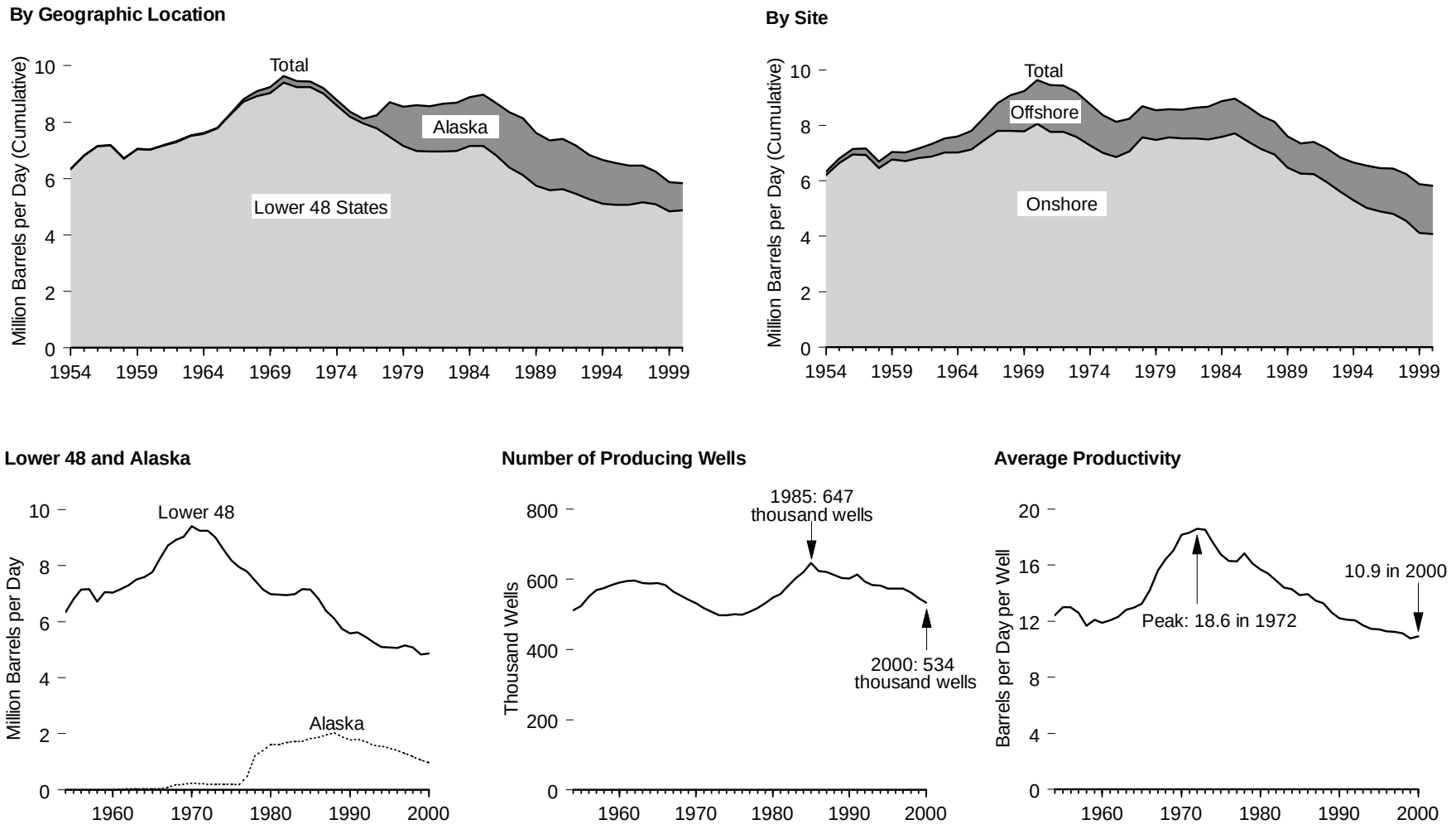
R=Revised. P=Preliminary. (s)=Less than 0.005 million barrels per day and greater than -0.005 million barrels per day.

Notes: • For the definition of petroleum products supplied, see Notes 1, 2, and 3 at end of section. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/oil_gas/petroleum/pet_frame.html.

Sources: • 1949-1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • 1976-1980—Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • 1981-1999—EIA, *Petroleum Supply Annual,* annual reports. • 2000—EIA, *Petroleum Supply Monthly* (February 2001).

Figure 5.2 Crude Oil Production and Oil Well Productivity, 1954-2000



Note: Crude oil includes lease condensate.

Source: Table 5.2.

Table 5.2 Crude Oil Production and Oil Well Productivity, 1954-2000

(Thousand Barrels per Day, Except as Noted)

Year	Geographic Location		Site		Type		Total Production	Oil Well Productivity	
	Lower 48	Alaska	Onshore	Offshore	Crude Oil	Lease Condensate		Producing Wells [1] (thousands)	Average Productivity [2] (barrels per day per well)
1954	6,342	0	6,209	133	6,342	(3)	6,342	511	R12.4
1955	6,807	0	6,645	162	6,807	(3)	6,807	524	R13.0
1956	7,151	0	6,951	201	7,151	(3)	7,151	551	R13.0
1957	7,170	0	6,940	229	7,170	(3)	7,170	569	R12.6
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	R12.1
1960	7,034	2	6,716	319	7,035	(3)	7,035	591	R11.9
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	R12.8
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	R13.2
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	R15.6
1968	8,915	181	7,808	1,287	8,660	436	9,096	554	R16.4
1969	9,035	203	7,797	1,441	8,778	460	9,238	542	R17.0
1970	9,408	229	8,060	1,577	9,180	457	9,637	531	R18.1
1971	9,245	218	7,779	1,684	9,032	431	9,463	517	R18.3
1972	9,242	199	7,780	1,660	8,998	443	9,441	508	R18.6
1973	9,010	198	7,592	1,616	8,784	424	9,208	497	R18.5
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	R16.3
1978	7,478	1,229	7,571	1,136	8,353	355	8,707	517	R16.8
1979	7,151	1,401	7,485	1,067	8,181	371	8,552	531	R16.1
1980	6,980	1,617	7,562	1,034	8,210	386	8,597	548	R15.7
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	7,157	1,722	7,596	1,283	8,879	(3)	8,879	621	14.3
1985	7,146	1,825	7,722	1,250	8,971	(3)	8,971	647	13.9
1986	6,814	1,867	7,426	1,254	8,680	(3)	8,680	623	13.9
1987	6,387	1,962	7,153	1,196	8,349	(3)	8,349	620	13.5
1988	6,123	2,017	6,949	1,191	8,140	(3)	8,140	612	R13.3
1989	5,739	1,874	6,486	1,127	7,613	(3)	7,613	603	12.6
1990	5,582	1,773	6,273	1,082	7,355	(3)	7,355	602	12.2
1991	5,618	1,798	6,245	1,172	7,417	(3)	7,417	614	12.1
1992	5,457	1,714	5,953	1,218	7,171	(3)	7,171	594	12.1
1993	5,264	1,582	5,606	1,241	6,847	(3)	6,847	584	11.7
1994	5,103	1,559	5,291	1,370	6,662	(3)	6,662	582	11.4
1995	5,076	1,484	5,035	1,525	6,560	(3)	6,560	574	11.4
1996	5,071	1,393	4,902	1,562	6,465	(3)	6,465	574	11.3
1997	5,156	1,296	4,803	1,648	6,452	(3)	6,452	573	11.3
1998	5,077	1,175	4,560	1,692	6,252	(3)	6,252	562	11.1
1999	R4,832	1,050	R4,132	R1,750	R5,881	(3)	R5,881	R546	R10.8
2000P	4,863	970	4,093	1,741	5,834	(3)	5,834	534	10.9

[1] As of December 31.

[2] For 1954-1976, 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 end of year.

[3] Included in crude oil.

R=Revised. P=Preliminary.

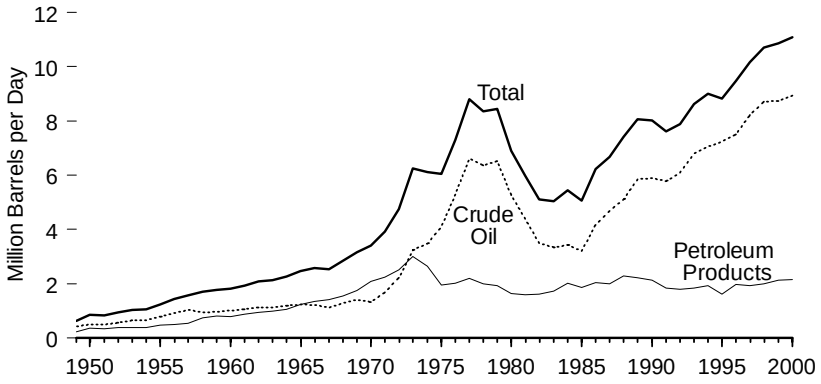
Note: Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/oil_gas/petroleum/pet_frame.html.

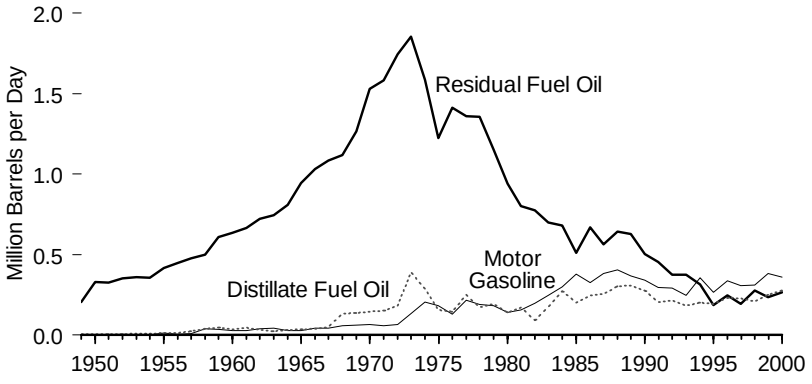
Sources: **Offshore:** • 1954-1969—U.S. Geological Survey, *Outer Continental Shelf Statistics,* June 1979. • 1970-1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • 1976-1980—Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • 1981-1999—EIA, *Petroleum Supply Annual,* annual reports. • 2000—EIA, *Petroleum Supply Monthly* (February 2001). **Oil Well Productivity:** • 1954-1975—Bureau of Mines, *Minerals Yearbook,* "Crude Petroleum and Petroleum Products" chapter. • 1976-1980—EIA, Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • 1981-1994—Independent Petroleum Association of America, *The Oil Producing Industry in Your State.* • 1995 forward—Gulf Publishing Co., *World Oil,* February issue. **All Other Data:** • 1954-1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • 1976-1980—EIA, Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • 1981-1999—EIA, *Petroleum Supply Annual,* annual reports. • 2000—EIA, *Petroleum Supply Monthly* (February 2001).

Figure 5.3 Petroleum Imports by Type

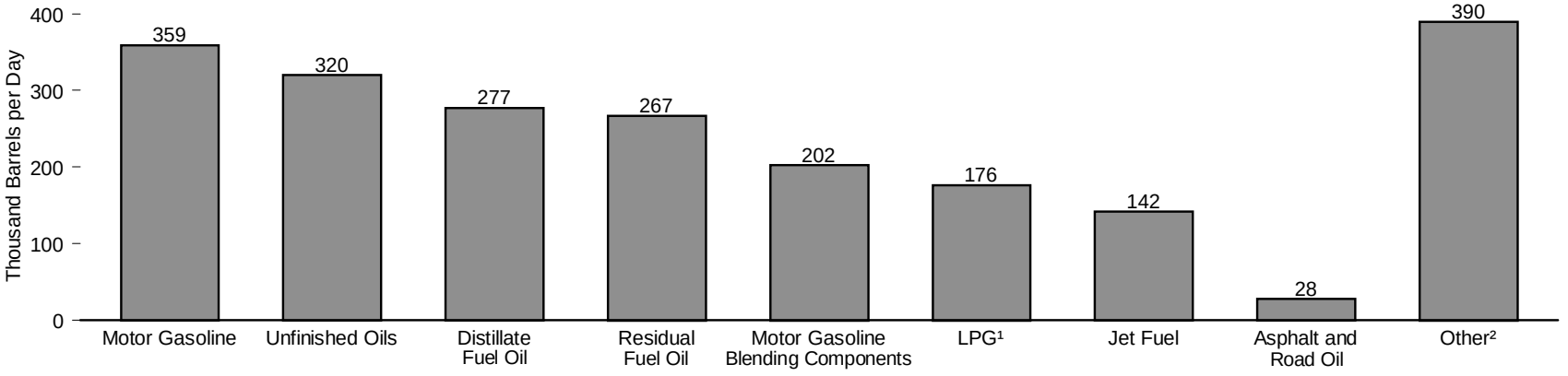
Total, 1949-2000



By Selected Product, 1949-2000



By Product, 2000



[1] Liquefied petrolum gases.

[2] Aviation gasoline and blending components, kerosene, lubricants, pentanes plus, petrochemical feedstocks, petroleum coke, special naphthas, wax, and miscellaneous products.

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

Source: Table 5.3.

Table 5.3 Petroleum Imports by Type, 1949-2000

(Thousand Barrels per Day)

Year	Crude Oil [1]	Petroleum Products											Total Petroleum
		Asphalt and Road Oil	Distillate Fuel Oil	Jet Fuel [2]	Liquefied Petroleum Gases		Motor Gasoline [4]	Motor Gasoline Blending Components	Residual Fuel Oil	Unfinished Oils	Other Products [5]	Total	
					Propane [3]	Total							
1949	421	3	5	([6])	0	0	0	0	206	10	0	224	645
1950	487	5	7	([6])	0	0	(s)	([7])	329	21	1	363	850
1951	491	7	5	([6])	0	0	1	([7])	326	14	0	354	844
1952	573	7	7	([6])	0	0	5	([7])	351	9	0	380	952
1953	648	7	9	([6])	0	0	1	([7])	360	9	0	386	1,034
1954	656	9	9	([6])	0	0	3	([7])	354	21	(s)	396	1,052
1955	782	9	12	([6])	0	0	13	([7])	417	15	0	466	1,248
1956	934	10	14	21	0	0	5	([7])	445	7	(s)	502	1,436
1957	1,023	18	23	25	0	0	8	([7])	475	3	(s)	552	1,574
1958	953	20	41	57	0	0	38	([7])	499	92	(s)	747	1,700
1959	965	19	48	37	0	0	37	([7])	610	63	(s)	814	1,780
1960	1,015	17	35	34	NA	4	27	([7])	637	45	(s)	799	1,815
1961	1,045	18	48	28	NA	5	29	([7])	666	69	8	872	1,917
1962	1,126	18	32	30	NA	6	38	([7])	724	89	18	955	2,082
1963	1,131	17	25	41	NA	7	44	([7])	747	87	24	992	2,123
1964	1,198	16	32	33	NA	11	29	([7])	808	89	42	1,060	2,259
1965	1,238	17	36	81	NA	21	28	([7])	946	92	10	1,229	2,468
1966	1,225	17	38	86	NA	29	43	([7])	1,032	97	7	1,348	2,573
1967	1,128	18	51	89	11	27	42	([7])	1,085	97	2	1,409	2,537
1968	1,291	17	132	105	15	32	59	([7])	1,120	80	4	1,549	2,840
1969	1,409	13	139	125	14	35	62	([7])	1,265	106	12	1,757	3,166
1970	1,324	17	147	144	26	52	67	([7])	1,528	108	32	2,095	3,419
1971	1,681	20	153	180	32	70	59	([7])	1,583	124	56	2,245	3,926
1972	2,216	25	182	194	43	89	68	([7])	1,742	125	101	2,525	4,741
1973	3,244	23	392	212	71	132	134	([7])	1,853	137	129	3,012	6,256
1974	3,477	31	289	163	59	123	204	([7])	1,587	121	117	2,635	6,112
1975	4,105	14	155	133	60	112	184	([7])	1,223	36	95	1,951	6,056
1976	5,287	11	146	76	68	130	131	([7])	1,413	32	87	2,026	7,313
1977	6,615	4	250	75	86	161	217	([7])	1,359	31	95	2,193	8,807
1978	6,356	2	173	86	57	123	190	([7])	1,355	27	50	2,008	8,363
1979	6,519	4	193	78	88	217	181	([7])	1,151	59	54	1,937	8,456
1980	5,263	4	142	80	69	216	140	([7])	939	55	72	1,646	6,909
1981	4,396	4	173	38	70	244	157	24	800	112	48	1,599	5,996
1982	3,488	5	93	29	63	226	197	42	776	174	84	1,625	5,113
1983	3,329	7	174	29	44	190	247	47	699	234	94	1,722	5,051
1984	3,426	18	272	62	67	195	299	83	681	231	171	2,011	5,437
1985	3,201	35	200	39	67	187	381	67	510	318	130	1,866	5,067
1986	4,178	29	247	57	110	242	326	72	669	250	153	2,045	6,224
1987	4,674	36	255	67	88	190	384	60	565	299	146	2,004	6,678
1988	5,107	31	302	90	106	209	405	57	644	360	196	2,295	7,402
1989	5,843	31	306	106	111	181	369	66	629	348	183	2,217	8,061
1990	5,894	32	278	108	115	188	342	62	504	413	198	2,123	8,018
1991	5,782	28	205	67	91	147	297	36	453	413	198	1,844	7,627
1992	6,083	27	216	82	85	131	294	41	375	443	195	1,805	7,888
1993	6,787	32	184	100	103	160	247	27	373	491	219	1,833	8,620
1994	7,063	37	203	117	124	183	356	20	314	413	291	1,933	8,996
1995	7,230	36	193	106	102	146	265	48	187	349	276	1,605	8,835
1996	7,508	27	230	111	119	166	336	166	248	367	319	1,971	9,478
1997	8,225	32	228	91	113	169	309	200	194	353	360	1,936	10,162
1998	8,706	28	210	124	137	194	311	209	275	302	350	2,002	10,708
1999	[R]8,731	34	[R]250	[R]128	[R]122	[R]182	[R]382	[R]217	[R]237	[R]317	[R]375	[R]2,122	[R]10,852
2000[P]	8,932	28	277	142	128	176	359	202	267	320	390	2,161	11,093

[1] Includes any imports for the Strategic Petroleum Reserve, which began in 1977.
[2] Prior to 1965, imports of kerosene-type jet fuel were included with kerosene, which is listed under "Other Products."
[3] Includes propylene.
[4] Prior to 1964, motor gasoline data were for total gasoline, including motor gasoline, aviation gasoline, and special naphthas. After 1980, excludes motor gasoline blending components.
[5] Aviation gasoline, aviation gasoline blending components, kerosene, lubricants, pentanes plus, petrochemical feedstocks, petroleum coke, special naphthas, wax, and miscellaneous products.
[6] Included in motor gasoline.
[7] If applicable, included in motor gasoline.

R=Revised. P=Preliminary. NA=Not available. (s)=Less than 500 barrels per day.

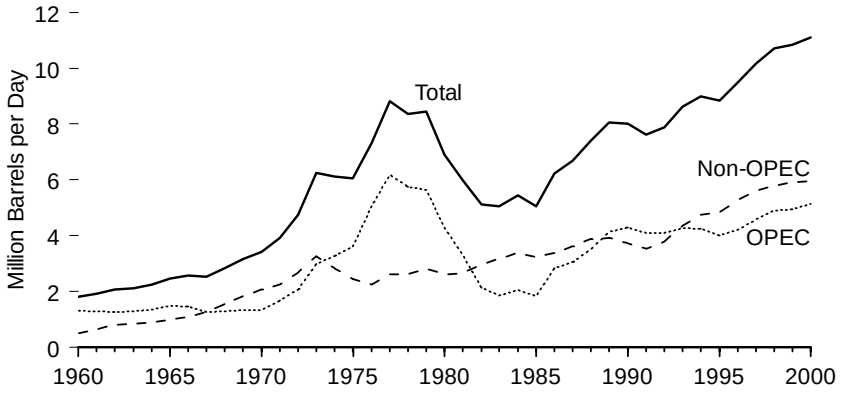
Notes: • Includes imports from U.S. possessions and territories. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/oil_gas/petroleum/pet_frame.html.

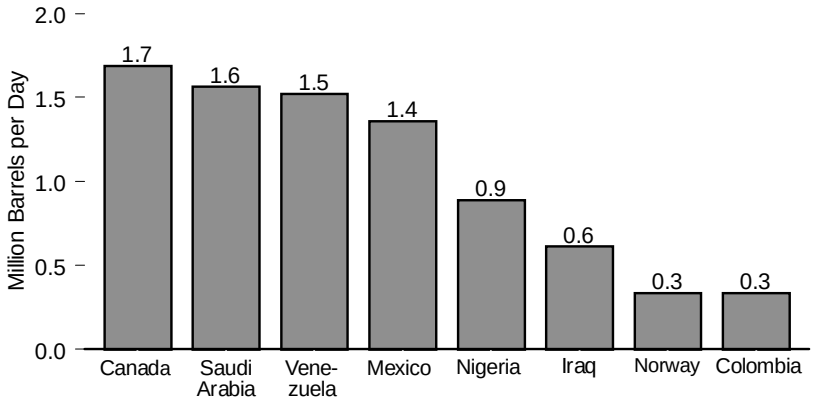
Sources: • 1949-1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • 1976-1980—Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • 1981-1999—EIA, *Petroleum Supply Annual,* annual reports. • 2000—EIA, *Petroleum Supply Monthly* (February 2001).

Figure 5.4 Petroleum Imports by Country of Origin

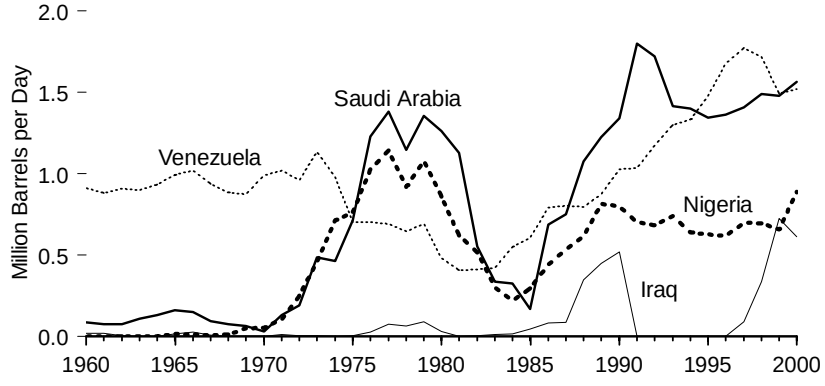
Total, OPEC, and Non-OPEC, 1960-2000



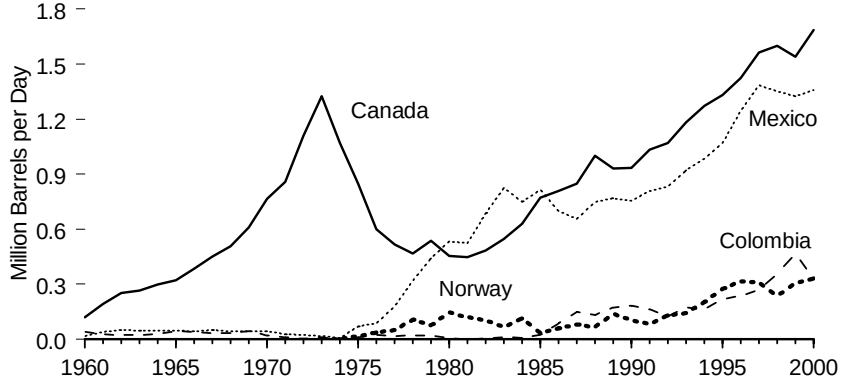
Selected Countries, 2000



Selected OPEC Countries, 1960-2000



Selected Non-OPEC Countries, 1960-2000



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

Source: Table 5.4.

Table 5.4 Petroleum Imports by Country of Origin, 1960-2000

Year	Persian Gulf Nations [2]	Selected OPEC [1] Countries					Selected Non-OPEC Countries						Total Imports	Imports From Persian Gulf Nations as Share of Total Imports	Imports From OPEC as Share of Total Imports
		Iraq	Nigeria	Saudi Arabia	Venezuela	Total OPEC [3]	Canada	Colombia	Mexico	Norway	United Kingdom	Total Non-OPEC			
	Thousand Barrels per Day													Percent	
1960	NA	17	0	84	911	1,314	120	40	16	0	(s)	500	1,815	NA	72.4
1961	NA	20	0	73	879	1,286	190	28	40	0	1	631	1,917	NA	67.1
1962	NA	2	0	74	906	1,265	250	24	49	0	2	816	2,082	NA	60.8
1963	NA	1	0	108	900	1,283	265	23	48	0	3	839	2,123	NA	60.5
1964	NA	0	0	131	933	1,361	299	26	47	0	(s)	898	2,259	NA	60.2
1965	NA	16	15	158	994	1,476	323	42	48	0	(s)	992	2,468	NA	59.8
1966	NA	26	11	147	1,018	1,471	384	40	45	0	6	1,102	2,573	NA	57.2
1967	NA	5	5	92	938	1,259	450	32	49	0	11	1,278	2,537	NA	49.6
1968	NA	0	9	74	886	1,302	506	33	45	0	28	1,538	2,840	NA	45.9
1969	NA	0	49	65	875	1,336	608	43	43	0	20	1,830	3,166	NA	42.2
1970	NA	0	50	30	989	1,343	766	20	42	0	11	2,076	3,419	NA	39.3
1971	NA	11	102	128	1,020	1,673	857	9	27	0	10	2,253	3,926	NA	42.6
1972	471	4	251	190	959	2,063	1,108	5	21	0	9	2,678	4,741	9.9	43.5
1973	848	4	459	486	1,135	2,993	1,325	9	16	1	15	3,263	6,256	13.6	47.8
1974	1,039	0	713	461	979	3,280	1,070	5	8	1	8	2,832	6,112	17.0	53.7
1975	1,165	2	762	715	702	3,601	846	9	71	17	14	2,454	6,056	19.2	59.5
1976	1,840	26	1,025	1,230	700	5,066	599	21	87	36	31	2,247	7,313	25.2	69.3
1977	2,448	74	1,143	1,380	690	6,193	517	17	179	50	126	2,614	8,807	27.8	70.3
1978	2,219	62	919	1,144	646	5,751	467	20	318	104	180	2,612	8,363	26.5	68.8
1979	2,069	88	1,080	1,356	690	5,637	538	18	439	75	202	2,819	8,456	24.5	66.7
1980	1,519	28	857	1,261	481	4,300	455	4	533	144	176	2,609	6,909	22.0	62.2
1981	1,219	(s)	620	1,129	406	3,323	447	1	522	119	375	2,672	5,996	20.3	55.4
1982	696	3	514	552	412	2,146	482	5	685	102	456	2,968	5,113	13.6	42.0
1983	442	10	302	337	422	1,862	547	10	826	66	382	3,189	5,051	8.8	36.9
1984	506	12	216	325	548	2,049	630	8	748	114	402	3,388	5,437	9.3	37.7
1985	311	46	293	168	605	1,830	770	23	816	32	310	3,237	5,067	6.1	36.1
1986	912	81	440	685	793	2,837	807	87	699	60	350	3,387	6,224	14.7	45.6
1987	1,077	83	535	751	804	3,060	848	148	655	80	352	3,617	6,678	16.1	45.8
1988	1,541	345	618	1,073	794	3,520	999	134	747	67	315	3,882	7,402	20.8	47.6
1989	1,861	449	815	1,224	873	4,140	931	172	767	138	215	3,921	8,061	23.1	51.4
1990	1,966	518	800	1,339	1,025	4,296	934	182	755	102	189	3,721	8,018	24.5	53.6
1991	1,845	0	703	1,802	1,035	4,092	1,033	163	807	82	138	3,535	7,627	24.2	53.7
1992	1,778	0	681	1,720	1,170	4,092	1,069	126	830	127	230	3,796	7,888	22.5	51.9
1993	1,782	0	740	1,414	1,300	4,273	1,181	171	919	142	350	4,347	8,620	20.7	49.6
1994	1,728	0	637	1,402	1,334	4,247	1,272	161	984	202	458	4,749	8,996	19.2	47.2
1995	1,573	0	627	1,344	1,480	4,002	1,332	219	1,068	273	383	4,833	8,835	17.8	45.3
1996	1,604	1	617	1,363	1,676	4,211	1,424	234	1,244	313	308	5,267	9,478	16.9	44.4
1997	1,755	89	698	1,407	1,773	4,569	1,563	271	1,385	309	226	5,593	10,162	17.3	45.0
1998	2,136	336	696	1,491	1,719	4,905	1,598	354	1,351	236	250	5,803	10,708	19.9	45.8
1999	R2,464	725	R657	R1,478	R1,493	R4,953	R1,539	468	R1,324	304	R365	R5,899	R10,852	R22.7	R45.6
2000P	2,468	613	887	1,566	1,519	5,136	1,686	332	1,359	332	330	5,957	11,093	22.3	46.3

[1] Organization of Petroleum Exporting Countries. See Glossary for current membership.

[2] Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, and United Arab Emirates.

[3] Ecuador withdrew from OPEC on December 31, 1992. Beginning in 1993, imports from Ecuador appear under "Non-OPEC." Gabon withdrew from OPEC on December 31, 1994. Beginning in 1995, imports from Gabon appear under "Non-OPEC."

R=Revised. P=Preliminary. (s)=Less than 500 barrels per day. NA=Not available.

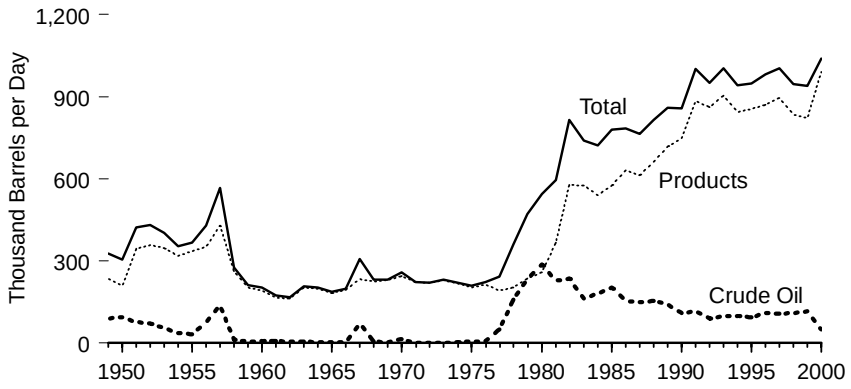
Notes: • The country of origin for refined petroleum products may not be the country of origin for the crude oil from which the refined products were produced. For example, refined products imported from refineries in the Caribbean may have been produced from Middle East crude oil. • Data include any imports for the Strategic Petroleum Reserve, which began in 1977. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/oil_gas/petroleum/pet_frame.html.

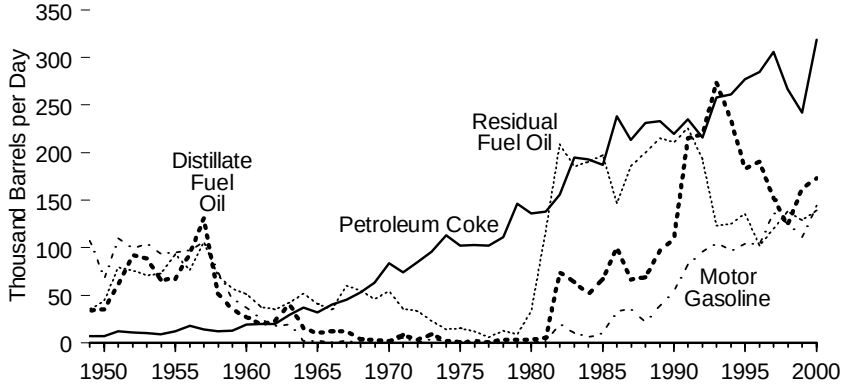
Sources: • 1960-1975—Bureau of Mines, *Minerals Yearbook,* "Crude Petroleum and Petroleum Products" chapter. • 1976-1980—Energy Information Administration (EIA), Energy Data Reports, *P.A.D. Districts Supply/Demand, Annual,* annual reports. • 1981-1999—EIA, *Petroleum Supply Annual,* annual reports. • 2000—EIA, *Petroleum Supply Monthly* (February 2001).

Figure 5.5 Petroleum Exports by Type

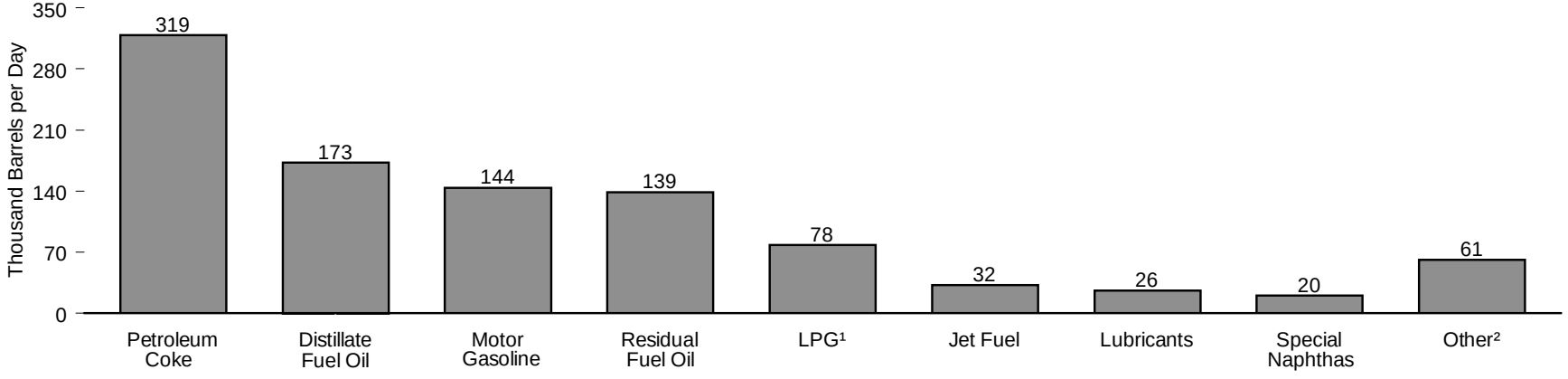
Total, 1949-2000



By Selected Product, 1949-2000



By Product, 2000



¹ Liquefied petroleum gases.

² Asphalt and road oil, aviation gasoline, kerosene, motor gasoline blending components, pentanes plus, wax, and miscellaneous products.

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

Source: Table 5.5.

Table 5.5 Petroleum Exports by Type, 1949-2000

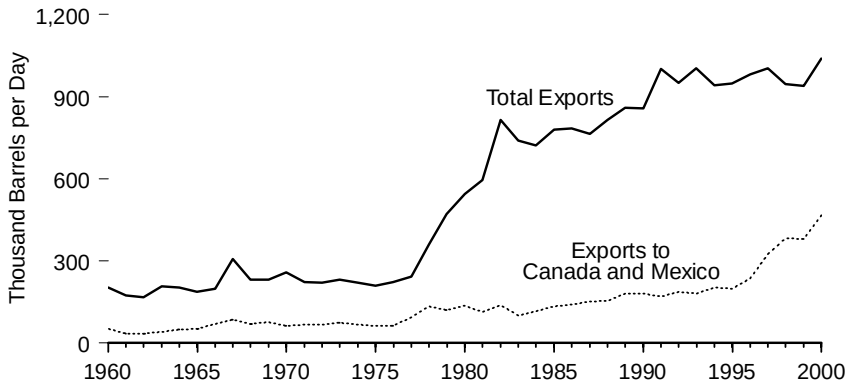
(Thousand Barrels per Day)

Year	Crude Oil	Petroleum Products												Total Petroleum
		Distillate Fuel Oil	Jet Fuel	Liquefied Petroleum Gases		Lubricants	Motor Gasoline [2]	Petroleum Coke	Petrochemical Feedstocks	Residual Fuel Oil	Special Naphthas	Other Products [3]	Total	
				Propane [1]	Total									
1949	91	34	([4])	NA	4	35	108	7	0	35	NA	15	236	327
1950	95	35	([4])	NA	4	39	68	7	0	44	NA	12	210	305
1951	78	62	([4])	NA	6	48	110	12	0	79	NA	27	344	422
1952	73	92	([4])	NA	7	44	99	11	0	76	NA	31	359	432
1953	55	89	1	NA	8	36	104	10	0	71	NA	28	347	402
1954	37	66	(s)	NA	11	41	94	9	0	73	NA	23	318	355
1955	32	67	(s)	NA	12	39	95	12	0	93	NA	18	336	368
1956	78	94	1	NA	12	38	97	18	0	76	NA	16	352	430
1957	138	131	(s)	NA	12	38	106	14	0	106	NA	23	430	568
1958	12	52	1	NA	8	36	75	12	0	71	NA	10	264	276
1959	7	35	1	NA	6	38	46	13	0	57	NA	8	204	211
1960	8	27	(s)	NA	8	43	37	19	0	51	NA	9	193	202
1961	9	19	(s)	NA	10	47	25	20	0	38	NA	7	165	174
1962	5	23	(s)	NA	11	48	18	20	0	35	NA	8	163	168
1963	5	41	1	NA	13	50	19	29	0	42	NA	8	203	208
1964	4	15	(s)	NA	15	50	2	37	0	52	5	23	198	202
1965	3	10	3	NA	21	45	2	32	5	41	4	20	184	187
1966	4	12	5	NA	22	47	1	40	7	35	6	19	194	198
1967	73	12	6	5	25	51	2	45	8	60	5	20	234	307
1968	5	4	6	7	29	49	1	53	8	55	7	15	226	231
1969	4	3	5	7	35	45	2	63	11	46	6	13	229	233
1970	14	2	6	6	27	44	2	84	10	54	4	10	245	259
1971	1	8	4	13	26	43	5	74	14	36	4	9	223	224
1972	1	3	3	18	31	41	1	85	13	33	4	8	222	222
1973	2	9	4	15	27	35	4	96	19	23	5	8	229	231
1974	3	2	3	14	25	33	2	113	15	14	4	7	218	221
1975	6	1	2	13	26	25	2	102	22	15	3	6	204	209
1976	8	1	2	13	25	26	3	103	30	12	7	6	215	223
1977	50	1	2	10	18	26	2	102	24	6	4	7	193	243
1978	158	3	1	9	20	27	1	111	23	13	2	2	204	362
1979	235	3	1	8	15	23	(s)	146	31	9	5	3	236	471
1980	287	3	1	10	21	23	1	136	29	33	5	4	258	544
1981	228	5	2	18	42	19	2	138	26	118	11	4	367	595
1982	236	74	6	31	65	16	20	156	24	209	5	4	579	815
1983	164	64	6	43	73	16	10	195	20	185	3	3	575	739
1984	181	51	9	30	48	15	6	193	21	190	2	6	541	722
1985	204	67	13	48	62	15	10	187	19	197	1	4	577	781
1986	154	100	18	28	42	23	33	238	22	147	1	8	631	785
1987	151	66	24	24	38	23	35	213	20	186	2	7	613	764
1988	155	69	28	31	49	26	22	231	23	200	7	6	661	815
1989	142	97	27	24	35	19	39	233	26	215	12	15	717	859
1990	109	109	43	28	40	20	55	220	26	211	11	13	748	857
1991	116	215	43	28	41	18	82	235	0	226	15	9	885	1,001
1992	89	219	43	33	49	16	96	216	0	193	14	16	861	950
1993	98	274	59	26	43	19	105	258	0	123	4	20	904	1,003
1994	99	234	20	24	38	22	97	261	0	125	20	26	843	942
1995	95	183	26	38	58	25	104	277	0	136	21	25	855	949
1996	110	190	48	28	51	34	104	285	0	102	21	36	871	981
1997	108	152	35	32	50	31	137	306	0	120	22	44	896	1,003
1998	110	124	26	25	42	25	125	267	0	138	18	70	835	945
1999	118	162	32	33	[R]53	28	111	242	0	129	16	[R]49	822	940
2000[P]	50	173	32	53	78	26	144	319	0	139	20	61	990	1,040

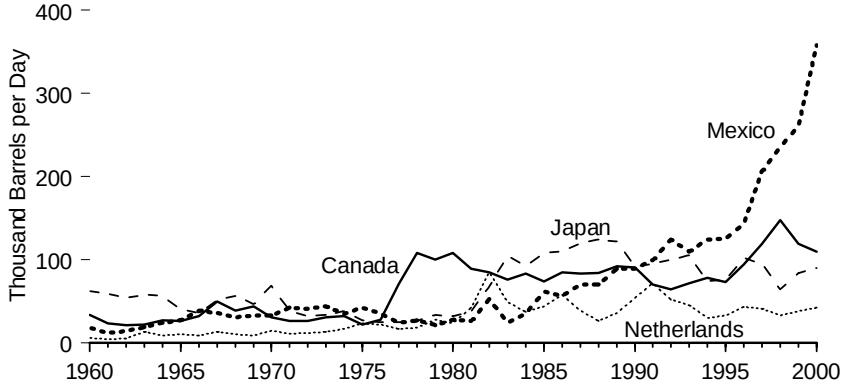
[1] Includes propylene.
[2] Includes aviation gasoline for the years 1949-1963.
[3] Asphalt and road oil, aviation gasoline, kerosene, motor gasoline blending components, pentanes plus, wax, and miscellaneous products.
[4] Included in the products from which jet fuel was blended.
R=Revised. P=Preliminary. NA=Not available. (s)=Less than 500 barrels per day.
Notes: • Includes exports to U.S. possessions and territories. • Totals may not equal sum of components due to independent rounding.
Web Page: http://www.eia.doe.gov/oil_gas/petroleum/pet_frame.html.
Sources: • 1949-1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • 1976-1980—Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • 1981-1999—EIA, *Petroleum Supply Annual,* annual reports. • 2000—EIA, *Petroleum Supply Monthly* (February 2001).

Figure 5.6 Petroleum Exports by Country of Destination

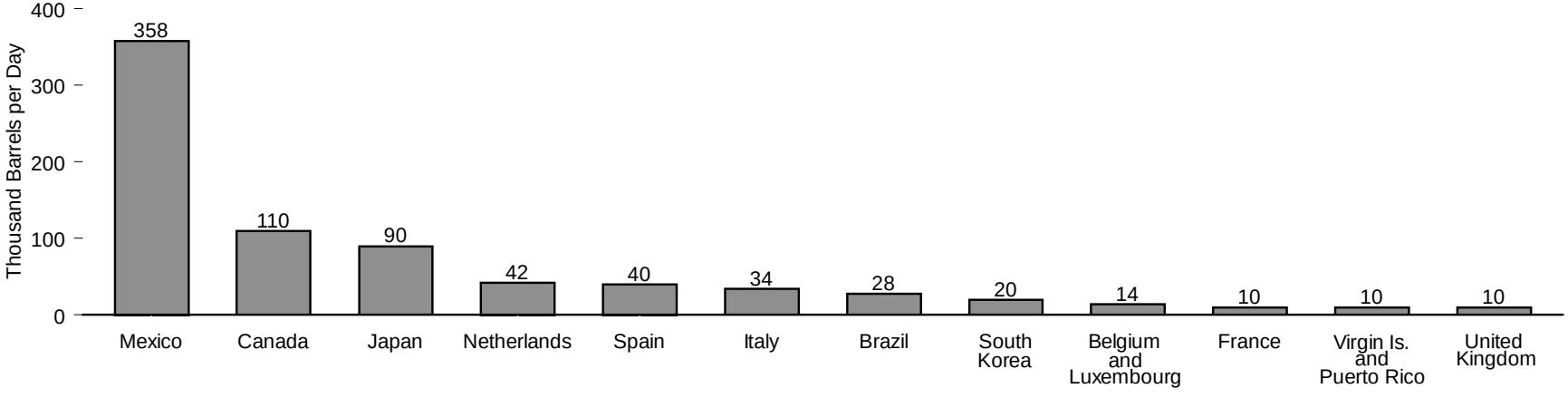
Total Exports and Exports to Canada and Mexico, 1960-2000



By Selected Country, 1960-2000



By Selected Country, 2000



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

Source: Table 5.6.

Table 5.6 Petroleum Exports by Country of Destination, 1960-2000

(Thousand Barrels per Day)

Year	Belgium and Luxembourg	Brazil	Canada	France	Italy	Japan	Mexico	Nether-lands	South Korea	Spain	United Kingdom	U.S. Virgin Islands and Puerto Rico	Other	Total
1960	3	4	34	4	6	62	18	6	NA	NA	12	1	52	202
1961	4	4	23	4	5	59	12	4	NA	NA	10	1	48	174
1962	3	5	21	3	5	54	14	5	NA	NA	8	1	50	168
1963	9	4	22	4	8	58	19	13	NA	NA	11	1	59	208
1964	4	4	27	4	8	56	24	9	NA	NA	10	2	55	202
1965	3	3	26	3	7	40	27	10	NA	NA	12	1	54	187
1966	3	4	32	4	7	36	39	9	NA	NA	12	3	49	198
1967	5	6	50	3	9	51	36	13	NA	NA	62	7	65	307
1968	4	8	39	4	8	56	31	10	NA	NA	14	2	55	231
1969	4	7	44	4	9	47	33	9	NA	NA	13	2	59	233
1970	5	7	31	5	10	69	33	15	NA	NA	12	2	71	259
1971	7	9	26	5	8	39	42	11	NA	NA	9	3	67	224
1972	13	9	26	5	9	32	41	12	NA	4	10	4	59	222
1973	15	8	31	5	9	34	44	13	NA	4	9	3	56	231
1974	13	9	32	4	9	38	35	17	NA	4	6	6	48	221
1975	9	6	22	6	10	27	42	23	NA	4	7	12	40	209
1976	12	7	28	6	10	25	35	22	NA	4	13	22	39	223
1977	16	6	71	9	10	25	24	17	NA	5	9	11	39	243
1978	15	8	108	9	10	26	27	18	NA	5	7	86	42	362
1979	19	7	100	13	15	34	21	28	2	9	7	170	45	471
1980	20	4	108	11	14	32	28	23	2	8	7	220	70	544
1981	12	1	89	15	22	38	26	42	10	18	5	220	97	595
1982	17	8	85	24	32	68	53	85	28	24	14	212	165	815
1983	22	2	76	23	35	104	24	49	15	34	8	144	202	739
1984	21	1	83	18	39	92	35	37	17	29	14	152	182	722
1985	26	3	74	11	30	108	61	44	27	28	14	162	193	781
1986	30	3	85	11	39	110	56	58	12	39	8	113	222	785
1987	17	2	83	12	42	120	70	39	25	31	6	136	179	764
1988	25	3	84	12	29	124	70	26	24	36	9	147	226	815
1989	23	5	92	11	37	122	89	36	17	28	9	141	249	859
1990	20	2	91	17	48	92	89	54	60	33	11	101	240	857
1991	22	13	70	27	55	95	99	72	66	23	13	117	330	1,001
1992	22	20	64	9	38	100	124	52	80	21	12	95	315	950
1993	21	16	72	8	34	105	110	45	74	30	10	108	370	1,003
1994	26	15	78	11	35	74	124	30	66	30	10	104	338	942
1995	21	16	73	11	46	76	125	33	57	38	14	123	317	949
1996	27	29	94	18	32	102	143	43	60	34	9	72	318	981
1997	21	15	119	11	30	95	207	41	50	42	12	18	340	1,003
1998	14	18	148	8	30	64	235	33	33	30	11	4	317	945
1999	11	27	119	7	25	84	261	38	49	26	9	8	276	940
2000[P]	14	28	110	10	34	90	358	42	20	40	10	10	277	1,040

P=Preliminary. NA=Not available.

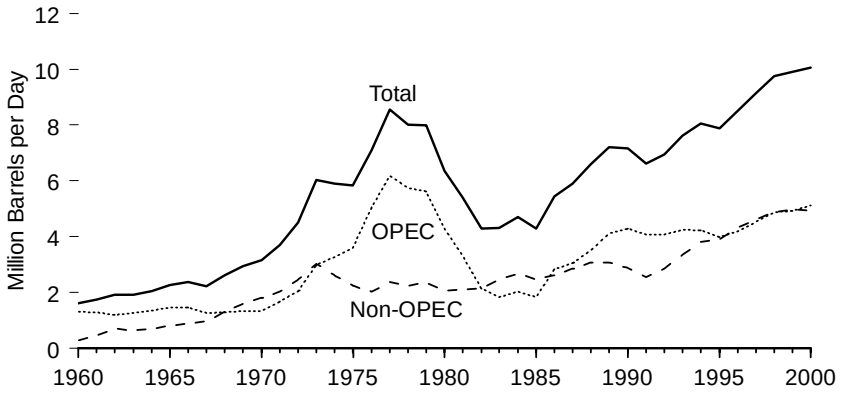
Note: Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/oil_gas/petroleum/pet_frame.html.

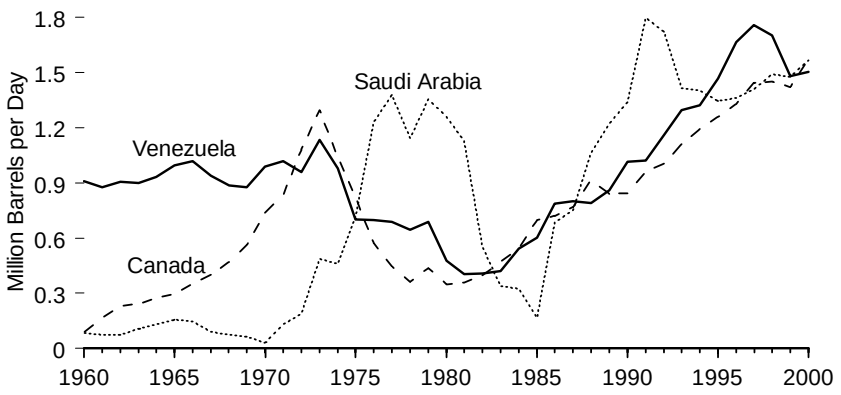
Sources: • 1960-1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • 1976-1980—Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • 1981-1999—EIA, *Petroleum Supply Annual,* annual reports. • 2000—EIA, *Petroleum Supply Monthly* (February 2001).

Figure 5.7 Petroleum Net Imports by Country of Origin, 1960-2000

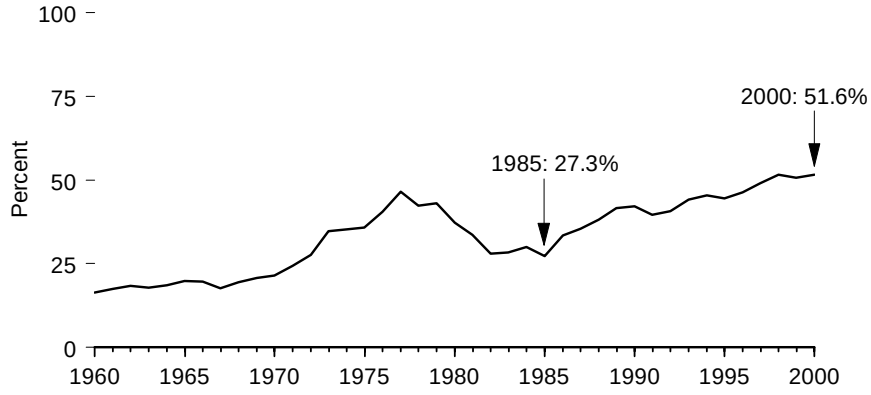
Total, OPEC, and Non-OPEC



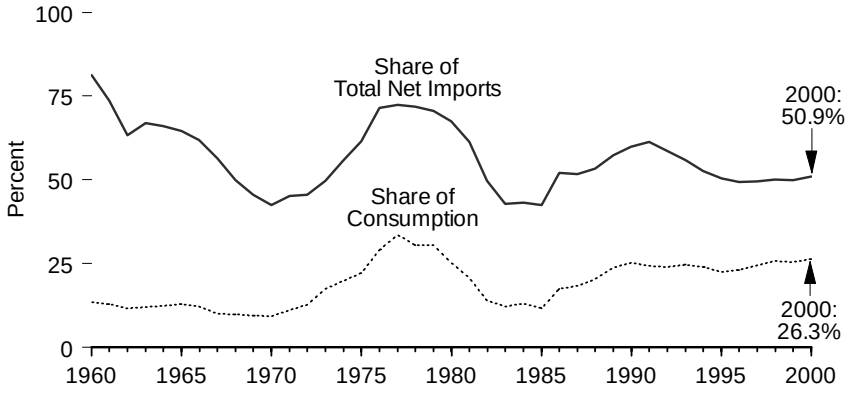
By Selected Country



Total Net Imports as Share of Consumption



Net Imports from OPEC



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

Source: Table 5.7.

Table 5.7 Petroleum Net Imports by Country of Origin, 1960-2000

Year	Selected OPEC [1] Countries						Selected Non-OPEC Countries					Total Net Imports	Total Net Imports as Share of Consumption [3]	Net Imports From OPEC	
	Persian Gulf Nations [2]	Algeria	Nigeria	Saudi Arabia	Venezuela	Total OPEC	Canada	Mexico	United Kingdom	U.S. Virgin Islands and Puerto Rico	Total Non-OPEC			Share of Total Net Imports [4]	Share of Consumption [5]
	Thousand Barrels per Day												Percent		
1960	NA	NA	0	84	910	1,311	86	-2	-12	34	302	1,613	16.5	81.3	13.4
1961	NA	NA	0	73	878	1,283	167	27	-10	42	460	1,743	17.5	73.6	12.9
1962	NA	NA	0	74	905	1,210	229	35	-6	40	703	1,913	18.4	63.3	11.6
1963	NA	NA	0	108	899	1,282	243	29	-7	43	632	1,915	17.8	67.0	11.9
1964	NA	NA	0	131	932	1,359	272	23	-9	45	698	2,057	18.7	66.1	12.3
1965	NA	NA	15	158	994	1,475	297	21	-11	45	806	2,281	19.8	64.7	12.8
1966	NA	NA	11	147	1,018	1,470	352	6	-6	58	904	2,375	19.7	61.9	12.2
1967	NA	NA	5	92	937	1,258	400	13	-51	89	972	2,230	17.8	56.4	10.0
1968	NA	NA	9	74	886	1,302	468	15	13	143	1,307	2,609	19.5	49.9	9.7
1969	NA	NA	49	65	875	1,336	564	10	7	186	1,598	2,933	20.8	45.5	9.5
1970	NA	NA	50	30	989	1,343	736	9	-1	270	1,817	3,161	21.5	42.5	9.1
1971	NA	NA	102	128	1,019	1,671	831	-14	1	365	2,030	3,701	24.3	45.2	11.0
1972	NA	NA	251	189	959	2,061	1,082	-20	-1	428	2,458	4,519	27.6	45.6	12.6
1973	NA	NA	459	485	1,134	2,991	1,294	-28	6	426	3,034	6,025	34.8	49.6	17.3
1974	NA	NA	713	461	978	3,277	1,038	-27	1	475	2,615	5,892	35.4	55.6	19.7
1975	NA	NA	762	714	702	3,599	824	29	7	484	2,248	5,846	35.8	61.6	22.1
1976	NA	NA	1,025	1,229	699	5,063	571	53	19	488	2,027	7,090	40.6	71.4	29.0
1977	NA	NA	1,143	1,379	689	6,190	446	155	117	560	2,375	8,565	46.5	72.3	33.6
1978	NA	NA	919	1,142	644	5,747	359	291	173	436	2,255	8,002	42.5	71.8	30.5
1979	NA	NA	1,080	1,354	688	5,633	438	418	196	353	2,352	7,985	43.1	70.5	30.4
1980	NA	NA	857	1,259	478	4,293	347	506	169	256	2,071	6,365	37.3	67.5	25.2
1981	1,215	311	620	1,128	403	3,315	358	497	370	169	2,086	5,401	33.6	61.4	20.6
1982	692	170	512	551	409	2,136	397	632	442	154	2,163	4,298	28.1	49.7	14.0
1983	439	240	299	336	420	1,843	471	802	374	178	2,469	4,312	28.3	42.7	12.1
1984	502	323	215	324	544	2,037	547	714	388	184	2,679	4,715	30.0	43.2	13.0
1985	309	187	293	167	602	1,821	696	755	295	114	2,465	4,286	27.3	42.5	11.6
1986	909	271	440	685	788	2,828	721	642	342	152	2,611	5,439	33.4	52.0	17.4
1987	1,074	295	535	751	801	3,055	765	585	346	158	2,859	5,914	35.5	51.7	18.3
1988	1,529	300	618	1,064	790	3,513	916	677	306	117	3,074	6,587	38.1	53.3	20.3
1989	1,858	269	815	1,224	861	4,124	839	678	206	212	3,078	7,202	41.6	57.3	23.8
1990	1,962	280	800	1,339	1,016	4,285	843	666	179	213	2,876	7,161	42.2	59.8	25.2
1991	1,833	253	703	1,796	1,020	4,065	963	707	125	153	2,561	6,626	39.6	61.3	24.3
1992	1,773	196	680	1,720	1,161	4,071	1,005	706	219	180	2,867	6,938	40.7	58.7	23.9
1993	1,774	219	736	1,413	1,296	4,253	1,109	809	340	175	3,365	7,618	44.2	55.8	24.7
1994	1,723	243	637	1,402	1,322	4,233	1,194	860	448	246	3,822	8,054	45.5	52.6	23.9
1995	1,563	234	626	1,343	1,468	3,980	1,260	943	369	170	3,906	7,886	44.5	50.5	22.5
1996	1,596	256	616	1,362	1,667	4,193	1,330	1,101	299	262	4,305	8,498	46.4	49.3	22.9
1997	1,747	285	693	1,407	1,758	4,542	1,444	1,178	214	298	4,616	9,158	49.2	49.6	24.4
1998	2,132	290	693	1,491	1,700	4,880	1,451	1,116	239	305	4,884	9,764	51.6	50.0	25.8
1999	R2,459	R259	R655	R1,478	R1,480	R4,934	R1,421	R1,063	R356	R284	R4,978	R9,912	R50.8	R49.8	R25.3
2000P	2,463	215	887	1,565	1,503	5,115	1,575	1,001	320	293	4,938	10,053	51.6	50.9	26.3

[1] Organization of Petroleum Exporting Countries. See Glossary for membership.

[2] Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, and United Arab Emirates.

[3] Calculated by dividing total net petroleum imports by total U.S. petroleum products supplied (consumption).

[4] Calculated by dividing net petroleum imports from OPEC countries by total net petroleum imports.

[5] Calculated by dividing net petroleum imports from OPEC countries by total U.S. petroleum product supplied (consumption).

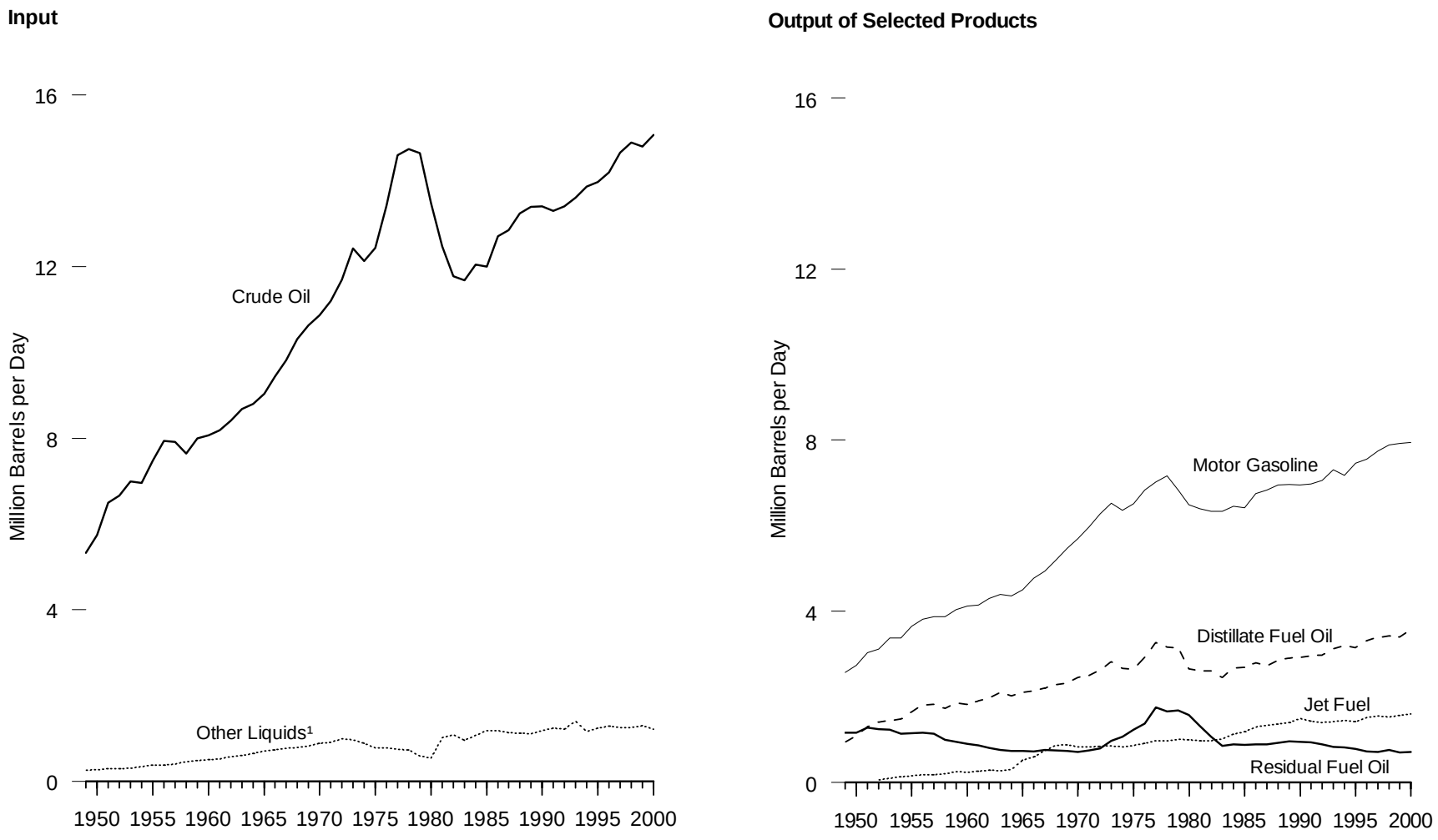
R=Revised. P=Preliminary. NA=Not available.

Notes: • The country of origin for refined petroleum products may not be the country of origin for the crude oil from which the refined products were produced. For example, refined products imported from refineries in the Caribbean may have been produced from Middle East crude oil. • Net imports are imports minus exports; negative numbers indicate that exports exceed imports. • Data include any imports for the Strategic Petroleum Reserve, which began in 1977. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/oil_gas/petroleum/pet_frame.html.

Sources: • 1960-1975—Bureau of Mines, *Minerals Yearbook,* "Crude Petroleum and Petroleum Products" chapter. • 1976-1980—Energy Information Administration (EIA), Energy Data Reports, *P.A.D. Districts Supply/Demand, Annual,* annual reports. • 1981-1999—EIA, *Petroleum Supply Annual,* annual reports. • 2000—EIA, *Petroleum Supply Monthly* (February 2001).

Figure 5.8 Refinery Input and Output, 1949-2000



[1] Includes natural gas plant liquids and other liquids.

Source: Table 5.8.

Table 5.8 Refinery Input and Output, 1949-2000

(Million Barrels per Day)

Year	Input				Output										Processing Gain
	Crude Oil	Natural Gas Plant Liquids	Other Liquids [1]	Total Input	Asphalt and Road Oil	Distillate Fuel Oil	Jet Fuel	Liquefied Petroleum Gases	Motor Gasoline [2]	Petroleum Coke	Residual Fuel Oil	Still Gas	Other Products [3]	Total Output	
1949	5.33	0.23	0.03	5.59	0.16	0.93	([4])	0.06	2.57	0.05	1.16	0.23	0.42	5.59	(s)
1950	5.74	0.26	0.02	6.02	0.18	1.09	([4])	0.08	2.74	0.05	1.16	0.23	0.49	6.02	(s)
1951	6.49	0.27	0.03	6.80	0.20	1.30	([4])	0.09	3.04	0.05	1.29	0.26	0.57	6.80	0.01
1952	6.67	0.28	0.01	6.97	0.21	1.42	0.06	0.08	3.12	0.05	1.24	0.26	0.54	6.97	0.01
1953	7.00	0.30	(s)	7.31	0.22	1.45	0.10	0.09	3.38	0.06	1.23	0.28	0.52	7.33	0.02
1954	6.96	0.32	0.02	7.30	0.23	1.49	0.13	0.09	3.38	0.07	1.14	0.28	0.53	7.32	0.02
1955	7.48	0.34	0.03	7.86	0.25	1.65	0.16	0.12	3.65	0.08	1.15	0.32	0.52	7.89	0.03
1956	7.94	0.37	0.01	8.32	0.27	1.82	0.18	0.14	3.82	0.08	1.17	0.33	0.55	8.36	0.04
1957	7.92	0.41	(s)	8.33	0.25	1.83	0.17	0.15	3.88	0.09	1.14	0.34	0.51	8.37	0.04
1958	7.64	0.37	0.09	8.11	0.26	1.73	0.20	0.16	3.87	0.10	1.00	0.35	0.51	8.17	0.06
1959	7.99	0.42	0.07	8.48	0.29	1.86	0.25	0.19	4.04	0.11	0.95	0.35	0.53	8.57	0.09
1960	8.07	0.45	0.06	8.58	0.29	1.82	0.24	0.21	4.13	0.16	0.91	0.35	0.62	8.73	0.15
1961	8.18	0.46	0.06	8.71	0.29	1.91	0.26	0.22	4.15	0.21	0.86	0.35	0.64	8.89	0.18
1962	8.41	0.50	0.08	8.99	0.32	1.97	0.28	0.21	4.30	0.22	0.81	0.36	0.69	9.16	0.18
1963	8.69	0.52	0.09	9.30	0.33	2.09	0.27	0.26	4.39	0.22	0.76	0.38	0.80	9.50	0.20
1964	8.81	0.58	0.07	9.46	0.33	2.03	0.29	0.29	4.37	0.23	0.73	0.38	1.03	9.68	0.22
1965	9.04	0.62	0.09	9.75	0.36	2.10	[5]0.52	0.29	4.51	0.24	0.74	0.39	0.83	9.97	0.22
1966	9.44	0.65	0.09	10.18	0.37	2.15	0.59	0.29	4.77	0.24	0.72	0.40	0.89	10.43	0.25
1967	9.82	0.67	0.09	10.58	0.37	2.20	0.75	0.31	4.94	0.25	0.76	0.41	0.89	10.87	0.29
1968	10.31	0.71	0.08	11.10	0.39	2.29	0.86	0.32	5.20	0.26	0.75	0.44	0.91	11.42	0.32
1969	10.63	0.72	0.11	11.46	0.40	2.32	0.88	0.34	5.47	0.28	0.73	0.47	0.91	11.79	0.34
1970	10.87	0.76	0.12	11.75	0.43	2.45	0.83	0.35	5.70	0.30	0.71	0.48	0.88	12.11	0.36
1971	11.20	0.78	0.14	12.12	0.45	2.50	0.83	0.36	5.97	0.30	0.75	0.47	0.86	12.50	0.38
1972	11.70	0.83	0.17	12.69	0.45	2.63	0.85	0.36	6.28	0.33	0.80	0.51	0.89	13.08	0.39
1973	12.43	0.82	0.15	13.40	0.48	2.82	0.86	0.37	6.53	0.36	0.97	0.52	0.94	13.85	0.45
1974	12.13	0.75	0.14	13.02	0.47	2.67	0.84	0.34	6.36	0.34	1.07	0.52	0.90	13.50	0.48
1975	12.44	0.71	0.07	13.23	0.41	2.65	0.87	0.31	6.52	0.35	1.24	0.52	0.81	13.68	0.46
1976	13.42	0.73	0.06	14.20	0.39	2.92	0.92	0.34	6.84	0.36	1.38	0.54	0.99	14.68	0.48
1977	14.60	0.67	0.07	15.35	0.43	3.28	0.97	0.35	7.03	0.37	1.75	0.57	1.11	15.87	0.52
1978	14.74	0.64	0.09	15.47	0.48	3.17	0.97	0.35	7.17	0.37	1.67	0.60	1.19	15.97	0.50
1979	14.65	0.51	0.08	15.24	0.47	3.15	1.01	0.34	6.84	0.38	1.69	0.60	1.30	15.76	0.53
1980	13.48	0.46	0.08	14.02	0.39	2.66	1.00	0.33	6.49	0.37	1.58	0.58	1.22	14.62	0.60
1981	12.47	0.52	0.49	13.48	0.34	2.61	0.97	0.31	6.40	0.39	1.32	0.57	1.08	13.99	0.51
1982	11.77	0.52	0.57	12.86	0.33	2.61	0.98	0.27	6.34	0.41	1.07	0.55	0.84	13.39	0.53
1983	11.69	0.46	0.50	12.65	0.37	2.46	1.02	0.33	6.34	0.42	0.85	0.55	0.80	13.14	0.49
1984	12.04	0.50	0.58	13.13	0.39	2.68	1.13	0.36	6.45	0.44	0.89	0.56	0.78	13.68	0.55
1985	12.00	0.51	0.68	13.19	0.40	2.69	1.19	0.39	6.42	0.45	0.88	0.58	0.74	13.75	0.56
1986	12.72	0.48	0.71	13.91	0.41	2.80	1.29	0.42	6.75	0.51	0.89	0.64	0.82	14.52	0.62
1987	12.85	0.47	0.67	13.99	0.43	2.73	1.34	0.45	6.84	0.51	0.89	0.64	0.79	14.63	0.64
1988	13.25	0.51	0.61	14.37	0.44	2.86	1.37	0.50	6.96	0.54	0.93	0.67	0.76	15.02	0.66
1989	13.40	0.50	0.61	14.51	0.42	2.90	1.40	0.55	6.96	0.54	0.95	0.68	0.75	15.17	0.66
1990	13.41	0.47	0.71	14.59	0.45	2.92	1.49	0.50	6.96	0.55	0.95	0.67	0.78	15.27	0.68
1991	13.30	0.47	0.77	14.54	0.43	2.96	1.44	0.54	6.98	0.57	0.93	0.65	0.76	15.26	0.71
1992	13.41	0.47	0.75	14.63	0.42	2.97	1.40	0.61	7.06	0.60	0.89	0.66	0.80	15.40	0.77
1993	13.61	0.49	0.92	15.02	0.45	3.13	1.42	0.59	7.30	0.62	0.84	0.65	0.78	15.79	0.77
1994	13.87	0.47	0.69	15.02	0.45	3.20	1.45	0.61	7.18	0.62	0.83	0.66	0.79	15.79	0.77
1995	13.97	0.47	0.78	15.22	0.47	3.16	1.42	0.65	7.46	0.63	0.79	0.65	0.78	15.99	0.77
1996	14.19	0.45	0.84	15.49	0.46	3.32	1.52	0.66	7.56	0.66	0.73	0.65	0.76	16.32	0.84
1997	14.66	0.42	0.83	15.91	0.48	3.39	1.55	0.69	7.74	0.69	0.71	0.66	0.84	16.76	0.85
1998	14.89	0.40	0.85	16.14	0.50	3.42	1.53	0.67	7.89	0.71	0.76	0.66	0.89	17.03	0.89
1999	[R]14.80	0.37	0.93	[R]16.10	0.50	[R]3.40	1.57	[R]0.68	[R]7.93	0.71	0.70	0.66	[R]0.83	[R]16.99	[R]0.89
2000[P]	15.08	0.37	0.85	16.30	0.53	3.58	1.61	0.70	7.95	0.73	0.71	0.66	0.80	17.25	0.95

[1] Prior to 1981, included unfinished oils (net), hydrogen, and hydrocarbons not included elsewhere; 1981 forward, included unfinished oils (net), motor gasoline blending components (net), aviation gasoline blending components (net), hydrogen, other hydrocarbons, and alcohol. See Note 1 at end of section.

[2] Prior to 1964, motor gasoline data were for total gasoline, including motor gasoline, aviation gasoline, and special naphthas.

[3] Kerosene, petrochemical feedstocks (excluding still gas), lubricants, wax, and miscellaneous products. Since 1964, aviation gasoline and special naphthas have been included.

[4] Included in the products from which jet fuel was blended: in 1952, 71 percent gasoline, 17 percent kerosene, and 12 percent distillate fuel.

[5] Prior to 1965, kerosene-type jet fuel was included in kerosene.

R=Revised. P=Preliminary. (s)=Less than 0.005 million barrels per day.

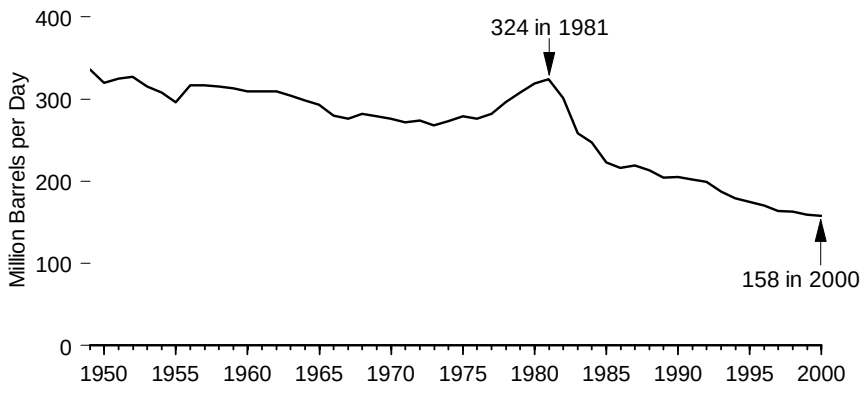
Note: Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/oil_gas/petroleum/pet_frame.html.

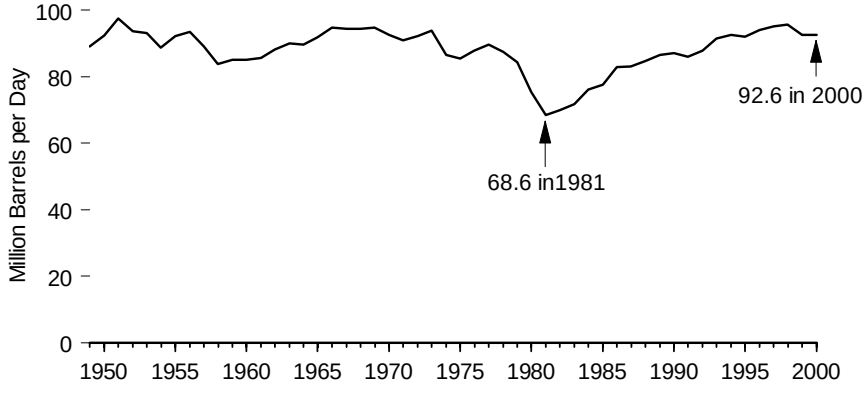
Sources: • 1949-1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • 1976-1980—Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • 1981-1999—EIA, *Petroleum Supply Annual,* annual reports. • 2000—EIA, *Petroleum Supply Monthly* (February 2001).

Figure 5.9 Refinery Capacity and Utilization, 1949-2000

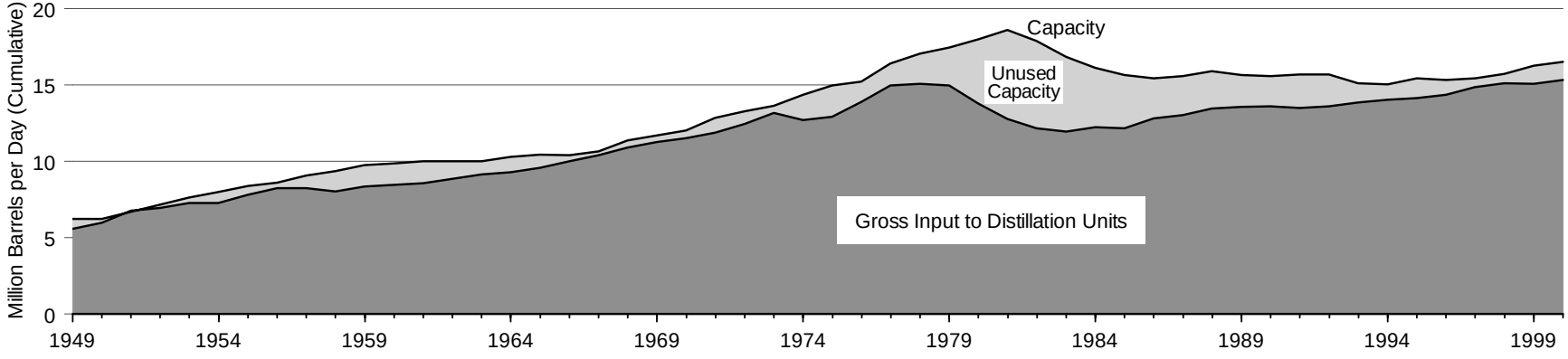
Number of Operable Refineries



Utilization



Unused Capacity



Source: Table 5.9.

Table 5.9 Refinery Capacity and Utilization, 1949-2000

Year	Operable Refineries		Gross Input to Distillation Units [3] (million barrels per day)	Utilization [4] (percent)
	Number [1]	Capacity [2] (million barrels per day)		
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	12.75	68.6
1982	301	17.89	12.17	69.9
1983	258	16.86	11.95	71.7
1984	247	16.14	12.22	76.2
1985	223	15.66	12.17	77.6
1986	216	15.46	12.83	82.9
1987	219	15.57	13.00	83.1
1988	213	15.92	13.45	84.7
1989	204	15.65	13.55	86.6
1990	205	15.57	13.61	87.1
1991	202	15.68	13.51	86.0
1992	199	15.70	13.60	87.9
1993	187	15.12	13.85	91.5
1994	179	15.03	14.03	92.6
1995	175	15.43	14.12	92.0
1996	170	15.33	14.34	94.1
1997	164	15.45	14.84	95.2
1998	163	15.71	15.11	95.6
1999	159	16.26	[R]15.08	[R]92.6
2000[P]	158	16.51	15.31	92.6

[1] Prior to 1956, the number of refineries included only those in operation on January 1. For 1957 forward, the number of refineries has included all operable refineries on January 1. See Glossary.

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

[3] See Note 4 at end of section.

[4] For 1949-1980, 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 forward, utilization is derived by averaging reported monthly utilization.

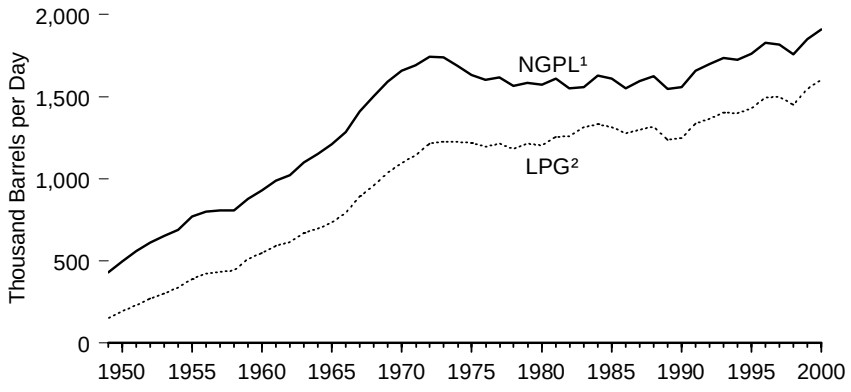
R=Revised. P=Preliminary.

Web Page: http://www.eia.doe.gov/oil_gas/petroleum/pet_frame.html.

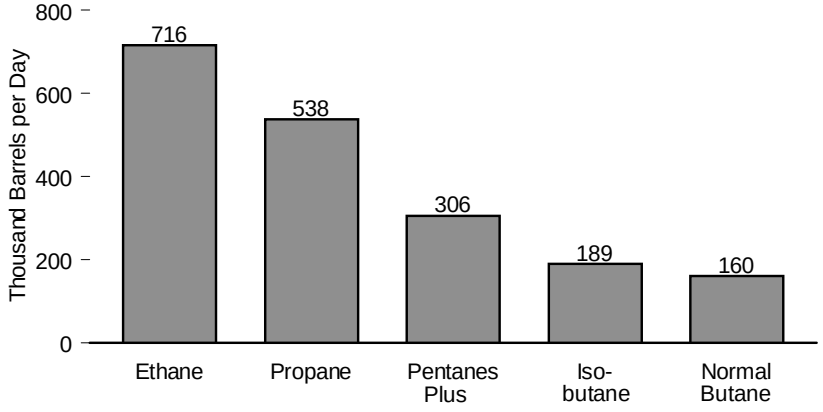
Sources: **Operable Refineries:** • 1949-1961—Bureau of Mines Information Circular, "Petroleum Refineries, Including Cracking Plants in the United States." • 1962-1977—Bureau of Mines, Mineral Industry Surveys, *Petroleum Refineries, Annual,* annual reports. • 1978-1981—Energy Information Administration (EIA), Energy Data Reports, *Petroleum Refineries in the United States.* • 1982-1999—EIA, *Petroleum Supply Annual,* annual reports. • 2000—EIA, *Petroleum Supply Monthly* (January 2000). **Gross Input to Distillation Units:** • 1949-1966—Bureau of Mines, *Minerals Yearbook,* "Natural Gas Liquids" and "Crude Petroleum and Petroleum Products" chapters. • 1967-1977—Bureau of Mines, Mineral Industry Surveys, *Petroleum Refineries, Annual,* annual reports. • 1978-1980—EIA, Energy Data Reports, *Petroleum Refineries in the United States and U.S. Territories.* • 1981-1999—EIA, *Petroleum Supply Annual,* annual reports. • 2000—EIA, *Petroleum Supply Monthly* (January-December 2000 issues). **Utilization:** • 1949-1980—Calculated. • 1981-1999—EIA, *Petroleum Supply Annual,* annual reports. • 2000—EIA, Calculated.

Figure 5.10 Natural Gas Plant Liquids Production

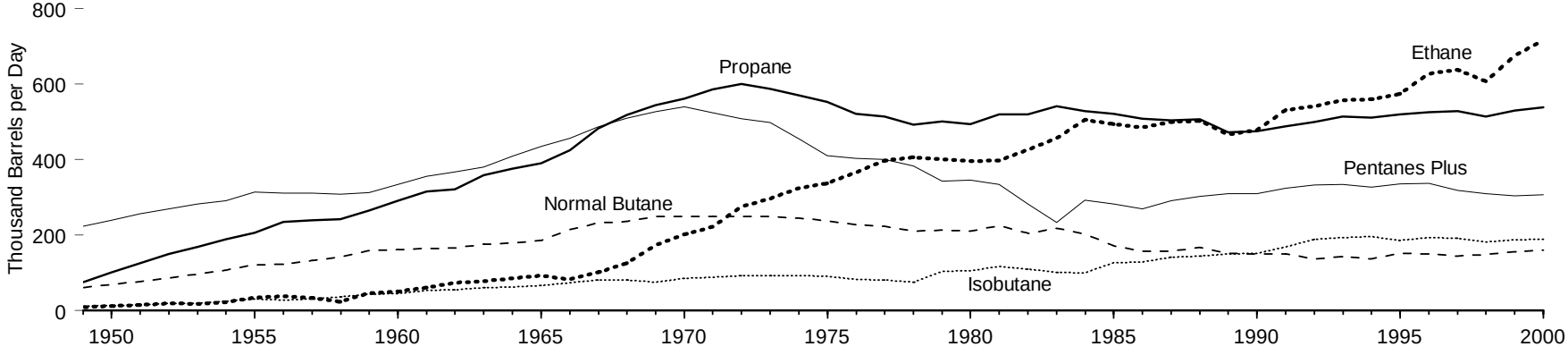
Total, 1949-2000



By Product, 2000



By Selected Product, 1949-2000



¹ Natural gas plant liquids.
² Liquefied petroleum gases.

Note: Because vertical scales differ, graphs should not be compared.
Source: Table 5.10.

Table 5.10 Natural Gas Plant Liquids Production, 1949-2000

(Thousand Barrels per Day)

Year	Finished Petroleum Products [1]	Liquefied Petroleum Gases					Pentanes Plus [4]	Total
		Ethane [2]	Isobutane	Normal Butane [3]	Propane [2,3]	Total		
1949	53	8	11	61	74	155	223	430
1950	66	12	13	69	101	195	238	499
1951	73	15	15	77	125	232	256	561
1952	70	19	18	86	150	273	269	611
1953	71	17	19	97	169	301	282	654
1954	61	22	24	106	188	339	290	691
1955	68	34	30	120	205	390	313	771
1956	68	37	27	123	235	422	310	800
1957	63	33	30	132	239	434	311	808
1958	58	23	36	141	242	442	307	808
1959	54	46	43	159	265	514	312	879
1960	47	51	45	161	291	549	333	929
1961	43	61	53	164	315	593	355	991
1962	41	73	55	165	321	614	367	1,021
1963	47	78	61	175	358	672	380	1,098
1964	48	84	62	178	375	699	408	1,154
1965	41	92	67	185	390	734	434	1,210
1966	37	82	73	214	424	792	456	1,284
1967	29	101	80	232	482	895	486	1,409
1968	35	125	81	236	517	960	509	1,504
1969	27	173	74	248	543	1,037	526	1,590
1970	25	201	84	248	561	1,095	540	1,660
1971	25	221	88	249	586	1,144	523	1,693
1972	21	275	92	249	600	1,215	507	1,744
1973	16	296	92	249	587	1,225	497	1,738
1974	7	323	92	244	569	1,227	454	1,688
1975	7	337	90	237	552	1,217	409	1,633
1976	6	365	82	227	521	1,195	403	1,604
1977	5	397	81	223	513	1,214	399	1,618
1978	3	406	75	210	491	1,182	382	1,567
1979	26	400	104	212	500	1,216	342	1,584
1980	23	396	105	210	494	1,205	345	1,573
1981	18	397	117	224	519	1,256	334	1,609
1982	11	426	109	204	519	1,258	282	1,550
1983	12	456	100	217	541	1,314	233	1,559
1984	4	505	99	203	527	1,334	292	1,630
1985	14	493	127	171	521	1,313	282	1,609
1986	4	485	128	157	508	1,277	269	1,551
1987	4	499	141	157	503	1,300	291	1,595
1988	4	501	144	167	506	1,319	302	1,625
1989	([5])	466	149	151	471	1,237	309	1,546
1990	([5])	477	151	149	474	1,250	309	1,559
1991	([5])	530	169	150	487	1,336	324	1,659
1992	([5])	541	189	137	499	1,365	332	1,697
1993	([5])	556	192	142	513	1,402	334	1,736
1994	([5])	559	195	136	510	1,400	326	1,727
1995	([5])	573	185	151	519	1,428	335	1,762
1996	([5])	627	192	150	525	1,494	336	1,830
1997	([5])	637	191	144	528	1,499	318	1,817
1998	([5])	607	181	148	513	1,450	309	1,759
1999	([5])	R675	R187	R155	R529	R1,547	R303	R1,850
2000P	([5])	716	189	160	538	1,603	306	1,908

[1] Motor gasoline, aviation gasoline, special naphthas, distillate fuel oil, and miscellaneous products.

[2] Reported production of ethane-propane mixtures has been allocated 70 percent ethane and 30 percent propane.

[3] Reported production of butane-propane mixtures has been allocated 60 percent butane and 40 percent propane.

[4] Prior to 1984, this category was reported separately as natural gasoline, isopentane, and plant condensate.

[5] Beginning in 1989, data on finished petroleum products production from natural gas processing plants were no longer available.

R=Revised. P=Preliminary.

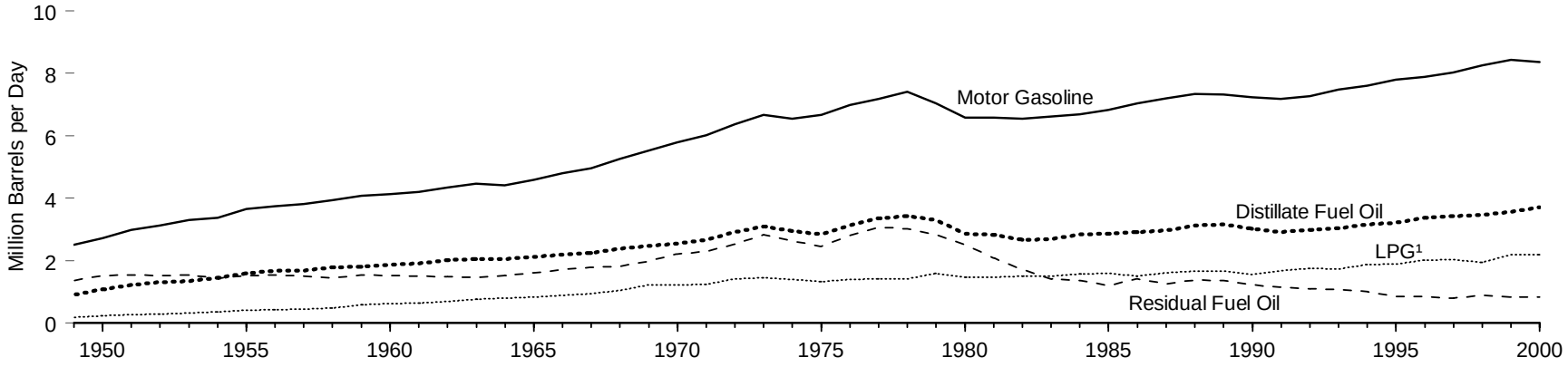
Note: Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/oil_gas/petroleum/pet_frame.html.

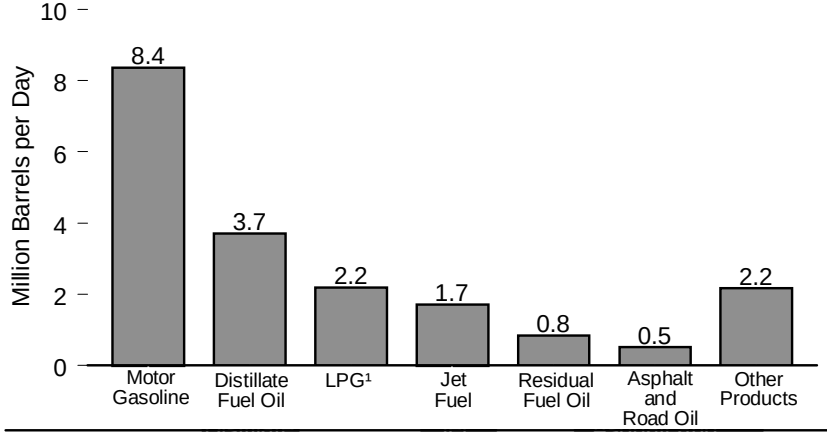
Sources: • 1949-1968—Bureau of Mines, *Minerals Yearbook,* "Crude Petroleum and Petroleum Products" chapter. • 1969-1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • 1976-1980—Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • 1981-1999—EIA, *Petroleum Supply Annual,* annual reports. • 2000—EIA, *Petroleum Supply Monthly* (February 2001).

Figure 5.11 Petroleum Products Supplied by Type

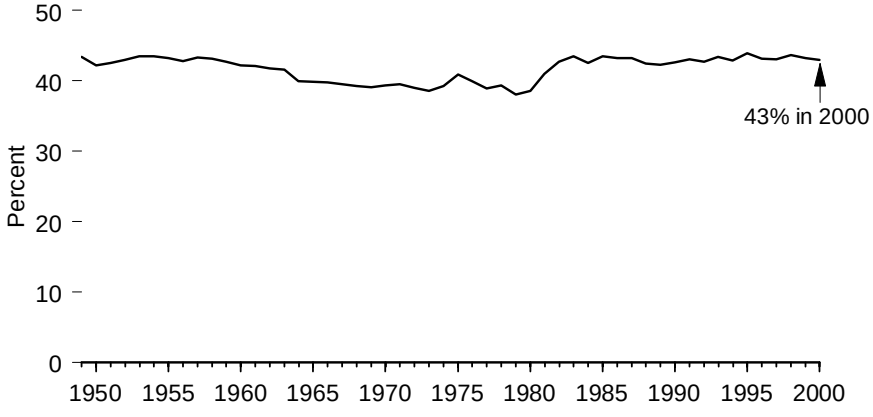
By Selected Product, 1949-2000



By Product, 2000



Motor Gasoline's Share of Total Petroleum Products Supplied, 1949-2000



[1] Liquefied petroleum gases.

Source: Table 5.11.

Table 5.11 Petroleum Products Supplied by Type, 1949-2000

(Million Barrels per Day)

Year	Asphalt and Road Oil	Distillate Fuel Oil	Jet Fuel	Liquefied Petroleum Gases		Motor Gasoline [2]	Residual Fuel Oil	Other Products [3]	Total Products	Percentage Change From Previous Year [4]
				Propane [1]	Total					
1949	0.16	0.90	([5])	NA	0.19	2.50	1.36	0.65	5.76	—
1950	0.18	1.08	([5])	NA	0.23	2.72	1.52	0.72	6.46	12.1
1951	0.20	1.23	([5])	NA	0.28	2.99	1.55	0.78	7.02	8.6
1952	0.21	1.30	0.05	NA	0.30	3.12	1.52	0.76	7.27	3.9
1953	0.22	1.34	0.09	NA	0.33	3.30	1.54	0.79	7.60	4.3
1954	0.23	1.44	0.13	NA	0.35	3.37	1.43	0.80	7.76	2.1
1955	0.25	1.59	0.15	NA	0.40	3.66	1.53	0.87	8.46	9.0
1956	0.27	1.68	0.20	NA	0.44	3.75	1.54	0.89	8.78	4.1
1957	0.26	1.69	0.20	NA	0.45	3.82	1.50	0.88	8.81	0.1
1958	0.28	1.79	0.26	NA	0.49	3.93	1.45	0.91	9.12	3.5
1959	0.30	1.81	0.29	NA	0.58	4.07	1.54	0.94	9.53	4.5
1960	0.30	1.87	0.28	NA	0.62	4.13	1.53	1.06	9.80	3.1
1961	0.31	1.90	0.29	NA	0.64	4.20	1.50	1.13	9.98	1.5
1962	0.33	2.01	0.31	NA	0.70	4.34	1.50	1.22	10.40	4.2
1963	0.34	2.05	0.32	NA	0.76	4.47	1.48	1.34	10.74	3.3
1964	0.35	2.05	0.32	NA	0.81	4.40	1.52	1.58	11.02	2.9
1965	0.37	2.13	0.60	NA	0.84	4.59	1.61	1.38	11.51	4.2
1966	0.39	2.18	0.67	NA	0.89	4.81	1.72	1.43	12.08	5.0
1967	0.38	2.24	0.82	0.62	0.94	4.96	1.79	1.43	12.56	3.9
1968	0.41	2.39	0.95	0.69	1.05	5.26	1.83	1.50	13.39	6.9
1969	0.42	2.47	0.99	0.78	1.22	5.53	1.98	1.54	14.14	5.3
1970	0.45	2.54	0.97	0.78	1.22	5.78	2.20	1.53	14.70	4.0
1971	0.46	2.66	1.01	0.79	1.25	6.01	2.30	1.52	15.21	3.5
1972	0.47	2.91	1.05	0.89	1.42	6.38	2.53	1.62	16.37	7.9
1973	0.52	3.09	1.06	0.87	1.45	6.67	2.82	1.69	17.31	5.5
1974	0.48	2.95	0.99	0.83	1.41	6.54	2.64	1.65	16.65	-3.8
1975	0.42	2.85	1.00	0.78	1.33	6.67	2.46	1.58	16.32	-2.0
1976	0.41	3.13	0.99	0.83	1.40	6.98	2.80	1.75	17.46	7.3
1977	0.44	3.35	1.04	0.82	1.42	7.18	3.07	1.94	18.43	5.3
1978	0.48	3.43	1.06	0.78	1.41	7.41	3.02	2.03	18.85	2.3
1979	0.48	3.31	1.08	0.85	1.59	7.03	2.83	2.20	18.51	-1.8
1980	0.40	2.87	1.07	0.75	1.47	6.58	2.51	2.17	17.06	-7.6
1981	0.34	2.83	1.01	0.77	1.47	6.59	2.09	1.74	16.06	-6.1
1982	0.34	2.67	1.01	0.80	1.50	6.54	1.72	1.51	15.30	-4.7
1983	0.37	2.69	1.05	0.75	1.51	6.62	1.42	1.57	15.23	-0.4
1984	0.41	2.84	1.18	0.83	1.57	6.69	1.37	1.66	15.73	3.5
1985	0.43	2.87	1.22	0.88	1.60	6.83	1.20	1.58	15.73	-0.3
1986	0.45	2.91	1.31	0.83	1.51	7.03	1.42	1.65	16.28	3.5
1987	0.47	2.98	1.38	0.92	1.61	7.21	1.26	1.76	16.67	2.4
1988	0.47	3.12	1.45	0.92	1.66	7.34	1.38	1.87	17.28	4.0
1989	0.45	3.16	1.49	0.99	1.67	7.33	1.37	1.86	17.33	0.0
1990	0.48	3.02	1.52	0.92	1.56	7.23	1.23	1.94	16.99	-1.9
1991	0.44	2.92	1.47	0.98	1.69	7.19	1.16	1.84	16.71	-1.6
1992	0.45	2.98	1.45	1.03	1.76	7.27	1.09	2.03	17.03	2.2
1993	0.47	3.04	1.47	1.01	1.73	7.48	1.08	1.96	17.24	0.9
1994	0.48	3.16	1.53	1.08	1.88	7.60	1.02	2.04	17.72	2.8
1995	0.49	3.21	1.51	1.10	1.90	7.79	0.85	1.98	17.72	0.0
1996	0.48	3.37	1.58	1.14	2.01	7.89	0.85	2.13	18.31	3.6
1997	0.51	3.44	1.60	1.17	2.04	8.02	0.80	2.23	18.62	1.4
1998	0.52	3.46	1.62	1.12	1.95	8.25	0.89	2.22	18.92	1.6
1999	0.55	[R]3.57	1.67	1.25	[R]2.20	[R]8.43	0.83	[R]2.27	[R]19.52	[R]3.2
2000[P]	0.52	3.70	1.70	1.20	2.18	8.36	0.83	2.16	19.48	0.0

[1] Includes propylene.

[2] Prior to 1964, motor gasoline data were for total gasoline, including motor gasoline, aviation gasoline, and special naphthas.

[3] Kerosene, petrochemical feedstocks, lubricants, wax, petroleum coke, still gas, pentanes plus, and miscellaneous products. Since 1964, aviation gasoline and special naphthas have been included. Prior to 1965, kerosene-type jet fuel was included in kerosene. For 1981 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 has also included crude oil burned as fuel.

[4] Percent change from previous year calculated from data in thousand barrels per year.

[5] Included in the products from which jet fuel was blended: in 1952, 71 percent gasoline, 17 percent kerosene, and 12 percent distillate fuel.

R=Revised. P=Preliminary. NA=Not available. — = Not applicable.

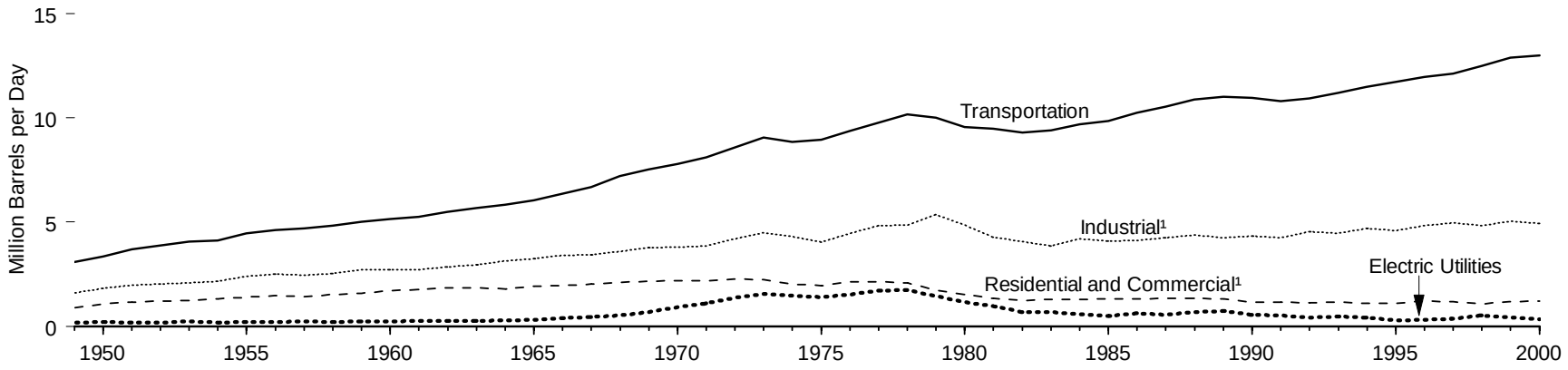
Notes: • For the definition of petroleum products supplied, see Notes 1, 2, and 3 at end of section. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/oil_gas/petroleum/pet_frame.html.

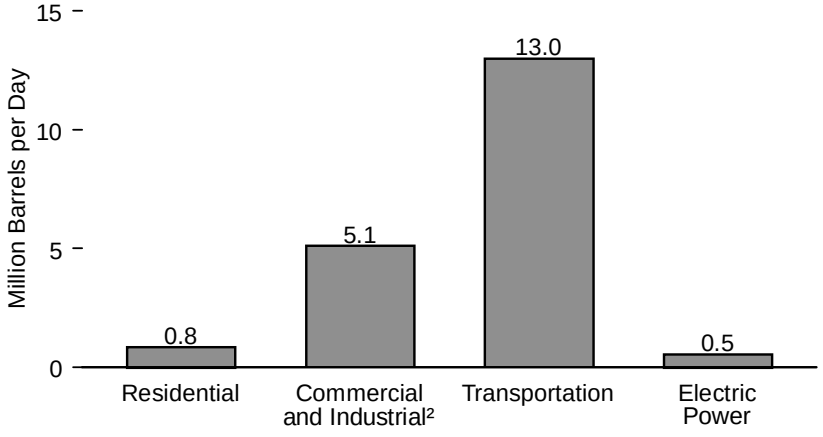
Sources: • 1949-1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • 1976-1980—Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • 1981-1999—EIA, *Petroleum Supply Annual,* annual reports. • 2000—EIA, *Petroleum Supply Monthly* (February 2001).

Figure 5.12a Petroleum Consumption by Sector

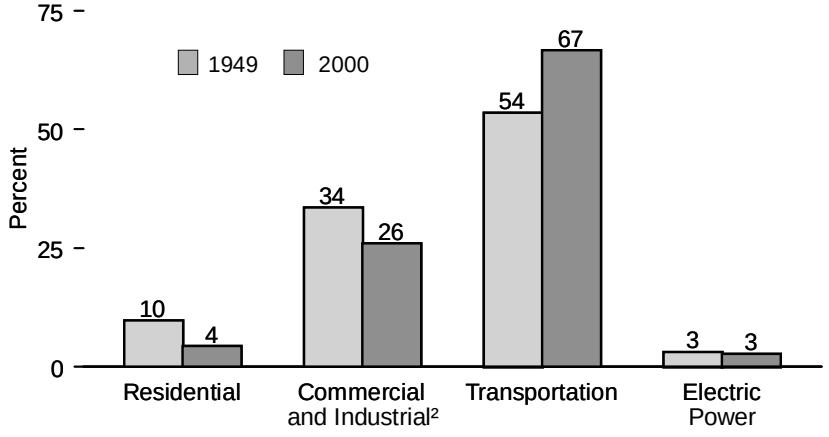
By Sector, 1949-2000



By Sector, 2000



End Use and Electric Power Shares, 1949 and 2000



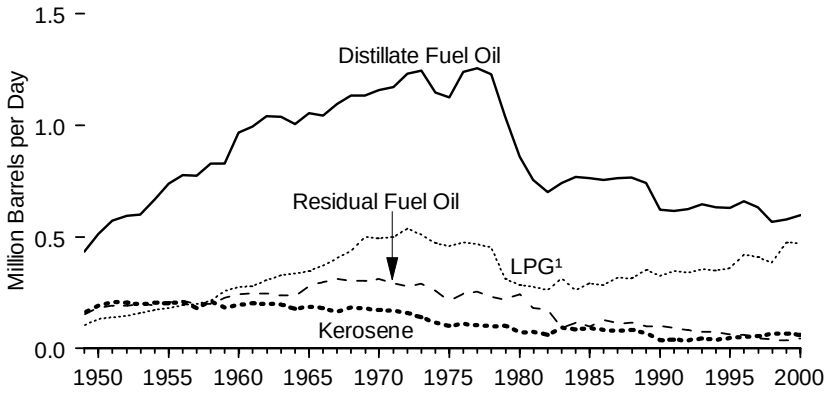
[1] Includes some petroleum that is also counted in nonutility power producers in the electric power sector.

[2] Includes "End-Use/Nonutility Adjustment." See Table 5.12d.

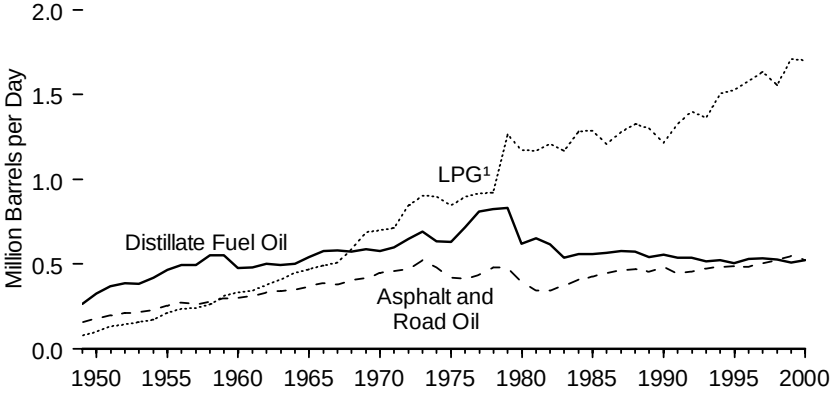
Note: See related Figure 5.12b.
Sources: Tables 5.12a–5.12d.

Figure 5.12b Petroleum Consumption by Product by Sector, 1949-2000

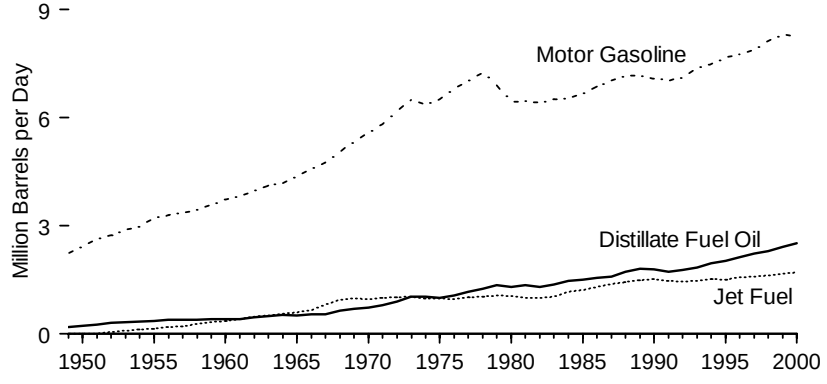
Residential and Commercial Sectors, Selected Products



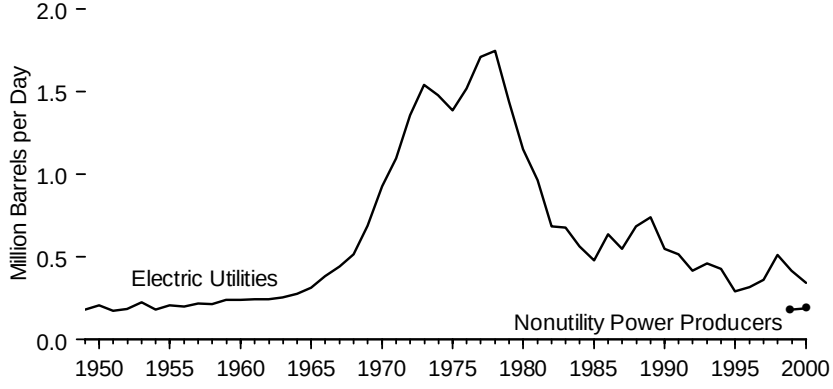
Industrial Sector, Selected Products



Transportation Sector, Selected Products



Electric Power Sector



[1] Liquefied petroleum gases.

Notes: • See related Figure 5.12a. • Because vertical scales differ, graphs should not be compared.

Sources: Tables 5.12a–5.12d.

Table 5.12a Petroleum Consumption by the Residential and Commercial Sectors, 1949-2000

(Million Barrels per Day)

Year	End-Use Sectors									
	Residential Sector				Commercial Sector					
	Distillate Fuel Oil	Kerosene	Liquefied Petroleum Gases	Total	Distillate Fuel Oil [1]	Kerosene	Liquefied Petroleum Gases	Motor Gasoline	Residual Fuel Oil [1]	Total [1]
1949	0.33	0.14	0.09	0.56	0.10	0.02	0.02	0.05	0.15	0.34
1950	0.39	0.17	0.11	0.67	0.12	0.02	0.02	0.05	0.18	0.40
1951	0.44	0.18	0.12	0.74	0.14	0.02	0.02	0.06	0.19	0.43
1952	0.45	0.18	0.13	0.76	0.14	0.02	0.02	0.06	0.19	0.44
1953	0.46	0.17	0.14	0.77	0.14	0.02	0.02	0.06	0.20	0.45
1954	0.51	0.18	0.15	0.83	0.16	0.02	0.03	0.06	0.19	0.47
1955	0.56	0.18	0.16	0.90	0.18	0.02	0.03	0.07	0.21	0.51
1956	0.59	0.18	0.17	0.94	0.19	0.02	0.03	0.07	0.21	0.53
1957	0.59	0.16	0.17	0.92	0.19	0.02	0.03	0.07	0.20	0.51
1958	0.63	0.19	0.18	1.00	0.20	0.03	0.03	0.07	0.20	0.53
1959	0.63	0.16	0.22	1.01	0.20	0.02	0.04	0.08	0.23	0.56
1960	0.74	0.17	0.23	1.14	0.23	0.02	0.04	0.03	0.24	0.57
1961	0.76	0.18	0.24	1.18	0.24	0.02	0.04	0.04	0.25	0.58
1962	0.79	0.18	0.26	1.23	0.25	0.02	0.05	0.04	0.25	0.60
1963	0.79	0.18	0.28	1.25	0.25	0.02	0.05	0.04	0.24	0.59
1964	0.77	0.16	0.29	1.21	0.24	0.02	0.05	0.04	0.24	0.59
1965	0.81	0.16	0.30	1.26	0.25	0.03	0.05	0.04	0.28	0.65
1966	0.80	0.15	0.32	1.26	0.25	0.03	0.06	0.04	0.30	0.67
1967	0.84	0.14	0.34	1.32	0.26	0.02	0.06	0.04	0.31	0.70
1968	0.87	0.15	0.37	1.39	0.27	0.03	0.07	0.04	0.31	0.71
1969	0.86	0.15	0.42	1.44	0.27	0.03	0.07	0.04	0.30	0.72
1970	0.88	0.14	0.42	1.45	0.28	0.03	0.07	0.05	0.31	0.74
1971	0.89	0.14	0.43	1.46	0.28	0.03	0.08	0.04	0.29	0.72
1972	0.94	0.13	0.46	1.52	0.30	0.03	0.08	0.05	0.28	0.73
1973	0.94	0.11	0.44	1.49	0.30	0.03	0.08	0.05	0.29	0.75
1974	0.87	0.09	0.40	1.36	0.28	0.03	0.07	0.04	0.26	0.68
1975	0.85	0.08	0.39	1.32	0.28	0.02	0.07	0.05	0.21	0.63
1976	0.93	0.09	0.40	1.43	0.31	0.02	0.07	0.05	0.25	0.70
1977	0.94	0.08	0.40	1.42	0.32	0.03	0.07	0.05	0.26	0.72
1978	0.92	0.07	0.39	1.38	0.31	0.03	0.07	0.06	0.23	0.69
1979	0.76	0.06	0.26	1.09	0.27	0.04	0.05	0.05	0.22	0.63
1980	0.62	0.05	0.24	0.91	0.24	0.02	0.04	0.06	0.25	0.61
1981	0.54	0.04	0.23	0.81	0.22	0.03	0.04	0.05	0.18	0.52
1982	0.49	0.05	0.22	0.76	0.21	0.01	0.04	0.05	0.17	0.48
1983	0.43	0.04	0.27	0.74	0.31	0.05	0.05	0.05	0.09	0.55
1984	0.45	0.04	0.22	0.71	0.32	0.04	0.04	0.06	0.12	0.57
1985	0.47	0.08	0.25	0.79	0.29	0.02	0.04	0.05	0.10	0.50
1986	0.48	0.06	0.24	0.78	0.28	0.02	0.04	0.06	0.13	0.53
1987	0.48	0.06	0.27	0.81	0.28	0.02	0.05	0.06	0.11	0.52
1988	0.50	0.07	0.27	0.83	0.27	0.01	0.05	0.06	0.11	0.50
1989	0.49	0.06	0.30	0.84	0.25	0.01	0.05	0.05	0.10	0.47
1990	0.39	0.03	0.28	0.70	0.23	0.01	0.05	0.06	0.10	0.44
1991	0.39	0.03	0.30	0.72	0.23	0.01	0.05	0.04	0.09	0.42
1992	0.41	0.03	0.29	0.73	0.22	0.01	0.05	0.04	0.08	0.40
1993	0.43	0.04	0.30	0.77	0.22	0.01	0.05	0.02	0.08	0.37
1994	0.41	0.03	0.30	0.74	0.22	0.01	0.05	0.01	0.08	0.37
1995	0.42	0.04	0.31	0.76	0.22	0.01	0.05	0.01	0.06	0.35
1996	0.44	0.04	0.36	0.84	0.22	0.01	0.06	0.01	0.06	0.37
1997	0.42	0.04	0.35	0.82	0.21	0.01	0.06	0.02	0.05	0.36
1998	0.37	0.05	0.33	0.75	0.20	0.02	0.06	0.02	0.04	0.33
1999	0.38	0.05	0.40	0.84	0.20	0.01	0.07	0.02	0.04	0.34
2000	E0.39	E0.05	E0.40	E0.85	E0.20	E0.01	E0.07	E0.02	E0.04	E0.35

[1] Includes consumption at nonutilities.
E=Estimate.

Notes:
- See Notes 1, 2, and 3 at end of section for comments on the calculation of consumption.
- Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/emeu/states/_states.html.

Sources:
- 1949-1959—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports, and Energy Information Administration (EIA) estimates.
- 1960-1999—EIA, *State Energy Data Report 1999* (May 2001).
- 2000—EIA, Integrated Modeling Data System output for the *Monthly Energy Review* (March 2001).

Table 5.12b Petroleum Consumption by the Industrial Sector, 1949-2000

(Million Barrels per Day)

Year	End-Use Sectors								
	Industrial Sector								
	Asphalt and Road Oil	Distillate Fuel Oil [1]	Kerosene	Liquefied Petroleum Gases	Lubricants	Motor Gasoline	Residual Fuel Oil [1]	Other [1,2]	Total [1]
1949	0.16	0.27	0.12	0.08	0.04	0.12	0.53	0.28	1.60
1950	0.18	0.33	0.13	0.10	0.04	0.13	0.62	0.29	1.82
1951	0.20	0.37	0.13	0.13	0.05	0.14	0.63	0.33	1.98
1952	0.21	0.39	0.13	0.14	0.04	0.15	0.63	0.33	2.02
1953	0.22	0.38	0.12	0.16	0.04	0.16	0.65	0.36	2.08
1954	0.23	0.42	0.12	0.17	0.04	0.16	0.64	0.37	2.16
1955	0.25	0.47	0.12	0.21	0.05	0.17	0.69	0.43	2.39
1956	0.27	0.49	0.11	0.23	0.05	0.18	0.70	0.45	2.49
1957	0.26	0.49	0.10	0.24	0.05	0.18	0.66	0.48	2.46
1958	0.28	0.55	0.08	0.26	0.04	0.19	0.64	0.50	2.54
1959	0.30	0.55	0.08	0.31	0.05	0.19	0.70	0.52	2.71
1960	0.30	0.48	0.08	0.33	0.05	0.20	0.69	0.58	2.71
1961	0.31	0.48	0.06	0.34	0.05	0.19	0.66	R0.62	2.72
1962	0.33	0.50	0.07	0.38	0.05	0.19	0.67	0.65	2.84
1963	0.34	0.50	0.07	0.41	0.05	0.18	0.67	0.74	2.96
1964	0.35	0.50	0.08	0.45	0.06	0.18	0.68	0.84	3.12
1965	0.37	0.54	0.08	0.47	0.06	0.18	0.69	0.86	3.25
1966	0.39	0.58	0.09	0.49	0.06	0.17	0.71	0.92	3.40
1967	0.38	0.58	0.11	0.51	0.06	0.16	0.69	0.94	3.43
1968	0.41	0.57	0.10	0.59	0.07	0.16	0.68	1.01	3.58
1969	0.42	0.59	0.10	0.69	0.07	0.15	0.69	1.06	3.76
1970	0.45	0.58	0.09	0.70	0.07	0.15	0.71	1.07	3.81
1971	0.46	0.60	0.08	0.71	0.07	0.14	0.71	1.08	3.84
1972	0.47	0.65	0.08	0.85	0.07	0.13	0.77	1.18	4.19
1973	0.52	0.69	0.08	0.90	0.09	0.13	0.81	1.26	4.48
1974	0.48	0.63	0.06	0.90	0.08	0.12	0.75	1.26	4.30
1975	0.42	0.63	0.06	0.84	0.07	0.12	0.66	1.25	4.04
1976	0.41	0.72	0.06	0.90	0.07	0.11	0.79	1.39	4.45
1977	0.44	0.81	0.07	0.92	0.08	0.10	0.84	1.56	4.82
1978	0.48	0.82	0.08	0.92	0.09	0.09	0.75	1.64	4.87
1979	0.48	0.83	0.09	1.27	0.09	0.08	0.72	1.79	5.34
1980	0.40	0.62	0.09	1.17	0.08	0.08	0.59	1.81	4.84
1981	0.34	0.65	0.05	1.17	0.08	0.08	0.47	1.43	4.27
1982	0.34	0.62	0.07	1.21	0.07	0.07	0.46	1.22	4.06
1983	0.37	0.54	0.03	1.17	0.08	0.06	0.34	1.27	3.85
1984	0.41	0.56	0.03	1.28	0.08	0.08	0.39	1.36	4.19
1985	0.43	0.56	0.02	1.29	0.07	0.11	0.33	1.29	4.10
1986	0.45	0.56	0.02	1.21	0.07	0.11	0.32	1.37	4.11
1987	0.47	0.58	0.01	1.28	0.08	0.11	0.25	1.47	4.25
1988	0.47	0.57	0.01	1.33	0.08	0.10	0.24	1.59	4.39
1989	0.45	0.54	0.01	1.30	0.08	0.10	0.18	1.58	4.26
1990	0.48	0.56	0.01	1.22	0.08	0.10	0.18	1.70	4.32
1991	0.44	0.54	0.01	1.33	0.08	0.10	0.15	1.62	4.25
1992	0.45	0.54	(s)	1.40	0.08	0.10	0.17	1.80	4.55
1993	0.47	0.52	0.01	1.36	0.08	0.09	0.20	1.72	4.45
1994	0.48	0.52	0.01	1.50	0.08	0.10	0.19	1.80	4.69
1995	0.49	0.51	0.01	1.53	0.08	0.11	0.15	1.74	4.60
1996	0.48	0.53	0.01	R1.58	0.08	0.10	0.15	1.89	R4.82
1997	0.51	0.53	0.01	R1.63	0.08	0.11	0.13	1.96	4.97
1998	0.52	R0.52	0.01	R1.55	0.09	0.10	0.11	1.93	R4.84
1999	0.55	R0.51	0.01	R1.71	0.09	R0.08	R0.11	R1.99	R5.03
2000	E0.52	E0.52	E0.01	E1.70	E0.09	E0.08	E0.12	E1.89	E4.94

[1] Includes consumption at nonutilities.

[2] Petroleum coke, still gas (refinery gas), petrochemical feedstocks, special naphthas, waxes, natural gasoline, pentanes plus, crude oil, and miscellaneous products.

R=Revised. E=Estimate. (s)=Less than 0.005 million barrels per day.

Notes: • See Notes 1, 2, and 3 at end of section for comments on the calculation of consumption. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/emeu/states/_states.html.

Sources: • 1949-1959—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports, and Energy Information Administration (EIA) estimates. • 1960-1999—EIA, *State Energy Data Report 1999* (May 2001). • 2000—EIA, Integrated Modeling Data System output for the *Monthly Energy Review* (March 2001).

Table 5.12c Petroleum Consumption by the Transportation Sector, and End-Use Total, 1949-2000

(Million Barrels per Day)

Year	End-Use Sectors								
	Transportation								
	Aviation Gasoline	Distillate Fuel Oil	Jet Fuel	Liquefied Petroleum Gases	Lubricants	Motor Gasoline [1]	Residual Fuel Oil	Total	End-Use Total
1949	0.09	0.19	0.00	(s)	0.05	2.24	0.50	3.08	5.58
1950	0.11	0.23	0.00	(s)	0.06	2.43	0.52	3.36	6.25
1951	0.15	0.27	0.00	(s)	0.07	2.64	0.56	3.69	6.84
1952	0.17	0.31	0.05	0.01	0.06	2.75	0.52	3.87	7.09
1953	0.19	0.34	0.09	0.01	0.07	2.89	0.48	4.07	7.37
1954	0.18	0.34	0.13	0.01	0.06	2.97	0.43	4.11	7.57
1955	0.19	0.37	0.15	0.01	0.07	3.22	0.44	4.46	8.25
1956	0.20	0.40	0.20	0.01	0.07	3.30	0.44	4.62	8.58
1957	0.20	0.41	0.22	0.01	0.07	3.36	0.44	4.71	8.59
1958	0.22	0.39	0.27	0.01	0.06	3.45	0.41	4.83	8.91
1959	0.21	0.41	0.33	0.01	0.07	3.59	0.39	5.01	9.28
1960	0.16	0.42	0.37	0.01	0.07	3.74	0.37	5.14	9.56
1961	0.16	0.42	0.42	0.01	0.07	3.82	0.36	5.25	9.73
1962	0.14	0.45	0.49	0.02	0.07	3.97	0.34	5.48	10.16
1963	0.14	0.50	0.52	0.02	0.07	4.11	0.33	5.68	10.49
1964	0.13	0.53	0.56	0.02	0.07	4.19	0.34	5.83	10.75
1965	0.12	0.51	0.60	0.02	0.07	4.37	0.34	6.04	11.20
1966	0.11	0.55	0.67	0.03	0.07	4.60	0.34	6.36	11.70
1967	0.09	0.54	0.82	0.03	0.06	4.76	0.36	6.66	12.12
1968	0.08	0.65	0.95	0.03	0.07	5.06	0.35	7.20	12.88
1969	0.07	0.70	0.99	0.03	0.07	5.33	0.33	7.52	13.45
1970	0.05	0.74	0.97	0.03	0.07	5.59	0.33	7.78	13.77
1971	0.05	0.80	1.01	0.04	0.07	5.83	0.31	8.09	14.12
1972	0.05	0.91	1.02	0.04	0.07	6.20	0.28	8.57	15.01
1973	0.05	1.05	1.04	0.04	0.07	6.50	0.32	9.05	15.77
1974	0.04	1.04	0.98	0.03	0.07	6.37	0.30	8.84	15.17
1975	0.04	1.00	0.99	0.03	0.07	6.51	0.31	8.95	14.93
1976	0.04	1.07	0.98	0.03	0.08	6.82	0.36	9.37	15.94
1977	0.04	1.17	1.02	0.04	0.08	7.02	0.40	9.76	16.72
1978	0.04	1.26	1.04	0.04	0.08	7.26	0.43	10.16	17.10
1979	0.04	1.37	1.07	0.02	0.09	6.90	0.54	10.01	17.08
1980	0.03	1.31	1.06	0.01	0.08	6.44	0.61	9.55	15.91
1981	0.03	1.36	1.01	0.02	0.07	6.46	0.53	9.49	15.09
1982	0.03	1.31	1.01	0.02	0.07	6.42	0.44	9.31	14.61
1983	0.03	1.37	1.05	0.03	0.07	6.51	0.36	9.41	14.55
1984	0.02	1.47	1.18	0.03	0.08	6.55	0.35	9.68	15.16
1985	0.03	1.51	1.22	0.02	0.07	6.67	0.34	9.85	15.25
1986	0.03	1.55	1.31	0.02	0.07	6.87	0.38	10.23	15.64
1987	0.02	1.59	1.38	0.02	0.08	7.04	0.39	10.53	16.11
1988	0.03	1.73	1.45	0.02	0.08	7.18	0.40	10.88	16.60
1989	0.03	1.81	1.49	0.02	0.08	7.17	0.43	11.01	16.59
1990	0.02	1.80	1.52	0.02	0.08	7.08	0.45	10.97	16.44
1991	0.02	1.73	1.47	0.02	0.07	7.04	0.45	10.80	16.20
1992	0.02	1.79	1.45	0.01	0.07	7.13	0.47	10.95	16.62
1993	0.02	1.84	1.47	0.01	0.07	7.37	0.40	11.18	16.77
1994	0.02	1.96	1.53	0.02	0.08	7.49	0.39	11.49	17.29
1995	0.02	2.03	1.51	0.01	0.08	7.67	0.40	11.73	17.43
1996	0.02	2.13	1.58	0.01	0.07	7.77	0.38	11.96	17.99
1997	0.02	2.23	1.60	0.01	0.08	7.88	0.32	R12.13	18.27
1998	0.02	R2.31	1.62	0.01	0.08	8.13	0.31	R12.48	18.40
1999	0.02	R2.43	1.67	0.01	0.08	R8.33	0.35	R12.89	19.10
2000	E0.02	E2.52	E1.70	E0.01	E0.08	E8.26	E0.40	E12.99	E19.13

[1] Includes ethanol blended into motor gasoline.

R=Revised. E=Estimate. (s)=Less than 0.005 million barrels per day.

Notes: • See Notes 1, 2, and 3 at end of section for comments on the calculation of consumption. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/emeu/states/_states.html.

Sources: • 1949-1959—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual*, annual reports, and Energy Information Administration (EIA) estimates. • 1960-1999—EIA, *State Energy Data Report 1999* (May 2001). • 2000—EIA, Integrated Modeling Data System output for the *Monthly Energy Review* (March 2001).

Table 5.12d Petroleum Consumption by the Electric Power Sector, and Total, 1949-2000

(Million Barrels per Day)

Year	Electric Power Sector [1]									End-Use/Nonutility Adjustment [2]				
	Electric Utilities				Nonutility Power Producers									
	Distillate Fuel Oil [3]	Petroleum Coke	Residual Fuel Oil [4]	Total	Distillate Fuel Oil [5]	Petroleum Coke	Residual Fuel Oil [6]	Total	Total	Distillate Fuel Oil	Petroleum Coke	Residual Fuel Oil	Total	Total Consumption
1949	0.01	NA	0.17	0.18	NA	NA	NA	NA	NA	—	—	—	—	5.76
1950	0.01	NA	0.19	0.21	NA	NA	NA	NA	NA	—	—	—	—	6.46
1951	0.01	NA	0.16	0.18	NA	NA	NA	NA	NA	—	—	—	—	7.02
1952	0.01	NA	0.17	0.18	NA	NA	NA	NA	NA	—	—	—	—	7.27
1953	0.02	NA	0.21	0.23	NA	NA	NA	NA	NA	—	—	—	—	7.60
1954	0.01	NA	0.17	0.18	NA	NA	NA	NA	NA	—	—	—	—	7.76
1955	0.01	NA	0.19	0.21	NA	NA	NA	NA	NA	—	—	—	—	8.46
1956	0.01	NA	0.18	0.20	NA	NA	NA	NA	NA	—	—	—	—	8.78
1957	0.02	NA	0.20	0.22	NA	NA	NA	NA	NA	—	—	—	—	8.81
1958	0.02	NA	0.20	0.21	NA	NA	NA	NA	NA	—	—	—	—	9.12
1959	0.02	NA	0.22	0.24	NA	NA	NA	NA	NA	—	—	—	—	9.53
1960	0.01	NA	0.23	0.24	NA	NA	NA	NA	NA	—	—	—	—	9.80
1961	0.01	NA	0.23	0.24	NA	NA	NA	NA	NA	—	—	—	—	9.98
1962	0.01	NA	0.23	0.24	NA	NA	NA	NA	NA	—	—	—	—	10.40
1963	0.01	NA	0.24	0.26	NA	NA	NA	NA	NA	—	—	—	—	10.74
1964	0.01	NA	0.26	0.28	NA	NA	NA	NA	NA	—	—	—	—	11.02
1965	0.01	NA	0.30	0.32	NA	NA	NA	NA	NA	—	—	—	—	11.51
1966	0.02	NA	0.37	0.39	NA	NA	NA	NA	NA	—	—	—	—	12.08
1967	0.02	NA	0.42	0.44	NA	NA	NA	NA	NA	—	—	—	—	12.56
1968	0.03	NA	0.49	0.52	NA	NA	NA	NA	NA	—	—	—	—	13.39
1969	0.04	NA	0.65	0.69	NA	NA	NA	NA	NA	—	—	—	—	14.14
1970	0.07	0.01	0.85	0.93	NA	NA	NA	NA	NA	—	—	—	—	14.70
1971	0.09	0.01	0.99	1.09	NA	NA	NA	NA	NA	—	—	—	—	15.21
1972	0.15	0.01	1.20	1.36	NA	NA	NA	NA	NA	—	—	—	—	16.37
1973	0.13	0.01	1.41	1.54	NA	NA	NA	NA	NA	—	—	—	—	17.31
1974	0.15	0.01	1.32	1.48	NA	NA	NA	NA	NA	—	—	—	—	16.65
1975	0.11	(s)	1.28	1.39	NA	NA	NA	NA	NA	—	—	—	—	16.32
1976	0.11	(s)	1.40	1.52	NA	NA	NA	NA	NA	—	—	—	—	17.46
1977	0.13	(s)	1.57	1.71	NA	NA	NA	NA	NA	—	—	—	—	18.43
1978	0.13	0.01	1.61	1.75	NA	NA	NA	NA	NA	—	—	—	—	18.85
1979	0.08	(s)	1.35	1.44	NA	NA	NA	NA	NA	—	—	—	—	18.51
1980	0.08	(s)	1.07	1.15	NA	NA	NA	NA	NA	—	—	—	—	17.06
1981	0.06	(s)	0.90	0.96	NA	NA	NA	NA	NA	—	—	—	—	16.06
1982	0.04	(s)	0.64	0.69	NA	NA	NA	NA	NA	—	—	—	—	15.30
1983	0.05	(s)	0.63	0.68	NA	NA	NA	NA	NA	—	—	—	—	15.23
1984	0.04	(s)	0.52	0.56	NA	NA	NA	NA	NA	—	—	—	—	15.73
1985	0.04	(s)	0.44	0.48	NA	NA	NA	NA	NA	—	—	—	—	15.73
1986	0.04	(s)	0.59	0.64	NA	NA	NA	NA	NA	—	—	—	—	16.28
1987	0.04	(s)	0.50	0.55	NA	NA	NA	NA	NA	—	—	—	—	16.67
1988	0.05	0.01	0.63	0.68	NA	NA	NA	NA	NA	—	—	—	—	17.28
1989	0.07	0.01	0.66	0.74	NA	NA	NA	NA	NA	—	—	—	—	17.33
1990	0.04	0.01	0.50	0.55	NA	NA	NA	NA	NA	—	—	—	—	16.99
1991	0.04	0.01	0.47	0.52	NA	NA	NA	NA	NA	—	—	—	—	16.71
1992	0.03	0.01	0.37	0.42	NA	NA	NA	NA	NA	—	—	—	—	17.03
1993	0.04	0.02	0.41	0.46	NA	NA	NA	NA	NA	—	—	—	—	17.24
1994	0.04	0.01	0.37	0.43	NA	NA	NA	NA	NA	—	—	—	—	17.72
1995	0.04	0.01	0.24	0.29	NA	NA	NA	NA	NA	—	—	—	—	17.72
1996	0.05	0.01	0.26	0.32	NA	NA	NA	NA	NA	—	—	—	—	18.31
1997	0.04	0.02	0.30	0.36	NA	NA	NA	NA	NA	—	—	—	—	18.62
1998	0.06	0.02	0.43	0.51	NA	NA	NA	NA	NA	—	—	—	—	18.92
1999	0.06	0.02	R0.34	R0.42	0.04	0.04	0.11	0.18	0.60	-0.04	-0.04	-0.11	-0.18	19.52
2000P	0.06	0.02	0.27	0.34	E0.02	E0.04	E0.12	E0.19	0.53	-0.02	-0.04	-0.12	-0.19	19.48

[1] Data are for petroleum consumed to produce electricity only; they exclude petroleum consumed to produce useful thermal output.

[2] Represents the adjustment necessary to avoid double-counting petroleum consumption at nonutilities, which is included under both "End-Use Sectors" and "Electric Power Sector." See Note 5 at end of section for explanation.

[3] For 1949 to 1979, gas turbine and internal combustion plant use of petroleum; for 1980 forward, fuel oil nos. 1 and 2 (and small amounts of kerosene and jet fuel).

[4] For 1949 to 1979, steam plant consumption of petroleum; for 1980 forward, fuel oil nos. 5 and 6 (and small amounts of fuel oil no. 4).

[5] Fuel oil nos. 1 and 2 (and small amounts of kerosene).

[6] Fuel oil nos. 5 and 6 (and small amounts of fuel oil no. 4, liquid butane, liquid propane, methanol, liquid byproducts, oil waste, sludge oil, and tar oil).

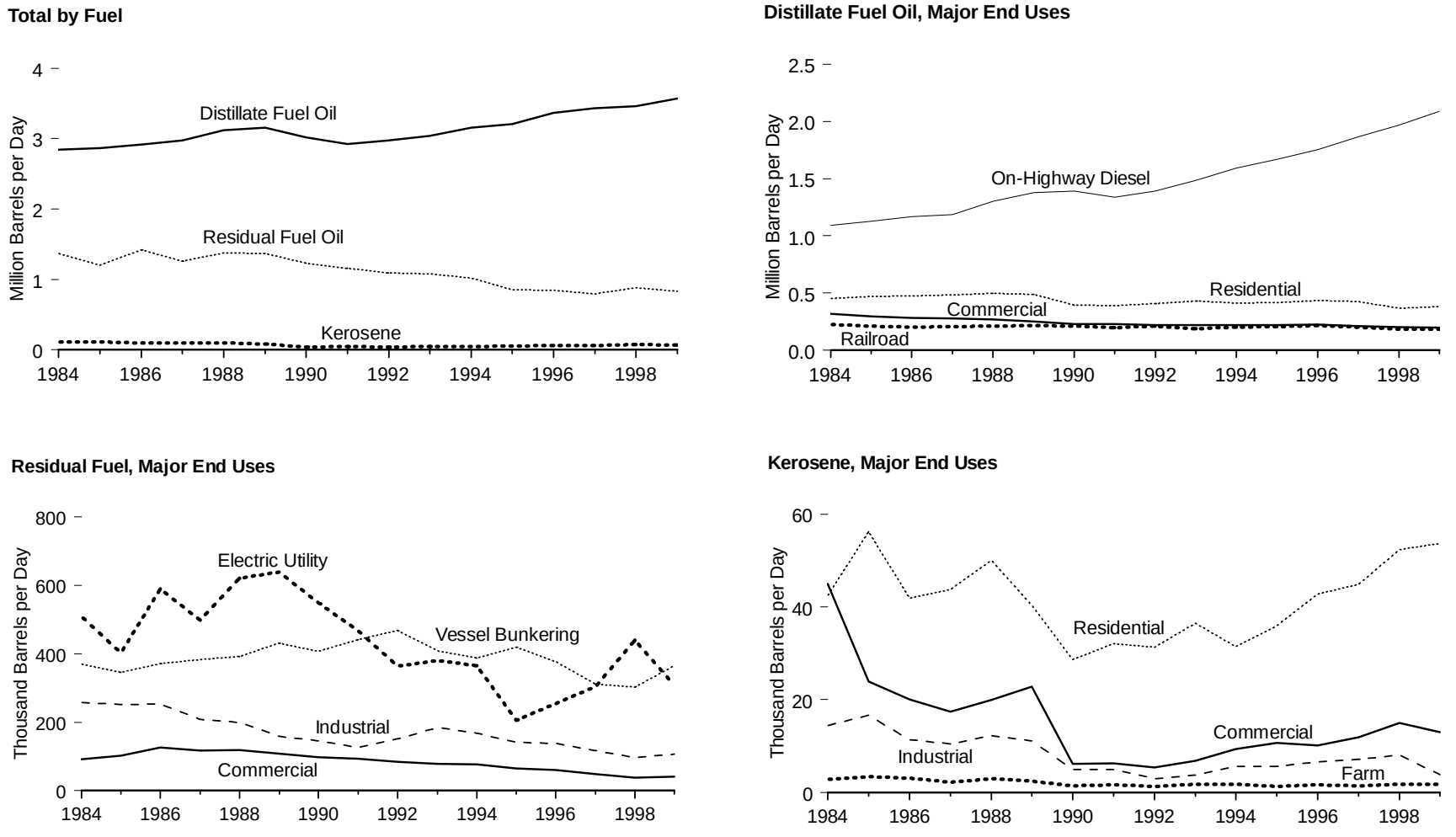
R=Revised. P=Preliminary. E=Estimate. (s)=Less than 0.005 million barrels per day. NA=Not available. — = Not Applicable.

Notes: • See Notes 1, 2, and 3 at end of section for comments on the calculation of consumption. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/fuelelectric.html.

Sources: **Electric Power Sector:** Tables 8.8-8.10. **End-Use/Nonutility Adjustment:** Calculated by multiplying data for "Nonutility Power Producers" by -1. **Total Consumption:** Table 5.11, data for "Total Products."

Figure 5.13 Fuel Oil and Kerosene Adjusted Sales, 1984-1999



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

Source: Table 5.13.

Table 5.13 Fuel Oil and Kerosene Adjusted Sales, 1984-1999

(Thousand Barrels per Day)

Year	Residential	Commercial	Industrial	Oil Company	Farm	Electric Utility	Railroad	Vessel Bunkering	On-Highway Diesel	Military	Off-Highway Diesel	All Other	Total
	Distillate Fuel Oil												
1984	450	319	153	59	193	45	225	110	1,093	45	109	44	2,845
1985	471	294	169	57	216	34	209	124	1,127	50	105	12	2,868
1986	476	280	175	49	220	40	202	133	1,169	50	111	9	2,914
1987	484	279	190	58	211	42	205	145	1,185	58	113	5	2,976
1988	498	269	170	57	223	52	212	150	1,304	64	119	4	3,122
1989	489	252	167	55	209	70	213	154	1,378	61	107	2	3,157
1990	393	228	160	63	215	48	209	143	1,393	51	116	(s)	3,021
1991	391	226	152	59	214	39	197	141	1,336	54	110	(s)	2,921
1992	406	218	144	51	228	30	209	146	1,391	42	113	(s)	2,979
1993	429	218	128	50	211	38	190	133	1,485	31	127	(s)	3,041
1994	413	218	136	46	209	49	200	132	1,594	34	130	(s)	3,162
1995	416	216	132	36	211	39	208	129	1,668	24	126	—	3,207
1996	436	223	137	41	217	45	213	142	1,754	24	134	—	3,365
1997	423	210	141	41	216	42	200	137	1,867	22	136	—	3,435
1998	367	199	147	37	198	63	185	139	1,967	18	142	—	3,461
1999	381	196	142	38	189	60	182	135	2,091	19	140	—	3,572
	Residual Fuel Oil												
1984	—	92	258	76	—	509	([1])	370	—	14	—	50	1,369
1985	—	103	252	71	—	403	([1])	346	—	13	—	15	1,202
1986	—	126	254	51	—	590	([1])	371	—	E12	—	15	1,418
1987	—	118	208	42	—	498	([1])	383	—	12	—	3	1,264
1988	—	119	200	34	—	621	([1])	392	—	9	—	4	1,378
1989	—	108	160	22	—	639	([1])	432	—	7	—	2	1,370
1990	—	98	145	21	—	550	([1])	408	—	5	—	2	1,229
1991	—	93	126	20	—	468	([1])	443	—	8	—	1	1,158
1992	—	84	152	19	—	363	([1])	468	—	7	—	1	1,094
1993	—	79	184	21	—	381	([1])	409	—	6	—	(s)	1,080
1994	—	76	168	17	—	366	([1])	388	—	4	—	(s)	1,021
1995	—	66	141	15	—	206	([1])	420	—	4	—	(s)	852
1996	—	61	138	11	—	255	([1])	378	—	4	—	1	848
1997	—	49	118	10	—	304	([1])	312	—	3	—	(s)	797
1998	—	39	97	7	—	440	([1])	303	—	2	—	(s)	887
1999	—	40	106	8	—	309	([1])	365	—	2	—	(s)	830
	Kerosene												
1984	42	45	14	—	3	—	—	—	—	—	—	11	115
1985	56	24	17	—	3	—	—	—	—	—	—	14	114
1986	42	20	11	—	3	—	—	—	—	—	—	22	98
1987	44	17	10	—	2	—	—	—	—	—	—	21	95
1988	50	20	12	—	3	—	—	—	—	—	—	11	96
1989	40	23	11	—	2	—	—	—	—	—	—	8	84
1990	29	6	5	—	1	—	—	—	—	—	—	1	43
1991	32	6	5	—	2	—	—	—	—	—	—	1	46
1992	31	5	3	—	1	—	—	—	—	—	—	(s)	41
1993	37	7	4	—	2	—	—	—	—	—	—	1	50
1994	31	9	6	—	2	—	—	—	—	—	—	1	49
1995	36	11	6	—	1	—	—	—	—	—	—	(s)	54
1996	43	10	7	—	2	—	—	—	—	—	—	(s)	62
1997	45	12	7	—	1	—	—	—	—	—	—	(s)	66
1998	52	15	8	—	2	—	—	—	—	—	—	1	78
1999	54	13	4	—	2	—	—	—	—	—	—	1	73

[1] Included in "All Other."

E = Annual estimate based on eleven months of data. — = Not applicable. (s)=Less than 0.5 thousand barrels per day.

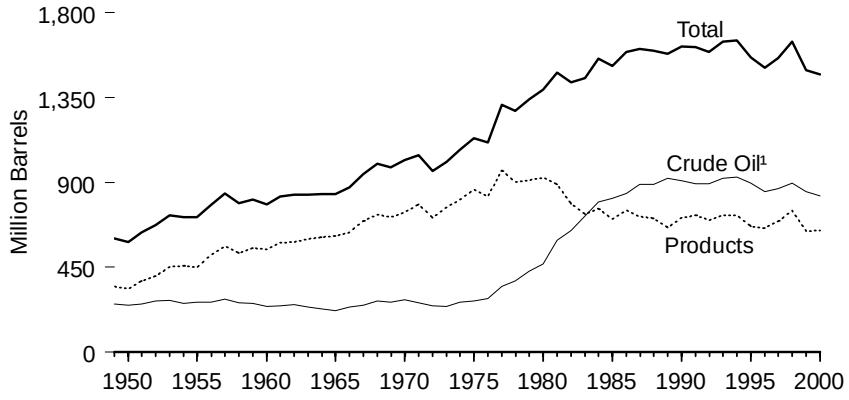
Notes: • Distillate fuel oil and kerosene data are sales data that were adjusted at the Petroleum Administration for Defense district level to equal Energy Information Administration (EIA) volume estimates of products supplied in the U.S. marketplace. The residual fuel data are sales data adjusted at the national level to equal the EIA volume estimate of residual fuel oil products supplied. Additional information is available in EIA's report *Fuel Oil and Kerosene Sales.* • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/oil_gas/petroleum/pet_frame.html.

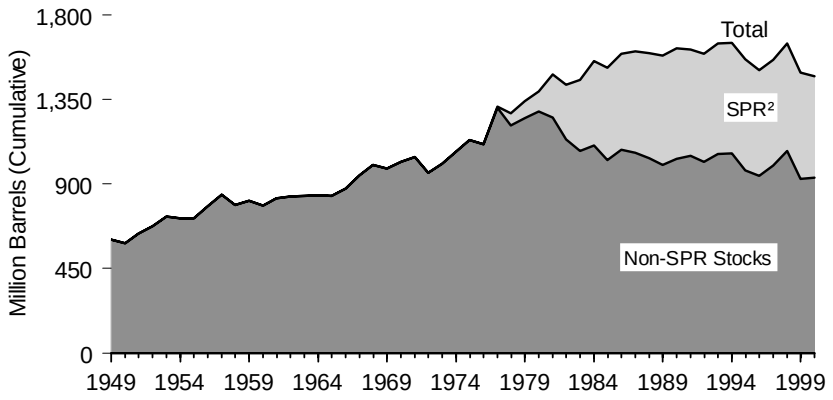
Sources: • 1984—EIA, *Petroleum Marketing Monthly* (July 1986), Table A11. • 1985-1994—EIA, *Fuel Oil and Kerosene Sales,* annual reports. • 1995 forward—EIA, *Fuel Oil and Kerosene Sales 1999* (September 2000), Tables 13, 14, and 15.

Figure 5.14 Petroleum Primary Stocks by Type

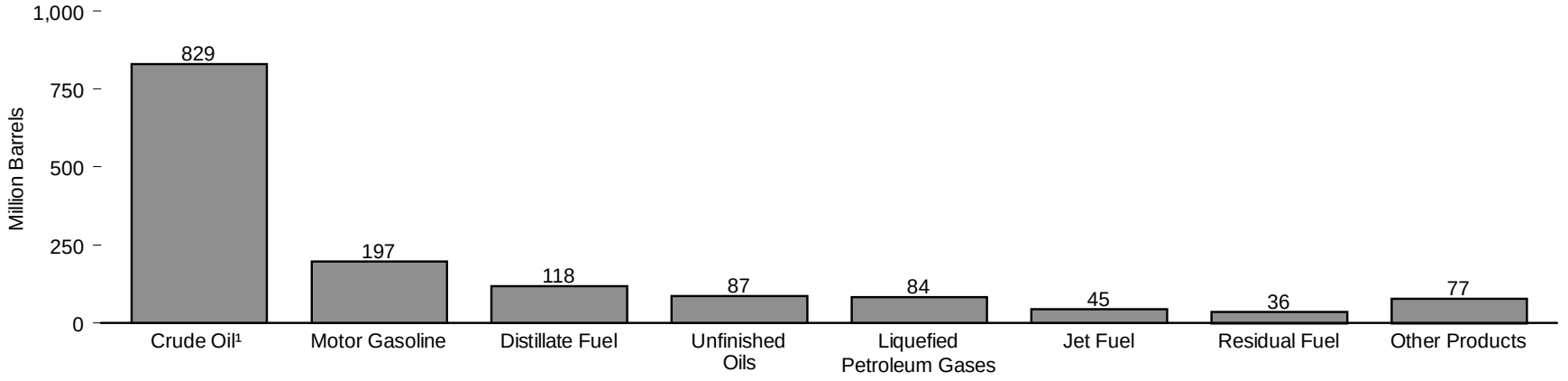
Total, Products, and Crude Oil,[1] 1949-2000



SPR,[2] Non-SPR, and Total Stocks, 1949-2000



By Type, 2000



[1] Includes lease condensate and crude oil stored in the Strategic Petroleum Reserve (SPR).

[2] See Figure 5.15 for additional Strategic Petroleum Reserve information.

Notes: • Stocks are at end of year. • Because vertical scales differ, graphs should not be compared.

Sources: Tables 5.14 and 5.15.

Table 5.14 Petroleum Primary Stocks by Type, 1949-2000

(Million Barrels)

Year	Crude Oil and Lease Condensate			Petroleum Products										
	Strategic Petroleum Reserve	Other Primary	Total	Distillate Fuel Oil		Jet Fuel	Liquefied Petroleum Gases		Motor Gasoline [3]	Residual Fuel Oil	Unfinished Oils	Other Products [4]	Total Products	Total Petroleum
				Low Sulfur [1]	Total		Propane [2]	Total						
1949	0	253	253	NA	75	([5])	([6])	1	110	60	66	37	350	603
1950	0	248	248	NA	72	([5])	([6])	2	116	41	70	34	334	583
1951	0	256	256	NA	87	([5])	([6])	2	135	43	67	45	378	634
1952	0	272	272	NA	99	2	([6])	3	135	49	62	53	402	674
1953	0	274	274	NA	112	3	([6])	4	158	49	69	56	451	726
1954	0	258	258	NA	108	3	([6])	7	155	52	74	57	457	715
1955	0	266	266	NA	111	3	([6])	7	165	39	68	55	449	715
1956	0	266	266	NA	134	5	([6])	14	187	44	67	63	514	780
1957	0	282	282	NA	149	5	([6])	14	197	60	69	66	560	841
1958	0	263	263	NA	125	6	([6])	16	187	60	70	63	526	789
1959	0	257	257	NA	151	8	([6])	19	188	54	67	66	552	809
1960	0	240	240	NA	138	7	([6])	23	195	45	62	76	545	785
1961	0	245	245	NA	152	8	([6])	31	184	45	79	81	580	825
1962	0	252	252	NA	144	10	([6])	25	189	50	82	83	582	834
1963	0	237	237	NA	157	9	([6])	28	191	48	82	85	598	836
1964	0	230	230	NA	156	19	([6])	30	186	40	87	92	609	839
1965	0	220	220	NA	155	19	([6])	30	175	56	89	92	616	836
1966	0	238	238	NA	154	19	([6])	35	186	61	89	91	636	874
1967	0	249	249	NA	160	22	([6])	64	200	66	90	93	695	944
1968	0	272	272	NA	173	24	([6])	76	204	67	93	89	727	1,000
1969	0	265	265	NA	172	28	([6])	60	211	58	98	88	715	980
1970	0	276	276	NA	195	28	([6])	67	209	54	99	89	741	1,018
1971	0	260	260	NA	191	28	([6])	95	219	60	101	92	784	1,044
1972	0	246	246	NA	154	25	([6])	86	213	55	95	84	713	959
1973	0	242	242	NA	196	29	65	99	209	53	99	80	766	1,008
1974	0	265	265	NA	200	29	69	113	218	60	106	82	809	1,074
1975	0	271	271	NA	209	30	82	125	235	74	106	82	862	1,133
1976	0	285	285	NA	186	32	74	116	231	72	110	78	826	1,112
1977	7	340	348	NA	250	35	81	136	258	90	113	82	964	1,312
1978	67	309	376	NA	216	34	87	132	238	90	109	82	901	1,278
1979	91	339	430	NA	229	39	64	111	237	96	118	82	911	1,341
1980	108	358	466	NA	205	42	65	120	261	92	124	82	926	1,392
1981	230	363	594	NA	192	41	76	135	253	78	111	80	890	1,484
1982	294	350	644	NA	179	37	54	94	235	66	105	70	786	1,430
1983	379	344	723	NA	140	39	48	101	222	49	108	72	731	1,454
1984	451	345	796	NA	161	42	58	101	243	53	94	67	760	1,556
1985	493	321	814	NA	144	40	39	74	223	50	107	67	705	1,519
1986	512	331	843	NA	155	50	63	103	233	47	94	68	750	1,593
1987	541	349	890	NA	134	50	48	97	226	47	93	70	718	1,607
1988	560	330	890	NA	124	44	50	97	228	45	100	70	707	1,597
1989	580	341	921	NA	106	41	32	80	213	44	106	70	660	1,581
1990	586	323	908	NA	132	52	49	98	220	49	99	63	712	1,621
1991	569	325	893	NA	144	49	48	92	219	50	98	72	724	1,617
1992	575	318	893	NA	141	43	39	89	216	43	95	73	699	1,592
1993	587	335	922	64	141	40	51	106	226	44	88	78	725	1,647
1994	592	337	929	73	145	47	46	99	215	42	91	84	724	1,653
1995	592	303	895	67	130	40	43	93	202	37	86	79	668	1,563
1996	566	284	850	68	127	40	43	86	195	46	88	76	658	1,507
1997	563	305	868	68	138	44	44	89	210	40	89	81	692	1,560
1998	571	324	895	77	156	45	65	115	216	45	91	85	752	1,647
1999	567	284	852	R69	R125	R41	43	R89	R193	36	86	70	R641	R1,493
2000P	541	289	829	72	118	45	41	84	197	36	87	77	643	1,473

[1] Sulfur content of 0.05 percent or less by weight.
[2] Includes propylene.
[3] Prior to 1964, motor gasoline data were for total gasoline,which included motor gasoline, aviation gasoline, and special naphthas. For 1981 forward, data include motor gasoline blending components.
[4] Kerosene, petrochemical feedstocks, lubricants, wax, petroleum coke, asphalt, road oil, pentanes plus, and miscellaneous products. Since 1964, aviation gasoline and special naphthas have been included. For 1981 forward, includes aviation gasoline blending components, hydrogen, other hydrocarbons, and alcohol.
[5] Included in the products from which jet fuel was blended: in 1952, 71 percent gasoline, 17 percent kerosene, and 12 percent distillate fuel.
[6] Included in liquefied petroleum gases total.

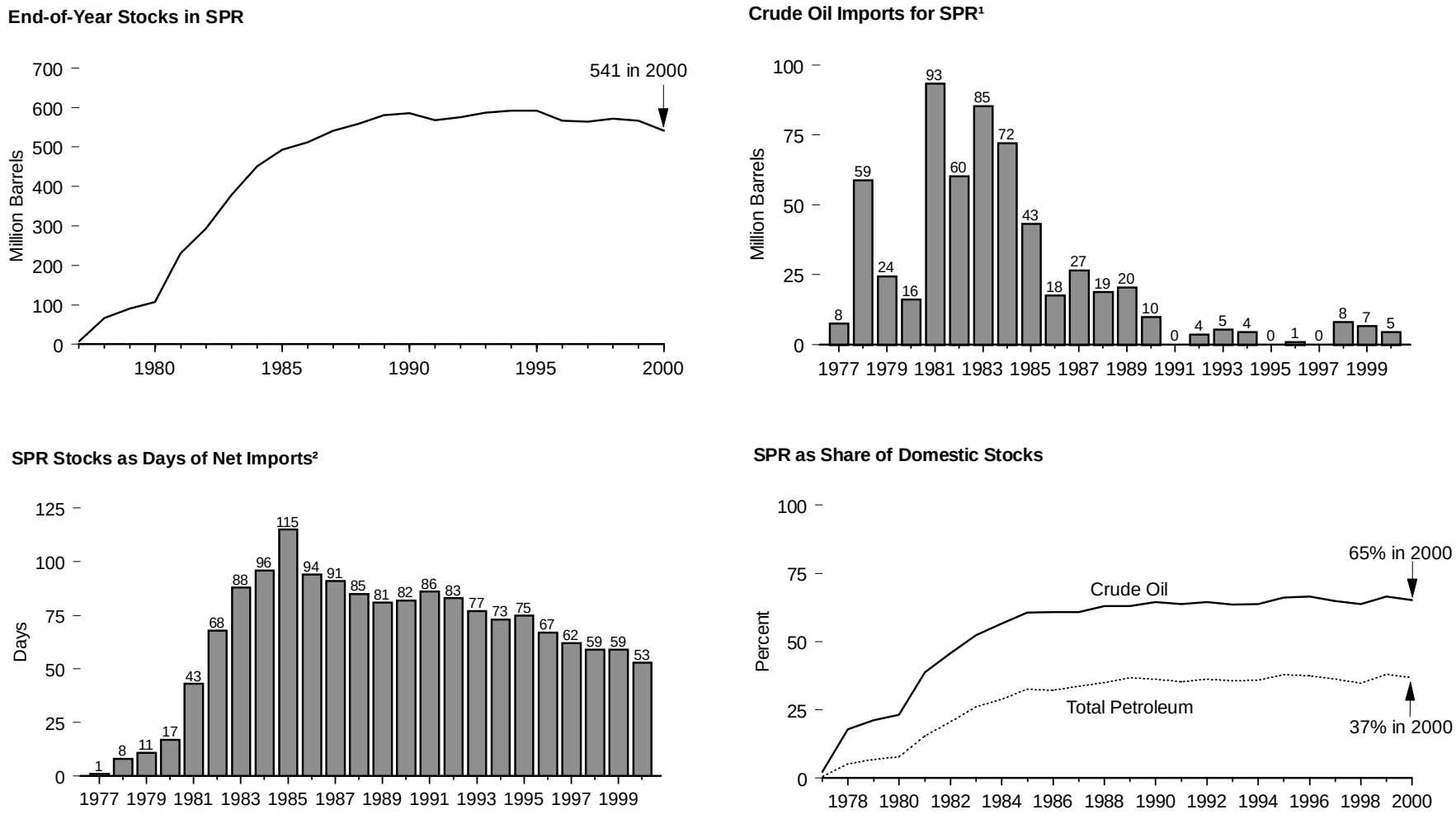
R=Revised. P=Preliminary. NA=Not available.

Notes: • Stocks are at end of year. • Distillate stocks in the "Northeast Heating Oil Reserve" (2 million barrels at the end of 2000) are not included. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/oil_gas/petroleum/pet_frame.html.

Sources: • 1949-1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual,* annual reports. • 1976-1980—Energy Information Administration (EIA), Energy Data Reports, *Petroleum Statement, Annual,* annual reports. • 1981-1999—EIA, *Petroleum Supply Annual,* annual reports. • 2000—EIA, *Petroleum Supply Monthly* (February 2001).

Figure 5.15 Strategic Petroleum Reserve, 1977-2000



[1] Imported by SPR and imported by others for SPR.

[2] Derived by dividing end-of-year SPR stocks by annual average daily net imports of all petroleum.

Notes: • SPR=Strategic Petroleum Reserve. • Because vertical scales differ, graphs should not be compared.

Source: Table 5.15.

Table 5.15 Strategic Petroleum Reserve, 1977-2000

(Million Barrels, Except as Noted)

Year	Foreign Crude Oil Receipts		Domestic Crude Oil Receipts		Withdrawals		End-of-Year Stocks			Days of Net Petroleum Imports [5]
	Imported by SPR	Imported by Others [1,2]	Purchases	Exchanges [2]	Sales	Exchanges	Quantity [3]	Share of Crude Oil [4] Stocks (percent)	Share of Total Petroleum Stocks (percent)	
1977	7.54	0.00	[6]0.37	0.00	0.00	0.00	7.46	2.1	0.6	1
1978	58.80	0.00	0.00	0.00	0.00	0.00	66.86	17.8	5.2	8
1979	24.43	0.00	(s)	0.00	0.00	0.00	91.19	21.2	6.8	11
1980	16.07	0.00	1.30	0.00	0.00	0.00	107.80	23.1	7.7	17
1981	93.30	0.00	28.79	0.00	0.00	0.00	230.34	38.8	15.5	43
1982	60.19	0.00	3.79	0.00	0.00	0.00	293.83	45.7	20.5	68
1983	85.29	0.00	0.42	0.00	0.00	0.00	379.09	52.4	26.1	88
1984	72.04	0.00	0.05	0.00	0.00	0.00	450.51	56.6	28.9	96
1985	43.12	0.00	0.17	0.00	0.00	0.00	493.32	60.6	32.5	115
1986	17.56	0.00	1.21	0.00	0.00	0.00	511.57	60.7	32.1	94
1987	26.52	0.00	2.69	0.00	0.00	0.00	540.65	60.8	33.6	91
1988	18.76	0.00	0.01	0.00	0.00	0.00	559.52	62.9	35.0	85
1989	20.35	0.00	0.00	0.00	0.00	0.00	579.86	62.9	36.7	81
1990	9.77	0.00	0.00	0.00	3.91	0.00	585.69	64.5	36.1	82
1991	0.00	0.00	0.00	0.00	17.22	0.00	568.51	63.7	35.2	86
1992	3.59	0.00	2.60	0.00	0.00	0.00	574.72	64.4	36.1	83
1993	5.37	0.00	6.96	0.00	0.00	0.00	587.08	63.6	35.6	77
1994	4.49	0.00	0.11	0.00	0.00	0.00	591.67	63.7	35.8	73
1995	0.00	0.00	0.00	0.00	0.00	0.00	591.64	66.1	37.9	75
1996	0.00	0.90	0.00	0.00	25.82	0.90	565.82	66.6	37.5	67
1997	0.00	0.00	0.00	0.00	2.33	0.00	563.43	64.9	36.1	62
1998	0.00	7.98	0.00	0.00	0.00	0.00	571.41	63.8	34.7	59
1999	[R]3.04	3.60	0.00	1.42	0.00	10.75	567.24	66.6	[R]38.0	59
2000	3.01	1.50	0.00	2.29	0.00	[7]33.35	540.68	65.2	36.7	53

[1] Represents volumes of imported crude oil received at SPR storage facilities for which the costs associated with the importation and delivery of crude oil are the responsibility of the commercial importer under contract to supply the SPR.

[2] The values shown for 1998-1999 represent an exchange agreement in which SPR received approximately 8.5 million barrels of high quality oil in exchange for approximately 11 million barrels of lower quality crude oil shipped from SPR during 1999-2000. Also, starting in 1999 a portion of the crude oil in-kind royalties from Federal leases in the Gulf of Mexico was transferred to the Department of Energy and exchanged with commercial entities for crude oil to fill the SPR. Crude oil exchange barrels delivered to SPR could be either domestic or imported as long as the crude oil met the specification requirements of SPR. All exchange barrels of imported crude oil are shown in the column "Foreign Crude Oil, Imported by Others," while exchange barrels of domestic crude oil are shown under the column "Domestic Crude Oil Receipts, Exchanges."

[3] Stocks do not include imported quantities in transit to Strategic Petroleum Reserve terminals, pipeline fill, and above-ground storage.

[4] Including lease condensate stocks.

[5] Derived by dividing end-of-year Strategic Petroleum Reserve stocks by annual average daily net imports of all petroleum. Calculated prior to rounding.

[6] The quantity of domestic fuel oil which was in storage prior to injection of foreign crude oil.

[7] Includes 30 million barrels released to increase heating oil stocks in exchange for a like quantity plus a bonus percentage to be returned in 2001-2002, as well as additional barrels to create a Northeast Home Heating Oil Reserve.

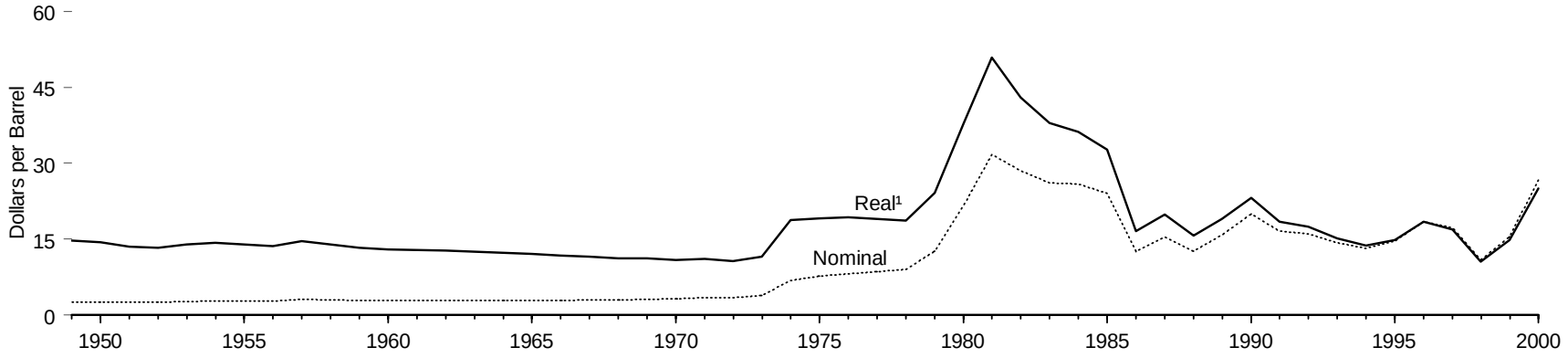
SPR=Strategic Petroleum Reserve. R=Revised. (s)=Less than 0.005 million barrels.

Web Page: http://www.eia.doe.gov/oil_gas/petroleum/pet_frame.html.

Sources: **Domestic Crude Oil Deliveries and Domestic Crude Oil Sales:** U.S. Department of Energy, Assistant Secretary for Fossil Energy, unpublished data. **All Other Data:** • 1977-1980—Energy Information Administration (EIA), Energy Data Report, *Petroleum Statement, Annual,* annual reports. • 1981-1999—EIA, *Petroleum Supply Annual,* annual reports. • 2000—EIA, *Petroleum Supply Monthly* (February 2001).

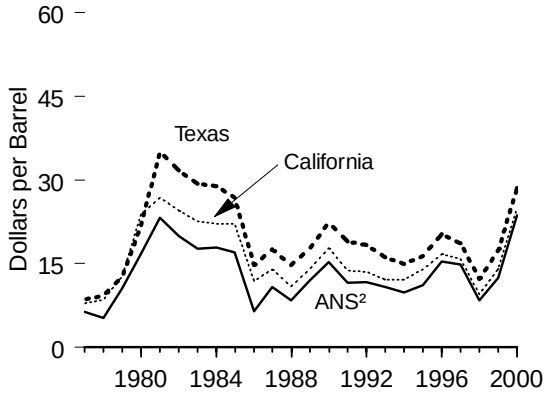
Figure 5.16 Crude Oil Domestic First Purchase Prices

U.S. Average Real[1] and Nominal Prices, 1949-2000

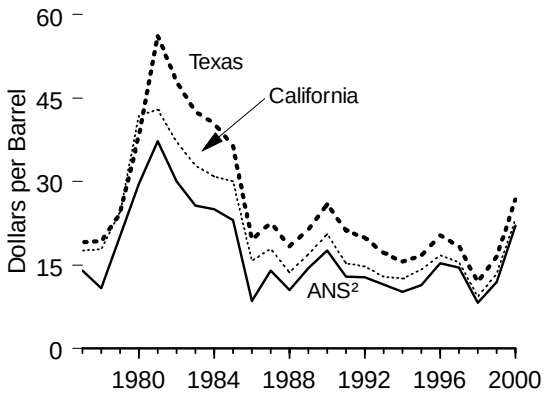


Alaska North Slope, California, and Texas, 1977-2000

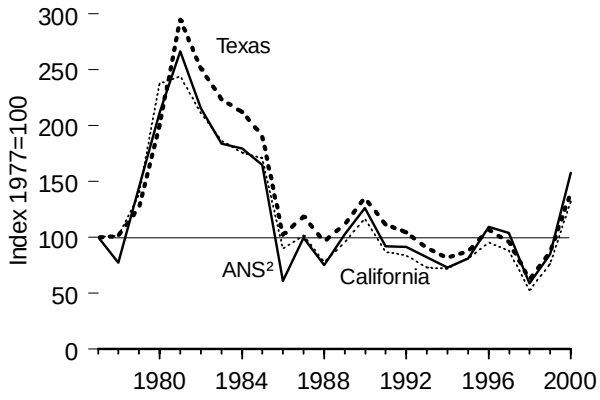
Nominal Prices



Real[1] Prices



Real[1] Prices, Indexed 1977=100



[1] In chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.

[2] Alaska North Slope.

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

Source: Table 5.16.

Table 5.16 Crude Oil Domestic First Purchase Prices, 1949-2000

(Dollars per Barrel)

Year	Alaska North Slope		California		Texas		U.S. Average	
	Nominal	Real [1]	Nominal	Real [1]	Nominal	Real [1]	Nominal	Real [1]
1949	—	—	—	—	—	—	2.54	14.72
1950	—	—	—	—	—	—	2.51	14.38
1951	—	—	—	—	—	—	2.53	13.52
1952	—	—	—	—	—	—	2.53	13.32
1953	—	—	—	—	—	—	2.68	13.92
1954	—	—	—	—	—	—	2.78	14.30
1955	—	—	—	—	—	—	2.77	14.00
1956	—	—	—	—	—	—	2.79	13.64
1957	—	—	—	—	—	—	3.09	14.62
1958	—	—	—	—	—	—	3.01	13.91
1959	—	—	—	—	—	—	2.90	13.25
1960	—	—	—	—	—	—	2.88	12.98
1961	—	—	—	—	—	—	2.89	12.88
1962	—	—	—	—	—	—	2.90	12.75
1963	—	—	—	—	—	—	2.89	12.57
1964	—	—	—	—	—	—	2.88	12.34
1965	—	—	—	—	—	—	2.86	12.03
1966	—	—	—	—	—	—	2.88	11.77
1967	—	—	—	—	—	—	2.92	11.58
1968	—	—	—	—	—	—	2.94	11.18
1969	—	—	—	—	—	—	3.09	11.20
1970	—	—	—	—	—	—	3.18	10.94
1971	—	—	—	—	—	—	3.39	11.11
1972	—	—	—	—	—	—	3.39	10.65
1973	—	—	—	—	—	—	3.89	11.58
1974	—	—	—	—	—	—	6.87	18.76
1975	—	—	—	—	—	—	7.67	19.16
1976	—	—	—	—	—	—	8.19	19.36
1977	[2]6.29	[2]13.97	7.92	17.59	8.58	19.06	8.57	19.04
1978	5.21	10.80	8.58	17.79	9.29	19.26	9.00	18.66
1979	10.57	20.23	12.78	24.46	12.65	24.21	12.64	24.19
1980	16.87	29.58	23.87	41.85	21.84	38.29	21.59	37.85
1981	23.23	37.25	26.80	42.97	35.06	56.21	31.77	50.94
1982	19.92	30.07	24.58	37.10	31.77	47.95	28.52	43.05
1983	17.69	25.68	22.61	32.83	29.35	42.61	26.19	38.02
1984	17.91	25.07	22.09	30.92	28.87	40.41	25.88	36.23
1985	16.98	23.04	22.14	30.04	26.80	36.37	24.09	32.69
1986	6.45	8.56	11.90	15.80	14.73	19.56	12.51	16.61
1987	10.83	13.96	13.92	17.94	17.55	22.62	15.40	19.85
1988	8.43	10.51	10.97	13.68	14.71	18.34	12.58	15.68
1989	12.00	14.41	14.06	16.88	17.81	21.39	15.86	19.05
1990	15.23	17.60	17.81	20.59	22.37	25.86	20.03	23.15
1991	11.57	12.90	13.72	15.30	19.04	21.24	16.54	18.45
1992	11.73	12.77	13.55	14.75	18.32	19.95	15.99	17.41
1993	10.84	11.53	12.11	12.88	16.19	17.21	14.25	15.15
1994	9.77	10.18	12.12	12.62	14.98	15.60	13.19	13.74
1995	11.12	11.34	14.00	14.27	16.38	16.70	14.62	14.90
1996	15.32	15.32	16.72	16.72	20.31	20.31	18.46	18.46
1997	14.84	14.56	15.78	15.48	18.66	[R]18.30	17.23	[R]16.90
1998	8.47	8.21	9.55	[R]9.25	12.28	[R]11.90	10.87	[R]10.53
1999	12.46	[R]11.89	14.08	[R]13.44	17.29	[R]16.50	15.56	[R]14.85
2000[P]	23.62	22.09	24.87	23.26	28.61	26.76	26.73	25.00

[1] In chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.

[2] Average for July through December only.

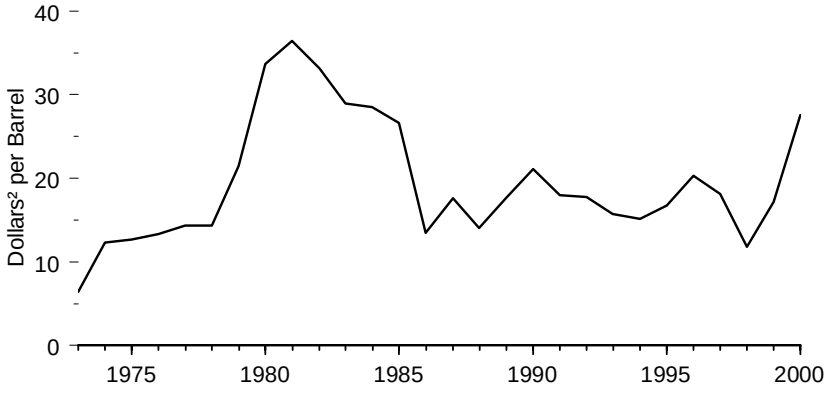
R=Revised. P=Preliminary. — = Not applicable.

Note: For the definition of crude oil domestic first purchase prices, see Note 6 at end of section.

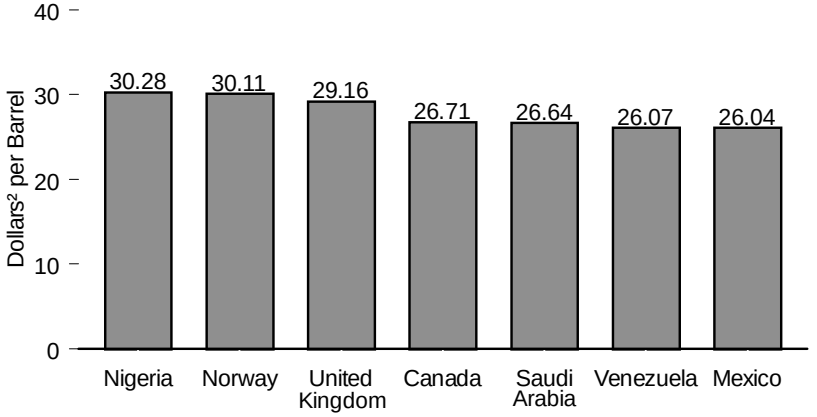
Sources: • 1949-1973—Bureau of Mines, *Minerals Yearbook,* "Crude Petroleum and Petroleum Products" chapter. • 1974 through January 1976—Federal Energy Administration (FEA), Form FEA-90, "Crude Petroleum Production Monthly Report." • February 1976 through 1977—FEA, Form FEA-P-124, "Domestic Crude Oil Purchaser's Monthly Report." • 1978 forward—Energy Information Administration, *Petroleum Marketing Monthly* (March 2001), Table 21.

Figure 5.17 Landed Costs of Crude Oil Imports From Selected Countries

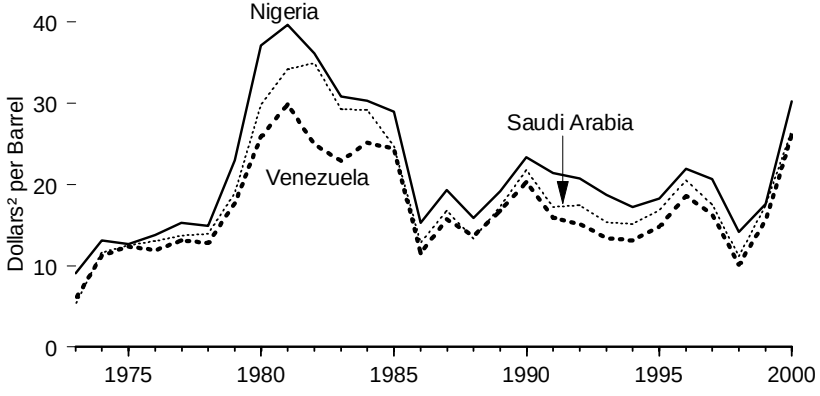
Total, 1973[1]-2000



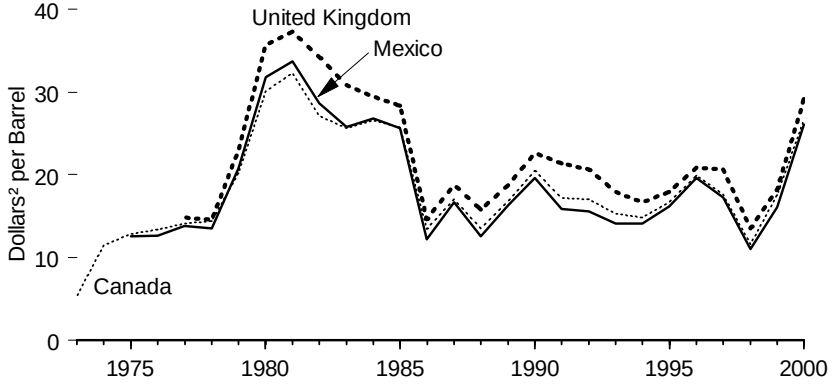
By Selected Country, 2000



By Selected OPEC Country, 1973[1]-2000



By Selected Non-OPEC Country, 1973[1]-2000



[1] Based on October, November, and December data only.
[2] Nominal dollars.

Source: Table 5.17.

Table 5.17 Landed Costs of Crude Oil Imports From Selected Countries, 1973-2000

(Dollars[1] per Barrel)

Year	Persian Gulf Nations	Selected OPEC [2] Countries					Selected Non-OPEC Countries							Total
		Kuwait	Nigeria	Saudi Arabia	Venezuela	Total OPEC [3]	Angola	Canada	Colombia	Mexico	Norway	United Kingdom	Total Non-OPEC	
1973[4]	5.91	W	9.08	5.37	5.99	6.85	W	5.33	W	NA	NA	NA	5.64	6.41
1974	12.21	W	13.16	11.63	11.25	12.49	12.48	11.48	W	W	NA	NA	11.81	12.32
1975	12.64	W	12.70	12.50	12.36	12.70	11.81	12.84	([5])	12.61	12.80	NA	12.70	12.70
1976	13.03	W	13.81	13.06	11.89	13.32	12.71	13.36	([5])	12.64	13.74	W	13.35	13.32
1977	13.85	W	15.29	13.69	13.11	14.35	14.04	14.13	([5])	13.82	14.93	14.83	14.42	14.36
1978	14.01	W	14.88	13.94	12.84	14.34	14.07	14.41	([5])	13.56	14.68	14.53	14.38	14.35
1979	20.42	W	22.97	18.95	17.65	21.29	21.06	20.22	([5])	20.77	22.55	22.97	22.10	21.45
1980	30.59	W	37.15	29.80	25.92	33.56	34.76	30.11	W	31.77	36.82	35.68	33.99	33.67
1981	34.61	NA	39.66	34.20	29.91	36.60	36.84	32.32	([5])	33.70	38.70	37.29	36.14	36.47
1982	34.94	NA	36.16	34.99	24.93	34.81	33.08	27.15	([5])	28.63	34.70	34.25	31.47	33.18
1983	29.37	NA	30.85	29.27	22.94	29.84	29.31	25.63	([5])	25.78	30.72	30.87	28.08	28.93
1984	29.07	W	30.36	29.20	25.19	29.06	28.49	26.56	([5])	26.85	30.05	29.45	28.14	28.54
1985	25.50	NA	28.96	24.72	24.43	26.86	27.39	25.71	([5])	25.63	28.32	28.36	26.53	26.67
1986	12.92	11.70	15.29	12.84	11.52	13.46	14.09	13.43	12.85	12.17	15.98	14.63	13.52	13.49
1987	17.47	18.14	19.32	16.81	15.76	17.64	18.20	17.04	18.43	16.69	19.10	18.78	17.66	17.65
1988	13.51	12.84	15.88	13.37	13.66	14.18	14.48	13.50	14.47	12.58	15.43	15.82	13.96	14.08
1989	17.37	16.90	19.19	17.34	16.78	17.78	18.36	16.81	18.10	16.35	19.06	18.74	17.54	17.68
1990	20.55	17.01	23.33	21.82	20.31	21.23	21.51	20.48	22.34	19.64	21.11	22.65	20.98	21.13
1991	17.34	18.48	21.39	17.22	15.92	18.08	19.90	17.16	19.55	15.89	21.44	21.37	17.93	18.02
1992	17.58	16.99	20.78	17.48	15.13	17.81	19.36	17.04	18.46	15.60	20.90	20.63	17.67	17.75
1993	15.26	14.23	18.73	15.40	13.39	15.68	17.40	15.27	16.54	14.11	18.99	17.92	15.78	15.72
1994	15.00	14.49	17.21	15.11	13.12	15.08	16.36	14.83	15.80	14.09	17.09	16.64	15.29	15.18
1995	16.78	16.47	18.25	16.84	14.81	16.61	17.66	16.65	17.45	16.19	18.06	17.91	16.95	16.78
1996	20.44	20.32	21.95	20.49	18.59	20.14	21.86	19.94	22.02	19.64	21.34	20.88	20.47	20.31
1997	17.44	17.03	20.64	17.52	16.35	17.73	20.24	17.63	19.71	17.30	20.26	20.64	18.45	18.11
1998	11.18	11.00	14.14	11.16	10.16	11.46	13.37	11.62	13.26	11.04	13.83	13.55	12.22	11.84
1999	[R]17.37	16.77	[R]17.63	[R]17.48	[R]15.58	[R]16.94	[R]18.37	[R]17.54	[R]18.09	[R]16.12	19.06	[R]18.26	[R]17.51	[R]17.23
2000[P]	26.83	26.37	30.28	26.64	26.07	27.37	29.79	26.71	29.67	26.04	30.11	29.16	27.80	27.58

[1] Nominal dollars.

[2] Organization of Petroleum Exporting Countries. See Glossary for current membership.

[3] Ecuador, which withdrew from OPEC on December 31, 1992, is included through 1992. In June 1996, OPEC retroactively ended Gabon's membership in OPEC effective December 31, 1994. However, data for Gabon are still included here for 1995.

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

[5] No data reported.

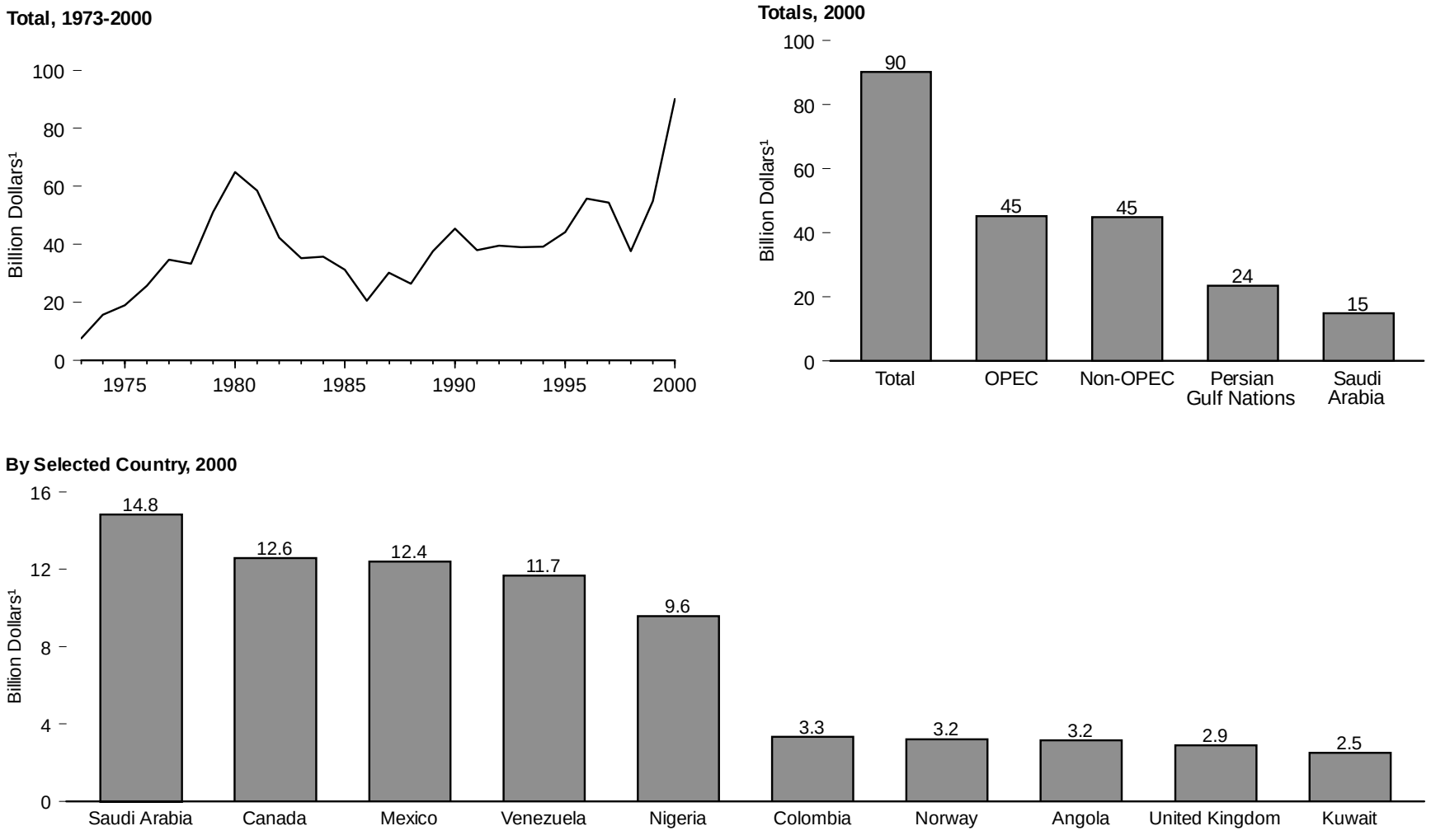
R=Revised. P=Preliminary. NA=Not available. W=Value withheld to avoid disclosure of individual company data.

Notes: • This table reports landed costs of crude oil imports only; it does not account for refined petroleum products imported into the United States. • Data include any imports for the Strategic Petroleum Reserve, which began in 1977. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/oil_gas/petroleum/pet_frame.html.

Sources: • 1973 through September 1977—Federal Energy Administration, Form FEA-F701-M-0, "Transfer Pricing Report." • October 1977 through January 1979—Energy Information Administration (EIA), Form FEA-F701-M-0, "Transfer Pricing Report." • February 1979 through September 1982—EIA, Form ERA-51, "Transfer Pricing Report." • October 1982 through June 1984—EIA, Form EP-51, "Monthly Foreign Crude Oil Transaction Report." • July 1984 forward—EIA, Form EIA-856, "Monthly Foreign Crude Oil Acquisition Report."

Figure 5.18 Value of Crude Oil Imports



[1]Nominal Dollars.

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

Source: Table 5.18.

Table 5.18 Value of Crude Oil Imports From Selected Countries, 1973-2000

(Billion Dollars[1])

Year	Persian Gulf Nations	Selected OPEC [2] Countries					Selected Non-OPEC Countries							Total [4]
		Kuwait	Nigeria	Saudi Arabia	Venezuela	Total OPEC [3]	Angola	Canada	Colombia	Mexico	Norway	United Kingdom	Total Non-OPEC	
1973	1.7	W	1.5	0.9	0.8	5.2	W	1.9	W	W	NA	NA	2.4	7.6
1974	4.4	W	3.3	1.9	1.3	11.6	0.2	3.3	NA	W	W	NA	4.1	15.6
1975	5.2	W	3.5	3.2	1.8	14.9	0.3	2.8	NA	0.3	0.1	W	4.1	19.0
1976	8.7	W	5.1	5.8	1.0	22.2	(s)	1.8	W	0.4	0.2	W	3.6	25.8
1977	12.2	W	6.3	6.9	1.2	29.6	0.1	1.4	NA	0.9	0.3	0.5	5.1	34.7
1978	11.3	W	4.9	5.8	0.8	27.1	(s)	1.3	NA	1.6	0.6	0.9	6.2	33.3
1979	15.3	W	9.0	9.3	1.9	39.7	0.3	2.0	NA	3.3	0.6	1.7	11.3	51.0
1980	16.9	W	11.4	13.6	1.5	47.5	0.5	2.2	NA	5.9	1.9	2.3	17.4	64.9
1981	15.1	NA	8.8	13.9	1.6	39.0	0.6	1.9	NA	5.8	1.6	5.0	19.5	58.5
1982	8.4	W	6.7	6.8	1.4	22.0	0.5	2.1	NA	6.7	1.3	5.5	20.2	42.2
1983	4.3	W	3.4	3.4	1.4	16.1	0.8	2.6	NA	7.2	0.7	4.1	19.1	35.2
1984	4.8	W	2.3	3.3	2.3	16.1	0.9	3.3	NA	6.5	1.2	4.1	19.7	35.8
1985	2.3	W	3.0	1.2	2.7	12.9	1.0	4.4	NA	6.7	0.3	2.9	18.3	31.2
1986	3.8	0.1	2.4	2.9	1.8	10.4	0.5	2.8	0.3	2.8	0.3	1.7	10.2	20.6
1987	6.0	0.5	3.7	3.9	2.8	15.5	1.2	3.8	0.8	3.7	0.5	2.1	14.7	30.1
1988	6.7	0.4	3.5	4.4	2.2	14.0	1.1	3.4	0.6	3.1	0.3	1.5	12.3	26.3
1989	11.0	1.0	5.6	7.1	3.0	21.9	1.9	3.9	0.9	4.3	0.9	1.1	15.8	37.7
1990	13.5	0.5	6.7	9.5	4.9	27.2	1.9	4.8	1.1	4.9	0.7	1.3	18.2	45.5
1991	11.0	(s)	5.3	10.7	3.9	22.3	1.8	4.7	0.9	4.4	0.6	0.8	15.7	38.0
1992	10.5	0.2	5.1	10.2	4.6	22.2	2.4	5.0	0.7	4.5	0.9	1.5	17.3	39.5
1993	9.1	1.8	4.9	7.2	4.9	20.7	2.1	5.0	0.9	4.4	0.9	2.0	18.3	38.9
1994	8.8	1.6	3.9	7.2	5.0	19.7	1.9	5.3	0.8	4.8	1.2	2.4	19.4	39.1
1995	9.1	1.3	4.1	7.7	6.2	21.6	2.3	6.3	1.3	6.1	1.7	2.2	22.6	44.3
1996	11.1	1.8	4.8	9.4	8.9	25.3	2.8	7.8	1.8	8.7	2.3	1.6	30.5	55.8
1997	10.4	1.6	5.2	8.3	8.3	24.4	3.1	7.7	1.9	8.6	2.1	1.3	29.9	54.4
1998	8.3	1.2	3.6	5.7	5.1	17.4	2.3	5.4	1.7	5.3	1.1	0.8	20.2	37.6
1999	R15.0	1.5	R4.0	R8.8	6.5	R26.1	R2.4	7.5	3.0	R7.4	1.8	1.9	R28.8	R54.9
2000P	23.5	2.5	9.6	14.8	11.7	45.3	3.2	12.6	3.3	12.4	3.2	2.9	44.9	90.2

[1] Nominal dollars.

[2] Organization of Petroleum Exporting Countries. See Glossary for current membership.

[3] Ecuador, which withdrew from OPEC on December 31, 1992, is included through 1992. In June 1996, OPEC retroactively ended Gabon's membership in OPEC effective December 31, 1994. However, data for Gabon are still included here for 1995.

[4] Data shown here represent landed value; they differ from data in Table 3.5, which are data from U.S. Customs that represent crude oil value at the port of loading.

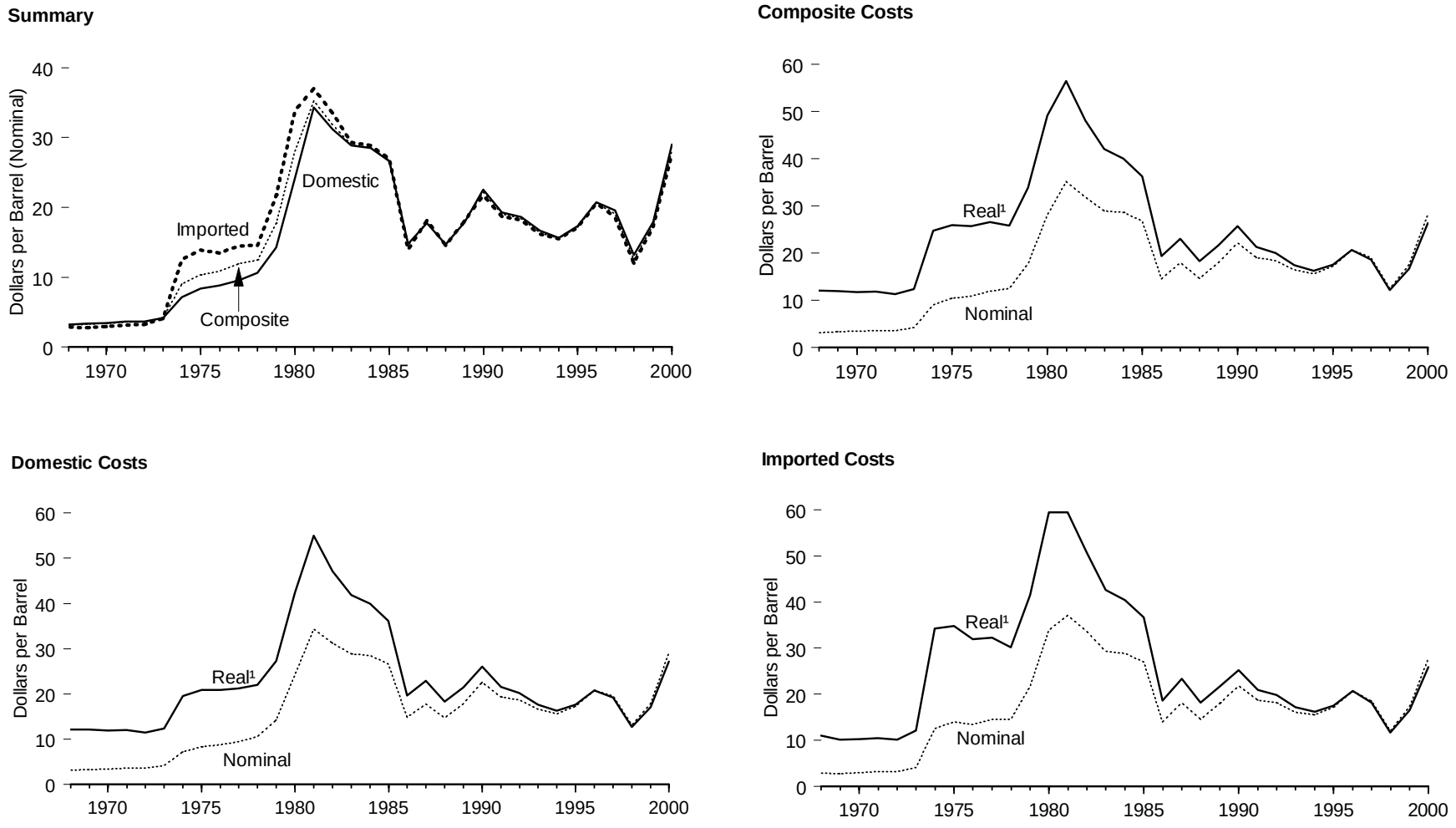
R=Revised. P=Preliminary. NA=Not available. W=Value withheld to avoid disclosure of individual company data. (s)=Less than $0.05 billion.

Notes: • Crude oil import volumes used to calculate values in this table are for the 50 states and the District of Columbia. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/oil_gas/petroleum/pet_frame.html.

Sources: Calculated by using prices on Table 5.17 and volume data as follows: • 1973-1975—U.S. Department of the Interior, Bureau of Mines, *Petroleum Statement, Annual,* annual reports. • 1976-1980—Energy Information Administration (EIA), *Petroleum Statement, Annual,* annual reports. • 1981-1999—EIA, *Petroleum Supply Annual,* annual reports. • 2000—EIA, *Petroleum Supply Monthly* (February 2001).

Figure 5.19 Crude Oil Refiner Acquisition Costs, 1968-2000



¹ In chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.

Note: Because vertical scales differ, graphs should not be compared.
Source: Table 5.19.

Table 5.19 Crude Oil Refiner Acquisition Costs, 1968-2000

(Dollars per Barrel)

Year	Domestic		Imported		Composite	
	Nominal	Real [1]	Nominal	Real [1]	Nominal	Real [1]
1968	3.21	12.21	2.90	11.03	3.17	12.05
1969	3.37	12.21	2.80	10.15	3.29	11.92
1970	3.46	11.91	2.96	10.19	3.40	11.70
1971	3.68	12.06	3.17	10.39	3.60	11.80
1972	3.67	11.53	3.22	10.12	3.58	11.25
1973	4.17	12.41	4.08	12.14	4.15	12.35
1974	7.18	19.61	12.52	34.19	9.07	24.77
1975	8.39	20.96	13.93	34.80	10.38	25.93
1976	8.84	20.90	13.48	31.87	10.89	25.74
1977	9.55	21.21	14.53	32.27	11.96	26.57
1978	10.61	22.00	14.57	30.21	12.46	25.83
1979	14.27	27.31	21.67	41.47	17.72	33.91
1980	24.23	42.48	33.89	59.41	28.07	49.21
1981	34.33	55.04	37.05	59.40	35.24	56.50
1982	31.22	47.12	33.55	50.64	31.87	48.11
1983	28.87	41.91	29.30	42.54	28.99	42.09
1984	28.53	39.94	28.88	40.43	28.63	40.08
1985	26.66	36.18	26.99	36.63	26.75	36.30
1986	14.82	19.68	14.00	18.59	14.55	19.32
1987	17.76	22.89	18.13	23.37	17.90	23.07
1988	14.74	18.38	14.56	18.15	14.67	18.29
1989	17.87	21.46	18.08	21.71	17.97	21.58
1990	22.59	26.11	21.76	25.15	22.22	25.68
1991	19.33	21.56	18.70	20.86	19.06	21.26
1992	18.63	20.29	18.20	19.82	18.43	20.07
1993	16.67	17.72	16.14	17.16	16.41	17.45
1994	15.67	16.32	15.51	16.15	15.59	16.24
1995	17.33	17.67	17.14	17.47	17.23	17.56
1996	20.77	20.77	20.64	20.64	20.71	20.71
1997	19.61	[R]19.23	18.53	18.18	19.04	18.68
1998	13.18	[R]12.77	12.04	[R]11.66	12.52	[R]12.13
1999	[R]17.90	[R]17.09	[R]17.26	16.47	[R]17.51	[R]16.71
2000[P]	29.06	27.18	27.69	25.90	28.23	26.40

[1] In chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.

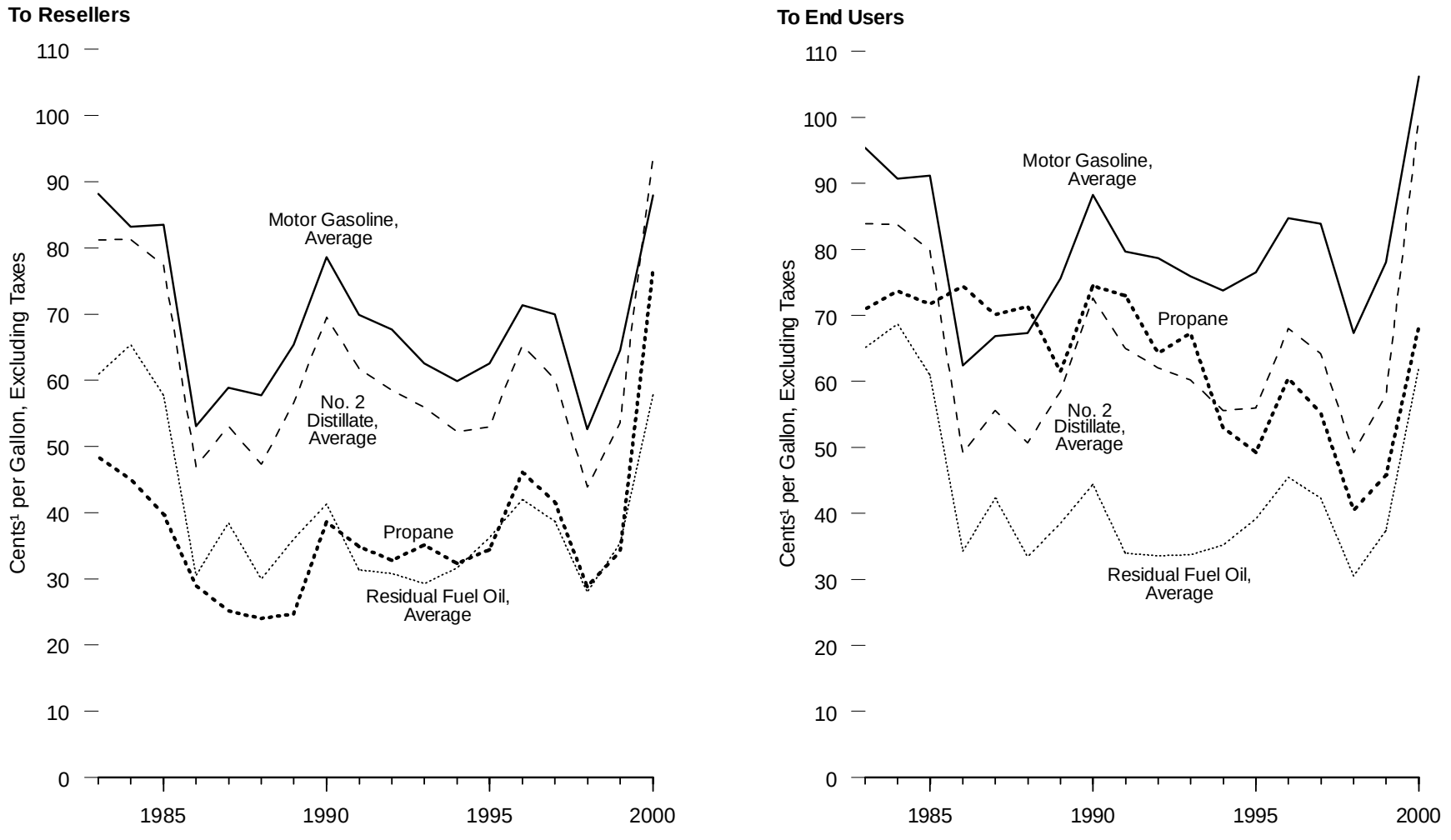
R=Revised. P=Preliminary.

Note: 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.

Web Page: http://www.eia.doe.gov/oil_gas/petroleum/pet_frame.html.

Sources: • 1968-1973—Estimated. See Note 7 at end of section. • 1974 through January 1976—Federal Energy Administration (FEA), Form FEA-96, "Monthly Cost Allocation Report." • February 1976 through December 1977—FEA, Form FEA-P110-M-1, "Refiners' Monthly Cost Allocation Report." • 1978 forward—EIA, *Petroleum Marketing Monthly* (March 2001), Table 1.

Figure 5.20 Refiner Sales Prices for Selected Petroleum Products, 1983-2000



[1] Nominal value.

Source: Table 5.20.

Table 5.20 Refiner Sales Prices and Refiner Margins for Selected Petroleum Products, 1984-2000

(Cents[1] per Gallon, Excluding Taxes)

Product	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000 P
Sales Prices to Resellers: [2]																	
Aviation Gasoline	116.5	113.0	91.2	85.9	85.0	95.0	106.3	100.1	99.1	96.5	93.3	97.5	105.5	106.5	91.2	R100.7	128.8
Motor Gasoline	83.2	83.5	53.1	58.9	57.7	65.4	78.6	69.9	67.7	62.6	59.9	62.6	71.3	70.0	52.6	R64.5	87.9
Leaded Regular	79.5	79.3	50.1	56.5	54.8	63.1	75.4	65.7	69.3	NA	NA	NA	NA	NA	NA	NA	NA
Unleaded Regular	84.2	84.3	52.2	56.9	54.8	61.8	75.8	67.2	64.5	59.3	56.6	59.3	68.5	67.3	49.9	R62.0	85.5
Unleaded Midgrade	NA	NA	NA	NA	NA	68.6	81.4	73.3	70.8	66.0	63.8	67.0	75.9	74.9	57.6	R69.6	94.3
Premium	91.6	92.2	61.0	67.1	67.2	74.9	87.4	79.2	77.4	72.2	69.5	72.2	80.3	79.2	61.7	R72.6	97.9
Kerosene	91.6	87.4	60.6	59.2	54.9	66.9	83.9	72.2	63.2	60.4	61.8	58.0	71.4	65.3	46.5	R55.0	105.8
Jet Fuel, Kerosene-Type	83.0	79.4	49.5	53.8	49.5	58.3	77.3	65.0	60.5	57.7	53.4	53.9	64.6	61.3	45.0	R53.3	99.3
No. 1 Distillate	89.2	86.3	57.9	59.9	54.9	66.8	83.8	73.0	65.2	64.6	61.5	62.5	75.1	72.3	51.3	R63.4	107.8
No. 2 Distillate	81.3	77.4	47.0	53.1	47.3	56.6	69.5	61.8	58.5	55.9	52.2	53.0	65.3	60.2	43.9	53.6	93.9
No. 2 Fuel Oil	82.1	77.6	48.6	52.7	47.3	56.5	69.7	62.2	57.9	54.4	50.6	51.1	63.9	59.0	42.2	R49.3	94.3
No. 2 Diesel Fuel	80.3	77.2	45.2	53.4	47.3	56.7	69.4	61.5	59.1	57.0	52.9	53.8	65.9	60.6	44.4	R54.6	93.8
No. 4 Fuel [3]	70.7	67.2	40.9	46.2	42.5	48.0	59.0	55.6	49.5	48.8	46.2	46.3	60.3	55.1	38.3	43.0	81.3
Residual Fuel Oil	65.4	57.7	30.5	38.5	30.0	36.0	41.3	31.4	30.8	29.3	31.7	36.3	42.0	38.7	28.0	R35.4	57.8
1% or Less Sulfur Content	68.5	61.0	32.8	41.2	33.3	40.7	47.2	36.4	35.1	33.7	34.5	38.3	45.6	41.5	29.9	R38.2	66.8
Greater Than 1% Sulfur Content	63.9	56.0	28.9	36.2	27.1	33.1	37.2	29.2	28.6	25.6	28.7	33.8	38.9	36.6	26.9	R32.9	49.3
Propane (Consumer Grade)	45.0	39.8	29.0	25.2	24.0	24.7	38.6	34.9	32.8	35.1	32.4	34.4	46.1	41.6	28.8	R34.2	76.7
Sales Prices to End Users: [2]																	
Aviation Gasoline	123.4	120.1	101.1	90.7	89.1	99.5	112.0	104.7	102.7	99.0	95.7	100.5	111.6	112.8	97.5	105.9	126.0
Motor Gasoline	90.7	91.2	62.4	66.9	67.3	75.6	88.3	79.7	78.7	75.9	73.8	76.5	84.7	83.9	67.3	78.1	106.2
Leaded Regular	84.8	84.2	57.3	61.8	61.9	71.0	83.1	71.5	78.5	NA	NA	NA	NA	NA	NA	NA	NA
Unleaded Regular	91.5	91.7	61.6	65.0	64.1	71.4	84.9	76.1	74.3	71.2	68.9	71.7	80.7	79.8	63.0	R74.2	102.4
Unleaded Midgrade	NA	NA	NA	NA	NA	79.2	92.1	84.3	82.7	80.5	78.5	80.8	89.6	89.5	72.8	R83.5	112.9
Premium	101.5	102.3	73.7	78.4	78.8	86.7	98.5	90.7	91.4	88.9	86.5	89.0	97.2	97.3	80.5	R90.6	120.8
Kerosene	103.6	103.0	79.0	77.0	73.8	70.9	92.3	83.8	78.8	75.4	66.0	58.9	74.0	74.5	50.1	R60.5	122.7
Jet Fuel, Kerosene-Type	84.2	79.6	52.9	54.3	51.3	59.2	76.6	65.2	61.0	58.0	53.4	54.0	65.1	61.3	45.2	R54.3	99.8
No. 1 Distillate	92.7	88.0	62.0	60.4	56.4	66.1	81.9	74.0	66.6	66.6	64.0	62.0	72.6	68.9	55.1	R62.1	105.8
No. 2 Distillate	83.7	79.9	49.1	55.6	50.7	58.5	72.6	65.0	62.0	60.2	55.6	56.0	68.0	64.2	49.2	R58.0	100.0
No. 2 Fuel Oil	91.6	84.9	56.0	58.1	54.4	58.7	73.4	66.5	62.7	60.2	57.2	56.2	67.3	63.6	48.2	R55.8	101.4
No. 2 Diesel Fuel	82.3	78.9	47.8	55.1	50.0	58.5	72.5	64.8	61.9	60.2	55.4	56.0	68.1	64.2	49.4	R58.4	99.7
No. 4 Fuel [3]	79.6	77.3	48.9	51.3	46.1	51.2	62.2	58.0	52.6	50.1	50.1	50.5	60.3	56.5	42.8	47.4	87.4
Residual Fuel Oil	68.7	61.0	34.3	42.3	33.4	38.5	44.4	34.0	33.6	33.7	35.2	39.2	45.5	42.3	30.5	R37.4	62.2
1% or Less Sulfur Content	72.0	64.4	37.2	44.7	37.2	43.6	50.5	40.2	38.9	39.7	40.1	43.6	52.6	48.8	35.4	R40.5	76.4
Greater Than 1% Sulfur Content	65.9	58.2	31.7	39.6	30.0	34.4	40.0	30.6	31.2	30.3	33.0	37.7	43.3	40.3	28.7	R36.2	56.2
Propane (Consumer Grade)	73.7	71.7	74.5	70.1	71.4	61.5	74.5	73.0	64.3	67.3	53.0	49.2	60.5	55.2	40.5	R45.8	68.3
Refiner Margins [4]																	
Motor Gasoline	15.1	19.8	18.4	16.3	22.8	22.6	25.7	24.5	23.8	23.5	22.8	21.6	22.0	24.7	22.8	R22.8	29.0
Jet Fuel, Kerosene-Type	14.9	15.8	14.9	11.2	14.6	15.5	24.4	19.6	16.5	18.6	16.3	12.9	15.3	16.0	15.2	R11.6	20.7
No. 2 Distillate	13.1	13.8	12.4	10.4	12.4	13.8	16.6	16.4	14.6	16.8	15.1	12.0	16.0	14.9	14.1	R11.9	22.3
Residual Fuel Oil	-2.8	-6.0	-4.1	-4.1	-5.0	-6.8	-11.6	-14.0	-13.2	-9.8	-5.4	-4.8	-7.2	-6.6	-1.8	R-6.3	-10.8
Composite [5]	13.7	17.0	15.8	13.8	18.7	18.8	22.1	20.7	19.8	19.0	19.8	18.1	19.4	20.0	19.5	R18.9	26.0

[1] Nominal value.

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

[3] Includes No. 4 fuel oil and No. 4 diesel fuel.

[4] In this table, refiner margin is the difference between the composite refiner acquisition price of crude oil and the price to resellers.

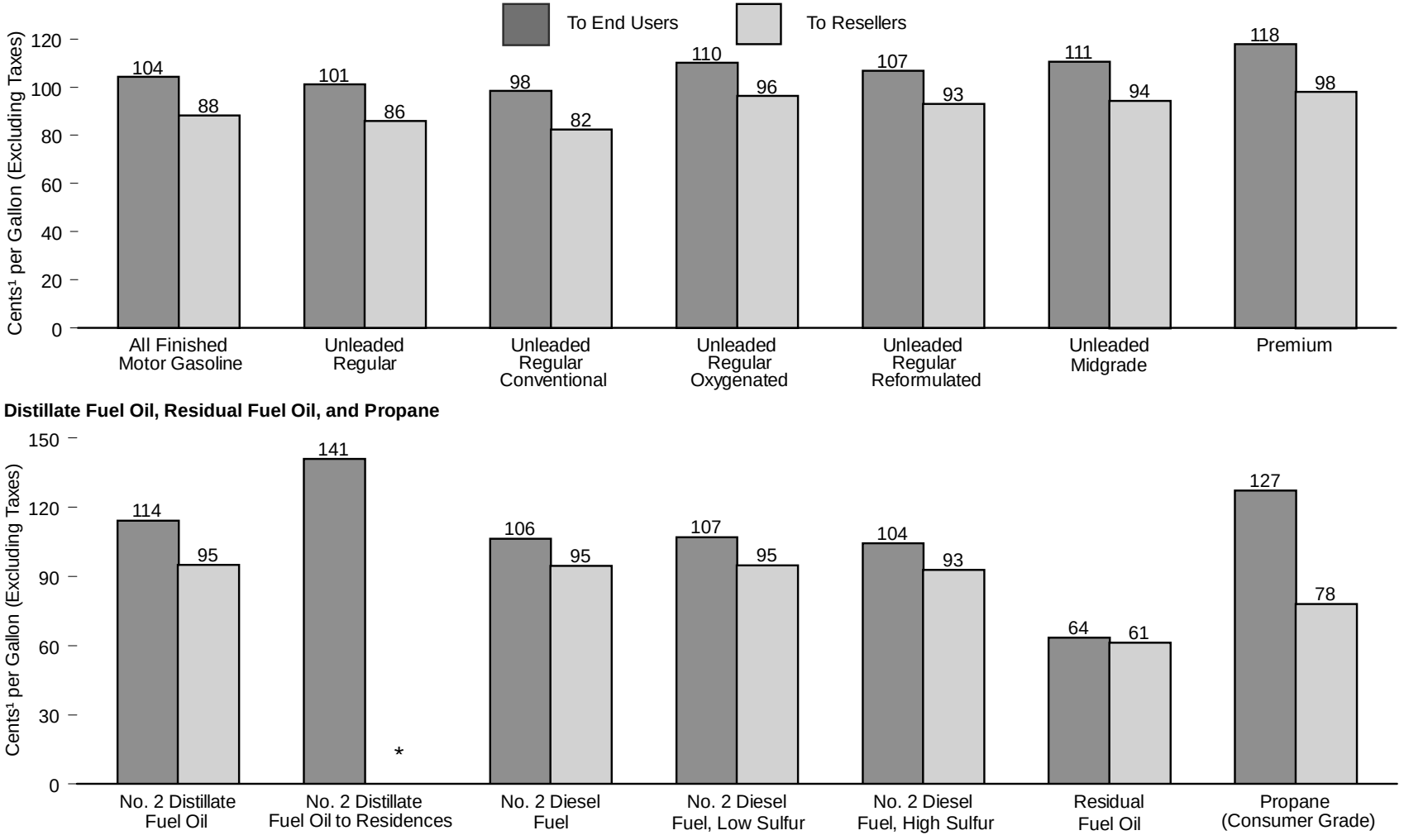
[5] Composite of aviation gasoline, kerosene-type jet fuel, kerosene, motor gasoline, distillate fuel nos. 1, 2, and 4, and residual fuel.

R=Revised. P=Preliminary. NA=Not available.

Web Page: http://www.eia.doe.gov/oil_gas/petroleum/pet_frame.html.

Sources: • 1984-1999—EIA, *Petroleum Marketing Annual,* annual reports. • 2000—EIA, *Petroleum Marketing Monthly* (March 2001).

Figure 5.21 All Sellers Sales Prices for Selected Petroleum Products, 2000



[1] Nominal value.
* Not applicable.

Notes: • Data are preliminary. • Because vertical scales differ, graphs should not be compared.
Source: Table 5.21.

Table 5.21 All Sellers Sales Prices for Selected Petroleum Products, 1984-2000

(Cents[1] per Gallon, Excluding Taxes)

Product	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000 P
Sales Prices to Resellers [2]																	
Motor Gasoline	83.8	84.1	53.8	59.2	58.0	65.8	78.9	70.8	68.0	62.8	60.2	63.0	71.5	70.3	53.0	R64.5	88.3
Unleaded Regular	84.9	84.9	52.9	57.2	55.1	62.3	76.2	68.2	64.9	59.7	57.1	59.9	68.9	67.7	50.4	R62.1	86.1
Conventional	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	56.5	58.3	67.2	65.8	48.4	R59.6	82.4
Oxygenated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	62.7	66.2	74.5	75.4	57.5	R69.0	96.4
Reformulated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	63.2	64.6	73.3	72.5	55.1	R67.6	93.0
Unleaded Midgrade	NA	NA	NA	NA	NA	69.1	82.3	74.4	71.3	66.4	64.1	67.3	76.0	75.1	57.9	R69.4	94.4
Conventional	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	63.3	65.1	73.7	72.3	55.0	R65.8	89.0
Oxygenated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	68.9	71.1	78.9	79.1	59.9	R69.5	97.3
Reformulated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	72.2	71.9	80.2	80.1	63.2	R75.8	103.4
Premium	92.4	92.8	61.7	67.4	67.5	75.2	87.7	80.0	77.6	72.2	69.6	72.4	80.4	79.4	61.8	R72.4	98.0
Conventional	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	68.6	69.5	77.7	76.4	58.7	R68.8	92.3
Oxygenated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	75.7	78.7	85.1	85.6	67.4	R77.9	107.6
Reformulated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	76.9	77.9	85.1	84.5	67.1	R78.7	106.0
No. 2 Distillate	81.9	78.1	48.0	53.5	48.2	57.2	70.6	62.7	59.1	56.6	52.9	53.6	66.0	61.1	45.0	53.8	95.0
No. 2 Diesel Fuel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	53.8	54.6	66.7	61.6	45.4	R55.2	94.6
Low Sulfur	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	54.2	55.1	67.3	61.9	45.7	R55.7	94.9
High Sulfur	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	51.9	52.4	63.9	60.2	43.7	51.9	92.9
Residual Fuel Oil	65.8	58.2	31.5	39.9	31.5	37.8	43.4	33.0	32.6	30.1	32.2	36.6	42.7	39.6	28.4	R35.5	61.3
1% or Less Sulfur Content	68.5	60.6	33.6	42.0	34.1	41.5	48.1	37.9	36.8	34.1	35.0	38.3	46.1	42.4	30.5	R38.2	68.7
Greater Than 1% Sulfur Content	64.1	56.1	29.5	38.1	28.2	34.0	38.8	29.7	30.0	27.2	29.8	34.4	39.7	37.5	27.1	R33.3	51.4
Propane (Consumer Grade)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	33.6	35.4	47.1	42.6	29.7	35.4	77.6
Sales Prices to End Users [2]																	
Motor Gasoline	91.6	91.9	63.7	67.7	68.0	76.8	89.9	81.1	78.7	75.3	72.9	76.1	84.3	83.1	66.0	R76.2	104.4
Unleaded Regular	92.7	92.8	63.0	66.3	65.5	73.2	87.0	78.0	75.0	71.4	69.0	72.1	80.9	79.7	62.3	R72.8	101.2
Conventional	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	68.5	71.4	80.1	78.5	61.0	R70.8	98.4
Oxygenated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	73.7	77.3	86.1	88.7	69.4	R78.2	110.1
Reformulated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	74.3	74.1	83.3	82.2	65.1	R77.7	106.9
Unleaded Midgrade	NA	NA	NA	NA	NA	NA	NA	NA	82.4	79.2	77.0	80.2	88.5	88.0	71.1	R81.2	110.5
Conventional	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	76.6	79.3	87.4	86.5	69.5	R78.7	106.9
Oxygenated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	82.1	83.8	92.9	96.4	76.3	R85.3	119.1
Reformulated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	85.1	82.9	91.6	91.5	74.8	R86.9	116.9
Premium	101.2	101.6	73.6	78.0	78.6	87.4	99.6	91.9	90.6	87.5	85.2	88.3	96.2	95.5	78.6	R88.0	118.0
Conventional	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	84.6	87.1	95.0	93.9	76.9	R85.6	114.0
Oxygenated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	90.8	93.8	101.9	105.4	84.5	R94.0	129.3
Reformulated	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	93.7	91.4	99.1	98.8	82.2	R93.1	124.3
No. 2 Distillate	92.6	89.0	61.4	64.3	61.2	69.5	84.1	76.0	72.6	71.0	67.5	67.3	79.3	75.3	59.9	R67.8	114.2
No. 2 Distillate to Residences [3]	109.1	105.3	83.6	80.3	81.3	90.0	106.3	101.9	93.4	91.1	88.4	86.7	98.9	98.4	85.2	R87.6	141.1
No. 2 Diesel Fuel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	62.8	63.6	75.7	71.4	56.2	R65.4	106.4
Low Sulfur	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	64.2	64.5	76.7	71.9	56.5	R66.3	107.0
High Sulfur	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	59.8	61.4	73.2	69.8	55.5	R62.0	104.3
Residual Fuel Oil	69.6	62.3	35.8	42.6	33.9	39.3	45.5	34.7	34.6	34.1	35.8	39.7	46.4	42.9	31.1	R37.8	63.5
1% or Less Sulfur Content	72.9	66.0	38.9	44.9	37.3	43.6	51.2	40.0	39.4	39.3	40.3	43.3	52.9	47.2	35.6	R40.6	73.9
Greater Than 1% Sulfur Content	66.4	58.9	32.8	39.9	30.6	35.1	40.5	31.1	31.9	31.2	32.7	37.6	43.0	40.7	29.2	R36.6	57.5
Propane (Consumer Grade)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	77.6	76.6	88.6	87.8	77.4	R78.1	127.3

[1] Nominal value.

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

[3] See Note 8 at end of section for historical data.

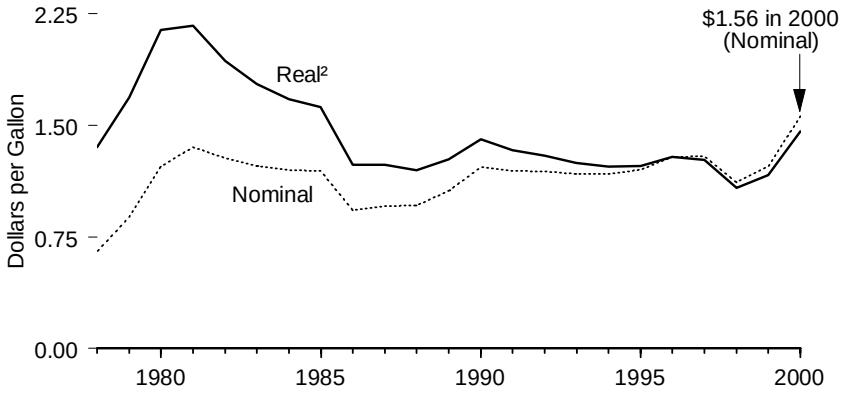
R=Revised. P=Preliminary. NA=Not available.

Web Page: http://www.eia.doe.gov/oil_gas/petroleum/pet_frame.html.

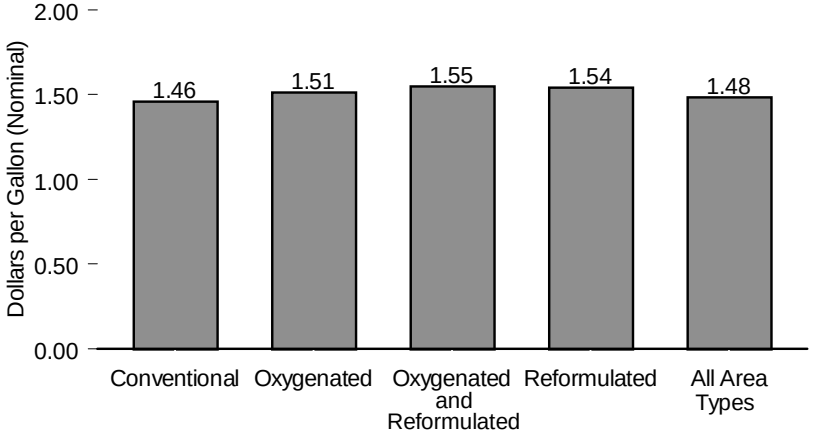
Sources: • 1984-1999—Energy Information Administration (EIA), *Petroleum Marketing Annual,* annual reports. • 2000—EIA, *Petroleum Marketing Monthly* (March 2001).

Figure 5.22 Retail Motor Gasoline Prices

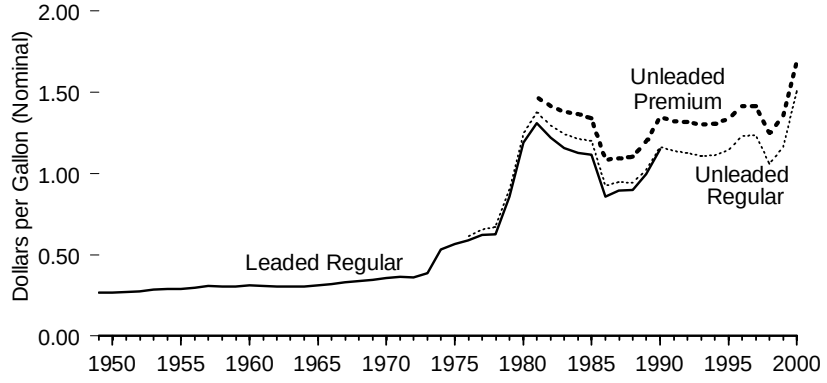
Motor Gasoline, All Types, 1978-2000



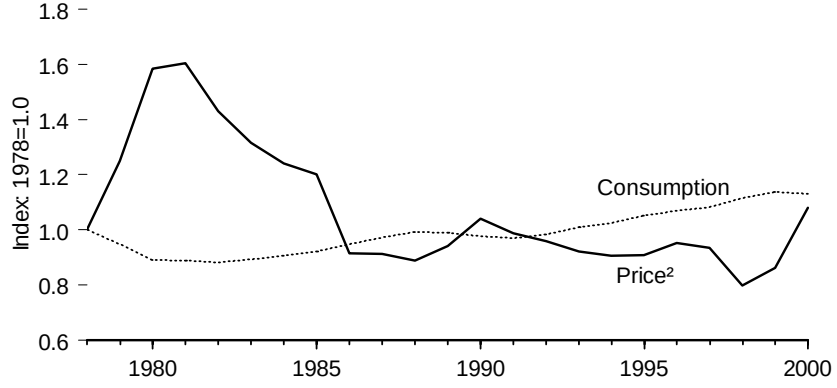
Regular Motor Gasoline by Area Type,[1] 2000



Motor Gasoline by Type, 1949-2000



Motor Gasoline[3] Price and Consumption, 1978-2000, Indexed to 1978



[1] "Area type" refers to the specific types of motor gasoline that are mandated by the Environmental Protection Agency to be sold in designated areas of the country. Only cash self-service prices are included.

[2] In chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.

[3] All types.

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

Sources: Tables 5.11 and 5.22.

Table 5.22 Retail Motor Gasoline and On-Highway Diesel Fuel Prices, 1949-2000

(Dollars per Gallon)

Year	Motor Gasoline by Grade [1]								Regular Motor Gasoline by Area Type [2,3]					On-Highway Diesel Fuel [3]
	Leaded Regular		Unleaded Regular		Unleaded Premium		All Types							
	Nominal	Real [4]	Nominal	Real [4]	Nominal	Real [4]	Nominal	Real [4]	Conventional	Oxygenated	Oxygenated and Reformulated	Reformulated	All Area Types	
1949	0.27	1.55	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1950	0.27	1.54	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1951	0.27	1.45	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1952	0.27	1.44	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1953	0.29	1.49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1954	0.29	1.49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1955	0.29	1.47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1956	0.30	1.46	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1957	0.31	1.47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1958	0.30	1.41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1959	0.31	1.39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1960	0.31	1.40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1961	0.31	1.37	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1962	0.31	1.35	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1963	0.30	1.32	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1964	0.30	1.30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1965	0.31	1.31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1966	0.32	1.31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1967	0.33	1.32	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1968	0.34	1.28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1969	0.35	1.26	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1970	0.36	1.23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1971	0.36	1.19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1972	0.36	1.14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1973	0.39	1.16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1974	0.53	1.45	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1975	0.57	1.42	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1976	0.59	1.40	0.61	1.45	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1977	0.62	1.38	0.66	1.46	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1978	0.63	1.30	0.67	1.39	NA	NA	0.65	1.35	NA	NA	NA	NA	NA	NA
1979	0.86	1.64	0.90	1.73	NA	NA	0.88	1.69	NA	NA	NA	NA	NA	NA
1980	1.19	2.09	1.25	2.18	NA	NA	1.22	2.14	NA	NA	NA	NA	NA	NA
1981	1.31	2.10	1.38	2.21	1.47	2.36	1.35	2.17	NA	NA	NA	NA	NA	NA
1982	1.22	1.85	1.30	1.96	1.42	2.14	1.28	1.93	NA	NA	NA	NA	NA	NA
1983	1.16	1.68	1.24	1.80	1.38	2.01	1.23	1.78	NA	NA	NA	NA	NA	NA
1984	1.13	1.58	1.21	1.70	1.37	1.91	1.20	1.68	NA	NA	NA	NA	NA	NA
1985	1.12	1.51	1.20	1.63	1.34	1.82	1.20	1.62	NA	NA	NA	NA	NA	NA
1986	0.86	1.14	0.93	1.23	1.09	1.44	0.93	1.24	NA	NA	NA	NA	NA	NA
1987	0.90	1.16	0.95	1.22	1.09	1.41	0.96	1.23	NA	NA	NA	NA	NA	NA
1988	0.90	1.12	0.95	1.18	1.11	1.38	0.96	1.20	NA	NA	NA	NA	NA	NA
1989	1.00	1.20	1.02	1.23	1.20	1.44	1.06	1.27	NA	NA	NA	NA	NA	NA
1990	1.15	1.33	1.16	1.35	1.35	1.56	1.22	1.41	NA	NA	NA	NA	NA	NA
1991	NA	NA	1.14	1.27	1.32	1.47	1.20	1.33	1.10	NA	NA	NA	1.10	NA
1992	NA	NA	1.13	1.23	1.32	1.43	1.19	1.30	1.09	NA	NA	NA	1.09	NA
1993	NA	NA	1.11	1.18	1.30	1.38	1.17	1.25	1.05	1.14	NA	NA	1.07	NA
1994	NA	NA	1.11	1.16	1.31	1.36	1.17	1.22	1.06	1.14	NA	NA	1.08	NA
1995	NA	NA	1.15	1.17	1.34	1.36	1.21	1.23	1.09	1.16	1.18	1.16	1.11	1.11
1996	NA	NA	1.23	1.23	1.41	1.41	1.29	1.29	1.18	1.27	1.27	1.24	1.20	1.24
1997	NA	NA	1.23	1.21	1.42	1.39	1.29	1.27	1.18	1.26	1.28	1.25	1.20	1.20
1998	NA	NA	1.06	1.03	1.25	1.21	1.12	1.08	1.01	1.08	1.09	1.08	1.03	1.04
1999	NA	NA	1.17	1.11	1.36	1.30	1.22	1.17	1.11	1.20	1.19	1.20	1.14	1.12
2000	NA	NA	1.51	1.41	1.69	1.58	1.56	1.46	1.46	1.51	1.55	1.54	1.48	1.49

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

[2] "Area Type" refers to the specific types of motor gasoline that are mandated by the Environmental Protection Agency to be sold in designated areas of the country. Only cash self-service prices are included.

[3] Nominal dollars.

[4] In chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.

NA=Not available.

Web Page: http://www.eia.doe.gov/oil_gas/petroleum/pet_frame.html.

Sources: **Motor Gasoline by Grade:** • 1949-1973—*Platt's Oil Price Handbook and Oilmanac, 1974,* 51st Edition. • 1974 forward—Energy Information Administration (EIA), annual averages of monthly data from Bureau of Labor Statistics, *Consumer Prices: Energy.* **Motor Gasoline by Area Type:** EIA, annual averages of data from Weekly Retail Gasoline Prices. **On-Highway Diesel:** EIA, annual averages of data from Weekly On-Highway Diesel Prices.

Petroleum

Note 1. 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 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.

Note 2. Total petroleum products supplied is the sum of the products supplied for each petroleum product, crude oil, unfinished oils, and gasoline blending components. For each of these, except crude oil, product supplied is calculated by adding refinery production, natural gas plant liquids production, new supply of other liquids, imports, and stock withdrawals, and subtracting stock additions, refinery inputs, and exports. Crude oil product supplied is the sum of crude oil burned on leases and at pipeline pump stations as reported on Form EIA-813. Prior to 1983, crude oil burned on leases and at pipeline pump stations was reported as either distillate or residual fuel oil and was included as product supplied for these products. Petroleum product supplied is an approximation of petroleum consumption and is synonymous with the term "Petroleum Consumption" in Section 1. 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.

Note 3. 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. Those changes affect production and product supplied statistics for motor gasoline, distillate fuel oil, and residual fuel oil, and stocks of motor gasoline. On the basis of those changes, 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.

Note 4. The methods of deriving Gross Input to Distillation Units (GIDU) in this report are as follows: 1949-1966, GIDU is estimated by summing 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. For 1967-1973, GIDU is estimated by summing annual crude oil runs to stills, net unfinished oil reruns, and refinery input of natural gasoline and plant condensate. For 1974-1980, GIDU is published annual data. For 1981 forward, GIDU is the sum of reported monthly data.

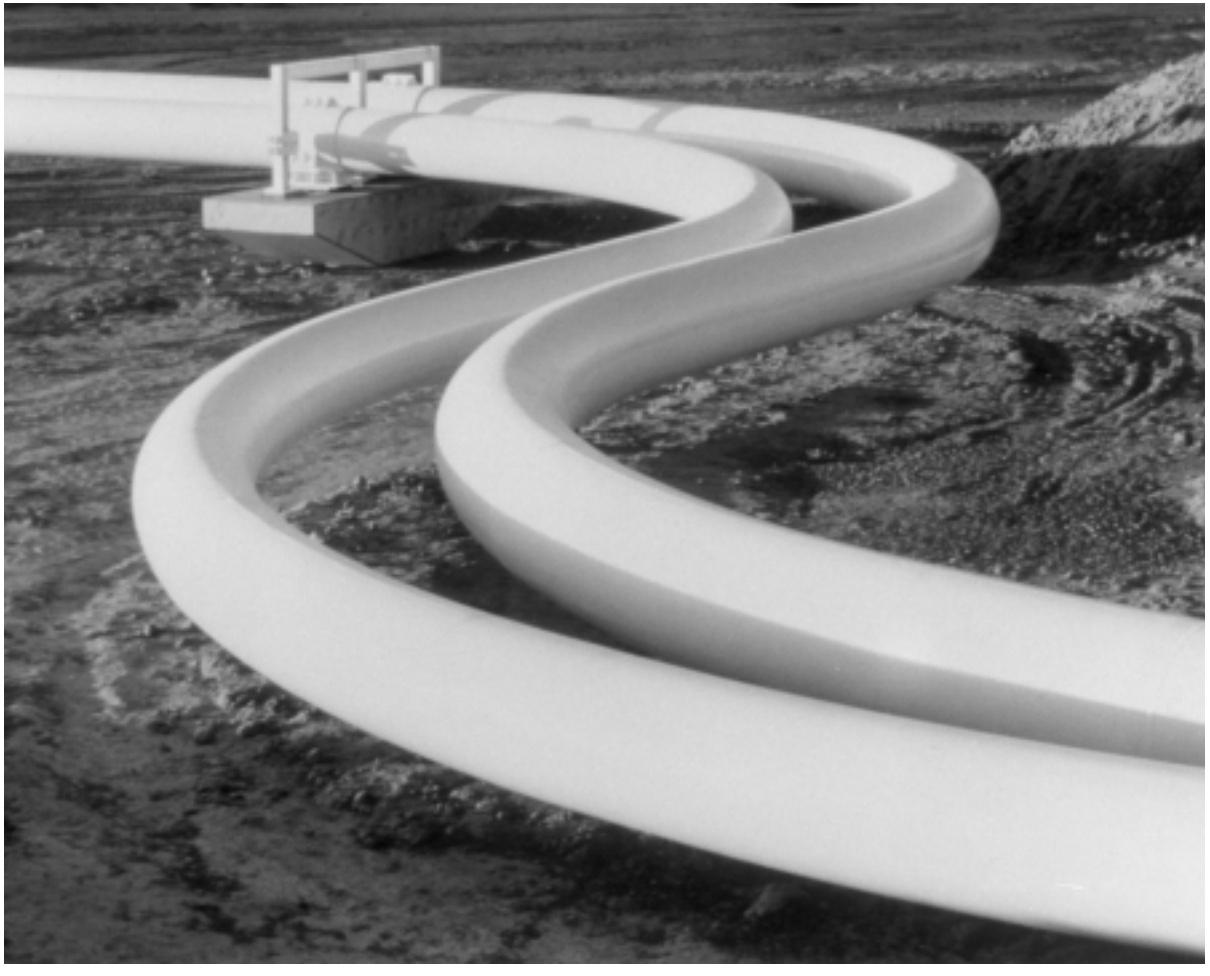
Note 5. Due to differences in presentation of data among various EIA publications, data for consumption at nonutility power producers are sometimes shown in the end-use sectors and at other times in the electric power sector. In Tables 5.12a-5.12c, the "End-Use Sectors" data come from EIA's *State Energy Data Report*, which includes all nonutility consumption in the end-use sectors. In Table 5.12d, the "Electric Power Sector" data come from EIA's *Electric Power Monthly* and *Electric Power Annual,* which for 1999 and 2000 include nonutility consumption for electricity generation. Because of this double-counting of nonutility data in 1999 and 2000, an adjustments column is incorporated into Table 5.12d to remove the overcount and allow the components in Tables 5.12a-5.12d to be added across to reach the total consumption value.

Note 6. The Crude Oil Domestic First Purchase Prices were derived as follows: 1949-1973, weighted average Domestic First Purchase 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 forward, weighted averages of all first purchasers' purchases.

Note 7. The Refiner Acquisition Cost of Crude Oil was estimated for 1968-1973. The cost of domestic crude oil was derived by adding estimated transportation costs to the reported average domestic first purchase value. The cost of imported crude oil 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 on the basis of quantities produced and imported.

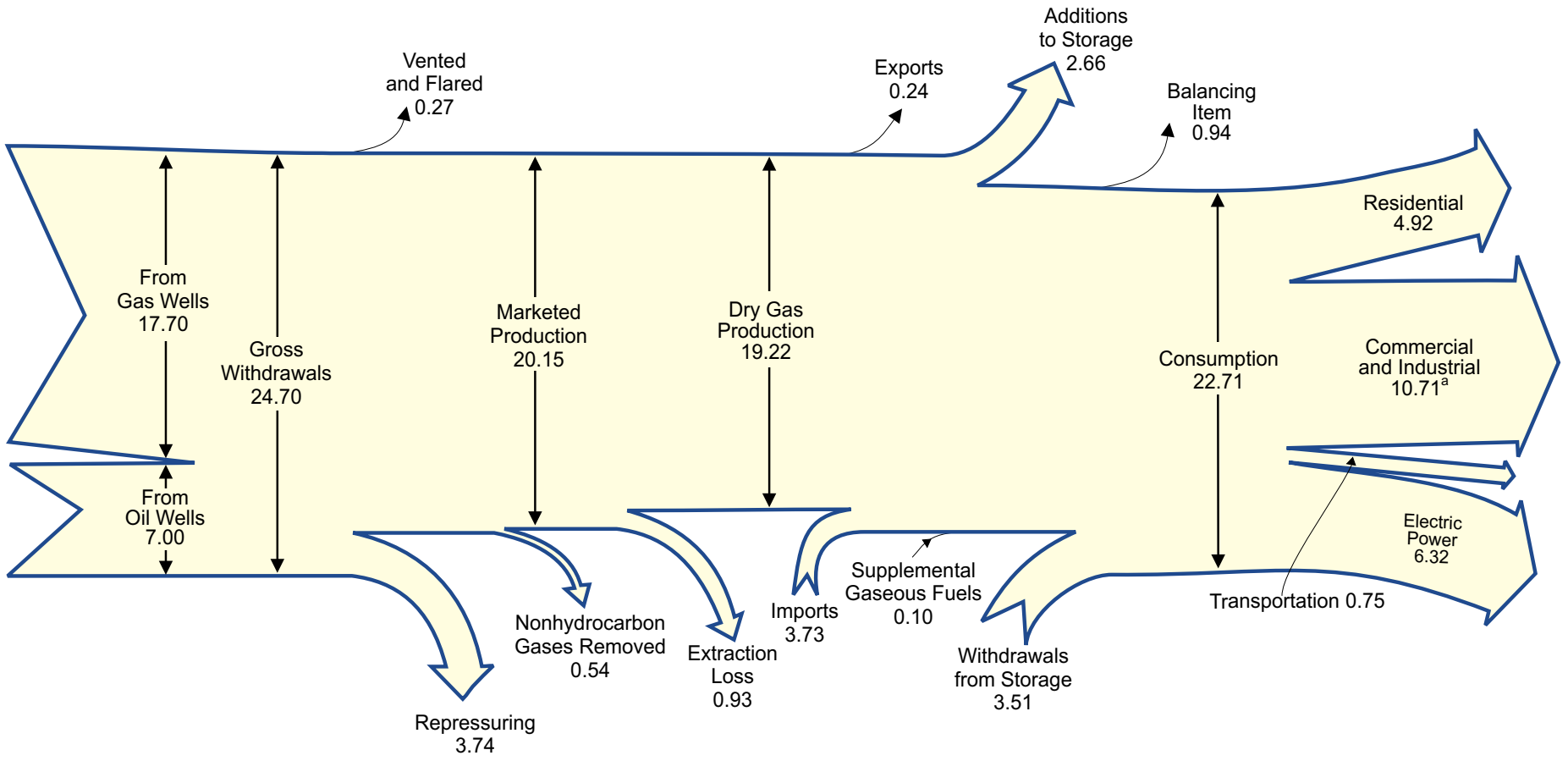
Note 8. Residential heating oil prices for 1956 through 1982 were formerly published in the *Annual Energy Review.* Those data, in cents per gallon, are: 15.2, 16.0, 15.1, 15.3, 15.0, 15.6, 15.6, 16.0, 16.1, 16.0, 16.4, 16.9, 17.4, 17.8, 18.5, 19.6, 19.7, 22.8, 36.0, 37.7, 40.6, 46.0, 49.0, 70.4, 97.4, 119.4, 116.0. The sources of these data are: 1956-1974— 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 (EIA), Form EIA-9, "No. 2 Heating Oil Supply/Price Monitoring Report." 1978-forward—EIA, *Petroleum Marketing Monthly*, Table 18.

6 Natural Gas



Natural gas pipeline, El Paso County, Texas. Source: U.S. Department of Energy.

Diagram 3. Natural Gas Flow, 2000
(Trillion Cubic Feet)

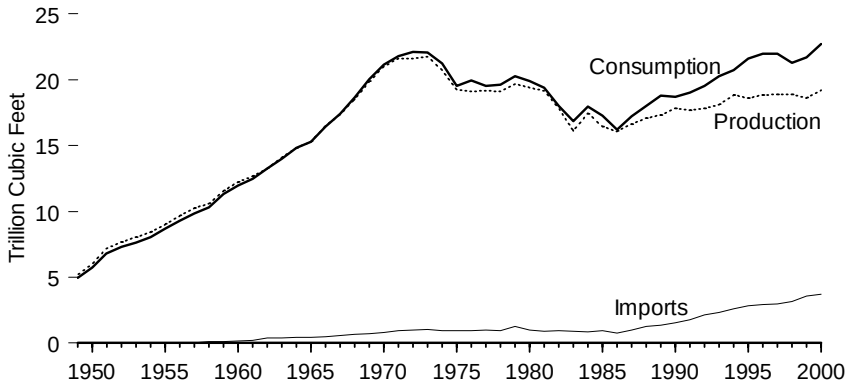


[a] Commercial and industrial totals plus "End-Use/Nonutility Adjustment" from Table 6.5.
[b] Natural gas consumed in the operation of pipelines, primarily in compressors, and a small quantity used as vehicle fuel.

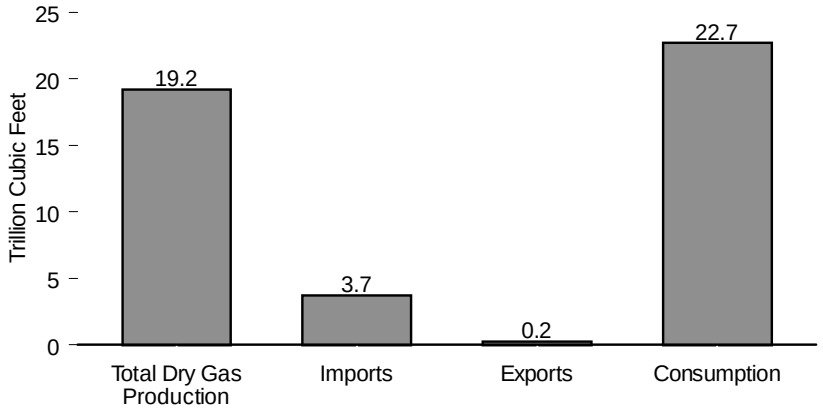
Notes: • Data are preliminary. • Totals may not equal sum of components due to independent rounding.
Sources: Tables 6.1, 6.2, and 6.5.

Figure 6.1 Natural Gas Overview

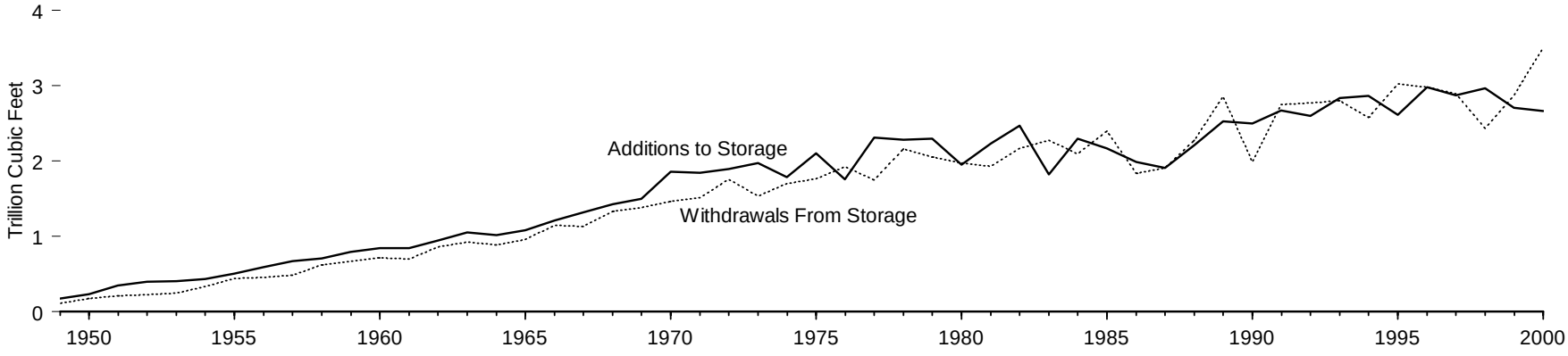
Overview, 1949-2000



Overview, 2000



Storage Additions and Withdrawals,[1] 1949-2000



[1] Beginning with 1980, includes liquefied natural gas stored in above-ground tanks.

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

Source: Table 6.1.

Table 6.1 Natural Gas Overview, 1949-2000

(Trillion Cubic Feet)

Year	Total Dry Gas Production	Supplemental Gaseous Fuels	Imports	Exports	Withdrawals from Storage [1]	Additions to Storage [1]	Balancing Item [2]	Consumption
1949	5.20	NA	0.00	0.02	0.11	0.17	-0.14	4.97
1950	6.02	NA	0.00	0.03	0.18	0.23	-0.18	5.77
1951	7.16	NA	0.00	0.02	0.21	0.35	-0.19	6.81
1952	7.69	NA	0.01	0.03	0.22	0.40	-0.20	7.29
1953	8.06	NA	0.01	0.03	0.25	0.40	-0.24	7.64
1954	8.39	NA	0.01	0.03	0.33	0.43	-0.22	8.05
1955	9.03	NA	0.01	0.03	0.44	0.51	-0.25	8.69
1956	9.66	NA	0.01	0.04	0.45	0.59	-0.21	9.29
1957	10.25	NA	0.04	0.04	0.48	0.67	-0.21	9.85
1958	10.57	NA	0.14	0.04	0.62	0.70	-0.28	10.30
1959	11.55	NA	0.13	0.02	0.67	0.79	-0.22	11.32
1960	12.23	NA	0.16	0.01	0.71	0.84	-0.27	11.97
1961	12.66	NA	0.22	0.01	0.70	0.84	-0.23	12.49
1962	13.25	NA	0.40	0.02	0.85	0.94	-0.29	13.27
1963	14.08	NA	0.41	0.02	0.92	1.05	-0.36	13.97
1964	14.82	NA	0.44	0.02	0.89	1.01	-0.30	14.81
1965	15.29	NA	0.46	0.03	0.96	1.08	-0.32	15.28
1966	16.47	NA	0.48	0.02	1.14	1.21	-0.40	16.45
1967	17.39	NA	0.56	0.08	1.13	1.32	-0.30	17.39
1968	18.49	NA	0.65	0.09	1.33	1.43	-0.33	18.63
1969	19.83	NA	0.73	0.05	1.38	1.50	-0.33	20.06
1970	21.01	NA	0.82	0.07	1.46	1.86	-0.23	21.14
1971	21.61	NA	0.93	0.08	1.51	1.84	-0.34	21.79
1972	21.62	NA	1.02	0.08	1.76	1.89	-0.33	22.10
1973	21.73	NA	1.03	0.08	1.53	1.97	-0.20	22.05
1974	20.71	NA	0.96	0.08	1.70	1.78	-0.29	21.22
1975	19.24	NA	0.95	0.07	1.76	2.10	-0.24	19.54
1976	19.10	NA	0.96	0.06	1.92	1.76	-0.22	19.95
1977	19.16	NA	1.01	0.06	1.75	2.31	-0.04	19.52
1978	19.12	NA	0.97	0.05	2.16	2.28	-0.29	19.63
1979	19.66	NA	1.25	0.06	2.05	2.30	-0.37	20.24
1980	19.40	0.15	0.98	0.05	1.97	1.95	-0.64	19.88
1981	19.18	0.18	0.90	0.06	1.93	2.23	-0.50	19.40
1982	17.82	0.14	0.93	0.05	2.16	2.47	-0.54	18.00
1983	16.09	0.13	0.92	0.05	2.27	1.82	-0.70	16.83
1984	17.47	0.11	0.84	0.05	2.10	2.30	-0.22	17.95
1985	16.45	0.13	0.95	0.06	2.40	2.16	-0.43	17.28
1986	16.06	0.11	0.75	0.06	1.84	1.98	-0.49	16.22
1987	16.62	0.10	0.99	0.05	1.91	1.91	-0.44	17.21
1988	17.10	0.10	1.29	0.07	2.27	2.21	-0.45	18.03
1989	17.31	0.11	1.38	0.11	2.85	2.53	-0.22	18.80
1990	17.81	0.12	1.53	0.09	1.99	2.50	-0.15	18.72
1991	17.70	0.11	1.77	0.13	2.75	2.67	-0.50	19.04
1992	17.84	0.12	2.14	0.22	2.77	2.60	-0.51	19.54
1993	18.10	0.12	2.35	0.14	2.80	2.83	-0.11	20.28
1994	18.82	0.11	2.62	0.16	2.58	2.86	-0.40	20.71
1995	18.60	0.11	2.84	0.15	3.02	2.61	-0.23	21.58
1996	18.85	0.11	2.94	0.15	2.98	2.98	0.22	21.97
1997	18.90	0.10	2.99	0.16	2.89	2.87	0.09	21.96
1998	[R]18.87	0.10	3.15	0.16	2.43	2.96	[R]-0.17	21.26
1999	[R]18.62	0.10	[R]3.59	0.16	[R]2.87	[R]2.70	[R]-0.61	[R]21.70
2000[P]	19.22	0.10	3.73	0.24	3.51	2.66	-0.94	22.71

[1] Beginning with 1980, includes liquefied natural gas stored in above-ground tanks.

[2] Quantities lost and imbalances in data due to differences among data sources. Since 1980, excludes intransit shipments that cross the U.S.-Canada border (i.e., natural gas delivered to its destination via the other country).

R=Revised. P=Preliminary. NA=Not available.

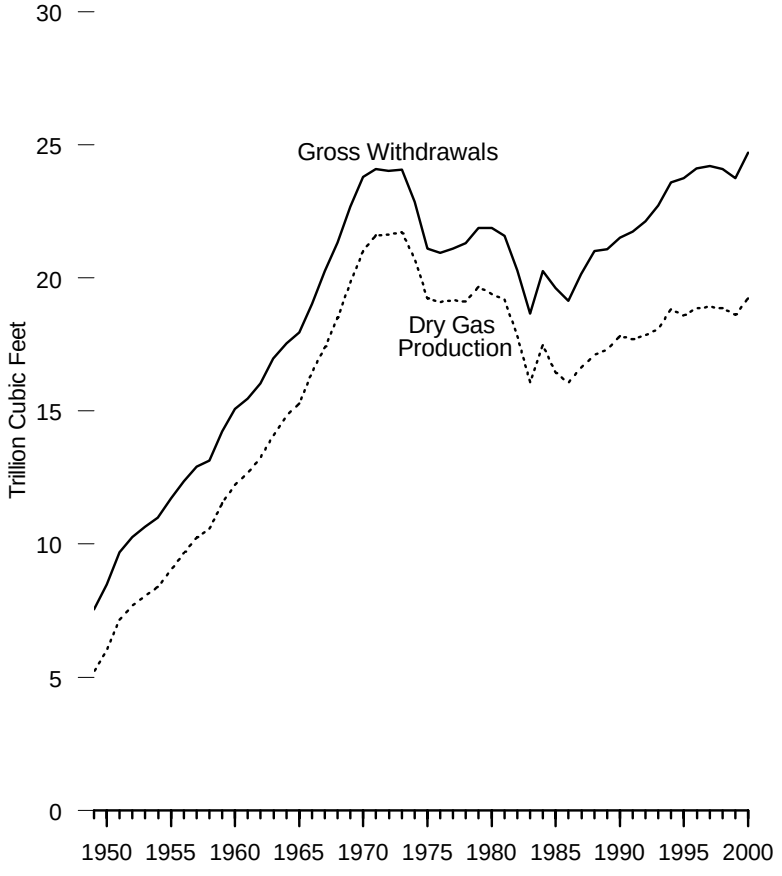
Notes: • Beginning with 1965, all volumes are shown on a pressure base of 14.73 p.s.i.a. at 60° F. For prior years, the pressure base was 14.65 p.s.i.a. at 60° F. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/oil_gas/natural_gas/nat_frame.html.

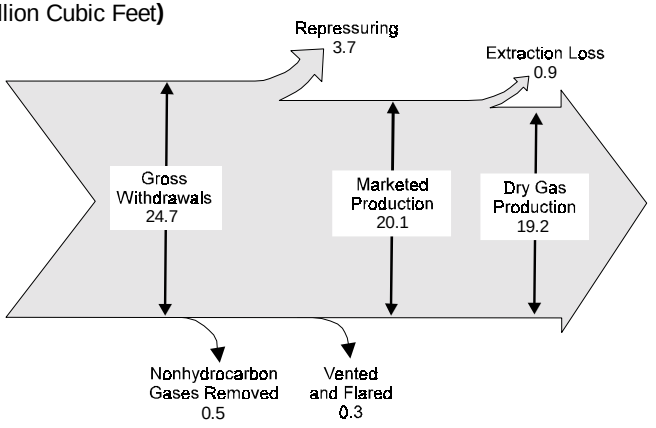
Sources: **Supplemental Gaseous Fuels:** • 1980-1993—EIA, *Natural Gas Annual,* annual reports. • 1994 forward—EIA, *Natural Gas Monthly* (February 2001), Table 2. **Balancing Item and Consumption:** • 1973 forward—EIA, *Monthly Energy Review,* (March 2001), Table 4.1. **All Other Data:** • 1949-1993—EIA, *Natural Gas Annual 1999* (October 2000), Table 93. • 1994 forward—EIA, *Natural Gas Monthly* (February 2001), Table 2.

Figure 6.2 Natural Gas Production

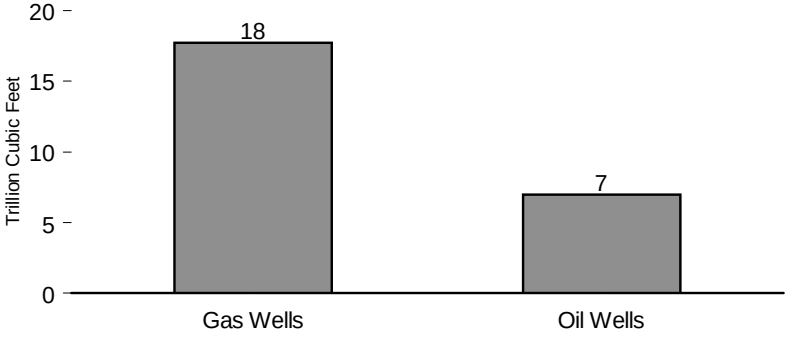
Gross Withdrawals and Dry Gas Production, 1949-2000



Production Flow, 2000
(Trillion Cubic Feet)



Gross Withdrawals by Well Type, 2000



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

Source: Table 6.2.

Table 6.2 Natural Gas Production, 1949-2000

(Trillion Cubic Feet)

Year	Gross Withdrawals			Repressuring	Nonhydrocarbon Gases Removed	Vented and Flared	Marketed Production	Extraction Loss [1]	Total Dry 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	21.33	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	15.81	4.46	20.27	1.39	0.21	0.09	18.58	0.76	17.82
1983	14.15	4.51	18.66	1.46	0.22	0.09	16.88	0.79	16.09
1984	15.51	4.75	20.27	1.63	0.22	0.11	18.30	0.84	17.47
1985	14.54	5.07	19.61	1.92	0.33	0.09	17.27	0.82	16.45
1986	14.15	4.98	19.13	1.84	0.34	0.10	16.86	0.80	16.06
1987	14.81	5.33	20.14	2.21	0.38	0.12	17.43	0.81	16.62
1988	15.47	5.53	21.00	2.48	0.46	0.14	17.92	0.82	17.10
1989	15.71	5.37	21.07	2.48	0.36	0.14	18.10	0.78	17.31
1990	16.05	5.47	21.52	2.49	0.29	0.15	18.59	0.78	17.81
1991	16.02	5.73	21.75	2.77	0.28	0.17	18.53	0.83	17.70
1992	16.16	5.97	22.13	2.97	0.28	0.17	18.71	0.87	17.84
1993	16.69	6.03	22.73	3.10	0.41	0.23	18.98	0.89	18.10
1994	17.35	6.23	23.58	3.23	0.41	0.23	19.71	0.89	18.82
1995	17.28	6.46	23.74	3.57	0.39	0.28	19.51	0.91	18.60
1996	17.74	6.38	24.11	3.51	0.52	0.27	19.81	0.96	18.85
1997	17.84	6.37	24.21	3.49	0.60	0.26	19.87	0.96	18.90
1998	R17.72	R6.38	R24.10	R3.44	R0.62	0.23	R19.81	0.94	R18.87
1999	17.54	R6.21	R23.76	R3.30	R0.61	0.25	R19.60	R0.97	R18.62
2000	E17.70	E7.00	P24.70	P3.74	P0.54	P0.27	P20.15	P0.93	P19.22

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

R=Revised. P=Preliminary. E=Estimate. NA=Not available.

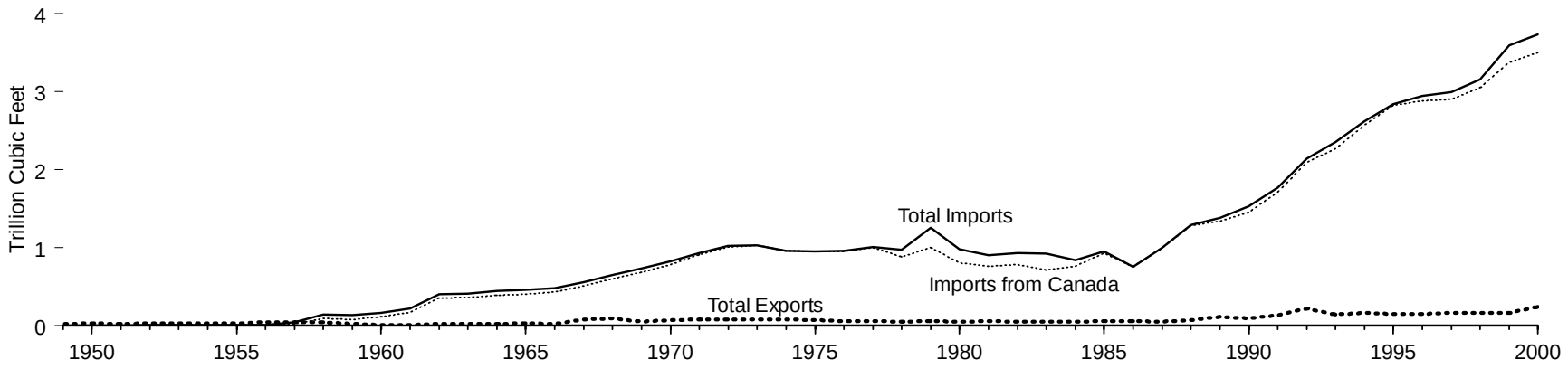
Notes: • Beginning with 1965 data, all volumes are shown on a pressure base of 14.73 p.s.i.a. at 60° F. For prior years, the pressure base was 14.65 p.s.i.a. at 60° F. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/oil_gas/naturaL_gas/nat_frame.html.

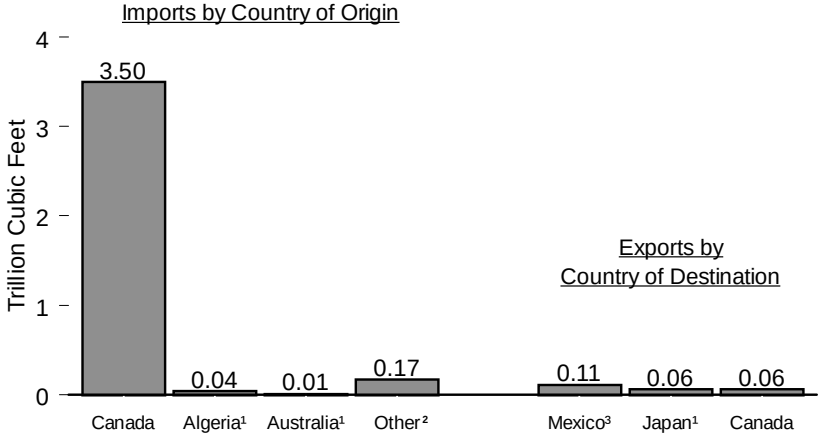
Sources: **From Gas Wells and From Oil Wells:** • 1949-1966—Bureau of Mines, *Minerals Yearbook,* "Natural Gas" chapter. • 1967-1994—Energy Information Administration (EIA), *Natural Gas Annual,* annual reports. • 1995-1999—EIA, *Natural Gas Annual 1999* (October 2000), Table 3. • 2000—EIA estimates. **All Other Data:** • 1949-1993—EIA, *Natural Gas Annual 1999* (October 2000), Table 92. • 1994 forward—EIA, *Natural Gas Monthly* (February 2001), Table 1.

Figure 6.3 Natural Gas Imports, Exports, and Net Imports

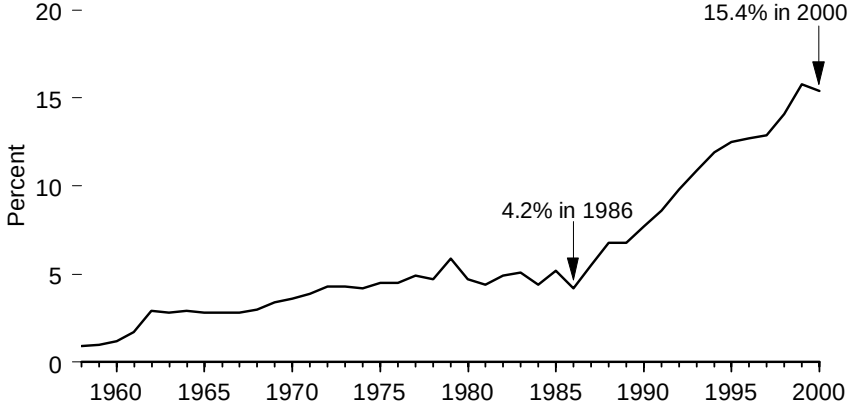
Trade Overview, 1949-2000



Trade, 2000



Net Imports as Share of Consumption, 1958-2000



[1] Liquefied natural gas.

[2] Indonesia, Malaysia, Mexico, Nigeria, Oman, Qatar, Trinidad and Tobago, and United Arab Emirates. Except for Mexico, other imports are liquefied natural gas.

[3] Pipeline and liquefied natural gas.

Source: Table 6.3.

Table 6.3 Natural Gas Imports, Exports, and Net Imports, 1949-2000

(Billion Cubic Feet, Except as Noted)

Year	Imports by Country of Origin							Exports by Country of Destination				Net Imports [1]	
	Algeria [2]	Australia [2]	Canada	Indonesia [2]	Mexico	United Arab Emirates [2]	Total [3]	Canada	Japan [2]	Mexico [2]	Total	Total	Percent of U.S. Consumption
1949	0	0	0	0	0	0	0	(s)	0	20	20	-20	([4])
1950	0	0	0	0	0	0	0	3	0	23	26	-26	([4])
1951	0	0	0	0	0	0	0	4	0	21	24	-24	([4])
1952	0	0	8	0	(s)	0	8	6	0	22	27	-20	([4])
1953	0	0	9	0	0	0	9	6	0	22	28	-19	([4])
1954	0	0	7	0	0	0	7	6	0	23	29	-22	([4])
1955	0	0	11	0	(s)	0	11	11	0	20	31	-20	([4])
1956	0	0	10	0	(s)	0	10	17	0	19	36	-26	([4])
1957	0	0	21	0	17	0	38	31	0	11	42	-4	([4])
1958	0	0	90	0	46	0	136	32	0	7	39	97	0.9
1959	0	0	83	0	51	0	134	12	0	7	18	116	1.0
1960	0	0	109	0	47	0	156	6	0	6	11	144	1.2
1961	0	0	167	0	52	0	219	6	0	5	11	208	1.7
1962	0	0	350	0	51	0	402	6	0	10	16	386	2.9
1963	0	0	356	0	50	0	406	7	0	10	17	389	2.8
1964	0	0	391	0	53	0	443	10	0	10	20	424	2.9
1965	0	0	405	0	52	0	456	18	0	8	26	430	2.8
1966	0	0	430	0	50	0	480	20	0	4	25	455	2.8
1967	0	0	513	0	51	0	564	70	0	11	82	483	2.8
1968	0	0	604	0	47	0	652	82	0	12	94	558	3.0
1969	0	0	680	0	47	0	727	35	3	13	51	676	3.4
1970	1	0	779	0	41	0	821	11	44	15	70	751	3.6
1971	1	0	912	0	21	0	935	14	50	16	80	854	3.9
1972	2	0	1,009	0	8	0	1,019	16	48	15	78	941	4.3
1973	3	0	1,028	0	2	0	1,033	15	48	14	77	956	4.3
1974	0	0	959	0	(s)	0	959	13	50	13	77	882	4.2
1975	5	0	948	0	0	0	953	10	53	9	73	880	4.5
1976	10	0	954	0	0	0	964	8	50	7	65	899	4.5
1977	11	0	997	0	2	0	1,011	(s)	52	4	56	955	4.9
1978	84	0	881	0	0	0	966	(s)	48	4	53	913	4.7
1979	253	0	1,001	0	0	0	1,253	(s)	51	4	56	1,198	5.9
1980	86	0	797	0	102	0	985	(s)	45	4	49	936	4.7
1981	37	0	762	0	105	0	904	(s)	56	3	59	845	4.4
1982	55	0	783	0	95	0	933	(s)	50	2	52	882	4.9
1983	131	0	712	0	75	0	918	(s)	53	2	55	864	5.1
1984	36	0	755	0	52	0	843	(s)	53	2	55	788	4.4
1985	24	0	926	0	0	0	950	(s)	53	2	55	894	5.2
1986	0	0	749	2	0	0	750	9	50	2	61	689	4.2
1987	0	0	993	0	0	0	993	3	49	2	54	939	5.5
1988	17	0	1,276	0	0	0	1,294	20	52	2	74	1,220	6.8
1989	42	0	1,339	0	0	0	1,382	38	51	17	107	1,275	6.8
1990	84	0	1,448	0	0	0	1,532	17	53	16	86	1,447	7.7
1991	64	0	1,710	0	0	0	1,773	15	54	60	129	1,644	8.6
1992	43	0	2,094	0	0	0	2,138	68	53	96	216	1,921	9.8
1993	82	0	2,267	0	2	0	2,350	45	56	40	140	2,210	10.9
1994	51	0	2,566	0	7	0	2,624	53	63	47	162	2,462	11.9
1995	18	0	2,816	0	7	0	2,841	28	65	61	154	2,687	12.5
1996	35	0	2,883	0	14	5	2,937	52	68	34	153	2,784	12.7
1997	66	10	2,899	0	17	2	2,994	56	62	38	157	2,837	12.9
1998	69	12	3,052	0	15	5	3,152	40	66	53	159	2,993	14.1
1999	R76	12	R3,368	0	55	3	R3,586	R39	64	R61	R163	R3,422	15.8
2000	44	8	E3,500	0	E6	E5	E3,726	E63	E64	E110	E237	E3,489	E15.4

[1] Net imports = imports minus exports.

[2] Imports from Algeria, Australia, Indonesia, and United Arab Emirates, and exports to Japan are liquefied natural gas. Exports to Mexico include a small amount of liquefied natural gas.

[3] Total imports also include liquefied natural gas imported from Malaysia in 1999; Qatar and Trinidad and Tobago beginning in 1999, and Nigeria and Oman beginning in 2000.

[4] Not meaningful because there were net exports during this year.

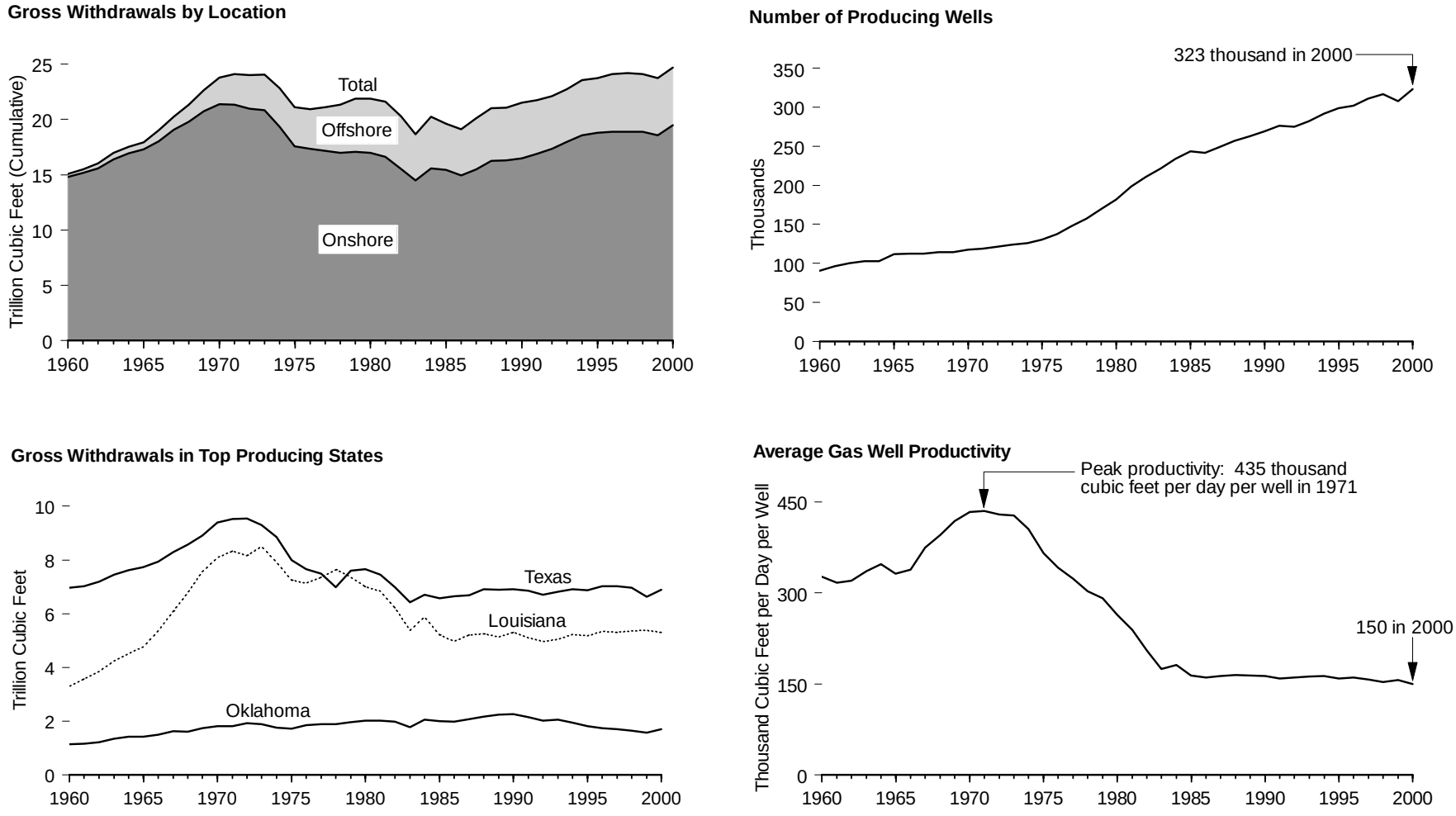
R=Revised. E=Estimate. (s)=Less than 0.5 billion cubic feet.

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

Web Page: http://www.eia.doe.gov/oil_gas/natural_gas/nat_frame.html.

Sources: • 1949-1954—Energy Information Administration (EIA), Office of Oil and Gas, Reserves and Natural Gas Division, unpublished data. • 1955-1971—EIA, Federal Power Commission, by telephone. • 1972-1987—EIA, Form FPC-14, "Annual Report for Importers and Exporters of Natural Gas." • 1988-1993—EIA, *Natural Gas Annual,* annual reports. • 1994 Forward—EIA, *Natural Gas Monthly* (February 2001), Tables 5 and 6.

Figure 6.4 Natural Gas Gross Withdrawals by State and Location and Gas Well Productivity, 1960-2000



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

Source: Table 6.4.

Table 6.4 Natural Gas Gross Withdrawals by State and Location and Gas Well Productivity, 1960-2000

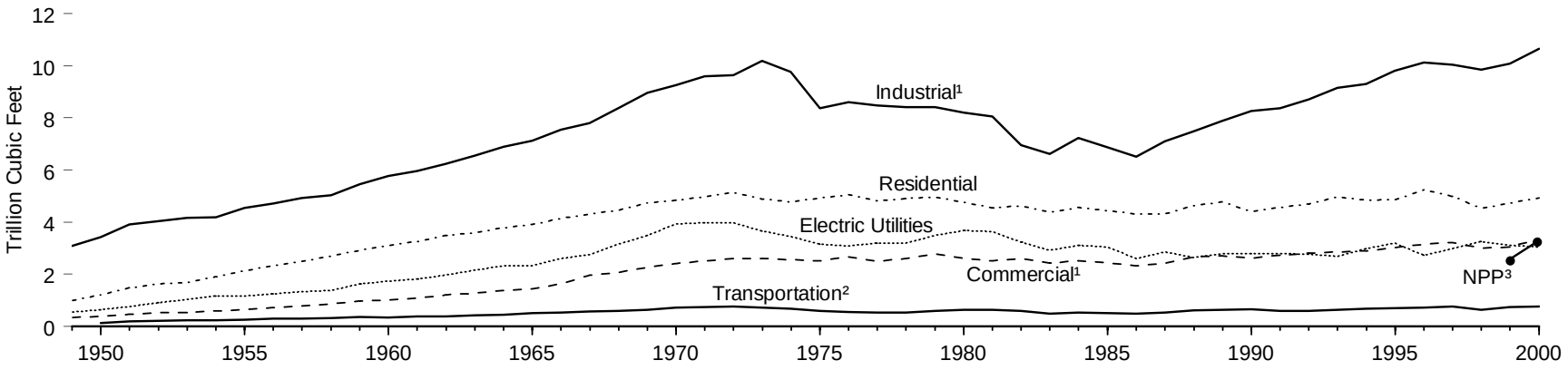
(Trillion Cubic Feet, Except as Noted)

Year	State				Location		Gross Withdrawals from Oil and Gas Wells	Gas Well [1] Productivity		
	Texas	Louisiana	Oklahoma	Other	Onshore [2]	Offshore [3]		Gross Withdrawals from Gas Wells	Producing Wells [4] (thousands)	Average Productivity (thousand cubic feet per day)
1960	6.96	3.31	1.13	3.68	14.81	0.27	15.09	10.85	91	326.7
1961	7.02	3.57	1.16	3.71	15.14	0.32	15.46	11.20	97	316.8
1962	7.20	3.85	1.22	3.76	15.59	0.45	16.04	11.70	100	319.8
1963	7.45	4.25	1.35	3.92	16.41	0.56	16.97	12.61	103	335.4
1964	7.62	4.52	1.42	3.98	16.91	0.62	17.54	13.11	103	347.4
1965	7.74	4.76	1.41	4.04	17.32	0.65	17.96	13.52	112	331.8
1966	7.93	5.37	1.50	4.23	18.03	1.01	19.03	13.89	112	338.4
1967	8.29	6.09	1.62	4.25	19.06	1.19	20.25	15.35	112	374.3
1968	8.57	6.78	1.61	4.37	19.80	1.52	21.33	16.54	114	395.1
1969	8.91	7.56	1.74	4.46	20.72	1.95	22.68	17.49	114	418.6
1970	9.40	8.08	1.81	4.50	21.37	2.42	23.79	18.59	117	433.6
1971	9.52	8.32	1.81	4.44	21.31	2.78	24.09	18.93	119	434.8
1972	9.55	8.16	1.93	4.38	20.98	3.04	24.02	19.04	121	429.4
1973	9.29	8.49	1.89	4.40	20.86	3.21	24.07	19.37	124	427.4
1974	8.86	7.92	1.76	4.31	19.34	3.51	22.85	18.67	126	404.9
1975	7.99	7.24	1.72	4.15	17.55	3.55	21.10	17.38	130	365.3
1976	7.67	7.14	1.84	4.29	17.35	3.60	20.94	17.19	138	341.5
1977	7.50	7.35	1.89	4.36	17.16	3.93	21.10	17.42	148	323.1
1978	6.99	7.64	1.89	4.79	16.95	4.36	21.31	17.39	157	302.7
1979	7.59	7.36	1.96	4.97	17.06	4.82	21.88	18.03	170	290.8
1980	7.66	7.01	2.02	5.19	16.97	4.90	21.87	17.57	182	263.8
1981	7.45	6.83	2.02	5.29	16.60	4.99	21.59	17.34	199	238.9
1982	6.98	6.22	1.99	5.09	15.50	4.77	20.27	15.81	211	205.5
1983	6.43	5.38	1.78	5.07	14.48	4.18	18.66	14.15	222	174.7
1984	6.71	5.89	2.05	5.62	15.56	4.71	20.27	15.51	234	181.2
1985	6.58	5.22	1.99	5.82	15.42	4.19	19.61	14.54	243	163.6
1986	6.66	4.96	1.97	5.54	14.95	4.19	19.13	14.15	242	160.6
1987	6.69	5.20	2.07	6.17	15.47	4.67	20.14	14.81	249	162.8
1988	6.92	5.25	2.17	6.67	16.25	4.75	21.00	15.47	257	164.3
1989	6.88	5.14	2.24	6.81	16.30	4.77	21.07	15.71	262	164.0
1990	6.91	5.30	2.26	7.05	16.48	5.05	21.52	16.05	269	163.4
1991	6.85	5.10	2.15	7.65	16.90	4.85	21.75	16.02	276	158.8
1992	6.71	4.98	2.02	8.43	17.36	4.77	22.13	16.16	275	R160.4
1993	6.82	5.05	2.05	8.81	17.96	4.77	22.73	16.69	282	162.1
1994	6.91	5.23	1.93	9.51	18.58	5.00	23.58	17.35	292	162.9
1995	6.87	5.16	1.81	9.90	18.80	4.94	23.74	17.28	299	158.6
1996	7.03	5.35	1.73	10.00	18.87	5.25	24.11	17.74	302	R160.6
1997	7.02	5.30	1.70	10.19	18.90	5.32	24.21	17.84	311	157.2
1998	R6.97	R5.36	1.64	R10.12	R18.88	R5.22	R24.10	R17.72	R317	R153.2
1999	R6.63	R5.37	R1.57	R10.18	R18.58	R5.18	R23.76	17.54	R307	R156.3
2000	E6.90	E5.31	E1.69	E10.79	E19.46	E5.24	P24.70	E17.70	P323	E149.8

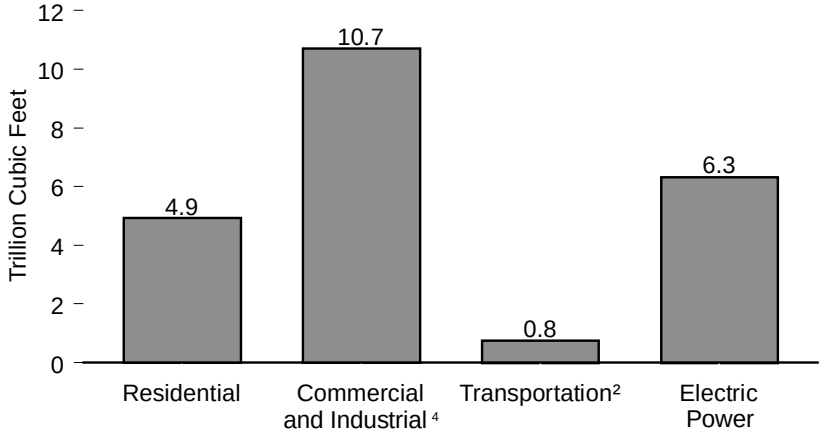
[1] See Glossary.
[2] Includes State offshore gross withdrawals.
[3] Excludes State offshore gross withdrawals; includes Federal offshore (Outer Continental Shelf) gross withdrawals.
[4] As of December 31 each year.
R=Revised. P=Preliminary. E=Estimate.
Web Page: http://www.eia.doe.gov/oil_gas/natural_gas/nat_frame.html.
Sources: **Offshore** (Outer Continental Shelf): • 1960-1981—U.S. Geological Survey. • 1982-1985—The United States Minerals Management Service, *Mineral Revenues - The 1989 Report on Receipts from Federal and Indian Leases,* and predecessor annual reports. • 1986-1994—EIA, *Natural Gas Annual,* annual reports. • 1995-1999—EIA, *Natural Gas Annual 1999* (October 2000), Table 4. • 2000—EIA estimates. **Gross Withdrawals from Oil and Gas Wells:** • 1960-1993—EIA, *Natural Gas Annual 1998* (October 1999), Table 92. • 1994 forward—EIA, *Natural Gas Monthly* (February 2001), Table 1. **Producing Wells:** • 1960-1966—Bureau of Mines, *Natural Gas Production and Consumption.* • 1967-1994—EIA, *Natural Gas Annual,* annual reports. • 1995-1999—EIA, *Natural Gas Annual 1999* (October 2000), Table 1. • 2000—Gulf Publishing Company, *World Oil* (February 2001). **All Other Data:** • 1960-1966—Bureau of Mines, *Natural Gas Production and Consumption.* • 1967-1999—EIA, *Natural Gas Annual,* annual reports. • 2000—EIA estimates.

Figure 6.5 Natural Gas Consumption by Sector

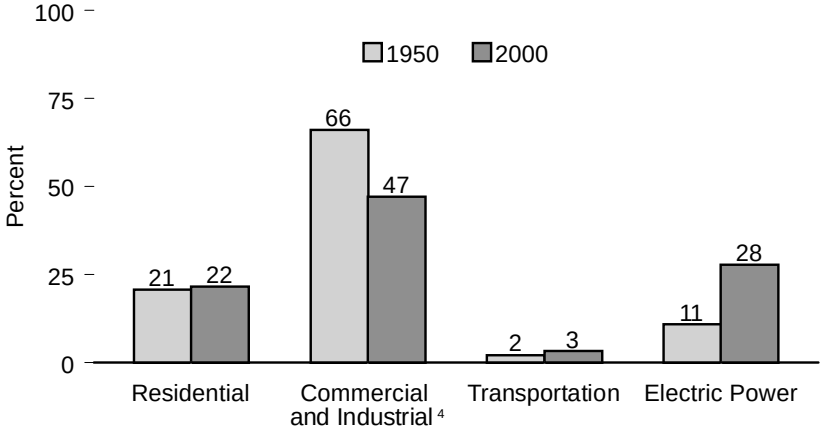
By Sector, 1949-2000



By Sector, 2000



End Use and Electric Power Shares, 1950 and 2000



[1] Includes some natural gas that is also counted in nonutility power producers in the electric power sector.

[2] Pipeline fuel, and vehicle fuel for 1990-1998; for 1999, vehicle fuel data were not available.

[3] Nonutility power producers. Data available for 1999 and 2000 only. See Note 4 at end of Electricity section.

[4] Includes "End-Use/Nonutility Adjustment." See Table 6.5.

Source: Table 6.5.

Table 6.5 Natural Gas Consumption by Sector, 1949-2000

(Trillion Cubic Feet)

Year	End-Use Sectors									Electric Power Sector [1]			End-Use/ Nonutility Adjustment [4]	Total Consumption
	Residential	Commercial [2]	Industrial [2]			Transportation			Total					
	Delivered to Residences	Delivered to Commercial Facilities	Delivered to Industrial Facilities	Lease and Plant Fuel	Total	Pipeline Fuel [3]	Delivered for Vehicle Fuel Use	Total		Electric Utilities	Nonutility Power Producers	Total		
1949	0.99	0.35	2.25	0.84	3.08	NA	NA	NA	4.42	0.55	NA	NA	—	4.97
1950	1.20	0.39	2.50	0.93	3.43	0.13	NA	0.13	5.14	0.63	NA	NA	—	5.77
1951	1.47	0.46	2.77	1.15	3.91	0.19	NA	0.19	6.05	0.76	NA	NA	—	6.81
1952	1.62	0.52	2.87	1.16	4.04	0.21	NA	0.21	6.38	0.91	NA	NA	—	7.29
1953	1.69	0.53	3.03	1.13	4.16	0.23	NA	0.23	6.60	1.03	NA	NA	—	7.64
1954	1.89	0.58	3.07	1.10	4.17	0.23	NA	0.23	6.88	1.17	NA	NA	—	8.05
1955	2.12	0.63	3.41	1.13	4.54	0.25	NA	0.25	7.54	1.15	NA	NA	—	8.69
1956	2.33	0.72	3.71	1.00	4.71	0.30	NA	0.30	8.05	1.24	NA	NA	—	9.29
1957	2.50	0.78	3.89	1.05	4.93	0.30	NA	0.30	8.51	1.34	NA	NA	—	9.85
1958	2.71	0.87	3.89	1.15	5.03	0.31	NA	0.31	8.93	1.37	NA	NA	—	10.30
1959	2.91	0.98	4.22	1.24	5.46	0.35	NA	0.35	9.69	1.63	NA	NA	—	11.32
1960	3.10	1.02	4.53	1.24	5.77	0.35	NA	0.35	10.24	1.72	NA	NA	—	11.97
1961	3.25	1.08	4.67	1.29	5.96	0.38	NA	0.38	10.66	1.83	NA	NA	—	12.49
1962	3.48	1.21	4.86	1.37	6.23	0.38	NA	0.38	11.30	1.97	NA	NA	—	13.27
1963	3.59	1.27	5.13	1.41	6.55	0.42	NA	0.42	11.83	2.14	NA	NA	—	13.97
1964	3.79	1.37	5.52	1.37	6.89	0.44	NA	0.44	12.49	2.32	NA	NA	—	14.81
1965	3.90	1.44	5.96	1.16	7.11	0.50	NA	0.50	12.96	2.32	NA	NA	—	15.28
1966	4.14	1.62	6.51	1.03	7.55	0.54	NA	0.54	13.84	2.61	NA	NA	—	16.45
1967	4.31	1.96	6.65	1.14	7.79	0.58	NA	0.58	14.64	2.75	NA	NA	—	17.39
1968	4.45	2.08	7.13	1.24	8.37	0.59	NA	0.59	15.48	3.15	NA	NA	—	18.63
1969	4.73	2.25	7.61	1.35	8.96	0.63	NA	0.63	16.57	3.49	NA	NA	—	20.06
1970	4.84	2.40	7.85	1.40	9.25	0.72	NA	0.72	17.21	3.93	NA	NA	—	21.14
1971	4.97	2.51	8.18	1.41	9.59	0.74	NA	0.74	17.82	3.98	NA	NA	—	21.79
1972	5.13	2.61	8.17	1.46	9.62	0.77	NA	0.77	18.12	3.98	NA	NA	—	22.10
1973	4.88	2.60	8.69	1.50	10.18	0.73	NA	0.73	18.39	3.66	NA	NA	—	22.05
1974	4.79	2.56	8.29	1.48	9.77	0.67	NA	0.67	17.78	3.44	NA	NA	—	21.22
1975	4.92	2.51	6.97	1.40	8.36	0.58	NA	0.58	16.38	3.16	NA	NA	—	19.54
1976	5.05	2.67	6.96	1.63	8.60	0.55	NA	0.55	16.87	3.08	NA	NA	—	19.95
1977	4.82	2.50	6.82	1.66	8.47	0.53	NA	0.53	16.33	3.19	NA	NA	—	19.52
1978	4.90	2.60	6.76	1.65	8.40	0.53	NA	0.53	16.44	3.19	NA	NA	—	19.63
1979	4.97	2.79	6.90	1.50	8.40	0.60	NA	0.60	16.75	3.49	NA	NA	—	20.24
1980	4.75	2.61	7.17	1.03	8.20	0.63	NA	0.63	16.20	3.68	NA	NA	—	19.88
1981	4.55	2.52	7.13	0.93	8.06	0.64	NA	0.64	15.76	3.64	NA	NA	—	19.40
1982	4.63	2.61	5.83	1.11	6.94	0.60	NA	0.60	14.78	3.23	NA	NA	—	18.00
1983	4.38	2.43	5.64	0.98	6.62	0.49	NA	0.49	13.92	2.91	NA	NA	—	16.83
1984	4.56	2.52	6.15	1.08	7.23	0.53	NA	0.53	14.84	3.11	NA	NA	—	17.95
1985	4.43	2.43	5.90	0.97	6.87	0.50	NA	0.50	14.24	3.04	NA	NA	—	17.28
1986	4.31	2.32	5.58	0.92	6.50	0.49	NA	0.49	13.62	2.60	NA	NA	—	16.22
1987	4.31	2.43	5.95	1.15	7.10	0.52	NA	0.52	14.37	2.84	NA	NA	—	17.21
1988	4.63	2.67	6.38	1.10	7.48	0.61	NA	0.61	15.39	2.64	NA	NA	—	18.03
1989	4.78	2.72	6.82	1.07	7.89	0.63	NA	0.63	16.01	2.79	NA	NA	—	18.80
1990	4.39	2.62	7.02	1.24	8.25	0.66	(s)	0.66	15.93	2.79	NA	NA	—	18.72
1991	4.56	2.73	7.23	1.13	8.36	0.60	(s)	0.60	16.25	2.79	NA	NA	—	19.04
1992	4.69	2.80	7.53	1.17	8.70	0.59	(s)	0.59	16.78	2.77	NA	NA	—	19.54
1993	4.96	2.86	7.98	1.17	9.15	0.62	(s)	0.63	17.60	2.68	NA	NA	—	20.28
1994	4.85	2.90	8.17	1.12	9.29	0.69	(s)	0.69	17.72	2.99	NA	NA	—	20.71
1995	4.85	3.03	8.58	1.22	9.80	0.70	(s)	0.70	18.38	3.20	NA	NA	—	21.58
1996	5.24	3.16	8.87	1.25	10.12	0.71	(s)	0.71	19.23	2.73	NA	NA	—	21.97
1997	4.98	3.21	8.83	1.20	10.04	0.75	(s)	0.76	18.99	2.97	NA	NA	—	21.96
1998	4.52	3.00	8.69	1.16	9.84	0.64	0.01	0.64	18.00	3.26	NA	NA	—	21.26
1999	[R]4.73	[R]3.04	[R]9.00	[R]1.08	[R]10.08	[R]0.74	0.01	[R]0.74	18.59	[R]3.11	2.57	5.68	-2.57	[R]21.70
2000[P]	4.92	3.36	9.39	1.26	10.64	0.75	NA	0.75	19.68	3.03	[E]3.29	[E]6.32	-3.29	22.71

[1] Data are for natural gas consumed to produce electricity only; exclude natural gas consumed to produce useful thermal output. See Note 4 at end of Electricity section.

[2] Includes natural gas consumed at nonutilities.

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

[4] Represents the adjustment necessary to avoid double-counting natural gas consumption at nonutilities, which is included under both "End-Use Sectors" and "Electric Power Sector." See Note 1 at end of section for explanation.

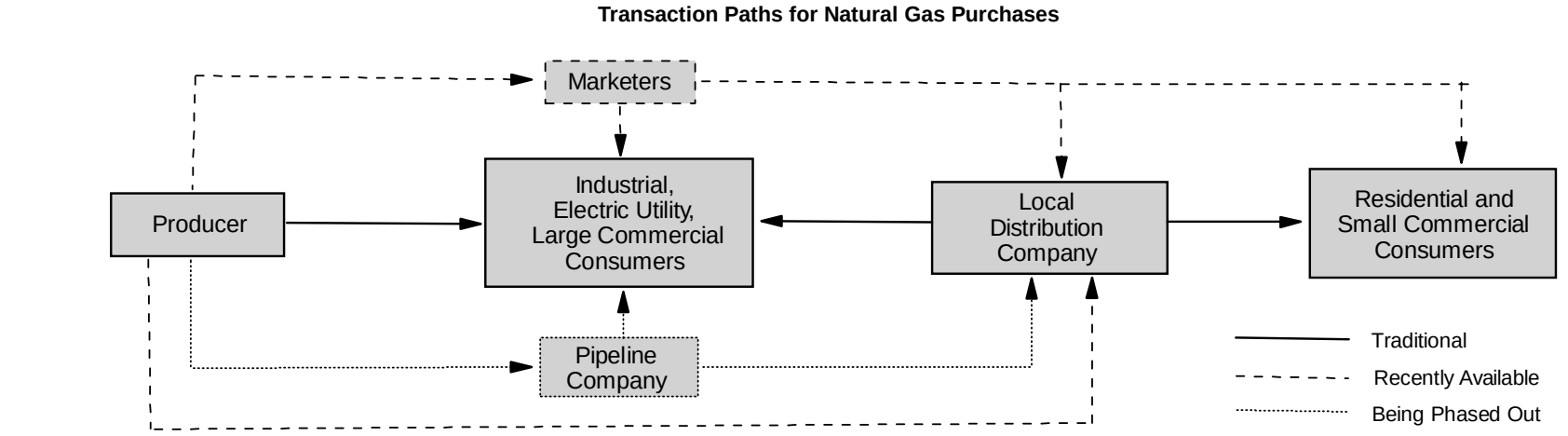
R=Revised. P=Preliminary. E=Estimate. NA=Not available. (s)=Less than 0.005 trillion cubic feet. — = Not applicable.

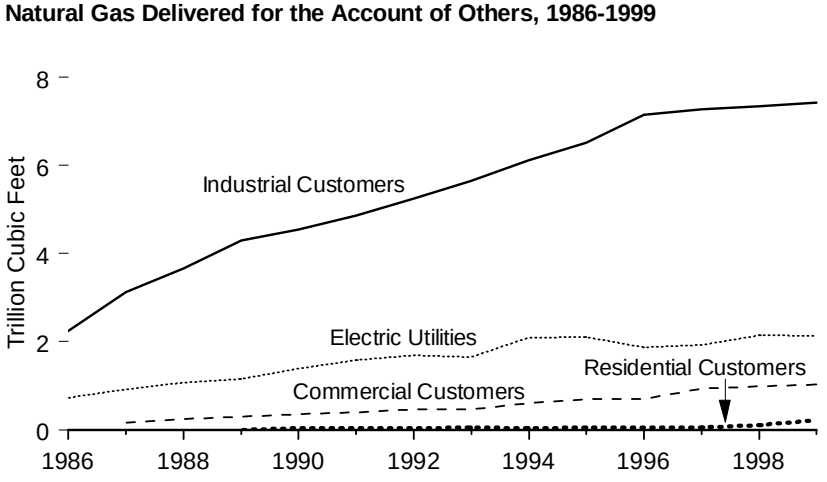
Notes: • For the definition of natural gas consumption, see Note 2 at end of section. • Beginning with 1965, all volumes are shown on a pressure base of 14.73 p.s.i.a. at 60° F. For prior years, the pressure base was 14.65 p.s.i.a. at 60° F. • Totals may not equal sum of components due to independent rounding.

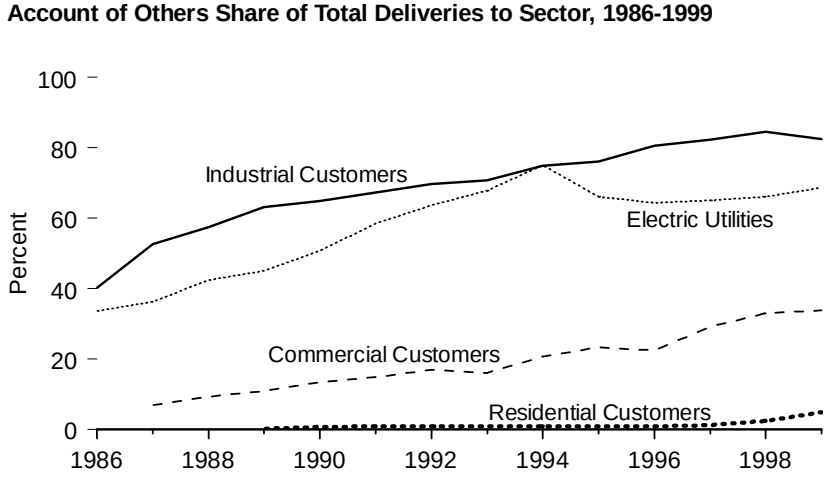
Web Page: http://www.eia.doe.gov/oil_gas_/natural_gas/nat_frame.html.

Sources: **End-Use Sectors and Total Consumption:** • 1949-1994—Energy Information Administration (EIA), *Natural Gas Annual 1999* (October 2000), Table 94. • 1995 forward—EIA, *Natural Gas Monthly* (February 2001), Table 3. **Electric Power Sector:** Tables 8.8-8.10. **End-Use/Nonutility Adjustment:** Calculated by multiplying data for "Nonutility Power Producers" by -1.

Figure 6.6 Natural Gas Delivered for the Account of Others







Source: Table 6.6.

Table 6.6 Natural Gas Delivered for the Account of Others, 1986-1999

Year	Residential Customers			Commercial Customers			Industrial Customers			Electric Utilities [1]		
	Delivered for the Account of Others	Total Deliveries	Account of Others Share of Total	Delivered for the Account of Others	Total Deliveries	Account of Others Share of Total	Delivered for the Account of Others	Total Deliveries	Account of Others Share of Total	Delivered for the Account of Others	Total Deliveries	Account of Others Share of Total [1]
	Billion Cubic Feet		Percent	Billion Cubic Feet		Percent	Billion Cubic Feet		Percent	Billion Cubic Feet		Percent
1986	NA	4,314	NA	NA	2,318	NA	2,240	5,579	40.2	721	2,602	33.6
1987	NA	4,315	NA	167	2,430	6.9	3,129	5,953	52.6	914	2,844	36.3
1988	NA	4,630	NA	247	2,670	9.3	3,663	6,383	57.4	1,076	2,636	42.5
1989	3	4,781	0.1	296	2,718	10.9	4,298	6,816	63.1	1,152	2,787	45.0
1990	31	4,391	0.7	353	2,623	13.4	4,545	7,018	64.8	1,390	2,787	50.7
1991	36	4,556	0.8	406	2,729	14.9	4,864	7,231	67.3	1,580	2,789	58.5
1992	41	4,690	0.9	471	2,803	16.8	5,249	7,527	69.7	1,697	2,766	63.7
1993	44	4,956	0.9	460	2,862	16.1	5,645	7,981	70.7	1,658	2,682	67.8
1994	42	4,848	0.9	599	2,895	20.7	6,113	8,167	74.8	2,092	2,987	75.0
1995	45	4,850	0.9	706	3,031	23.3	6,517	8,580	76.0	2,110	3,197	66.0
1996	49	5,241	0.9	707	3,158	22.4	7,152	8,870	80.6	1,871	2,732	64.4
1997	61	4,984	1.2	939	3,215	29.2	7,273	8,832	82.3	1,932	2,968	65.1
1998	105	4,520	2.3	990	2,999	33.0	7,339	8,686	84.5	2,153	3,258	66.1
1999	225	4,726	4.8	1,032	3,045	33.9	7,429	9,001	82.5	2,137	3,113	68.6

[1] For electric utilities, total deliveries data are from Energy Information Administration (EIA), Form EIA-759, "Monthly Power Plant Report"; deliveries for the account of others and their share of total deliveries are from EIA, Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition." Because of the different reporting universes for the two data collection forms, the account-of-others share of total deliveries for electric utilities cannot be derived from the data shown on this table.

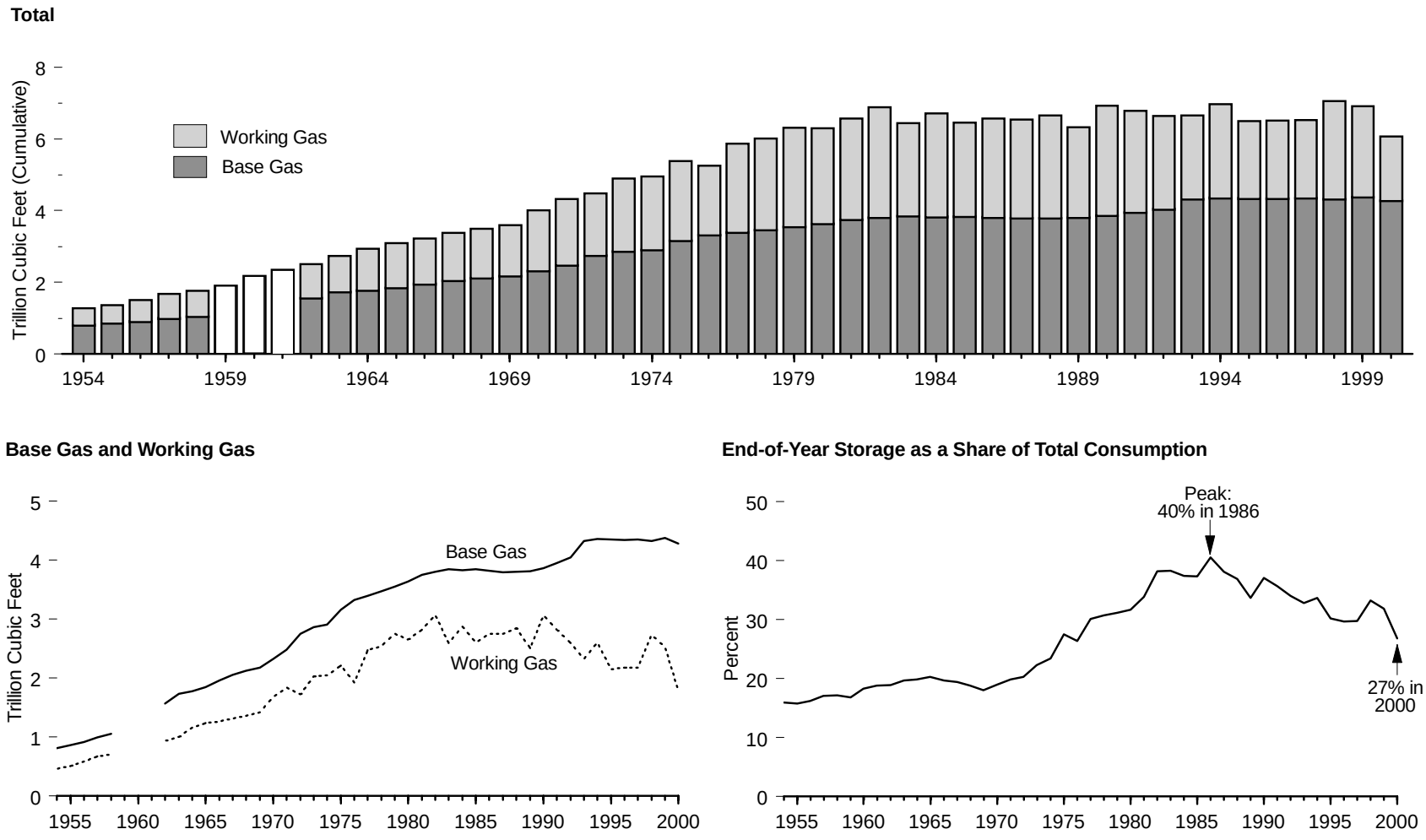
NA=Not available.

Notes: • Percentages are based on data prior to rounding. • Deliveries for the account of others are deliveries to customers by transporters that do not own the natural gas but provide transportation services. These quantities may include gas covered by long-term contracts and quantities involved in short-term or spot market sales.

Web Page: http://www.eia.doe.gov/oil_gas/natural_gas/nat_frame.html.

Sources: **Total Deliveries:** Table 6.5. **All Other Data:** • 1986-1994—EIA, *Natural Gas Annual,* annual reports. • 1995 forward—EIA, *Natural Gas Annual 1999* (October 2000), Table 1.

Figure 6.7 Natural Gas in Underground Storage, 1954-2000



Notes: • Storage is at end of year. • Because vertical scales differ, graphs should not be compared. • Working- and base-gas component data were not collected in 1959, 1960, and 1961.

Sources: Tables 6.5 and 6.7.

Table 6.7 Natural Gas in Underground Storage, 1954-2000

(Billion Cubic Feet)

Year	Base Gas [1]			Working Gas			Total		
	Traditonal Storage	Salt Caverns	Total	Traditonal Storage	Salt Caverns	Total	Traditonal Storage	Salt Caverns	Total
1954	NA	NA	817	NA	NA	465	NA	NA	1,281
1955	NA	NA	863	NA	NA	505	NA	NA	1,368
1956	NA	NA	919	NA	NA	583	NA	NA	1,502
1957	NA	NA	1,001	NA	NA	673	NA	NA	1,674
1958	NA	NA	1,056	NA	NA	708	NA	NA	1,764
1959	NA	NA	NA	NA	NA	NA	NA	NA	1,901
1960	NA	NA	NA	NA	NA	NA	NA	NA	2,184
1961	NA	NA	NA	NA	NA	NA	NA	NA	2,344
1962	NA	NA	1,571	NA	NA	933	NA	NA	2,504
1963	NA	NA	1,738	NA	NA	1,007	NA	NA	2,745
1964	NA	NA	1,781	NA	NA	1,159	NA	NA	2,940
1965	NA	NA	1,848	NA	NA	1,242	NA	NA	3,090
1966	NA	NA	1,958	NA	NA	1,267	NA	NA	3,225
1967	NA	NA	2,058	NA	NA	1,318	NA	NA	3,376
1968	NA	NA	2,128	NA	NA	1,366	NA	NA	3,495
1969	NA	NA	2,181	NA	NA	1,421	NA	NA	3,602
1970	NA	NA	2,326	NA	NA	1,678	NA	NA	4,004
1971	NA	NA	2,485	NA	NA	1,840	NA	NA	4,325
1972	NA	NA	2,751	NA	NA	1,729	NA	NA	4,480
1973	NA	NA	2,864	NA	NA	2,034	NA	NA	4,898
1974	NA	NA	2,912	NA	NA	2,050	NA	NA	4,962
1975	NA	NA	3,162	NA	NA	2,212	NA	NA	5,374
1976	NA	NA	3,323	NA	NA	1,926	NA	NA	5,250
1977	NA	NA	3,391	NA	NA	2,475	NA	NA	5,866
1978	NA	NA	3,473	NA	NA	2,547	NA	NA	6,020
1979	NA	NA	3,553	NA	NA	2,753	NA	NA	6,306
1980	NA	NA	3,642	NA	NA	2,655	NA	NA	6,297
1981	NA	NA	3,752	NA	NA	2,817	NA	NA	6,569
1982	NA	NA	3,808	NA	NA	3,071	NA	NA	6,879
1983	NA	NA	3,847	NA	NA	2,595	NA	NA	6,442
1984	NA	NA	3,830	NA	NA	2,876	NA	NA	6,706
1985	NA	NA	3,842	NA	NA	2,607	NA	NA	6,448
1986	NA	NA	3,819	NA	NA	2,749	NA	NA	6,567
1987	NA	NA	3,792	NA	NA	2,756	NA	NA	6,548
1988	NA	NA	3,800	NA	NA	2,850	NA	NA	6,650
1989	NA	NA	3,812	NA	NA	2,513	NA	NA	6,325
1990	NA	NA	3,868	NA	NA	3,068	NA	NA	6,936
1991	NA	NA	3,954	NA	NA	2,824	NA	NA	6,778
1992	NA	NA	4,044	NA	NA	2,597	NA	NA	6,641
1993	NA	NA	4,327	NA	NA	2,322	NA	NA	6,649
1994	4,317	44	4,360	2,536	70	2,606	6,853	113	6,966
1995	4,290	60	4,349	2,082	72	2,153	6,371	131	6,503
1996	4,277	64	4,341	2,087	85	2,173	6,364	149	6,513
1997	4,283	67	4,350	2,092	83	2,175	6,375	150	6,525
1998	4,259	67	4,326	2,626	104	2,730	6,884	171	7,056
1999[E]	[R]4,314	[R]69	[R]4,383	[R]2,423	100	[R]2,523	[R]6,738	[R]169	[R]6,906
2000[E]	4,209	70	4,279	1,718	75	1,792	5,927	145	6,072

[1] Includes native gas.

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

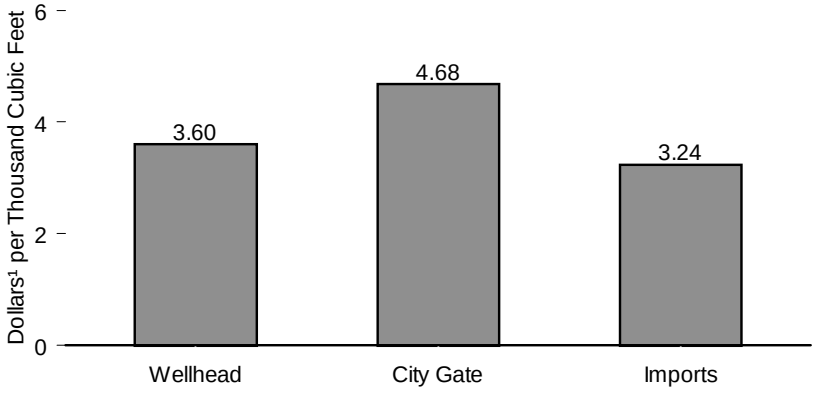
Notes: • Storage is at end of year. • Beginning with 1965, all volumes are shown on a pressure base of 14.73 p.s.i.a. at 60 degrees F. For prior years, the pressure base was 14.65 p.s.i.a. at 60 degrees F. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/oil_gas/natural_gas/nat_frame.html.

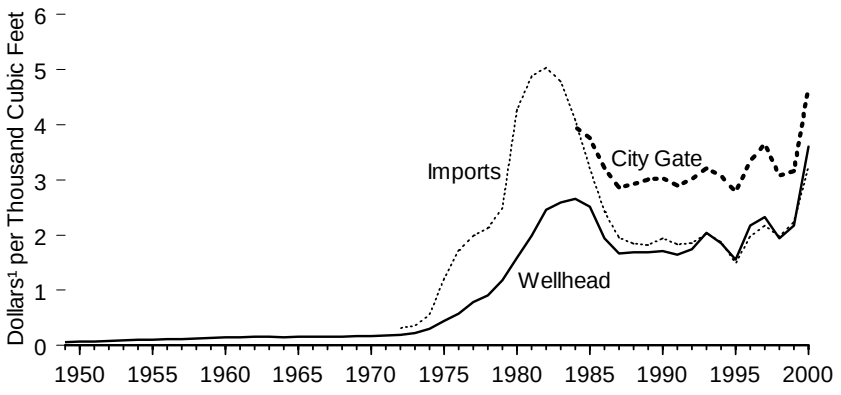
Sources: • 1954-1974—American Gas Association, *Gas Facts.* • 1975-1978—Federal Energy Administration, Form FEA-G318-M-O, "Underground Gas Storage Report," and Federal Power Commission, Form FPC-8, "Underground Gas Storage Report." • 1979-1984—EIA, Form EIA-191, "Underground Gas Storage Report" and Federal Energy Regulatory Commission, Form FERC-8, "Underground Gas Storage Report." • 1985-1993—EIA, *Natural Gas Monthly,* monthly reports. • 1994 forward—EIA, *Natural Gas Monthly,* (March 2001), Tables 9, 11, and 12.

Figure 6.8 Natural Gas Wellhead, City Gate, and Imports Prices

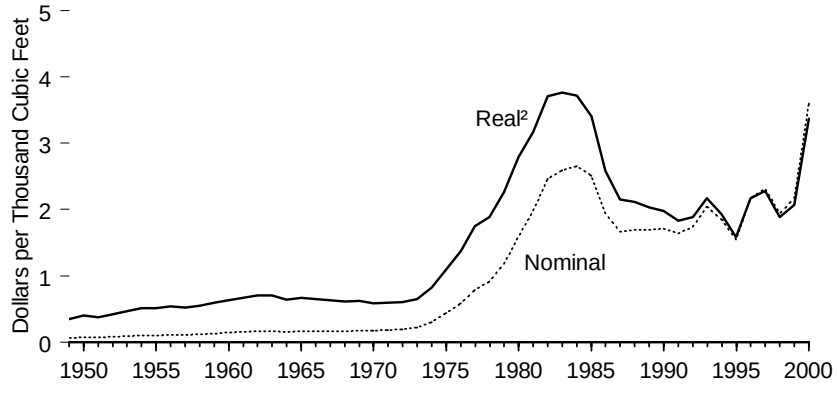
Wellhead, City Gate, and Imports, 2000



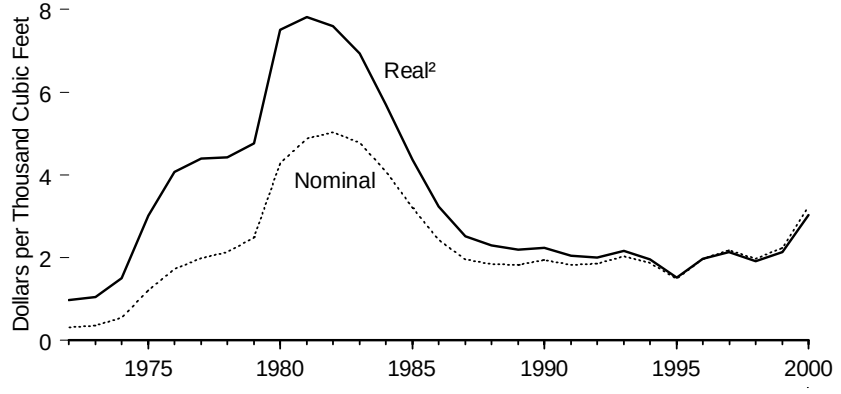
Wellhead, City Gate, and Imports, 1949-2000



Wellhead, 1949-2000



Imports, 1972-2000



[1] Nominal dollars.

[2] In chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.

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

Source: Table 6.8.

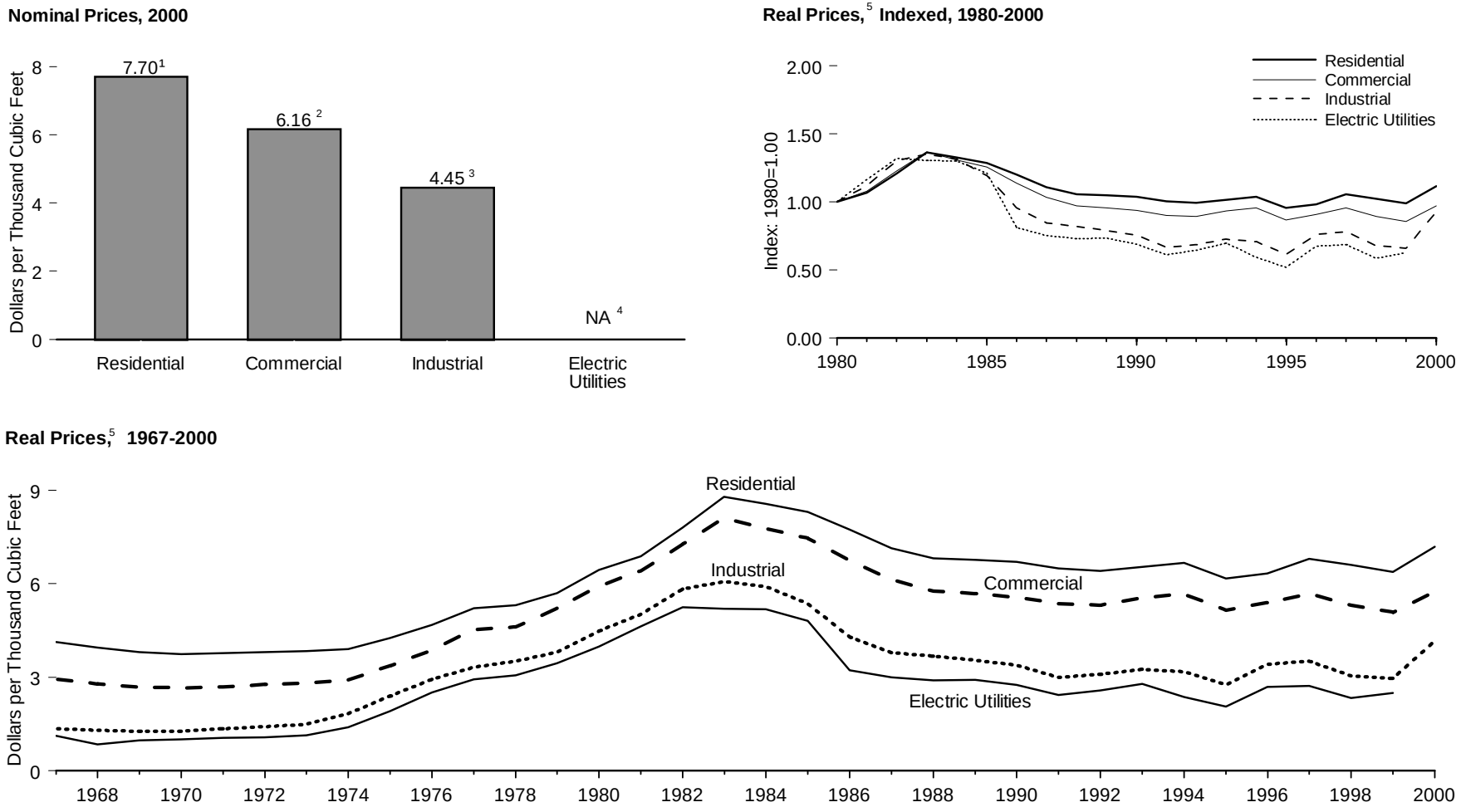
Table 6.8 Natural Gas Wellhead, City Gate, and Imports Prices, 1949-2000

(Dollars per Thousand Cubic Feet)

Year	Wellhead [1]		City Gate		Imports	
	Nominal	Real [2]	Nominal	Real [2]	Nominal	Real [2]
1949	0.06	0.35	NA	NA	NA	NA
1950	0.07	0.40	NA	NA	NA	NA
1951	0.07	0.37	NA	NA	NA	NA
1952	0.08	0.42	NA	NA	NA	NA
1953	0.09	0.47	NA	NA	NA	NA
1954	0.10	0.51	NA	NA	NA	NA
1955	0.10	0.51	NA	NA	NA	NA
1956	0.11	0.54	NA	NA	NA	NA
1957	0.11	0.52	NA	NA	NA	NA
1958	0.12	0.55	NA	NA	NA	NA
1959	0.13	0.59	NA	NA	NA	NA
1960	0.14	0.63	NA	NA	NA	NA
1961	0.15	0.67	NA	NA	NA	NA
1962	0.16	0.70	NA	NA	NA	NA
1963	0.16	0.70	NA	NA	NA	NA
1964	0.15	0.64	NA	NA	NA	NA
1965	0.16	0.67	NA	NA	NA	NA
1966	0.16	0.65	NA	NA	NA	NA
1967	0.16	0.63	NA	NA	NA	NA
1968	0.16	0.61	NA	NA	NA	NA
1969	0.17	0.62	NA	NA	NA	NA
1970	0.17	0.58	NA	NA	NA	NA
1971	0.18	0.59	NA	NA	NA	NA
1972	0.19	0.60	NA	NA	0.31	0.97
1973	0.22	0.65	NA	NA	0.35	1.04
1974	0.30	0.82	NA	NA	0.55	1.50
1975	0.44	1.10	NA	NA	1.21	3.02
1976	0.58	1.37	NA	NA	1.72	4.07
1977	0.79	1.75	NA	NA	1.98	4.40
1978	0.91	1.89	NA	NA	2.13	4.42
1979	1.18	2.26	NA	NA	2.49	4.77
1980	1.59	2.79	NA	NA	4.28	7.50
1981	1.98	3.17	NA	NA	4.88	7.82
1982	2.46	3.71	NA	NA	5.03	7.59
1983	2.59	3.76	NA	NA	4.78	6.94
1984	2.66	3.72	3.95	5.53	4.08	5.71
1985	2.51	3.41	3.75	5.09	3.21	4.36
1986	1.94	2.58	3.22	4.28	2.43	3.23
1987	1.67	2.15	2.87	3.70	1.95	2.51
1988	1.69	2.11	2.92	3.64	1.84	2.29
1989	1.69	2.03	3.01	3.61	1.82	2.19
1990	1.71	1.98	3.03	3.50	1.94	2.24
1991	1.64	1.83	2.90	3.23	1.83	2.04
1992	1.74	1.89	3.01	3.28	1.85	2.01
1993	2.04	2.17	3.21	3.41	2.03	2.16
1994	1.85	1.93	3.07	3.20	1.87	1.95
1995	1.55	1.58	2.78	2.83	1.49	1.52
1996	2.17	2.17	3.34	3.34	1.97	1.97
1997	2.32	2.28	3.66	3.59	2.17	2.13
1998	1.94	1.88	3.07	R2.97	1.97	1.91
1999	R2.17	R2.07	R3.16	R3.02	R2.24	2.14
2000	E3.60	E3.37	4.68	4.38	E3.24	E3.03

[1] See Glossary for definition of Natural Gas Wellhead Price.
[2] In chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Appendix Table E1.
R=Revised. E=Estimate. NA=Not available.
Web Page: http://www.eia.doe.gov/oil_gas/natural_gas/nat_frame.html.
Sources: **Wellhead:** • 1949-1993—Energy Information Administration (EIA), *Natural Gas Annual 1998* (October 1999), Table 98. • 1994 forward—EIA, *Natural Gas Monthly* (March 2001), Table 4. **City Gate:** • 1984-1993—EIA, *Natural Gas Annual,* annual reports. • 1994 forward—EIA, *Natural Gas Monthly* (March 2001), Table 4. **Imports:** • 1972 and 1973—Federal Power Commission (FPC), *Pipeline Imports and Exports of Natural Gas - Imports and Exports of LNG*. • 1974-1976—FPC, *United States Imports and Exports of Natural Gas,* annual reports. • 1977-1993—EIA, *Natural Gas Annual,* annual reports. • 1994 forward—EIA, *Natural Gas Monthly* (March 2001), Table 5 and EIA estimates.

Figure 6.9 Natural Gas Prices by Sector



[1] Based on 100 percent of volume delivered.
[2] Based on 64.2 percent of volume delivered.
[3] Based on 15.6 percent of volume delivered.
[4] Based on all steam-electric utility plants with a combined capacity of 50 megawatts or greater.
[5] In chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.

Source: Table 6.9.

Table 6.9 Natural Gas Prices by Sector, 1967-2000

(Price: Dollars per Thousand Cubic Feet; Share of Total Volume Delivered: Percentage)

	Residential		Commercial [1]			Industrial [2]			Vehicle Fuel [3]			Electric Utilities	
	Prices [4]		Prices		Share of Total Volume Delivered	Prices		Share of Total Volume Delivered	Prices		Share of Total Volume Delivered	Prices [5]	
Year	Nominal	Real [6]	Nominal	Real [6]		Nominal	Real [6]		Nominal	Real [6]		Nominal	Real [6]
1967	1.04	4.13	0.74	2.94	NA	0.34	1.35	NA	NA	NA	NA	0.28	1.11
1968	1.04	3.95	0.73	2.78	NA	0.34	1.29	NA	NA	NA	NA	0.22	0.84
1969	1.05	3.81	0.74	2.68	NA	0.35	1.27	NA	NA	NA	NA	0.27	0.98
1970	1.09	3.75	0.77	2.65	NA	0.37	1.27	NA	NA	NA	NA	0.29	1.00
1971	1.15	3.77	0.82	2.69	NA	0.41	1.34	NA	NA	NA	NA	0.32	1.05
1972	1.21	3.80	0.88	2.77	NA	0.45	1.41	NA	NA	NA	NA	0.34	1.07
1973	1.29	3.84	0.94	2.80	NA	0.50	1.49	NA	NA	NA	NA	0.38	1.13
1974	1.43	3.90	1.07	2.92	NA	0.67	1.83	NA	NA	NA	NA	0.51	1.39
1975	1.71	4.27	1.35	3.37	NA	0.96	2.40	NA	NA	NA	NA	0.77	1.92
1976	1.98	4.68	1.64	3.88	NA	1.24	2.93	NA	NA	NA	NA	1.06	2.51
1977	2.35	5.22	2.04	4.53	NA	1.50	3.33	NA	NA	NA	NA	1.32	2.93
1978	2.56	5.31	2.23	4.62	NA	1.70	3.52	NA	NA	NA	NA	1.48	3.07
1979	2.98	5.70	2.73	5.22	NA	1.99	3.81	NA	NA	NA	NA	1.81	3.46
1980	3.68	6.45	3.39	5.94	NA	2.56	4.49	NA	NA	NA	NA	2.27	3.98
1981	4.29	6.88	4.00	6.41	NA	3.14	5.03	NA	NA	NA	NA	2.89	4.63
1982	5.17	7.80	4.82	7.28	NA	3.87	5.84	85.1	NA	NA	NA	3.48	5.25
1983	6.06	8.80	5.59	8.12	NA	4.18	6.07	80.7	NA	NA	NA	3.58	5.20
1984	6.12	8.57	5.55	7.77	NA	4.22	5.91	74.7	NA	NA	NA	3.70	5.18
1985	6.12	8.31	5.50	7.46	NA	3.95	5.36	68.8	NA	NA	NA	3.55	4.82
1986	5.83	7.74	5.08	6.75	NA	3.23	4.29	59.8	NA	NA	NA	2.43	3.23
1987	5.54	7.14	4.77	6.15	93.1	2.94	3.79	47.4	NA	NA	NA	2.32	2.99
1988	5.47	6.82	4.63	5.77	90.7	2.95	3.68	42.6	NA	NA	NA	2.33	2.90
1989	5.64	6.77	4.74	5.69	89.1	2.96	3.55	36.9	NA	NA	NA	2.43	2.92
1990	5.80	6.70	4.83	5.58	86.6	2.93	3.39	35.2	3.39	3.92	NA	2.38	2.75
1991	5.82	6.49	4.81	5.36	85.1	2.69	3.00	32.7	3.96	4.42	NA	2.18	2.43
1992	5.89	6.41	4.88	5.31	83.2	2.84	3.09	30.3	4.05	4.41	NA	2.36	2.57
1993	6.16	6.55	5.22	5.55	83.9	3.07	3.26	29.7	4.27	4.54	87.8	2.61	2.78
1994	6.41	6.68	5.44	5.67	79.3	3.05	3.18	25.5	4.11	4.28	86.9	2.28	2.37
1995	6.06	6.18	5.05	5.15	76.7	2.71	2.76	24.5	3.98	4.06	86.6	2.02	2.06
1996	6.34	6.34	5.40	5.40	77.6	3.42	3.42	19.4	4.34	4.34	94.0	2.69	2.69
1997	6.94	6.81	5.80	5.69	70.8	3.59	3.52	18.1	4.44	4.36	89.7	2.78	2.73
1998	6.82	6.61	5.48	5.31	67.0	3.14	R3.04	16.1	4.59	4.45	85.4	2.40	2.33
1999	R6.69	R6.39	R5.33	R5.09	R66.2	R3.10	R2.96	R17.4	R4.34	R4.14	R85.6	R2.62	R2.50
2000P	7.70	7.20	6.16	5.76	64.2	4.45	4.16	15.6	NA	NA	NA	NA	NA

[1] Includes deliveries to municipalities and public authorities for institutional heating and other purposes.

[2] Most volumes and associated revenues for deliveries to nonutility power producers are included in the industrial sector. In instances where the nonutility is primarily a commercial establishment, volumes and associated revenues are included in the calculation of commercial prices.

[3] Much of the natural gas delivered for vehicle fuel represents deliveries to fueling stations that are used primarily or exclusively by respondents' fleet vehicles. Thus, the prices are often those associated with the operation of fleet vehicles.

[4] Based on 100 percent of volume delivered.

[5] Based on all steam-electric utility plants with a combined capacity of 50 megawatts or greater.

[6] In chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.

R=Revised. P=Preliminary. NA=Not available.

Notes: • Natural gas includes supplemental gaseous fuels. • Residential, commercial, and industrial price data represent prices of natural gas sold and delivered by local distribution companies to residential, commercial, and industrial consumers, respectively. The data do not reflect prices of natural gas transported for the account of others. • 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 Note at end of section.

Web Page: http://www.eia.doe.gov/oil_gas/natural_gas/nat_frame.html.

Sources: **Vehicle Fuel:** 1990-1999—Energy Information Administration (EIA), *Natural Gas Annual,* annual reports. **All Other Data:** • 1967-1994—EIA, *Natural Gas Annual,* annual reports. • 1995 forward—EIA, *Natural Gas Monthly* (March 2001), Table 4.

Natural Gas

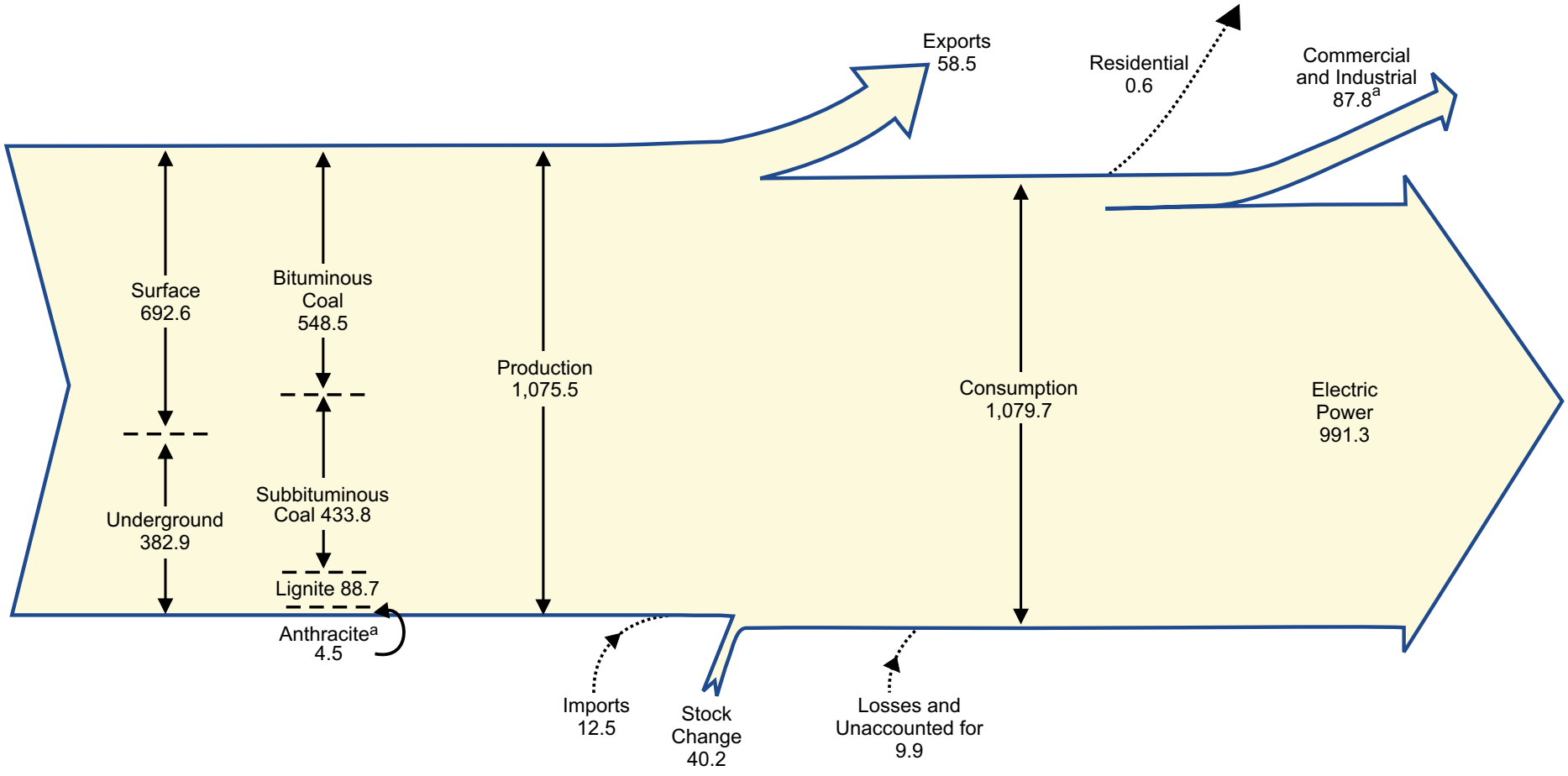
Note 1. Due to differences in presentation of data among various EIA publications, data for consumption at nonutility power producers are sometimes shown in the end-use sectors and at other times in the electric power sector. In Table 6.5, the "End-Use Sectors" data come from EIA's *Natural Gas Monthly* and *Natural Gas Annual*, which include all nonutility consumption in the end-use sectors (mostly industrial, with a small amount in commercial). Also in Table 6.5, the "Electric Power Sector" data come from EIA's *Electric Power Monthly* and *Electric Power Annual,* which for 1999 and 2000 include nonutility consumption for electricity generation. Because of this double-counting of nonutility data in 1999 and 2000, an adjustments column is incorporated into the table to remove the overcount and allow the table's components to be added across to reach the total consumption value.

Note 2. Natural gas consumption statistics are compiled from surveys of natural gas production, transmission, and distribution companies and electric utility companies. Consumption by 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 the 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 (through 1995); Electric Power Sector–consumption 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 agriculture, forestry, and fishing (beginning in 1996), 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, and natural gas delivered for use as vehicle fuel.

7 Coal

Coal yard, Curtis Bay, Maryland. Source: U.S. Department of Energy.

Diagram 4. Coal Flow, 2000
(Million Short Tons)

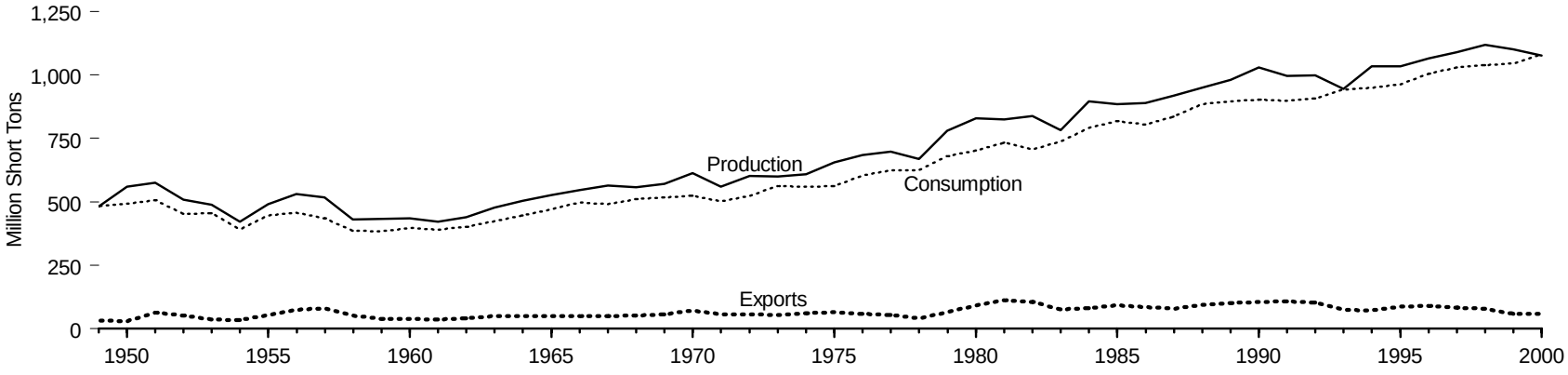


[a] Commercial and industrial totals plus "Adjustments" from Table 7.3.

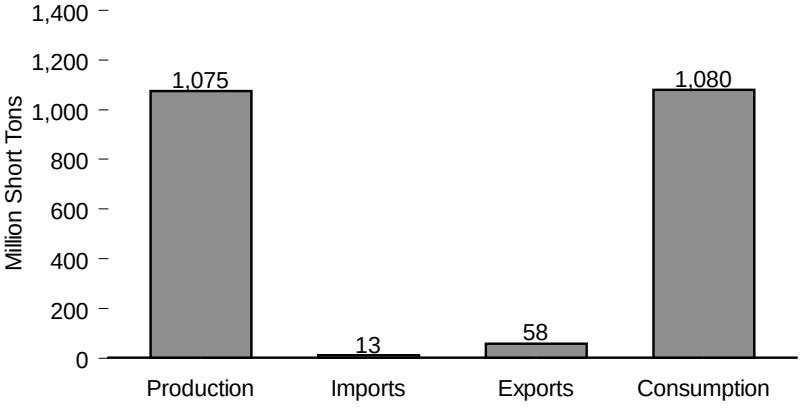
Notes: ● Data are preliminary. ● Totals may not equal sum of components due to independent rounding.
Sources: Tables 7.1, 7.2, and 7.3.

Figure 7.1 Coal Overview

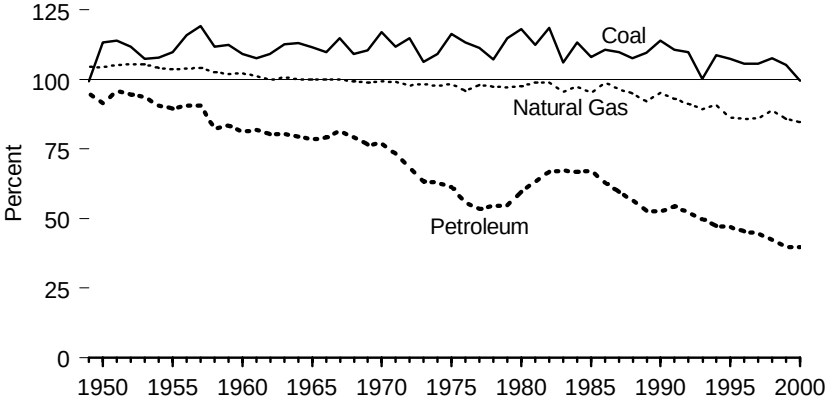
Overview, 1949-2000



Overview, 2000



Production as Share of Consumption by Type of Fossil Fuel, 1949-2000



Sources: Tables 5.1, 6.1, and 7.1.

Table 7.1 Coal Overview, 1949-2000

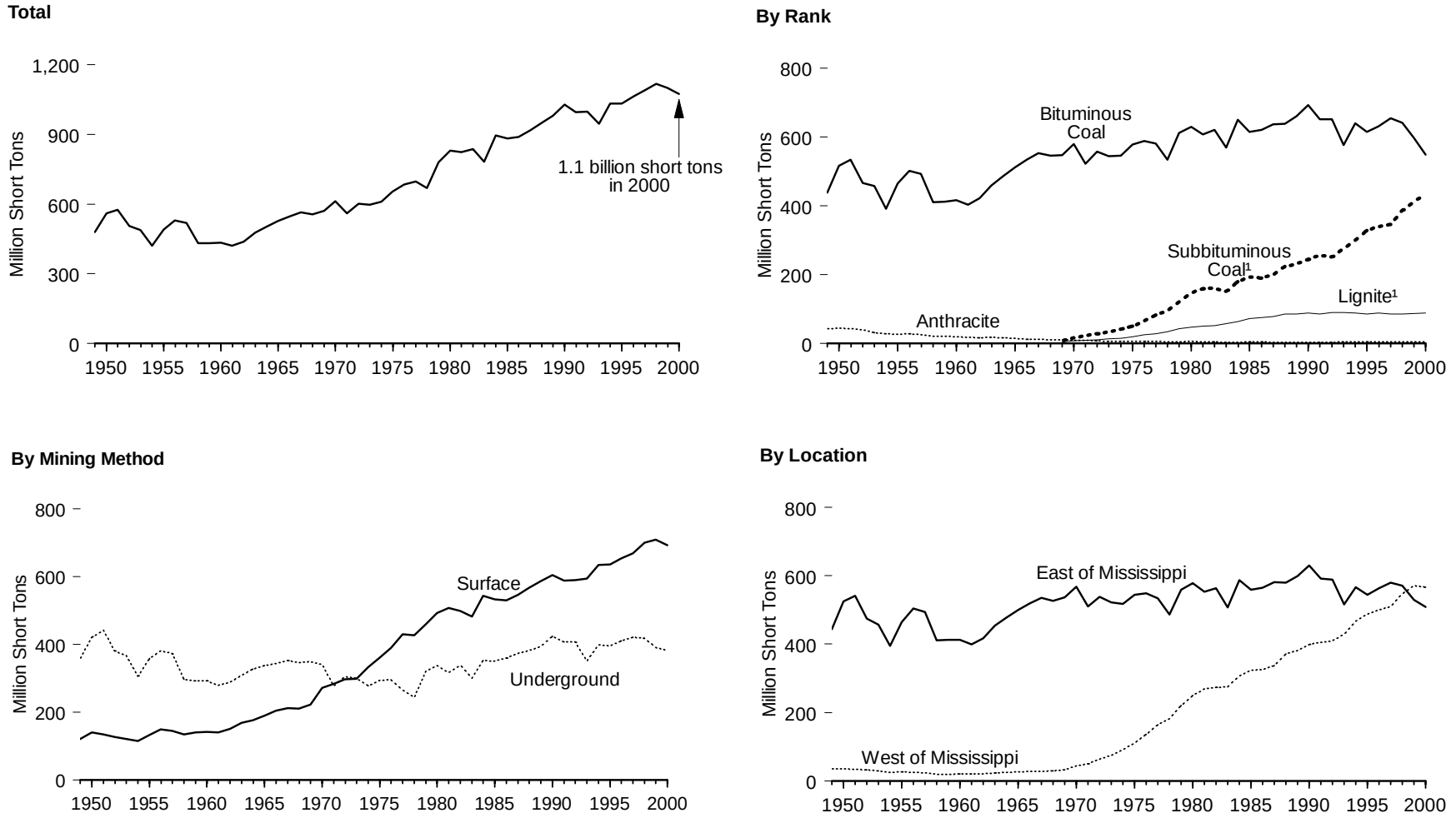
(Million Short Tons)

Year	Production	Imports	Exports	Stock Change [1]	Losses and Unaccounted for [2]	Consumption
1949	480.6	0.3	32.8	([3])	[4]-35.1	483.2
1950	560.4	0.4	29.4	([3])	[4]9.5	494.1
1951	576.3	0.3	62.7	([3])	[4]3.5	505.9
1952	507.4	0.3	52.2	([3])	[4]0.8	454.1
1953	488.2	0.3	36.5	([3])	[4]-6.9	454.8
1954	420.8	0.2	33.9	([3])	[4]8.1	389.9
1955	490.8	0.3	54.4	([3])	[4]-6.3	447.0
1956	529.8	0.4	73.8	([3])	[4]-10.2	456.9
1957	518.0	0.4	80.8	([3])	[4]0.8	434.5
1958	431.6	0.3	52.6	([3])	[4]-1.3	385.7
1959	432.7	0.4	39.0	([3])	[4]9.2	385.1
1960	434.3	0.3	38.0	([3])	[4]1.7	398.1
1961	420.4	0.2	36.4	([3])	[4]-4.0	390.4
1962	439.0	0.2	40.2	([3])	[4]-1.5	402.3
1963	477.2	0.3	50.4	([3])	[4]3.3	423.5
1964	504.2	0.3	49.5	([3])	[4]4.0	445.7
1965	527.0	0.2	51.0	([3])	[4]2.2	472.0
1966	546.8	0.2	50.1	([3])	[4]2.2	497.7
1967	564.9	0.2	50.1	([3])	[4]4.6	491.4
1968	556.7	0.2	51.2	([3])	[4]3.5	509.8
1969	571.0	0.1	56.9	([3])	[4]2.9	516.4
1970	612.7	(s)	71.7	([3])	[4]6.6	523.2
1971	560.9	0.1	57.3	([3])	[4]4.2	501.6
1972	602.5	(s)	56.7	([3])	[4]-4.3	524.3
1973	598.6	0.1	53.6	([3])	[4]-17.9	562.6
1974	610.0	2.1	60.7	-8.9	2.0	558.4
1975	654.6	0.9	66.3	32.2	-5.5	562.6
1976	684.9	1.2	60.0	8.5	13.8	603.8
1977	697.2	1.6	54.3	22.6	-3.4	625.3
1978	670.2	3.0	40.7	-4.9	12.1	625.2
1979	781.1	2.1	66.0	36.2	0.4	680.5
1980	829.7	1.2	91.7	25.6	10.8	702.7
1981	823.8	1.0	112.5	-19.0	-1.4	732.6
1982	838.1	0.7	106.3	22.6	3.1	706.9
1983	782.1	1.3	77.8	-29.5	-1.6	736.7
1984	895.9	1.3	81.5	28.7	-4.3	791.3
1985	883.6	2.0	92.7	-27.9	2.8	818.0
1986	890.3	2.2	85.5	4.0	-1.2	804.2
1987	918.8	1.7	79.6	6.5	-2.5	836.9
1988	950.3	2.1	95.0	-24.9	-1.3	883.6
1989	980.7	2.9	100.8	-13.7	[R]1.1	[R]895.4
1990	1,029.1	2.7	105.8	26.5	[R]-3.5	[R]902.9
1991	996.0	3.4	109.0	-0.9	[R]-7.7	[R]899.1
1992	997.5	3.8	102.5	-3.0	[R]-5.5	[R]907.4
1993	945.4	8.2	74.5	-51.9	[R]-12.4	[R]943.5
1994	1,033.5	8.9	71.4	23.6	[R]-2.7	[R]950.1
1995	1,033.0	9.5	88.5	-0.3	-7.9	962.0
1996	1,063.9	8.1	90.5	-17.5	[R]-7.4	[R]1,006.3
1997	1,089.9	7.5	83.5	-11.3	[R]-5.0	[R]1,030.1
1998	1,117.5	8.7	78.0	24.2	[R]-14.3	[R]1,038.3
1999	[R]1,100.4	9.1	58.5	[R]18.4	[R]-12.6	[R]1,045.3
2000[P]	1,075.5	12.5	58.5	-40.2	-9.9	1,079.7

[1] A negative value indicates a net decrease in stocks; a positive value indicates a net increase in stocks.
[2] "Losses and Unaccounted for" is calculated as the sum of production and imports minus exports, stock change, and consumption.
[3] Included in "Losses and Unaccounted for."
[4] Includes "Stock Change."
R=Revised. P=Preliminary. (s)=Less than 0.05 million short tons.
Note: Totals may not equal sum of components due to independent rounding.
Web Page: http://www.eia.doe.gov/fuelcoal.html.

Sources: • 1949-1975—Bureau of Mines, *Minerals Yearbook,* "Coal-Bituminous and Lignite" and "Coal-Pennsylvania Anthracite" chapters. • 1976—Energy Information Administration (EIA), Energy Data Report, *Coal-Bituminous and Lignite in 1976* and *Coal-Pennsylvania Anthracite 1976.* • 1977 and 1978—EIA, Energy Data Reports, *Bituminous Coal and Lignite Production and Mine Operations-1977; 1978* and *Coal-Pennsylvania Anthracite 1977; 1978.* • 1979 and 1980—EIA, Energy Data Report, *Weekly Coal Report.* • 1981-1988—EIA, *Weekly Coal Production and Coal Production,* annual reports. • 1989-1999—EIA, *Coal Industry Annual,* annual reports. • 2000—Tables 7.2, 7.3, 7.4, 7.5, of this report, and EIA, *Monthly Energy Review* (March 2001), Table 6.1.

Figure 7.2 Coal Production, 1949-2000



[1] Included with bituminous coal prior to 1969.
Note: Because vertical scales differ, graphs should not be compared.

Source: Table 7.2.

Table 7.2 Coal Production, 1949-2000

(Million Short Tons)

Year	Rank				Mining Method		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	649.5	179.2	63.1	4.2	352.1	543.9	308.3	587.6	895.9
1985	613.9	192.7	72.4	4.7	350.8	532.8	324.9	558.7	883.6
1986	620.1	189.6	76.4	4.3	360.4	529.9	325.9	564.4	890.3
1987	636.6	200.2	78.4	3.6	372.9	545.9	336.8	581.9	918.8
1988	638.1	223.5	85.1	3.6	382.2	568.1	370.7	579.6	950.3
1989	659.8	231.2	86.4	3.3	393.8	586.9	381.7	599.0	980.7
1990	693.2	244.3	88.1	3.5	424.5	604.5	398.9	630.2	1,029.1
1991	650.7	255.3	86.5	3.4	407.2	588.8	404.7	591.3	996.0
1992	651.8	252.2	90.1	3.5	407.2	590.3	409.0	588.6	997.5
1993	576.7	274.9	89.5	4.3	351.1	594.4	429.2	516.2	945.4
1994	640.3	300.5	88.1	4.6	399.1	634.4	467.2	566.3	1,033.5
1995	613.8	328.0	86.5	4.7	396.2	636.7	488.7	544.2	1,033.0
1996	630.7	340.3	88.1	4.8	409.8	654.0	500.2	563.7	1,063.9
1997	653.8	345.1	86.3	4.7	420.7	669.3	510.6	579.4	1,089.9
1998	[R]640.4	[R]386.1	85.8	5.3	417.7	699.8	547.0	570.6	1,117.5
1999	[R]596.3	[R]412.2	[R]87.2	[R]4.8	[R]391.8	[R]708.6	[R]570.9	[R]529.6	[R]1,100.4
2000	[E]548.5	[E]433.8	[E]88.7	[E]4.5	[E]382.9	[E]692.6	[E]566.2	[E]509.3	[P]1,075.5

[1] Included in bituminous coal.

R=Revised. P=Preliminary. E=Estimate.

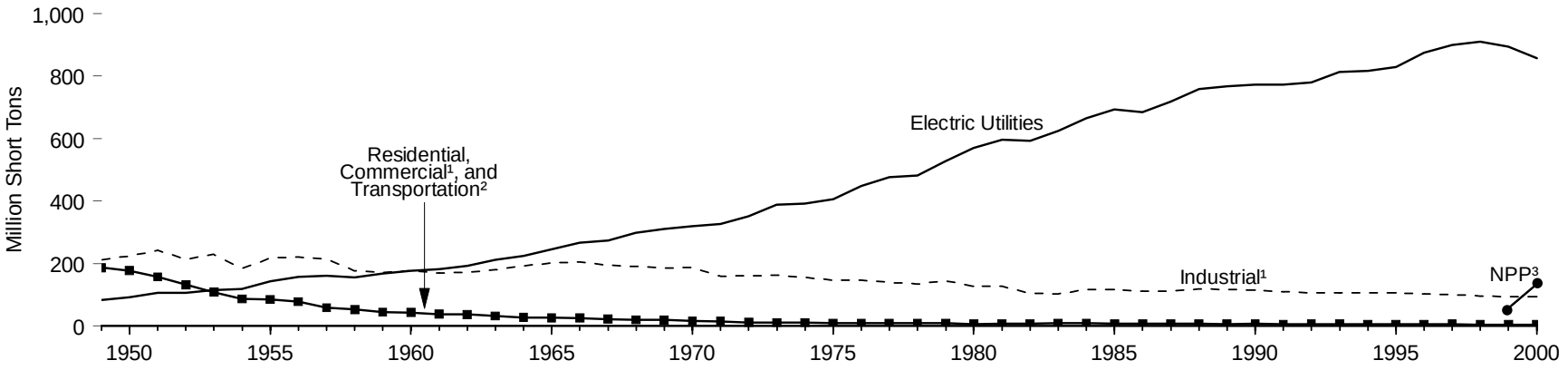
Note: Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/fuelcoal.html.

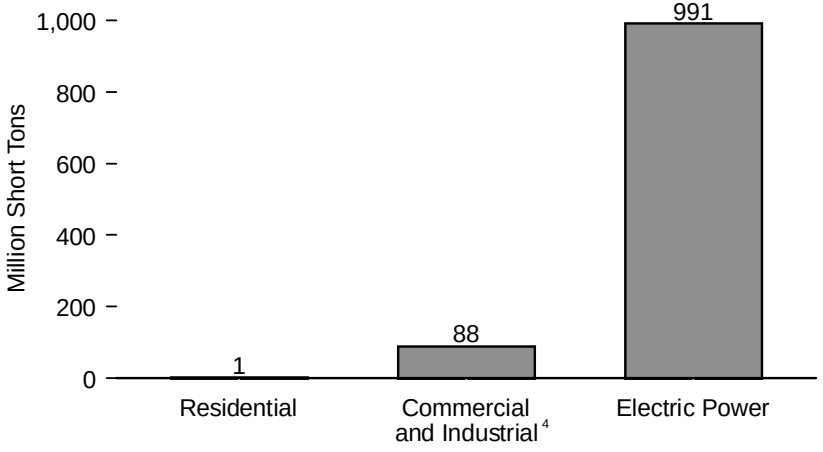
Sources: • 1949-1975—Bureau of Mines, *Minerals Yearbook,* "Coal-Bituminous and Lignite" and "Coal-Pennsylvania Anthracite" chapters. • 1976—Energy Information Administration (EIA), Energy Data Report, *Coal-Bituminous and Lignite in 1976* and *Coal-Pennsylvania Anthracite 1976.* • 1977 and 1978—EIA, Energy Data Report, *Bituminous Coal and Lignite Production and Mine Operations-1977; 1978, Coal-Pennsylvania Anthracite 1977; 1978,* and *Coal Production,* annual reports. • 1979 and 1980—EIA, Energy Data Report, *Weekly Coal Report* and *Coal Production,* annual reports. • 1981-1988—EIA, *Weekly Coal Production* and *Coal Production,* annual reports. • 1989-1998—EIA, *Coal Industry Annual,* annual reports. • 1999—EIA, Form EIA-7A, "Coal Production Report." • 2000—EIA estimates.

Figure 7.3 Coal Consumption by Sector

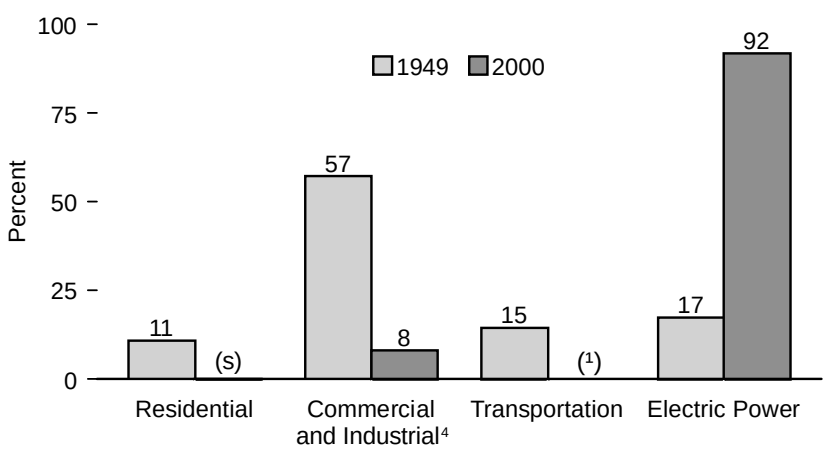
By Sector, 1949-2000



By Sector, 2000



End Use and Electric Power Shares, 1949 and 2000



[1] Includes some coal that is also counted in nonutility power producers in the electric power sector.

[2] Quantities for 1975, 1976, and 1977 are less than 0.5 million short tons. After 1977, small amounts of coal consumed by the transportation sector are included in "Industrial."

[3] Nonutility power producers. Data available for 1999 and 2000 only.

[4] Includes "End-Use/Nonutility Adjustment." See Table 7.3.

(s)=Less than 0.5 percent.

Source: Table 7.3.

Table 7.3 Coal Consumption by Sector, 1949-2000

(Million Short Tons)

Year	End-Use Sectors							Electric Power Sector [1]			Adjustments		
			Industrial										
	Residential	Commercial [2]	Coke Plants	Other [2]	Total [2]	Transportation	Total	Electric Utilities	Nonutility Power Producers	Total	Other Power Producers [3]	End-Use/ Nonutility [4]	Total Consumption
1949	52.4	64.1	91.4	121.2	212.6	70.2	399.3	84.0	NA	NA	—	—	483.2
1950	51.6	63.0	104.0	120.6	224.6	63.0	402.2	91.9	NA	NA	—	—	494.1
1951	46.7	54.8	113.7	128.7	242.4	56.2	400.1	105.8	NA	NA	—	—	505.9
1952	44.3	48.0	97.8	117.1	214.9	39.8	347.0	107.1	NA	NA	—	—	454.1
1953	38.8	40.4	113.1	117.0	230.1	29.6	338.9	115.9	NA	NA	—	—	454.8
1954	35.2	33.8	85.6	98.2	183.9	18.6	271.6	118.4	NA	NA	—	—	389.9
1955	35.6	32.9	107.7	110.1	217.8	17.0	303.3	143.8	NA	NA	—	—	447.0
1956	34.0	30.2	106.3	114.3	220.6	13.8	298.6	158.3	NA	NA	—	—	456.9
1957	27.0	22.1	108.4	106.5	214.9	9.8	273.7	160.8	NA	NA	—	—	434.5
1958	26.8	21.1	76.8	100.5	177.4	4.7	230.0	155.7	NA	NA	—	—	385.7
1959	23.7	17.1	79.6	92.7	172.3	3.6	216.6	168.4	NA	NA	—	—	385.1
1960	24.2	16.8	81.4	96.0	177.4	3.0	221.4	176.7	NA	NA	—	—	398.1
1961	22.0	15.3	74.2	95.9	170.1	0.8	208.2	182.2	NA	NA	—	—	390.4
1962	21.2	15.3	74.7	97.1	171.7	0.7	208.9	193.3	NA	NA	—	—	402.3
1963	18.2	13.2	78.1	101.9	180.0	0.7	212.1	211.3	NA	NA	—	—	423.5
1964	15.8	11.4	89.2	103.1	192.4	0.7	220.2	225.4	NA	NA	—	—	445.7
1965	14.9	10.8	95.3	105.6	200.8	0.7	227.2	244.8	NA	NA	—	—	472.0
1966	14.6	11.0	96.4	108.7	205.1	0.6	231.3	266.5	NA	NA	—	—	497.7
1967	12.6	9.5	92.8	101.8	194.6	0.5	217.2	274.2	NA	NA	—	—	491.4
1968	11.4	8.6	91.3	100.4	191.6	0.4	212.0	297.8	NA	NA	—	—	509.8
1969	10.6	8.3	93.4	93.1	186.6	0.3	205.8	310.6	NA	NA	—	—	516.4
1970	9.0	7.1	96.5	90.2	186.6	0.3	203.0	320.2	NA	NA	—	—	523.2
1971	7.6	7.6	83.2	75.6	158.9	0.2	174.3	327.3	NA	NA	—	—	501.6
1972	5.0	6.7	87.7	72.9	160.6	0.2	172.5	351.8	NA	NA	—	—	524.3
1973	4.1	7.0	94.1	68.0	162.1	0.1	173.4	389.2	NA	NA	—	—	562.6
1974	3.7	7.8	90.2	64.9	155.1	0.1	166.6	391.8	NA	NA	—	—	558.4
1975	2.8	6.6	83.6	63.6	147.2	(s)	156.7	406.0	NA	NA	—	—	562.6
1976	2.6	6.3	84.7	61.8	146.5	(s)	155.4	448.4	NA	NA	—	—	603.8
1977	2.5	6.4	77.7	61.5	139.2	(s)	148.2	477.1	NA	NA	—	—	625.3
1978	2.2	7.3	71.4	63.1	134.5	([5])	144.0	481.2	NA	NA	—	—	625.2
1979	1.7	6.7	77.4	67.7	145.1	([5])	153.5	527.1	NA	NA	—	—	680.5
1980	1.4	5.1	66.7	60.3	127.0	([5])	133.5	569.3	NA	NA	—	—	702.7
1981	1.3	6.1	61.0	67.4	128.4	([5])	135.8	596.8	NA	NA	—	—	732.6
1982	1.4	6.8	40.9	64.1	105.0	([5])	113.2	593.7	NA	NA	—	—	706.9
1983	1.4	7.1	37.0	66.0	103.0	([5])	111.5	625.2	NA	NA	—	—	736.7
1984	1.6	7.5	44.0	73.7	117.8	([5])	126.9	664.4	NA	NA	—	—	791.3
1985	1.6	6.2	41.1	75.4	116.4	([5])	124.2	693.8	NA	NA	—	—	818.0
1986	1.5	6.1	35.9	75.6	111.5	([5])	119.2	685.1	NA	NA	—	—	804.2
1987	1.4	5.5	37.0	75.2	112.1	([5])	119.0	717.9	NA	NA	—	—	836.9
1988	1.4	5.8	41.9	76.3	118.1	([5])	125.3	758.4	NA	NA	—	—	883.6
1989	1.2	5.0	40.5	76.1	116.6	([5])	122.8	766.9	NA	NA	5.7	—	[R]895.4
1990	1.1	5.6	38.9	76.3	115.2	([5])	121.9	773.5	NA	NA	7.4	—	[R]902.9
1991	1.0	5.1	33.9	75.4	109.3	([5])	115.4	772.3	NA	NA	11.4	—	[R]899.1
1992	1.0	5.1	32.4	74.0	106.4	([5])	112.6	779.9	NA	NA	[R]15.0	—	[R]907.4
1993	1.1	5.2	31.3	74.9	106.2	([5])	112.4	813.5	NA	NA	[R]17.5	—	[R]943.5
1994	0.9	5.1	31.7	75.2	106.9	([5])	112.9	817.3	NA	NA	[R]19.9	—	[R]950.1
1995	0.8	5.1	33.0	73.1	106.1	([5])	111.9	829.0	NA	NA	21.2	—	962.0
1996	0.7	5.3	31.7	[R]71.7	[R]103.4	([5])	109.4	874.7	NA	NA	22.2	—	[R]1,006.3
1997	0.7	5.8	30.2	[R]71.5	[R]101.7	([5])	108.2	900.4	NA	NA	21.6	—	[R]1,030.1
1998	0.6	4.3	28.2	[R]67.4	[R]95.6	([5])	100.5	910.9	NA	NA	[R]26.9	—	[R]1,038.3
1999	0.6	4.3	[R]28.1	[R]65.5	[R]93.6	([5])	98.5	[R]894.1	57.5	951.6	[R]52.7	-57.5	[R]1,045.3
2000[P]	0.6	4.3	29.5	65.4	94.9	([5])	99.7	857.6	[E]133.7	[E]991.3	122.3	-133.7	1,079.7

[1] Data are for coal consumed to produce electricity only; exclude coal consumed to produce useful thermal output.

[2] Includes some coal consumed at nonutilities to produce electricity.

[3] Represents the adjustment necessary to avoid undercounting coal consumption at nonutility wholesale producers of electricity, and some nonutility cogeneration plants, that are not included in the end-use sectors. Because data include consumption for useful thermal output, they are not included under "Electric Power Sector." See Note 1 at end of section.

[4] Represents the adjustment necessary to avoid double-counting coal consumption at nonutilities, of which a portion is included under both "End-Use Sectors" and "Electric Power Sector." See Note 1 at end of section.

[5] After 1977, small amounts of coal consumed by the Transportation Sector are included in "Other" under the Industrial Sector.

R=Revised. P=Preliminary. E=Estimate. NA=Not available. (s)=Less than 0.05 million short tons. — = Not applicable.

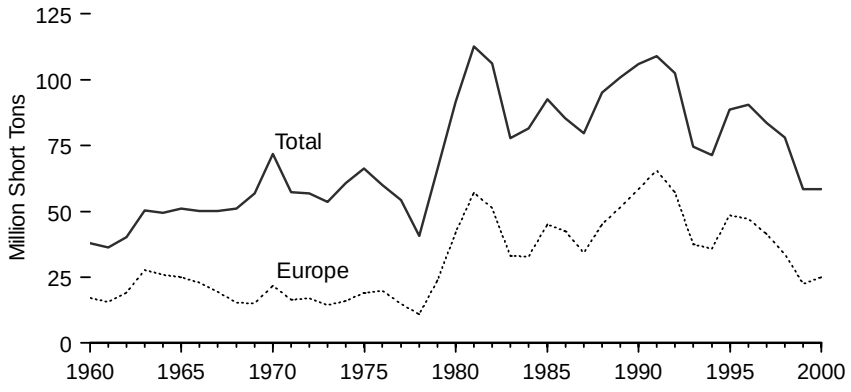
Notes: • For the definition of coal consumption, see Note 2 at end of section. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/fuelcoal.html.

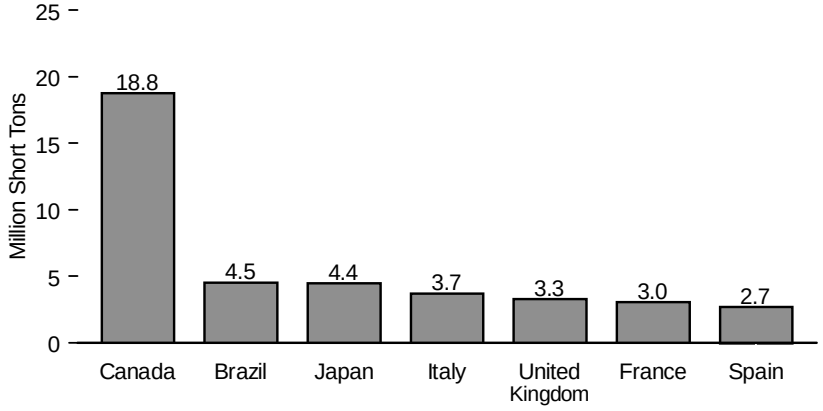
Sources: See end of section.

Figure 7.4 Coal Exports by Country of Destination

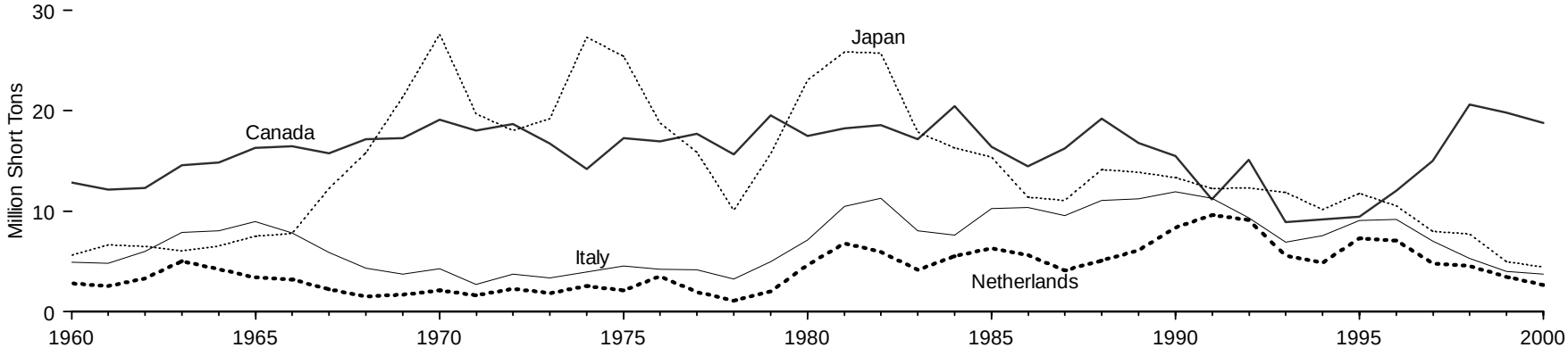
Total and Europe, 1960-2000



By Selected Country, 2000



By Selected Country, 1960-2000



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

Source: Table 7.4.

Table 7.4 Coal Exports by Country of Destination, 1960-2000

(Million Short Tons)

Year	Canada	Brazil	Europe										Japan	Other	Total
			Belgium and Luxembourg	Denmark	France	Germany [1]	Italy	Netherlands	Spain	United Kingdom	Other	Total			
1960	12.8	1.1	1.1	0.1	0.8	4.6	4.9	2.8	0.3	0.0	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	0.0	2.0	15.7	6.6	1.0	36.4
1962	12.3	1.3	1.3	(s)	0.9	5.1	6.0	3.3	0.8	(s)	1.8	19.1	6.5	1.0	40.2
1963	14.6	1.2	2.7	(s)	2.7	5.6	7.9	5.0	1.5	0.0	2.4	27.7	6.1	0.9	50.4
1964	14.8	1.1	2.3	(s)	2.2	5.2	8.1	4.2	1.4	0.0	2.6	26.0	6.5	1.1	49.5
1965	16.3	1.2	2.2	(s)	2.1	4.7	9.0	3.4	1.4	(s)	2.3	25.1	7.5	0.9	51.0
1966	16.5	1.7	1.8	(s)	1.6	4.9	7.8	3.2	1.2	(s)	2.5	23.1	7.8	1.0	50.1
1967	15.8	1.7	1.4	0.0	2.1	4.7	5.9	2.2	1.0	0.0	2.1	19.4	12.2	1.0	50.1
1968	17.1	1.8	1.1	0.0	1.5	3.8	4.3	1.5	1.5	0.0	1.9	15.5	15.8	0.9	51.2
1969	17.3	1.8	0.9	0.0	2.3	3.5	3.7	1.6	1.8	0.0	1.3	15.2	21.4	1.2	56.9
1970	19.1	2.0	1.9	0.0	3.6	5.0	4.3	2.1	3.2	(s)	1.8	21.8	27.6	1.2	71.7
1971	18.0	1.9	0.8	0.0	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	0.0	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	0.0	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	0.0	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	0.0	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	(s)	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	0.0	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	1.7	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
1985	16.4	5.9	4.4	2.2	4.5	1.1	10.3	6.3	3.5	2.7	10.3	45.1	15.4	9.9	92.7
1986	14.5	5.7	4.4	2.1	5.4	0.8	10.4	5.6	2.6	2.9	8.4	42.6	11.4	11.4	85.5
1987	16.2	5.8	4.6	0.9	2.9	0.5	9.5	4.1	2.5	2.6	6.6	34.2	11.1	12.3	79.6
1988	19.2	5.3	6.5	2.8	4.3	0.7	11.1	5.1	2.5	3.7	8.5	45.1	14.1	11.3	95.0
1989	16.8	5.7	7.1	3.2	6.5	0.7	11.2	6.1	3.3	4.5	8.9	51.6	13.8	12.9	100.8
1990	15.5	5.8	8.5	3.2	6.9	1.1	11.9	8.4	3.8	5.2	9.5	58.4	13.3	12.7	105.8
1991	11.2	7.1	7.5	4.7	9.5	1.7	11.3	9.6	4.7	6.2	10.4	65.5	12.3	13.0	109.0
1992	15.1	6.4	7.2	3.8	8.1	1.0	9.3	9.1	4.5	5.6	8.5	57.3	12.3	11.4	102.5
1993	8.9	5.2	5.2	0.3	4.0	0.5	6.9	5.6	4.1	4.1	6.9	37.6	11.9	11.0	74.5
1994	9.2	5.5	4.9	0.5	2.9	0.3	7.5	4.9	4.1	3.4	7.3	35.8	10.2	10.7	71.4
1995	9.4	6.4	4.5	2.1	3.7	2.0	9.1	7.3	4.7	4.7	10.7	48.6	11.8	12.4	88.5
1996	12.0	6.5	4.6	1.3	3.9	1.1	9.2	7.1	4.1	6.2	9.8	47.2	10.5	14.2	90.5
1997	15.0	7.5	4.3	0.4	3.4	0.9	7.0	4.8	4.1	7.2	9.2	41.3	8.0	11.8	83.5
1998	20.7	6.5	3.2	0.3	3.2	1.2	5.3	4.5	3.2	5.9	6.9	33.8	7.7	9.4	78.0
1999	19.8	4.4	2.1	0.0	2.5	0.6	4.0	3.4	2.5	3.2	4.3	22.5	5.0	6.7	58.5
2000	18.8	4.5	2.9	0.1	3.0	1.0	3.7	2.6	2.7	3.3	5.7	25.0	4.4	5.8	58.5

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

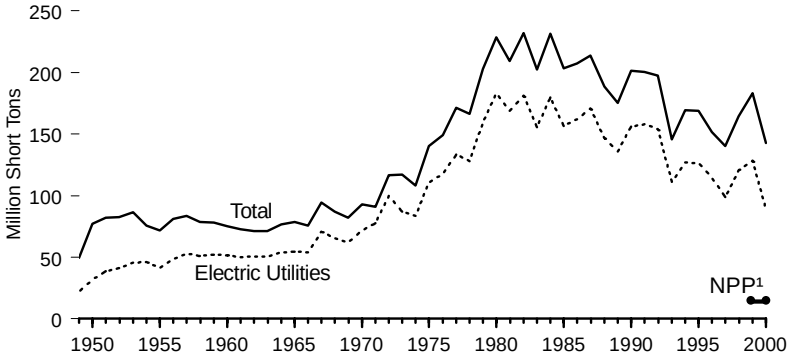
(s)=Less than 0.05 million short tons.

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

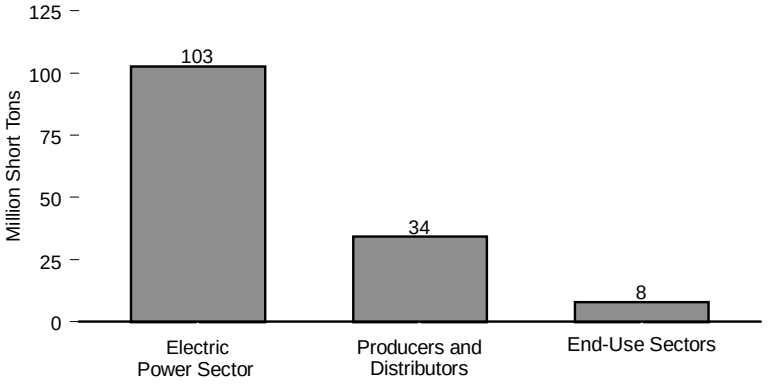
Sources: • 1960-1988—U.S. Department of Commerce, Bureau of the Census. *U.S. Exports by Schedule B Commodities, EM 522.* • 1989-1999—Energy Information Administration, *Coal Industry Annual,* annual reports. • 2000—U.S. Department of Commerce, Bureau of the Census, "Monthly Report EM 545."

Figure 7.5 Coal Stocks

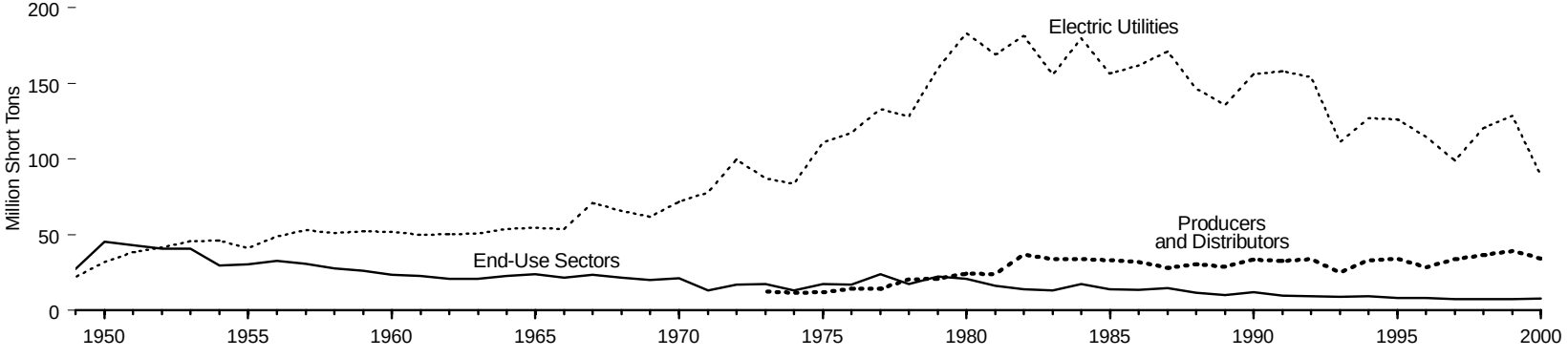
Total and Stocks for Electricity Generation, 1949-2000



By Holding Entity, 2000



By Holding Entity, 1949-2000



[1] Nonutility Power Producers.

Notes: • Stocks are at end of year. • Because vertical scales differ, graphs should not be compared.

Source: Table 7.5.

Table 7.5 Coal Stocks, 1949-2000

(Million Short Tons)

Year	Producers and Distributors	End-Use Sectors [1]					Electric Power Sector [2]			End-Use/ Nonutility Adjustment [4]	Total Stocks
		Residential and Commercial	Industrial			Total	Electric Utilities	Nonutility Power Producers	Total		
			Coke Plants	Other [3]	Total						
1949	NA	1.4	10.0	16.1	26.0	27.4	22.1	NA	NA	—	49.5
1950	NA	2.5	16.8	26.2	43.0	45.5	31.8	NA	NA	—	77.3
1951	NA	1.8	15.3	26.2	41.6	43.3	38.5	NA	NA	—	81.8
1952	NA	1.7	14.5	24.7	39.2	40.9	41.5	NA	NA	—	82.4
1953	NA	1.5	16.6	22.8	39.4	40.9	45.6	NA	NA	—	86.6
1954	NA	0.8	12.4	16.4	28.8	29.6	46.1	NA	NA	—	75.7
1955	NA	1.0	13.4	15.9	29.3	30.3	41.4	NA	NA	—	71.7
1956	NA	1.1	14.0	17.4	31.5	32.6	48.8	NA	NA	—	81.3
1957	NA	0.9	14.2	15.5	29.7	30.7	53.1	NA	NA	—	83.7
1958	NA	0.9	13.1	13.7	26.7	27.7	51.0	NA	NA	—	78.7
1959	NA	1.0	11.6	13.6	25.2	26.2	52.1	NA	NA	—	78.4
1960	NA	0.7	11.1	11.6	22.8	23.4	51.7	NA	NA	—	75.2
1961	NA	0.5	10.5	11.9	22.4	22.9	50.1	NA	NA	—	73.0
1962	NA	0.5	8.4	12.0	20.4	20.9	50.4	NA	NA	—	71.3
1963	NA	0.5	8.1	12.3	20.4	20.9	50.6	NA	NA	—	71.5
1964	NA	0.4	10.2	12.2	22.5	22.8	53.9	NA	NA	—	76.7
1965	NA	0.4	10.6	13.1	23.8	24.1	54.5	NA	NA	—	78.6
1966	NA	0.2	9.3	12.2	21.5	21.7	53.9	NA	NA	—	75.6
1967	NA	0.2	11.1	12.3	23.4	23.6	71.0	NA	NA	—	94.6
1968	NA	0.2	9.7	11.7	21.3	21.5	65.5	NA	NA	—	87.0
1969	NA	0.2	9.1	10.8	19.9	20.0	61.9	NA	NA	—	81.9
1970	NA	0.3	9.0	11.8	20.8	21.1	71.9	NA	NA	—	93.0
1971	NA	0.3	7.3	5.6	12.9	13.2	77.8	NA	NA	—	91.0
1972	NA	0.3	9.1	7.6	16.7	17.0	99.7	NA	NA	—	116.8
1973	12.5	0.3	7.0	10.4	17.4	17.7	87.0	NA	NA	—	117.2
1974	11.6	0.3	6.2	6.6	12.8	13.1	83.5	NA	NA	—	108.2
1975	12.1	0.2	8.8	8.5	17.3	17.6	110.7	NA	NA	—	140.4
1976	14.2	0.2	9.9	7.1	17.0	17.2	117.4	NA	NA	—	148.9
1977	14.2	0.2	12.8	11.1	23.9	24.1	133.2	NA	NA	—	171.5
1978	20.7	0.4	8.3	9.0	17.3	17.7	128.2	NA	NA	—	166.6
1979	20.8	0.3	10.2	11.8	21.9	22.3	159.7	NA	NA	—	202.8
1980	24.4	NA	9.1	12.0	21.0	21.0	183.0	NA	NA	—	228.4
1981	24.1	NA	6.5	9.9	16.4	16.4	168.9	NA	NA	—	209.4
1982	36.8	NA	4.6	9.5	14.1	14.1	181.1	NA	NA	—	232.0
1983	33.9	NA	4.3	8.7	13.1	13.1	155.6	NA	NA	—	202.6
1984	34.1	NA	6.2	11.3	17.5	17.5	179.7	NA	NA	—	231.3
1985	33.1	NA	3.4	10.4	13.9	13.9	156.4	NA	NA	—	203.4
1986	32.1	NA	3.0	10.4	13.4	13.4	161.8	NA	NA	—	207.3
1987	28.3	NA	3.9	10.8	14.7	14.7	170.8	NA	NA	—	213.8
1988	30.4	NA	3.1	8.8	11.9	11.9	146.5	NA	NA	—	188.8
1989	29.0	NA	2.9	7.4	10.2	10.2	135.9	NA	NA	—	175.1
1990	33.4	NA	3.3	8.7	12.0	12.0	156.2	NA	NA	—	201.6
1991	33.0	NA	2.8	7.1	9.8	9.8	157.9	NA	NA	—	200.7
1992	34.0	NA	2.6	7.0	9.6	9.6	154.1	NA	NA	—	197.7
1993	25.3	NA	2.4	6.7	9.1	9.1	111.3	NA	NA	—	145.7
1994	33.2	NA	2.7	6.6	9.2	9.2	126.9	NA	NA	—	169.4
1995	34.4	NA	2.6	5.7	8.3	8.3	126.3	NA	NA	—	169.1
1996	28.6	NA	2.7	5.7	8.4	8.4	114.6	NA	NA	—	151.6
1997	34.0	NA	2.0	5.6	7.6	7.6	98.8	NA	NA	—	140.4
1998	36.5	NA	2.0	5.5	7.6	7.6	120.5	NA	NA	—	164.6
1999	R39.5	NA	R1.9	R5.6	7.5	7.5	R128.5	R14.1	R142.5	-6.6	R183.0
2000P	34.2	NA	2.0	5.7	7.8	7.8	88.8	E13.9	E102.8	-2.0	142.7

[1] Data include some coal stocks at nonutilities.

[2] Data are for coal available to produce electricity; they may include some coal available to produce useful thermal output.

[3] Includes transportation sector.

[4] Represents the adjustment necessary to avoid double-counting coal stocks at nonutilities, of which a portion is included under both "End-Use Sectors" and "Electric Power Sector." See Note 2 at end of section.

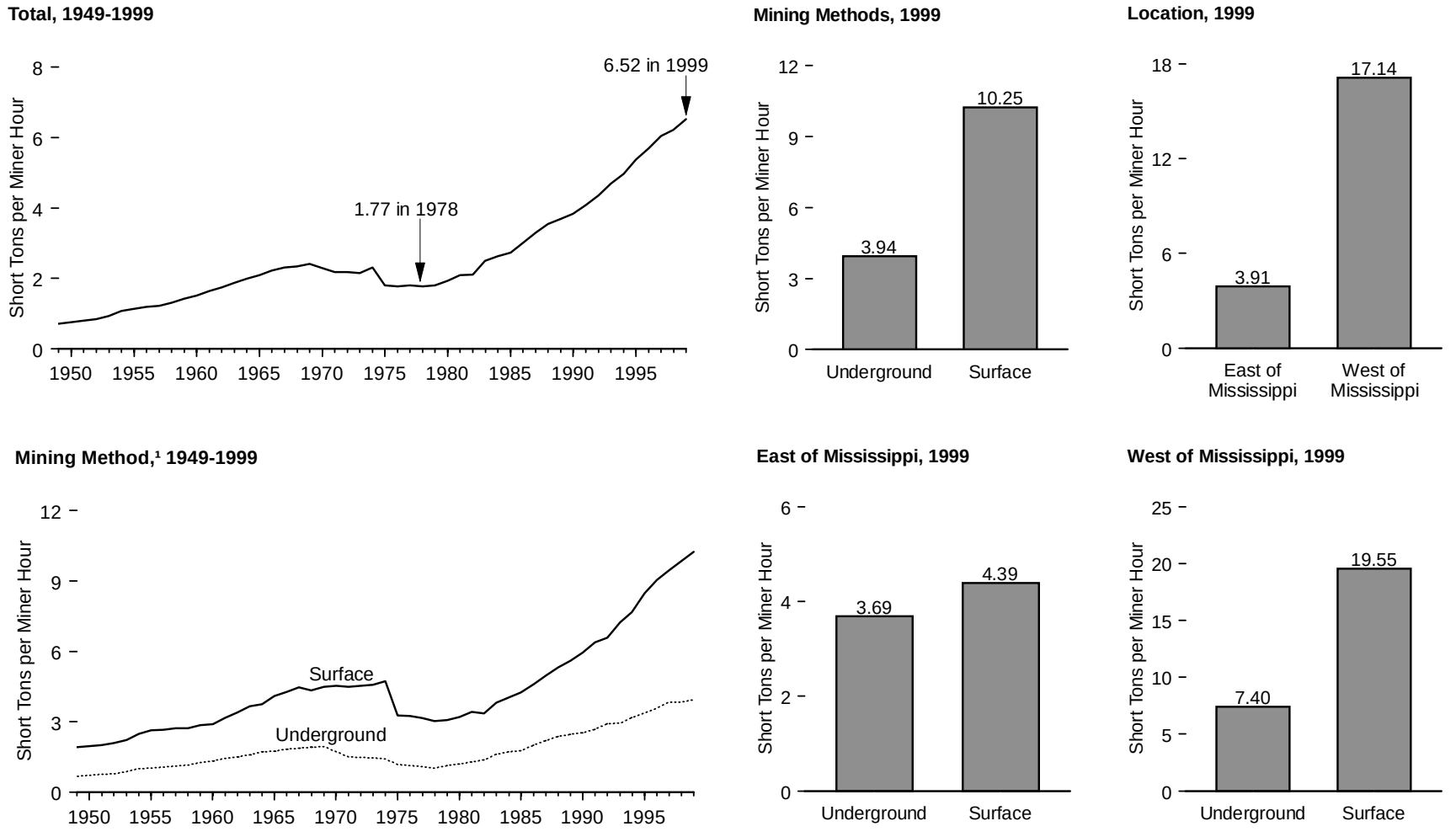
R=Revised. P=Preliminary. E=Estimate. NA=Not available. — = Not applicable.

Notes: • Stocks are at end of year. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/fuelcoal.html.

Sources: **Producers and Distributors, End-Use Sectors, and Total Stocks:** • 1949-1975—Bureau of Mines, *Minerals Yearbook,* "Coal-Bituminous and Lignite" and "Coal-Pennsylvania Anthracite" chapters. • 1976—Energy Information Administration (EIA), Energy Data Report, *Coal-Bituminous and Lignite in 1976* and *Coal-Pennsylvania Anthracite 1976.* • 1977 and 1978—EIA, Energy Data Report, *Coal-Pennsylvania Anthracite 1977; 1978,* and *Weekly Coal Report.* • 1979—EIA, Energy Data Report, *Weekly Coal Report.* • 1980-1999—EIA, *Quarterly Coal Report October-December,* quarterly reports. • 2000—EIA, *Monthly Energy Review* (March 2001), Table 6.3. **Electric Power Sector:** Table 8.11. **End-Use/Nonutility Adjustment:** Calculated by subtracting data for "Producers and Distributors," "End-Use Sectors," and "Electric Power Sector" from "Total Stocks."

Figure 7.6 Coal Mining Productivity



[1] For 1979 forward, includes all coal; prior to 1979, excludes anthracite.
Note: Because vertical scales differ, graphs should not be compared.

Source: Table 7.6.

Table 7.6 Coal Mining Productivity, 1949-1999

(Short Tons per Miner Hour [1])

Year	Mining Method		Location						Total
			East of the Mississippi			West of the Mississippi			
	Underground	Surface	Underground	Surface	Total	Underground	Surface	Total	
1949	[2]0.68	[2]1.92	NA	NA	NA	NA	NA	NA	0.72
1950	[2]0.72	[2]1.96	NA	NA	NA	NA	NA	NA	0.76
1951	[2]0.76	[2]2.00	NA	NA	NA	NA	NA	NA	0.80
1952	[2]0.80	[2]2.10	NA	NA	NA	NA	NA	NA	0.84
1953	[2]0.88	[2]2.22	NA	NA	NA	NA	NA	NA	0.93
1954	[2]1.00	[2]2.48	NA	NA	NA	NA	NA	NA	1.08
1955	[2]1.04	[2]2.65	NA	NA	NA	NA	NA	NA	1.14
1956	[2]1.08	[2]2.67	NA	NA	NA	NA	NA	NA	1.19
1957	[2]1.11	[2]2.73	NA	NA	NA	NA	NA	NA	1.23
1958	[2]1.17	[2]2.73	NA	NA	NA	NA	NA	NA	1.31
1959	[2]1.26	[2]2.87	NA	NA	NA	NA	NA	NA	1.43
1960	[2]1.33	[2]2.91	NA	NA	NA	NA	NA	NA	1.52
1961	[2]1.43	[2]3.16	NA	NA	NA	NA	NA	NA	1.64
1962	[2]1.50	[2]3.40	NA	NA	NA	NA	NA	NA	1.74
1963	[2]1.60	[2]3.66	NA	NA	NA	NA	NA	NA	1.87
1964	[2]1.72	[2]3.76	NA	NA	NA	NA	NA	NA	1.99
1965	[2]1.75	[2]4.10	NA	NA	NA	NA	NA	NA	2.09
1966	[2]1.83	[2]4.28	NA	NA	NA	NA	NA	NA	2.23
1967	[2]1.88	[2]4.48	NA	NA	NA	NA	NA	NA	2.31
1968	[2]1.93	[2]4.33	NA	NA	NA	NA	NA	NA	2.35
1969	[2]1.95	[2]4.50	NA	NA	NA	NA	NA	NA	2.41
1970	[2]1.72	[2]4.53	NA	NA	NA	NA	NA	NA	2.30
1971	[2]1.50	[2]4.49	NA	NA	NA	NA	NA	NA	2.19
1972	[2]1.49	[2]4.54	NA	NA	NA	NA	NA	NA	2.18
1973	[2]1.46	[2]4.58	NA	NA	NA	NA	NA	NA	2.16
1974	[2]1.41	[2]4.74	NA	NA	NA	NA	NA	NA	2.31
1975	[2]1.19	[2]3.26	NA	NA	NA	NA	NA	NA	1.81
1976	[2]1.14	[2]3.25	NA	NA	NA	NA	NA	NA	1.78
1977	[2]1.09	[2]3.16	NA	NA	NA	NA	NA	NA	1.80
1978	[2]1.04	[2]3.03	NA	NA	NA	NA	NA	NA	1.77
1979	1.13	3.08	NA	NA	NA	NA	NA	NA	1.81
1980	1.20	3.21	NA	NA	NA	NA	NA	NA	1.93
1981	1.29	3.42	NA	NA	NA	NA	NA	NA	2.10
1982	1.37	3.36	NA	NA	NA	NA	NA	NA	2.11
1983	1.61	3.81	NA	NA	NA	NA	NA	NA	2.50
1984	1.72	4.03	1.69	2.56	1.98	2.49	8.15	7.07	2.64
1985	1.78	4.24	1.75	2.52	2.00	2.45	8.61	7.40	2.74
1986	2.00	4.60	1.96	2.75	2.21	2.80	9.02	7.90	3.01
1987	2.20	4.98	2.16	2.97	2.42	3.39	9.86	8.73	3.30
1988	2.38	5.32	2.32	2.99	2.54	3.55	10.73	9.38	3.55
1989	2.46	5.61	2.39	3.13	2.63	3.92	11.86	10.21	3.70
1990	2.54	5.94	2.46	3.32	2.73	4.01	12.26	10.41	3.83
1991	2.69	6.38	2.59	3.49	2.86	4.53	12.36	10.79	4.09
1992	2.93	6.59	2.82	3.61	3.07	4.85	12.49	11.03	4.36
1993	2.95	7.23	2.81	3.74	3.11	5.18	13.94	12.14	4.70
1994	3.19	7.67	3.02	3.85	3.28	5.93	15.19	13.22	4.98
1995	3.39	8.48	3.19	4.03	3.45	6.32	16.23	14.18	5.38
1996	3.57	9.05	3.36	4.25	3.63	7.03	17.89	15.66	5.69
1997	3.83	9.46	3.63	4.49	3.89	6.82	18.63	16.04	6.04
1998	3.84	9.85	3.63	4.33	3.85	7.18	20.15	17.39	6.22
1999[P]	3.94	10.25	3.69	4.39	3.91	7.40	19.55	17.14	6.52

[1] Data for bituminous, subbituminous, and lignite mines 1949-1973 and anthracite mines 1949-1978 were originally reported in short tons per miner-day. The data were converted to short-tons per miner-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.

[2] Anthracite mining productivity is unavailable by underground and surface but is included in the Total.

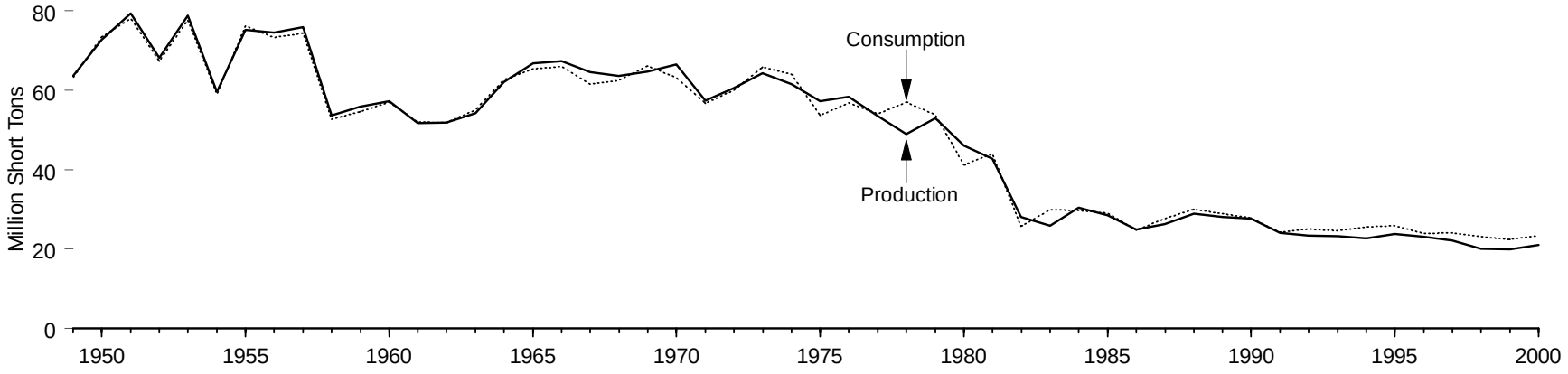
P=Preliminary. NA=Not available.

Web Page: http://www.eia.doe.gov/fuelcoal.html.

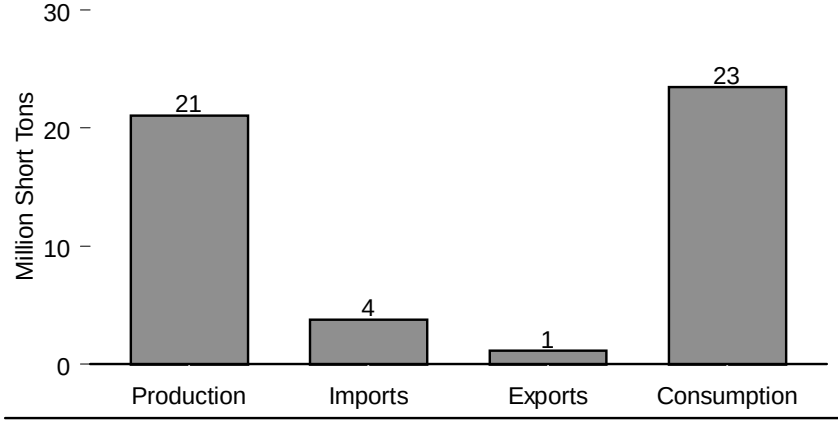
Sources: • 1949-1975—Bureau of Mines, *Minerals Yearbook,* "Coal-Bituminous and Lignite" and "Coal-Pennsylvania Anthracite" chapters. • 1976—Energy Information Administration (EIA), Energy Data Report, *Coal-Bituminous and Lignite in 1976* and *Coal-Pennsylvania Anthracite 1976.* • 1977 and 1978—EIA, Energy Data Report, *Bituminous Coal and Lignite Production and Mine Operations-1977; 1978* and *Coal-Pennsylvania Anthracite 1977; 1978.* • 1979—EIA, Energy Data Report, *Coal Production-1979.* • 1980-1988—EIA, *Coal Production,* annual reports. • 1989 forward—EIA, *Coal Industry Annual,* annual reports.

Figure 7.7 Coke Overview

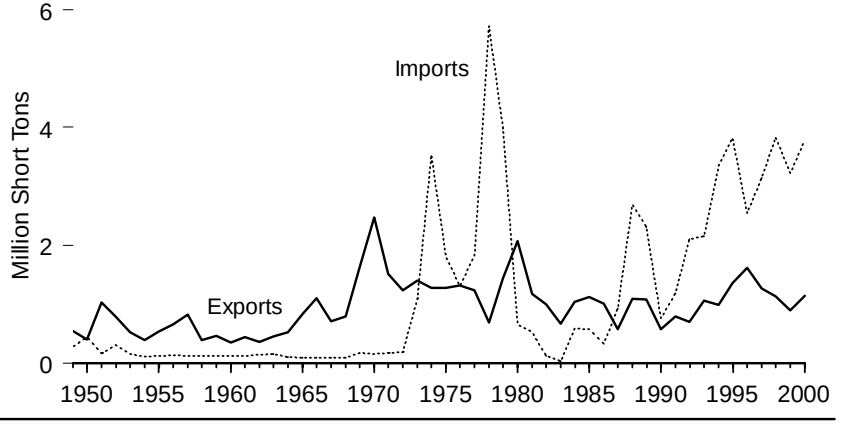
Production and Consumption, 1949-2000



Overview, 2000



Trade, 1949-2000



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

Source: Table 7.7.

Table 7.7 Coke Overview, 1949-2000

(Million Short Tons)

Year	Production	Imports	Exports	Stock Change [1]	Consumption [2]
1949	63.64	0.28	0.55	0.18	63.19
1950	72.72	0.44	0.40	-0.66	73.42
1951	79.33	0.16	1.03	0.37	78.09
1952	68.25	0.31	0.79	0.42	67.36
1953	78.84	0.16	0.52	0.78	77.70
1954	59.66	0.12	0.39	0.27	59.12
1955	75.30	0.13	0.53	-1.25	76.15
1956	74.48	0.13	0.66	0.63	73.32
1957	75.95	0.12	0.82	0.81	74.43
1958	53.60	0.12	0.39	0.68	52.66
1959	55.86	0.12	0.46	0.86	54.67
1960	57.23	0.13	0.35	0.06	56.95
1961	51.71	0.13	0.45	-0.70	52.09
1962	51.91	0.14	0.36	-0.14	51.82
1963	54.28	0.15	0.45	-1.02	55.00
1964	62.15	0.10	0.52	-0.91	62.64
1965	66.85	0.09	0.83	0.73	65.38
1966	67.40	0.10	1.10	0.38	66.02
1967	64.58	0.09	0.71	2.39	61.57
1968	63.65	0.09	0.79	0.52	62.44
1969	64.76	0.17	1.63	-2.87	66.17
1970	66.53	0.15	2.48	0.99	63.21
1971	57.44	0.17	1.51	-0.59	56.69
1972	60.51	0.19	1.23	-0.59	60.05
1973	64.33	1.09	1.40	-1.74	65.77
1974	61.58	3.54	1.28	-0.25	64.09
1975	57.21	1.82	1.27	4.06	53.69
1976	58.33	1.31	1.32	1.50	56.83
1977	53.51	1.83	1.24	-0.05	54.14
1978	49.01	5.72	0.69	-2.91	56.95
1979	52.94	3.97	1.44	1.65	53.83
1980	46.13	0.66	2.07	3.44	41.28
1981	42.79	0.53	1.17	-1.90	44.05
1982	28.12	0.12	0.99	1.47	25.78
1983	25.81	0.04	0.67	-4.67	29.85
1984	30.40	0.58	1.05	0.20	29.74
1985	28.44	0.58	1.12	-1.16	29.06
1986	24.92	0.33	1.00	-0.49	24.73
1987	26.30	0.92	0.57	-1.00	27.65
1988	28.95	2.69	1.09	0.52	30.02
1989	28.05	2.31	1.09	0.34	28.93
1990	27.62	0.77	0.57	(s)	27.81
1991	24.05	1.18	0.79	0.19	24.25
1992	23.41	2.10	0.70	-0.22	25.03
1993	23.18	2.16	1.06	-0.42	24.70
1994	22.69	3.34	0.99	-0.53	25.56
1995	23.75	3.82	1.36	0.37	25.85
1996	23.08	2.54	1.62	0.02	23.97
1997	22.12	3.14	1.27	-0.03	24.02
1998	20.04	3.83	1.13	-0.36	23.11
1999	R20.02	3.22	0.90	-0.08	R22.42
2000P	21.07	3.78	1.15	0.23	23.48

[1] Producer and distributor stocks at end of year. A negative value indicates a net decrease in stocks; a positive value indicates a net increase in stocks.

[2] "Consumption" is calculated as the sum of production and imports minus exports and stock change.

R=Revised. P=Preliminary. (s)=Less than 0.005 million short tons.

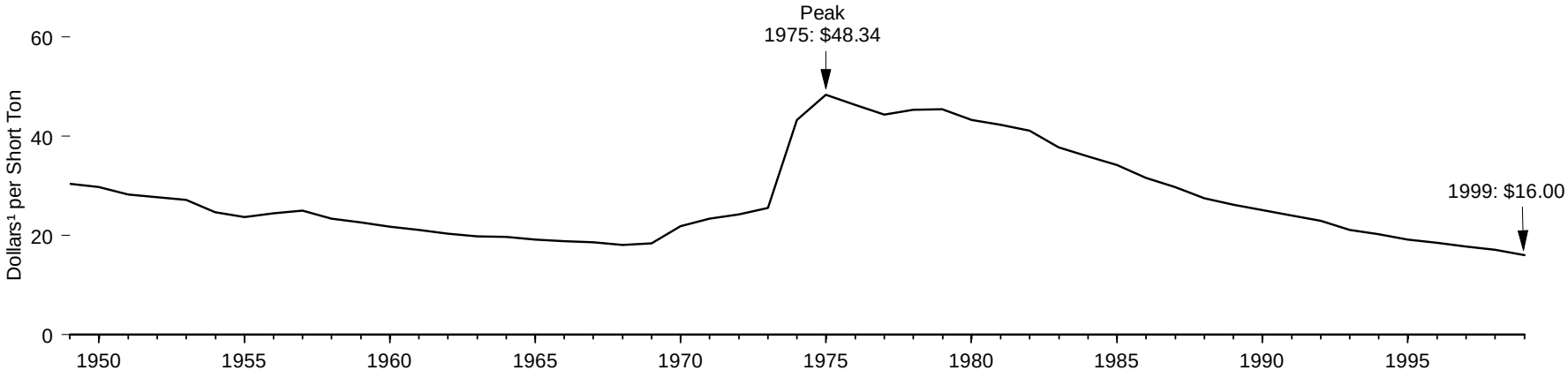
Note: Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/fuelcoal.html.

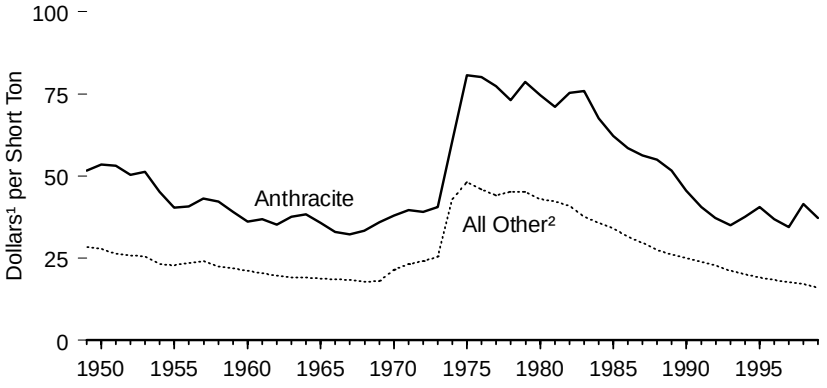
Sources: • 1949-1975—Bureau of Mines, *Minerals Yearbook,* "Coke and Coal Chemicals" chapter. • 1976-1980—Energy Information Administration (EIA), Energy Data Report, *Coke and Coal Chemicals,* annual reports. • 1981-1999—EIA, *Quarterly Coal Report October-December,* quarterly reports. • 2000—EIA estimates.

Figure 7.8 Coal Prices

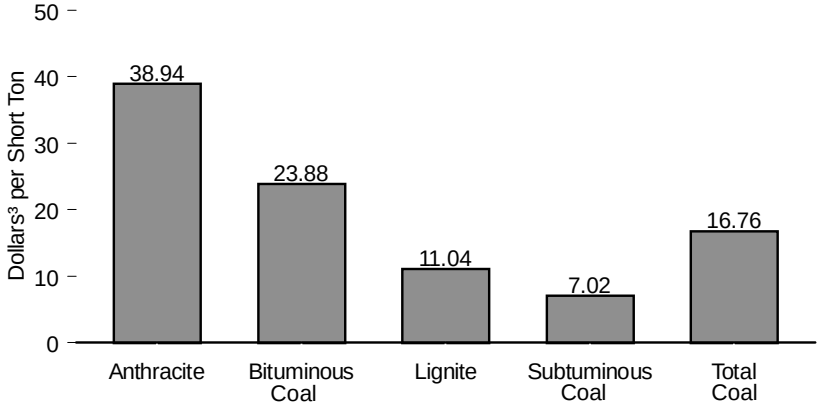
Total, 1949-1999



By Type, 1949-1999



By Type, 1999



[1] In chained (1996) dollars, calculated by using gross domestic implicit price deflators. See Table E1.

[2] Bituminous coal, subbituminous coal, and lignite.

[3] Nominal dollars.

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

Source: Table 7.8.

Table 7.8 Coal Prices, 1949-1999

(Dollars per Short Ton)

Year	Bituminous Coal		Subbituminous Coal		Lignite		Subtotal [1]		Anthracite		Total	
	Nominal	Real [2]	Nominal	Real [2]	Nominal	Real [2]	Nominal	Real [2]	Nominal	Real [2]	Nominal	Real [2]
1949	[3]4.90	[3]28.39	([4])	([4])	2.37	13.73	4.88	28.27	8.90	51.56	5.24	30.36
1950	[3]4.86	[3]27.85	([4])	([4])	2.41	13.81	4.84	27.74	9.34	53.52	5.19	29.74
1951	[3]4.94	[3]26.40	([4])	([4])	2.44	13.04	4.92	26.30	9.94	53.13	5.29	28.27
1952	[3]4.92	[3]25.89	([4])	([4])	2.39	12.58	4.90	25.79	9.58	50.42	5.27	27.74
1953	[3]4.94	[3]25.66	([4])	([4])	2.38	12.36	4.92	25.56	9.87	51.27	5.23	27.17
1954	[3]4.54	[3]23.35	([4])	([4])	2.43	12.50	4.52	23.25	8.76	45.06	4.81	24.74
1955	[3]4.51	[3]22.80	([4])	([4])	2.38	12.03	4.50	22.75	8.00	40.44	4.69	23.71
1956	[3]4.83	[3]23.62	([4])	([4])	2.39	11.69	4.82	23.57	8.33	40.73	5.01	24.50
1957	[3]5.09	[3]24.09	([4])	([4])	2.35	11.12	5.08	24.04	9.11	43.11	5.28	24.99
1958	[3]4.87	[3]22.50	([4])	([4])	2.35	10.86	4.86	22.46	9.14	42.24	5.07	23.43
1959	[3]4.79	[3]21.89	([4])	([4])	2.25	10.28	4.77	21.80	8.55	39.08	4.95	22.62
1960	[3]4.71	[3]21.23	([4])	([4])	2.29	10.32	4.69	21.14	8.01	36.10	4.83	21.77
1961	[3]4.60	[3]20.50	([4])	([4])	2.24	9.98	4.58	20.41	8.26	36.81	4.73	21.08
1962	[3]4.50	[3]19.79	([4])	([4])	2.23	9.81	4.48	19.70	7.99	35.14	4.62	20.32
1963	[3]4.40	[3]19.13	([4])	([4])	2.17	9.43	4.39	19.09	8.64	37.57	4.55	19.78
1964	[3]4.46	[3]19.11	([4])	([4])	2.14	9.17	4.45	19.07	8.93	38.26	4.60	19.71
1965	[3]4.45	[3]18.71	([4])	([4])	2.13	8.96	4.44	18.67	8.51	35.79	4.55	19.13
1966	[3]4.56	[3]18.64	([4])	([4])	1.98	8.09	4.54	18.56	8.08	33.03	4.62	18.89
1967	[3]4.64	[3]18.41	([4])	([4])	1.92	7.62	4.62	18.33	8.15	32.33	4.69	18.60
1968	[3]4.70	[3]17.87	([4])	([4])	1.79	6.81	4.67	17.76	8.78	33.38	4.75	18.06
1969	[3]5.02	[3]18.19	([4])	([4])	1.86	6.74	4.99	18.09	9.91	35.92	5.08	18.41
1970	[3]6.30	[3]21.68	([4])	([4])	1.86	6.40	6.26	21.54	11.03	37.96	6.34	21.82
1971	[3]7.13	[3]23.36	([4])	([4])	1.93	6.32	7.07	23.17	12.08	39.58	7.15	23.43
1972	[3]7.78	[3]24.45	([4])	([4])	2.04	6.41	7.66	24.07	12.40	38.97	7.72	24.26
1973	[3]8.71	[3]25.92	([4])	([4])	2.09	6.22	8.53	25.39	13.65	40.63	8.59	25.57
1974	[3]16.01	[3]43.72	([4])	([4])	2.19	5.98	15.75	43.01	22.19	60.60	15.82	43.20
1975	[3]19.79	[3]49.44	([4])	([4])	3.17	7.92	19.23	48.04	32.26	80.59	19.35	48.34
1976	[3]20.11	[3]47.54	([4])	([4])	3.74	8.84	19.43	45.93	33.92	80.19	19.56	46.24
1977	[3]20.59	[3]45.74	([4])	([4])	4.03	8.95	19.82	44.02	34.86	77.43	19.95	44.31
1978	[3]22.64	[3]46.94	([4])	([4])	5.68	11.78	21.76	45.12	35.25	73.09	21.86	45.32
1979	[3]27.31	[3]52.27	9.55	18.28	6.48	12.40	23.66	45.28	41.06	78.58	23.75	45.45
1980	29.17	51.14	11.08	19.42	W	W	24.52	42.99	42.51	74.53	24.65	43.22
1981	31.51	50.52	12.18	19.53	W	W	26.29	42.15	44.28	71.00	26.40	42.33
1982	32.15	48.53	13.37	20.18	W	W	27.14	40.97	49.85	75.25	27.25	41.13
1983	31.11	45.17	13.03	18.92	W	W	25.85	37.53	52.29	75.91	25.98	37.72
1984	30.63	42.88	12.41	17.37	10.45	14.63	25.51	35.71	48.22	67.50	25.61	35.85
1985	30.78	41.77	12.57	17.06	10.68	14.49	25.10	34.06	45.80	62.15	25.20	34.20
1986	28.84	38.30	12.26	16.28	10.64	14.13	23.70	31.47	44.12	58.58	23.79	31.59
1987	28.19	36.34	11.32	14.59	10.85	13.99	23.00	29.65	43.65	56.26	23.07	29.74
1988	27.66	34.48	10.45	13.03	10.06	12.54	22.00	27.43	44.16	55.06	22.07	27.52
1989	27.40	32.91	10.16	12.20	9.91	11.90	21.76	26.13	42.93	51.56	21.82	26.20
1990	27.43	31.71	9.70	11.21	10.13	11.71	21.71	25.10	39.40	45.54	21.76	25.15
1991	27.49	30.66	9.68	10.80	10.89	12.15	21.45	23.92	36.34	40.53	21.49	23.97
1992	26.78	29.16	9.68	10.54	10.81	11.77	20.99	22.85	34.24	37.28	21.03	22.90
1993	26.15	27.80	9.33	9.92	11.11	11.81	19.79	21.04	32.94	35.02	19.85	21.11
1994	25.68	26.75	8.37	8.72	10.77	11.22	19.34	20.14	36.07	37.57	19.41	20.22
1995	25.56	26.06	8.10	8.26	10.83	11.04	18.74	19.10	39.78	40.55	18.83	19.19
1996	25.17	25.17	7.87	7.87	10.92	10.92	18.42	18.42	36.78	36.78	18.50	18.50
1997	24.64	[R]24.17	7.42	7.28	10.91	[R]10.70	18.07	[R]17.72	35.12	[R]34.45	18.14	[R]17.79
1998	24.87	[R]24.09	6.96	[R]6.74	11.08	[R]10.73	17.55	[R]17.00	42.91	[R]41.57	17.67	[R]17.12
1999[P]	23.88	22.79	7.02	6.70	11.04	10.54	16.64	15.88	38.94	37.17	16.76	16.00

[1] Subtotal of bituminous coal, subbituminous coal, and lignite.

[2] In chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.

[3] Includes subbituminous coal.

[4] Included in bituminous coal.

R=Revised. P=Preliminary. W=Withheld to avoid disclosure of individual company data.

Note: Prices are free-on-board (f.o.b.) mine prices. See Glossary.

Web Page: http://www.eia.doe.gov/fuelcoal.html.

Sources: **Bituminous Coal, Subbituminous Coal, and Lignite:** • 1949-1975—Bureau of Mines, *Minerals Yearbook,* "Coal-Bituminous and Lignite" chapter. • 1976—Energy Information Administration (EIA), Energy Data Report, *Coal-Bituminous and Lignite in 1976.* • 1977 and 1978—EIA, Energy Data Report, *Bituminous Coal and Lignite Production and Mine Operations-1977; 1978.* • 1979-1992—EIA, *Coal Production,* annual reports. • 1993-forward—EIA, *Coal Industry Annual,* annual reports. **Anthracite:** • 1949-1976—Bureau of Mines, *Minerals Yearbook,* "Coal-Pennsylvania Anthracite" chapter. • 1977 and 1978—EIA, Energy Data Report, *Coal-Pennsylvania Anthracite 1977; 1978.* • 1979—EIA, Energy Data Report, *Coal Production-1979.* • 1980-1992—EIA, *Coal Production,* annual reports. • 1993-forward—EIA, *Coal Industry Annual,* annual reports. **Total:** • 1949-1978—Calculated as a production-weighted average of the rank prices shown. • 1979-forward—EIA, *Coal Industry Annual,* annual reports.

Note 1. Due to differences in presentation of data among various EIA publications, data for consumption at nonutility power producers are sometimes shown in the end-use sectors and at other times in the electric power sector. In Table 7.3, the "End-Use Sectors" data come from EIA's *Quarterly Coal Report*, which includes most nonutility consumption in the end-use sectors (mostly industrial, with a small amount in commercial). Also in Table 7.3, the "Electric Power Sector" data come from EIA's *Electric Power Monthly* and *Electric Power Annual,* which for 1999 and 2000 include nonutility consumption for electricity generation. Although the *Quarterly Coal Report* includes data for "Other Power Producers" (nonutility wholesale producers of electricity, and nonutility cogeneration plants that are not included in the end-use sectors) in the electric power sector, these data include consumption to produce useful thermal output, and so are included in total consumption in Table 7.3, but not in either the electric power sector or end-use sectors. Because of this double-counting of nonutility data in 1999 and 2000, and undercounting of "Other Power Producers" data in 1989-2000, two adjustments columns are incorporated into Table 7.3 to remove the over- and undercount and allow the table's components to be added across to reach the total consumption value.

Similarly, in Table 7.5, an adjustments column is incorporated to remove the overcount of stocks at nonutilities (a portion of which are included in both the electric power sector and the end-use sectors), and the undercount of stocks at "Other Power Producers" (which are included in total stocks, but not in either the electric power sector or end-use sectors).

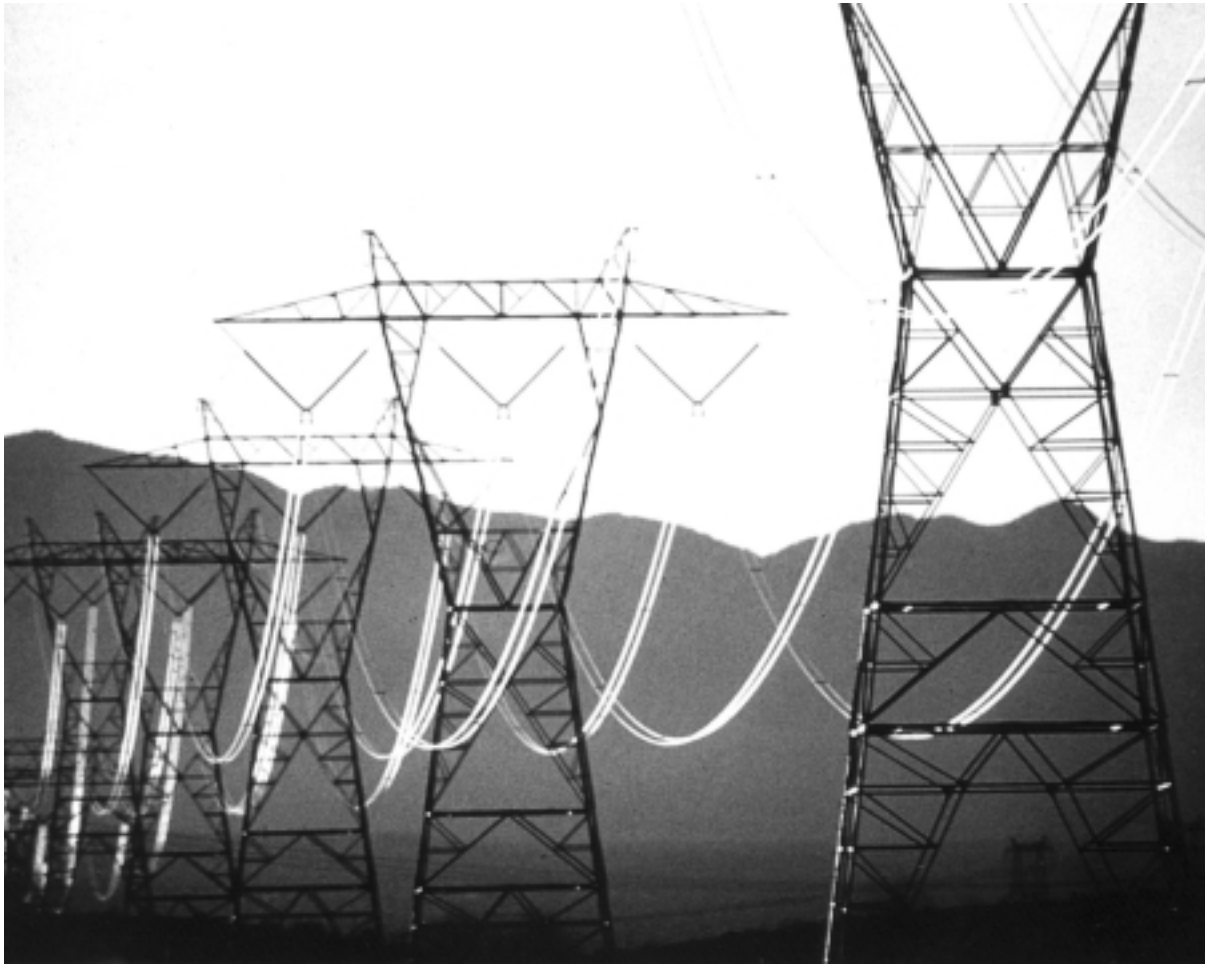
Note 2. Data in this report on the consumption of bituminous coal (including subbituminous coal), lignite, and anthracite are developed primarily from consumption data reported in surveys. Included are data reported by all electric utility companies and coke plant companies. Data on coal consumption 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 each sector's data are the following: Electric Power Industry–consumption by privately and publicly owned establishments engaged in the generation and/or distribution of electric power. 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 for vessel bunkering; Residential and Commercial Sector–retail dealer sales to households and small commercial establishments.

Coal consumption by the residential and commercial sectors is reported to the Energy Information Administration (EIA) for the two sectors combined; EIA estimates the amount consumed by the sectors individually. Previously, the breakdown was 40 percent residential and 60 percent commercial for each year. The current method results in variation over time. Beginning in 1949, a larger portion of the coal, 45 percent, is assigned to the residential sector; the share falls gradually over time and reaches 12 percent in 1999. To create the estimate, it is first assumed that an occupied coal-heated housing unit consumes fuel at the same Btu rate as an oil-heated housing unit. Then, for the years in which data are available on the number of occupied housing units by heating source (1950, 1960, 1970, 1973-1981, and subsequent odd-numbered years), residential use of coal is estimated by the following steps: a ratio is created of the number of occupied housing units heated by coal to the number of housing units heated by oil; the ratio is multiplied by the Btu quantity of oil used by the residential sector to estimate the Btu quantity of coal used by the residential sector; and the residential sector's share of residential and commercial use is calculated. The 1950 share is applied to 1949; the 1999 share is applied to 2000; and the other missing years' shares are interpolated.

Table 7.3 Sources

End-Use Sectors, Other Power Producers Adjustment, and Total Consumption: • 1949-1975–Bureau of Mines *Minerals Yearbook* "Coal-Bituminous and Lignite" and "Coal-Pennsylvania Anthracite" chapters. • 1976–Energy Information Administration (EIA), Energy Data Report, *Coal-Bituminous and Lignite in 1976* and *Coal-Pennsylvania Anthracite 1976*. • 1977 and 1978–EIA, Energy Data Report, *Coal-Pennsylvania Anthracite 1977*; *1978*, and *Weekly Coal Report*. • 1979 and 1980–EIA, Energy Data Report, *Weekly Coal Report*. • 1981-1999–EIA, *Quarterly Coal Report October-December*, quarterly reports. • 2000–*Monthly Energy Review* (May 2001), Table 6.2. **Electric Power Sector:** • Tables 8.8-8.10. **End-Use/Nonutility Adjustment:** Calculated by multiplying data for "Nonutility Power Producers" by -1.

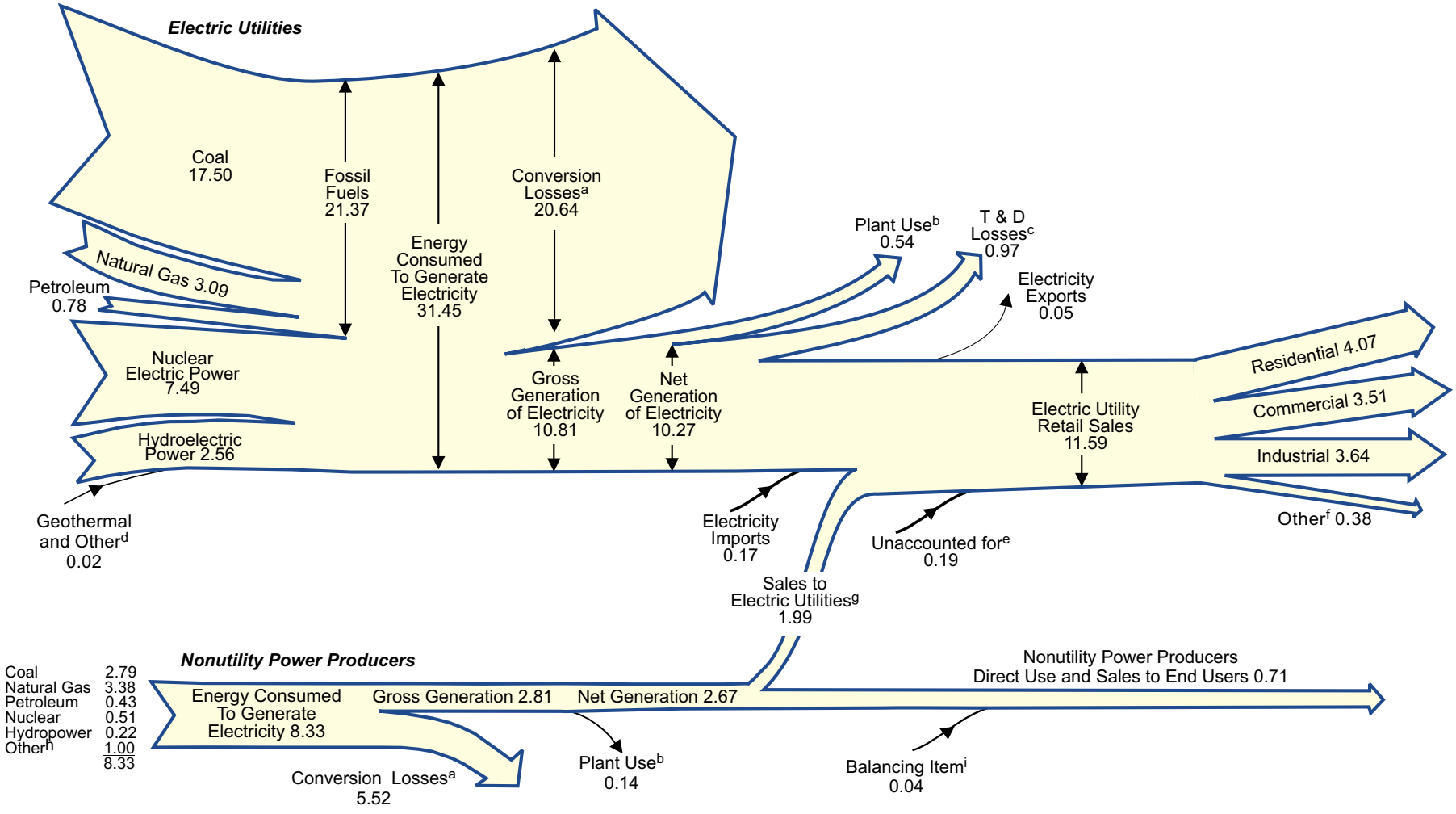
8 Electricity



High-tension power lines and towers. Source: U.S. Department of Energy.

Diagram 5. Electricity Flow, 2000

(Quadrillion Btu)



[a] Approximately two-thirds of all energy used to generate electricity. See Note 1 at end of section.

[b] The electric energy used in the operation of power plants, estimated as 5 percent of gross generation. See Note 1 at end of section.

[c] Transmission and distribution losses are estimated as 9 percent of gross generation of electricity. See Note 1 at end of section.

[d] Wood, waste, wind, and solar energy used to generate electricity. See Table 8.3.

[e] Balancing item to adjust for data collection frame differences and nonsampling error.

[f] Public street and highway lighting, other sales to public authorities, sales to railroads and railways, and interdepartmental sales.

[g] Sales, interchanges, and exchanges of electric energy with utilities.

[h] Geothermal, wood, waste, wind, and solar energy used to generate electricity. See Table 8.4.

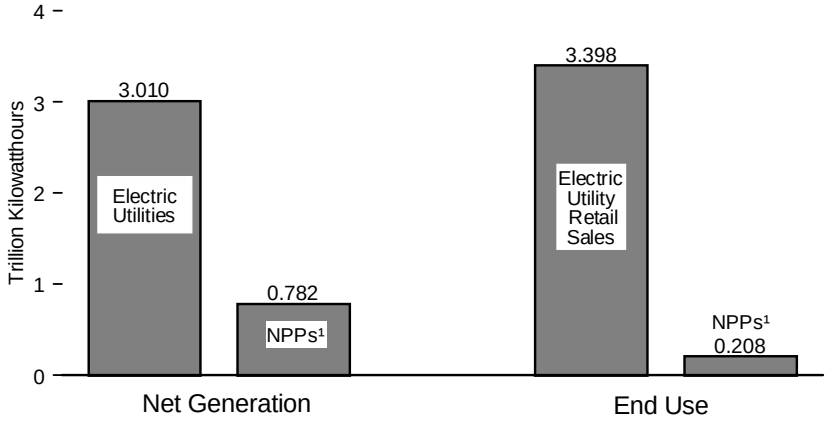
[i] Transmission and distribution losses and unaccounted for.

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

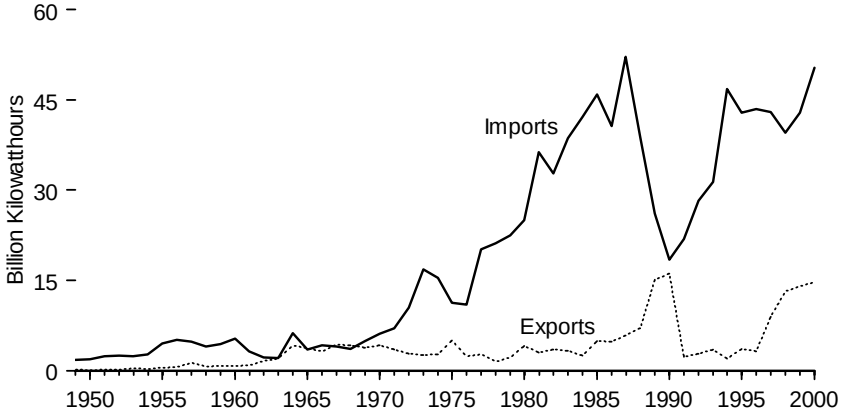
Sources: Tables 8.1, 8.3, 8.8, 8.12, A6, and (for Sales to Electric Utilities) EIA, *Short-Term Energy Outlook* (May 2001), Table A8.

Figure 8.1 Electricity Overview

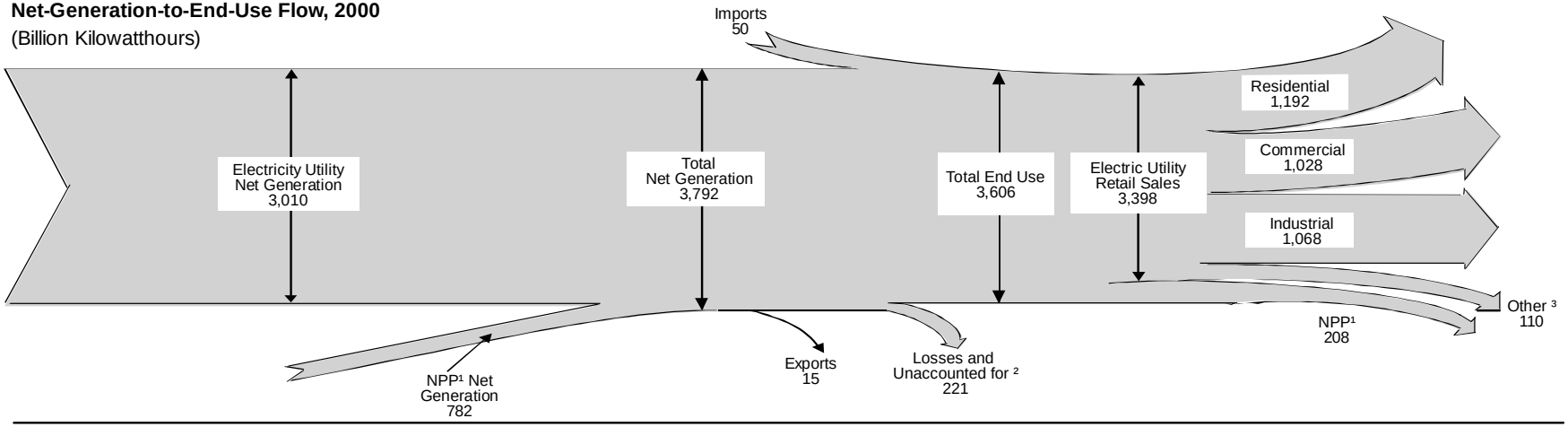
Net Generation and End Use, 2000



Electricity Trade, 1949-2000



Net-Generation-to-End-Use Flow, 2000
(Billion Kilowatthours)



[1] Nonutility power producers. See Glossary.

[2] Energy losses that occur between the point of generation and delivery to the customer, and data collection frame differences and nonsampling error.

[3] Public street and highway lighting, other sales to public authorities, sales to railroads and railways, and interdepartmental sales.

Note: Because vertical scales differ, graphs should not be compared.
Sources: Tables 8.1 and 8.12.

Table 8.1 Electricity Overview, 1949-2000

(Billion Kilowatthours)

Year	Net Generation			Imports [1]	Exports [1]	Losses and Unaccounted for [2]	End Use		
	Electric Utilities	Nonutility Power Producers	Total				Electric Utility Retail Sales [3]	Nonutility Power Producers [4]	Total
1949	291	NA	291	2	(s)	NA	255	NA	NA
1950	329	NA	329	2	(s)	NA	291	NA	NA
1951	371	NA	371	2	(s)	NA	330	NA	NA
1952	399	NA	399	3	(s)	NA	356	NA	NA
1953	443	NA	443	2	(s)	NA	396	NA	NA
1954	472	NA	472	3	(s)	NA	424	NA	NA
1955	547	NA	547	5	(s)	NA	497	NA	NA
1956	601	NA	601	5	1	NA	546	NA	NA
1957	632	NA	632	5	1	NA	576	NA	NA
1958	645	NA	645	4	1	NA	588	NA	NA
1959	710	NA	710	4	1	NA	647	NA	NA
1960	756	NA	756	5	1	NA	688	NA	NA
1961	794	NA	794	3	1	NA	722	NA	NA
1962	855	NA	855	2	2	NA	778	NA	NA
1963	917	NA	917	2	2	NA	833	NA	NA
1964	984	NA	984	6	4	NA	896	NA	NA
1965	1,055	NA	1,055	4	4	NA	954	NA	NA
1966	1,144	NA	1,144	4	3	NA	1,035	NA	NA
1967	1,214	NA	1,214	4	4	NA	1,099	NA	NA
1968	1,329	NA	1,329	4	4	NA	1,203	NA	NA
1969	1,442	NA	1,442	5	4	NA	1,314	NA	NA
1970	1,532	NA	1,532	6	4	NA	1,392	NA	NA
1971	1,613	NA	1,613	7	4	NA	1,470	NA	NA
1972	1,750	NA	1,750	10	3	NA	1,595	NA	NA
1973	1,861	NA	1,861	17	3	NA	1,713	NA	NA
1974	1,867	NA	1,867	15	3	NA	1,706	NA	NA
1975	1,918	NA	1,918	11	5	NA	1,747	NA	NA
1976	2,038	NA	2,038	11	2	NA	1,855	NA	NA
1977	2,124	NA	2,124	20	3	NA	1,948	NA	NA
1978	2,206	NA	2,206	21	1	NA	2,018	NA	NA
1979	2,247	NA	2,247	23	2	NA	2,071	NA	NA
1980	2,286	NA	2,286	25	4	NA	2,094	NA	NA
1981	2,295	NA	2,295	36	3	NA	2,147	NA	NA
1982	2,241	NA	2,241	33	4	NA	2,086	NA	NA
1983	2,310	NA	2,310	39	3	NA	2,151	NA	NA
1984	2,416	NA	2,416	42	3	NA	2,286	NA	NA
1985	2,470	NA	2,470	46	5	NA	2,324	NA	NA
1986	2,487	NA	2,487	41	5	NA	2,369	NA	NA
1987	2,572	NA	2,572	52	6	NA	2,457	NA	NA
1988	2,704	NA	2,704	39	7	NA	2,578	NA	NA
1989	2,784	[5]188	2,972	26	15	236	2,647	[5]100	2,747
1990	2,808	[5]217	3,025	18	16	210	2,713	[5]104	2,817
1991	2,825	[5]246	3,071	22	2	218	2,762	[5]111	2,873
1992	2,797	286	3,083	28	3	224	2,763	122	2,885
1993	2,883	314	3,197	31	4	236	2,861	127	2,988
1994	2,911	343	3,254	47	2	223	2,935	141	3,075
1995	2,995	363	3,358	43	4	235	3,013	149	3,162
1996	3,077	370	3,447	43	3	[R]237	[R]3,101	149	[R]3,250
1997	3,123	372	3,494	43	9	[R]234	[R]3,146	149	[R]3,295
1998	3,212	406	3,618	40	13	[R]220	[R]3,264	160	[R]3,424
1999	[R]3,174	[R]532	[R]3,706	43	14	234	[R]3,312	189	3,501
2000[P]	3,010	[E]782	3,792	50	15	221	3,398	[F]208	3,607

[1] Electricity transmitted across U.S. borders with Canada and Mexico.

[2] Energy losses that occur between the point of generation and delivery to the customer, and data collection frame differences and nonsampling error. See Note 1 at end of section.

[3] Includes nonutility sales of electricity to utilities for distribution to end users. Beginning in 1996, also includes sales to ultimate consumers by power marketers.

[4] Nonutility facility use of onsite net electricity generation, and nonutility sales of electricity to end users.

[5] Data for 1989-1991 were collected for facilities with capacities of 5 megawatts or more. In 1992, the threshold was lowered to include facilities with capacities of 1 megawatt or more. Estimates of the 1-to-5 megawatt range for 1989-1991 were derived from historical data. The estimation did not include retirements that occurred prior to 1992 and included only the capacity of facilities that came on line before 1992.

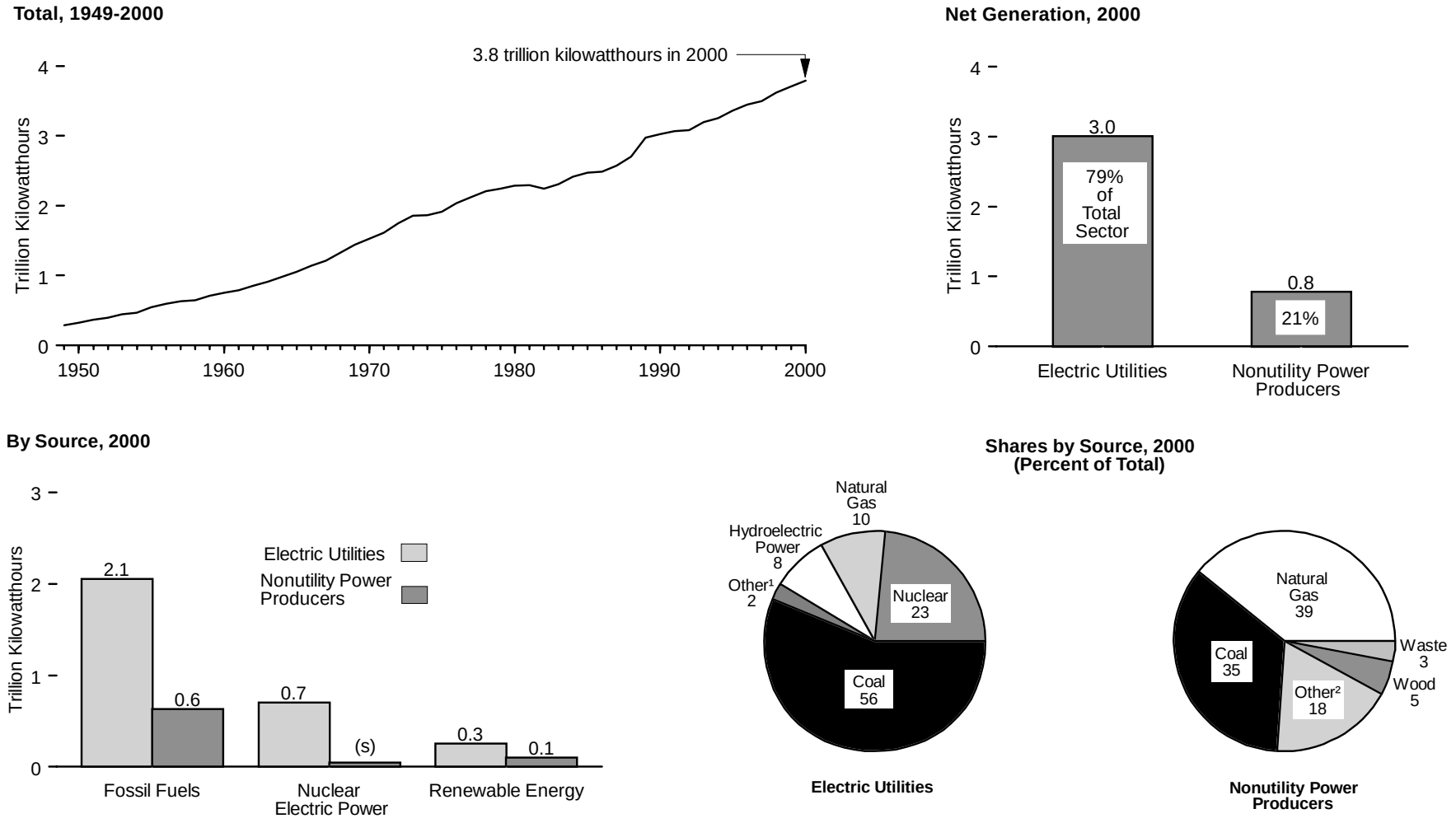
R=Revised. P=Preliminary. E=Estimate. F=Forecast. NA=Not available. (s)=Less than 0.5 billion kilowatthours.

Notes: • See Note 2 at end of section. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/fuelelectric.html.

Sources: See end of section.

Figure 8.2 Electricity Net Generation



¹ Petroleum, geothermal, wood, waste, wind, and solar.

² Petroleum, other gases, nuclear electric power, hydroelectric power, geothermal, wind, and solar.

(s)=Less than 0.05 trillion kilowatthours.

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

Sources: Tables 8.2, 8.3, and 8.4.

Table 8.2 Electricity Net Generation, 1949-2000

(Billion Kilowatthours)

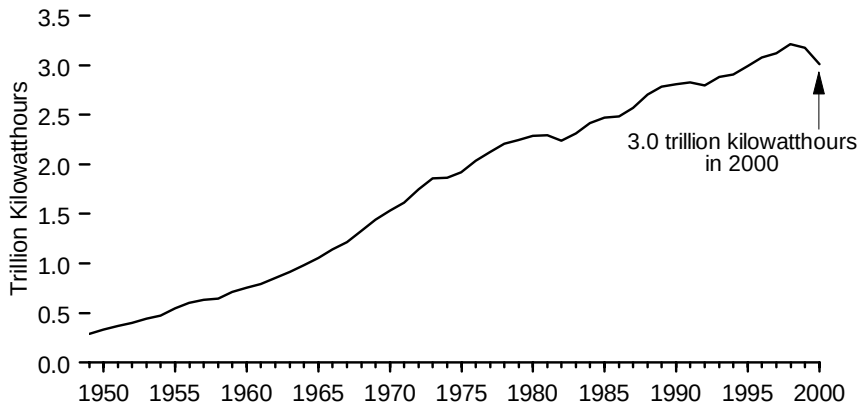
Year	Fossil Fuels					Nuclear Electric Power	Hydro-electric Pumped Storage [5]	Renewable Energy								Total [10]
	Coal [1]	Petroleum [2]	Natural Gas [3]	Other Gases [4]	Total			Conventional Hydroelectric Power	Geo-thermal	Wood [6]	Waste		Wind	Solar [9]	Total	
											MSW and LFG [7]	Other Waste [8]				
1949	135.5	28.5	37.0	NA	201.0	0.0	([11])	R94.8	NA	0.4	NA	NA	NA	NA	R95.2	291.1
1950	154.5	33.7	44.6	NA	232.8	0.0	([11])	R100.9	NA	0.4	NA	NA	NA	NA	R101.3	329.1
1951	185.2	28.7	56.6	NA	270.5	0.0	([11])	R104.4	NA	0.4	NA	NA	NA	NA	R104.8	370.7
1952	195.4	29.7	68.5	NA	293.6	0.0	([11])	R109.7	NA	0.5	NA	NA	NA	NA	R110.2	399.2
1953	218.8	38.4	79.8	NA	337.0	0.0	([11])	R109.6	NA	0.4	NA	NA	NA	NA	R110.0	442.7
1954	239.1	31.5	93.7	NA	364.4	0.0	([11])	R111.6	NA	0.3	NA	NA	NA	NA	R111.9	471.7
1955	301.4	37.1	95.3	NA	433.8	0.0	([11])	R116.2	NA	0.3	NA	NA	NA	NA	R116.5	547.0
1956	338.5	35.9	104.0	NA	478.5	0.0	([11])	R125.2	NA	0.2	NA	NA	NA	NA	R125.4	600.7
1957	346.4	40.5	114.2	NA	501.1	(s)	([11])	R133.4	NA	0.2	NA	NA	NA	NA	R133.5	631.5
1958	344.4	40.4	119.8	NA	504.5	0.2	([11])	R143.6	NA	0.2	NA	NA	NA	NA	R143.8	645.1
1959	378.4	46.8	146.6	NA	571.9	0.2	([11])	R141.2	NA	0.2	NA	NA	NA	NA	R141.3	710.0
1960	403.1	48.0	158.0	NA	609.0	0.5	([11])	R149.4	(s)	0.1	NA	NA	NA	NA	R149.6	755.5
1961	421.9	48.5	169.3	NA	639.7	1.7	([11])	R155.5	0.1	0.1	NA	NA	NA	NA	R155.8	793.8
1962	450.2	48.9	184.3	NA	683.4	2.3	([11])	R172.0	0.1	0.1	NA	NA	NA	NA	R172.2	854.5
1963	493.9	52.0	201.6	NA	747.5	3.2	([11])	R169.0	0.2	0.1	NA	NA	NA	NA	R169.3	916.8
1964	526.2	57.0	220.0	NA	803.2	3.3	([11])	R180.3	0.2	0.1	NA	NA	NA	NA	R180.7	984.0
1965	570.9	64.8	221.6	NA	857.3	3.7	([11])	R197.0	0.2	0.3	NA	NA	NA	NA	R197.4	1,055.3
1966	613.5	78.9	251.2	NA	943.6	5.5	([11])	R197.9	0.2	0.3	NA	NA	NA	NA	R198.5	1,144.4
1967	630.5	89.3	264.8	NA	984.6	7.7	([11])	R224.9	0.3	0.3	NA	NA	NA	NA	R225.6	1,214.4
1968	684.9	104.3	304.4	NA	1,093.6	12.5	([11])	R225.9	0.4	0.4	NA	NA	NA	NA	R226.7	1,329.4
1969	706.0	137.8	333.3	NA	1,177.1	13.9	([11])	R253.5	0.6	0.3	NA	NA	NA	NA	R254.4	1,442.2
1970	704.4	184.2	372.9	NA	1,261.5	21.8	([11])	R251.0	0.5	0.1	0.2	([12])	NA	NA	R251.8	1,531.9
1971	713.1	220.2	374.0	NA	1,307.4	38.1	([11])	R269.5	0.5	0.1	0.2	([12])	NA	NA	R270.4	1,612.6
1972	771.1	274.3	375.7	NA	1,421.2	54.1	([11])	R275.9	1.5	0.1	0.2	([12])	NA	NA	R277.7	1,749.7
1973	847.7	314.3	340.9	NA	1,502.9	83.5	([11])	R275.4	2.0	0.1	0.2	([12])	NA	NA	R277.7	1,860.7
1974	828.4	300.9	320.1	NA	1,449.4	114.0	([11])	R304.2	2.5	0.1	0.2	([12])	NA	NA	R306.9	1,867.1
1975	852.8	289.1	299.8	NA	1,441.7	172.5	([11])	R303.2	3.2	(s)	0.2	([12])	NA	NA	R306.6	1,917.6
1976	944.4	320.0	294.6	NA	1,559.0	191.1	([11])	R286.9	3.6	0.1	0.2	([12])	NA	NA	R290.8	2,037.7
1977	985.2	358.2	305.5	NA	1,648.9	250.9	([11])	R223.6	3.6	0.3	0.2	([12])	NA	NA	R227.7	2,124.3
1978	975.7	365.1	305.4	NA	1,646.2	276.4	([11])	R283.5	3.0	0.2	0.1	([12])	NA	NA	R286.8	2,206.3
1979	1,075.0	303.5	329.5	NA	1,708.0	255.2	([11])	R283.1	3.9	0.3	0.2	([12])	NA	NA	R287.5	2,247.4
1980	1,161.6	246.0	346.2	NA	1,753.8	251.1	([11])	R279.2	5.1	0.3	0.2	([12])	NA	NA	R284.7	2,286.4
1981	1,203.2	206.4	345.8	NA	1,755.4	272.7	([11])	R263.8	5.7	0.2	0.1	([12])	NA	NA	R269.9	2,294.8
1982	1,192.0	146.8	305.3	NA	1,644.1	282.8	([11])	R312.4	4.8	0.2	0.1	([12])	NA	NA	R317.5	2,241.2
1983	1,259.4	144.5	274.1	NA	1,678.0	293.7	([11])	R335.3	6.1	0.2	0.2	([12])	(s)	NA	R341.7	2,310.3
1984	1,341.7	119.8	297.4	NA	1,758.9	327.6	([11])	R324.3	7.7	0.5	0.4	([12])	(s)	(s)	R332.9	2,416.3
1985	1,402.1	100.2	291.9	NA	1,794.3	383.7	([11])	R284.3	9.3	0.7	0.6	([12])	(s)	(s)	R295.0	2,469.8
1986	1,385.8	136.6	248.5	NA	1,770.9	414.0	([11])	R294.0	10.3	0.5	0.7	([12])	(s)	(s)	R305.5	2,487.3
1987	1,463.8	118.5	272.6	NA	1,854.9	455.3	([11])	R252.9	10.8	0.8	0.7	([12])	(s)	(s)	R265.1	2,572.1
1988	1,540.7	148.9	252.8	NA	1,942.4	527.0	([11])	R226.1	10.3	0.9	0.7	([12])	(s)	(s)	R238.1	2,704.3
1989	1,583.8	163.9	363.9	([13])	2,111.6	529.4	([11])	273.7	14.9	27.7	7.9	2.0	2.3	0.6	329.1	2,971.9
1990	1,590.3	124.0	378.3	([13])	2,092.7	577.0	-3.5	293.0	15.8	30.4	10.8	2.3	3.0	0.6	356.1	3,024.9
1991	1,589.9	119.0	392.6	([13])	2,101.5	612.6	-4.5	289.5	16.0	33.2	12.4	3.3	3.0	0.8	358.2	3,071.3
1992	1,621.1	99.4	418.3	([13])	2,138.8	618.8	-4.2	253.1	16.4	35.6	14.0	3.8	2.9	0.7	326.5	3,083.4
1993	1,690.0	112.4	428.4	([13])	2,230.8	610.4	-4.0	280.5	17.0	36.8	14.5	4.1	3.0	0.9	356.7	3,196.9
1994	1,691.7	105.5	465.9	12.1	R2,275.2	640.5	-3.4	260.2	16.8	37.8	15.5	3.6	3.4	0.8	338.1	3,253.8
1995	1,710.2	75.3	498.5	13.5	R2,297.5	673.4	-2.7	311.0	14.4	36.4	16.9	3.4	3.2	0.8	386.0	3,357.8
1996	1,795.7	81.7	455.8	14.2	R2,347.4	674.7	-3.1	347.4	15.1	36.8	16.4	4.3	3.4	0.9	424.3	3,447.0
1997	1,844.1	93.0	485.4	11.2	R2,433.7	628.6	-4.0	358.9	14.6	34.2	17.6	3.0	3.2	0.9	432.4	3,494.2
1998	1,873.9	126.9	540.6	8.5	R2,550.0	673.7	-4.4	323.3	14.7	31.8	18.1	3.2	3.0	0.9	395.0	3,617.9
1999	R1,884.3	R123.6	R556.2	R13.3	R2,577.4	R728.3	R-6.3	R319.5	R16.8	R37.6	R20.2	R3.3	R4.5	R0.8	R402.7	R3,706.1
2000PE	1,964.6	108.9	595.8	15.7	2,685.0	753.9	-5.6	274.6	14.2	39.5	21.2	3.4	4.9	0.8	358.6	3,791.9

[1] Coal, fine coal, anthracite culm, bituminous gob, lignite waste, tar coal, waste coal, and coke breeze.
[2] Fuel oil nos. 1, 2, 4, 5, and 6, crude oil, petroleum coke, kerosene, liquid butane, liquid propane, methanol, liquid byproducts, oil waste, sludge oil, and tar oil.
[3] Includes supplemental gaseous fuels at electric utilities.
[4] Blast furnace gas, coke oven gas, butane gas, propane gas, refinery gas, and other process and waste gases derived from coal, petroleum, and natural gas.
[5] Pumped storage facility production minus energy used for pumping.
[6] Wood, wood waste, black liquor, red liquor, spent sulfite liquor, wood sludge, peat, railroad ties, and utility poles.
[7] Municipal solid waste and landfill gas.
[8] Methane, digester gas, liquid acetonitrile waste, tall oil, waste alcohol, medical waste, paper pellets, sludge waste, solid byproducts, tires, agricultural byproducts, closed looped biomass, fish oil, and straw.
[9] Solar thermal and photovoltaic energy.
[10] Includes batteries, chemicals, hydrogen, pitch, sulfur, and purchased steam, which are not separately displayed on this table.
[11] Included in conventional hydroelectric power.
[12] Included in MSW and LFG.
[13] Included in natural gas.

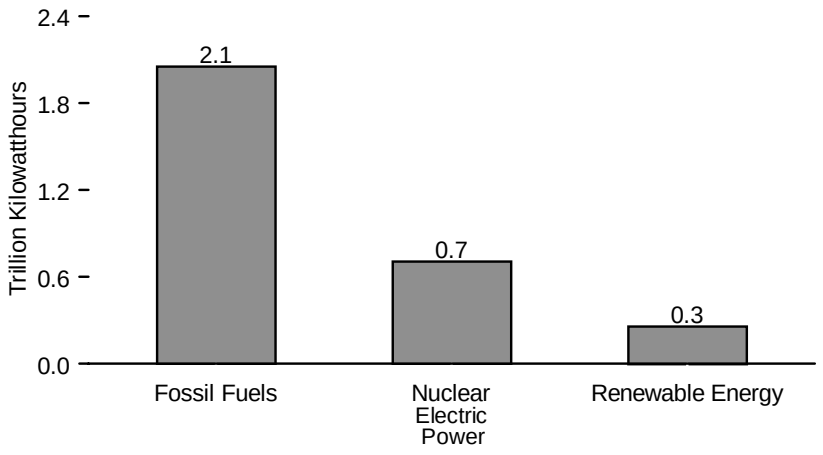
R=Revised. PE=Preliminary estimate. NA=Not available. (s)=Less than 0.05 billion killowatthours.
For Notes, Web Page, and Sources: See Tables 8.3 and 8.4.

Figure 8.3 Electricity Net Generation at Electric Utilities

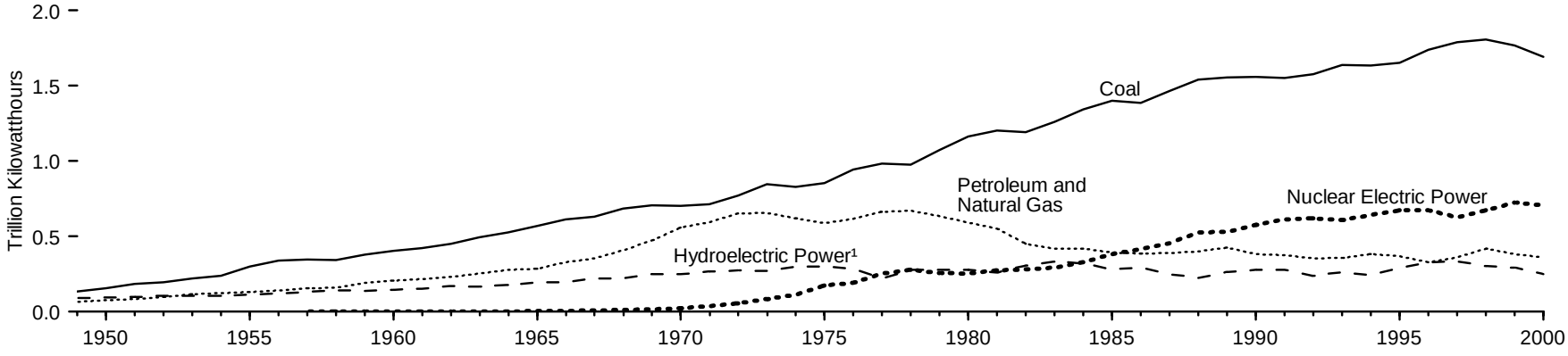
Total, 1949-2000



By Source, 2000



By Source, 1949-2000



[1] Conventional and pumped-storage hydroelectric power.

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

Source: Table 8.3.

Table 8.3 Electricity Net Generation at Electric Utilities, 1949-2000

(Billion Kilowatthours)

Year	Fossil Fuels				Nuclear Electric Power	Hydroelectric Pumped Storage [3]	Renewable Energy								Total
										Waste					
	Coal	Petroleum [1]	Natural Gas [2]	Total			Conventional Hydroelectric Power	Geothermal	Wood [4]	MSW and LFG [5]	Other Waste [6]	Wind	Solar [7]	Total	
1949	135.5	28.5	37.0	201.0	0	([8])	89.7	0	0.4	NA	NA	0	0	90.1	291.1
1950	154.5	33.7	44.6	232.8	0	([8])	95.9	0	0.4	NA	NA	0	0	96.3	329.1
1951	185.2	28.7	56.6	270.5	0	([8])	99.8	0	0.4	NA	NA	0	0	100.1	370.7
1952	195.4	29.7	68.5	293.6	0	([8])	105.1	0	0.5	NA	NA	0	0	105.6	399.2
1953	218.8	38.4	79.8	337.0	0	([8])	105.2	0	0.4	NA	NA	0	0	105.6	442.7
1954	239.1	31.5	93.7	364.4	0	([8])	107.1	0	0.3	NA	NA	0	0	107.3	471.7
1955	301.4	37.1	95.3	433.8	0	([8])	113.0	0	0.3	NA	NA	0	0	113.3	547.0
1956	338.5	35.9	104.0	478.5	0	([8])	122.0	0	0.2	NA	NA	0	0	122.2	600.7
1957	346.4	40.5	114.2	501.1	(s)	([8])	130.2	0	0.2	NA	NA	0	0	130.4	631.5
1958	344.4	40.4	119.8	504.5	0.2	([8])	140.3	0	0.2	NA	NA	0	0	140.4	645.1
1959	378.4	46.8	146.6	571.9	0.2	([8])	137.8	0	0.2	NA	NA	0	0	137.9	710.0
1960	403.1	48.0	158.0	609.0	0.5	([8])	145.8	(s)	0.1	NA	NA	NA	0	146.0	755.5
1961	421.9	48.5	169.3	639.7	1.7	([8])	152.2	0.1	0.1	NA	NA	NA	0	152.4	793.8
1962	450.2	48.9	184.3	683.4	2.3	([8])	168.6	0.1	0.1	NA	NA	NA	0	168.8	854.5
1963	493.9	52.0	201.6	747.5	3.2	([8])	165.8	0.2	0.1	NA	NA	NA	0	166.1	916.8
1964	526.2	57.0	220.0	803.2	3.3	([8])	177.1	0.2	0.1	NA	NA	NA	0	177.4	984.0
1965	570.9	64.8	221.6	857.3	3.7	([8])	193.9	0.2	0.3	NA	NA	NA	0	194.3	1,055.3
1966	613.5	78.9	251.2	943.6	5.5	([8])	194.8	0.2	0.3	NA	NA	NA	0	195.3	1,144.4
1967	630.5	89.3	264.8	984.6	7.7	([8])	221.5	0.3	0.3	NA	NA	NA	0	222.2	1,214.4
1968	684.9	104.3	304.4	1,093.6	12.5	([8])	222.5	0.4	0.4	NA	NA	NA	0	223.3	1,329.4
1969	706.0	137.8	333.3	1,177.1	13.9	([8])	250.2	0.6	0.3	NA	NA	NA	0	251.1	1,442.2
1970	704.4	184.2	372.9	1,261.5	21.8	([8])	247.7	0.5	0.1	0.2	([9])	NA	0	248.6	1,531.9
1971	713.1	220.2	374.0	1,307.4	38.1	([8])	266.3	0.5	0.1	0.2	([9])	NA	0	267.2	1,612.6
1972	771.1	274.3	375.7	1,421.2	54.1	([8])	272.6	1.5	0.1	0.2	([9])	NA	0	274.4	1,749.7
1973	847.7	314.3	340.9	1,502.9	83.5	([8])	272.1	2.0	0.1	0.2	([9])	NA	0	274.4	1,860.7
1974	828.4	300.9	320.1	1,449.4	114.0	([8])	301.0	2.5	0.1	0.2	([9])	NA	0	303.7	1,867.1
1975	852.8	289.1	299.8	1,441.7	172.5	([8])	300.0	3.2	(s)	0.2	([9])	NA	0	303.5	1,917.6
1976	944.4	320.0	294.6	1,559.0	191.1	([8])	283.7	3.6	0.1	0.2	([9])	NA	0	287.6	2,037.7
1977	985.2	358.2	305.5	1,648.9	250.9	([8])	220.5	3.6	0.3	0.2	([9])	NA	0	224.5	2,124.3
1978	975.7	365.1	305.4	1,646.2	276.4	([8])	280.4	3.0	0.2	0.1	([9])	NA	0	283.7	2,206.3
1979	1,075.0	303.5	329.5	1,708.0	255.2	([8])	279.8	3.9	0.3	0.2	([9])	NA	0	284.2	2,247.4
1980	1,161.6	246.0	346.2	1,753.8	251.1	([8])	276.0	5.1	0.3	0.2	([9])	NA	0	281.5	2,286.4
1981	1,203.2	206.4	345.8	1,755.4	272.7	([8])	260.7	5.7	0.2	0.1	([9])	NA	0	266.7	2,294.8
1982	1,192.0	146.8	305.3	1,644.1	282.8	([8])	309.2	4.8	0.2	0.1	([9])	NA	0	314.4	2,241.2
1983	1,259.4	144.5	274.1	1,678.0	293.7	([8])	332.1	6.1	0.2	0.2	([9])	(s)	0	338.6	2,310.3
1984	1,341.7	119.8	297.4	1,758.9	327.6	([8])	321.2	7.7	0.5	0.4	([9])	(s)	(s)	329.8	2,416.3
1985	1,402.1	100.2	291.9	1,794.3	383.7	([8])	281.1	9.3	0.7	0.6	([9])	(s)	(s)	291.9	2,469.8
1986	1,385.8	136.6	248.5	1,770.9	414.0	([8])	290.8	10.3	0.5	0.7	([9])	(s)	(s)	302.3	2,487.3
1987	1,463.8	118.5	272.6	1,854.9	455.3	([8])	249.7	10.8	0.8	0.7	([9])	(s)	(s)	262.0	2,572.1
1988	1,540.7	148.9	252.8	1,942.4	527.0	([8])	222.9	10.3	0.9	0.7	([9])	(s)	(s)	234.9	2,704.3
1989	1,553.7	158.3	266.6	1,978.6	529.4	([8])	265.1	9.3	1.0	0.5	0.5	(s)	(s)	276.4	2,784.3
1990	1,559.6	117.0	264.1	1,940.7	576.9	-3.5	283.4	8.6	0.8	0.7	0.6	(s)	(s)	294.1	2,808.2
1991	1,551.2	111.5	264.2	1,926.8	612.6	-4.5	280.1	8.1	0.7	0.7	0.6	(s)	(s)	290.2	2,825.0
1992	1,575.9	88.9	263.9	1,928.7	618.8	-4.2	243.7	8.1	0.8	0.7	0.6	(s)	(s)	253.9	2,797.2
1993	1,639.2	99.5	258.9	1,997.6	610.3	-4.0	269.1	7.6	0.9	0.7	0.4	(s)	(s)	278.7	2,882.5
1994	1,635.5	91.0	291.1	2,017.6	640.4	-3.4	247.1	6.9	0.8	0.9	0.4	(s)	(s)	256.0	2,910.7
1995	1,652.9	60.8	307.3	2,021.1	673.4	-2.7	296.4	4.7	0.6	0.9	0.2	(s)	(s)	302.8	2,994.5
1996	1,737.5	67.3	262.7	2,067.5	674.7	-3.1	331.1	5.2	0.8	0.9	0.3	(s)	(s)	338.3	3,077.4
1997	1,787.8	77.8	283.6	2,149.2	628.6	-4.0	341.3	5.5	0.7	1.0	0.3	(s)	(s)	348.7	3,122.5
1998	1,807.5	110.2	309.2	2,226.9	673.7	-4.4	308.8	5.2	0.7	1.0	0.3	(s)	(s)	316.0	3,212.2
1999	[R]1,767.7	[R]86.9	[R]296.4	[R]2,151.0	725.0	-6.0	[R]299.9	1.7	0.7	[R]1.0	0.3	(s)	(s)	[R]303.6	[R]3,173.7
2000[P]	1,692.3	72.3	289.8	2,054.4	705.4	-5.3	252.9	0.2	0.7	1.0	0.3	(s)	(s)	255.1	3,009.5

[1] Fuel oil nos. 1, 2, 4, 5, and 6, crude oil, kerosene, and petroleum coke.
[2] Includes supplemental gaseous fuels.
[3] Pumped storage facility production minus energy used for pumping.
[4] Wood, wood waste, wood liquors, wood sludge, peat, railroad ties, and utility poles.
[5] Municipal solid waste and landfill gas.
[6] Methane, digester gas, waste alcohol, sludge waste, solid byproducts, and tires.
[7] Solar thermal and photovoltaic energy.
[8] Included in conventional hydroelectric power.
[9] Included in MSW and LFG.

R=Revised. P=Preliminary. NA=Not available. (s)=Less than 0.05 billion kilowatthours.

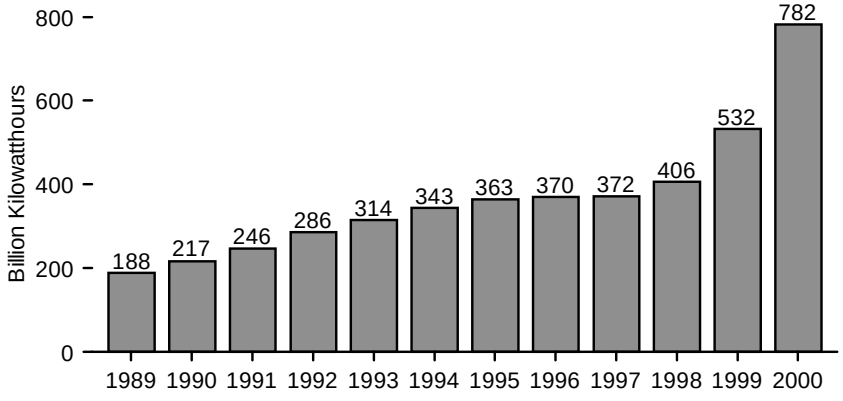
Notes: • See Note 2 at end of section. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/fuelelectric.html.

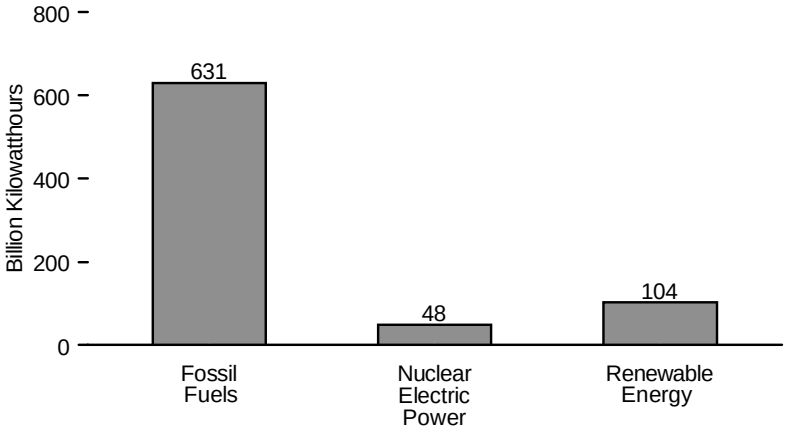
Sources: • 1949-September 1977—Federal Power Commission, Form FPC-4, "Monthly Power Plant Report." • October 1977-1981—Federal Energy Regulatory Commission, Form FPC-4, "Monthly Power Plant Report." • 1982-1989—Energy Information Administration (EIA), Form EIA-759, "Monthly Power Plant Report." • 1990 forward—EIA, *Electric Power Monthly* (March 2001), Tables 4 and 5.

Figure 8.4 Electricity Net Generation at Nonutility Power Producers

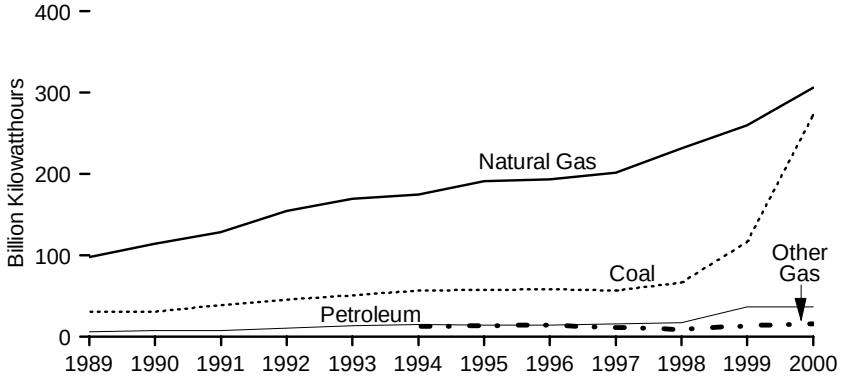
Total, 1989-2000



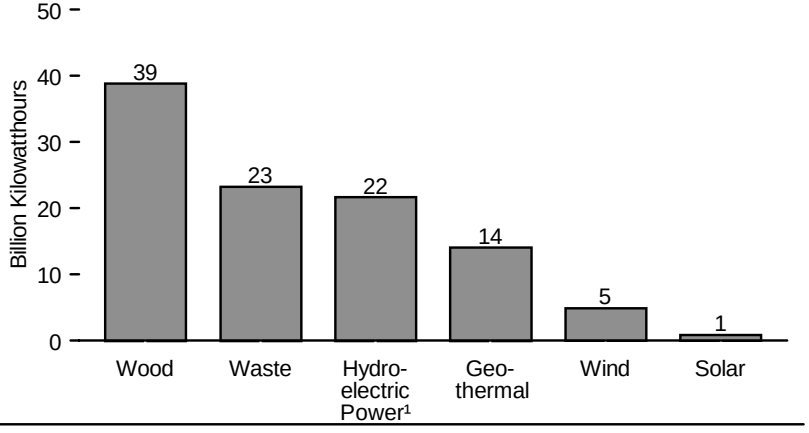
By Source, 2000



Fossil Fuels by Type, 1989-2000



Renewable Energy Sources, 2000



[1] Conventional hydroelectric power only.

Note: Because vertical scales differ, graphs should not be compared.
Source: Table 8.4.

Table 8.4 Electricity Net Generation at Nonutility Power Producers, 1989-2000

(Billion Kilowatthours)

Year	Fossil Fuels					Nuclear Electric Power	Hydroelectric Pumped Storage [5]	Renewable Energy								Total [10]
	Coal [1]	Petroleum [2]	Natural Gas [3]	Other Gases [4]	Total			Conventional Hydroelectric Power	Geothermal	Wood [6]	Waste		Wind	Solar [9]	Total	
											MSW and LFG [7]	Other Waste [8]				
1989[11]	30.2	5.5	97.3	([12])	133.0	(s)	0.0	8.6	5.5	26.8	7.5	1.5	2.3	0.6	52.8	187.6
1990[11]	30.7	7.0	114.3	([12])	152.0	0.1	0.0	9.6	7.2	29.6	10.1	1.8	3.0	0.6	62.0	216.7
1991[11]	38.8	7.5	128.4	([12])	174.7	0.1	0.0	9.4	8.0	32.4	11.7	2.8	3.0	0.8	68.0	246.3
1992	45.2	10.5	154.4	([12])	210.1	0.1	0.0	9.4	8.3	34.8	13.3	3.2	2.9	0.7	72.5	286.1
1993	50.9	12.8	169.5	([12])	233.2	0.1	0.0	11.4	9.5	35.9	13.8	3.7	3.0	0.9	78.1	314.4
1994	56.2	14.5	174.8	12.1	R257.6	0.1	0.0	13.1	9.8	37.0	14.6	3.2	3.4	0.8	82.1	343.1
1995	57.3	14.4	191.2	13.5	R276.4	0.0	0.0	14.6	9.6	35.8	16.0	3.2	3.2	0.8	83.2	363.3
1996	58.3	14.3	193.1	14.2	R279.9	0.0	0.0	16.4	9.9	36.0	15.5	4.0	3.4	0.9	86.0	369.6
1997	56.3	15.3	201.8	11.2	R284.6	0.0	0.0	17.7	9.1	33.5	16.6	2.7	3.2	0.9	83.7	371.7
1998	66.5	16.8	231.4	8.5	R323.2	0.0	0.0	14.5	9.5	31.1	17.1	2.9	3.0	0.9	78.9	405.7
1999	R116.7	R36.6	R259.8	R13.3	R426.4	R3.2	R-0.3	R19.6	R15.1	R36.9	R19.3	R2.9	R4.5	R0.8	R99.1	R532.5
2000[PE]	272.4	36.6	306.0	15.7	630.6	48.5	-0.2	21.7	14.0	38.8	20.2	3.1	4.9	0.8	103.6	782.4

[1] Coal, fine coal, anthracite culm, bituminous gob, lignite waste, tar coal, waste coal, and coke breeze.

[2] Fuel oil nos. 1, 2, 4, 5, and 6, crude oil, petroleum coke, kerosene, liquid butane, liquid propane, methanol, liquid byproducts, oil waste, sludge oil, and tar oil.

[3] Natural gas only.

[4] Blast furnace gas, coke oven gas, butane gas, propane gas, refinery gas, and other process and waste gases derived from coal, petroleum, and natural gas.

[5] Pumped storage facility production minus energy used for pumping.

[6] Wood, wood waste, black liquor, red liquor, spent sulfite liquor, wood sludge, peat, railroad ties, and utility poles.

[7] Municipal solid waste and landfill gas.

[8] Methane, digester gas, liquid acetonitrile waste, tall oil, waste alcohol, medical waste, paper pellets, sludge waste, solid byproducts, tires, agricultural byproducts, closed loop biomass, fish oil, and straw.

[9] Solar thermal and photovoltaic energy.

[10] Includes batteries, chemicals, hydrogen, pitch, sulfur, and purchased steam, which are not separately displayed on this table.

[11] Data for 1989-1991 were collected for facilities with capacities of 5 megawatts or more. In 1992, the threshold was lowered to include facilities with capacities of 1 megawatt or more. Estimates of the 1-to-5 megawatt range for 1989-1991 were derived from historical data. The estimation did not include retirements that occurred prior to 1992 and included only the capacity of facilities that came on line before 1992.

[12] Included in natural gas.

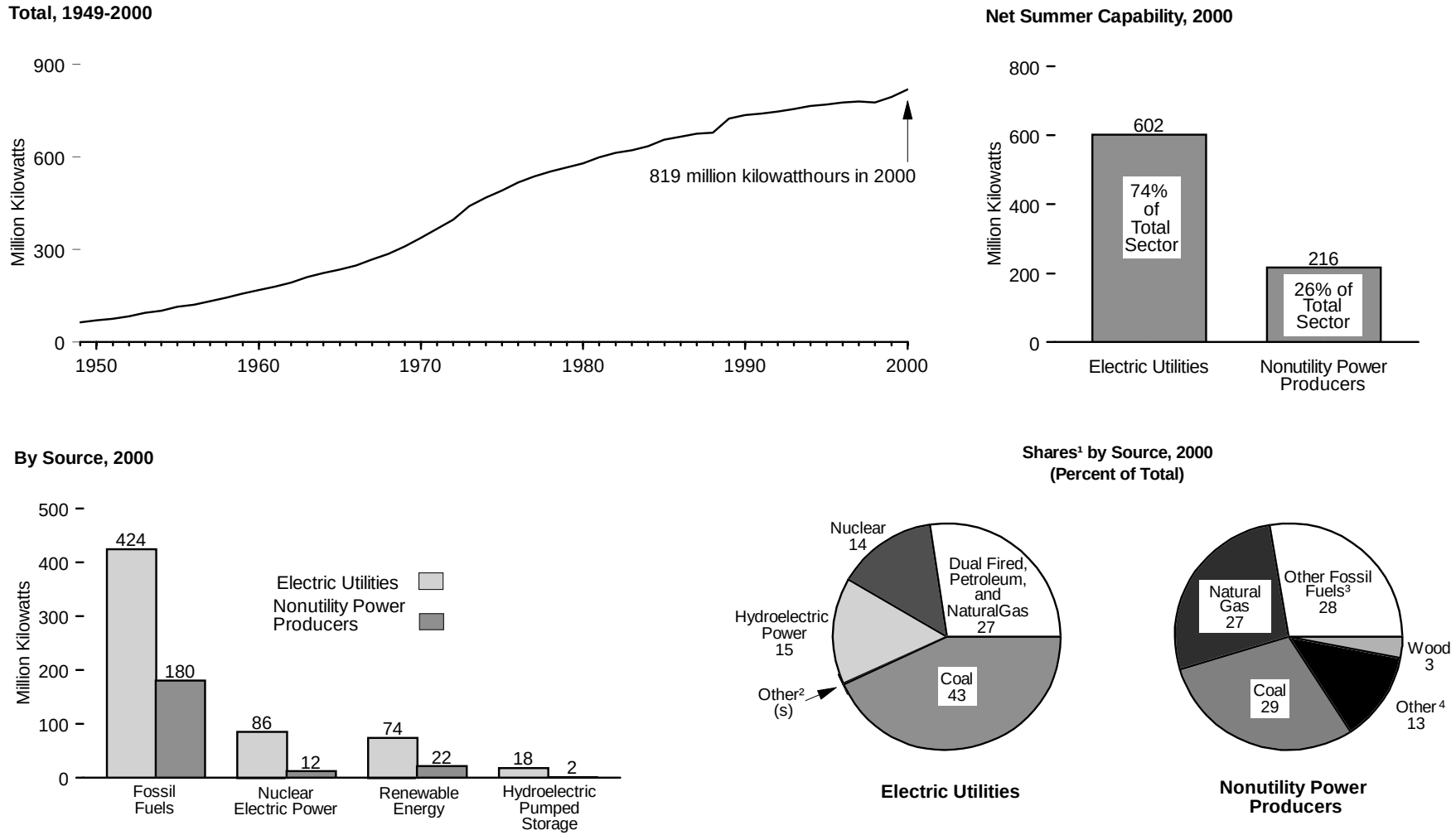
R=Revised. PE=Preliminary estimate. (s)=Less than 0.05 billion kilowatthours.

Notes: • Due to restructuring of the electric power sector, the sale of generation assets is resulting in reclassification of plants from electric utility to nonutility plants. • See Note 2 at end of section. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/fuelelectric.html.

Sources: • 1989-1998—Energy Information Administration (EIA), estimated from Form EIA-860B, "Annual Electric Generator Report-Nonutility" and predecessor form. • 1999 forward—EIA, *Electric Power Monthly* (March 2001), Tables 58-60.

Figure 8.5 Electric Power Sector Net Summer Capability



[1] Shares are based on data prior to rounding for publication and may not sum exactly to 100 percent.
[2] Geothermal, wood, waste, wind, and solar.
[3] Petroleum, dual fired, and other gases and waste heat.
[4] Nuclear electric power, conventional hydroelectric power, geothermal, waste, wind, solar, hydrogen, sulfur, batteries, chemicals, pitch, and purchased steam.

(s)=Less than 0.5 percent.

Notes: • Data are at end of year. • Because vertical scales differ, graphs should not be compared.

Sources: Tables 8.5, 8.6, and 8.7.

Table 8.5 Electric Power Sector Net Summer Capability, 1949-2000

(Million Kilowatts)

Year	Fossil Fuels						Nuclear Electric Power	Hydro-electric Pumped Storage	Renewable Energy							Total [9]
	Coal [1]	Petroleum [2]	Natural Gas [3]	Dual Fired [4]	Other Gases and Waste Heat [5]	Total			Conventional Hydroelectric Power	Geo-thermal	Wood [6]	Waste [7]	Wind	Solar [8]	Total	
1949	NA	NA	NA	NA	NA	R44.9	0.0	([10])	18.5	NA	(s)	([11])	NA	NA	18.5	63.4
1950	NA	NA	NA	NA	NA	R50.0	0.0	([10])	19.2	NA	(s)	([11])	NA	NA	19.2	69.2
1951	NA	NA	NA	NA	NA	R55.0	0.0	([10])	20.5	NA	(s)	([11])	NA	NA	20.5	75.5
1952	NA	NA	NA	NA	NA	R60.8	0.0	([10])	22.4	NA	(s)	([11])	NA	NA	22.4	83.2
1953	NA	NA	NA	NA	NA	R69.5	0.0	([10])	23.8	NA	(s)	([11])	NA	NA	23.8	93.3
1954	NA	NA	NA	NA	NA	R77.5	0.0	([10])	22.5	NA	(s)	([11])	NA	NA	22.5	100.0
1955	NA	NA	NA	NA	NA	R86.8	0.0	([10])	27.4	NA	(s)	([11])	NA	NA	27.4	114.2
1956	NA	NA	NA	NA	NA	R91.2	0.0	([10])	28.5	NA	(s)	([11])	NA	NA	28.5	119.7
1957	NA	NA	NA	NA	NA	R100.3	0.1	([10])	30.7	NA	0.1	([11])	NA	NA	30.8	131.1
1958	NA	NA	NA	NA	NA	R110.7	0.1	([10])	32.5	NA	0.1	([11])	NA	NA	32.6	143.3
1959	NA	NA	NA	NA	NA	R121.0	0.1	([10])	34.8	NA	0.1	([11])	NA	NA	34.9	155.9
1960	NA	NA	NA	NA	NA	R130.8	0.4	([10])	35.8	(s)	0.1	([11])	NA	NA	35.9	167.1
1961	NA	NA	NA	NA	NA	R137.8	0.4	([10])	40.7	(s)	0.1	([11])	NA	NA	40.8	179.0
1962	NA	NA	NA	NA	NA	R147.3	0.7	([10])	44.0	(s)	0.1	([11])	NA	NA	44.1	192.1
1963	NA	NA	NA	NA	NA	R161.8	0.8	([10])	47.0	(s)	0.1	([11])	NA	NA	47.1	209.7
1964	NA	NA	NA	NA	NA	R173.4	0.8	([10])	49.4	(s)	0.1	([11])	NA	NA	49.5	223.7
1965	NA	NA	NA	NA	NA	R182.9	0.8	([10])	51.0	(s)	0.1	([11])	NA	NA	51.1	234.8
1966	NA	NA	NA	NA	NA	R194.5	1.7	([10])	51.2	(s)	0.1	([11])	NA	NA	51.3	247.5
1967	NA	NA	NA	NA	NA	R208.9	2.7	([10])	55.0	0.1	0.1	([11])	NA	NA	55.1	266.7
1968	NA	NA	NA	NA	NA	R223.2	2.7	([10])	57.9	0.1	0.1	([11])	NA	NA	58.0	284.0
1969	NA	NA	NA	NA	NA	R243.6	4.4	([10])	61.6	0.1	0.1	([11])	NA	NA	61.7	309.8
1970	NA	NA	NA	NA	NA	R265.4	7.0	([10])	63.8	0.1	0.1	([11])	NA	NA	63.9	336.4
1971	NA	NA	NA	NA	NA	R288.0	9.0	([10])	69.1	0.2	0.1	([11])	NA	NA	69.4	366.4
1972	NA	NA	NA	NA	NA	R310.7	14.5	([10])	70.5	0.3	0.1	([11])	NA	NA	70.9	396.0
1973	NA	NA	NA	NA	NA	R341.2	22.7	([10])	75.4	0.4	0.1	([11])	NA	NA	75.9	439.8
1974	NA	NA	NA	NA	NA	R360.7	31.9	([10])	75.5	0.4	0.1	([11])	NA	NA	76.0	468.5
1975	NA	NA	NA	NA	NA	R375.1	37.3	([10])	78.4	0.5	0.1	([11])	NA	NA	79.0	491.3
1976	NA	NA	NA	NA	NA	R394.8	43.8	([10])	78.0	0.5	0.1	([11])	NA	NA	78.6	517.2
1977	NA	NA	NA	NA	NA	R410.4	46.3	([10])	78.6	0.5	0.1	([11])	NA	NA	79.2	535.9
1978	NA	NA	NA	NA	NA	R420.8	50.8	([10])	79.9	0.5	0.1	([11])	NA	NA	80.5	552.1
1979	NA	NA	NA	NA	NA	R432.1	49.7	([10])	82.9	0.7	0.1	([11])	NA	NA	83.6	565.5
1980	NA	NA	NA	NA	NA	R444.1	51.8	([10])	81.7	0.9	0.1	([11])	NA	NA	82.7	578.6
1981	NA	NA	NA	NA	NA	R458.9	56.0	([10])	82.4	0.9	0.1	([11])	(s)	NA	83.4	598.3
1982	NA	NA	NA	NA	NA	R469.6	60.0	([10])	83.0	1.0	0.1	([11])	(s)	NA	84.1	613.7
1983	NA	NA	NA	NA	NA	R472.8	63.0	([10])	83.9	1.2	0.2	([11])	(s)	NA	85.3	621.1
1984	NA	NA	NA	NA	NA	R478.6	69.7	([10])	85.3	1.2	0.3	([11])	(s)	([12])	86.9	635.1
1985	NA	NA	NA	NA	NA	R485.0	79.4	([10])	88.9	1.6	0.2	0.2	(s)	([12])	90.8	655.2
1986	NA	NA	NA	NA	NA	R488.3	85.2	([10])	89.3	1.6	0.2	0.2	(s)	([12])	91.2	664.8
1987	NA	NA	NA	NA	NA	R488.8	93.6	([10])	89.7	1.5	0.2	0.2	(s)	([12])	91.7	674.1
1988	NA	NA	NA	NA	NA	R490.6	94.7	([10])	90.3	1.7	0.2	0.2	(s)	([12])	92.4	677.7
1989	303.0	56.9	29.7	131.2	NA	520.8	98.2	18.1	74.6	2.6	5.8	2.1	1.7	0.3	87.0	724.3
1990	306.7	56.7	31.0	133.5	NA	527.9	99.6	19.5	74.0	2.7	6.2	2.6	1.9	0.3	87.7	734.9
1991	306.7	54.1	35.1	135.3	NA	531.3	99.6	R20.6	R74.0	2.6	6.7	3.0	2.0	0.3	R88.6	740.5
1992	308.5	51.5	35.1	141.2	NA	536.3	99.0	21.2	74.8	2.9	6.7	3.0	1.8	0.3	89.5	746.6
1993	309.9	49.7	37.4	144.7	NA	541.6	99.1	21.1	77.4	3.0	6.9	3.2	1.8	0.3	92.6	755.0
1994	310.8	47.6	43.1	147.0	1.1	R549.5	99.1	21.2	78.0	3.0	7.3	3.2	1.7	0.3	93.6	764.0
1995	310.8	48.0	41.9	152.4	1.1	R554.2	99.5	21.4	78.6	3.0	6.8	3.5	1.7	0.3	93.9	769.5
1996	313.0	47.8	48.8	151.6	0.3	R561.5	100.8	21.1	76.4	2.9	7.1	3.5	1.7	0.3	91.9	775.9
1997	313.1	46.3	49.9	153.6	(s)	563.0	99.7	19.3	79.8	2.9	7.1	3.4	1.6	0.3	95.1	778.5
1998	312.6	42.2	59.1	148.0	0.2	R562.1	97.1	18.9	79.6	2.9	6.8	3.5	1.7	0.4	94.8	775.9
1999	R321.7	R34.8	R82.1	R141.4	R0.9	R581.0	R97.5	R19.5	R79.5	2.9	R6.7	R4.3	R2.3	0.4	R96.0	R794.9
2000PE	322.3	39.3	96.7	145.5	0.9	604.7	97.4	19.6	79.5	2.9	6.8	4.3	2.3	0.4	96.1	818.5

[1] Coal, fine coal, anthracite culm, bituminous gob, lignite waste, tar coal, waste coal, and coke breeze.
[2] Fuel oil nos. 1, 2, 4, 5, and 6, crude oil, petroleum coke, kerosene, liquid butane, liquid propane, methanol, liquid byproducts, oil waste, sludge oil, and tar oil.
[3] Includes supplemental gaseous fuels at electric utilities.
[4] Petroleum and natural gas.
[5] Blast furnace gas, coke oven gas, butane gas, propane gas, refinery gas, and other process and waste gases and heat derived from coal, petroleum, and natural gas.
[6] Wood, wood waste, black liquor, red liquor, spent sulfite liquor, wood sludge, peat, railroad ties, and utility poles.
[7] Municipal solid waste, landfill gas, methane, digester gas, liquid acetonitrile waste, tall oil, waste alcohol, medical waste, paper pellets, sludge waste, solid byproducts, tires, agricultural byproducts, closed loop biomass, fish oil, and straw.
[8] Solar thermal and photovoltaic energy.
[9] Includes batteries, chemicals, hydrogen, pitch, sulfur, purchased steam, hot nitrogen, and multi-fueled capacity, which are not separately displayed on this table.
[10] Included in conventional hydroelectric power."
[11] Included in wood.
[12] Included in wind.

R=Revised. PE=Preliminary estimate. NA=Not available. (s)=Less than 0.05 million kilowatts.

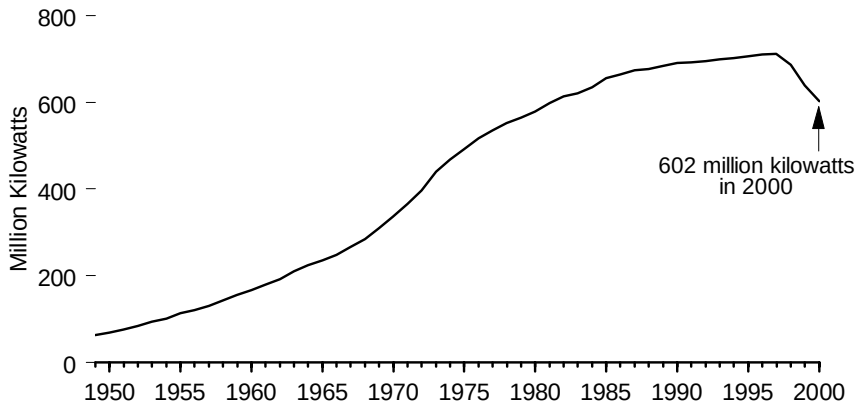
Notes: • Data are at end of year. • See Note 3 at end of section. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/fuelelectric.html.

Sources: Tables 8.6 and 8.7.

Figure 8.6 Electric Utility Net Summer Capability

Total, 1949-2000



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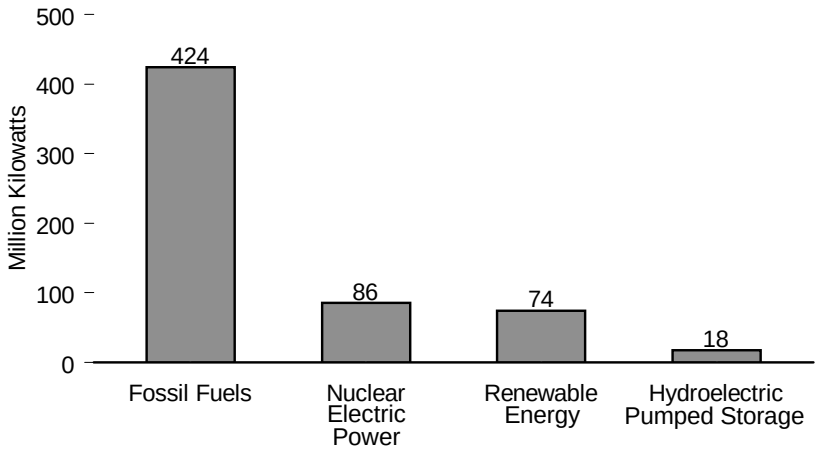
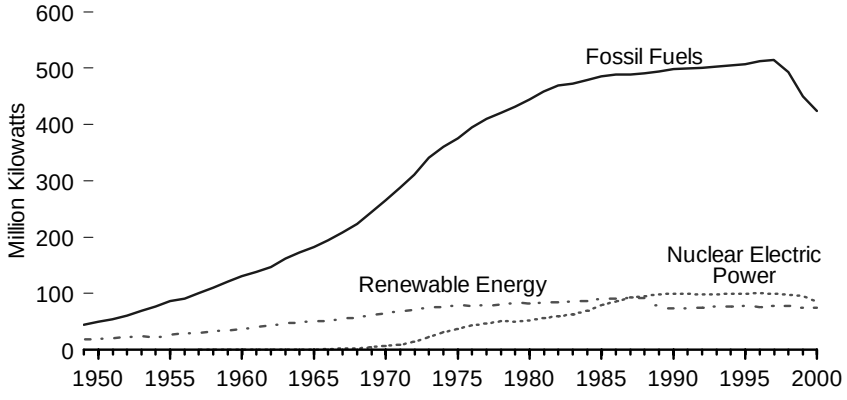
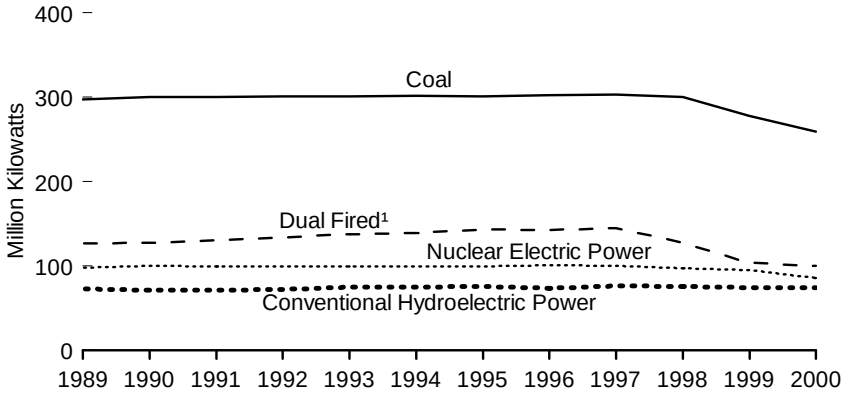


By Source, 1949-2000



By Selected Source, 1989-2000



¹ Petroleum and natural gas.

Notes: • Data are at end of year. • Because vertical scales differ, graphs should not be compared.

Source: Table 8.6.

Table 8.6 Electric Utility Net Summer Capability, 1949-2000

(Million Kilowatts)

Year	Fossil Fuels					Nuclear Electric Power	Hydro-electric Pumped Storage	Renewable Energy							Total [7]
	Coal	Petroleum [1]	Natural Gas [2]	Dual Fired [3]	Total			Conventional Hydroelectric Power	Geo-thermal	Wood [4]	Waste [5]	Wind	Solar [6]	Total	
1949	NA	NA	NA	NA	44.9	0	([8])	18.5	0	(s)	([9])	0	0	18.5	63.4
1950	NA	NA	NA	NA	50.0	0	([8])	19.2	0	(s)	([9])	0	0	19.2	69.2
1951	NA	NA	NA	NA	55.0	0	([8])	20.5	0	(s)	([9])	0	0	20.5	75.5
1952	NA	NA	NA	NA	60.8	0	([8])	22.4	0	(s)	([9])	0	0	22.4	83.2
1953	NA	NA	NA	NA	69.5	0	([8])	23.8	0	(s)	([9])	0	0	23.8	93.3
1954	NA	NA	NA	NA	77.5	0	([8])	22.5	0	(s)	([9])	0	0	22.5	100.0
1955	NA	NA	NA	NA	86.8	0	([8])	27.4	0	(s)	([9])	0	0	27.4	114.2
1956	NA	NA	NA	NA	91.2	0	([8])	28.5	0	(s)	([9])	0	0	28.5	119.7
1957	NA	NA	NA	NA	100.3	0.1	([8])	30.7	0	0.1	([9])	0	0	30.8	131.1
1958	NA	NA	NA	NA	110.7	0.1	([8])	32.5	0	0.1	([9])	0	0	32.6	143.3
1959	NA	NA	NA	NA	121.0	0.1	([8])	34.8	0	0.1	([9])	0	0	34.9	155.9
1960	NA	NA	NA	NA	130.8	0.4	([8])	35.8	(s)	0.1	([9])	NA	0	35.9	167.1
1961	NA	NA	NA	NA	137.8	0.4	([8])	40.7	(s)	0.1	([9])	NA	0	40.8	179.0
1962	NA	NA	NA	NA	147.3	0.7	([8])	44.0	(s)	0.1	([9])	NA	0	44.1	192.1
1963	NA	NA	NA	NA	161.8	0.8	([8])	47.0	(s)	0.1	([9])	NA	0	47.1	209.7
1964	NA	NA	NA	NA	173.4	0.8	([8])	49.4	(s)	0.1	([9])	NA	0	49.5	223.7
1965	NA	NA	NA	NA	182.9	0.8	([8])	51.0	(s)	0.1	([9])	NA	0	51.1	234.8
1966	NA	NA	NA	NA	194.5	1.7	([8])	51.2	(s)	0.1	([9])	NA	0	51.3	247.5
1967	NA	NA	NA	NA	208.9	2.7	([8])	55.0	0.1	0.1	([9])	NA	0	55.1	266.7
1968	NA	NA	NA	NA	223.2	2.7	([8])	57.9	0.1	0.1	([9])	NA	0	58.0	284.0
1969	NA	NA	NA	NA	243.6	4.4	([8])	61.6	0.1	0.1	([9])	NA	0	61.7	309.8
1970	NA	NA	NA	NA	265.4	7.0	([8])	63.8	0.1	0.1	([9])	NA	0	63.9	336.4
1971	NA	NA	NA	NA	288.0	9.0	([8])	69.1	0.2	0.1	([9])	NA	0	69.4	366.4
1972	NA	NA	NA	NA	310.7	14.5	([8])	70.5	0.3	0.1	([9])	NA	0	70.9	396.0
1973	NA	NA	NA	NA	341.2	22.7	([8])	75.4	0.4	0.1	([9])	NA	0	75.9	439.8
1974	NA	NA	NA	NA	360.7	31.9	([8])	75.5	0.4	0.1	([9])	NA	0	76.0	468.5
1975	NA	NA	NA	NA	375.1	37.3	([8])	78.4	0.5	0.1	([9])	NA	0	79.0	491.3
1976	NA	NA	NA	NA	394.8	43.8	([8])	78.0	0.5	0.1	([9])	NA	0	78.6	517.2
1977	NA	NA	NA	NA	410.4	46.3	([8])	78.6	0.5	0.1	([9])	NA	0	79.2	535.9
1978	NA	NA	NA	NA	420.8	50.8	([8])	79.9	0.5	0.1	([9])	NA	0	80.5	552.1
1979	NA	NA	NA	NA	432.1	49.7	([8])	82.9	0.7	0.1	([9])	NA	0	83.6	565.5
1980	NA	NA	NA	NA	444.1	51.8	([8])	81.7	0.9	0.1	([9])	NA	0	82.7	578.6
1981	NA	NA	NA	NA	458.9	56.0	([8])	82.4	0.9	0.1	([9])	(s)	0	83.4	598.3
1982	NA	NA	NA	NA	469.6	60.0	([8])	83.0	1.0	0.1	([9])	(s)	0	84.1	613.7
1983	NA	NA	NA	NA	472.8	63.0	([8])	83.9	1.2	0.2	([9])	(s)	0	85.3	621.1
1984	NA	NA	NA	NA	478.6	69.7	([8])	85.3	1.2	0.3	([9])	(s)	([10])	86.9	635.1
1985	NA	NA	NA	NA	485.0	79.4	([8])	88.9	1.6	0.2	0.2	(s)	([10])	90.8	655.2
1986	NA	NA	NA	NA	488.3	85.2	([8])	89.3	1.6	0.2	0.2	(s)	([10])	91.2	664.8
1987	NA	NA	NA	NA	488.8	93.6	([8])	89.7	1.5	0.2	0.2	(s)	([10])	91.7	674.1
1988	NA	NA	NA	NA	490.6	94.7	([8])	90.3	1.7	0.2	0.2	(s)	([10])	92.4	677.7
1989	296.6	55.6	15.4	126.3	493.9	98.2	18.1	72.4	1.6	0.2	0.2	(s)	(s)	74.4	684.6
1990	299.9	55.4	15.0	127.5	497.9	99.6	19.5	71.4	1.6	0.2	0.2	(s)	(s)	73.5	690.5
1991	299.6	52.6	16.7	130.5	499.4	99.6	20.6	71.5	1.6	0.2	0.2	(s)	(s)	R73.5	693.0
1992	300.5	49.9	16.4	133.7	500.5	99.0	21.2	72.2	1.7	0.2	0.2	(s)	(s)	74.4	695.1
1993	300.8	47.8	17.0	137.2	502.8	99.0	21.1	74.8	1.7	0.2	0.2	(s)	(s)	77.0	700.0
1994	301.1	45.5	19.8	138.4	504.8	99.1	21.2	74.8	1.7	0.3	0.3	(s)	(s)	77.1	702.2
1995	300.6	46.1	17.7	143.2	507.6	99.5	21.4	75.3	1.7	0.3	0.3	(s)	(s)	77.6	706.1
1996	302.4	45.7	22.7	142.0	512.8	100.8	21.1	73.1	1.6	0.2	0.2	(s)	(s)	75.2	709.9
1997	302.9	43.7	22.9	144.9	514.3	99.7	19.3	76.2	1.6	0.2	0.2	(s)	(s)	78.3	711.9
1998	299.7	39.8	26.2	127.2	492.9	97.1	18.9	75.5	1.5	0.3	0.2	(s)	(s)	77.6	686.7
1999	R277.8	R31.5	R37.4	R103.5	R450.2	R95.0	18.9	74.1	0.3	R0.2	0.2	(s)	(s)	74.9	R639.3
2000P	259.1	26.2	39.0	99.9	424.2	85.5	17.9	73.7	0.3	0.3	0.2	(s)	(s)	74.5	602.4

[1] Fuel oil nos. 1, 2, 4, 5, and 6, crude oil, kerosene, and petroleum coke.
[2] Includes supplemental gaseous fuels.
[3] Petroleum and natural gas.
[4] Wood, wood waste, wood liquors, wood sludge, peat, railroad ties, and utility poles.
[5] Municipal solid waste, landfill gas, methane, digester gas, waste alcohol, sludge waste, solid byproducts, and tires.
[6] Solar thermal and photovoltaic energy.
[7] For 1997 forward, includes hot nitrogen and multi-fueled capacity, which are not separately displayed on this table.
[8] Included in conventional hydroelectric power.
[9] Included in wood.
[10] Included in wind.

R=Revised. P=Preliminary. NA=Not available. (s)=Less than 0.05 million kilowatts.

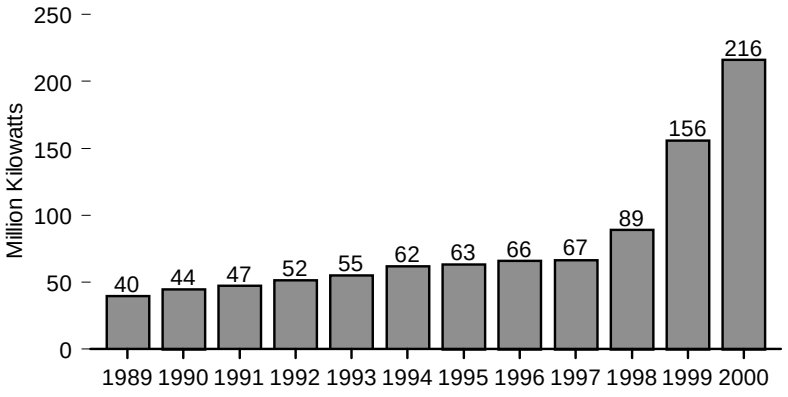
Notes: • Data are at end of year. • See Note 3 at end of section. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/fuelelectric.html.

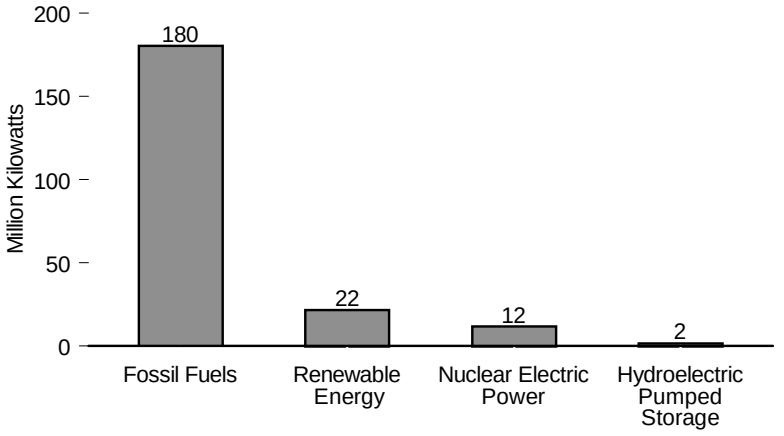
Sources: Energy Information Administration, Form EIA-860A, "Annual Electric Generator Report-Utility" and predecessor forms.

Figure 8.7 Nonutility Power Producer Net Summer Capability

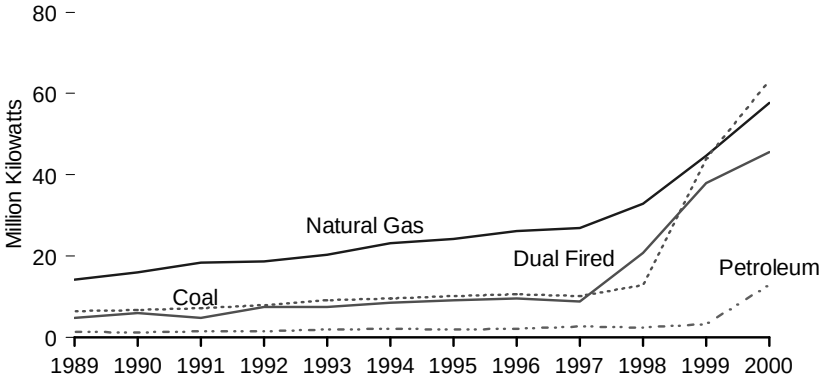
Total, 1989-2000



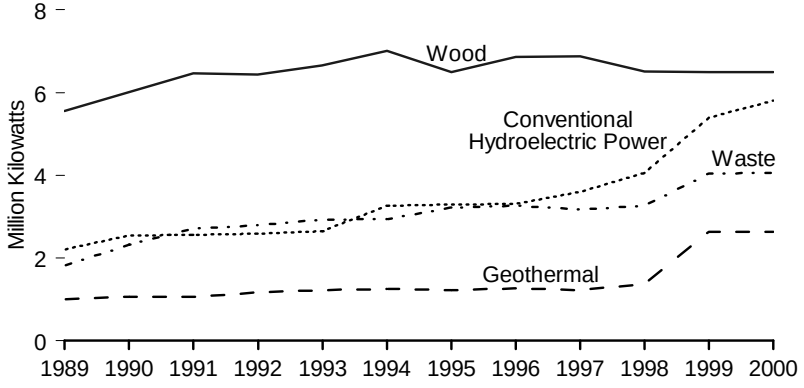
By Source, 2000



Fossil Fuels by Type, 1989-2000



Selected Renewable Energy Sources, 1989-2000



Notes: • Data are at end of year. • Due to restructuring of the electric power sector, the sale of generation assets is resulting in reclassification of plants from electric utility to nonutility plants. • Because vertical scales differ, graphs should not be compared.

Source: Table 8.7.

Table 8.7 Nonutility Power Producer Net Summer Capability 1989-2000

(Million Kilowatts)

Year	Fossil Fuels						Nuclear Electric Power	Hydro-electric Pumped Storage	Renewable Energy								Total [10]
												Waste					
	Coal [1]	Petroleum [2]	Natural Gas [3]	Dual Fired [4]	Other Gases and Waste Heat [5]	Total			Conventional Hydroelectric Power	Geo-thermal	Wood [6]	MSW and LFG [7]	Other Waste [8]	Wind	Solar [9]	Total	
1989[11]	6.4	1.3	14.3	4.9	NA	26.9	(s)	0	2.2	1.0	5.6	1.6	0.2	1.7	0.3	12.5	39.6
1990[11]	6.8	1.2	16.0	6.0	NA	30.1	(s)	0	2.5	1.1	6.0	1.9	0.4	1.9	0.3	14.2	44.5
1991[11]	7.1	1.6	18.4	4.8	NA	31.9	(s)	0	2.6	1.1	6.5	2.2	0.5	2.0	0.3	15.1	47.5
1992	7.9	1.6	18.7	7.5	NA	35.8	(s)	0	2.6	1.2	6.4	2.2	0.6	1.8	0.3	15.2	51.5
1993	9.1	1.9	20.3	7.5	NA	38.8	(s)	0	2.6	1.2	6.7	2.2	0.7	1.8	0.3	15.6	55.0
1994	9.7	2.1	23.2	8.6	1.1	R44.7	0	0	3.3	1.3	7.0	2.4	0.5	1.7	0.3	16.5	61.8
1995	10.2	2.0	24.2	9.2	1.1	R46.6	0	0	3.3	1.2	6.5	2.6	0.6	1.7	0.3	16.3	63.4
1996	10.6	2.1	26.1	9.6	0.3	R48.6	0	0	3.3	1.3	6.9	2.5	0.8	1.7	0.3	16.7	65.9
1997	10.3	2.7	26.9	8.8	(s)	48.7	0	0	3.6	1.2	6.9	2.6	0.6	1.6	0.3	16.8	66.6
1998	12.8	2.4	32.9	20.8	0.2	R69.2	0	0	4.0	1.4	6.5	2.7	0.6	1.7	0.4	17.2	89.2
1999	R44.0	R3.4	44.7	R37.9	R0.9	R130.8	R2.5	0.6	R5.4	2.6	6.5	R1.8	R2.2	R2.2	0.4	R21.1	R155.6
2000[PE]	63.2	13.0	57.8	45.5	0.9	180.5	11.9	1.7	5.8	2.6	6.5	1.8	2.2	2.2	0.4	21.6	216.1

[1] Coal, fine coal, anthracite culm, bituminous gob, lignite waste, tar coal, waste coal, and coke breeze.

[2] Fuel oil nos. 1, 2, 4, 5, and 6, crude oil, petroleum coke, kerosene, liquid butane, liquid propane, methanol, liquid byproducts, oil waste, sludge oil, and tar oil.

[3] Natural gas only.

[4] Petroleum and natural gas.

[5] Blast furnace gas, coke oven gas, butane gas, propane gas, refinery gas, and other process and waste gases and heat derived from coal, petroleum, and natural gas.

[6] Wood, wood waste, black liquor, red liquor, spent sulfite liquor, wood sludge, peat, railroad ties, and utility poles.

[7] Municipal solid waste and landfill gas.

[8] Methane, digester gas, liquid acetonitrile waste, tall oil, waste alcohol, medical waste, paper pellets, sludge waste, solid byproducts, tires, agricultural byproducts, closed loop biomass, fish oil, and straw.

[9] Solar thermal and photovoltaic energy.

[10] Includes batteries, chemicals, hydrogen, pitch, sulfur, and purchased steam, which are not separately displayed on this table.

[11] Data for 1989-1991 were collected for facilities with capacities of 5 megawatts or more. In 1992, the threshold was lowered to include facilities with capacities of 1 megawatt or more. Estimates of the 1-to-5 megawatt range for 1989-1991 were derived from historical data. The estimation did not include retirements that occurred prior to 1992 and included only the capacity of facilities that came on line before 1992.

R=Revised. PE=Preliminary estimate. NA=Not available. (s)=Less than 0.05 million kilowatts.

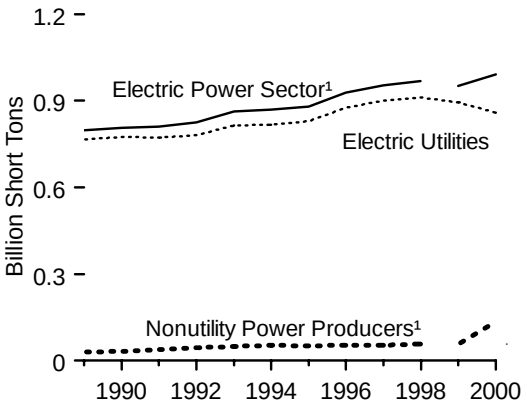
Notes: • Data are at end of year. • Due to restructuring of the electric power sector, the sale of generation assets is resulting in reclassification of plants from electric utility to nonutility plants. • See Note 3 at end of section. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/fuelelectric.html.

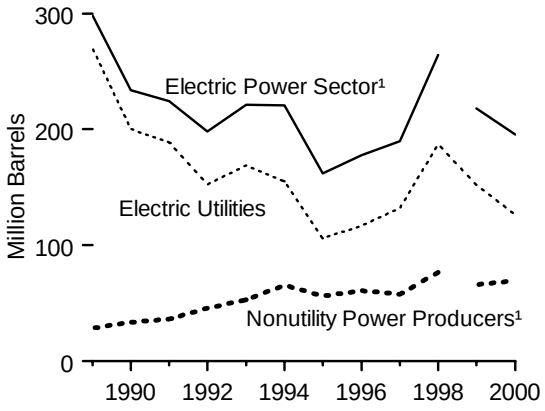
Sources: Energy Information Administration, estimated data using Form EIA-860B, "Annual Electric Generator Report-Nonutility" and predecessor form.

Figure 8.8 Consumption of Fossil Fuels To Generate Electricity

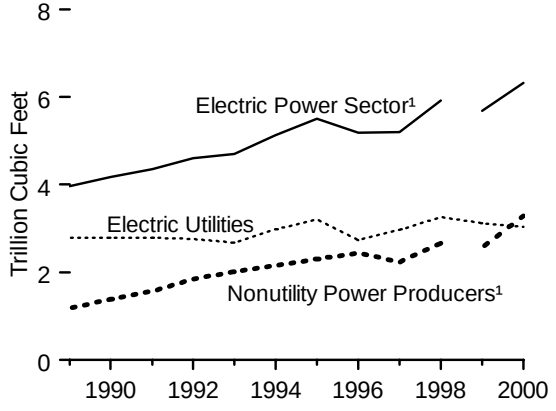
Coal, 1989-2000



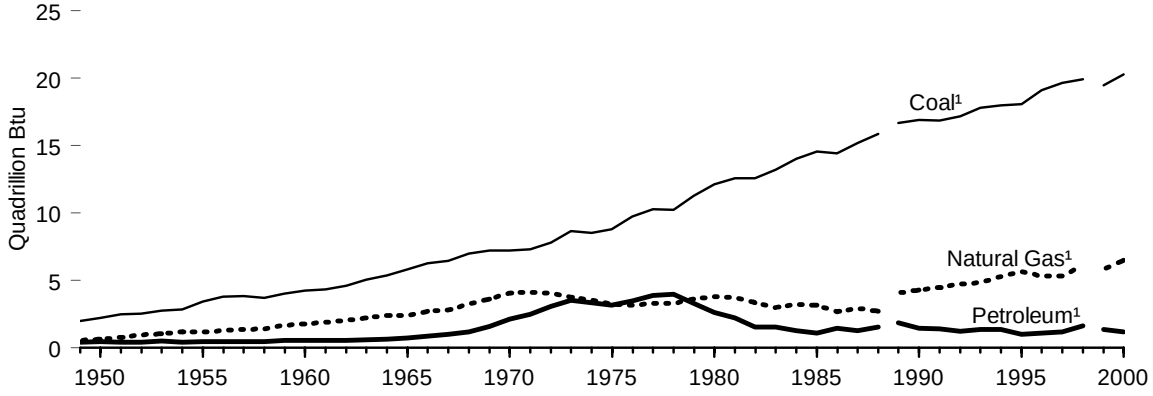
Petroleum, 1989-2000



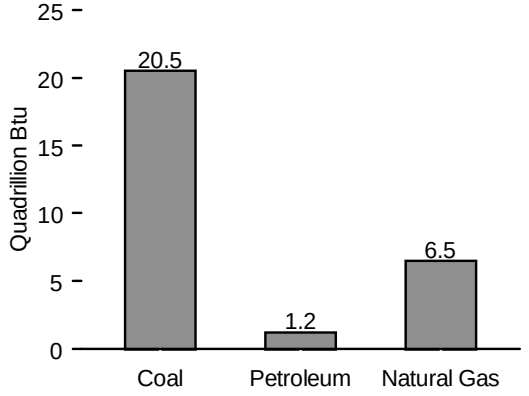
Natural Gas, 1989-2000



Fossil Fuels, 1949-2000



Fossil Fuels, 2000



[1] Electric utility data for all years are for fuels consumed to produce electricity only. Nonutility data for 1989-1998 are for fuels consumed to produce both electricity and useful thermal output; nonutility data for 1999 and 2000 are for fuels consumed to produce electricity only.

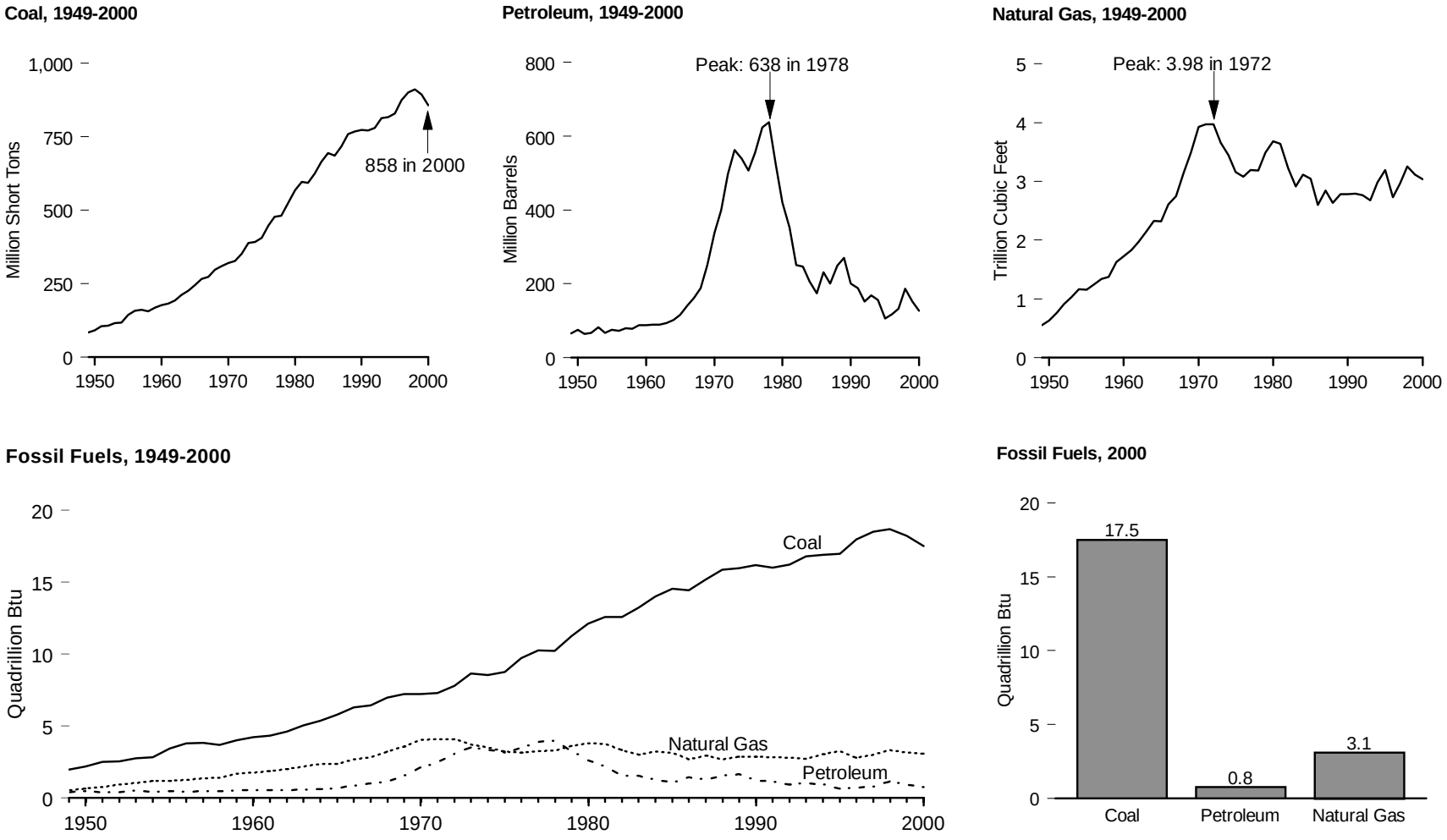
Note: Because vertical scales differ, graphs should not be compared.
Sources: Tables 2.1f, 8.8, 8.9, 8.10, A3, A4, and A5.

Table 8.8 Consumption of Fossil Fuels To Generate Electricity, 1949-2000

Year	Coal [1]	Petroleum				Natural Gas [1]
		Distillate Fuel Oil [1]	Residual Fuel Oil [1]	Petroleum Coke [2]	Total [2]	
	Million Short Tons	Million Barrels		Million Short Tons	Million Barrels	Billion Cubic Feet
	Electric Utility Consumption To Generate Electricity [3]					
1949	84	5	62	NA	66	550
1950	92	5	70	NA	75	629
1951	106	5	59	NA	64	764
1952	107	5	62	NA	67	910
1953	116	6	76	NA	82	1,034
1954	118	5	62	NA	67	1,165
1955	144	5	70	NA	75	1,153
1956	158	5	67	NA	73	1,239
1957	161	6	74	NA	80	1,336
1958	156	6	72	NA	78	1,373
1959	168	6	82	NA	88	1,629
1960	177	4	84	NA	88	1,725
1961	182	4	85	NA	89	1,825
1962	193	4	85	NA	89	1,966
1963	211	4	89	NA	93	2,144
1964	225	4	97	NA	101	2,323
1965	245	5	110	NA	115	2,321
1966	266	6	135	NA	141	2,610
1967	274	7	154	NA	161	2,746
1968	298	10	179	NA	189	3,148
1969	311	15	236	NA	251	3,488
1970	320	24	311	1	339	3,932
1971	327	34	362	1	399	3,976
1972	352	53	440	1	497	3,977
1973	389	47	513	1	563	3,660
1974	392	53	483	1	539	3,443
1975	406	39	467	(s)	506	3,158
1976	448	42	514	(s)	556	3,081
1977	477	49	575	(s)	624	3,191
1978	481	48	588	(s)	638	3,188
1979	527	31	493	(s)	525	3,491
1980	569	29	391	(s)	421	3,682
1981	597	21	330	(s)	352	3,640
1982	594	15	234	(s)	251	3,226
1983	625	17	229	(s)	247	2,911
1984	664	15	189	(s)	206	3,111
1985	694	15	159	(s)	175	3,044
1986	685	14	216	(s)	232	2,602
1987	718	15	184	(s)	201	2,844
1988	758	19	229	(s)	250	2,636
	Electric Power Sector Consumption To Generate Electricity and Useful Thermal Output [4]					
1989	798	25	270	1	298	3,968
1990	806	15	209	2	234	4,174
1991	810	14	199	2	225	4,359
1992	824	12	168	4	198	4,610
1993	862	13	186	4	221	4,696
1994	870	16	177	6	221	5,136
1995	879	16	122	5	162	5,500
1996	928	17	135	5	178	5,180
1997	953	15	146	6	190	5,200
1998	968	22	211	6	264	5,924
	Electric Power Sector Consumption To Generate Electricity [4]					
1999	[R]952	35	161	5	[R]218	[R]5,680
2000[PE]	991	31	143	4	195	6,325

[1] See Tables 8.9 and 8.10 for product descriptions.
[2] Petroleum coke is converted from short tons to barrels by multiplying by 5.
[3] Data for 1949-1988 are for electric utility consumption to produce electricity only; data for nonutility consumption are not available.
[4] Electric utility data for all years are for fuels consumed to produce electricity only. Nonutility data for 1989-1998 are for fuels consumed to produce both electricity and useful thermal output; nonutility data for 1999 and 2000 are for fuels consumed to produce electricity only. See Note 4 at end of section.
R=Revised. PE=Preliminary estimate. NA=Not available. (s)=Less than 0.5 million short tons.
Notes, Web Page, and Sources: See Tables 8.9 and 8.10.

Figure 8.9 Consumption of Fossil Fuels To Generate Electricity at Electric Utilities



Note: Electric utility data for all years are for fuels consumed to produce electricity only.

Sources: Tables 8.9, A3, A4, and A5.

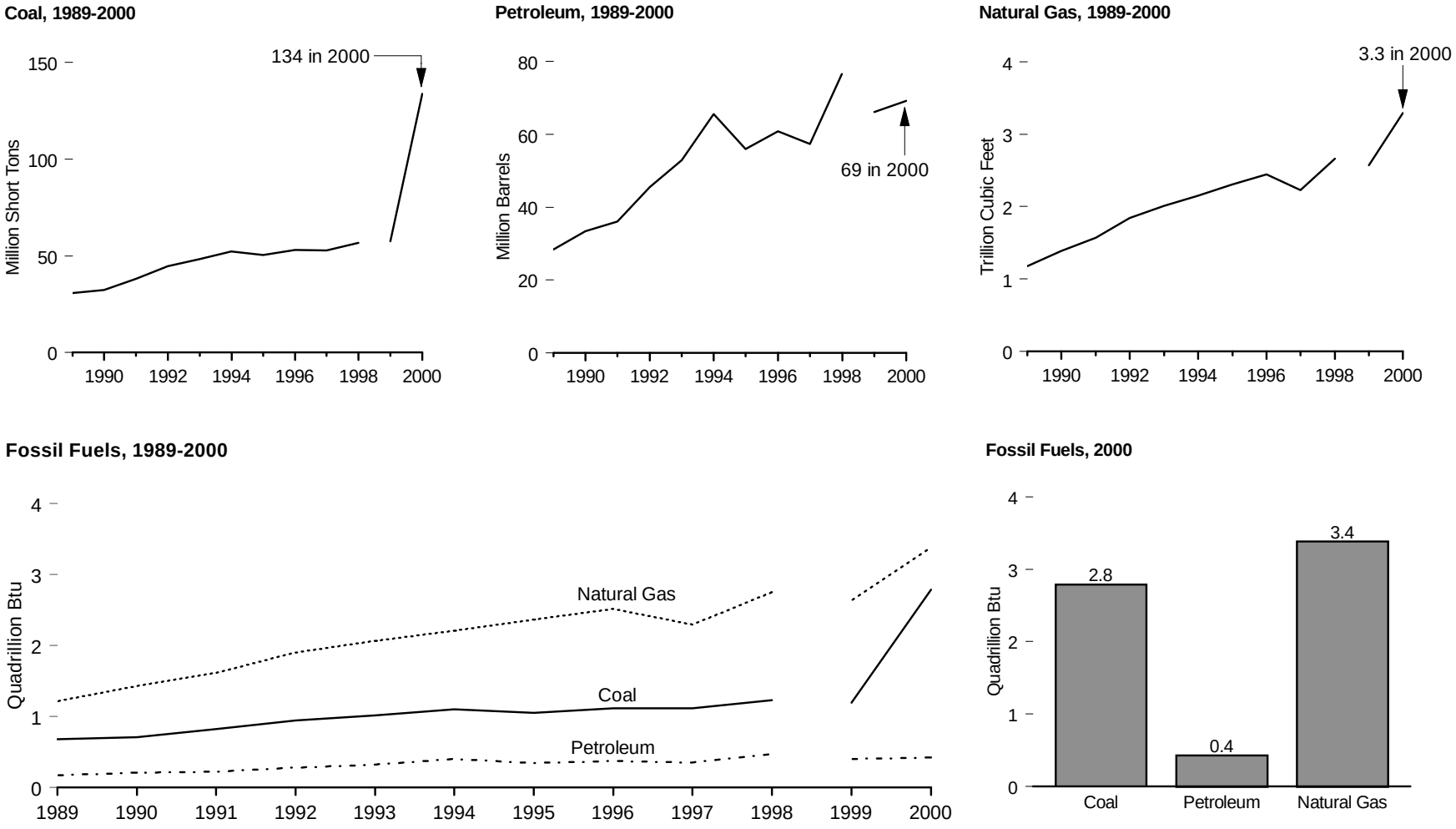
Table 8.9 Consumption of Fossil Fuels To Generate Electricity at Electric Utilities, 1949-2000

Year	Coal [1]	Petroleum				Natural Gas [5]
		Distillate Fuel Oil [2]	Residual Fuel Oil [3]	Petroleum Coke [4]	Total [4]	
	Million Short Tons	Million Barrels		Million Short Tons	Million Barrels	Billion Cubic Feet
	Consumption To Generate Electricity [6]					
1949	84	5	62	NA	66	550
1950	92	5	70	NA	75	629
1951	106	5	59	NA	64	764
1952	107	5	62	NA	67	910
1953	116	6	76	NA	82	1,034
1954	118	5	62	NA	67	1,165
1955	144	5	70	NA	75	1,153
1956	158	5	67	NA	73	1,239
1957	161	6	74	NA	80	1,336
1958	156	6	72	NA	78	1,373
1959	168	6	82	NA	88	1,629
1960	177	4	84	NA	88	1,725
1961	182	4	85	NA	89	1,825
1962	193	4	85	NA	89	1,966
1963	211	4	89	NA	93	2,144
1964	225	4	97	NA	101	2,323
1965	245	5	110	NA	115	2,321
1966	266	6	135	NA	141	2,610
1967	274	7	154	NA	161	2,746
1968	298	10	179	NA	189	3,148
1969	311	15	236	NA	251	3,488
1970	320	24	311	1	339	3,932
1971	327	34	362	1	399	3,976
1972	352	53	440	1	497	3,977
1973	389	47	513	1	563	3,660
1974	392	53	483	1	539	3,443
1975	406	39	467	(s)	506	3,158
1976	448	42	514	(s)	556	3,081
1977	477	49	575	(s)	624	3,191
1978	481	48	588	(s)	638	3,188
1979	527	31	493	(s)	525	3,491
1980	569	29	391	(s)	421	3,682
1981	597	21	330	(s)	352	3,640
1982	594	15	234	(s)	251	3,226
1983	625	17	229	(s)	247	2,911
1984	664	15	189	(s)	206	3,111
1985	694	15	159	(s)	175	3,044
1986	685	14	216	(s)	232	2,602
1987	718	15	184	(s)	201	2,844
1988	758	19	229	(s)	250	2,636
1989	767	25	242	1	270	2,787
1990	774	15	181	1	200	2,787
1991	772	14	171	1	188	2,789
1992	780	12	136	1	152	2,766
1993	814	13	149	1	169	2,682
1994	817	16	135	1	155	2,987
1995	829	16	87	1	106	3,197
1996	875	17	96	1	117	2,732
1997	900	15	110	1	132	2,968
1998	911	22	157	2	187	3,258
1999	R894	R22	R122	2	R152	R3,113
2000P	858	22	98	1	126	3,034

[1] Includes anthracite silt stored off-site.
[2] For 1949 to 1979, gas turbine and internal combustion plant use of petroleum; for 1980 forward, fuel oil nos. 1 and 2 (and small amounts of kerosene and jet fuel).
[3] For 1949 to 1979, steam plant consumption of petroleum; for 1980 forward, fuel oil nos. 5 and 6 (and small amounts of fuel oil no. 4).
[4] Petroleum coke is converted from short tons to barrels by multiplying by 5.
[5] Includes supplemental gaseous fuels.
[6] Electric utility data for all years are for fuels consumed to produce electricity only.

R=Revised. P=Preliminary. NA=Not available. (s)=Less than 0.5 million short tons.
Note: Totals may not equal sum of components due to independent rounding.
Web Page: http://www.eia.doe.gov/fuelelectric.html.
Sources: • 1949-September 1977—Federal Power Commission, Form FPC-4, "Monthly Power Plant Report." • October 1977-1979—Federal Energy Regulatory Commission, Form FPC-4, "Monthly Power Plant Report." • 1980-1989—Energy Information Administration (EIA), *Electric Power Monthly* (March issues). • 1990-2000—Energy Information Administration (EIA), *Electric Power Monthly* (March 2001), Table 14.

Figure 8.10 Consumption of Fossil Fuels To Generate Electricity at Nonutility Power Producers, 1989-2000



Note: Nonutility data for 1989-1998 are for fuels consumed to produce both electricity and useful thermal output; nonutility data for 1999 and 2000 are for fuels consumed to produce electricity only. See Note 4 at end of section.

Sources: Tables 8.10, A3, A4, and A5.

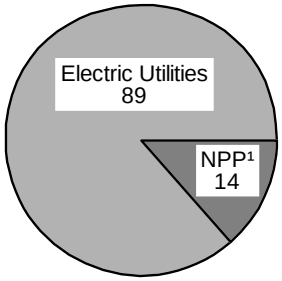
Table 8.10 Consumption of Fossil Fuels To Generate Electricity at Nonutility Power Producers, 1989-2000

Year	Coal [1]	Petroleum				Natural Gas
		Distillate Fuel Oil [2]	Residual Fuel Oil [3]	Petroleum Coke [4]	Total [4]	
	Million Short Tons	Million Barrels		Million Short Tons	Million Barrels	Billion Cubic Feet
	Consumption To Generate Electricity and Useful Thermal Output [5]					
1989[6]	31	([7])	28	NA	28	1,181
1990[6]	32	([7])	28	1	33	1,387
1991[6]	38	([7])	28	2	36	1,570
1992	45	([7])	32	3	46	1,845
1993	48	([7])	37	3	53	2,014
1994	52	([7])	42	5	66	2,149
1995	50	([7])	35	4	56	2,304
1996	53	([7])	38	4	61	2,448
1997	53	([7])	36	4	57	2,231
1998	57	([7])	54	4	77	2,666
	Consumption To Generate Electricity [5]					
1999	[R]57	13	38	[R]3	[R]66	[R]2,567
2000[PE]	134	8	45	3	69	3,291

[1] Coal, fine coal, anthracite culm, bituminous gob, lignite waste, tar coal, waste coal, and coke breeze.
[2] Fuel oil nos. 1 and 2 (and small amounts of kerosene).
[3] Fuel oil nos. 5 and 6 (and small amounts of fuel oil no. 4, liquid butane, liquid propane, methanol, liquid byproducts, oil waste, sludge oil, and tar oil).
[4] Petroleum coke is converted from short tons to barrels by multiplying by 5.
[5] Nonutility data for 1989-1998 are for fuels consumed to produce both electricity and useful thermal output; nonutility data for 1999 and 2000 are for fuels consumed to produce electricity only. See Note 4 at end of section.
[6] Data for 1989-1991 were collected for facilities with capacities of 5 megawatts or more. In 1992, the threshold was lowered to include facilities with capacities of 1 megawatt or more. Estimates of the 1-to-5 megawatt range for 1989-1991 were derived from historical data. The estimation did not include retirements that occurred prior to 1992 and included only the capacity of facilities that came on line before 1992.
[7] Included in residual fuel oil.
R=Revised. PE=Preliminary estimate. NA=Not available.
Notes: • Due to restructuring of the electric power sector, the sale of generation assets is resulting in reclassification of plants from electric utility to nonutility plants. • See Note 4 at end of section for an explanation of the derivation of consumption to generate electricity. • Totals may not equal sum of components due to independent rounding.
Web Page: http://www.eia.doe.gov/fuelelectric.html.
Sources: • 1989-1997—Energy Information Administration (EIA), Form EIA-867, "Annual Nonutility Power Producer Report." • 1998 and 1999—EIA, Form EIA-860B, "Annual Electric Generator Report--Nonutility." • 2000—EIA, Form EIA-900, "Monthly Nonutility Power Report."

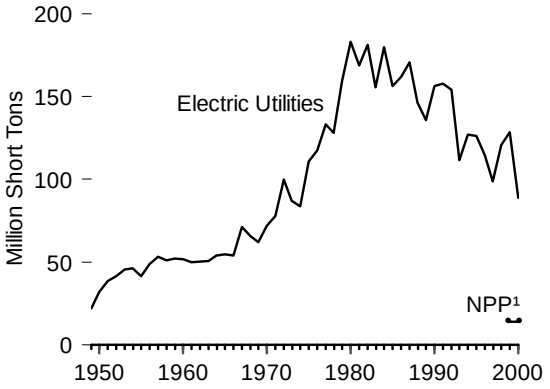
Figure 8.11 Electric Power Sector Stocks of Coal and Petroleum

Coal Stocks, 2000

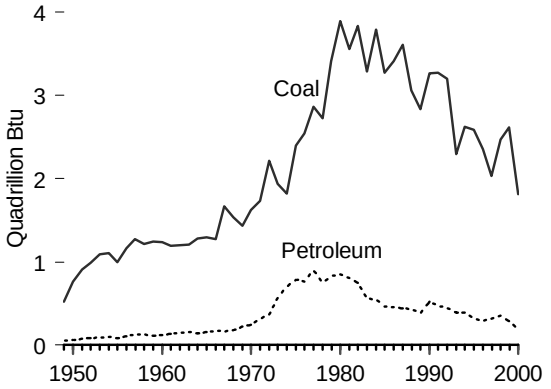


Total: 103 million short tons

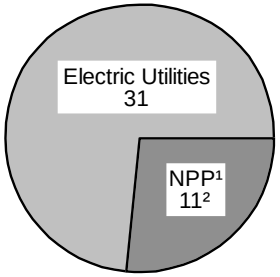
Coal Stocks, 1949-2000



Coal and Petroleum Stocks at Electric Utilities, 1949-2000

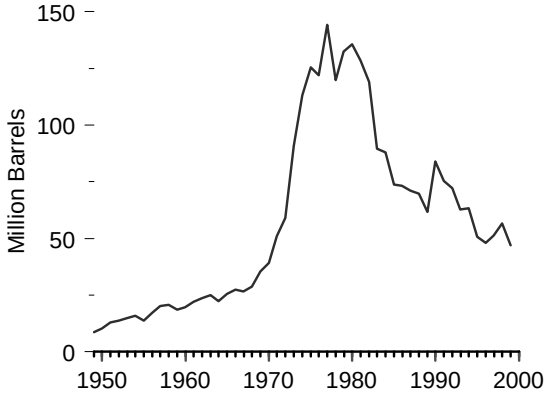


Petroleum Stocks, 2000

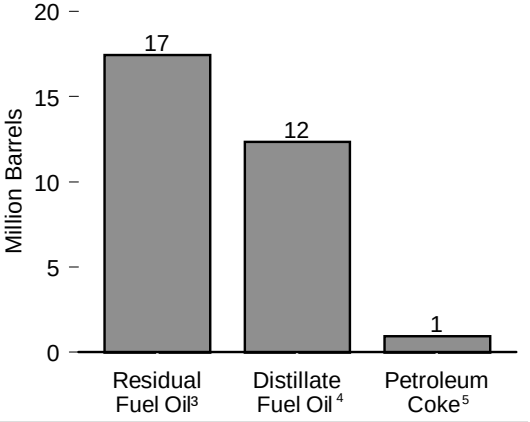


Total: 42 million barrels

Petroleum Stocks at Electric Utilities, 1949-2000



Petroleum Stocks at Electric Utilities by Type, 2000



[1] Nonutility power producers.
[2] Liquids only.
[3] Fuel oil nos. 4, 5, and 6, and residual fuel oils.
[4] Fuel oil nos. l and 2, heating oil, kerosene, and jet fuel.
[5] Petroleum coke, which is reported in short tons, is converted at a rate of 5 barrels per short ton.
Note: Because vertical scales differ, graphs should not be compared.
Sources: Tables 8.11, A3, and A5.

Table 8.11 Electric Power Sector Stocks of Coal and Petroleum, 1949-2000

	Coal			Petroleum								
				Electric Utilities					Nonutility Power Producers			
Year	Electric Utilities	Nonutility Power Producers	Total Electric Power Sector	Distillate Fuel Oil [1]	Residual Fuel Oil [2]	Total Liquids	Petroleum Coke [3]	Total [3]	Total Liquids	Petroleum Coke [3]	Total [3]	Total Electric Power Sector
	Million Short Tons			Million Barrels			Million Short Tons	Million Barrels	Million Barrels	Million Short Tons	Million Barrels	Million Barrels
1949	22.1	NA	NA	NA	NA	8.6	NA	8.6	NA	NA	NA	NA
1950	31.8	NA	NA	NA	NA	10.2	NA	10.2	NA	NA	NA	NA
1951	38.5	NA	NA	NA	NA	12.8	NA	12.8	NA	NA	NA	NA
1952	41.5	NA	NA	NA	NA	13.7	NA	13.7	NA	NA	NA	NA
1953	45.6	NA	NA	NA	NA	15.0	NA	15.0	NA	NA	NA	NA
1954	46.1	NA	NA	NA	NA	15.9	NA	15.9	NA	NA	NA	NA
1955	41.4	NA	NA	NA	NA	13.7	NA	13.7	NA	NA	NA	NA
1956	48.8	NA	NA	NA	NA	17.3	NA	17.3	NA	NA	NA	NA
1957	53.1	NA	NA	NA	NA	20.1	NA	20.1	NA	NA	NA	NA
1958	51.0	NA	NA	NA	NA	20.8	NA	20.8	NA	NA	NA	NA
1959	52.1	NA	NA	NA	NA	18.5	NA	18.5	NA	NA	NA	NA
1960	51.7	NA	NA	NA	NA	19.6	NA	19.6	NA	NA	NA	NA
1961	50.1	NA	NA	NA	NA	22.0	NA	22.0	NA	NA	NA	NA
1962	50.4	NA	NA	NA	NA	23.8	NA	23.8	NA	NA	NA	NA
1963	50.6	NA	NA	NA	NA	24.9	NA	24.9	NA	NA	NA	NA
1964	53.9	NA	NA	NA	NA	22.4	NA	22.4	NA	NA	NA	NA
1965	54.5	NA	NA	NA	NA	25.6	NA	25.6	NA	NA	NA	NA
1966	53.9	NA	NA	NA	NA	27.4	NA	27.4	NA	NA	NA	NA
1967	71.0	NA	NA	NA	NA	26.7	NA	26.7	NA	NA	NA	NA
1968	65.5	NA	NA	NA	NA	28.7	NA	28.7	NA	NA	NA	NA
1969	61.9	NA	NA	NA	NA	35.3	NA	35.3	NA	NA	NA	NA
1970	71.9	NA	NA	NA	NA	38.0	0.2	39.2	NA	NA	NA	NA
1971	77.8	NA	NA	NA	NA	49.6	0.3	51.1	NA	NA	NA	NA
1972	99.7	NA	NA	NA	NA	57.7	0.3	59.1	NA	NA	NA	NA
1973	87.0	NA	NA	10.1	79.1	89.2	0.3	90.8	NA	NA	NA	NA
1974	83.5	NA	NA	15.2	97.7	112.9	(s)	113.1	NA	NA	NA	NA
1975	110.7	NA	NA	16.4	108.8	125.3	(s)	125.4	NA	NA	NA	NA
1976	117.4	NA	NA	14.7	107.0	121.7	(s)	121.9	NA	NA	NA	NA
1977	133.2	NA	NA	19.3	124.7	144.0	(s)	144.3	NA	NA	NA	NA
1978	128.2	NA	NA	16.4	102.4	118.8	0.2	119.8	NA	NA	NA	NA
1979	159.7	NA	NA	20.3	111.1	131.4	0.2	132.3	NA	NA	NA	NA
1980	183.0	NA	NA	30.0	105.4	135.4	0.1	135.6	NA	NA	NA	NA
1981	168.9	NA	NA	26.1	102.0	128.1	(s)	128.3	NA	NA	NA	NA
1982	181.1	NA	NA	23.4	95.5	118.9	(s)	119.1	NA	NA	NA	NA
1983	155.6	NA	NA	18.8	70.6	89.4	0.1	89.7	NA	NA	NA	NA
1984	179.7	NA	NA	19.1	68.5	87.6	0.1	87.9	NA	NA	NA	NA
1985	156.4	NA	NA	16.4	57.3	73.7	(s)	73.9	NA	NA	NA	NA
1986	161.8	NA	NA	16.3	56.8	73.1	(s)	73.3	NA	NA	NA	NA
1987	170.8	NA	NA	15.8	55.1	70.8	0.1	71.1	NA	NA	NA	NA
1988	146.5	NA	NA	15.1	54.2	69.3	0.1	69.7	NA	NA	NA	NA
1989	135.9	NA	NA	13.8	47.4	61.3	0.1	61.8	NA	NA	NA	NA
1990	156.2	NA	NA	16.5	67.0	83.5	0.1	84.0	NA	NA	NA	NA
1991	157.9	NA	NA	16.4	58.6	75.0	0.1	75.3	NA	NA	NA	NA
1992	154.1	NA	NA	15.7	56.1	71.8	0.1	72.2	NA	NA	NA	NA
1993	111.3	NA	NA	15.7	46.8	62.4	0.1	62.9	NA	NA	NA	NA
1994	126.9	NA	NA	16.6	46.3	63.0	0.1	63.3	NA	NA	NA	NA
1995	126.3	NA	NA	15.4	35.1	50.5	0.1	50.8	NA	NA	NA	NA
1996	114.6	NA	NA	15.2	32.5	47.7	0.1	48.1	NA	NA	NA	NA
1997	98.8	NA	NA	15.5	33.3	48.8	0.5	51.1	NA	NA	NA	NA
1998	120.5	NA	NA	16.3	37.4	53.8	0.6	56.6	NA	NA	NA	NA
1999	R128.5	R14.1	R142.5	R16.5	R27.8	R44.3	0.4	R46.1	R8.7	NA	NA	NA
2000P	88.8	E13.9	102.8	12.4	17.5	29.8	0.2	30.8	E11.1	NA	NA	NA

[1] For 1973 to 1979, gas turbine and internal combustion plant stocks of petroleum; for 1980 forward, fuel oil nos. 1 and 2 (and small amounts of kerosene and jet fuel).

[2] For 1973 to 1979, steam plant stocks of petroleum; for 1980 forward, fuel oil nos. 5 and 6 (and small amounts of fuel oil no. 4).

[3] Petroleum coke is converted from short tons to barrels by multiplying by 5.

R=Revised. P=Preliminary. E=Estimate. NA=Not available. (s)=Less than 0.05 million short tons.

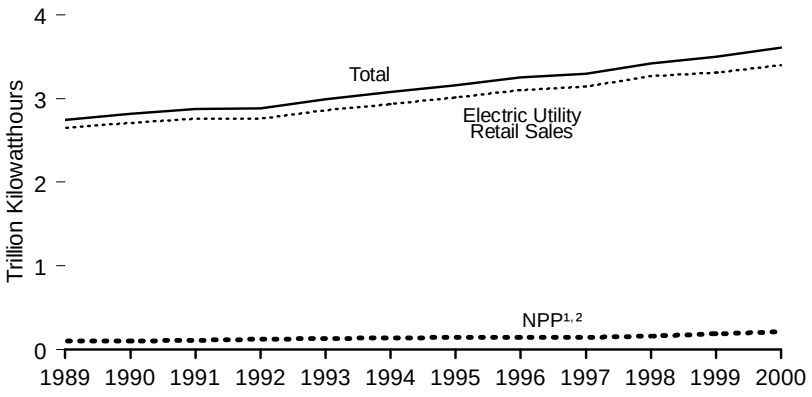
Notes: • Stocks are at end of year. • Data are for fuels available to produce electricity; they may include some fuels available to produce useful thermal output at cogeneration plants. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/fuelelectric.html.

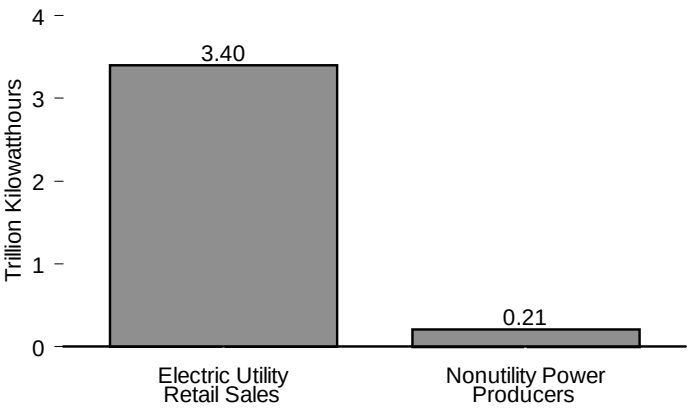
Sources: • 1949-September 1977—Federal Power Commission, Form FPC-4, "Monthly Power Plant Report." • October 1977-1979—Federal Energy Regulatory Commission, Form FPC-4, "Monthly Power Plant Report." • 1980-1989—Energy Information Administration (EIA), *Electric Power Monthly,* March issues. • 1990 forward—EIA, *Electric Power Monthly* (March 2001), Tables 21 and 71.

Figure 8.12 Electricity End Use, 1949-2000

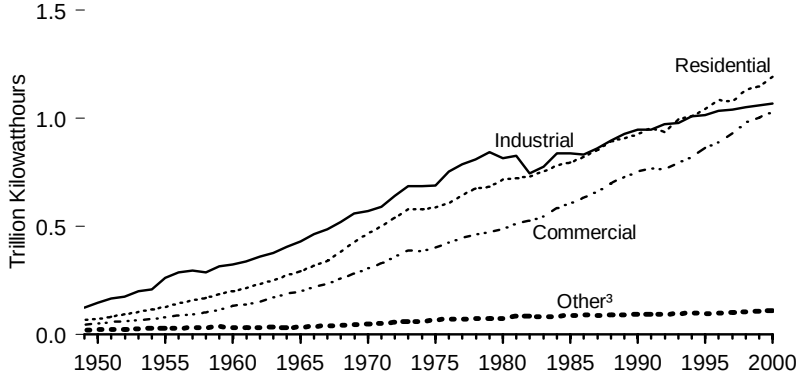
Overview, 1989-2000



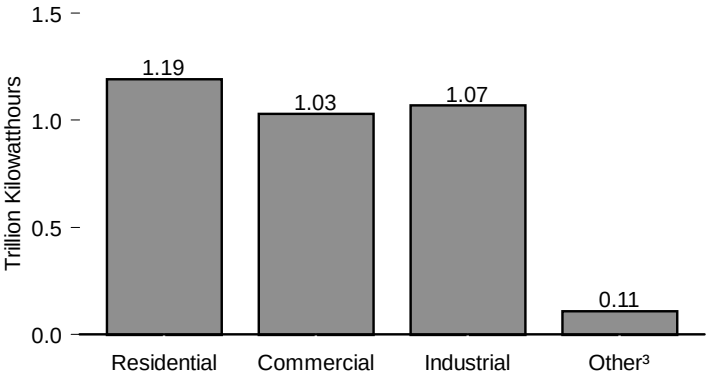
Overview, 2000



Electric Utility Retail Sales by Sector, 1949-2000



Electric Utility Retail Sales by Sector, 2000



[1] Nonutility power producer.

[2] Direct use and sales to end users.

[3] Public street and highway lighting, other sales to public authorities, sales to railroads and railways, and interdepartmental sales.

Note: Because vertical scales differ, graphs should not be compared.
Source: Table 8.12

Table 8.12 Electricity End Use, 1949-2000

(Billion Kilowatthours)

Year	Electric Utility Retail Sales [1]					Nonutility Power Producers			Total
	Residential	Commercial	Industrial	Other [2]	Total	Direct Use [3]	Sales to End Users	Total	
1949	67	45	123	20	255	NA	NA	NA	NA
1950	72	51	146	22	291	NA	NA	NA	NA
1951	83	57	166	24	330	NA	NA	NA	NA
1952	94	62	176	24	356	NA	NA	NA	NA
1953	104	67	199	26	396	NA	NA	NA	NA
1954	116	72	208	27	424	NA	NA	NA	NA
1955	128	79	260	29	497	NA	NA	NA	NA
1956	143	87	286	30	546	NA	NA	NA	NA
1957	157	94	294	31	576	NA	NA	NA	NA
1958	169	100	287	32	588	NA	NA	NA	NA
1959	185	112	315	36	647	NA	NA	NA	NA
1960	201	131	324	32	688	NA	NA	NA	NA
1961	214	138	337	32	722	NA	NA	NA	NA
1962	233	153	360	32	778	NA	NA	NA	NA
1963	251	171	377	34	833	NA	NA	NA	NA
1964	272	187	405	32	896	NA	NA	NA	NA
1965	291	200	429	34	954	NA	NA	NA	NA
1966	317	218	464	37	1,035	NA	NA	NA	NA
1967	340	234	485	40	1,099	NA	NA	NA	NA
1968	382	258	521	42	1,203	NA	NA	NA	NA
1969	427	282	559	46	1,314	NA	NA	NA	NA
1970	466	307	571	48	1,392	NA	NA	NA	NA
1971	500	329	589	51	1,470	NA	NA	NA	NA
1972	539	359	641	56	1,595	NA	NA	NA	NA
1973	579	388	686	59	1,713	NA	NA	NA	NA
1974	578	385	685	58	1,706	NA	NA	NA	NA
1975	588	403	688	68	1,747	NA	NA	NA	NA
1976	606	425	754	70	1,855	NA	NA	NA	NA
1977	645	447	786	71	1,948	NA	NA	NA	NA
1978	674	461	809	73	2,018	NA	NA	NA	NA
1979	683	473	842	73	2,071	NA	NA	NA	NA
1980	717	488	815	74	2,094	NA	NA	NA	NA
1981	722	514	826	85	2,147	NA	NA	NA	NA
1982	730	526	745	86	2,086	NA	NA	NA	NA
1983	751	544	776	80	2,151	NA	NA	NA	NA
1984	780	583	838	85	2,286	NA	NA	NA	NA
1985	794	606	837	87	2,324	NA	NA	NA	NA
1986	819	631	831	89	2,369	NA	NA	NA	NA
1987	850	660	858	88	2,457	NA	NA	NA	NA
1988	893	699	896	90	2,578	NA	NA	NA	NA
1989	906	726	926	90	2,647	[4]83	[4]18	100	2,747
1990	924	751	946	92	2,713	[4]84	[4]20	104	2,817
1991	955	766	947	94	2,762	[4]100	[4]11	111	2,873
1992	936	761	973	93	2,763	111	11	122	2,885
1993	995	795	977	95	2,861	111	16	127	2,988
1994	1,008	820	1,008	98	2,935	123	18	141	3,075
1995	1,043	863	1,013	95	3,013	134	16	149	3,162
1996	[R]1,083	887	[R]1,034	98	[R]3,101	135	14	149	[R]3,250
1997	1,076	[R]929	[R]1,038	103	[R]3,146	131	18	149	[R]3,295
1998	[R]1,130	[R]979	[R]1,051	104	[R]3,264	134	26	160	[R]3,424
1999	[R]1,145	[R]1,002	[R]1,058	[R]107	[R]3,312	147	42	189	3,501
2000[P]	1,192	1,028	1,068	110	3,398	NA	NA	[F]208	3,607

[1] Includes nonutility sales of electricity to utilities for distribution to end users. Beginning in 1996, also includes sales to ultimate consumers by power marketers.

[2] Public street and highway lighting, other sales to public authorities, sales to railroads and railways, and interdepartmental sales.

[3] Nonutility facility use of onsite net electricity generation.

[4] Data for 1989-1991 were collected for facilities with capacities of 5 megawatts or more. In 1992, the threshold was lowered to include facilities with capacities of 1 megawatt or more. Estimates of the 1-to-5 megawatt range for 1989-1991 were derived from historical data. The estimation did not include retirements that occurred prior to 1992 and included only the capacity of facilities that came on line before 1992.

R=Revised. P=Preliminary. F=Forecast. NA=Not available.

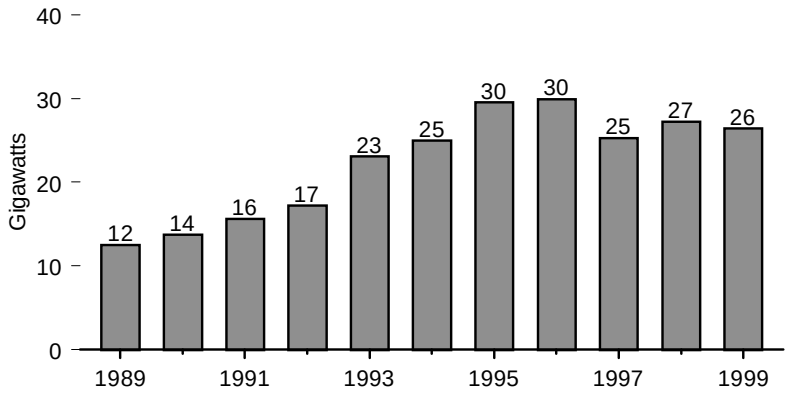
Notes: • See Note 5 at end of section. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/fuelelectric.html.

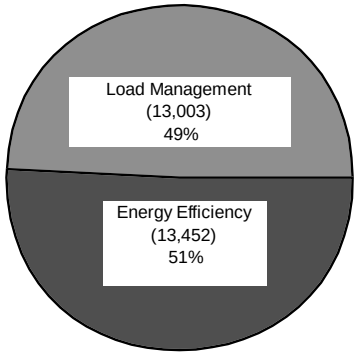
Sources: **Electric Utility Retail Sales:** • 1949-September 1977—Federal Power Commission, Form FPC-5, "Monthly Statement of Electric Operating Revenue and Income." • October 1977-February 1980—Federal Energy Regulatory Commission (FERC), Form FPC-5, "Monthly Statement of Electric Operating Revenue and Income." • March 1980-1982—FERC, Form FPC-5, "Electric Utility Company Monthly Statement." • 1983—Energy Information Administration (EIA), Form EIA-826, "Electric Utility Company Monthly Statement." • 1984-1989—EIA, Form EIA-861, "Annual Electric Utility Report." • 1990 forward—EIA, *Electric Power Monthly* (March 2001), Table 44. **Nonutility Power Producers:** • 1989-1999—EIA, Form EIA-860B, "Annual Electric Generator Report-Nonutility" and predecessor form. • 2000—EIA, *Short-Term Energy Outlook* (May 2001).

Figure 8.13 Electric Utility Demand-Side Management Programs: Peakload Reductions, Energy Savings, and Costs

Actual Peakload Reductions Total, 1989-1999

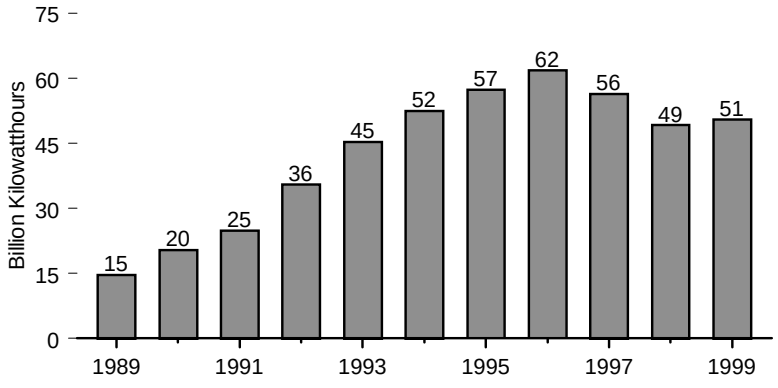


Actual Peakload Reductions by Program, 1999

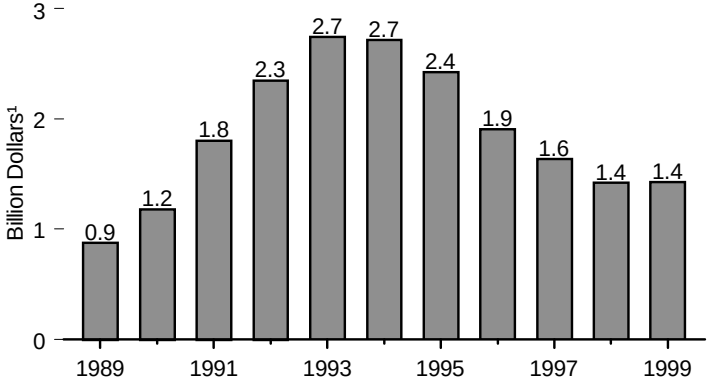


Total: 26,455 Megawatts

Energy Savings, 1989-1999



Costs, 1989-1999



¹ Nominal dollars.

Source: Table 8.13.

Table 8.13 Electric Utility Demand-Side Management Programs: Peakload Reductions, Energy Savings, and Costs, 1989-1999

Year	Actual Peakload Reductions [1] (megawatts)			Energy Savings (million kilowatthours)	Costs (thousand dollars [4])
	Load Management [2]	Energy Efficiency [3]	Total		
1989	NA	NA	12,463	14,672	872,935
1990	7,911	[5]5,793	13,704	20,458	1,177,457
1991	8,767	[5]6,852	15,619	24,848	1,803,773
1992	7,357	[5]9,847	17,204	35,563	2,348,094
1993	10,583	[5]12,486	23,069	45,294	2,743,533
1994	10,922	[5]14,079	25,001	52,483	2,715,657
1995	13,753	[5]15,807	29,561	57,421	2,421,261
1996	12,965	[5]16,928	29,893	61,842	1,902,197
1997	11,958	13,326	25,284	56,406	1,636,020
1998	13,640	13,591	27,231	49,167	1,420,920
1999	13,003	13,452	26,455	50,563	1,423,644

[1] The actual reduction in peak load reflects the change in demand for electricity that results from a utility demand-side management program that is in effect at the time that the utility experiences its actual peak load as opposed to the potential installed peakload reduction capability. Differences between actual and potential peak reduction result from changes in weather, economic activity, and other variable conditions.

[2] Load Management includes programs such as Direct Load Control and Interruptible Load Control, and beginning in 1997, "other types" of demand-side management programs. Direct load control refers to program activities that can interrupt consumer load at the time of annual peak load by direct control of the utility system operator by interrupting power supply to individual appliances or equipment on consumer premises. This type of control usually involves residential consumers. Interruptible load refers to program activities that, in accordance with contractual arrangements, can interrupt consumer load at times of seasonal peak load by direct control of the utility system operator or by action of the consumer at the direct request of the system operator. It usually involves commercial and industrial consumers. In some instances, the load reduction may be affected by direct action of the system operator (remote tripping) after notice to the consumer in accordance with contractual provisions. "Other types" are programs that limit or shift peak loads from on-peak to off-peak time periods, such as space heating and water heating storage systems.

[3] Energy efficiency refers to programs that are aimed at reducing the energy used by specific end-use devices and systems, typically without affecting the services provided. These programs reduce overall electricity consumption, often without explicit consideration for the timing of program-induced savings. Such savings are generally achieved by substituting technically more advanced equipment to produce the same level of end-use services (e.g., lighting, heating, motor drive) with less electricity. Examples include high-efficiency appliances, efficient lighting programs, high-efficiency heating, ventilating, and air conditioning systems or control modifications, efficient building design, advanced electric motor drives, and heat recovery systems.

[4] Nominal dollars.

[5] From 1989 to 1996, Energy Efficiency includes "other types" of demand-side management programs. Beginning in 1997, these programs are included under Load Management.

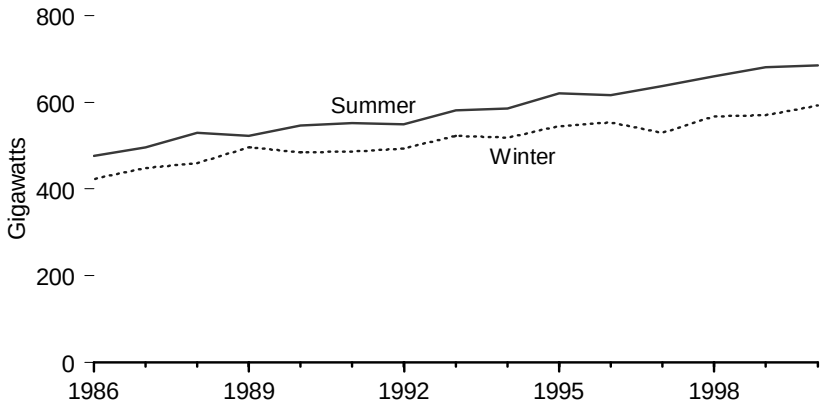
NA=Not available.

Web Page: http://www.eia.doe.gov/fuelelectric.html.

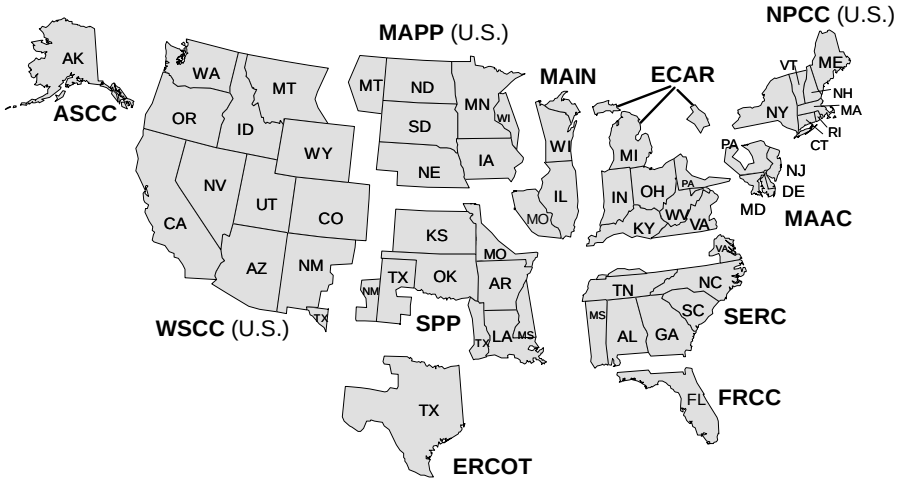
Sources: • 1989-1994—Energy Information Administration (EIA), *Electric Power Annual,* annual reports. • 1995 forward—EIA, *Electric Power Annual 1999, Volume II* (October 2000), Tables 45, 48, and 49.

Figure 8.14 Electric Power Sector Noncoincidental Peak Load and Capacity Margin

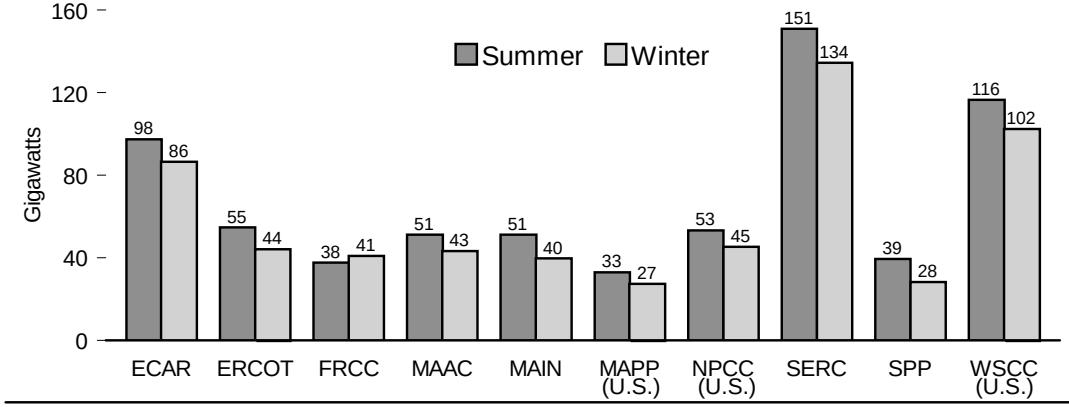
U.S. Peak Load, 1986-2000



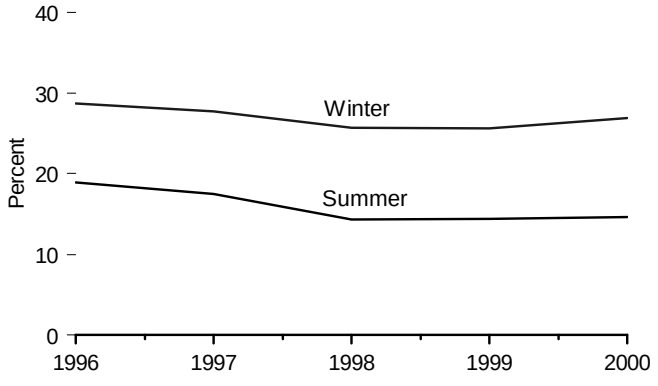
North American Electric Reliability Council Map for the United States



By NERC Region, 2000



Capacity Margin, 1996-2000



Notes: • Noncoincidental peak load is the sum of two or more peak loads on individual systems that do not occur at the same time interval. See Glossary for information on North American Electric Reliability Council (NERC). • Because vertical scales differ, graphs should not be compared.

Source: Table 8.14.

Table 8.14 Electric Power Sector Noncoincidental Peak Load and Capacity Margin, 1986-2000

(Megawatts, Except as Noted)

Year	Noncoincidental Peak Load														Capacity Margin [2] (percent)
	North American Electric Reliability Council Regions [1]										Contiguous United States	ASCC (Alaska)	Hawaii	U.S. Total	
	ECAR	ERCOT	FRCC	MAAC	MAIN	MAPP (U.S.)	NPCC (U.S.)	SERC	SPP	WSCC (U.S.)					
	Summer														
1986	69,606	39,335	—	37,564	35,943	21,029	39,026	105,570	47,123	81,787	476,983	([3])	([4])	476,983	NA
1987	72,561	39,339	—	40,526	37,446	23,162	42,651	109,798	47,723	82,967	496,173	([3])	([4])	496,173	NA
1988	79,149	40,843	—	43,110	41,139	24,899	45,245	115,168	49,356	90,551	529,460	([3])	([4])	529,460	NA
1989	75,442	40,402	—	41,614	39,460	23,531	45,031	117,051	49,439	90,657	522,627	455	([4])	523,082	NA
1990	79,258	42,737	—	42,613	40,740	24,994	44,116	121,149	52,541	97,389	545,537	463	([4])	546,000	NA
1991	81,539	41,870	—	45,937	41,598	25,498	46,594	124,688	51,885	92,096	551,705	471	([4])	552,176	NA
1992	78,550	42,619	—	43,658	38,819	22,638	43,658	128,236	51,324	99,205	548,707	504	([4])	549,211	NA
1993	85,930	44,255	—	46,494	41,956	24,396	46,706	136,101	57,106	97,809	580,753	511	([4])	581,264	NA
1994	87,165	44,162	—	46,019	42,562	27,000	47,581	132,584	56,035	102,212	585,320	524	([4])	585,844	NA
1995	92,619	46,618	—	48,577	45,782	29,192	47,705	146,569	59,595	103,592	620,249	622	([4])	620,871	NA
1996	90,798	47,480	—	44,302	46,402	28,253	45,094	145,650	60,072	108,739	616,790	([4])	([4])	616,790	18.9
1997	R93,492	R50,541	R35,375	R49,464	R45,887	R29,787	R49,269	R137,382	R36,479	R110,001	R637,677	([4])	([4])	637,677	17.5
1998	R93,784	R54,666	R38,730	R48,445	R47,509	R30,722	R49,566	R143,226	R37,724	R115,921	R660,293	([4])	([4])	660,293	14.3
1999	R99,239	R55,529	R37,493	R51,645	R51,535	R31,903	R52,855	R149,012	R38,609	R113,629	R681,449	([4])	([4])	681,449	14.4
2000F	97,557	54,817	37,728	51,206	51,271	32,899	53,450	151,065	39,383	116,440	685,816	([4])	([4])	685,816	14.6
	Winter														
1986	64,561	28,730	—	32,807	28,036	18,850	37,976	101,849	33,877	76,171	422,857	([3])	([4])	422,857	NA
1987	68,118	31,399	—	35,775	30,606	19,335	41,902	105,476	34,472	81,182	448,265	([3])	([4])	448,265	NA
1988	67,771	34,621	—	36,363	30,631	20,162	42,951	108,649	35,649	82,937	459,734	([3])	([4])	459,734	NA
1989	73,080	38,388	—	38,161	33,770	20,699	42,588	121,995	42,268	84,768	495,717	626	([4])	496,343	NA
1990	67,097	35,815	—	36,551	32,461	21,113	40,545	117,231	38,949	94,252	484,014	613	([4])	484,627	NA
1991	71,181	35,448	—	37,983	33,420	21,432	41,786	119,575	38,759	86,097	485,681	622	([4])	486,303	NA
1992	72,885	35,055	—	37,915	31,289	21,866	41,125	121,250	39,912	91,686	492,983	635	([4])	493,618	NA
1993	81,846	35,407	—	41,406	34,966	21,955	42,063	133,635	41,644	88,811	521,733	632	([4])	522,365	NA
1994	75,638	36,180	—	40,653	33,999	23,033	42,547	132,661	42,505	91,037	518,253	641	([4])	518,894	NA
1995	83,465	36,965	—	40,790	35,734	23,429	42,755	142,032	44,626	94,890	544,686	676	([4])	545,360	NA
1996	84,534	38,868	—	40,468	37,162	24,251	41,208	143,060	49,095	95,435	554,081	([4])	([4])	554,081	28.7
1997	R75,760	R37,966	R33,076	R37,217	R34,973	R25,390	R41,338	R122,649	R27,437	R94,158	R529,964	([4])	([4])	529,874	27.7
1998	R84,401	R41,876	R39,975	R36,532	R37,410	R26,080	R44,119	R127,416	R27,847	R101,822	R567,478	([4])	([4])	567,558	25.7
1999	R86,239	R39,164	R40,178	R40,220	R39,081	R25,200	R45,227	R128,563	R27,963	R99,080	R570,915	([4])	([4])	570,915	25.6
2000F	86,455	44,287	40,894	43,139	39,742	27,363	45,170	134,488	28,375	102,435	592,348	([4])	([4])	592,348	26.9

[1] See Glossary for information on the North American Electric Reliablility Council (NERC) Regions. Data include the U.S. portion of NERC only. See Figure 8.14 for an illustration of NERC regions.

[2] The percent by which planned generating capacity resources are expected to be greater (or less) than estimated net internal demand at the time of expected peak summer (or winter) demand. Net internal demand does not include estimated demand for direct control load management and customers with interruptible service agreements.

[3] Data submission for ASCC (Alaska) began in 1989.

[4] Data were not filed.

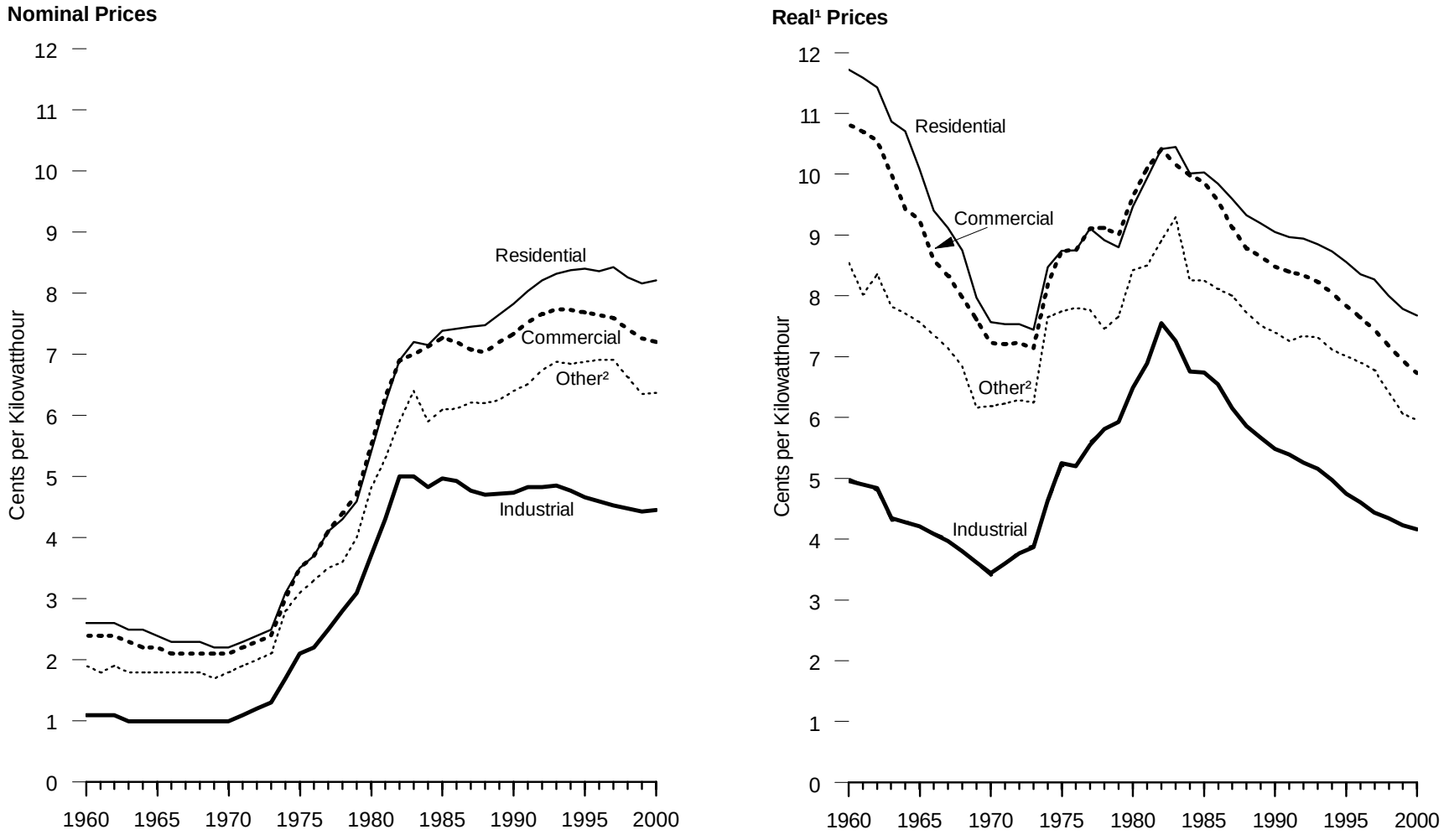
R=Revised. F=Forecast. — = Not applicable. NA=Not available.

Note: Noncoincidental peak load is the sum of two or more peak loads on individual systems that do not occur at the same time interval.

Web Page: http://www.eia.doe.gov/fuelelectric.html.

Sources: • 1986-1990—Energy Information Administration (EIA), *Electric Power Annual 1990* (January 1992), Table 53. • 1991-1993—EIA, *Electric Power Annual 1994, Volume II* (November 1995), Table 35. • 1994 forward—EIA, *Electric Power Annual 1999, Volume II* (October 2000), Tables 35 and 40.

Figure 8.15 Retail Prices of Electricity Sold by Electric Utilities, 1960-2000



[1] In chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.

[2] Public street and highway lighting, other sales to public authorities, sales to railroads and railways, and interdepartmental sales.

Source: Table 8.15.

Table 8.15 Retail Prices of Electricity Sold by Electric Utilities, 1960-2000

(Cents per Kilowatthour)

Year	Residential		Commercial		Industrial		Other [1]		Total	
	Nominal	Real [2]	Nominal	Real [2]	Nominal	Real [2]	Nominal	Real [2]	Nominal	Real [2]
1960	2.6	11.7	2.4	10.8	1.1	5.0	1.9	8.6	1.8	8.1
1961	2.6	11.6	2.4	10.7	1.1	4.9	1.8	8.0	1.8	8.0
1962	2.6	11.4	2.4	10.6	1.1	4.8	1.9	8.4	1.8	7.9
1963	2.5	10.9	2.3	10.0	1.0	4.4	1.8	7.8	1.8	7.8
1964	2.5	10.7	2.2	9.4	1.0	4.3	1.8	7.7	1.7	7.3
1965	2.4	10.1	2.2	9.2	1.0	4.2	1.8	7.6	1.7	7.2
1966	2.3	9.4	2.1	8.6	1.0	4.1	1.8	7.4	1.7	7.0
1967	2.3	9.1	2.1	8.3	1.0	4.0	1.8	7.1	1.7	6.7
1968	2.3	8.8	2.1	8.0	1.0	3.8	1.8	6.8	1.6	6.1
1969	2.2	8.0	2.1	7.6	1.0	3.6	1.7	6.2	1.6	5.8
1970	2.2	7.6	2.1	7.2	1.0	3.4	1.8	6.2	1.7	5.8
1971	2.3	7.5	2.2	7.2	1.1	3.6	1.9	6.2	1.8	5.9
1972	2.4	7.5	2.3	7.2	1.2	3.8	2.0	6.3	1.9	6.0
1973	2.5	7.4	2.4	7.1	1.3	3.9	2.1	6.2	2.0	6.0
1974	3.1	8.5	3.0	8.2	1.7	4.6	2.8	7.6	2.5	6.8
1975	3.5	8.7	3.5	8.7	2.1	5.2	3.1	7.7	2.9	7.2
1976	3.7	8.8	3.7	8.8	2.2	5.2	3.3	7.8	3.1	7.3
1977	4.1	9.1	4.1	9.1	2.5	5.6	3.5	7.8	3.4	7.6
1978	4.3	8.9	4.4	9.1	2.8	5.8	3.6	7.5	3.7	7.7
1979	4.6	8.8	4.7	9.0	3.1	5.9	4.0	7.7	4.0	7.7
1980	5.4	9.5	5.5	9.6	3.7	6.5	4.8	8.4	4.7	8.2
1981	6.2	9.9	6.3	10.1	4.3	6.9	5.3	8.5	5.5	8.8
1982	6.9	10.4	6.9	10.4	5.0	7.6	5.9	8.9	6.1	9.2
1983	7.2	10.4	7.0	10.2	5.0	7.3	6.4	9.3	6.3	9.2
1984	7.15	10.01	7.13	9.98	4.83	6.76	5.90	8.26	6.25	8.75
1985	7.39	10.03	7.27	9.87	4.97	6.74	6.09	8.26	6.44	8.74
1986	7.42	9.85	7.20	9.56	4.93	6.55	6.11	8.11	6.44	8.55
1987	7.45	9.60	7.08	9.13	4.77	6.15	6.21	8.00	6.37	8.21
1988	7.48	9.33	7.04	8.78	4.70	5.86	6.20	7.73	6.35	7.92
1989	7.65	9.19	7.20	8.65	4.72	5.67	6.25	7.51	6.45	7.75
1990	7.83	9.05	7.34	8.48	4.74	5.48	6.40	7.40	6.57	7.59
1991	8.04	8.97	7.53	8.40	4.83	5.39	6.51	7.26	6.75	7.53
1992	8.21	8.94	7.66	8.34	4.83	5.26	6.74	7.34	6.82	7.43
1993	8.32	8.85	7.74	8.23	4.85	5.16	6.88	7.32	6.93	7.37
1994	8.38	8.73	7.73	8.05	4.77	4.97	6.84	7.12	6.91	7.20
1995	8.40	8.56	7.69	7.84	4.66	4.75	6.88	7.01	6.89	7.02
1996	8.36	8.36	7.64	7.64	4.60	4.60	6.91	6.91	6.86	6.86
1997	8.43	8.27	7.59	R7.44	4.53	R4.44	6.91	6.78	6.85	6.72
1998	8.26	R8.00	7.41	R7.18	4.48	4.34	6.63	R6.42	6.74	R6.53
1999	R8.16	R7.79	R7.26	R6.93	R4.43	4.23	R6.35	R6.06	R6.66	R6.36
2000P	8.21	7.68	7.20	6.73	4.45	4.16	6.37	5.96	6.66	6.23

[1] Public street and highway lighting, other sales to public authorities, sales to railroads and railways, and interdepartmental sales.

[2] In chained (1996) dollars, calculated by using gross domestic product implicit price deflators. See Table E1.

R=Revised. P=Preliminary.

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

Web Page: http://www.eia.doe.gov/fuelelectric.html.

Sources: • 1960 through September 1977—Federal Power Commission, Form FPC-5, "Monthly Statement of Electric Operating Revenues and Income." • October 1977 through February 1980—Federal Energy Regulatory Commission (FERC), Form FPC-5, "Monthly Statement of Electric Operating Revenues and Income." • March 1980 through 1982—FERC, Form FERC-5, "Electric Utility Company Monthly Statement." • 1983—Energy Information Administration (EIA), Form EIA-826, "Electric Utility Company Monthly Statement." • 1984-1989—EIA, Form EIA-861, "Annual Electric Utility Report." • 1990 forward—EIA, *Electric Power Monthly* (March 2001), Table 52.

Electricity

Note 1. Electrical system energy losses are estimated as the difference between total energy consumed to generate electricity and the total energy content of electricity consumed by end users. 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 is lost 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 electricity imports from Canada and Mexico, although they are included in electricity end use.

Note 2. Prior to 1985, electric utility supply and distribution statistics included data reported by institutions (such as universities) and military facilities that generated electricity primarily for their own use. Beginning in 1985, electricity statistics exclude data for these facilities and include data only for those organizations that generate electricity primarily for public use. Beginning in 1989, data for nonutility power producers (cogenerators, small power producers, and independent power producers) are provided.

Note 3. Electric utility net summer capabilities were first collected on Form EIA-860 for 1984. Units not assigned a net summer capability rating by the utility were given an estimated rating by use of a statistical relationship between installed nameplate capacity and net summer capability for each prime mover. To estimate net summer capability for the years 1949 through 1984, two methods were used. For each prime mover except nuclear and "other," net summer capability estimates were calculated in two steps. First, the unit capacity values reported on Form EIA-860 and the unit start dates contained in the 1984 Generating Unit Reference File (GURF) were used to compute preliminary aggregate estimates of annual net summer capability and installed nameplate capacity. These preliminary estimates were obtained by aggregating unit capacity values for all units in service during a given year. Next, the ratio of the preliminary capability to nameplate estimate was computed for each year and multiplied by the previously published installed nameplate capacity values to produce the final estimates of net summer capability. The net summer capability data for nuclear and "other" units were used directly from the 1984 GURF for all years. Historical aggregates were then developed by using the unit start dates on the GURF.

Historical capacity has also been modified to estimate capability based upon the operable definition. This was accomplished by assuming that non-nuclear generating units became operable between 1 and 4 months prior to their commercial operation dates, depending upon the prime mover and time period. The actual operable dates for nuclear units were used. It should be noted that nonutility net summer capabilities, which are not currently collected for nonutilities, are estimated based on installed nameplate capacity data.

Note 4. For 1999 and 2000, nonutility power producer consumption of combustible fuels (in Btu) for electricity generation was estimated by subtracting each nonutility facility's 1999 reported useful thermal output (in Btu) from its total fuel energy consumption (in Btu). If the facility's resulting heat rate (calculated as fuel consumption in Btu divided by electricity generation in kWh) was outside a technically reasonable range (between 3,412 and 14,500 Btu/kWh), a default heat rate was assigned depending on the fuel source and prime mover type (shown on page 108 of the *Electric Power Annual 1999, Volume II*). The amount of fuel assigned to electricity generation at each facility was then calculated as the product of the electricity generation and the heat rate.

Note 5. Data on electric utility retail sales of electricity represent gross output of electricity (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 for public street and highway lighting, to public authorities, railways, and railroads, and interdepartmental sales.

Table 8.1 Sources

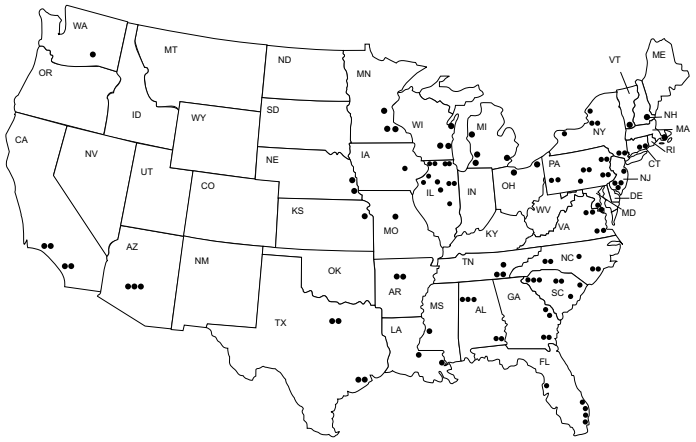
Net Generation, Electric Utilities: Table 8.3. **Net Generation, Nonutility Power Producers:** Table 8.4. **Imports and Exports:** • 1949-September 1977—unpublished Federal Power Commission data. • October 1977-1980—unpublished Economic Regulatory Administration (ERA) data. • 1981—Department of Energy (DOE), Office of Energy Emergency Operations, "Report on Electric Energy Exchanges with Canada and Mexico for Calendar Year 1981," April 1982 (revised June 1982). • 1982 and 1983— DOE, ERA, *Electricity Exchanges Across International Borders*. • 1984-1986—DOE, ERA, *Electricity Transactions Across International Borders*. • 1987 and 1988—DOE, ERA, Form ERA-781R, "Annual Report of International Electrical Export/Import Data." • 1989–DOE Fossil Energy, Form FE-781R, "Annual Report of International Electrical Export/Import Data." • 1990-1998—Mexico's Data: DOE, Fossil Fuels, Office of Fuels Programs, Form FE-871R, "Annual Report of International Electrical Export/Import Data." Canada's Data: National Energy Board of Canada (metered energy, firm and interruptible). • 1999 forward—EIA estimates based on preliminary data from DOE, Fossil Energy, and actual data from the National Energy Board of Canada. **Losses and Unaccounted For:** Calculated as the sum of total net generation and imports minus total end use and exports. **End Use:** Table 8.12.

9 Nuclear Energy

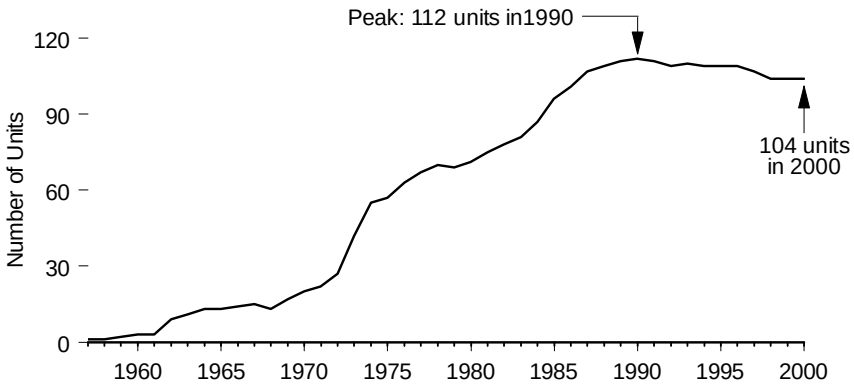
Site of Shippingport atomic power station, the first commercial nuclear power plant in the United States (rectangular reactor building and foreground); background, Beaver Valley 1 and 2 nuclear power plants and Bruce Mansfield coal-fired power plant (southwestern Pennsylvania). Source: U.S. Department of Energy.

Figure 9.1 Nuclear Generating Units

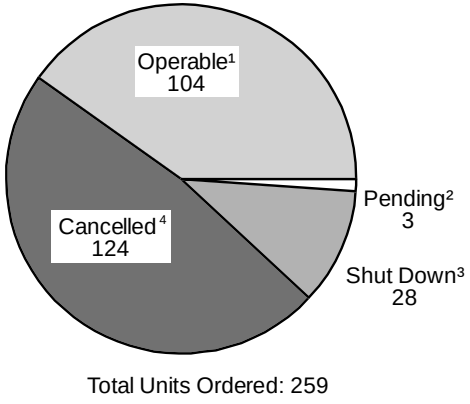
Operable Units By Site, 2000



Operable Units,[1] 1957-2000

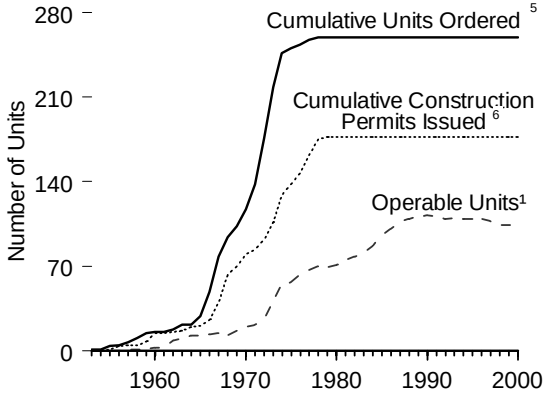


Status of All Ordered Units, 1953-2000

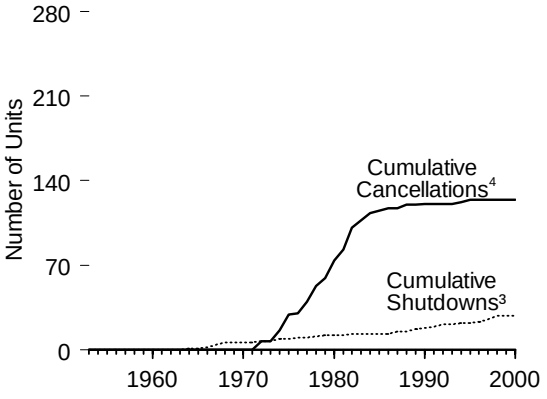


Total Units Ordered: 259

Orders, Permits, and Operable Units, 1953-2000



Cancellations and Shutdowns, 1953-2000



[1] Issuance by a regulatory authority of full-power operating license, or equivalent permission to operate.

[2] Ordered but not completed or cancelled.

[3] Ceased operation permanently.

[4] Cancellation of ordered units.

[5] Placement of an order by a utility for a nuclear steam supply system.

[6] Issuance by regulatory authority of a permit, or equivalent permission, to begin construction.

Note: Data are at end of year.

Sources: Map: Based on Energy Information Administration data. Other: Table 9.1.

Table 9.1 Nuclear Generating Units, 1953-2000

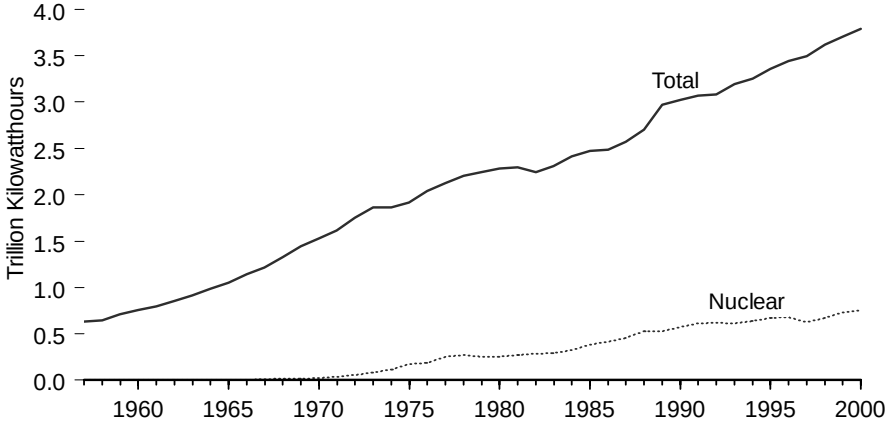
Year	Orders [1]	Construction Permits [2]	Low-Power Operating Licenses [3]	New Operable Units [4]	Shutdowns [5]	Total Operable Units [6]	Cancellations [7]	Cumulative Cancellations
1953	1	0	0	0	0	0	0	0
1954	0	0	0	0	0	0	0	0
1955	3	1	0	0	0	0	0	0
1956	1	3	0	0	0	0	0	0
1957	2	1	1	1	0	1	0	0
1958	4	0	0	0	0	1	0	0
1959	4	3	1	1	0	2	0	0
1960	1	7	1	1	0	3	0	0
1961	0	0	0	0	0	3	0	0
1962	2	1	7	6	0	9	0	0
1963	4	1	3	2	0	11	0	0
1964	0	3	2	3	1	13	0	0
1965	7	1	0	0	0	13	0	0
1966	20	5	1	2	1	14	0	0
1967	29	14	3	3	2	15	0	0
1968	16	23	0	0	2	13	0	0
1969	9	7	4	4	0	17	0	0
1970	14	10	4	3	0	20	0	0
1971	21	4	5	2	0	22	0	0
1972	38	8	6	6	1	27	7	7
1973	42	14	12	15	0	42	0	7
1974	28	23	14	15	2	55	9	16
1975	4	9	3	2	0	57	13	29
1976	3	9	7	7	1	63	1	30
1977	4	15	4	4	0	67	10	40
1978	2	13	3	4	1	70	13	53
1979	0	2	0	0	1	69	6	59
1980	0	0	5	2	0	71	15	74
1981	0	0	3	4	0	75	9	83
1982	0	0	6	4	1	78	18	101
1983	0	0	3	3	0	81	6	107
1984	0	0	7	6	0	87	6	113
1985	0	0	7	9	0	96	2	115
1986	0	0	7	5	0	101	2	117
1987	0	0	6	8	2	107	0	117
1988	0	0	1	2	0	109	3	120
1989	0	0	3	4	2	111	0	120
1990	0	0	1	2	1	112	1	121
1991	0	0	0	0	1	111	0	121
1992	0	0	0	0	2	109	0	121
1993	0	0	1	1	0	110	0	121
1994	0	0	0	0	1	109	1	122
1995	0	0	1	0	0	109	2	124
1996	0	0	0	1	1	109	0	124
1997	0	0	0	0	2	107	0	124
1998	0	0	0	0	3	104	0	124
1999	0	0	0	0	0	104	0	124
2000	0	0	0	0	0	104	0	124

[1] Placement of an order by a utility or government agency for a nuclear steam supply system.
[2] Issuance by regulatory authority of a permit, or equivalent permission, to begin construction. Numbers reflect permits issued in a given year, not extant permits.
[3] Issuance by regulatory authority of license, or equivalent permission, to conduct testing but not to operate at full power.
[4] Issuance by regulatory authority of full-power operating license, or equivalent permission. Units generally did not begin immediate operation. See Note 1 at end of section.
[5] Ceased operation permanently.
[6] Total of units holding full-power licenses, or equivalent permission to operate, at the end of the year. See Note 1 at end of section.
[7] Cancellation by utilities of ordered units. Does not include three units (Bellefonte 1 and 2 and Watts Bar 2) where construction has been stopped indefinitely.

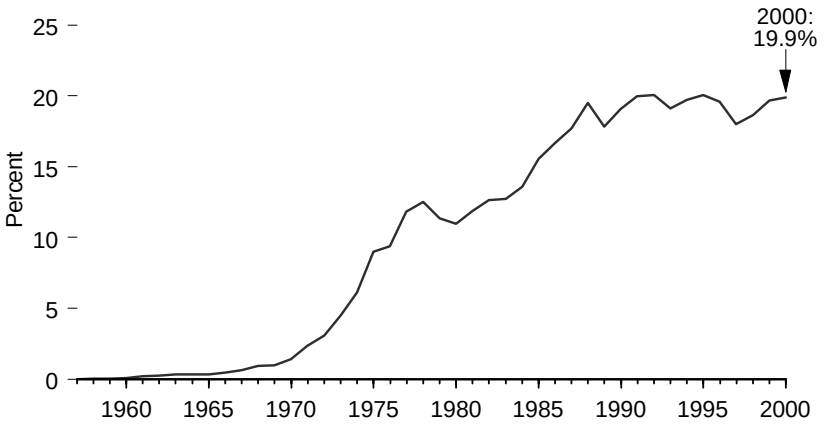
Note: Data are at end of year.
Web Page: http://www.eia.doe.gov/fuelnuclear.html.
Sources: • 1953-1997: **Orders:** Energy Information Administration, *Commercial Nuclear Power 1991,* Appendix E, September 1991; Nuclear Energy Institute, *Historical Profile of U.S. Nuclear Power Development,* 1988 edition; U.S. Atomic Energy Commission, *1973 Annual Report to Congress, Volume 2, Regulatory Activities;* various utilities. **Construction Permits:** Nuclear Regulatory Commission, *Information Digest,* 1997 edition, Appendix A; Nuclear Energy Institute, *Historical Profile of U.S. Nuclear Power Development,* 1988 edition; various utility, Federal, and contractor officials. **Low-Power Operating Licenses:** Nuclear Energy Institute, *Historical Profile of U.S. Nuclear Power Development,* 1988 edition; U.S. Department of Energy, *Nuclear Reactors Built, Being Built, and Planned: 1995;* various utility, Federal, and contractor officials. **New Operable Units:** Nuclear Regulatory Commission, *Information Digest,* 1997 edition, Table 11 and Appendices A and B; various utility, Federal, and contractor officials. **Shutdowns:** Energy Information Administration, *Commercial Nuclear Power 1991,* Appendix E; Nuclear Regulatory Commission, *Information Digest,* 1998 edition; U.S. Department of Energy, *Nuclear Reactors Built, Being Built, and Planned: 1995;* Tennessee Valley Authority officials; Nuclear Regulatory Commission, "Plant Status Report." **Total Operable Units:** Commercial reactors fully licensed to operate, excluding permanent shutdowns. **Cancellations:** Energy Information Administration, *Commercial Nuclear Power 1991,* Appendix E, September 1991; Nuclear Regulatory Commission, *Information Digest,* 1997 editon, Appendix C; and Nuclear Energy Institute, *Historical Profile of U.S. Nuclear Power Development,* 1988 edition. • 1998 forward—http://www.nrc.gov/NRC/reactors.html.

Figure 9.2 Nuclear Power Plant Operations

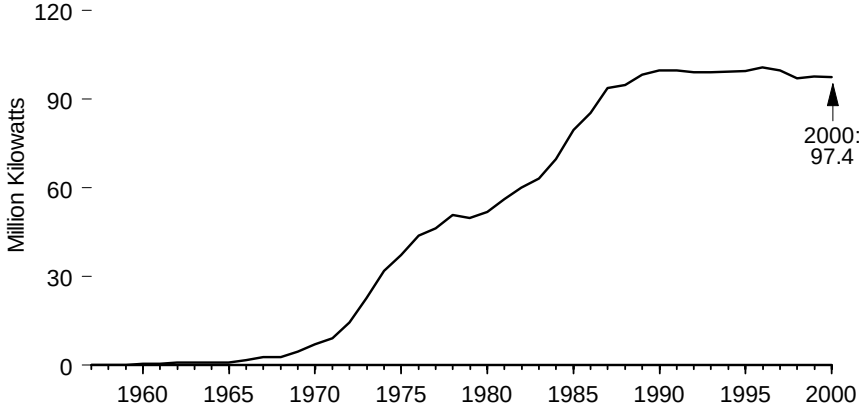
Total Electricity and Nuclear Electricity Net Generation, 1957-2000



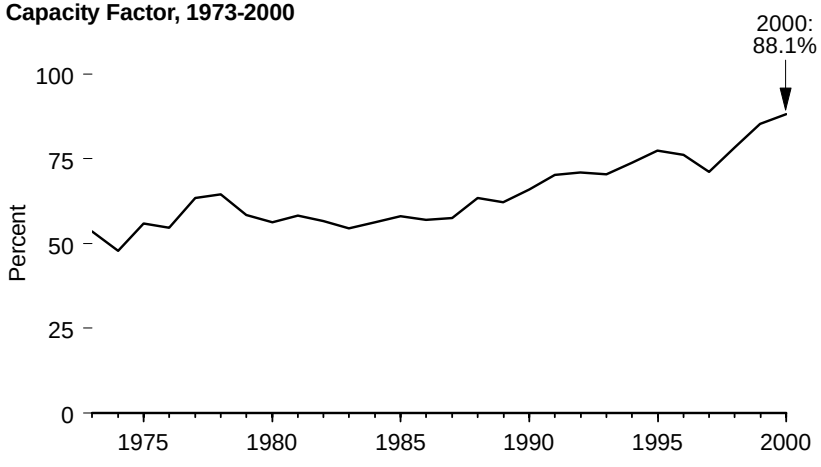
Nuclear Share of Electricity Net Generation, 1957-2000



Net Summer Capability of Operable Units, 1957-2000



Capacity Factor, 1973-2000



Sources: Tables 8.1 and 9.2.

Table 9.2 Nuclear Power Plant Operations, 1957-2000

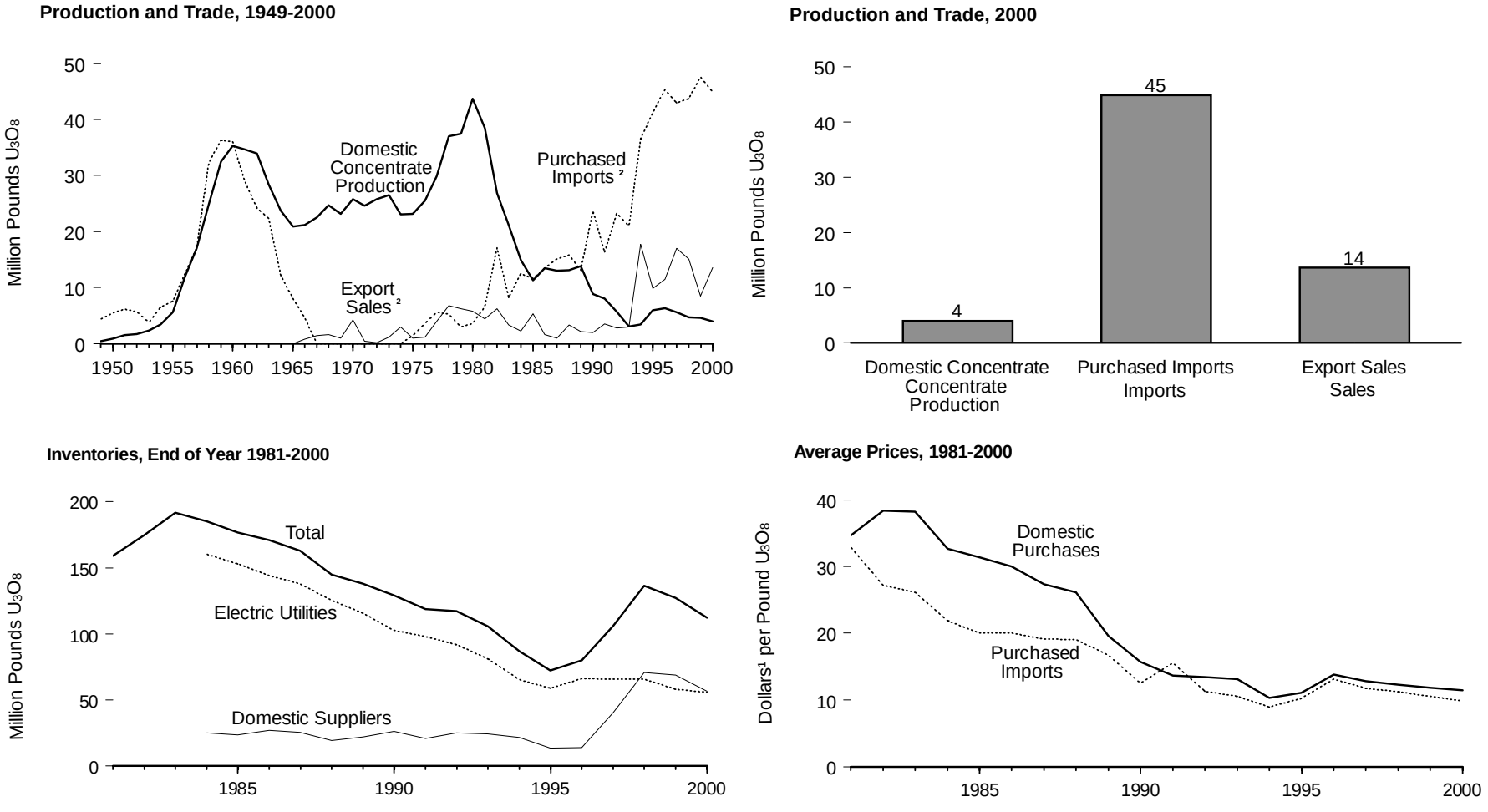
Year	Nuclear Electricity Net Generation	Nuclear Share of Electricity Net Generation	Net Summer Capability of Operable Units [1,2]	Capacity Factor [2]
	Billion Kilowatthours	Percent	Million Kilowatts	Percent
1957	(s)	(s)	0.1	NA
1958	0.2	(s)	0.1	NA
1959	0.2	(s)	0.1	NA
1960	0.5	0.1	0.4	NA
1961	1.7	0.2	0.4	NA
1962	2.3	0.3	0.7	NA
1963	3.2	0.4	0.8	NA
1964	3.3	0.3	0.8	NA
1965	3.7	0.3	0.8	NA
1966	5.5	0.5	1.7	NA
1967	7.7	0.6	2.7	NA
1968	12.5	0.9	2.7	NA
1969	13.9	1.0	4.4	NA
1970	21.8	1.4	7.0	NA
1971	38.1	2.4	9.0	NA
1972	54.1	3.1	14.5	NA
1973	83.5	4.5	22.7	53.5
1974	114.0	6.1	31.9	47.8
1975	172.5	9.0	37.3	55.9
1976	191.1	9.4	43.8	54.7
1977	250.9	11.8	46.3	63.3
1978	276.4	12.5	50.8	64.5
1979	255.2	11.4	49.7	58.4
1980	251.1	11.0	51.8	56.3
1981	272.7	11.9	56.0	58.2
1982	282.8	12.6	60.0	56.6
1983	293.7	12.7	63.0	54.4
1984	327.6	13.6	69.7	56.3
1985	383.7	15.5	79.4	58.0
1986	414.0	16.6	85.2	56.9
1987	455.3	17.7	93.6	57.4
1988	527.0	19.5	94.7	63.5
1989	[3]529.4	[3]17.8	[3]98.2	[3]62.2
1990	577.0	19.1	99.6	66.0
1991	612.6	19.9	99.6	70.2
1992	618.8	20.1	99.0	70.9
1993	610.4	19.1	99.1	70.5
1994	640.5	19.7	99.1	73.8
1995	673.4	20.1	99.5	77.4
1996	674.7	19.6	100.8	76.2
1997	628.6	18.0	99.7	71.1
1998	673.7	18.6	97.1	78.2
1999	[R]728.3	[R]19.7	97.5	[R]85.3
2000[P]	753.9	19.9	97.4	88.1

[1] At end of year.
[2] See Note 2 at end of section.
[3] Beginning in 1989, includes nonutility facilities.
R=Revised. P=Preliminary. NA=Not available. (s)=Less than 0.05 billion kilowatthours or less than 0.05 percent.

Note: The performance data shown in this table are based on a universe of reactor units that differs in some respects from the reactor universe used to profile the nuclear power industry in Table 9.1, especially in the years prior to 1973. See Note 1 at end of section for further discussion.

Sources: **Operable Units:** • 1957-1972—Federal Power Commission (FPC), Form FPC-4, "Monthly Power Plant Report." • 1973 forward—Nuclear Regulatory Commission, *Licensed Operating Reactors,* (NUREG-0020), monthly. **Electricity Generation:** • 1957-September 1977—FPC, Form FPC-4, "Monthly Power Plant Report." • October 1977-1981—Federal Energy Regulatory Commission, Form FPC-4, "Monthly Power Plant Report." • 1982 forward—Table 8.2. **Net Summer Capability of Operable Units:** • 1957-1983—See Note 2 at end of section. • 1984 forward—Table 8.5.

Figure 9.3 Uranium Overview



¹ Nominal dollars.
² Data for 2000 not available.
Note: Because vertical scales differ, graphs should not be compared.

Source: Table 9.3.

Table 9.3 Uranium Overview, 1949-2000

Year	Domestic Concentrate Production	Purchased Imports [1]	Export [1] Sales	Purchases by Owners and Operators [2] from Domestic Suppliers	Loaded Into U.S. Nuclear Reactors [3]	Inventories			Average Price	
						Domestic Suppliers	Owners and Operators [2]	Total	Purchased Imports	Domestic Purchases
	Million Pounds U_3O_8								U.S. Dollars[4] per Pound U_3O_8	
1949	0.36	4.3	0.0	NA	NA	NA	NA	NA	NA	NA
1950	0.92	5.5	0.0	NA	NA	NA	NA	NA	NA	NA
1951	1.54	6.1	0.0	NA	NA	NA	NA	NA	NA	NA
1952	1.74	5.7	0.0	NA	NA	NA	NA	NA	NA	NA
1953	2.32	3.8	0.0	NA	NA	NA	NA	NA	NA	NA
1954	3.40	6.5	0.0	NA	NA	NA	NA	NA	NA	NA
1955	5.56	7.6	0.0	NA	NA	NA	NA	NA	NA	NA
1956	11.92	12.5	0.0	NA	NA	NA	NA	NA	NA	NA
1957	16.96	17.1	0.0	NA	NA	NA	NA	NA	NA	NA
1958	24.88	32.3	0.0	NA	NA	NA	NA	NA	NA	NA
1959	32.48	36.3	0.0	NA	NA	NA	NA	NA	NA	NA
1960	35.28	36.0	0.0	NA	NA	NA	NA	NA	NA	NA
1961	34.70	29.0	0.0	NA	NA	NA	NA	NA	NA	NA
1962	34.02	24.2	0.0	NA	NA	NA	NA	NA	NA	NA
1963	28.44	22.4	0.0	NA	NA	NA	NA	NA	NA	NA
1964	23.70	12.1	0.0	NA	NA	NA	NA	NA	NA	NA
1965	20.88	8.0	0.0	NA	NA	NA	NA	NA	NA	NA
1966	21.18	4.6	0.8	NA	NA	NA	NA	NA	NA	NA
1967	22.51	0.0	1.4	NA	NA	NA	NA	NA	—	NA
1968	24.74	0.0	1.6	NA	NA	NA	NA	NA	—	NA
1969	23.22	0.0	1.0	NA	NA	NA	NA	NA	—	NA
1970	25.81	0.0	4.2	NA	NA	NA	NA	NA	—	NA
1971	24.55	0.0	0.4	NA	NA	NA	NA	NA	—	NA
1972	25.80	0.0	0.2	NA	NA	NA	NA	NA	—	NA
1973	26.47	0.0	1.2	NA	NA	NA	NA	NA	—	NA
1974	23.06	0.0	3.0	NA	NA	NA	NA	NA	—	NA
1975	23.20	1.4	1.0	NA	NA	NA	NA	NA	NA	NA
1976	25.49	3.6	1.2	NA	NA	NA	NA	NA	NA	NA
1977	29.88	5.6	4.0	NA	NA	NA	NA	NA	NA	NA
1978	36.97	5.2	6.8	NA	NA	NA	NA	NA	NA	NA
1979	37.47	3.0	6.2	NA	NA	NA	NA	NA	NA	NA
1980	43.70	3.6	5.8	NA	NA	NA	NA	NA	NA	NA
1981	38.47	6.6	4.4	32.6	NA	NA	NA	159.2	32.90	34.65
1982	26.87	17.1	6.2	27.1	NA	NA	NA	174.8	27.23	38.37
1983	21.16	8.2	3.3	24.2	NA	NA	NA	191.8	26.16	38.21
1984	14.88	12.5	2.2	22.5	NA	25.0	160.2	185.2	21.86	32.65
1985	11.31	11.7	5.3	21.7	NA	23.7	153.2	176.9	20.08	31.43
1986	13.51	13.5	1.6	18.9	NA	27.0	144.1	171.1	20.07	30.01
1987	12.99	15.1	1.0	20.8	NA	25.4	137.8	163.2	19.14	27.37
1988	13.13	15.8	3.3	17.6	NA	19.3	125.5	144.8	19.03	26.15
1989	13.84	13.1	2.1	18.4	NA	22.2	115.8	138.1	16.75	19.56
1990	8.89	23.7	2.0	20.5	NA	26.4	102.7	129.1	12.55	15.70
1991	7.95	16.3	3.5	26.8	34.6	20.7	98.0	118.7	15.55	13.66
1992	5.65	23.3	2.8	23.4	43.0	25.2	92.1	117.3	11.34	13.45
1993	3.06	21.0	3.0	15.5	45.1	24.5	81.2	105.7	10.53	13.14
1994	3.35	36.6	17.7	22.7	40.4	21.5	65.4	86.9	8.95	10.30
1995	6.04	41.3	9.8	22.3	51.1	13.7	58.7	72.5	10.20	11.11
1996	6.32	45.4	11.5	22.9	46.2	13.9	66.1	80.0	13.15	13.81
1997	5.64	43.0	17.0	18.7	48.2	40.4	65.9	106.2	11.81	12.87
1998	4.71	43.7	15.1	20.3	38.2	70.7	65.8	136.5	11.19	12.31
1999	4.61	47.6	8.5	19.2	58.8	68.8	R 58.3	R 127.1	10.55	11.88
2000	3.96	44.9	13.6	22.9	51.4	56.5	55.9	112.3	9.84	11.45

[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. Trade data prior to 1982 were for transactions conducted by uranium suppliers only. For 1982 forward, transactions by uranium buyers (consumers) have been included. Buyer imports and exports prior to 1982 are believed to be small.

[2] Owners and Operators of U.S. Civilian Nuclear Power Reactors.

[3] Does not include any fuel rods removed from reactors and later reloaded.

[4] Nominal dollars.

P=Preliminary. NA=Not available. — = Not applicable.

Web Page: http://www.eia.doe.gov/fuelnuclear.html.

Sources: • 1949-1966—U.S. Department of Energy, Grand Junction Office, *Statistical Data of the Uranium Industry,* Report No. GJO-100, annual. • 1967 forward—Energy Information Administration, *Uranium Industry Annual,* annual reports.

Note 1. In 1997 EIA undertook a major revision of Table 9.1 to more fully describe the history of the U.S. commercial nuclear power industry. The time frame was extended back to the birth of the industry in 1953, and the data categories were revised for greater relevance to current industry conditions and trends. To acquire the data for the revised categories it was necessary to develop a reactor unit database employing different sources than those used previously for Table 9.1 and still used for Table 9.2.

In Table 9.1 "commercial" means that the units contributed power to the commercial electricity grid, whether or not they were owned by an electric utility. A total of 259 units ever ordered was identified. Although most orders were placed by electric utilities, several units are or were ordered, owned, and operated wholly or in part by the Federal Government, including BONUS (Boiling Nuclear Superheater Power Station), Elk River, Experimental Breeder Reactor 2, Hallam, Hanford N, Piqua, and Shippingport.

A reactor is generally defined as operable in Table 9.1 while it possessed a full-power license from the Nuclear Regulatory Commission or its predecessor the Atomic Energy Commission, or equivalent permission to operate, at the end of the year. The definition is liberal in that it does not exclude units retaining full-power licenses during long, non-routine shutdowns. For example:

> In 1985 the five then-active Tennessee Valley Authority units (Browns Ferry 1, 2, and 3 and Sequoyah 1 and 2) were shut down under a regulatory forced outage. Browns Ferry 1 remains shut down and has been defueled, while the other units were idle for several years, restarting in 1991, 1995, 1988, and 1988, respectively. All five units are counted as operable during the shutdowns. Brown's Ferry 1 is the only one of the five TVA plants that has not returned to service. Because it is still fully licensed to operate, it continues to meet the definition of operable.

> Shippingport was shut down from 1974 through 1976 for conversion to a light-water breeder reactor, but is counted as operable until its retirement in 1982.

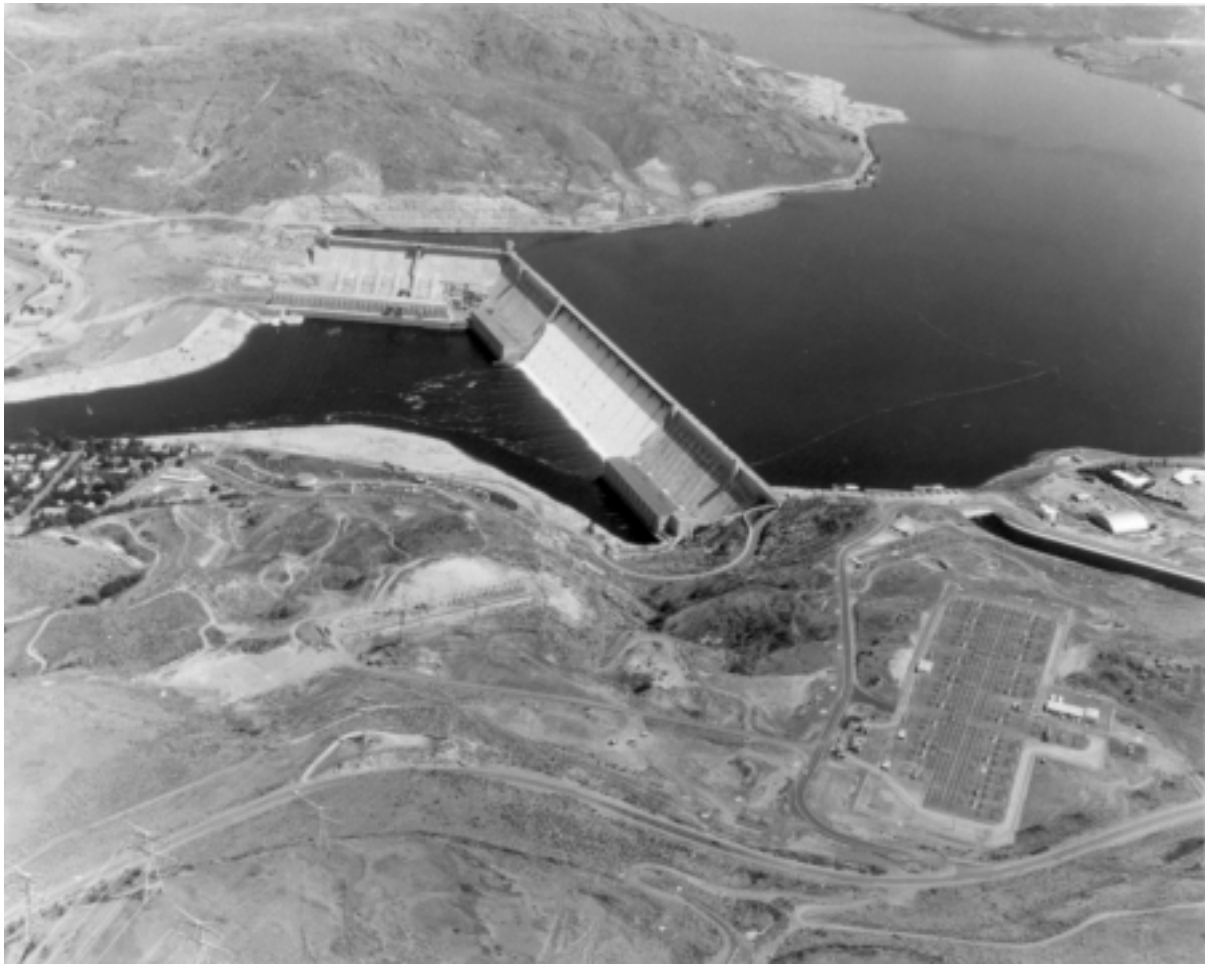
> Calvert Cliffs 2 was shut down in 1989 and 1990 for replacement of pressurizer heater sleeves but is counted as operable during those years.

Exceptions to the rule are Shoreham and Three Mile Island 2. Shoreham was granted a full-power license in April 1989, but was shut down two months later and never restarted. In 1991, the license was changed to Possession Only. Although not operable at the end of the year, Shoreham is treated as operable during 1989 and shut down in 1990, because counting it as operable and shut down in the same year would introduce a statistical discrepancy in the tallies. A major accident closed Three Mile Island 2 in 1979, and although the unit retained its full-power license for several years, it is considered permanently shut down since that year.

Note 2. Net summer capabilities were first collected on Form EIA-860 for 1984. Units not assigned a net summer capability rating by the utility were given an estimated rating by use of a statistical relationship between installed nameplate capacity and net summer capability for each prime mover. To estimate net summer capability for 1949-1984, two methods were used. For each prime mover except nuclear and "other," net summer capability estimates were calculated in two steps. First, the unit capacity values reported on Form EIA-860 and the unit start dates contained in the 1984 Generating Unit Reference File (GURF) were used to compute preliminary aggregate estimates of annual net summer capability and installed nameplate capacity. These preliminary estimates were obtained by aggregating unit capacity values for all units in service during a given year. Next, the ratio of the preliminary capability to nameplate estimate was computed for each year and multiplied by the previously published installed nameplate capacity values to produce the final estimates of net summer capability. The net summer capability data for nuclear and "other" units were use directly from the 1984 GURF for all years. Historical aggregates were then developed by use of the unit start dates on the GURF.

Historical capacity has also been modified to estimate capability based upon the operable definition, by assuming that non-nuclear generating units became operable between 1 and 4 months prior to their commercial operation dates, depending upon the prime mover and time period. The actual operable dates for nuclear units were used. It should be noted that nonutility net summer capabilities, which are not currently collected for nonutilities, are estimated based on installed nameplate capacity data.

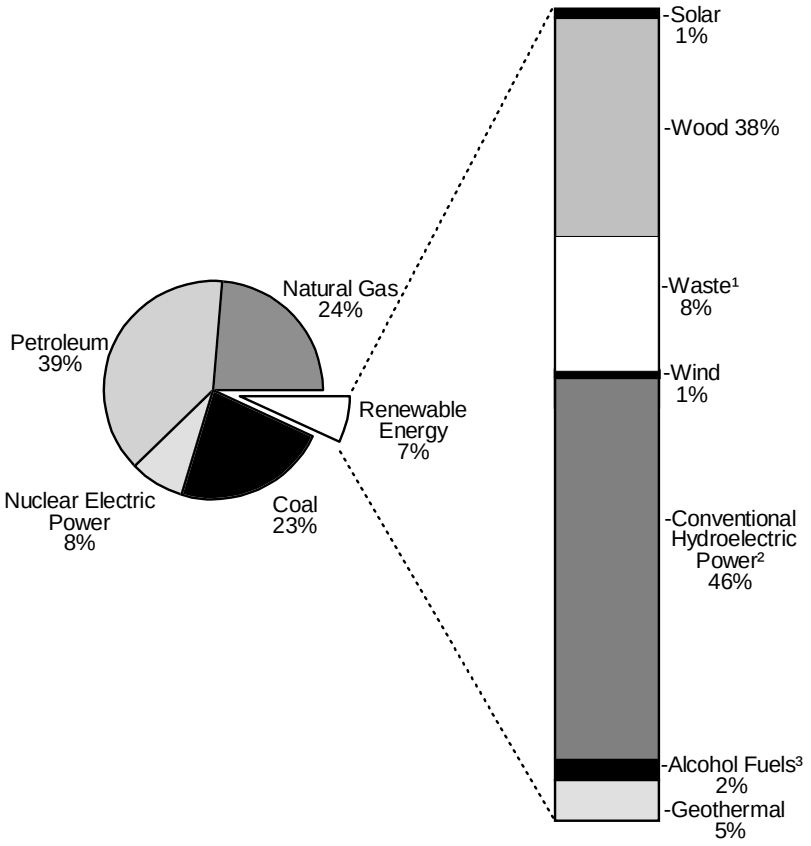
10 Renewable Energy



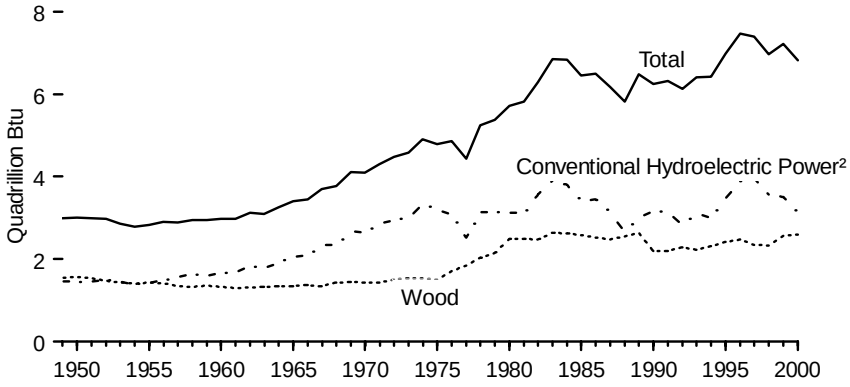
Grand Coulee Dam, Washington State. Source: U.S. Bureau of Reclamation.

Figure 10.1 Renewable Energy Consumption by Source

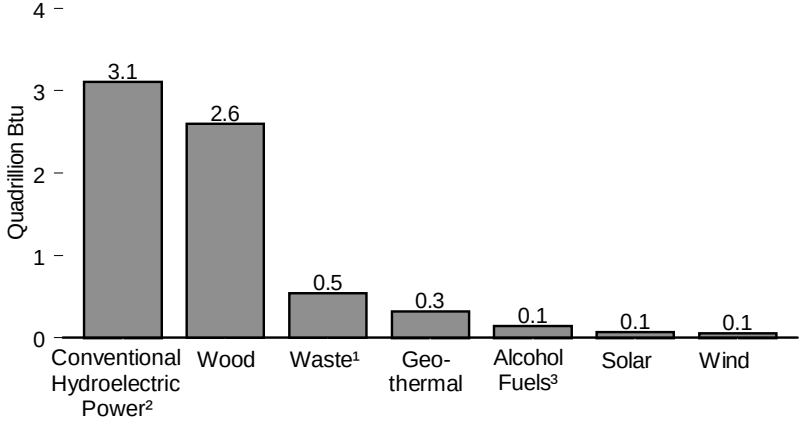
Renewable Energy as Share of Total Energy, 2000



Major Sources of Renewable Energy Consumption, 1949-2000



Renewable Energy Consumption by Source, 2000



¹ Municipal solid waste, landfill gas, methane, digester gas, liquid acetonitrile waste, tall oil, waste alcohol, medical waste, paper pellets, sludge waste, solid byproducts, tires, agricultural byproducts, closed loop biomass, fish oil, and straw.

² Includes electricity net imports derived from hydroelectric power. Before 1989, includes net imports derived from all resources.

³ Includes ethanol blended into motor gasoline.

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

Sources: Tables 1.3 and 10.1.

Table 10.1 Renewable Energy Consumption by Source, 1949-2000

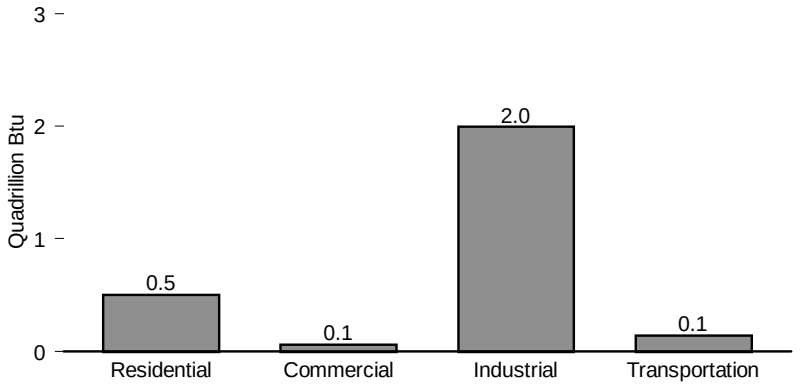
(Trillion Btu)

Year	Conventional Hydroelectric Power [1,2]	Wood [3]	Waste [4]	Alcohol Fuels [5]	Geothermal [6]	Solar [7]	Wind [8]	Total
1949	1,449	1,549	NA	NA	NA	NA	NA	2,998
1950	1,440	1,562	NA	NA	NA	NA	NA	3,003
1951	1,454	1,535	NA	NA	NA	NA	NA	2,988
1952	1,496	1,474	NA	NA	NA	NA	NA	2,970
1953	1,439	1,419	NA	NA	NA	NA	NA	2,857
1954	1,388	1,394	NA	NA	NA	NA	NA	2,783
1955	1,407	1,424	NA	NA	NA	NA	NA	2,832
1956	1,487	1,416	NA	NA	NA	NA	NA	2,903
1957	1,557	1,334	NA	NA	NA	NA	NA	2,890
1958	1,629	1,323	NA	NA	NA	NA	NA	2,952
1959	1,587	1,353	NA	NA	NA	NA	NA	2,940
1960	1,657	1,320	NA	NA	1	NA	NA	2,977
1961	1,680	1,295	NA	NA	2	NA	NA	2,977
1962	1,822	1,300	NA	NA	2	NA	NA	3,124
1963	1,772	1,323	NA	NA	4	NA	NA	3,099
1964	1,907	1,337	NA	NA	5	NA	NA	3,248
1965	2,058	1,335	NA	NA	4	NA	NA	3,397
1966	2,073	1,369	NA	NA	4	NA	NA	3,446
1967	2,344	1,340	NA	NA	7	NA	NA	3,691
1968	2,342	1,419	NA	NA	9	NA	NA	3,771
1969	2,659	1,440	NA	NA	13	NA	NA	4,113
1970	2,654	1,429	2	NA	11	NA	NA	R4,096
1971	2,861	1,430	2	NA	12	NA	NA	R4,305
1972	2,944	1,501	2	NA	31	NA	NA	R4,478
1973	3,010	1,527	2	NA	43	NA	NA	R4,581
1974	3,309	1,538	2	NA	53	NA	NA	R4,902
1975	3,219	1,497	2	NA	70	NA	NA	R4,788
1976	3,066	1,711	2	NA	78	NA	NA	R4,857
1977	2,515	1,837	2	NA	77	NA	NA	R4,431
1978	3,141	2,036	1	NA	64	NA	NA	R5,243
1979	3,141	2,150	2	NA	84	NA	NA	R5,377
1980	3,118	2,483	2	NA	110	NA	NA	R5,712
1981	3,105	2,495	88	7	123	NA	NA	5,818
1982	3,572	2,477	119	19	105	NA	NA	6,292
1983	3,899	2,639	157	35	129	NA	(s)	6,860
1984	3,800	2,629	208	43	165	(s)	(s)	6,845
1985	3,398	2,576	R236	R52	198	(s)	(s)	R6,460
1986	3,446	2,518	R263	60	219	(s)	(s)	R6,507
1987	3,117	2,465	289	R69	229	(s)	(s)	R6,170
1988	2,662	2,552	R315	70	217	(s)	(s)	R5,817
1989	R3,014	2,635	R354	71	R334	59	24	R6,492
1990	R3,146	2,188	R408	R63	R355	63	32	R6,254
1991	R3,159	2,188	R440	R73	R363	66	32	R6,320
1992	R2,818	2,288	R473	R83	R374	R67	30	R6,134
1993	R3,119	2,226	R479	R97	R387	71	31	R6,410
1994	R2,993	2,314	R515	R109	R391	72	36	R6,429
1995	R3,481	2,418	R531	R117	R333	73	33	R6,986
1996	R3,892	2,465	R577	R84	R346	75	35	R7,473
1997	R3,961	2,348	R551	R106	R322	74	R33	R7,395
1998	R3,569	R2,326	R533	R117	R328	74	31	R6,977
1999	R3,512	R2,565	R535	R122	R373	R73	R46	R7,226
2000E	3,107	2,596	540	139	319	70	51	6,823

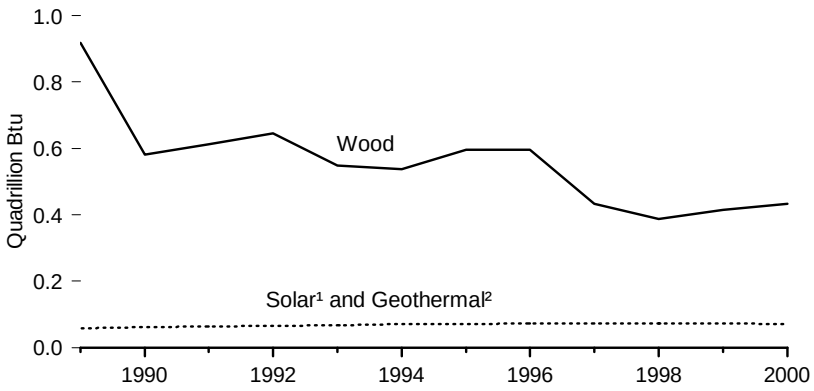
[1] Hydroelectricity generated by pumped storage is not included in renewable energy.
[2] Through 1988, includes all electricity net imports. From 1989, includes only the portion of electricity net imports derived from hydroelectric power.
[3] Wood, wood waste, black liquor, red liquor, spent sulfite liquor, wood sludge, peat, railroad ties, and utility poles.
[4] Municipal solid waste, landfill gas, methane, digester gas, liquid acetonitrile waste, tall oil, waste alcohol, medical waste, paper pellets, sludge waste, solid byproducts, tires, agricultural byproducts, closed loop biomass, fish oil, and straw.
[5] Ethanol blended into motor gasoline.
[6] Geothermal electricity generation, heat pump, and direct use energy. For 1989-1999, includes electricity imports derived from geothermal energy.
[7] Solar thermal and photovoltaic electricity generation, and solar thermal direct use energy.
[8] Includes only grid-connected wind electricity generation.
R=Revised. E=Estimate. (s)=Less than 0.5 trillion Btu. NA=Not available.
Note: Totals may not equal sum of components due to independent rounding.
Web Page: http://www.eia.doe.gov/fuelrenewable.html.
Sources: Tables 10.2a and 10.2b.

Figure 10.2a Renewable Energy Consumption by End-Use Sector

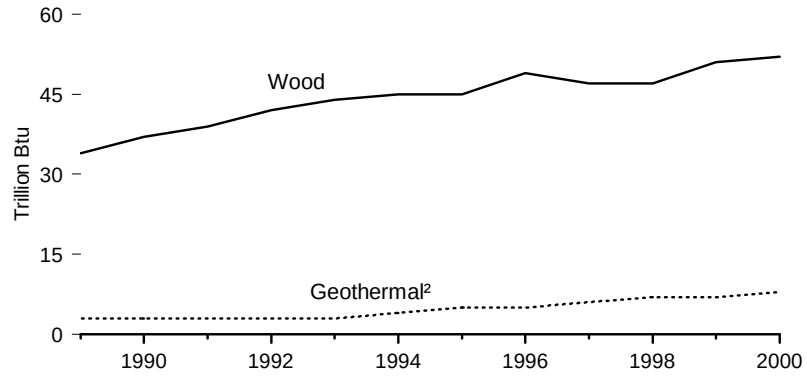
End-Use Sectors, 2000



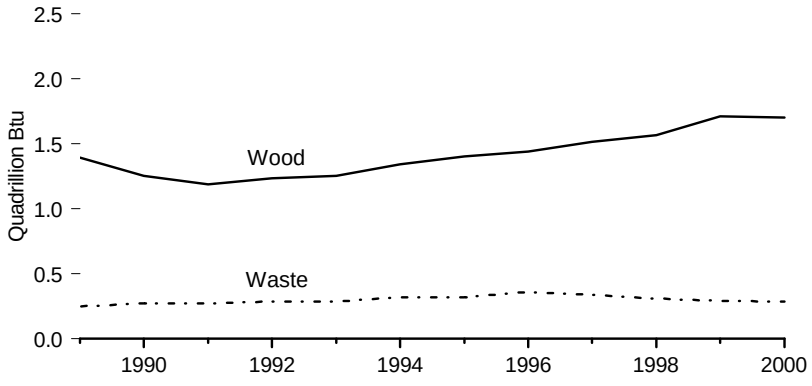
Residential Sector, 1989-2000



Commercial Sector, 1989-2000



Industrial Sector, 1989-2000

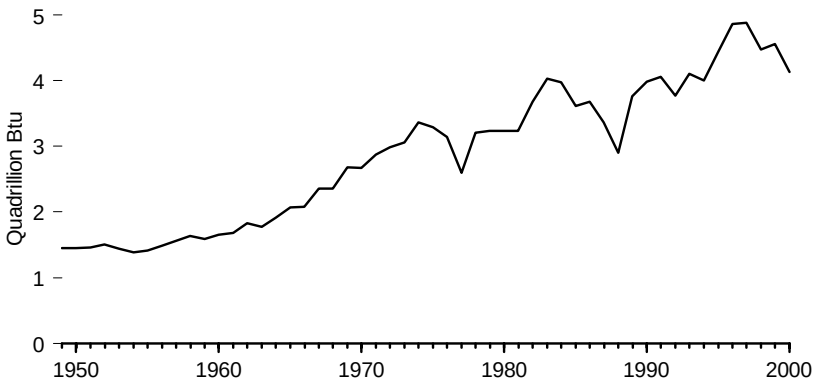


¹ Solar thermal direct use energy. Includes small amounts of commercial sector use.
² Geothermal heat pump and direct use energy.

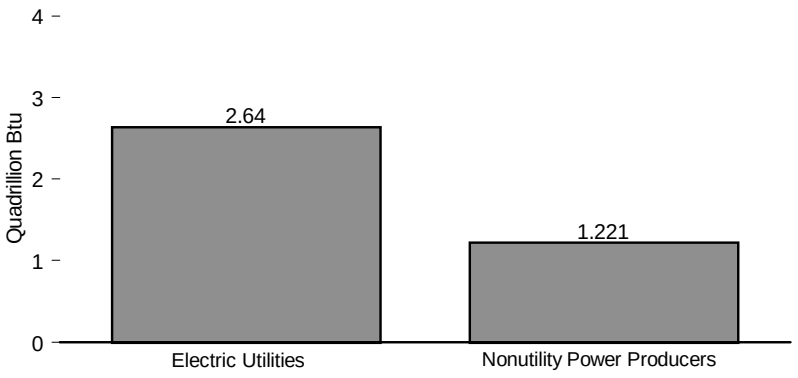
Note: Because vertical scales differ, graphs should not be compared.
Source: Table 10.2a.

Figure 10.2b Renewable Energy Consumption by the Electric Power Sector

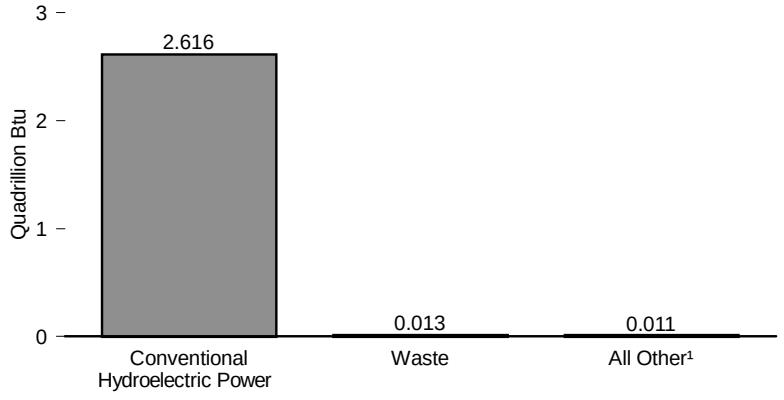
Electric Power Sector, 1949-2000



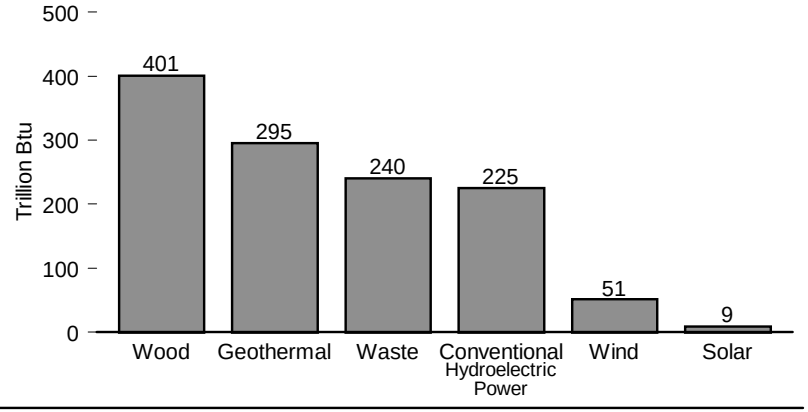
Electric Utilities and Nonutility Power Producers, 2000



Electric Utilities by Source, 2000



Nonutility Power Producers by Source, 2000



[1] Wood, geothermal, solar, and wind.

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

Source: Table 10.2b.

Table 10.2a Renewable Energy Consumption by End-Use Sector, 1949-2000

(Trillion Btu)

Year	Residential				Commercial			Industrial [1]				Transportation	End-Use Total
	Wood [2]	Geothermal [3]	Solar [4]	Total	Wood [2]	Geothermal [3]	Total	Wood [5]	Waste [6]	Geothermal [3]	Total	Alcohol Fuels [7]	
1949	1,055	NA	NA	1,055	20	NA	20	468	NA	NA	R468	NA	1,543
1950	1,006	NA	NA	1,006	19	NA	19	532	NA	NA	R532	NA	1,557
1951	958	NA	NA	958	18	NA	18	553	NA	NA	R553	NA	1,529
1952	899	NA	NA	899	17	NA	17	552	NA	NA	R552	NA	1,468
1953	832	NA	NA	832	16	NA	16	566	NA	NA	R566	NA	1,414
1954	800	NA	NA	800	15	NA	15	576	NA	NA	R576	NA	1,391
1955	775	NA	NA	775	15	NA	15	631	NA	NA	R631	NA	1,421
1956	739	NA	NA	739	14	NA	14	661	NA	NA	R661	NA	1,414
1957	702	NA	NA	702	13	NA	13	616	NA	NA	R616	NA	1,332
1958	688	NA	NA	688	13	NA	13	620	NA	NA	R620	NA	1,321
1959	647	NA	NA	647	12	NA	12	692	NA	NA	R692	NA	1,351
1960	627	NA	NA	627	12	NA	12	680	NA	NA	R680	NA	1,318
1961	587	NA	NA	587	11	NA	11	695	NA	NA	R695	NA	1,293
1962	560	NA	NA	560	11	NA	11	728	NA	NA	R728	NA	1,299
1963	537	NA	NA	537	10	NA	10	775	NA	NA	R775	NA	1,322
1964	499	NA	NA	499	9	NA	9	827	NA	NA	R827	NA	1,335
1965	468	NA	NA	468	9	NA	9	855	NA	NA	R855	NA	1,332
1966	455	NA	NA	455	9	NA	9	902	NA	NA	R902	NA	1,366
1967	434	NA	NA	434	8	NA	8	895	NA	NA	R895	NA	1,337
1968	426	NA	NA	426	8	NA	8	982	NA	NA	R982	NA	1,416
1969	415	NA	NA	415	8	NA	8	1,014	NA	NA	R1,014	NA	1,437
1970	401	NA	NA	401	8	NA	8	1,019	NA	NA	R1,019	NA	1,427
1971	382	NA	NA	382	7	NA	7	1,040	NA	NA	R1,040	NA	1,429
1972	380	NA	NA	380	7	NA	7	1,113	NA	NA	R1,113	NA	1,500
1973	354	NA	NA	354	7	NA	7	1,165	NA	NA	R1,165	NA	1,526
1974	371	NA	NA	371	7	NA	7	1,159	NA	NA	R1,159	NA	1,537
1975	425	NA	NA	425	8	NA	8	1,063	NA	NA	R1,063	NA	1,497
1976	482	NA	NA	482	9	NA	9	1,220	NA	NA	R1,220	NA	1,711
1977	542	NA	NA	542	10	NA	10	1,281	NA	NA	R1,281	NA	1,833
1978	622	NA	NA	622	12	NA	12	1,400	NA	NA	R1,400	NA	2,034
1979	728	NA	NA	728	14	NA	14	1,405	NA	NA	R1,405	NA	2,147
1980	R859	NA	NA	859	21	NA	21	1,600	NA	NA	R1,600	NA	2,480
1981	869	NA	NA	869	21	NA	21	1,602	87	NA	R1,689	7	2,586
1982	937	NA	NA	937	22	NA	22	1,516	118	NA	R1,634	19	2,612
1983	925	NA	NA	925	22	NA	22	1,690	155	NA	R1,845	35	2,827
1984	923	NA	NA	923	22	NA	22	1,679	204	NA	R1,883	43	2,871
1985	899	NA	NA	899	24	NA	24	1,645	230	NA	R1,875	52	2,850
1986	876	NA	NA	876	27	NA	27	1,610	256	NA	R1,866	60	2,829
1987	852	NA	NA	852	29	NA	29	1,576	282	NA	R1,858	69	2,808
1988	885	NA	NA	885	32	NA	32	1,625	308	NA	R1,933	70	2,920
1989	918	R5	53	976	34	3	37	R1,394	250	R2	R1,646	71	2,729
1990	581	R6	56	642	37	3	40	R1,254	271	R2	R1,527	63	2,272
1991	613	R6	58	677	39	3	42	R1,190	275	R2	R1,467	73	2,259
1992	645	R6	60	711	42	3	45	R1,233	289	R2	R1,525	83	2,365
1993	548	R7	62	616	44	3	47	R1,255	288	R2	R1,546	97	2,307
1994	537	R6	64	607	45	4	49	R1,342	318	R3	R1,663	109	2,428
1995	596	R7	65	667	45	5	50	R1,402	322	R3	R1,727	117	2,561
1996	595	R7	66	668	49	5	54	R1,441	363	R3	R1,807	84	2,612
1997	433	R7	65	506	47	6	53	R1,513	338	R3	R1,854	106	2,518
1998	R387	R8	65	459	47	7	54	R1,564	312	R3	R1,879	117	2,509
1999	R414	R8	R64	486	R51	7	58	R1,711	291	R4	R2,007	122	2,673
2000E	433	9	62	503	52	8	60	1,702	287	4	1,993	139	2,695

[1] Through 1988, includes industrial sector use of wood and waste to produce both useful thermal output and electricity. From 1989, includes the portion of nonutility power producers' use of renewable energy to produce useful thermal output; excludes the portion used to produce electricity, which is included under "Nonutility Power Producers" on Table 10.2b.

[2] Wood only.

[3] Geothermal heat pump and direct use energy.

[4] Solar thermal direct use energy. Includes small amounts of commercial sector use.

[5] Wood, wood waste, black liquor, red liquor, spent sulfite liquor, wood sludge, peat, railroad ties, and utility poles.

[6] Municipal solid waste, landfill gas, methane, digester gas, liquid acetonitrile waste, tall oil, waste alcohol, medical waste, paper pellets, sludge waste, solid byproducts, tires, agricultural byproducts, closed loop biomass, fish oil, and straw.

[7] Ethanol blended into motor gasoline.

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

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

Web Page: http://www.eia.doe.gov/fuelrenewable.html.

Sources: See end of section.

Table 10.2b Renewable Energy Consumption by the Electric Power Sector, 1949-2000

(Trillion Btu)

Year	Electric Power Sector																				Renewable Energy Consumption Total
	Electric Utilities							Nonutility Power Producers [1]							Electricity Trade [2]				Electric Power Sector Total		
															Hydropower [3]						
	Hydro-power [3]	Wood [4]	Waste [5]	Geo-thermal [6]	Solar [7]	Wind [8]	Total	Hydro-power [3]	Wood [4]	Waste [5]	Geo-thermal [6]	Solar [7]	Wind [8]	Total	Imports	Exports	Geo-thermal Imports	Total Net Imports			
1949	1,349	6	NA	0	0	0	R1,355	76	NA	NA	NA	NA	NA	76	27	3	NA	24	1,454	2,998	
1950	1,346	5	NA	0	0	0	R1,351	69	NA	NA	NA	NA	NA	69	27	2	NA	25	1,446	3,003	
1951	1,361	5	NA	0	0	0	R1,366	63	NA	NA	NA	NA	NA	63	33	3	NA	30	1,459	2,988	
1952	1,404	6	NA	0	0	0	R1,411	62	NA	NA	NA	NA	NA	62	33	3	NA	30	1,503	2,970	
1953	1,356	5	NA	0	0	0	R1,361	57	NA	NA	NA	NA	NA	57	31	6	NA	26	1,444	2,857	
1954	1,304	3	NA	0	0	0	R1,307	56	NA	NA	NA	NA	NA	56	33	4	NA	28	1,391	2,783	
1955	1,322	3	NA	0	0	0	R1,325	38	NA	NA	NA	NA	NA	38	53	6	NA	48	1,411	2,832	
1956	1,398	2	NA	0	0	0	R1,400	37	NA	NA	NA	NA	NA	37	59	7	NA	52	1,489	2,903	
1957	1,480	2	NA	0	0	0	R1,482	36	NA	NA	NA	NA	NA	36	55	14	NA	41	1,559	2,890	
1958	1,555	2	NA	0	0	0	R1,557	37	NA	NA	NA	NA	NA	37	45	8	NA	37	1,631	2,952	
1959	1,511	2	NA	0	0	0	R1,513	37	NA	NA	NA	NA	NA	37	48	9	NA	39	1,589	2,940	
1960	1,569	2	NA	1	0	NA	R1,571	39	NA	NA	NA	NA	NA	39	57	8	NA	49	1,659	2,977	
1961	1,621	1	NA	2	0	NA	R1,624	36	NA	NA	NA	NA	NA	36	34	10	NA	24	1,684	2,977	
1962	1,780	1	NA	2	0	NA	R1,784	36	NA	NA	NA	NA	NA	36	23	18	NA	6	1,825	3,124	
1963	1,737	1	NA	4	0	NA	R1,743	34	NA	NA	NA	NA	NA	34	22	21	NA	1	1,777	3,099	
1964	1,853	2	NA	5	0	NA	R1,859	34	NA	NA	NA	NA	NA	34	65	44	NA	20	1,913	3,248	
1965	2,026	3	NA	4	0	NA	R2,033	33	NA	NA	NA	NA	NA	33	37	39	NA	-1	2,065	3,397	
1966	2,028	3	NA	4	0	NA	R2,036	33	NA	NA	NA	NA	NA	33	44	33	NA	11	2,081	3,446	
1967	2,311	3	NA	7	0	NA	R2,321	36	NA	NA	NA	NA	NA	36	42	45	NA	-3	2,354	3,691	
1968	2,313	4	NA	9	0	NA	R2,327	35	NA	NA	NA	NA	NA	35	38	45	NA	-7	2,355	3,771	
1969	2,614	3	NA	13	0	NA	R2,630	34	NA	NA	NA	NA	NA	34	51	40	NA	11	2,676	4,113	
1970	2,600	1	2	11	0	NA	R2,615	34	NA	NA	NA	NA	NA	34	65	44	NA	21	2,669	R4,096	
1971	2,790	1	2	12	0	NA	R2,806	34	NA	NA	NA	NA	NA	34	74	37	NA	37	2,876	R4,305	
1972	2,829	1	2	31	0	NA	R2,864	34	NA	NA	NA	NA	NA	34	109	29	NA	80	2,979	R4,478	
1973	2,827	1	2	43	0	NA	R2,873	35	NA	NA	NA	NA	NA	35	175	27	NA	148	3,056	R4,581	
1974	3,143	1	2	53	0	NA	R3,199	33	NA	NA	NA	NA	NA	33	161	28	NA	133	3,365	R4,902	
1975	3,122	(s)	2	70	0	NA	R3,194	32	NA	NA	NA	NA	NA	32	117	53	NA	64	3,291	R4,788	
1976	2,943	1	2	78	0	NA	R3,024	33	NA	NA	NA	NA	NA	33	114	25	NA	89	3,146	R4,857	
1977	2,301	3	2	77	0	NA	R2,383	33	NA	NA	NA	NA	NA	33	210	29	NA	182	2,597	R4,431	
1978	2,905	2	1	64	0	NA	R2,973	32	NA	NA	NA	NA	NA	32	220	15	NA	204	3,209	R5,243	
1979	2,897	3	2	84	0	NA	R2,986	34	NA	NA	NA	NA	NA	34	233	23	NA	211	3,230	R5,377	
1980	2,867	3	2	110	0	NA	R2,982	33	NA	NA	NA	NA	NA	33	260	43	NA	217	3,232	R5,712	
1981	2,725	3	1	123	0	NA	R2,852	33	NA	NA	NA	NA	NA	33	379	32	NA	347	3,232	5,818	
1982	3,233	2	1	105	0	NA	R3,341	33	NA	NA	NA	NA	NA	33	343	37	NA	306	3,680	6,292	
1983	3,494	2	2	129	0	(s)	R3,627	33	NA	NA	NA	NA	NA	33	407	35	NA	372	4,032	6,860	
1984	3,353	5	4	165	(s)	(s)	R3,527	33	NA	NA	NA	NA	NA	33	441	27	NA	414	3,974	6,845	
1985	2,937	8	7	198	(s)	(s)	R3,150	33	NA	NA	NA	NA	NA	33	479	52	NA	428	3,611	R6,460	
1986	3,038	5	7	219	(s)	(s)	R3,270	33	NA	NA	NA	NA	NA	33	425	50	NA	375	3,678	R6,507	
1987	2,602	8	7	229	(s)	(s)	R2,846	33	NA	NA	NA	NA	NA	33	544	61	NA	483	3,362	R6,170	
1988	2,302	10	8	217	(s)	(s)	R2,536	33	NA	NA	NA	NA	NA	33	401	73	NA	328	2,897	R5,817	
1989	2,765	10	10	197	(s)	(s)	R2,983	90	279	94	117	6	24	609	200	R40	11	171	3,763	R6,492	
1990	2,948	8	13	181	(s)	(s)	R3,151	100	308	124	152	7	32	722	R99	(s)	11	110	3,982	R6,254	
1991	2,923	8	14	170	(s)	(s)	R3,114	99	338	151	167	8	32	794	R138	(s)	15	153	4,061	R6,320	
1992	2,521	8	13	169	(s)	(s)	R2,712	97	360	171	174	7	30	838	R201	(s)	19	219	3,769	R6,134	
1993	2,774	9	11	158	(s)	(s)	R2,953	117	370	180	198	9	31	905	R238	R11	18	246	4,104	R6,410	
1994	2,549	8	13	145	(s)	(s)	R2,714	135	382	184	205	8	36	951	R309	(s)	R27	337	4,002	R6,429	
1995	3,056	7	10	99	(s)	(s)	R3,173	151	369	199	201	8	33	960	R291	R17	19	293	4,426	R6,986	
1996	3,423	8	12	110	(s)	(s)	R3,553	169	372	202	207	9	35	994	R306	R7	14	313	4,861	R7,473	
1997	3,535	8	13	115	(s)	(s)	R3,670	183	347	200	191	9	33	963	R281	R37	(s)	244	4,877	R7,395	
1998	3,195	7	14	109	(s)	(s)	R3,325	150	321	207	201	9	31	918	269	R46	1	225	4,468	R6,977	
1999	R3,103	7	R14	36	(s)	(s)	R3,159	202	382	230	318	9	46	1,186	R280	R73	1	208	4,554	R7,226	
2000E	2,616	7	13	3	(s)	(s)	2,640	225	401	240	295	9	51	1,221	325	59	0	266	4,128	6,823	

[1] Includes the portion of nonutility power producers' use of renewable energy to produce electricity; excludes the portion used to produce useful thermal output, which is included under "Industrial" on Table 10.2a.

[2] Through 1988, all electricity imports and exports are included under "Hydropower." From 1989, includes only electricity imports and exports derived from hydroelectric power or geothermal energy.

[3] Conventional hydroelectric power only.

[4] Wood, wood waste, black liquor, red liquor, spent sulfite liquor, wood sludge, peat, railroad ties, and utility poles.

[5] Municipal solid waste, landfill gas, methane, digester gas, liquid acetonitrile waste, tall oil, waste alcohol, medical waste, paper pellets, sludge waste, solid byproducts, tires, agricultural byproducts, closed loop biomass, fish oil, and straw.

[6] Geothermal electricity generation.

[7] Solar thermal and photovoltaic electricity generation.

[8] Includes only grid-connected wind electricity generation.

R=Revised. E=Estimate. (s)=Less than 0.5 trillion Btu. NA=Not available.

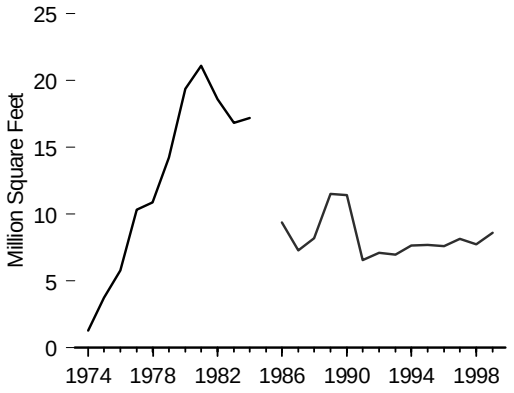
Note: Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/fuelrenewable.html.

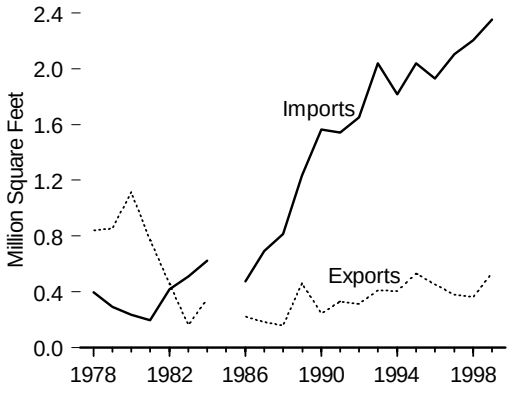
Sources: See end of section.

Figure 10.3 Solar Thermal Collector Shipments by Type, Price, and Trade

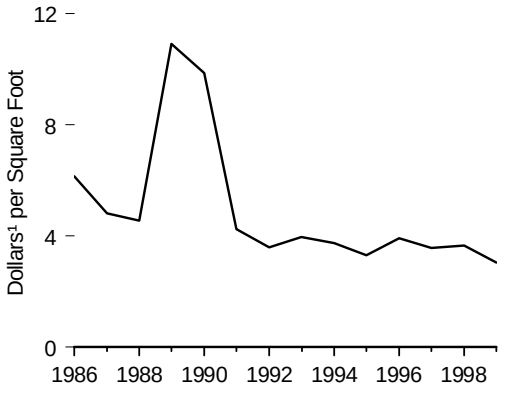
Total Shipments, 1974-1984 and 1986-1999



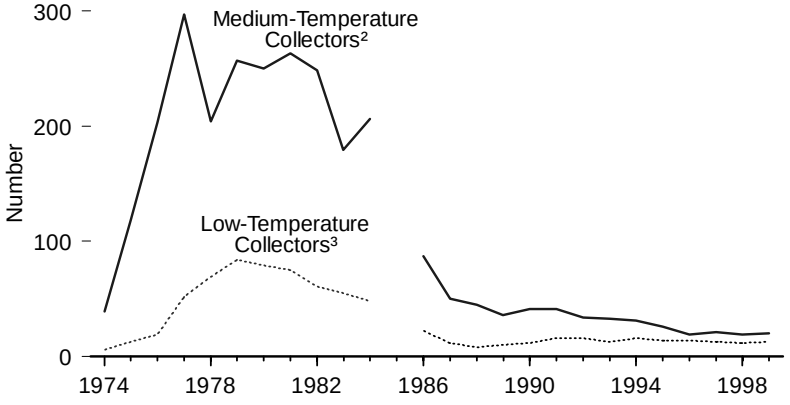
Trade, 1978-1984 and 1986-1999



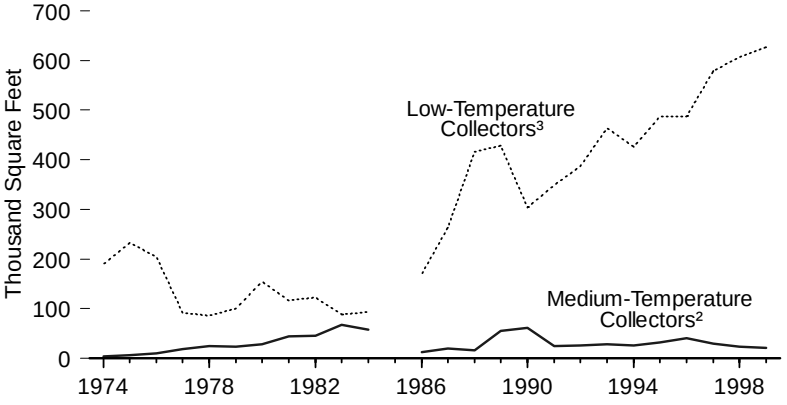
Price of Total Shipments, 1986-1999



Number of U.S. Manufacturers, 1974-1984 and 1986-1999



Average Annual Shipments per Manufacturer, 1974-1984 and 1986-1999



[1] Nominal dollars.

[2] Collectors that generally operate in the temperature range of 140 degrees Fahrenheit to 180 degrees Fahrenheit but can also operate at temperatures as low as 110 degrees Fahrenheit.

[3] Collectors that generally operate at temperatures below 110 degrees Fahrenheit.

Notes: • Data were not collected for 1985. • Medium-temperature collectors include special collectors. • Because vertical scales differ, graphs should not be compared.

Source: Table 10.3.

Table 10.3 Solar Thermal Collector Shipments by Type, Price, and Trade, 1974-1999

(Thousand Square Feet, Except as Noted)

Year	Low-Temperature Collectors [1]				Medium-Temperature Collectors [2]				High-Temperature Collectors [3]		Total Shipments [4]		Imports	Exports
	Number of U.S. Manu-facturers	Quantity Shipped	Shipments per Manu-facturer	Price [5] (dollars per square foot)	Number of U.S. Manu-facturers	Quantity Shipped	Shipments per Manu-facturer	Price [5] (dollars per square foot)	Quantity Shipped	Price [5] (dollars per square foot)	Quantity Shipped	Price [5] (dollars per square foot)		
1974	6	1,137	189.5	NA	39	137	3.5	NA	NA	NA	1,274	NA	NA	NA
1975	13	3,026	232.8	NA	118	717	6.1	NA	NA	NA	3,743	NA	NA	NA
1976	19	3,876	204.0	NA	203	1,925	9.5	NA	NA	NA	5,801	NA	NA	NA
1977	52	4,743	91.2	NA	297	5,569	18.8	NA	NA	NA	10,312	NA	NA	NA
1978	69	5,872	85.1	NA	204	4,988	24.5	NA	NA	NA	10,860	NA	396	840
1979	84	8,394	100.0	NA	257	5,856	22.8	NA	NA	NA	14,251	NA	290	855
1980	79	12,233	154.8	NA	250	7,165	28.7	NA	NA	NA	19,398	NA	235	1,115
1981	75	8,677	115.7	NA	263	11,456	43.6	NA	NA	NA	21,133	NA	196	771
1982	61	7,476	122.6	NA	248	11,145	44.9	NA	NA	NA	18,621	NA	418	455
1983	55	4,853	88.2	NA	179	11,975	66.9	NA	NA	NA	16,828	NA	511	159
1984	48	4,479	93.3	NA	206	11,939	58.0	NA	773	NA	17,191	NA	621	348
1985	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1986	22	3,751	170.5	2.30	87	1,111	12.8	18.30	4,498	NA	9,360	6.14	473	224
1987	12	3,157	263.1	2.18	50	957	19.1	13.50	3,155	NA	7,269	4.82	691	182
1988	8	3,326	415.8	2.24	45	732	16.2	14.88	4,116	NA	8,174	4.56	814	158
1989	10	4,283	428.3	2.60	36	1,989	55.3	11.74	5,209	17.76	11,482	10.92	1,233	461
1990	12	3,645	303.8	2.90	41	2,527	61.6	7.68	5,237	15.74	11,409	9.86	1,562	245
1991	16	5,585	349.0	2.90	41	989	24.1	11.94	1	31.94	6,574	4.26	1,543	332
1992	16	6,187	386.7	2.50	34	897	26.4	10.96	2	75.66	7,086	3.58	1,650	316
1993	13	6,025	463.5	2.80	33	931	28.2	11.74	12	22.12	6,968	3.96	2,039	411
1994	16	6,823	426.0	2.54	31	803	26.0	13.54	2	177.00	7,627	3.74	1,815	405
1995	14	6,813	487.0	2.32	26	840	32.0	10.48	13	53.26	7,666	3.30	2,037	530
1996	14	6,821	487.0	2.67	19	785	41.0	14.48	10	18.75	7,616	3.91	1,930	454
1997	13	7,524	579.0	2.60	21	606	29.0	15.17	7	25.00	8,138	3.56	2,102	379
1998	12	7,292	607.0	2.83	19	443	23.0	15.17	21	53.21	7,756	3.66	2,206	360
1999	13	8,152	627.0	2.08	20	427	21.0	19.12	4	286.49	8,583	3.05	2,352	537

[1] Low-temperature collectors are solar thermal collectors that generally operate at temperatures below 110 degrees Fahrenheit.

[2] Medium-temperature collectors are solar thermal collectors that generally operate in the temperature range of 140 degrees Fahrenheit to 180 degrees Fahrenheit but can also operate at temperatures as low as 110 degrees Fahrenheit. Special collectors are included in this category. Special collectors are evacuated tube collectors or concentrating (focusing) collectors. They 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).

[3] High-temperature collectors are solar thermal collectors that generally operate at temperatures above 180 degrees Fahrenheit.

[4] Total shipments as reported by respondents include all domestic and export shipments and may include imports that subsequently were shipped to domestic or to foreign customers.

[5] Prices, in nominal dollars, equal shipment value divided by quantity shipped. Value includes charges for advertising and warranties. Excluded are excise taxes and the cost of freight or transportation for the shipments.

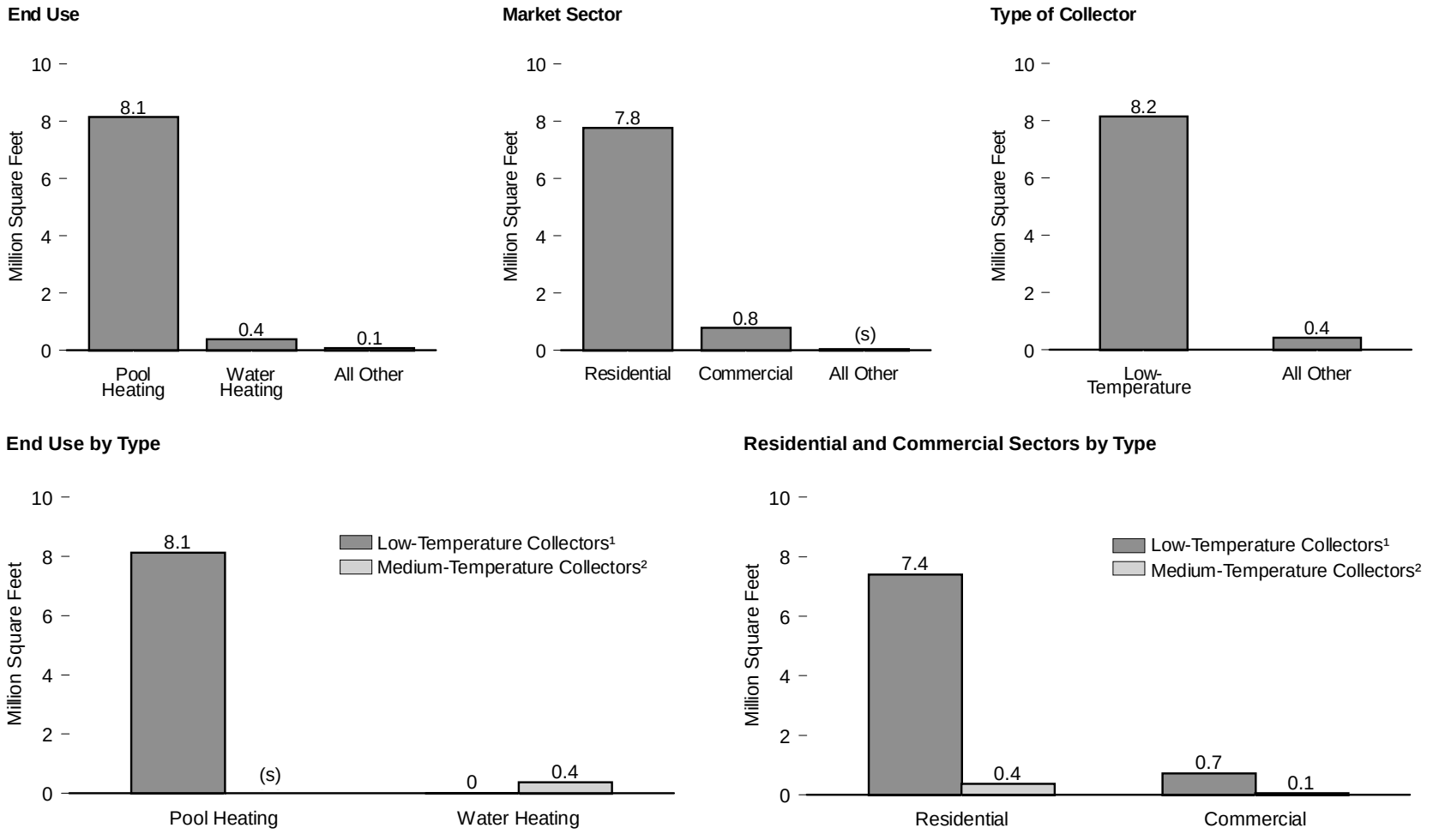
NA=Not available.

Notes: • Manufacturers producing more than one type of collector are accounted for in both groups. • No data are available for 1985. • High-temperature collector shipments were dominated by one manufacturer.

Web Page: http://www.eia.doe.gov/fuelrenewable.html.

Sources: • 1974-1992—Energy Information Administration (EIA), *Solar Collector Manufacturing Activity,* annual reports. • 1993 forward—EIA, *Renewable Energy Annual,* annual reports.

Figure 10.4 Solar Thermal Collector Shipments by End Use, Market Sector, and Type, 1999



[1] Collectors that generally operate at temperatures below 110 degrees Fahrenheit.
[2] Collectors that generally operate in the temperature range of 140 degrees Fahrenheit to 180 degrees Fahrenheit but can also operate at temperatures as low as 110 degrees Fahrenheit.

(s)=Less than 0.05 million square feet.
Source: Table 10.4.

Table 10.4 Solar Thermal Collector Shipments by End Use, Market Sector, and Type, 1999

(Thousand Square Feet)

End Use	Low-Temperature Collectors [1]	Medium-Temperature Collectors [2]	High-Temperature Collectors [3]	Total
End-Use Total	**8,152**	**427**	**4**	[4] **8,583**
Pool Heating	8,129	12	0	8,141
Water Heating	0	373	0	373
Space Heating	18	24	0	42
Space Cooling	0	0	0	0
Combined Space and Water Heating	0	16	(s)	16
Process Heating	5	0	0	5
Electricity Generation	0	0	4	[4] 4
Other [5]	(s)	2	0	2
Market Sector Total	**8,152**	**427**	**4**	[4] **8,583**
Residential	7,408	366	0	7,774
Commercial	726	59	0	785
Industrial	18	0	0	18
Electric Utility	0	(s)	4	[4] 4
Other [6]	0	2	0	2

[1] Low-temperature collectors are solar thermal collectors that generally operate at temperatures below 110 degrees Fahrenheit.

[2] Medium-temperature collectors are solar thermal collectors that generally operate in the temperature range of 140 degrees Fahrenheit to 180 degrees Fahrenheit but can also operate at temperatures as low as 110 degrees Fahrenheit. Special collectors are included in this category. Special collectors are evacuated tube collectors or concentrating (focusing) collectors. They 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).

[3] High-temperature collectors are solar thermal collectors that generally operate at temperatures above 180 degrees Fahrenheit. These are Parabolic dish/trough collectors used primarily by independent power producers to generate electricity for the electric grid.

[4] Totals include other types of collectors not shown.

[5] "Other" includes shipments of solar thermal collectors for other uses, such as cooking foods, water pumping, water purification, desalinization, distilling, etc.

[6] "Other" includes shipments of solar thermal collectors to other sectors, such as government, including the military but excluding space applications.

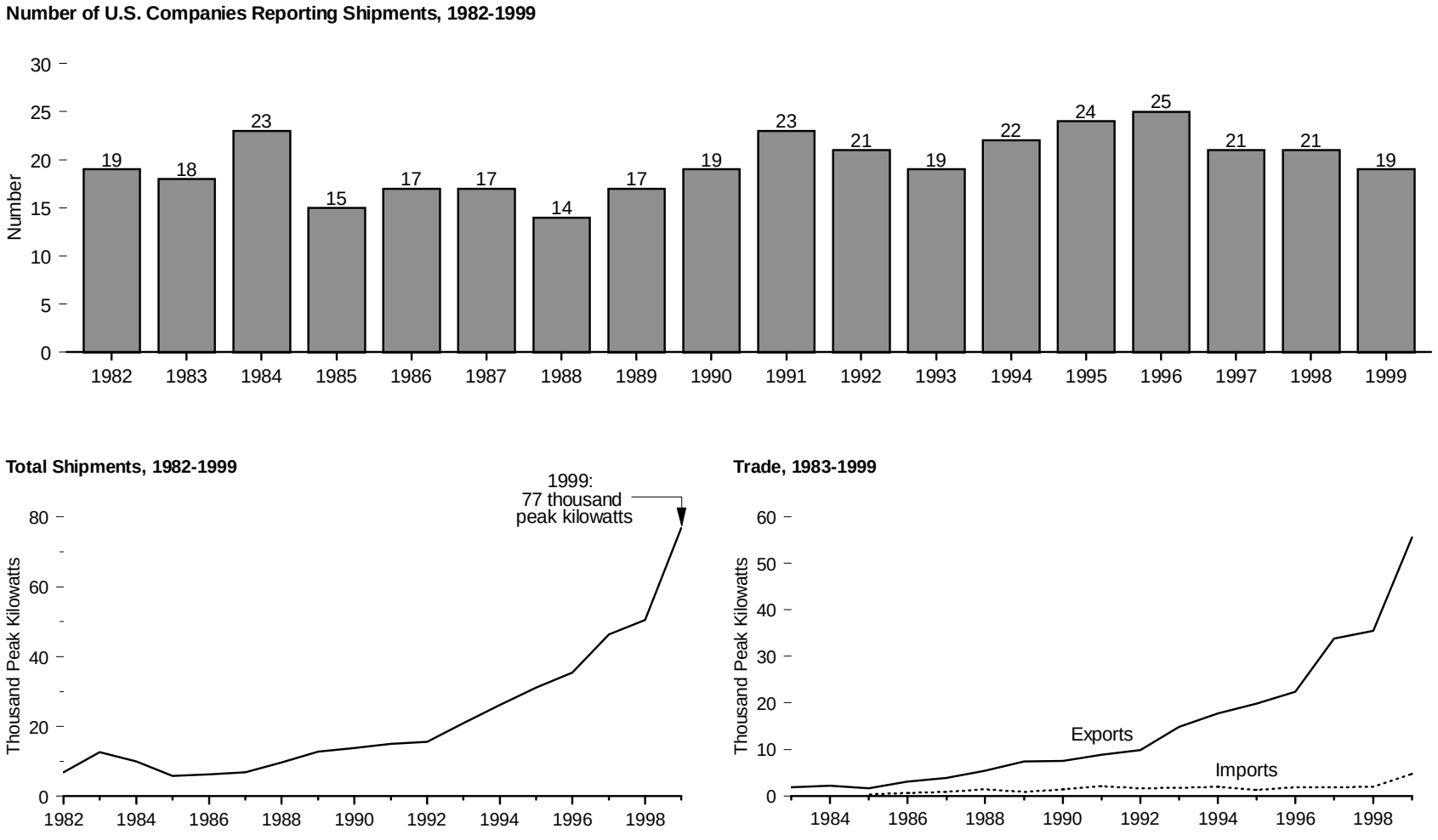
(s)=Less than 0.5 thousand square feet.

Notes: • Data represent shipments from U.S. manufacturers only. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/fuelrenewable.html.

Source: Energy Information Administration, *Renewable Energy Annual 2000* (March 2001), Table 19.

Figure 10.5 Photovoltaic Cell and Module Shipments and Trade



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

Source: Table 10.5.

Table 10.5 Photovoltaic Cell and Module Shipments by Type, Price, and Trade, 1982-1999

Year	Number of U.S. Companies Reporting Shipments	Shipments			Imports	Exports	Prices [1]	
		Crystalline Silicon	Thin-Film Silicon	Total [2]			Modules	Cells
		Peak Kilowatts					Dollars per Peak Watt	
1982	19	NA	NA	6,897	NA	NA	NA	NA
1983	18	NA	NA	12,620	NA	1,903	NA	NA
1984	23	NA	NA	9,912	NA	2,153	NA	NA
1985	15	5,461	303	5,769	285	1,670	NA	NA
1986	17	5,806	516	6,333	678	3,109	NA	NA
1987	17	5,613	1,230	6,850	921	3,821	NA	NA
1988	14	7,364	1,895	9,676	1,453	5,358	NA	NA
1989	17	10,747	1,628	12,825	826	7,363	5.14	3.08
1990	[3]19	12,492	1,321	[3]13,837	1,398	7,544	5.69	3.84
1991	23	14,205	723	14,939	2,059	8,905	6.12	4.08
1992	21	14,457	1,075	15,583	1,602	9,823	6.11	3.21
1993	19	20,146	782	20,951	1,767	14,814	5.24	5.23
1994	22	24,785	1,061	26,077	1,960	17,714	4.46	2.97
1995	24	29,740	1,266	31,059	1,337	19,871	4.56	2.53
1996	25	33,996	1,445	35,464	1,864	22,448	4.09	2.80
1997	21	44,314	1,886	46,354	1,853	33,793	4.16	2.78
1998	21	47,186	3,318	50,562	1,931	35,493	3.94	3.15
1999	19	73,461	3,269	76,787	4,784	55,562	3.62	2.32

[1] Prices, in nominal dollars, equal shipment value divided by quantity shipped. Value includes charges for advertising and warranties. Excluded are excise taxes and the cost of freight or transportation for the shipments.

[2] Total shipments include all types of photovoltaic cells and modules (single-crystal silicon, cast silicon, ribbon silicon, thin-film silicon, and concentrator silicon) and internationally traded cells and modules. Shipments of cells and modules for space and satellite applications are not included.

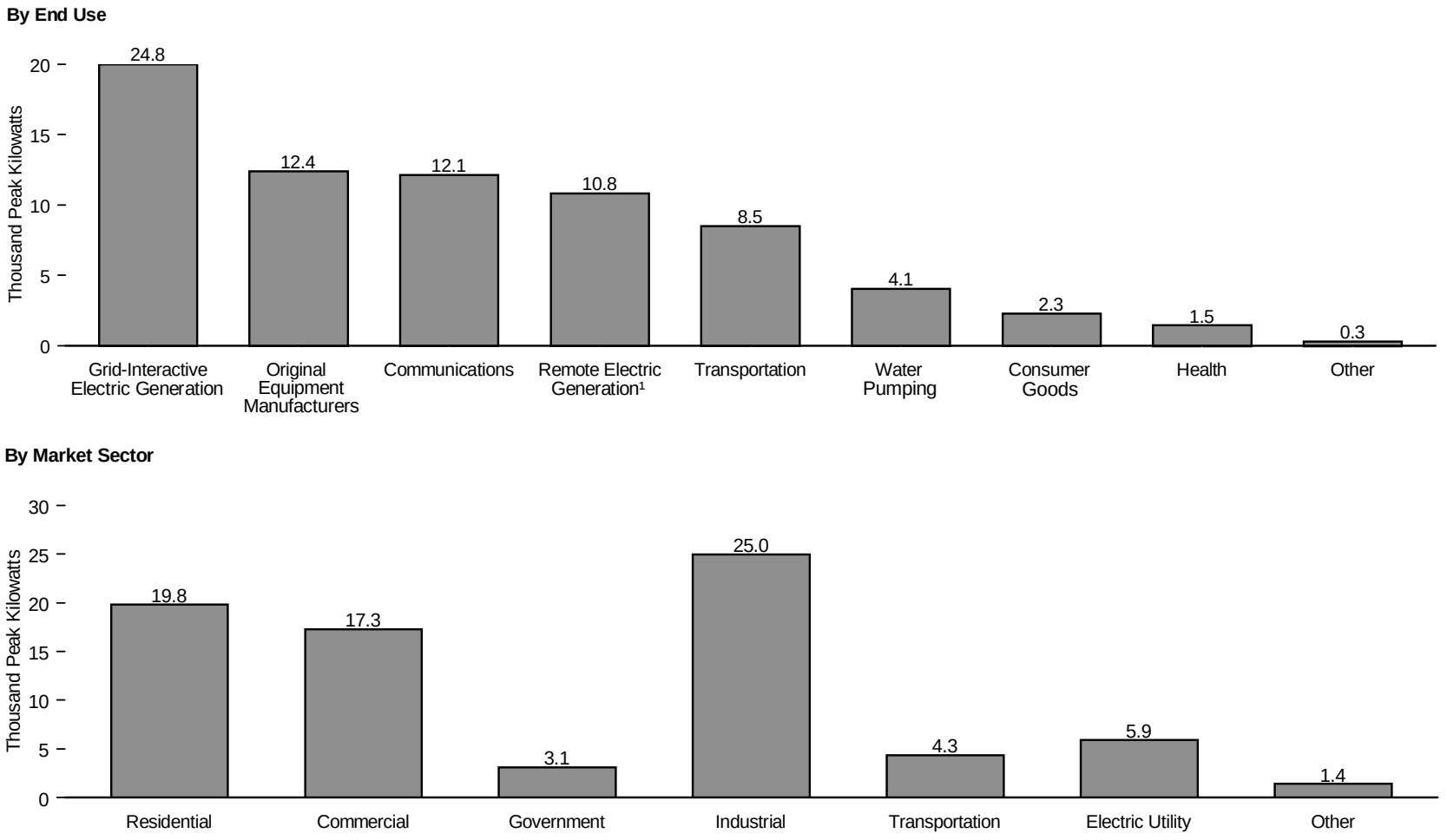
[3] Data were imputed for one nonrespondent who exited the industry during 1990.

NA=Not available.

Web Page: http://www.eia.doe.gov/fuelrenewable.html.

Sources: • 1982-1992—Energy Information Administration (EIA), *Solar Collector Manufacturing Activity,* annual reports. • 1993 forward—EIA, *Renewable Energy Annual,* annual reports.

Figure 10.6 Photovoltaic Cell and Module Shipments by End Use and Market Sector, 1999



[1] Units designed for installations that are not grid-interactive.
[2] Represents such applications as cooking food, desalinization, and distilling.
[3] Shipments to foreign governments and for specialty purposes.
Source: Table 10.6.

Table 10.6 Photovoltaic Cell and Module Shipments by End Use and Market Sector, 1989-1999

Year	End Use									Market Sector							Total
			Electric Generation [1]														
	Communications	Consumer Goods	Grid-Interactive	Remote	Health	Original Equipment Manufacturers [2]	Transportation	Water Pumping	Other [3]	Residential	Commercial	Government	Industrial	Transportation	Electric Utility	Other [4]	
	Amount Shipped (peak kilowatts)																
1989	2,590	2,788	1,251	2,620	5	1,595	1,196	711	69	1,439	3,850	1,077	3,993	1,130	785	551	12,825
1990	4,340	2,484	469	3,097	5	1,119	1,069	1,014	240	1,701	6,086	1,002	2,817	974	826	432	13,837
1991	3,538	3,312	856	3,594	61	1,315	1,523	729	13	3,624	3,345	815	3,947	1,555	1,275	377	14,939
1992	3,717	2,566	1,227	4,238	67	828	1,602	809	530	4,154	2,386	1,063	4,279	1,673	1,553	477	15,583
1993	3,846	946	1,096	5,761	674	2,023	4,238	2,294	74	5,237	4,115	1,325	5,352	2,564	1,503	856	20,951
1994	5,570	3,239	2,296	9,253	79	1,849	2,128	1,410	254	6,632	5,429	2,114	6,855	2,174	2,364	510	26,077
1995	5,154	1,025	4,585	8,233	776	3,188	4,203	2,727	1,170	6,272	8,100	2,000	7,198	2,383	3,759	1,347	31,059
1996	6,041	1,063	4,844	10,884	977	2,410	5,196	3,261	789	8,475	5,176	3,126	8,300	3,995	4,753	1,639	35,464
1997	7,383	347	8,273	8,630	1,303	5,245	6,705	3,783	4,684	10,993	8,111	3,909	11,748	3,574	5,651	2,367	46,354
1998	8,280	1,198	14,193	8,634	1,061	5,044	6,356	4,306	1,491	15,936	8,460	2,808	13,232	3,440	3,965	2,720	50,562
1999	12,147	2,292	24,782	10,829	1,466	12,400	8,486	4,063	322	19,817	17,283	3,107	24,972	4,341	5,876	1,392	76,787
	Percent of Total																
1989	20.2	21.7	9.8	20.4	(s)	12.4	9.3	5.5	0.5	11.2	30.0	8.4	31.1	8.8	6.1	4.3	100.0
1990	31.4	18.0	3.4	22.4	(s)	8.1	7.7	7.3	1.7	12.3	44.0	7.2	20.4	7.0	6.0	3.1	100.0
1991	23.7	22.2	5.7	24.1	0.4	8.8	10.2	4.9	0.1	24.3	22.4	5.5	26.4	10.4	8.5	2.5	100.0
1992	23.9	16.5	7.9	27.2	0.4	5.3	10.3	5.2	3.4	26.7	15.3	6.8	27.5	10.7	10.0	3.1	100.0
1993	18.4	4.5	5.2	27.5	3.2	9.7	20.2	10.9	0.4	25.0	19.6	6.3	25.5	12.2	7.2	4.1	100.0
1994	21.4	12.4	8.8	35.5	0.3	7.1	8.2	5.4	1.0	25.4	20.8	8.1	26.3	8.3	9.1	2.0	100.0
1995	16.6	3.3	14.8	26.5	2.5	10.3	13.5	8.8	3.8	20.2	26.1	6.4	23.2	7.7	12.1	4.3	100.0
1996	17.0	3.0	13.7	30.7	2.8	6.8	14.7	9.2	2.2	23.9	14.6	8.8	23.4	11.3	13.4	4.6	100.0
1997	15.9	0.7	17.8	18.6	2.8	11.3	14.5	8.2	10.1	23.7	17.5	8.4	25.3	7.7	12.2	5.1	100.0
1998	16.4	2.4	28.1	17.1	2.1	10.0	12.6	8.5	2.9	31.5	16.7	5.6	26.2	6.8	7.8	5.4	100.0
1999	15.8	3.0	32.3	14.1	1.9	16.1	11.1	5.3	0.4	25.8	22.5	4.0	32.5	5.7	7.7	1.8	100.0

[1] Grid-interactive means connection to the electrical distribution system; remote means electricity, for general use, that does not interact with the electrical distribution system, such as at an isolated residential site or mobile home. The other end uses in this table also include electricity generation but only for the specific use cited.

[2] Original Equipment Manufacturers are non-photovoltaic manufacturers that combine photovoltaic technology into existing or newly developed product lines.

[3] Represents such applications as cooking food, desalinization, and distilling.

[4] Shipments to foreign governments and for specialty purposes.

(s)=Less than 0.05 percent.

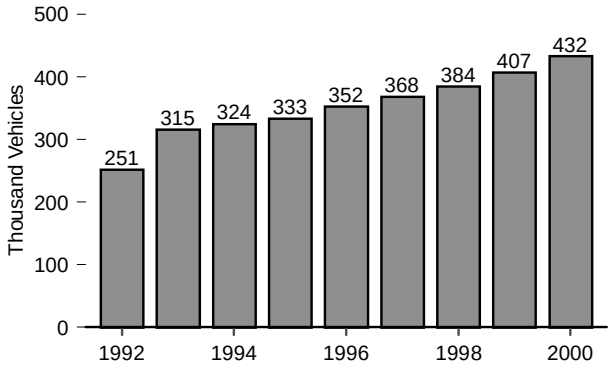
Note: Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/fuelrenewable.html.

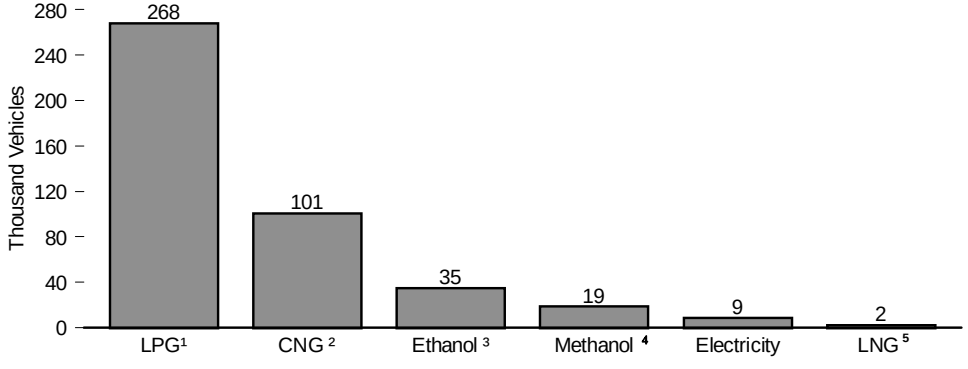
Sources: • 1989-1992—Energy Information Administration (EIA), *Solar Collector Manufacturing Activity,* annual reports. • 1993 forward—EIA, *Renewable Energy Annual,* annual reports.

Figure 10.7 Alternative-Fueled Vehicles and Fuel Consumption by Type

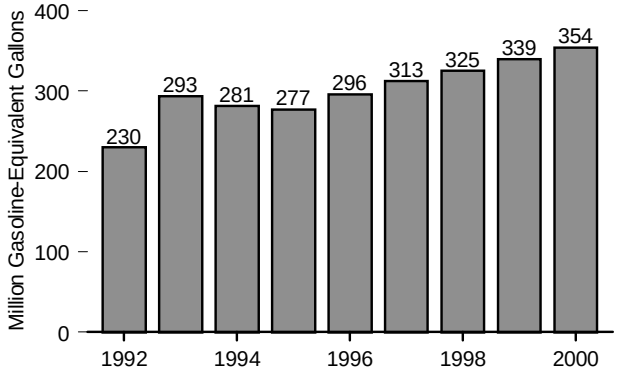
Vehicles in Use, 1992-2000



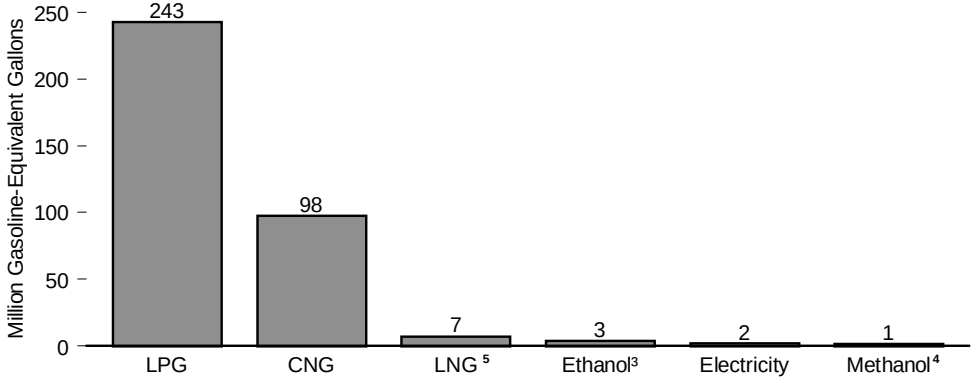
Vehicles in Use by Fuel Type, 2000



Fuel Consumption, 1992-2000



Fuel Consumption by Type, 2000



[1] Liquefied petroleum gases.
[2] Compressed natural gas.
[3] Ethanol, 85 percent and ethanol, 95 percent.
[4] Methanol, 85 percent, and methanol, neat.
[5] Liquefied natural gas.
Note: Because vertical scales differ, graphs should not be compared.
Source: Table 10.7.

Table 10.7 Alternative-Fueled Vehicles and Fuel Consumption by Type, 1992-2000

Year	Liquefied Petroleum Gases [1]	Compressed Natural Gas	Liquefied Natural Gas	Methanol, 85 Percent [2]	Methanol, Neat	Ethanol, 85 Percent [2]	Ethanol, 95 Percent [2]	Electricity	Total
	Estimated Number of Vehicles in Use								
1992	221,000	23,191	90	4,850	404	172	38	1,607	251,352
1993	269,000	32,714	299	10,263	414	441	27	1,690	314,848
1994	264,000	41,227	484	15,484	415	605	33	2,224	324,472
1995	259,000	50,218	603	18,319	386	1,527	136	2,860	333,049
1996	263,000	60,144	663	20,265	172	4,536	361	3,280	352,421
1997	263,000	68,571	813	21,040	172	9,130	347	4,453	367,526
1998	266,000	78,782	1,172	19,648	200	12,788	14	5,243	383,847
1999	R267,000	R89,556	R1,681	R18,964	R198	R22,464	14	R6,964	R406,841
2000P	268,000	100,530	1,900	18,365	195	34,680	13	8,661	432,344
	Estimated Fuel Consumption (Thousand Gasoline-Equivalent Gallons)								
1992	208,142	16,823	585	1,069	2,547	21	85	359	229,631
1993	264,655	21,603	1,901	1,593	3,166	48	80	288	293,334
1994	248,467	24,160	2,345	2,340	3,190	80	140	430	281,152
1995	232,701	35,162	2,759	2,023	2,150	190	995	663	276,643
1996	239,158	46,923	3,247	1,775	347	694	2,699	773	295,616
1997	238,356	65,192	3,714	1,554	347	1,280	1,136	1,010	312,589
1998	241,583	73,251	5,343	1,212	449	1,727	59	1,202	324,826
1999	R242,141	R86,286	R5,828	R1,073	R447	R2,075	59	R1,431	R339,340
2000P	242,695	97,568	6,847	996	437	3,344	54	1,819	353,760

[1] Vehicles in use represent lower bound estimates, rounded to the nearest thousand.
[2] Remaining portion is motor gasoline.
R=Revised. P=Preliminary.

Note: Totals may not equal sum of components due to independent rounding.
Source: Web Page: http://www.eia.doe.gov/fuelalternate.html.

Table 10.2a Sources

Wood, Residential: • 1949-1979—Energy Information Administration (EIA), *Estimates of U.S. Wood Energy Consumption from 1949 to 1981*, Table A2. • 1980-1983—EIA, *Estimates of U.S. Wood Energy Consumption 1980-1983*, Table ES1. • 1984—EIA, *Estimates of U.S. Biofuels Consumption 1990*, Table 1. • 1985 and 1986—Values interpolated. • 1987—EIA, *Estimates of Biofuels Consumption in the United States During 1987*, Table 2. • 1988—Value interpolated. • 1989—EIA, *Estimates of U.S. Biofuels Consumption 1990*, Table 1. • 1990-1993—EIA, *Renewable Energy Annual 1995*, Table 6. • 1994-1997—EIA, *Renewable Energy Annual 1999*, Table 6. • 1998 and 1999—EIA, *Renewable Energy Annual 2000*, Table 6, 2000—EIA, Office of Coal, Nuclear, Electric and Alternate Fuels (CNEAF), estimates. **Wood, Commercial:** • 1949-1979—EIA, *Estimates of U.S. Wood Energy Consumption from 1949 to 1981*, Table A2. • 1980-1983—EIA, *Estimates of U.S. Wood Energy Consumption 1980-1983*, Table ES1. • 1984—EIA, CNEAF, estimate. • 1985-1992—Values interpolated. • 1993—EIA, *Renewable Energy Annual 1995*, Table 6. • 1994-1996—EIA, *Renewable Energy Annual 1999*, Table 6. • 1997—EIA, *Renewable Energy Annual 2000*, Table 6, 1998-2000—EIA, CNEAF, estimates. **Wood, Industrial:** • 1949-1979—EIA, *Estimates of U.S. Wood Energy Consumption from 1949 to 1981*, Table A2. • 1980-1983— EIA, *Estimates of U.S. Wood Energy Consumption 1980-1983*, Table ES1. • 1984—EIA, *Estimates of U.S. Biofuels Consumption 1990*, Table 1. • 1985 and 1986—Values interpolated. • 1987—EIA, *Estimates of Biofuels Consumption in the United States During 1987*, Table 2. • 1988—Value interpolated. • 1989—American Paper Institute, *Fact Sheet on 1990 Energy Use in the U.S. Pulp and Paper Industry* (July 1991), total pulp and paper industry wood consumption, minus nonutility power producers' use of wood to produce electricity (see Table 10.2b). • 1990-1993—EIA, *Renewable Energy Annual 1995*, Table 6, total industrial wood consumption, minus nonutility power producers' use of wood to produce electricity (see Table 10.2b). • 1994-1997—EIA, *Renewable Energy Annual 1999*, Table 6, total industrial wood consumption, minus nonutility power producers' use of wood to produce electricity (see Table 10.2b). • 1998-2000—EIA, CNEAF, estimates for total industrial wood consumption, minus nonutility power producers' use of wood to produce electricity (see Table 10.2b). **Waste, Industrial:** • 1981—EIA, *Estimates of U.S. Biofuels Consumption 1990*, Table 8, total waste consumption, minus electric utilities' use of waste to produce electricity (see Table 10.2b). • 1982 and 1983—EIA, CNEAF, estimates for total waste consumption, minus electric utilities' use of waste to produce electricity (see Table 10.2b). • 1984—EIA, *Estimates of U.S. Biofuels Consumption 1990*, Table 8, total waste consumption, minus electric utilities' use of waste to produce electricity (see Table 10.2b). • 1985 and 1986—Values interpolated. • 1987—EIA, *Estimates of U.S. Biofuels Consumption 1990*, Table 8, total waste consumption, minus electric utilities' use of waste to produce electricity (see Table 10.2b). • 1988—Value interpolated. • 1989-2000—EIA, CNEAF, estimates for total waste consumption, minus electric utilities' and nonutility power producers' use of waste to produce electricity (see Table 10.2b). **Alcohol Fuels:** • 1981— EIA, *Estimates of U.S. Biofuels Consumption 1990*, Table 10. • 1982 and 1983—EIA, CNEAF, estimates. • 1984—EIA, *Estimates of U.S. Biofuels Consumption 1990*, Table 10. • 1985 and 1986—Values interpolated. • 1987—EIA, *Estimates of U.S. Biofuels Consumption 1990*, Table 10. • 1988—Value interpolated. • 1989—EIA, *Estimates of U.S. Biofuels Consumption 1990*, Table 10. • 1990-1992—EIA, *Renewable Energy Annual 1995*, Table 6. • 1993-2000 EIA, *Petroleum Supply Monthly*, Tables 2 an 28, and Table A1. **Geothermal:** • 1989-1999—John Lund, Oregon Institute of Technology Geoheat Center, unpublished data. **Solar:** • 1989-1991—EIA, CNEAF, estimates. • 1992 and 1993—EIA, *Renewable Energy Annual 1997*, Table 2. • 1994-1998—EIA, *Renewable Energy Annual 1999*, Table 2. • 1999—EIA, *Renewable Energy Annual 2000*, Table 2, 2000—EIA, CNEAF, estimate.

Table 10.2b Sources

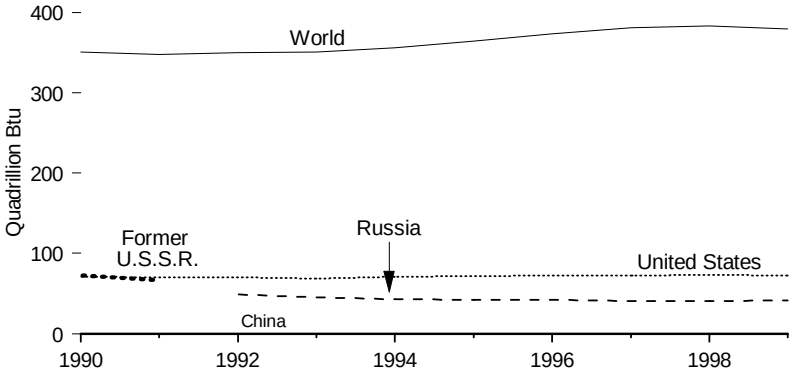
Electric Utilities: • 1949-2000—Tables 8.3 and A6. **Nonutility Power Producers, Hydropower:** • 1949-1978—Federal Power Commission (FPC), Form FPC-4, "Monthly Power Plant Report," for plants with generating capacity exceeding 10 megawatts, and FPC, Form FPC-12C, "Industrial Electric Generating Capacity," for all other plants; and Table A6. • 1979—FPC, Form FPC-4, "Monthly Power Plant Report," for plants with generating capacity exceeding 10 megawatts, and EIA estimates for all other plants; and Table A6. • 1980-1988—Estimated by EIA as the average generation over the 6-year period of 1974-1979; and Table A6. • 1989-2000—Tables 8.4 and A6. **Nonutility Power Producers, All Other Fuels**: • 1989-2000—Tables 8.4 and A6. **Electricity Trade:** • 1949-1988—Tables 8.1 and A6. • 1989-2000Trade data from National Energy Board of Canada, the California Energy Commission, analysis by EIA, CNEAF, and Table A6.

11 International Energy

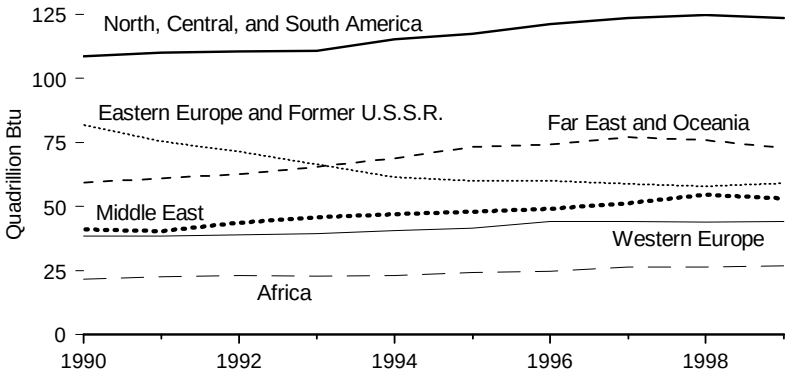
Drilling rig, Gansu Province, People's Republic of China. Source: U.S. Department of Energy.

Figure 11.1 World Primary Energy Production

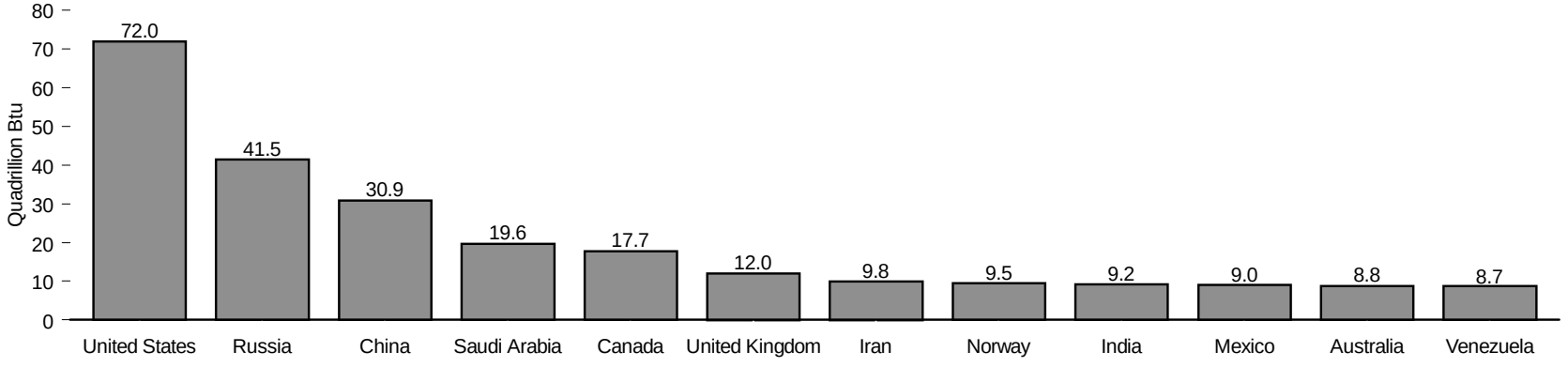
World and Leading Producers, 1990-1999



World Areas, 1990-1999



Top Producing Countries, 1999



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

Source: Table 11.1.

Table 11.1 World Primary Energy Production, 1990-1999

(Quadrillion Btu)

Region and Country	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999[P]
North, Central, and South America	[R]**108.69**	[R]**110.12**	[R]**110.54**	[R]**110.81**	[R]**115.24**	[R]**117.46**	[R]**121.24**	[R]**123.54**	[R]**124.72**	**123.63**
Brazil	3.79	3.94	4.01	[R]4.15	[R]4.31	[R]4.51	[R]4.87	[R]5.14	[R]5.56	6.11
Canada	[R]13.40	13.94	14.48	15.40	[R]16.36	16.85	[R]17.31	[R]17.63	[R]17.58	17.71
Mexico	7.71	8.01	8.01	8.11	8.10	8.04	8.74	[R]9.07	[R]9.31	9.03
United States	[R]70.83	[R]70.53	[R]70.07	[R]68.38	[R]70.85	[R]71.30	[R]72.60	[R]72.55	[R]72.91	71.98
Venezuela	6.31	6.96	6.96	7.27	7.70	8.08	8.64	[R]9.51	[R]9.41	8.69
Other	[R]6.64	[R]6.73	[R]7.01	[R]7.50	[R]7.91	[R]8.67	[R]9.08	[R]9.64	[R]9.95	10.11
Western Europe	[R]**38.46**	[R]**38.49**	[R]**38.90**	**39.52**	[R]**40.55**	[R]**41.66**	[R]**44.04**	[R]**44.10**	[R]**43.93**	**44.22**
France	[R]4.27	4.47	4.63	[R]4.84	4.87	[R]4.97	5.04	[R]4.91	[R]4.80	4.94
Germany [1]	7.57	6.35	6.17	5.84	5.71	[R]5.58	[R]5.49	[R]5.56	[R]5.26	5.34
Netherlands	2.63	2.95	2.93	2.98	2.91	2.91	3.25	2.89	2.78	2.61
Norway	5.94	6.23	7.09	7.28	7.65	[R]8.36	9.29	[R]9.61	[R]9.37	9.55
United Kingdom	8.96	9.26	9.07	9.40	[R]10.19	10.76	11.58	[R]11.35	[R]11.64	12.01
Other	9.10	9.24	9.02	9.17	9.22	[R]9.07	9.39	[R]9.77	[R]10.08	9.77
Eastern Europe and Former U.S.S.R.	[R]**81.89**	[R]**75.48**	[R]**71.37**	[R]**66.49**	[R]**61.38**	[R]**60.09**	[R]**60.02**	[R]**58.78**	[R]**57.81**	**58.98**
Kazakhstan	—	—	[R]3.77	[R]3.39	[R]2.57	[R]2.28	[R]2.36	[R]2.44	[R]2.24	2.33
Poland	3.88	3.74	3.68	3.70	3.75	3.60	[R]3.25	[R]3.86	[R]3.37	3.26
Former U.S.S.R.	72.11	66.43	—	—	—	—	—	—	—	—
Russia	—	—	48.96	45.51	[R]42.85	[R]41.86	[R]42.00	[R]40.64	[R]40.66	41.54
Ukraine	—	—	[R]4.38	[R]4.00	[R]3.50	[R]3.71	[R]3.43	[R]3.40	[R]3.37	3.50
Other	[R]5.90	[R]5.31	[R]10.58	[R]9.89	[R]8.70	[R]8.65	[R]8.98	[R]8.44	[R]8.18	8.35
Middle East	**41.02**	**40.31**	**43.57**	**45.76**	**46.94**	**47.97**	**49.03**	[R]**51.33**	[R]**54.49**	**53.13**
Iran	7.67	8.27	8.53	8.83	9.16	9.35	[R]9.65	9.84	9.89	9.84
Iraq	4.54	0.69	1.02	1.21	1.33	1.35	1.39	2.60	4.71	5.48
Kuwait	2.83	0.43	2.44	4.28	4.73	4.81	4.94	4.85	[R]5.02	4.58
Saudi Arabia	15.92	19.75	20.39	20.11	20.00	20.25	20.39	20.82	21.00	19.64
United Arab Emirates	5.51	6.24	6.11	5.78	5.84	6.14	6.34	6.50	6.61	6.25
Other	4.55	4.94	5.08	5.54	5.88	6.06	6.32	[R]6.72	[R]7.27	7.35
Africa	**21.63**	[R]**22.61**	**22.96**	**22.81**	**22.98**	**24.18**	[R]**24.74**	[R]**26.23**	[R]**26.40**	**26.83**
Algeria	4.73	5.04	5.06	4.87	4.79	5.13	5.28	5.63	5.75	6.06
Libya	3.18	3.43	3.34	3.17	3.21	3.23	3.28	3.39	3.26	3.10
Nigeria	4.07	4.30	4.43	4.45	4.37	4.53	4.57	4.85	[R]4.91	4.92
South Africa	4.05	4.12	4.26	4.41	4.61	4.85	4.86	[R]5.48	[R]5.54	5.54
Other	5.60	[R]5.72	5.88	5.91	6.01	6.44	[R]6.76	[R]6.88	[R]6.93	7.21
Far East and Oceania	[R]**59.33**	[R]**60.99**	[R]**62.55**	[R]**65.45**	[R]**68.72**	[R]**73.36**	[R]**74.31**	[R]**77.14**	[R]**75.87**	**72.96**
Australia	6.14	6.29	6.59	6.63	[R]6.93	7.45	[R]7.59	[R]8.35	[R]8.63	8.78
China	29.38	29.68	30.33	31.85	34.07	35.44	35.48	[R]36.75	[R]34.62	30.87
India	6.57	6.86	7.17	7.37	[R]7.63	[R]9.01	[R]8.83	[R]9.05	[R]9.03	9.17
Indonesia	[R]5.27	[R]5.85	[R]5.99	6.29	6.63	6.98	7.43	[R]7.44	[R]7.51	7.63
Japan	3.44	3.61	3.54	3.90	3.81	4.19	4.29	4.55	[R]4.66	4.53
Other	[R]8.52	[R]8.70	[R]8.93	[R]9.41	[R]9.64	[R]10.29	[R]10.69	[R]11.01	[R]11.42	11.98
World	[R]**351.03**	[R]**348.01**	[R]**349.89**	[R]**350.84**	[R]**355.80**	[R]**364.72**	[R]**373.39**	[R]**381.13**	[R]**383.21**	**379.75**

[1] Through 1990, this is East and West Germany. Beginning in 1991, this is unified Germany.

R=Revised. P=Preliminary. — = Not applicable.

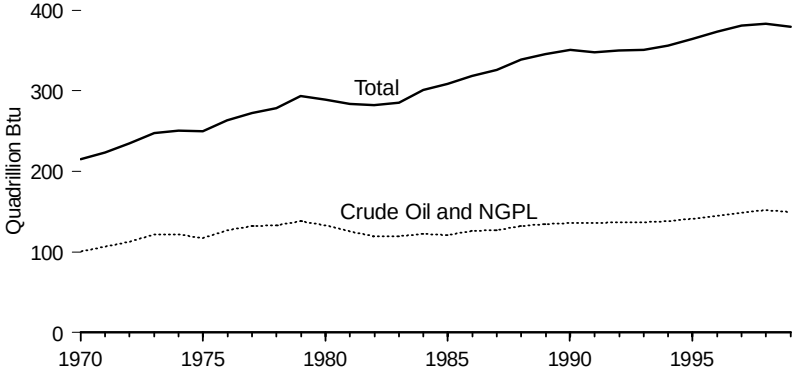
Notes: • See Note 1 at end of section. • World primary energy production includes production of crude oil (including lease condensate), natural gas plant liquids, dry natural gas, and coal; and net electricity generation from hydroelectric power, nuclear electric power, geothermal, wood, waste, solar, and wind. Data for the United States also include renewable energy used for other than electricity generation. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/international.

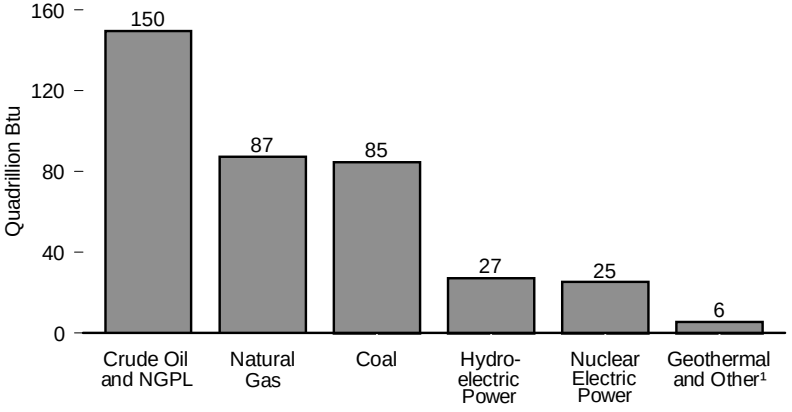
Sources: **United States:** Table 1.2. **All Other Data:** Energy Information Administration, *International Energy Annual 1999* (February 2001), Table F1, and the International Energy Database.

Figure 11.2 World Primary Energy Production by Source

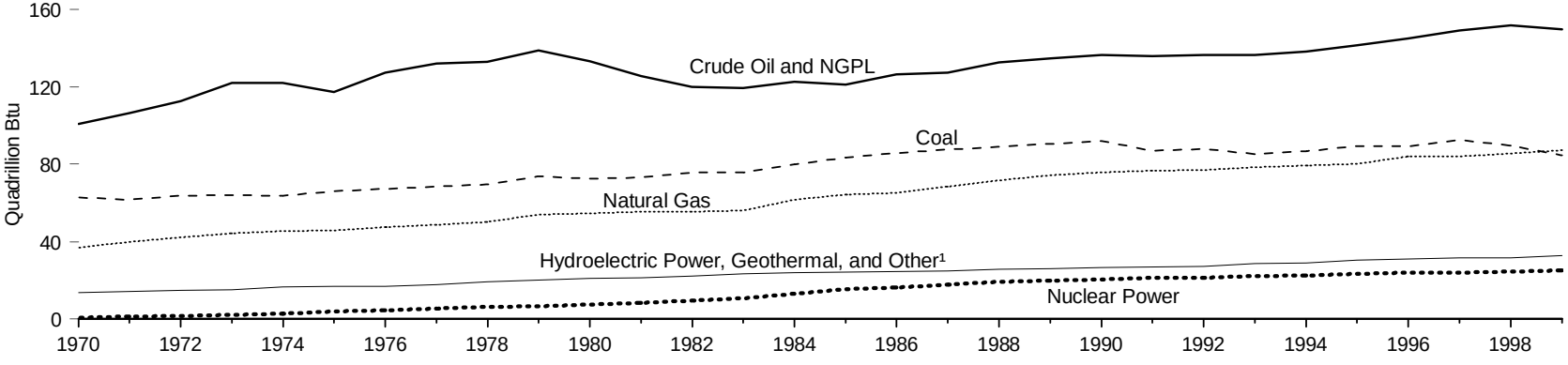
Total and Crude Oil and NGPL, 1970-1999



By Source, 1999



By Source, 1970-1999



¹Net electricity generation from wood, waste, solar, and wind. Data for the United States also include other renewable energy.

Notes: • Crude oil includes lease condensate. • NGPL is natural gas plant liquids. • Because vertical scales differ, graphs should not be compared.

Source: Table 11.2.

Table 11.2 World Primary Energy Production by Source, 1970-1999

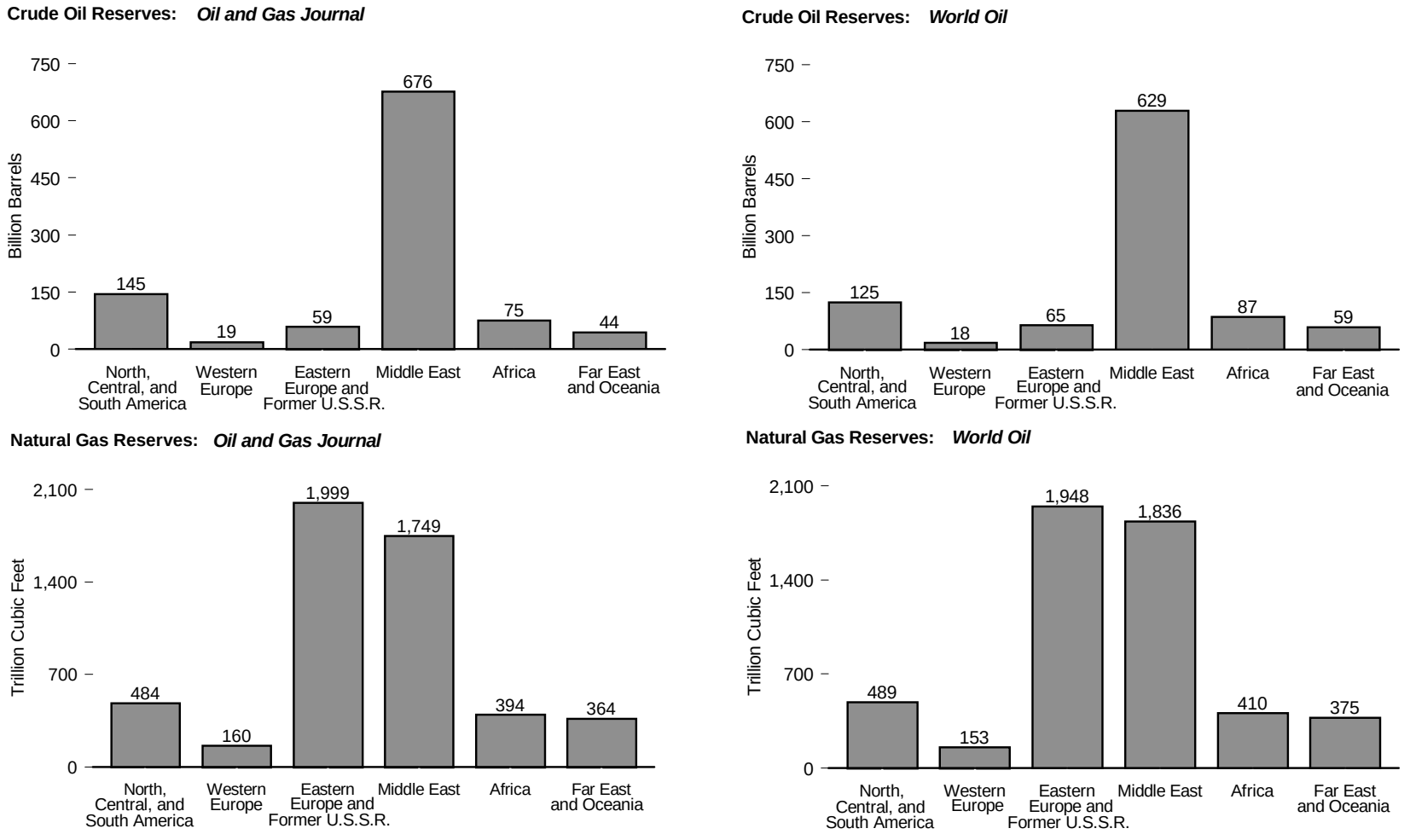
(Quadrillion Btu)

Year	Coal	Natural Gas [1]	Crude Oil [2]	Natural Gas Plant Liquids	Nuclear Electric Power [3]	Hydroelectric Power [3]	Geothermal [3] and Other [4]	Total
1970	62.96	37.09	97.09	3.61	0.90	12.15	1.59	215.39
1971	61.72	39.80	102.70	3.85	1.23	12.74	1.61	223.64
1972	63.65	42.08	108.52	4.09	1.66	13.31	1.68	234.99
1973	63.87	44.44	117.88	4.23	2.15	13.52	1.73	R247.83
1974	63.79	45.35	117.82	4.22	2.86	14.84	R1.76	250.64
1975	66.20	45.67	113.08	4.12	3.85	15.03	1.74	249.69
1976	67.32	47.62	122.92	4.24	4.52	15.08	1.97	263.67
1977	68.46	48.85	127.75	4.40	5.41	15.56	R2.11	272.54
1978	69.56	50.26	128.51	4.55	6.42	16.80	2.32	278.41
1979	73.83	53.93	133.87	4.87	6.69	17.69	2.48	293.36
1980	R72.72	54.73	128.12	5.10	7.58	18.06	2.95	R289.26
1981	R73.04	55.56	120.16	5.36	8.53	18.35	3.09	R284.09
1982	R75.64	55.49	114.51	5.34	9.51	18.83	3.24	R282.56
1983	R75.70	R56.12	113.97	5.34	10.72	19.73	3.51	R285.10
1984	R79.86	61.78	116.86	5.71	12.99	20.35	3.64	R301.19
1985	R83.64	64.22	115.40	5.82	15.37	20.57	3.67	R308.68
1986	R85.76	65.32	120.24	6.12	16.34	21.03	R3.73	R318.55
1987	R87.56	R68.48	121.16	6.32	17.80	21.10	R3.79	R326.21
1988	R89.22	R71.80	125.93	6.63	19.30	21.90	3.94	R338.73
1989	R90.61	74.24	127.98	6.67	19.82	21.76	R4.30	R345.38
1990	R91.87	75.91	129.50	6.85	20.37	22.57	R3.96	R351.03
1991	R87.11	76.68	128.77	7.13	21.29	R22.99	R4.04	R348.01
1992	R87.87	R76.89	129.13	7.38	21.36	R22.94	R4.33	R349.89
1993	R85.19	R78.40	128.86	7.67	22.07	R24.30	R4.37	R350.84
1994	R86.76	79.16	130.46	7.84	22.50	R24.48	R4.60	R355.80
1995	R89.24	80.23	133.32	8.14	R23.31	R25.71	R4.76	R364.72
1996	R89.24	R84.06	136.64	8.30	R24.13	R26.10	R4.93	R373.39
1997	R92.51	R84.01	140.52	8.49	R23.90	R26.73	R4.95	R381.13
1998	R89.58	R85.56	R143.15	R8.74	R24.41	R26.68	R5.10	R383.21
1999P	84.76	87.31	140.84	8.87	25.25	27.18	5.54	379.75

[1] Dry production.
[2] Includes lease condensate.
[3] Net generation, i.e., gross generation less plant use.
[4] Includes net electricity generation from wood, waste, solar, and wind. Data for the United States also include other renewable energy.
R=Revised. P=Preliminary.

Notes: • See Note 1 at end of section. • Totals may not equal sum of components due to independent rounding.
Web Page: http://www.eia.doe.gov/international.
Sources: • 1970-1989—Energy Information Administration (EIA), International Energy Database. • 1990 forward—EIA, *International Energy Annual 1999* (February 2001), Tables F1-F8, and the International Energy Database.

Figure 11.3 World Crude Oil and Natural Gas Reserves, January 1, 2000



Source: Table 11.3.

Table 11.3 World Crude Oil and Natural Gas Reserves, January 1, 2000

Region and Country	Crude Oil (billion barrels)		Natural Gas (trillion cubic feet)	
	Oil & Gas Journal	*World Oil*	*Oil & Gas Journal*	*World Oil*
North America	**55.1**	**55.6**	**261.3**	**261.3**
Canada	4.9	5.6	63.9	63.5
Mexico	28.4	28.3	30.1	30.4
United States	21.8	21.8	167.4	167.4
Central and South America	**89.5**	**69.2**	**222.7**	**227.9**
Argentina	2.8	2.6	24.2	24.3
Bolivia	0.1	0.2	4.3	5.5
Brazil	7.4	8.1	8.0	8.2
Colombia	2.6	2.3	6.9	6.6
Ecuador	2.1	3.0	3.7	3.9
Peru	0.4	4.1	9.0	8.8
Trinidad and Tobago	0.6	0.7	19.8	21.4
Venezuela	72.6	47.1	142.5	145.8
Other	1.0	1.0	4.2	3.5
Western Europe	**18.8**	**17.6**	**159.5**	**152.7**
Denmark	1.1	0.9	3.4	2.6
Germany	0.4	0.3	12.0	9.5
Italy	0.6	0.6	8.1	7.4
Netherlands	0.1	0.1	62.5	59.8
Norway	10.8	10.0	41.4	42.9
United Kingdom	5.2	5.0	26.7	26.8
Other	0.7	0.7	5.5	3.7
Eastern Europe and Former U.S.S.R.	**58.9**	**64.7**	**1,999.2**	**1,947.6**
Hungary	0.1	0.1	2.9	1.1
Kazakhstan	5.4	6.4	65.0	70.6
Romania	1.4	1.2	13.2	4.0
Russia	48.6	52.7	1,700.0	1,705.0
Other [1]	3.3	4.3	218.1	166.9
Middle East	**675.6**	**629.2**	**1,749.2**	**1,836.2**
Bahrain	0.1	NA	3.9	NA
Iran	89.7	93.1	812.3	790.0
Iraq	112.5	100.0	109.8	112.6
Kuwait	96.5	94.7	52.7	56.4
Oman	5.3	5.7	28.4	29.3
Qatar	3.7	5.4	300.0	394.0
Saudi Arabia	263.5	261.4	204.5	208.0
Syria	2.5	2.3	8.5	8.4
United Arab Emirates	97.8	63.8	212.0	209.0
Yemen	4.0	2.1	16.9	17.0
Other	(s)	0.5	0.3	11.5
Africa	**74.9**	**86.5**	**394.2**	**409.7**
Algeria	9.2	13.0	159.7	159.7
Angola	5.4	8.5	1.6	3.8
Cameroon	0.4	0.6	3.9	3.9
Congo	1.5	1.7	3.2	4.3
Egypt	2.9	3.8	35.2	42.5
Libya	29.5	29.5	46.4	46.4
Nigeria	22.5	24.5	124.0	126.0
Tunisia	0.3	0.3	2.8	2.8
Other	3.1	4.7	17.4	20.3
Far East and Oceania	**44.0**	**58.7**	**363.5**	**375.4**
Australia	2.9	2.9	44.6	44.6
Brunei	1.4	1.0	13.8	9.2
China	24.0	34.1	48.3	41.3
India	4.8	3.4	22.9	16.1
Indonesia	5.0	8.4	72.3	80.8
Malaysia	3.9	4.6	81.7	85.2
New Zealand	0.1	0.1	2.5	2.1
Pakistan	0.2	0.2	21.6	22.9
Papua New Guinea	0.3	0.8	5.4	17.3
Thailand	0.3	0.3	12.5	11.1
Other	1.1	2.9	37.9	44.7
World	**1,016.8**	**981.4**	**5,149.6**	**5,210.8**

[1] Albania, Azerbaijan, Belarus, Bulgaria, Czech Republic, Georgia, Kyrgyzstan, Lithuania, Poland, Slovakia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan.

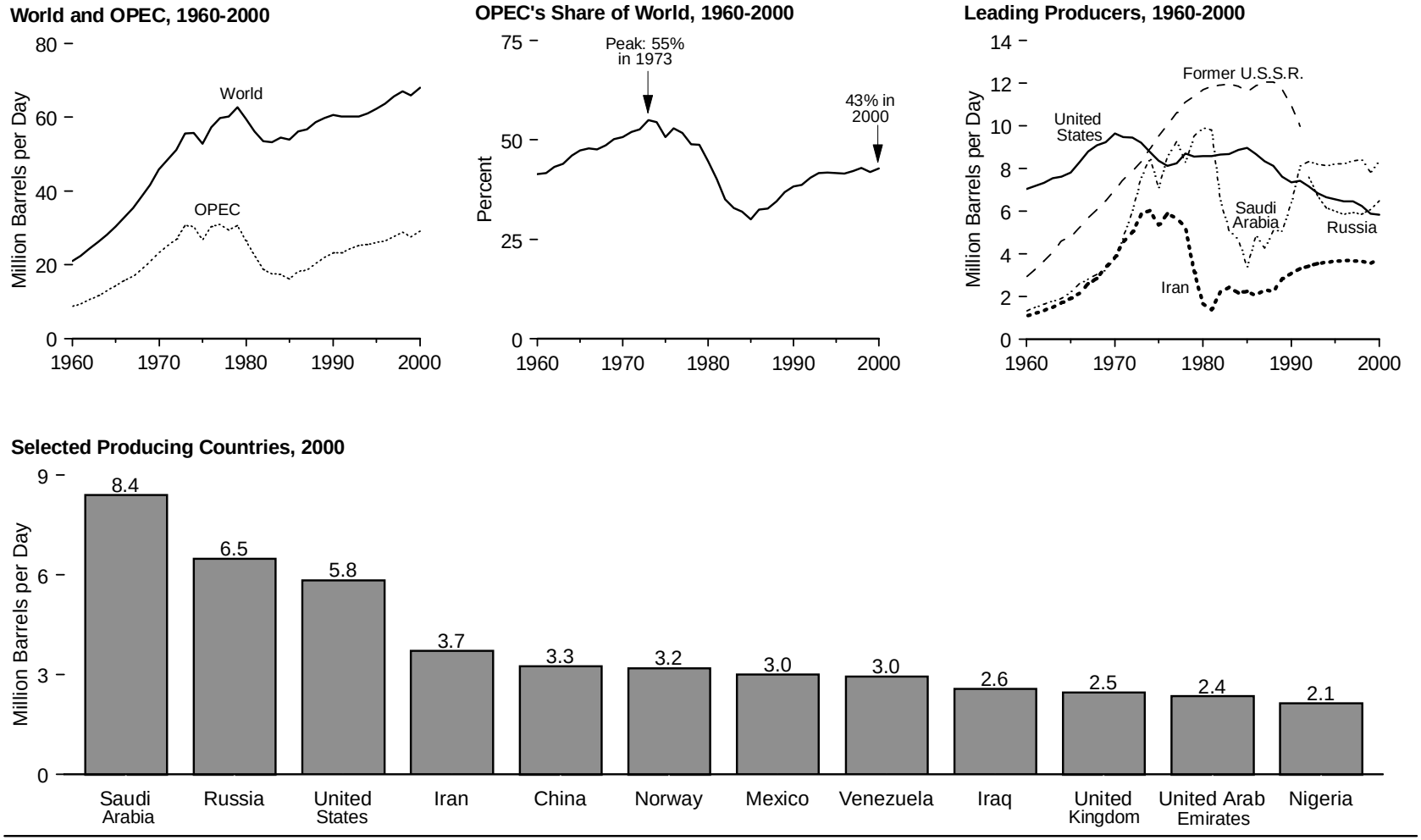
NA=Not available. (s)=Less than 0.05 billion barrels.

Notes: • Data for Kuwait and Saudi Arabia include one-half of the reserves in the Neutral Zone between Kuwait and Saudi Arabia. • All reserve figures except those for the former U.S.S.R. and natural gas reserves in Canada are proved reserves recoverable with present technology and prices at the time of estimation. Former U.S.S.R. and Canadian natural gas figures include proved, and some probable reserves. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/international.

Sources: **United States:** Energy Information Administration, *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves* (December 2000). **All Other Data:** PennWell Publishing Company, *Oil & Gas Journal,* December 20, 1999 and Gulf Publishing Company, *World Oil,* August 2000.

Figure 11.4 World Crude Oil Production



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

Source: Table 11.4.

Table 11.4 World Crude Oil Production, 1960-2000

(Million Barrels per Day)

Year	Selected OPEC [1] Producers								Selected Non-OPEC Producers									World
	Persian Gulf Nations [2]	Iran	Iraq	Kuwait [3]	Nigeria	Saudi Arabia [3]	United Arab Emirates	Venezuela	Total OPEC	Canada	China	Mexico	Norway	Former U.S.S.R.	Russia	United Kingdom	United States	Total Non-OPEC [4]	
1960	5.27	1.07	0.97	1.69	0.02	1.31	0.00	2.85	8.70	0.52	0.10	0.27	0.00	2.91	—	(s)	7.04	12.29	20.99
1961	5.65	1.20	1.01	1.74	0.05	1.48	0.00	2.92	9.36	0.61	0.11	0.29	0.00	3.28	—	(s)	7.18	13.09	22.45
1962	6.19	1.33	1.01	1.96	0.07	1.64	0.01	3.20	10.51	0.67	0.12	0.31	0.00	3.67	—	(s)	7.33	13.84	24.35
1963	6.82	1.49	1.16	2.10	0.08	1.79	0.05	3.25	11.51	0.71	0.13	0.31	0.00	4.07	—	(s)	7.54	14.62	26.13
1964	7.61	1.71	1.26	2.30	0.12	1.90	0.19	3.39	12.98	0.75	0.18	0.32	0.00	4.60	—	(s)	7.61	15.20	28.18
1965	8.37	1.91	1.32	2.36	0.27	2.21	0.28	3.47	14.35	0.81	0.23	0.32	0.00	4.79	—	(s)	7.80	15.98	30.33
1966	9.32	2.13	1.39	2.48	0.42	2.60	0.36	3.37	15.77	0.88	0.29	0.33	0.00	5.23	—	(s)	8.30	17.19	32.96
1967	9.91	2.60	1.23	2.50	0.32	2.81	0.38	3.54	16.85	0.96	0.28	0.36	0.00	5.68	—	(s)	8.81	18.54	35.39
1968	10.91	2.84	1.50	2.61	0.14	3.04	0.50	3.60	18.79	1.19	0.30	0.39	0.00	6.08	—	(s)	9.10	19.84	38.63
1969	11.95	3.38	1.52	2.77	0.54	3.22	0.63	3.59	20.91	1.13	0.48	0.46	0.00	6.48	—	(s)	9.24	20.79	41.70
1970	13.39	3.83	1.55	2.99	1.08	3.80	0.78	3.71	23.30	1.26	0.60	0.49	0.00	6.99	—	(s)	9.64	22.59	45.89
1971	15.77	4.54	1.69	3.20	1.53	4.77	1.06	3.55	25.21	1.35	0.78	0.49	0.01	7.48	—	(s)	9.46	23.31	48.52
1972	17.54	5.02	1.47	3.28	1.82	6.02	1.20	3.22	26.89	1.53	0.90	0.51	0.03	7.89	—	(s)	9.44	24.25	51.14
1973	20.67	5.86	2.02	3.02	2.05	7.60	1.53	3.37	30.63	1.80	1.09	0.47	0.03	8.32	—	(s)	9.21	25.05	55.68
1974	21.28	6.02	1.97	2.55	2.26	8.48	1.68	2.98	30.35	1.55	1.32	0.57	0.04	8.91	—	(s)	8.77	25.37	55.72
1975	18.93	5.35	2.26	2.08	1.78	7.08	1.66	2.35	26.77	1.43	1.49	0.71	0.19	9.52	—	0.01	8.37	26.06	52.83
1976	21.51	5.88	2.42	2.15	2.07	8.58	1.94	2.29	30.33	1.31	1.67	0.83	0.28	10.06	—	0.25	8.13	27.01	57.34
1977	21.73	5.66	2.35	1.97	2.09	9.25	2.00	2.24	30.89	1.32	1.87	0.98	0.28	10.60	—	0.77	8.24	28.82	59.71
1978	20.61	5.24	2.56	2.13	1.90	8.30	1.83	2.17	29.46	1.32	2.08	1.21	0.36	11.11	—	1.08	8.71	30.70	60.16
1979	21.07	3.17	3.48	2.50	2.30	9.53	1.83	2.36	30.58	1.50	2.12	1.46	0.40	11.38	—	1.57	8.55	32.09	62.67
1980	17.96	1.66	2.51	1.66	2.06	9.90	1.71	2.17	26.61	1.44	2.11	1.94	0.53	11.71	—	1.62	8.60	32.99	59.60
1981	15.25	1.38	1.00	1.13	1.43	9.82	1.47	2.10	22.48	1.29	2.01	2.31	0.50	11.85	—	1.81	8.57	33.60	56.08
1982	12.16	2.21	1.01	0.82	1.30	6.48	1.25	1.90	18.78	1.27	2.05	2.75	0.52	11.91	—	2.07	8.65	34.70	53.48
1983	11.08	2.44	1.01	1.06	1.24	5.09	1.15	1.80	17.50	1.36	2.12	2.69	0.61	11.97	—	2.29	8.69	35.76	53.26
1984	10.78	2.17	1.21	1.16	1.39	4.66	1.15	1.80	17.44	1.44	2.30	2.78	0.70	11.86	—	2.48	8.88	37.05	54.49
1985	9.63	2.25	1.43	1.02	1.50	3.39	1.19	1.68	16.18	1.47	2.51	2.75	0.79	11.59	—	2.53	8.97	37.80	53.98
1986	11.70	2.04	1.69	1.42	1.47	4.87	1.33	1.79	18.28	1.47	2.62	2.44	0.87	11.90	—	2.54	8.68	37.95	56.23
1987	12.10	2.30	2.08	1.59	1.34	4.27	1.54	1.75	18.52	1.54	2.69	2.55	1.02	12.05	—	2.41	8.35	38.15	56.67
1988	13.46	2.24	2.69	1.49	1.45	5.09	1.57	1.90	20.32	1.62	2.73	2.51	1.16	12.05	—	2.23	8.14	38.42	58.74
1989	14.84	2.81	2.90	1.78	1.72	5.06	1.86	1.91	22.07	1.56	2.76	2.52	1.55	11.72	—	1.80	7.61	37.79	59.86
1990	15.28	3.09	2.04	1.18	1.81	6.41	2.12	2.14	23.20	1.55	2.77	2.55	1.70	10.98	—	1.82	7.36	37.37	60.57
1991	14.74	3.31	0.31	0.19	1.89	8.12	2.39	2.38	23.27	1.55	2.84	2.68	1.89	9.99	—	1.80	7.42	36.94	60.21
1992	15.97	3.43	0.43	1.06	1.94	8.33	2.27	2.37	24.40	1.61	2.85	2.67	2.23	—	7.63	1.83	7.17	35.81	60.21
1993	16.71	3.54	0.51	1.85	1.96	8.20	2.16	2.45	25.12	1.68	2.89	2.67	2.35	—	6.73	1.92	6.85	35.12	60.24
1994	16.96	3.62	0.55	2.03	1.93	8.12	2.19	2.59	25.51	1.75	2.94	2.69	2.52	—	6.14	2.37	6.66	35.48	60.99
1995	17.21	3.64	0.56	2.06	1.99	8.23	2.23	2.75	26.00	1.81	2.99	2.62	2.77	—	6.00	2.49	6.56	36.33	62.33
1996	17.37	3.69	0.58	2.06	2.00	8.22	2.28	2.94	26.46	1.84	3.13	2.86	3.10	—	5.85	2.57	6.46	37.25	63.71
1997	R18.10	3.66	1.16	R2.01	R2.13	R8.36	2.32	R3.28	R27.71	1.92	3.20	3.02	3.14	—	5.92	2.52	6.45	R37.98	R65.69
1998	R19.34	3.63	2.15	2.09	2.15	8.39	2.35	3.17	R28.77	1.98	3.20	3.07	3.02	—	R5.85	2.62	6.25	R38.19	R66.96
1999	R18.67	3.56	2.51	1.90	2.13	7.83	2.17	2.83	R27.58	1.91	R3.19	2.91	3.02	—	R6.08	R2.68	R5.88	R38.29	R65.87
2000P	19.94	3.72	2.57	2.13	2.14	8.40	2.35	2.95	29.11	1.98	3.25	3.01	3.20	—	6.48	2.47	5.83	38.87	67.98

[1] Organization of Petroleum Exporting Countries. See Glossary for membership.
[2] Persian Gulf Nations are Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, and United Arab Emirates.
[3] Includes about one-half of the production in the Neutral Zone between Kuwait and Saudi Arabia.
[4] Ecuador, which withdrew from OPEC on December 31, 1992, and Gabon, which withdrew on December 31,1994, are included in "Non-OPEC" for all years.

R=Revised. P=Preliminary. — = Not applicable. (s)=Less than 0.005 million barrels per day.

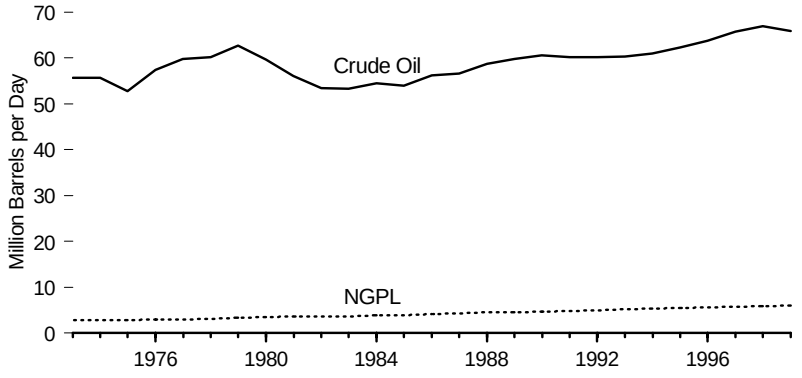
Notes: • Includes lease condensate, excludes natural gas plant liquids. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/international.

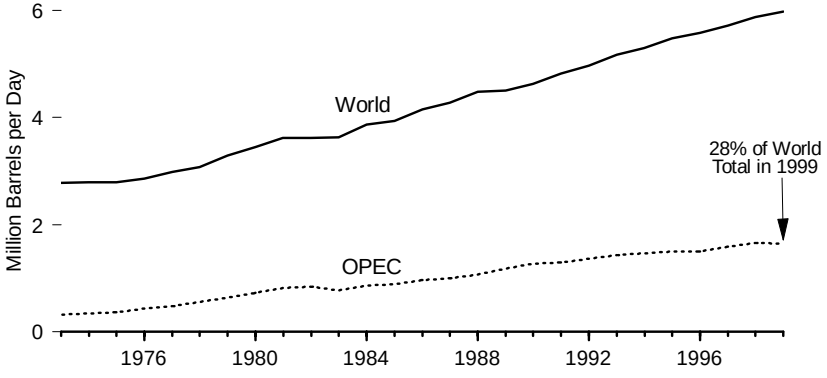
Sources: **China:** • 1960-1972—Central Intelligence Agency, unpublished data. • 1973-1999—Energy Information Administration (EIA), *International Energy Annual,* annual reports, and the International Energy Database. • 2000—EIA, *Monthly Energy Review* (March 2001), Table 10.1b. **United States:** • 1960-1975—Bureau of Mines, Mineral Industry Surveys, *Petroleum Statement, Annual.* • 1976-1980—EIA, Energy Data Reports, *Petroleum Statement, Annual.* • 1981-1999—EIA, *Petroleum Supply Annual.* • 2000—EIA, *Petroleum Supply Monthly* (February 2001). **Former U.S.S.R.:** • 1960-1969—U.S.S.R. Central Statistical Office, *Narodnoye Khozyaystvo SSSR* (National Economy USSR). • 1970-1991—EIA, *International Petroleum Monthly,* February 2001, Table 4.1c. **Russia:** • 1992-1999—EIA, *International Petroleum Monthly,* February 2001. • 2000—EIA, *Monthly Energy Review* (March 2001), Table 10.1b. **OPEC Nations:** • 1960-1972—Organization of Petroleum Exporting Countries, *Annual Statistical Bulletin 1979.* • 1973-1999—EIA, *International Energy Annual,* annual reports, and the International Energy Database. • 2000—EIA, *Monthly Energy Review* (March 2001), Table 10.1a. **All Other Countries:** • 1960-1969—Bureau of Mines, *International Petroleum Annual, 1969.* • 1970-1972—EIA, *International Petroleum Annual, 1978.* • 1973-1999—EIA, *International Energy Annual,* annual reports, and the International Energy Database. • 2000—EIA, *Monthly Energy Review* (March 2001), Table 10.1b.

Figure 11.5 World Natural Gas Plant Liquids Production

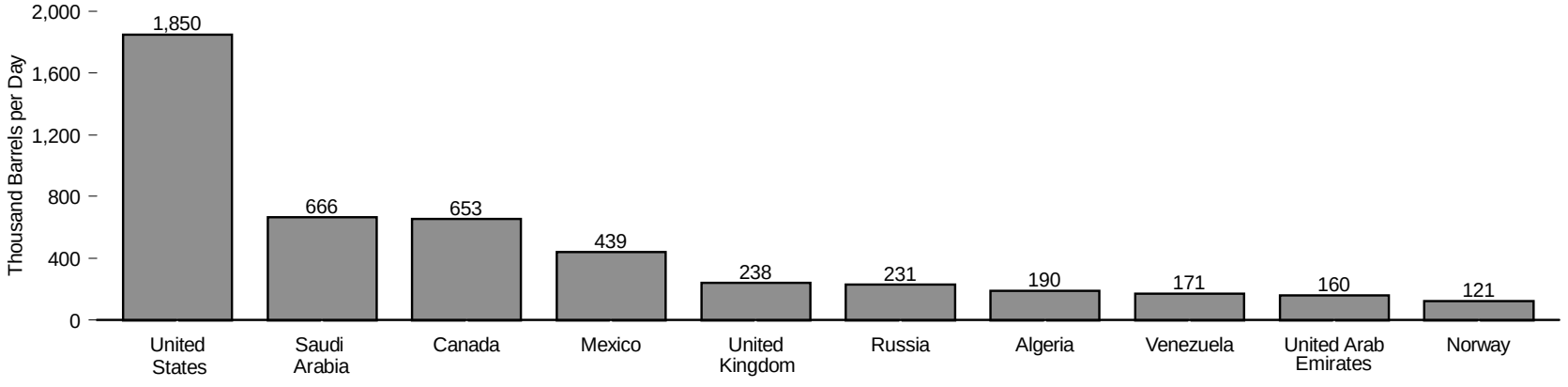
Crude Oil and NGPL Production, 1973-1999



World and OPEC NGPL Production, 1973-1999



Top NGPL Producing Countries, 1999



Notes: • Crude oil includes lease condensate. • NGPL is natural gas plant liquids.
• Because vertical scales differ, graphs should not be compared.

Sources: Tables 11.4 and 11.5.

Table 11.5 World Natural Gas Plant Liquids Production, 1973-1999

(Thousand Barrels per Day)

	Selected OPEC [1] Producers								Selected Non-OPEC Producers										
Year	Algeria	Indonesia	Kuwait [2]	Qatar	Saudi Arabia [2]	United Arab Emirates	Venezuela	Total OPEC	Australia	Canada	Malaysia	Mexico	Norway	Former U.S.S.R.	Russia	United Kingdom	United States	Total Non-OPEC [3]	World
1973	9	(s)	60	(s)	90	(s)	89	324	50	314	0	75	(s)	170	—	5	1,738	2,462	2,786
1974	12	(s)	50	5	130	(s)	84	347	50	314	0	80	(s)	190	—	5	1,688	2,443	2,790
1975	20	(s)	50	10	140	(s)	76	372	50	309	0	80	5	205	—	15	1,633	2,419	2,791
1976	24	10	50	10	185	(s)	77	442	50	289	0	95	20	220	—	15	1,604	2,425	2,867
1977	19	10	55	5	215	15	78	482	55	290	0	105	20	235	—	30	1,618	2,502	2,984
1978	25	30	75	5	250	30	61	566	60	281	0	115	35	255	—	40	1,567	2,514	3,080
1979	30	40	95	10	303	30	69	637	60	331	0	150	40	270	—	45	1,584	2,650	3,287
1980	36	70	95	10	369	35	60	732	60	331	0	193	40	285	—	45	1,573	2,712	3,444
1981	49	95	60	24	433	60	55	825	60	330	0	241	31	300	—	50	1,609	2,800	3,625
1982	58	80	40	30	430	90	60	842	52	318	0	255	33	315	—	78	1,550	2,784	3,626
1983	56	94	55	25	330	120	57	780	52	309	0	265	38	330	—	111	1,559	2,855	3,635
1984	105	75	67	28	355	130	57	869	54	336	10	257	36	340	—	136	1,630	3,000	3,869
1985	120	44	54	30	375	160	63	892	65	337	10	271	41	350	—	145	1,609	3,046	3,938
1986	120	30	75	22	385	185	97	969	60	328	9	352	53	440	—	152	1,551	3,181	4,150
1987	140	30	95	24	418	145	94	1,006	65	367	11	338	55	430	—	162	1,595	3,273	4,279
1988	120	30	100	30	499	130	98	1,077	67	381	11	370	75	450	—	159	1,625	3,404	4,481
1989	130	72	105	24	503	130	108	1,188	65	410	11	384	74	425	—	140	1,546	3,314	4,502
1990	130	77	65	40	620	135	114	1,281	63	426	12	428	78	425	—	108	1,559	3,351	4,632
1991	140	76	0	50	680	146	117	1,299	61	431	12	457	94	420	—	141	1,659	3,528	4,827
1992	140	75	34	55	713	144	113	1,364	56	460	13	454	95	—	230	160	1,697	3,610	4,974
1993	145	78	53	55	704	146	143	1,435	55	506	17	459	100	—	220	169	1,736	3,745	5,180
1994	140	80	85	50	698	150	146	1,465	56	529	17	461	103	—	200	218	1,727	3,827	5,292
1995	145	76	95	55	701	160	149	1,506	52	581	20	447	137	—	180	267	1,762	3,979	5,485
1996	150	80	85	50	697	160	150	1,501	62	596	20	423	138	—	185	259	1,830	4,075	5,576
1997	160	85	109	70	712	160	143	R1,589	71	636	50	388	139	—	195	233	1,817	R4,132	5,721
1998	155	87	115	85	755	170	145	R1,662	R70	651	90	424	131	—	220	241	1,759	R4,212	R5,874
1999P	190	87	115	111	666	160	171	1,648	72	653	85	439	121	—	231	238	1,850	4,336	5,984

[1] Organization of Petroleum Exporting Countries. See Glossary for membership.

[2] Includes about one-half of the production in the Neutral Zone between Kuwait and Saudi Arabia.

[3] Ecuador, which withdrew from OPEC on December 31, 1992, and Gabon, which withdrew on December 31, 1994, are included in "Non-OPEC" for all years.

R=Revised. P=Preliminary. — = Not applicable. (s)=Less than 500 barrels per day.

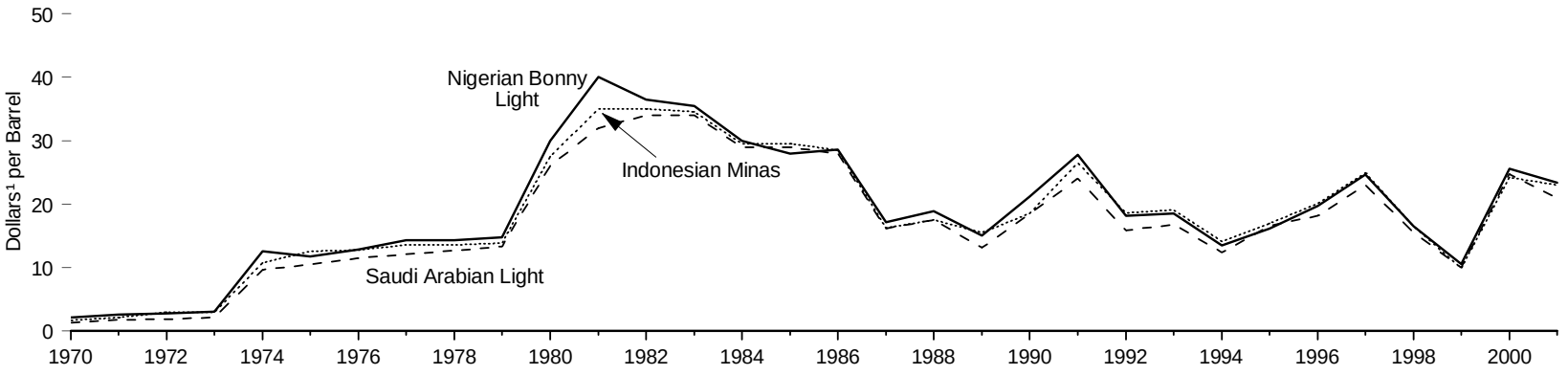
Note: Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/international.

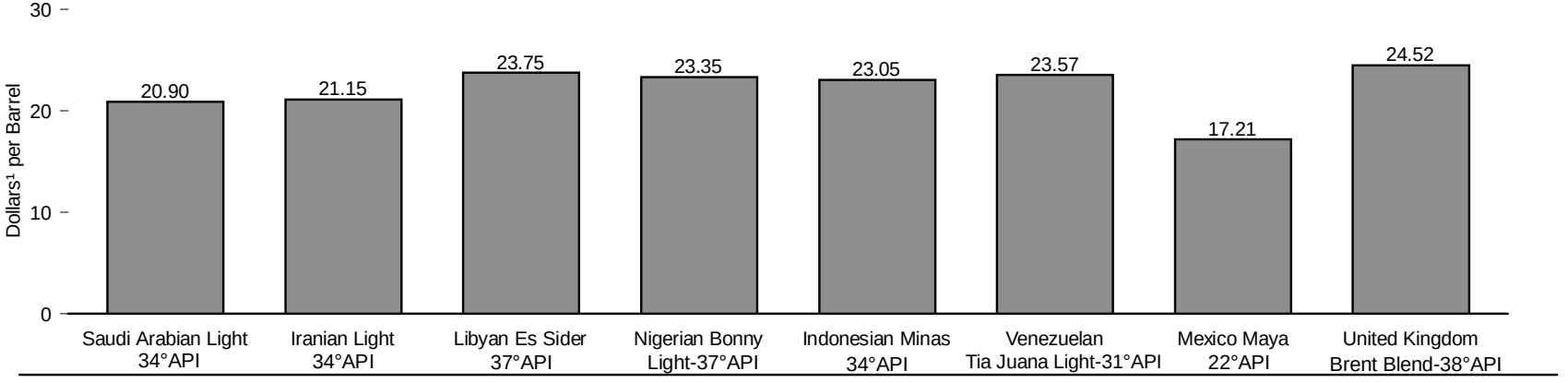
Sources: • 1973-1989—Energy Information Administration (EIA), *International Energy Annual,* annual reports, and the International Energy Database. • 1990 forward—EIA, *International Energy Annual 1999* (February 2001), Table 2.3, and the International Energy Database.

Figure 11.6 Crude Oil Prices by Selected Type

Selected Types, 1970-2001



Selected Types, 2001



[1] Nominal dollars.

API=API gravity.

Notes: • Prices are as of the Friday that is closest to January 1, except in 1987, when prices are as of the first Friday in February. • Because vertical scales differ, graphs should not be compared.

Source: Table 11.6.

Table 11.6 Crude Oil Prices by Selected Type, 1970-2001

(Dollars[1] per Barrel)

Year	Saudi Arabian Light-34° API	Iranian Light-34° API	Libyan [2] Es Sider-37° API	Nigerian [3] Bonny Light-37° API	Indonesian Minas-34° API	Venezuelan Tia Juana Light [4]	Mexico Maya-22° API	United Kingdom Brent Blend-38° API
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]30.37	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
1986	28.00	28.05	30.15	28.65	28.53	28.05	21.93	26.00
1987	16.15	16.14	16.95	17.13	16.28	15.10	14.00	18.25
1988	17.52	15.55	18.52	18.92	17.56	17.62	11.10	18.00
1989	13.15	12.75	15.40	15.05	15.50	12.27	10.63	15.80
1990	18.40	18.20	20.40	21.20	18.55	24.69	17.05	21.00
1991	24.00	23.65	26.90	27.80	26.50	28.62	20.00	27.20
1992	15.90	15.50	17.20	18.20	18.65	19.67	10.75	17.75
1993	16.80	16.70	17.55	18.50	19.10	17.97	12.50	17.90
1994	12.40	12.40	12.55	13.50	14.15	12.97	9.01	13.15
1995	16.63	16.18	16.05	16.15	16.95	16.57	13.77	16.15
1996	18.20	17.73	19.20	19.70	20.05	18.52	15.79	19.37
1997	22.98	22.63	24.10	24.65	24.95	26.62	19.33	24.05
1998	15.50	14.93	16.72	16.50	16.50	15.93	10.81	15.89
1999	10.03	9.83	10.65	10.60	9.95	9.45	6.38	10.44
2000	24.78	24.63	25.85	25.55	24.15	24.85	20.20	25.10
2001	20.90	21.15	23.75	23.35	23.05	23.57	17.21	24.52

[1] Nominal dollars.

[2] Prices for 1974 and 1975 are for crude oil with 40° 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] 1970-1985—26° API; 1986 forward—31° API.

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

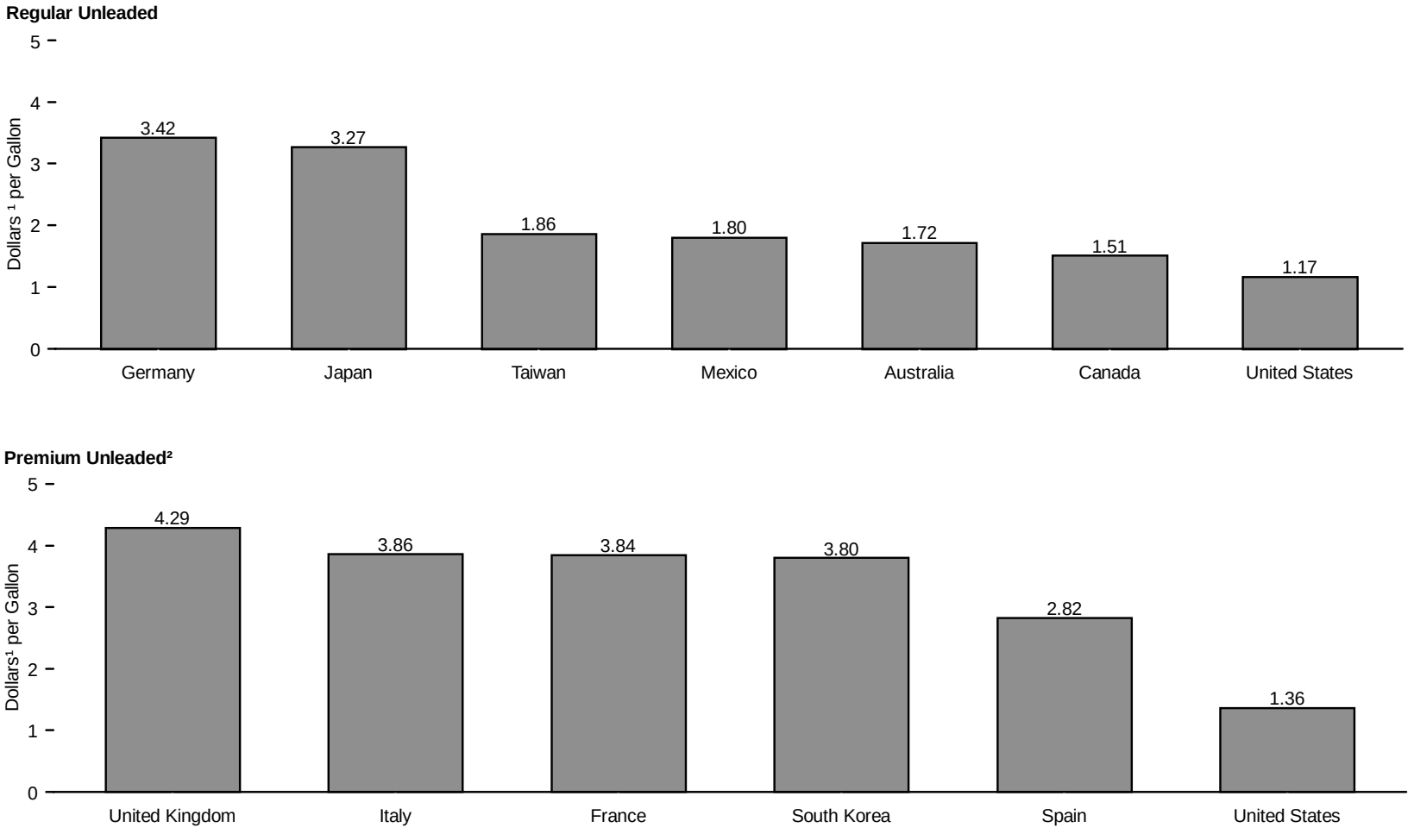
API=API gravity. NA=Not available.

Notes: • Based on official government-selling prices, netback values, or spot market quotations. • Prices are usually f.o.b. at the foreign port of lading. • Prices are as of the Friday that is closest to January 1, except in 1987, when prices are as of the first Friday in February. • See Tables 5.16, 5.17, and 5.19 for other types of crude oil prices for the United States, such as Domestic First Purchase Prices, Landed Costs of Crude Oil Imports, and Refiner Acquisition Costs.

Web Page: http://www.eia.doe.gov/international.

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

Figure 11.7 Retail Motor Gasoline Prices in Selected Countries, 1999



[1] Nominal dollars.
[2] Research Octane Number (RON) of 95.

Source: Table 11.7.

Table 11.7 Retail Motor Gasoline Prices in Selected Countries, 1990-1999

(Dollars[1] per Gallon)

	Regular Unleaded									Premium Unleaded [2]							
Year	Australia	Brazil	Canada	China	Germany	Japan	Mexico	Taiwan	United States	France	Italy	South Africa	South Korea	Spain	Thailand	United Kingdom	United States
1990	NA	3.82	1.87	NA	2.65	3.17	1.00	2.49	1.16	3.63	4.60	NA	2.03	NA	NA	2.82	1.35
1991	1.96	2.91	1.92	NA	2.90	3.46	1.29	2.39	1.14	3.45	4.50	NA	2.49	NA	1.40	3.01	1.32
1992	1.89	2.92	1.73	NA	3.27	3.59	1.50	2.42	1.13	3.57	4.53	NA	2.70	3.49	1.35	3.06	1.32
1993	1.73	2.40	1.57	NA	3.07	4.02	1.56	2.27	1.11	3.41	3.68	NA	2.88	3.02	1.26	2.84	1.30
1994	1.84	2.80	1.45	0.96	3.52	4.39	1.48	2.14	1.11	3.59	3.71	NA	2.87	2.99	1.21	2.99	1.31
1995	1.95	2.16	1.53	1.03	3.96	4.43	1.12	2.23	1.15	4.26	4.00	NA	2.93	3.24	1.25	3.21	1.34
1996	2.12	2.31	1.61	1.03	3.94	3.65	1.26	2.15	1.23	4.41	4.39	1.74	3.15	3.32	1.31	3.34	1.41
1997	2.05	2.61	1.62	1.07	3.54	3.27	1.47	2.23	1.23	4.01	4.06	1.72	3.34	3.01	1.22	3.83	1.42
1998	1.63	2.80	1.38	1.08	3.34	2.82	1.50	[R]1.86	1.06	3.87	3.84	[R]1.51	[R]3.03	2.81	1.03	4.06	1.25
1999	1.72	NA	1.51	NA	3.42	3.27	1.80	1.86	1.17	3.84	3.86	NA	3.80	2.82	NA	4.29	1.36

[1] Nominal dollars.

[2] Research Octane Number (RON) of 95.

R=Revised. NA=Not available.

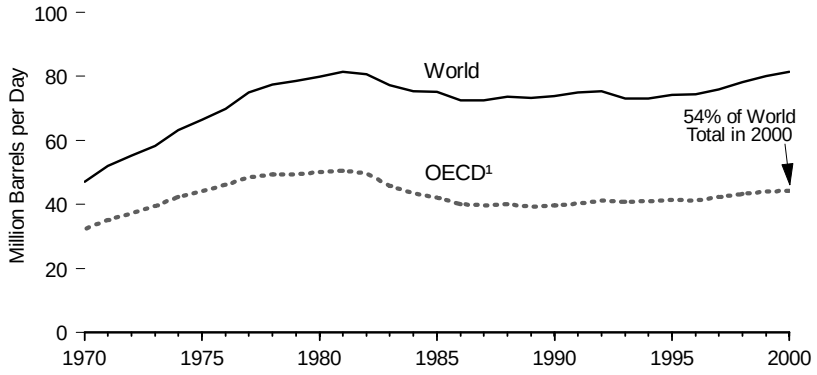
Notes: • Prices are those actually paid, i.e., net of rebates, and include transport costs and taxes which are not refundable. Prices in national currencies are converted to U.S. dollars using exchange rates published by the International Monetary Fund. • Prices for all countries, except the United States, have been converted from dollars per liter to dollars per gallon at 3.786 liters per gallon. Comparisons between prices and price trends in different countries require care. They are of limited validity because of fluctuations in exchange rates, differences in product quality, marketing practices, market structures, and the extent to which the standard categories of sales are representative of total national sales for a given period.

Web Page: http://www.eia.doe.gov/international.

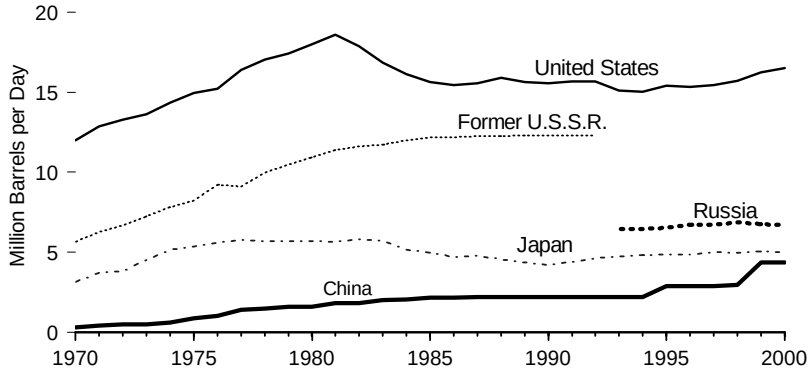
Sources: • **United States:** Table 5.22. • **All Other Data:** International Energy Agency, Organization for Economic Cooperation and Development, *Energy Prices and Taxes, Part II, Section D, and Part III, Section B,* quarterly reports.

Figure 11.8 World Crude Oil Refining Capacity

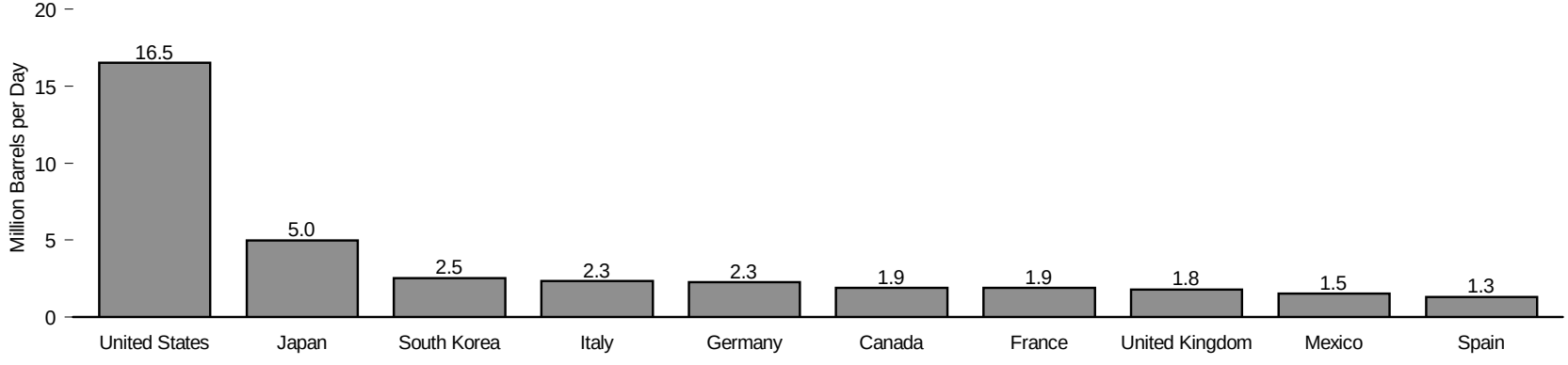
World and OECD,[1] 1970-2000



Leading Countries, 1970-2000



Selected OECD[1] Countries, 2000



[1] Organization for Economic Cooperation and Development. See Glossary for membership.

Notes: • Capacity is as of January 1. • Because vertical scales differ, graphs should not be compared.

Source: Table 11.8.

Table 11.8 World Crude Oil Refining Capacity, 1970-2000

(Million Barrels per Day)

Year	Selected OECD [1] Countries											Selected Non-OECD Countries							World
	Canada	France	Germany [2]	Italy	Japan	Mexico [3]	South Korea [3]	Spain	United Kingdom	United States	Total OECD [4]	Brazil	China	Former U.S.S.R.	Russia	Saudi Arabia	Ukraine	Total Non-OECD	
1970	1.40	2.32	2.36	2.96	3.14	0.50	0.18	0.69	2.30	12.02	32.18	0.50	0.30	5.64	—	0.38	—	14.92	47.10
1971	1.45	2.53	2.54	3.24	3.70	0.57	0.25	0.85	2.39	12.86	35.18	0.51	0.42	6.27	—	0.91	—	16.73	51.91
1972	1.45	2.69	2.56	3.68	3.82	0.59	0.22	0.87	2.59	13.29	37.22	0.56	0.48	6.68	—	0.51	—	17.92	55.14
1973	1.73	2.95	2.70	3.59	4.53	0.63	0.43	1.03	2.47	13.64	39.48	0.72	0.50	7.26	—	0.43	—	18.72	58.20
1974	1.79	3.14	2.83	3.88	5.15	0.63	0.42	1.16	2.76	14.36	42.41	0.79	0.60	7.81	—	0.43	—	20.74	63.15
1975	1.88	3.34	2.99	3.95	5.35	0.76	0.43	1.17	2.78	14.96	44.07	0.96	0.85	8.24	—	0.61	—	22.45	66.52
1976	2.02	3.31	3.10	4.08	5.63	0.76	0.44	1.32	2.89	15.24	46.16	0.99	1.01	9.23	—	0.54	—	23.77	69.93
1977	2.10	3.52	3.08	4.26	5.76	0.94	0.42	1.28	3.01	16.40	48.34	1.12	1.40	9.10	—	0.60	—	26.77	75.11
1978	2.17	3.46	3.08	4.23	5.67	1.38	0.48	1.27	2.91	17.05	49.37	1.16	1.46	9.98	—	0.59	—	28.09	77.46
1979	2.23	3.47	3.10	4.20	5.68	1.24	0.54	1.43	2.53	17.44	49.31	1.21	1.58	10.48	—	0.49	—	29.27	78.58
1980	2.22	3.40	2.99	4.13	5.71	1.39	0.60	1.46	2.53	17.99	50.07	1.21	1.60	10.95	—	0.49	—	29.78	79.85
1981	2.17	3.34	3.02	4.09	5.66	1.39	0.61	1.46	2.63	18.62	50.57	1.40	1.81	11.40	—	0.49	—	30.99	81.56
1982	2.20	3.29	2.94	4.00	5.81	1.47	0.76	1.52	2.48	17.89	49.70	1.41	1.81	11.60	—	0.49	—	30.93	80.63
1983	2.02	2.87	2.47	3.28	5.73	1.29	0.76	1.52	2.26	16.86	45.79	1.22	2.00	11.75	—	0.71	—	31.42	77.21
1984	1.81	2.67	2.39	3.05	5.17	1.27	0.78	1.49	2.09	16.14	43.41	1.30	2.05	12.00	—	0.86	—	32.01	75.42
1985	1.87	2.39	2.17	3.10	4.97	1.27	0.78	1.49	2.01	15.66	42.10	1.31	2.15	12.20	—	0.84	—	33.02	75.12
1986	1.86	1.95	1.93	2.74	4.72	1.27	0.78	1.37	1.79	15.46	40.00	1.31	2.15	12.20	—	1.12	—	32.55	72.55
1987	1.76	1.83	1.72	2.68	4.79	1.35	0.86	1.31	1.78	15.57	39.64	1.32	2.20	12.26	—	1.13	—	32.93	72.57
1988	1.87	1.94	1.65	2.56	4.57	1.35	0.82	1.31	1.80	15.92	40.03	1.41	2.20	12.26	—	1.38	—	33.54	73.57
1989	1.86	1.88	1.52	2.45	4.36	1.35	0.88	1.29	1.80	15.65	39.35	1.41	2.20	12.30	—	1.38	—	33.99	73.34
1990	1.85	1.82	1.51	2.80	4.20	1.51	0.87	1.29	1.83	15.57	39.66	1.40	2.20	12.30	—	1.48	—	34.20	73.86
1991	1.88	1.82	2.07	2.39	4.38	1.68	0.87	1.32	1.87	15.68	40.16	1.41	2.20	12.30	—	1.86	—	R34.75	R74.91
1992	1.91	1.82	2.06	2.39	4.61	1.57	1.16	1.32	1.86	15.70	R41.26	1.41	2.20	12.30	—	1.86	—	34.17	R75.43
1993	1.87	1.85	2.23	2.42	4.74	1.52	1.15	1.30	1.84	15.12	R40.82	1.40	2.20	—	6.46	1.86	1.24	32.29	R73.11
1994	1.88	1.86	2.27	2.26	4.81	1.52	1.15	1.28	1.87	15.03	R40.98	1.25	2.20	—	6.46	1.61	1.24	32.09	R73.07
1995	1.91	1.77	2.32	2.26	4.85	1.52	1.17	1.28	1.87	15.43	41.42	1.25	2.87	—	6.53	1.66	1.26	32.83	74.25
1996	1.85	1.78	2.13	2.28	4.87	1.52	1.24	1.33	1.89	15.33	R41.19	1.26	2.87	—	6.72	1.66	1.26	33.20	R74.39
1997	1.85	1.79	2.11	2.26	4.99	1.52	2.21	1.30	1.94	15.45	R42.36	1.26	2.87	—	6.73	1.66	1.25	33.63	R75.99
1998	1.85	1.87	2.18	2.45	4.97	1.52	2.54	1.29	1.83	15.71	R43.31	1.66	2.97	—	6.87	1.65	1.25	34.91	R78.22
1999	1.87	1.95	2.25	2.45	5.06	1.53	2.54	1.32	1.85	16.26	R44.08	1.77	4.35	—	6.75	1.69	1.09	R36.00	R80.08
2000	1.91	1.90	2.28	2.34	5.00	1.53	2.54	1.32	1.79	16.51	44.21	1.78	4.35	—	6.67	1.71	1.15	37.32	81.53

[1] Organization for Economic Cooperation and Development. See Glossary for membership.

[2] Through 1990, this is East and West Germany. Beginning in 1991, this is unified Germany.

[3] Mexico, which joined the OECD on May 18, 1994, and South Korea, which joined the OECD on December 12, 1996, are included in the OECD for all years shown in this table.

[4] Hungary and Poland, which joined the OECD on May 7, 1996, and November 22, 1996, respectively, are included in Total OECD beginning in 1992, the first year that data for these countries were available. The Czech Republic, which joined the OECD on December 21, 1995, is included in Total OECD beginning in 1994, the first year that data for the country were available.

R=Revised. — = Not applicable.

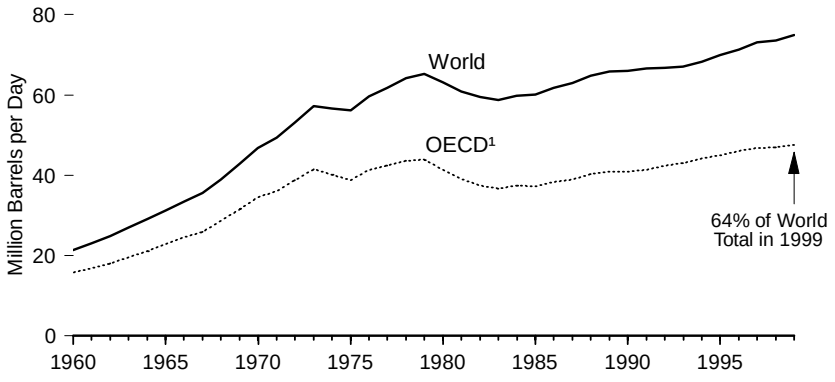
Notes: • Capacity data represent distillation capacity. • Capacity for all years is as of January 1. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/international.

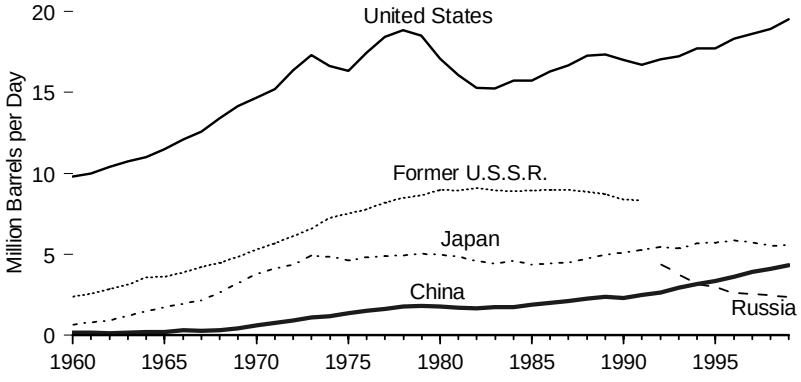
Sources: **United States:** • 1970-1977—Bureau of Mines, Mineral Industry Surveys, *Petroleum Refineries, Annual,* annual reports. • 1978-1981—Energy Information Administration (EIA), Energy Data Reports, *Petroleum Refineries in the United States and U.S. Territories.* • 1982 forward—EIA, *Petroleum Supply Annual,* annual reports. **China and Former U.S.S.R.:** • 1970-1976—Ballinger Publishing Company, *The Energy Decade, 1970-1980, A Statistical and Graphic Chronicle.* • 1977 forward—PennWell Publishing Company, *Oil & Gas Journal.* **All Other Countries:** PennWell Publishing Company, *Oil & Gas Journal.*

Figure 11.9 World Petroleum Consumption

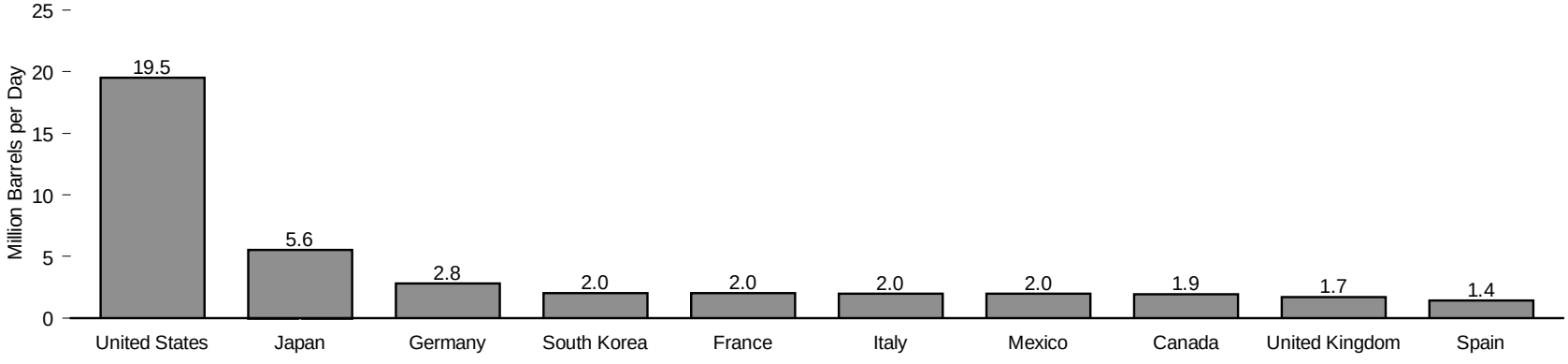
World and OECD,[1] 1960-1999



Leading Consumers, 1960-1999



Selected OECD[1] Consumers, 1999



[1] Organization for Economic Cooperation and Development. See Glossary for membership.

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

Source: Table 11.9.

Table 11.9 World Petroleum Consumption, 1960-1999

(Million Barrels per Day)

	Selected OECD [1] Consumers											Selected Non-OECD Consumers						
Year	Canada	France	Germany [2]	Italy	Japan	Mexico [3]	South Korea [3]	Spain	United Kingdom	United States	Total OECD [4]	Brazil	China	India	Former U.S.S.R.	Russia	Total Non-OECD	World
1960	0.84	0.56	0.63	0.44	0.66	0.30	0.01	0.10	0.94	9.80	15.78	0.27	0.17	0.16	2.38	—	5.56	21.34
1961	0.87	0.63	0.79	0.54	0.82	0.29	0.02	0.12	1.04	9.98	16.77	0.28	0.17	0.17	2.57	—	6.23	23.00
1962	0.92	0.73	1.00	0.67	0.93	0.30	0.02	0.12	1.12	10.40	18.06	0.31	0.14	0.18	2.87	—	6.83	24.89
1963	0.99	0.86	1.17	0.77	1.21	0.31	0.03	0.12	1.27	10.74	19.60	0.34	0.17	0.21	3.15	—	7.32	26.92
1964	1.05	0.98	1.36	0.90	1.48	0.33	0.02	0.20	1.36	11.02	21.05	0.35	0.20	0.22	3.58	—	8.03	29.08
1965	1.14	1.09	1.61	0.98	1.74	0.34	0.03	0.23	1.49	11.51	22.81	0.33	0.23	0.25	3.61	—	8.33	31.14
1966	1.21	1.19	1.80	1.08	1.98	0.36	0.04	0.31	1.58	12.08	24.60	0.38	0.30	0.28	3.87	—	8.96	33.56
1967	1.25	1.34	1.86	1.19	2.14	0.39	0.07	0.36	1.64	12.56	25.94	0.38	0.28	0.26	4.22	—	9.65	35.59
1968	1.34	1.46	1.99	1.40	2.66	0.41	0.10	0.46	1.82	13.39	28.56	0.46	0.31	0.31	4.48	—	10.40	38.96
1969	1.42	1.66	2.33	1.69	3.25	0.45	0.15	0.49	1.98	14.14	31.54	0.48	0.44	0.34	4.87	—	11.35	42.89
1970	1.52	1.94	2.83	1.71	3.82	0.50	0.20	0.58	2.10	14.70	34.49	0.53	0.62	0.40	5.31	—	12.32	46.81
1971	1.56	2.12	2.94	1.84	4.14	0.52	0.23	0.64	2.14	15.21	36.07	0.58	0.79	0.42	5.66	—	13.35	49.42
1972	1.66	2.32	3.13	1.95	4.36	0.59	0.23	0.68	2.28	16.37	38.74	0.66	0.91	0.46	6.12	—	14.35	53.09
1973	1.73	2.60	3.34	2.07	4.95	0.67	0.28	0.78	2.34	17.31	41.53	0.78	1.12	0.49	6.60	—	15.71	57.24
1974	1.78	2.45	3.06	2.00	4.86	0.71	0.29	0.86	2.21	16.65	40.12	0.86	1.19	0.47	7.28	—	16.56	56.68
1975	1.78	2.25	2.96	1.86	4.62	0.75	0.31	0.87	1.91	16.32	38.82	0.92	1.36	0.50	7.52	—	17.38	56.20
1976	1.82	2.42	3.21	1.97	4.84	0.83	0.36	0.97	1.89	17.46	41.39	1.00	1.53	0.51	7.78	—	18.28	59.67
1977	1.85	2.29	3.21	1.90	4.88	0.88	0.42	0.94	1.91	18.43	42.43	1.02	1.64	0.55	8.18	—	19.40	61.83
1978	1.90	2.41	3.29	1.95	4.95	0.99	0.48	0.98	1.94	18.85	43.62	1.11	1.79	0.62	8.48	—	20.54	64.16
1979	1.97	2.46	3.37	2.04	5.05	1.10	0.53	1.02	1.97	18.51	44.01	1.18	1.84	0.66	8.64	—	21.21	65.22
1980	1.87	2.26	3.08	1.93	4.96	1.27	0.54	0.99	1.73	17.06	41.41	1.15	1.77	0.64	9.00	—	21.66	63.07
1981	1.77	2.02	2.80	1.87	4.85	1.40	0.54	0.94	1.59	16.06	39.14	1.09	1.71	0.73	8.94	—	21.76	60.90
1982	1.58	1.88	2.74	1.78	4.58	1.48	0.53	1.00	1.59	15.30	37.45	1.06	1.66	0.74	9.08	—	22.05	59.50
1983	1.45	1.84	2.66	1.75	4.40	1.35	0.56	1.01	1.53	15.23	36.59	0.98	1.73	0.77	8.95	—	22.15	58.74
1984	1.47	1.75	2.66	1.65	4.58	1.45	0.59	0.91	1.85	15.73	37.43	1.03	1.74	0.82	8.91	—	22.41	59.84
1985	1.50	1.78	2.70	1.72	4.38	1.47	0.57	0.85	1.63	15.73	37.23	1.08	1.89	0.90	8.95	—	22.87	60.10
1986	1.51	1.77	2.86	1.74	4.44	1.49	0.61	0.88	1.65	16.28	38.28	1.24	2.00	0.95	8.98	—	23.48	61.76
1987	1.55	1.79	2.77	1.86	4.48	1.52	0.64	0.90	1.60	16.67	38.96	1.26	2.12	0.99	9.00	—	24.04	63.00
1988	1.69	1.80	2.74	1.84	4.75	1.55	0.73	0.98	1.70	17.28	40.24	1.30	2.28	1.08	8.89	—	24.58	64.82
1989	1.73	1.86	2.58	1.93	4.98	1.64	0.84	1.03	1.74	17.33	40.88	1.32	2.38	1.15	8.74	—	25.04	65.92
1990	1.69	1.82	2.66	1.87	5.14	1.68	1.03	1.01	1.75	16.99	40.92	1.34	2.30	1.17	8.39	—	R25.05	R65.97
1991	1.62	1.94	2.83	1.86	5.28	1.70	1.20	1.07	1.80	16.71	41.40	1.35	2.50	1.19	8.35	—	R25.16	R66.56
1992	1.64	1.93	2.84	1.94	5.45	1.72	1.46	1.11	1.80	17.03	42.42	1.37	2.66	1.28	—	4.42	24.34	66.76
1993	1.69	1.88	2.90	1.85	5.40	1.71	1.69	1.06	1.82	17.24	42.98	1.43	2.96	1.31	—	3.75	24.02	67.00
1994	1.73	1.83	2.88	1.84	5.67	1.80	1.86	1.13	1.84	17.72	44.17	1.51	3.16	1.41	—	3.18	R24.12	R68.29
1995	1.76	1.90	2.88	2.05	5.71	1.72	2.03	1.26	1.85	17.72	44.96	1.60	3.36	1.58	—	2.98	R24.92	R69.88
1996	1.80	1.94	2.91	2.06	5.87	1.76	2.18	1.18	1.85	18.31	46.07	1.72	3.61	1.68	—	2.62	R25.34	R71.41
1997	1.86	1.96	2.90	2.05	5.71	1.87	2.39	1.30	1.80	18.62	46.83	1.82	3.92	1.77	—	2.56	R26.23	R73.06
1998	R1.86	2.03	2.92	2.07	5.51	R1.94	R1.97	1.39	R1.77	18.92	R46.93	R1.92	4.11	1.84	—	R2.45	R26.71	73.64
1999P	1.93	2.03	2.82	1.98	5.57	1.98	2.04	1.43	1.72	19.52	47.61	1.95	4.32	1.93	—	2.40	27.30	74.91

[1] Organization for Economic Cooperation and Development. See Glossary for membership.

[2] Through 1969, the data for Germany are for the former West Germany only. For 1970 through 1990, this is East and West Germany. Beginning in 1991, this is unified Germany.

[3] Mexico, which joined the OECD on May 18, 1994, and South Korea, which joined the OECD on December 12, 1996, are included in the OECD for all years shown in this table.

[4] Hungary and Poland, which joined the OECD on May 7, 1996, and November 22, 1996, respectively, are included in Total OECD beginning in 1970, the first year that data for these countries were available. The Czech Republic, which joined the OECD on December 21, 1995, is included in Total OECD beginning in 1993, the year that it came into existence.

R=Revised. P=Preliminary. — = Not applicable.

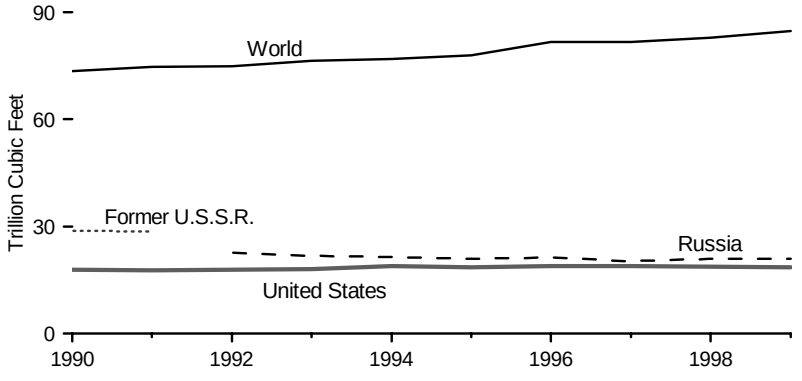
Note: Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/international.

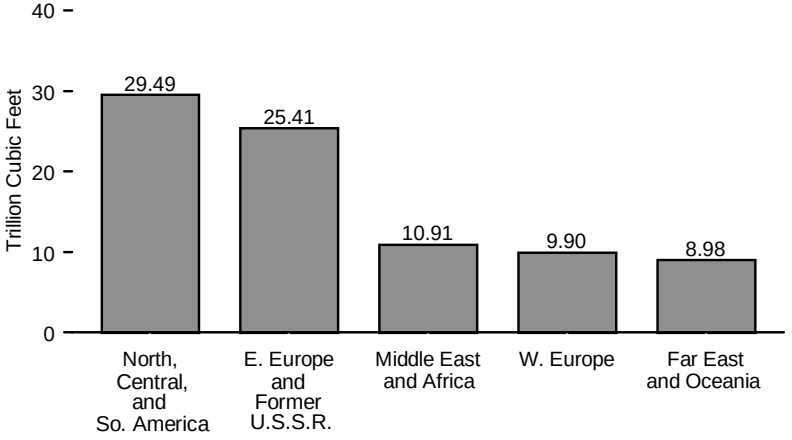
Sources: • 1960-1979—Energy Information Administration (EIA), International Energy Database. • 1980-1989—EIA, *International Energy Annual,* annual reports, and the International Energy Database. • 1990 forward—EIA, *International Energy Annual 1999* (February 2001), Tables 1.1 and 1.2, and the International Energy Database.

Figure 11.10 World Dry Natural Gas Production

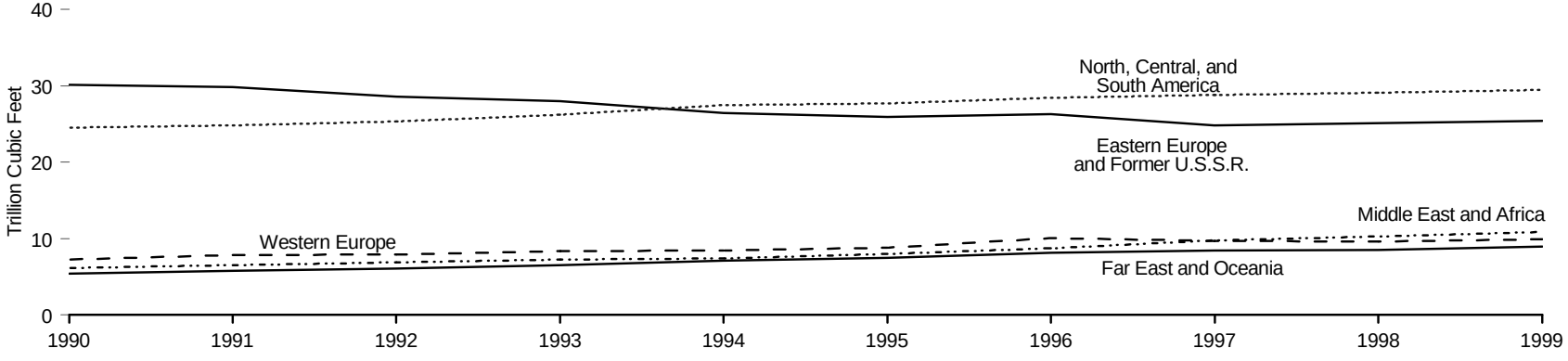
World and Leading Producers, 1990-1999



World Areas, 1999



World Areas, 1990-1999



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

Source: Table 11.10.

Table 11.10 World Dry Natural Gas Production, 1990-1999

(Trillion Cubic Feet)

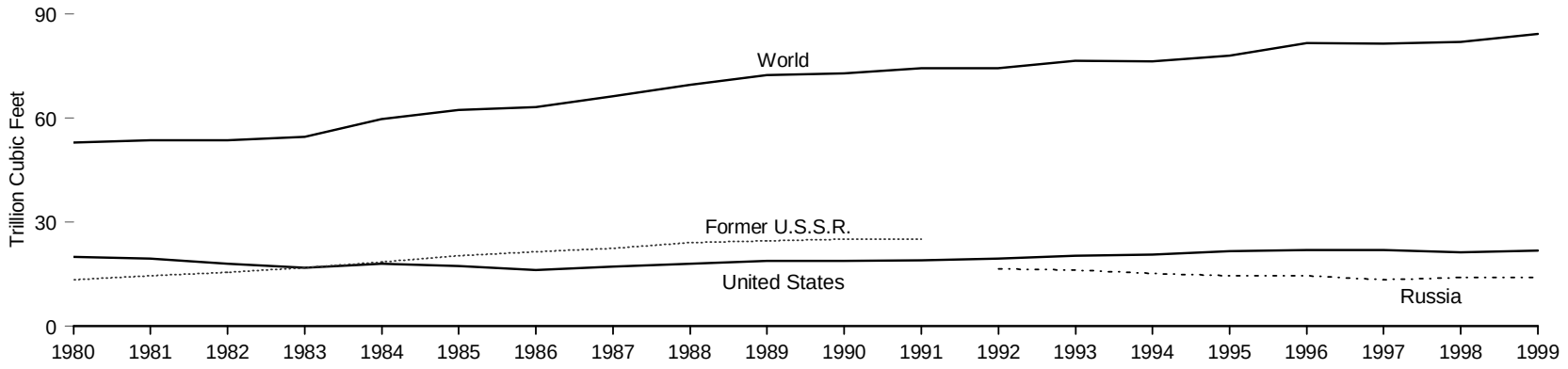
Region and Country	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999 P
North, Central, and South America	**24.58**	**24.81**	**25.38**	**26.26**	**27.50**	**27.74**	**28.46**	**R28.85**	**R29.14**	**29.49**
Argentina	0.63	0.70	0.71	0.76	0.79	0.88	0.94	0.97	R1.04	1.22
Canada	3.85	4.06	4.52	4.91	5.27	5.60	5.78	R5.86	R6.05	6.26
Mexico	0.90	0.90	0.88	0.95	0.97	0.96	1.06	R1.17	1.27	1.29
United States	17.81	17.70	17.84	18.10	18.82	18.60	18.85	18.90	R18.87	18.62
Venezuela	0.76	0.79	0.76	0.82	0.88	0.89	0.96	0.99	R1.11	1.09
Other	0.62	0.65	0.66	0.73	0.78	0.81	0.86	0.96	R0.96	1.01
Western Europe	**7.24**	**7.83**	**7.92**	**8.33**	**8.44**	**8.80**	**10.09**	**R9.71**	**R9.64**	**9.90**
Germany [1]	0.72	0.67	0.68	0.68	0.70	0.74	0.80	0.79	0.77	0.82
Italy	0.61	0.61	0.64	0.69	0.73	0.72	0.71	0.68	0.67	0.62
Netherlands	2.69	3.04	3.06	3.11	2.95	2.98	3.37	2.99	2.84	2.65
Norway	0.98	0.97	1.04	0.97	1.04	1.08	1.45	1.62	1.63	1.76
United Kingdom	1.75	2.01	1.96	2.31	2.47	2.67	3.18	3.03	R3.14	3.49
Other	0.49	0.53	0.54	0.57	0.55	0.61	0.59	0.60	0.58	0.56
Eastern Europe and Former U.S.S.R.	**30.13**	**29.85**	**28.58**	**27.98**	**26.47**	**25.93**	**26.28**	**24.85**	**25.16**	**25.41**
Romania	1.00	0.88	0.78	0.75	0.69	0.68	0.63	0.61	0.52	0.50
Former U.S.S.R.	28.78	28.62	—	—	—	—	—	—	—	—
Russia	—	—	22.62	21.81	21.45	21.01	21.23	20.17	20.87	20.83
Turkmenistan	—	—	2.02	2.29	1.26	1.14	1.31	0.90	0.47	0.79
Ukraine	—	—	0.74	0.68	0.64	0.62	0.64	0.64	0.64	0.63
Uzbekistan	—	—	1.51	1.59	1.67	1.70	1.70	1.74	1.94	1.96
Other	0.35	R0.36	R0.92	R0.87	0.76	R0.79	0.76	0.79	0.74	0.70
Middle East and Africa	**6.17**	**6.52**	**6.91**	**7.24**	**7.41**	**7.99**	**8.76**	**9.74**	**R10.30**	**10.91**
Algeria	1.79	1.93	1.97	1.90	1.81	2.05	2.19	2.43	2.60	2.90
Egypt	0.29	0.32	0.35	0.40	0.42	0.44	0.47	0.48	0.49	0.55
Iran	0.84	0.92	0.88	0.96	1.12	1.25	1.42	1.66	1.77	1.87
Qatar	0.28	0.33	0.40	0.48	0.48	0.48	0.48	0.61	0.69	0.85
Saudi Arabia	1.08	1.13	1.20	1.27	1.33	1.34	1.46	1.60	1.65	1.63
United Arab Emirates	0.78	0.92	1.02	0.94	0.91	1.11	1.19	1.28	1.31	1.34
Other	1.13	0.98	1.08	1.30	1.34	1.33	1.53	1.67	R1.79	1.77
Far East and Oceania	**5.44**	**5.76**	**6.06**	**6.55**	**7.11**	**7.50**	**R8.13**	**R8.47**	**R8.55**	**8.98**
Australia	0.72	0.75	0.80	0.86	0.93	1.03	R1.06	R1.06	1.10	1.10
China	0.51	0.53	0.53	0.56	0.59	0.60	0.67	0.75	0.78	0.85
India	0.40	0.45	0.48	0.53	0.59	0.63	0.70	0.72	0.76	0.75
Indonesia	1.53	1.72	1.79	1.97	2.21	2.24	2.35	2.37	R2.27	2.34
Malaysia	0.65	0.75	0.80	0.88	0.92	1.02	1.23	1.36	R1.37	1.45
Pakistan	0.48	0.53	0.55	0.58	0.63	0.65	0.70	0.70	0.71	0.78
Other	1.15	1.03	1.10	1.16	1.23	1.33	1.42	1.52	R1.56	1.70
World	**73.57**	**74.78**	**74.84**	**76.36**	**76.93**	**77.96**	**R81.71**	**81.61**	**R82.79**	**84.69**

[1] Through 1990, this is East and West Germany. Beginning in 1991, this is unified Germany.
R=Revised. P=Preliminary. — = Not applicable.
Note: Totals may not equal sum of components due to independent rounding.

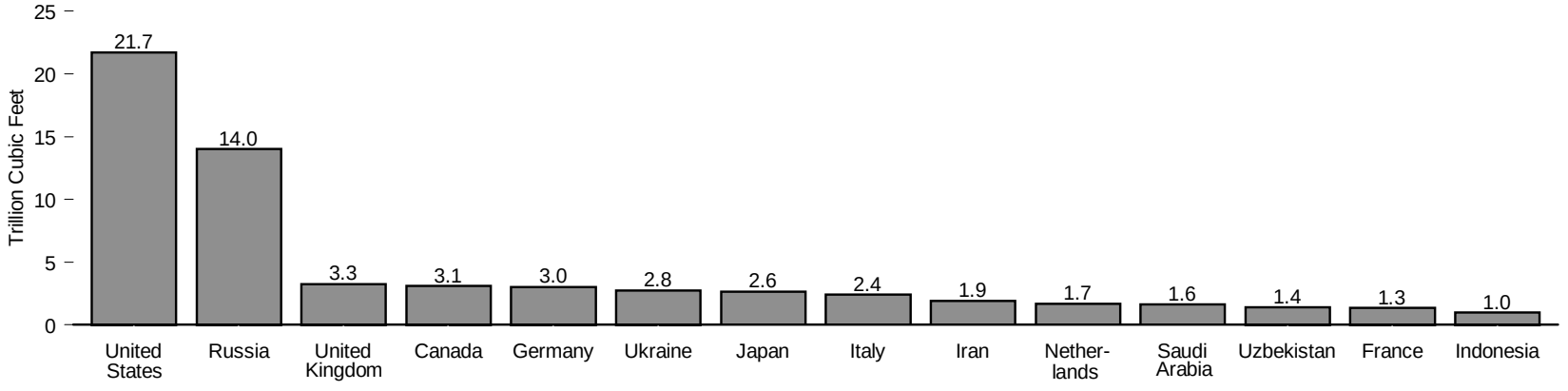
Web Page: http://www.eia.doe.gov/international.
Sources: **United States:** Table 6.1. **All Other Data:** Energy Information Administration, *International Energy Annual 1999* (February 2001), Table 2.4, and the International Energy Database.

Figure 11.11 World Dry Natural Gas Consumption

World and Leading Consumers, 1980-1999



Selected Consuming Countries, 1999



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

Source: Table 11.11.

Table 11.11 World Dry Natural Gas Consumption, 1980-1999

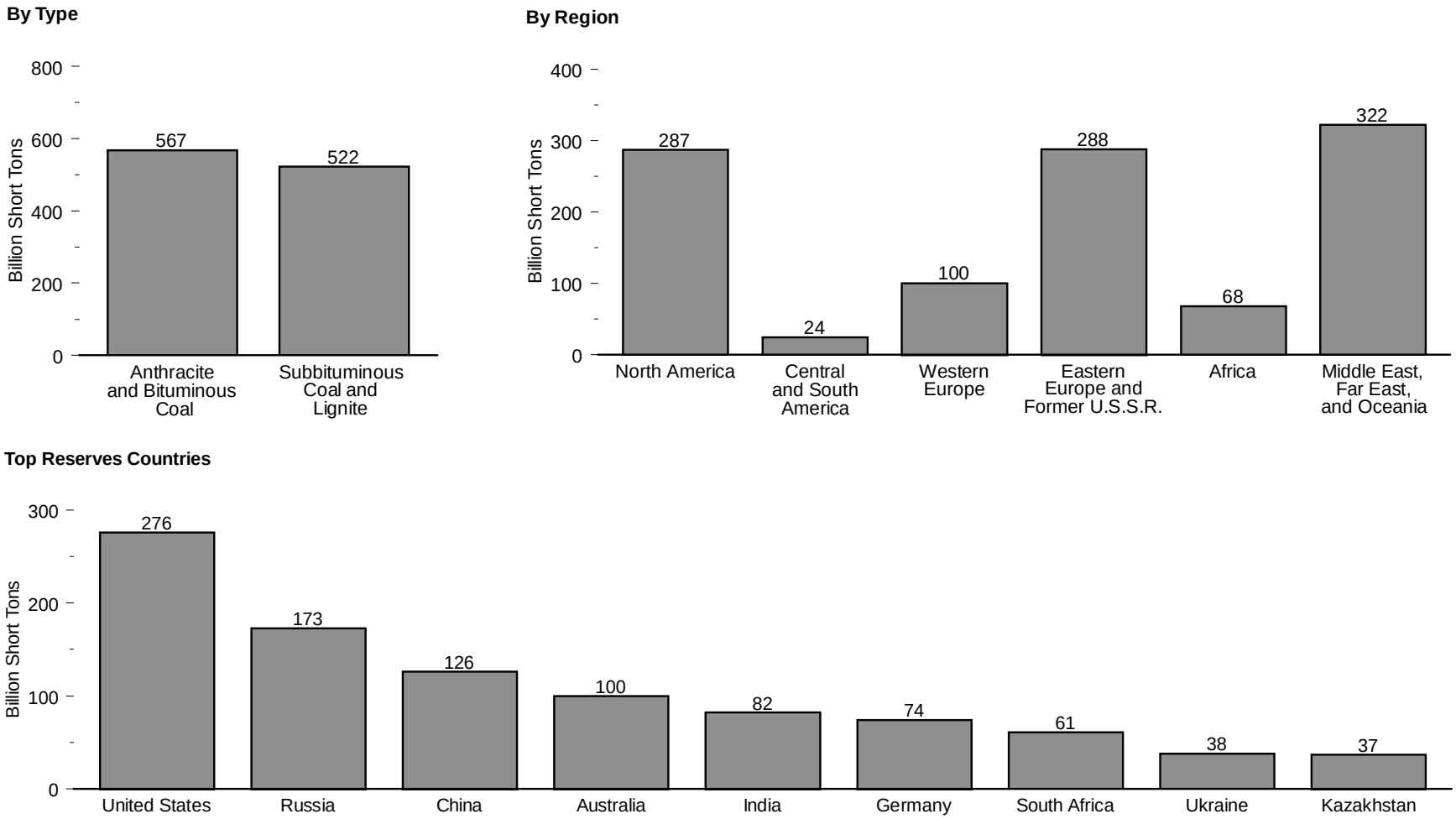
(Billion Cubic Feet)

Year	Canada	France	Germany [1]	Indonesia	Iran	Italy	Japan	Nether-lands	Former U.S.S.R.	Russia	Saudi Arabia	Ukraine	United Kingdom	United States	Uzbek-istan	Other	World
1980	1,883	981	2,621	195	232	972	903	1,493	13,328	—	334	—	1,702	19,877	—	8,369	52,890
1981	1,842	1,003	2,513	232	155	942	925	1,421	14,440	—	564	—	1,740	19,404	—	8,333	53,513
1982	1,859	979	2,334	218	200	944	956	1,511	15,522	—	430	—	1,743	18,001	—	8,931	53,628
1983	1,863	999	2,397	302	310	967	1,020	1,451	16,822	—	418	—	1,815	16,835	—	9,427	54,626
1984	2,017	1,079	2,584	365	476	1,135	1,372	1,540	18,512	—	620	—	1,851	17,951	—	10,189	59,692
1985	2,165	1,110	2,546	513	600	1,151	1,468	1,624	20,302	—	716	—	1,991	17,281	—	10,777	62,244
1986	2,130	1,129	2,595	441	536	1,217	1,494	1,620	21,522	—	890	—	2,020	16,221	—	11,303	63,118
1987	2,112	1,038	2,733	542	565	1,346	1,543	1,672	22,462	—	946	—	2,079	17,211	—	12,062	66,312
1988	2,331	963	2,716	492	706	1,460	1,618	1,513	24,092	—	1,028	—	1,972	18,030	—	12,628	69,548
1989	2,427	984	2,835	546	784	1,581	1,731	1,550	24,529	—	1,052	—	1,951	18,801	—	13,549	72,320
1990	2,378	997	2,669	547	837	1,674	1,851	1,535	24,961	—	1,077	—	2,059	18,716	—	13,611	72,912
1991	2,400	1,131	2,776	557	811	1,775	1,976	1,715	25,014	—	1,130	—	2,218	19,035	—	13,841	74,380
1992	2,596	1,146	2,739	673	883	1,760	2,023	1,669	—	16,482	1,201	3,503	2,170	19,544	1,095	16,868	74,352
1993	2,736	1,158	2,830	850	938	1,801	2,034	1,714	—	16,185	1,268	3,871	2,412	20,279	1,541	16,960	76,576
1994	2,824	1,157	2,965	965	1,123	1,748	2,180	1,654	—	15,214	1,331	3,327	2,542	20,708	1,229	17,397	76,365
1995	2,791	1,183	3,172	1,061	1,243	1,921	2,207	1,701	—	14,507	1,343	2,970	2,690	21,581	1,349	R18,297	R78,016
1996	3,000	1,314	R3,163	1,108	1,416	1,984	2,390	1,874	—	14,504	1,460	2,935	3,182	21,966	1,434	R19,922	R81,652
1997	R2,981	1,300	R3,012	1,125	1,663	2,048	R2,439	1,763	—	13,434	1,601	2,832	3,013	21,959	1,455	R20,784	R81,409
1998	R2,868	R1,313	R3,029	R983	1,828	R2,205	R2,535	1,752	—	R14,045	1,653	2,606	R3,072	21,262	1,409	R21,337	R81,896
1999P	3,095	1,346	3,035	974	1,941	2,396	2,646	1,704	—	14,013	1,632	2,755	3,259	21,703	1,423	22,275	84,196

[1] Through 1990, this is East and West Germany. Beginning in 1991, this is unified Germany.
R=Revised. P=Preliminary. — = Not applicable.
Note: Totals may not equal sum of components due to independent rounding.
Web Page: http://www.eia.doe.gov/international.

Sources: **United States:** Table 6.1. **All Other Data:** • 1980-1989—Energy Information Administration (EIA), *International Energy Annual,* annual reports, and the International Energy Database. • 1990 forward—EIA, *International Energy Annual 1999* (February 2001), Table 1.3, and the International Energy Database.

Figure 11.12 World Recoverable Reserves of Coal



Notes: • Recoverable reserves are as of December 31, 1996, except for U.S. recoverable reserves, which are as of January 1, 1998. • Because vertical scales differ, graphs should not be compared.

Source: Table 11.12.

Table 11.12 World Recoverable Reserves of Coal

(Million Short Tons)

Region and Country	Anthracite and Bituminous Coal	Subbituminous Coal and Lignite	Total
North America	**R133,666**	**R152,948**	**R 286,614**
Canada	4,970	4,535	9,505
Greenland	0	202	202
Mexico	948	387	1,335
United States [1]	R127,748	R147,824	R 275,572
Central and South America	**8,641**	**15,140**	**23,781**
Brazil	0	13,173	13,173
Chile	34	1,268	1,302
Colombia	7,020	420	7,439
Peru	1,058	110	1,168
Other	529	170	699
Western Europe	**29,022**	**70,636**	**99,658**
Germany	26,455	47,399	73,855
Greece	0	3,168	3,168
Serbia and Montenegro	71	18,087	18,157
Turkey	495	690	1,185
United Kingdom	1,102	551	1,653
Other	898	741	1,639
Eastern Europe and Former U.S.S.R.	**124,354**	**164,032**	**288,386**
Bulgaria	14	2,974	2,988
Czech Republic	2,880	3,929	6,809
Hungary	657	4,260	4,917
Kazakhstan	34,172	3,307	37,479
Poland	13,352	2,421	15,773
Romania	1	3,979	3,980
Russia	54,110	118,964	173,074
Ukraine	18,065	19,806	37,871
Uzbekistan	1,102	3,307	4,409
Other	0	1,085	1,085
Africa	**67,420**	**276**	**67,695**
Botswana	4,754	0	4,754
South Africa	60,994	0	60,994
Zimbabwe	809	0	809
Other	862	276	1,138
Middle East, Far East, and Oceania	**203,534**	**118,934**	**322,468**
Australia	52,139	47,510	99,649
China	68,564	57,651	126,215
India	80,174	2,205	82,379
Indonesia	849	4,905	5,754
Japan	865	0	865
Pakistan	0	3,228	3,228
Thailand	(s)	2,205	2,205
Other	942	1,231	2,174
World	**R566,637**	**R521,965**	**R1,088,602**

[1] U.S. data are more current than other data on this table. They represent recoverable reserves as of December 31, 1998; data for the other countries are as of December 31, 1996, the most recent period for which they are available.

R=Revised. (s)=Less than 0.5 million short tons.

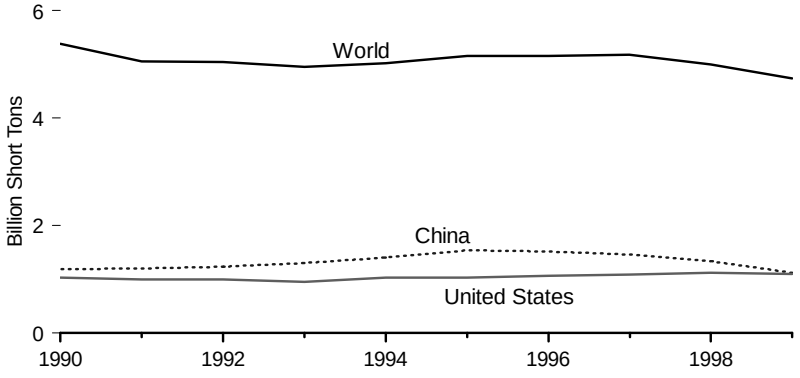
Notes: • World Energy Council data represent "Proved Recoverable Reserves," which are the tonnage within the Proved Amount in Place that can be recovered (extracted from the earth in raw form) under present and expected local economic conditions with existing, available technology. • The EIA does not certify the international reserves data but reproduces the information as a matter of convenience for the reader. • U. S. reserves represent estimated recoverable reserves from the Demonstrated Reserve Base which includes both measured and indicated tonnage. The U.S. term "measured" approximates the term "proved," used by the World Energy Council. The U.S. "measured and indicated" data have been combined and cannot be recaptured as "measured alone." • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/international.

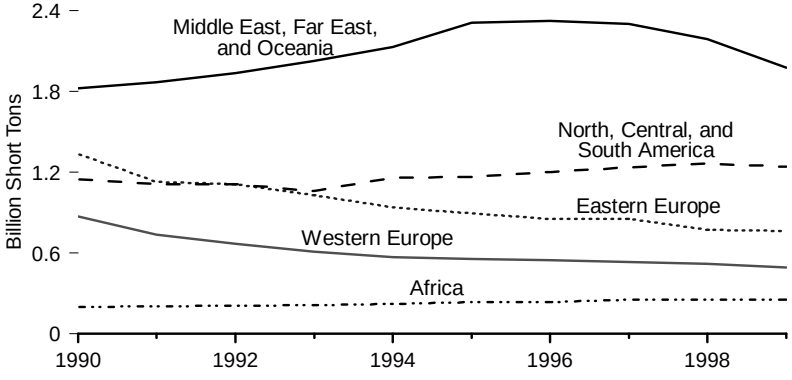
Sources: **United States:** Energy Information Administration, Coal Reserves Database (December 2000), data are as of December 31, 1998. **All Other Data:** World Energy Council, *1998 Survey of Energy Resources,* data are as of December 31, 1996.

Figure 11.13 World Coal Production

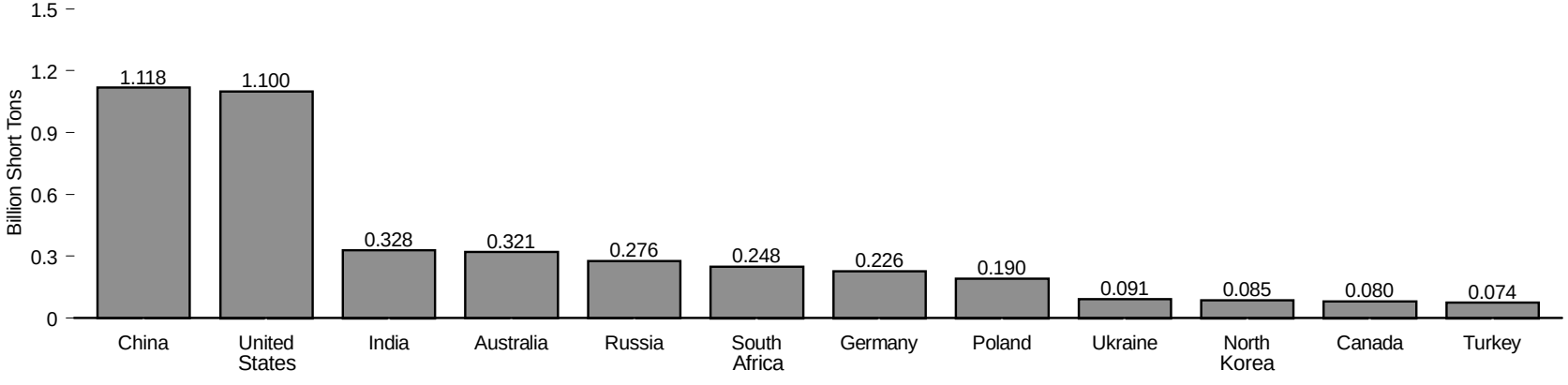
World and Leading Producers, 1990-1999



World Areas, 1990-1999



Top Producing Countries, 1999



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

Source: Table 11.13.

Table 11.13 World Coal Production, 1990-1999

(Million Short Tons)

Region and Country	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999[P]
North, Central, and South America	**1,146**	[R]**1,115**	[R]**1,111**	**1,064**	**1,160**	**1,165**	**1,202**	[R]**1,237**	[R]**1,264**	**1,242**
Canada	75	78	72	76	80	83	83	87	83	80
Colombia	23	[R]22	[R]24	23	25	28	33	36	[R]37	36
Mexico	9	8	7	8	10	10	11	[R]11	[R]12	11
United States	1,029	996	998	945	1,034	1,033	1,064	1,090	1,118	1,100
Other	10	11	10	11	11	11	[R]11	13	[R]14	14
Western Europe	**873**	**738**	**672**	[R]**611**	**571**	[R]**555**	**548**	[R]**536**	[R]**522**	**495**
France	15	14	13	12	[R]11	[R]11	9	8	[R]7	6
Germany[1]	[R]413	388	346	315	292	[R]274	265	252	[R]233	226
Greece	57	58	61	60	[R]62	64	66	65	[R]67	67
Macedonia	—	—	8	8	8	8	8	[R]8	[R]9	8
Serbia and Montenegro	—	—	44	41	42	44	42	45	48	36
Slovenia	—	—	6	6	5	5	5	6	6	5
Spain	40	37	37	35	33	31	31	29	29	27
Turkey	52	51	57	54	60	61	62	[R]66	[R]74	74
United Kingdom	104	105	94	75	54	52	55	54	[R]46	41
Other	[R]191	[R]84	[R]7	[R]6	[R]5	[R]5	[R]4	[R]4	[R]4	4
Eastern Europe	**1,339**	**1,129**	**1,115**	**1,030**	**939**	[R]**893**	[R]**853**	[R]**856**	[R]**774**	**765**
Bulgaria	39	31	33	32	32	34	34	33	[R]34	29
Czech Republic	—	—	—	94	85	82	84	84	83	65
Hungary	[R]20	19	17	16	16	[R]16	[R]17	[R]17	16	16
Kazakhstan	—	—	139	123	115	92	[R]85	80	[R]66	64
Poland	237	231	218	218	220	220	[R]193	[R]222	[R]197	190
Romania	42	36	42	44	45	45	46	37	29	28
Russia	—	—	406	364	313	296	304	290	[R]257	276
Ukraine	—	—	147	128	[R]104	[R]99	[R]83	[R]85	83	91
Uzbekistan	—	—	5	4	4	3	3	3	3	3
Other	[R]1,002	[R]812	[R]106	[R]7	[R]5	[R]5	[R]5	[R]5	[R]5	3
Africa	**202**	**205**	**212**	**216**	[R]**225**	**236**	**235**	[R]**253**	**255**	**256**
South Africa	193	196	203	207	216	227	227	246	[R]248	248
Zimbabwe	6	6	6	6	6	6	5	4	5	5
Other	[R]3	[R]3	[R]3	[R]3	[R]3	[R]3	[R]2	[R]3	[R]3	3
Middle East, Far East, and Oceania	[R]**1,826**	[R]**1,870**	[R]**1,939**	[R]**2,030**	[R]**2,131**	[R]**2,312**	[R]**2,326**	[R]**2,301**	[R]**2,191**	**1,980**
Australia	226	236	249	248	248	267	272	[R]292	314	321
China	1,190	1,199	1,229	1,304	1,404	1,537	1,515	1,461	[R]1,337	1,118
India	233	253	270	281	[R]280	[R]298	[R]315	[R]326	[R]322	328
Indonesia	[R]12	[R]16	[R]25	30	34	46	55	60	66	71
Mongolia	8	8	7	6	6	6	6	5	6	5
North Korea	[R]99	[R]103	[R]105	[R]109	[R]108	[R]107	[R]106	[R]99	[R]94	85
South Korea	19	17	13	10	8	6	5	5	5	5
Thailand	14	16	17	17	19	20	24	26	22	22
Vietnam	5	5	5	7	6	9	11	13	12	12
Other	[R]20	[R]19	[R]19	[R]18	[R]18	[R]17	[R]17	15	[R]14	15
World	[R]**5,386**	[R]**5,056**	[R]**5,049**	[R]**4,952**	[R]**5,026**	[R]**5,161**	[R]**5,165**	[R]**5,184**	[R]**5,006**	**4,738**

[1] Through 1990, this is East and West Germany. Beginning in 1991, this is unified Germany.

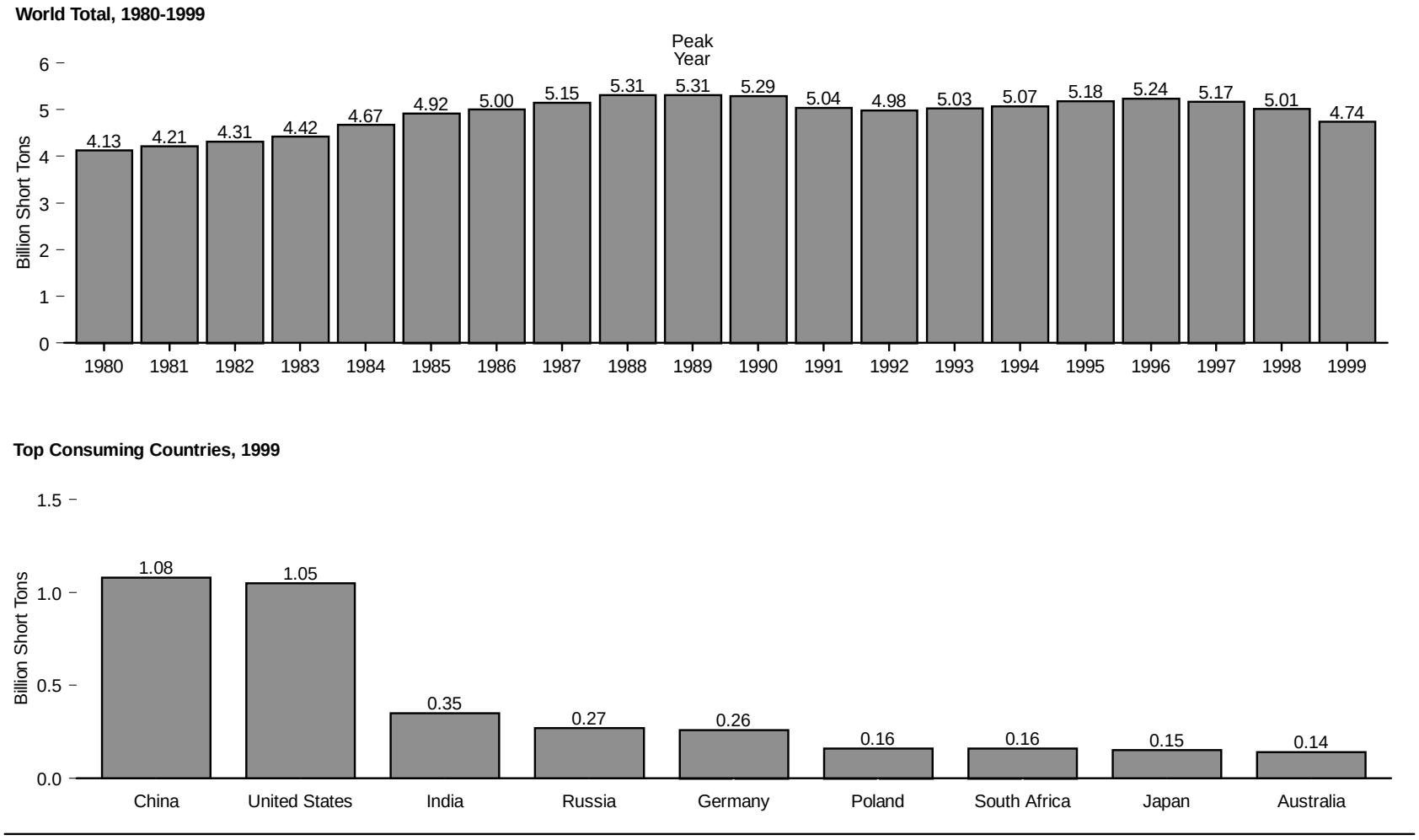
R=Revised. P=Preliminary. — = Not applicable.

Notes: • Coal includes anthracite, subanthracite, bituminous coal, subbituminous coal, lignite, and brown coal. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/international.

Sources: **United States:** Table 7.1. **All Other Data:** Energy Information Administration, *International Energy Annual 1999* (February 2001), Table 2.5, and the International Energy Database.

Figure 11.14 World Coal Consumption



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

Source: Table 11.14.

Table 11.14 World Coal Consumption, 1980-1999

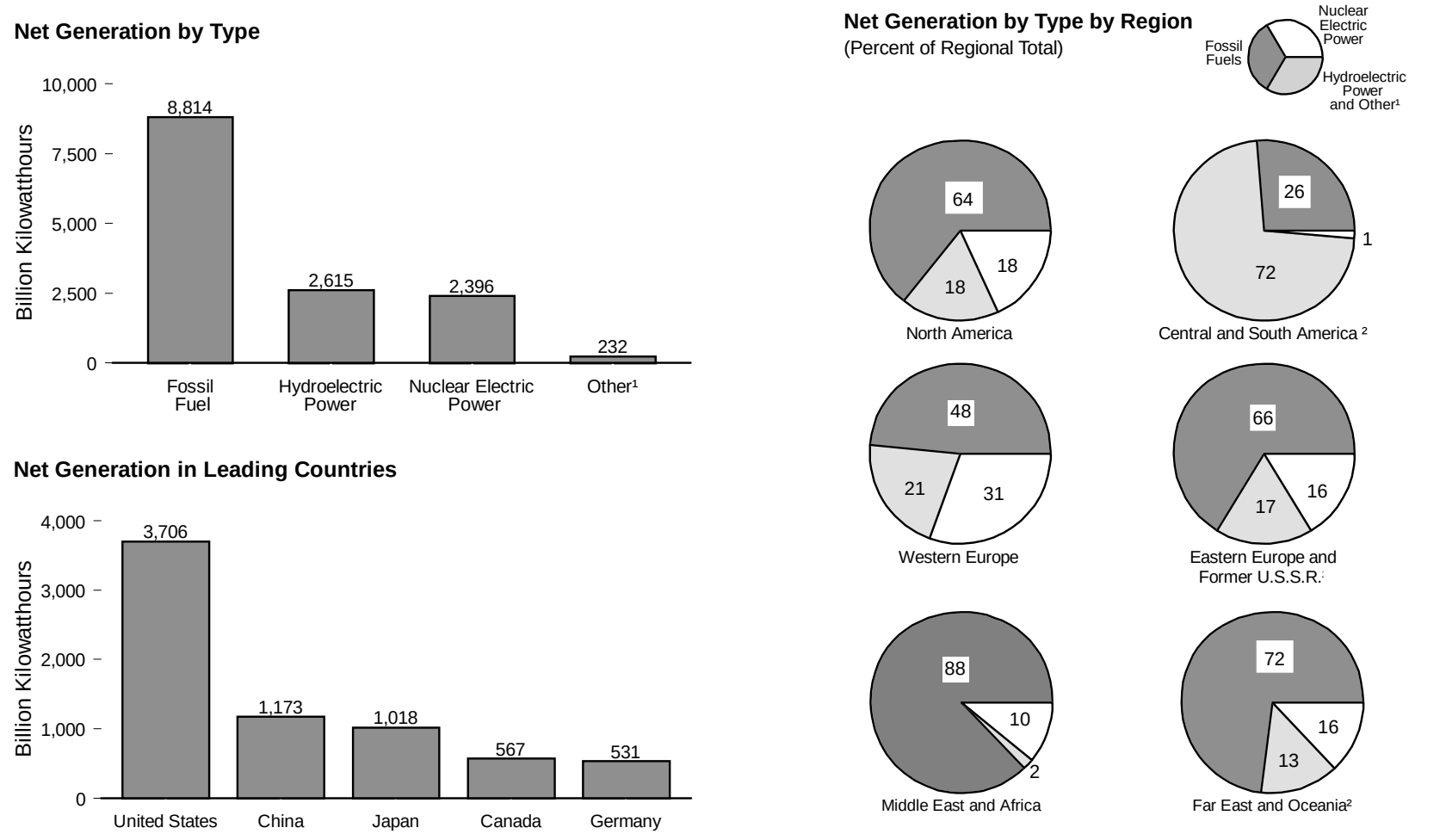
(Million Short Tons)

Year	Australia	China	Germany [1]	Greece	India	Japan	North Korea	Poland	Former U.S.S.R.	Russia	South Africa	Turkey	Ukraine	United Kingdom	United States	Other	World
1980	74	679	535	26	130	98	R40	221	751	—	105	20	—	134	703	618	R4,133
1981	75	680	544	30	139	106	R40	200	748	—	116	23	—	130	733	R641	R4,206
1982	79	726	548	31	147	105	R41	208	771	—	124	26	—	122	707	R673	R4,307
1983	78	768	549	36	160	100	R44	213	764	—	127	29	—	123	737	R693	R4,421
1984	81	845	573	36	178	113	61	227	770	—	137	35	—	88	791	R737	R4,672
1985	86	921	579	42	193	119	R66	238	779	—	142	46	—	116	818	772	R4,917
1986	84	962	576	44	209	109	R71	247	803	—	145	54	—	123	804	770	R5,002
1987	93	1,027	565	49	208	111	R80	258	807	—	148	54	—	129	837	R789	R5,155
1988	96	1,098	562	56	215	123	R91	253	821	—	151	51	—	123	884	785	R5,308
1989	104	1,113	553	59	226	123	R96	242	777	—	140	60	—	126	R895	796	R5,312
1990	104	1,124	528	59	242	125	R102	202	848	—	139	60	—	119	R903	739	R5,294
1991	108	1,165	R402	59	252	128	R105	202	672	—	144	64	—	118	R899	R722	R5,040
1992	R114	1,199	359	62	274	126	R107	192	—	375	149	65	R152	111	R907	R790	R4,981
1993	109	1,276	335	62	286	129	R112	194	—	361	153	60	135	96	R943	R778	R5,029
1994	110	1,390	R303	66	R291	133	R110	184	—	316	160	66	109	91	R950	R787	R5,066
1995	112	1,498	R298	64	R308	140	R109	R184	—	R296	162	67	R114	79	962	R792	R5,185
1996	R120	1,486	296	66	R327	R143	R108	R160	—	R317	165	R73	R94	79	1,006	R797	R5,238
1997	R127	R1,404	280	66	R337	R147	R101	R182	—	R290	173	R80	R92	70	R1,030	789	5,169
1998	R140	R1,300	R269	R68	R333	R144	R96	R168	—	R256	R168	R86	90	R70	R1,038	R781	R5,007
1999P	142	1,075	258	68	348	149	88	164	—	268	163	84	98	65	1,045	725	4,741

[1] Through 1990, this is East and West Germany. Beginning in 1991, this is unified Germany.
R=Revised. P=Preliminary. — = Not applicable.
Note: Totals may not equal sum of components due to independent rounding.
Web Page: http://www.eia.doe.gov/international.

Sources: **United States:** Table 7.1. **All Other Data:** • 1980-1989—Energy Information Administration (EIA), *International Energy Annual,* annual reports, and the International Energy Database. • 1990 forward—EIA, *International Energy Annual 1999* (February 2001), Table 1.4, and the International Energy Database.

Figure 11.15 World Net Generation of Electricity, 1999



¹ Geothermal, wood, other biomass, waste, solar, wind, hydrogen, sulfur, batteries, and chemicals.

² Sum of components does not equal 100 percent due to independent rounding.

Notes: • Data include both electric utility and non-electric utility sources. • Because vertical scales differ, graphs should not be compared.

Source: Table 11.15.

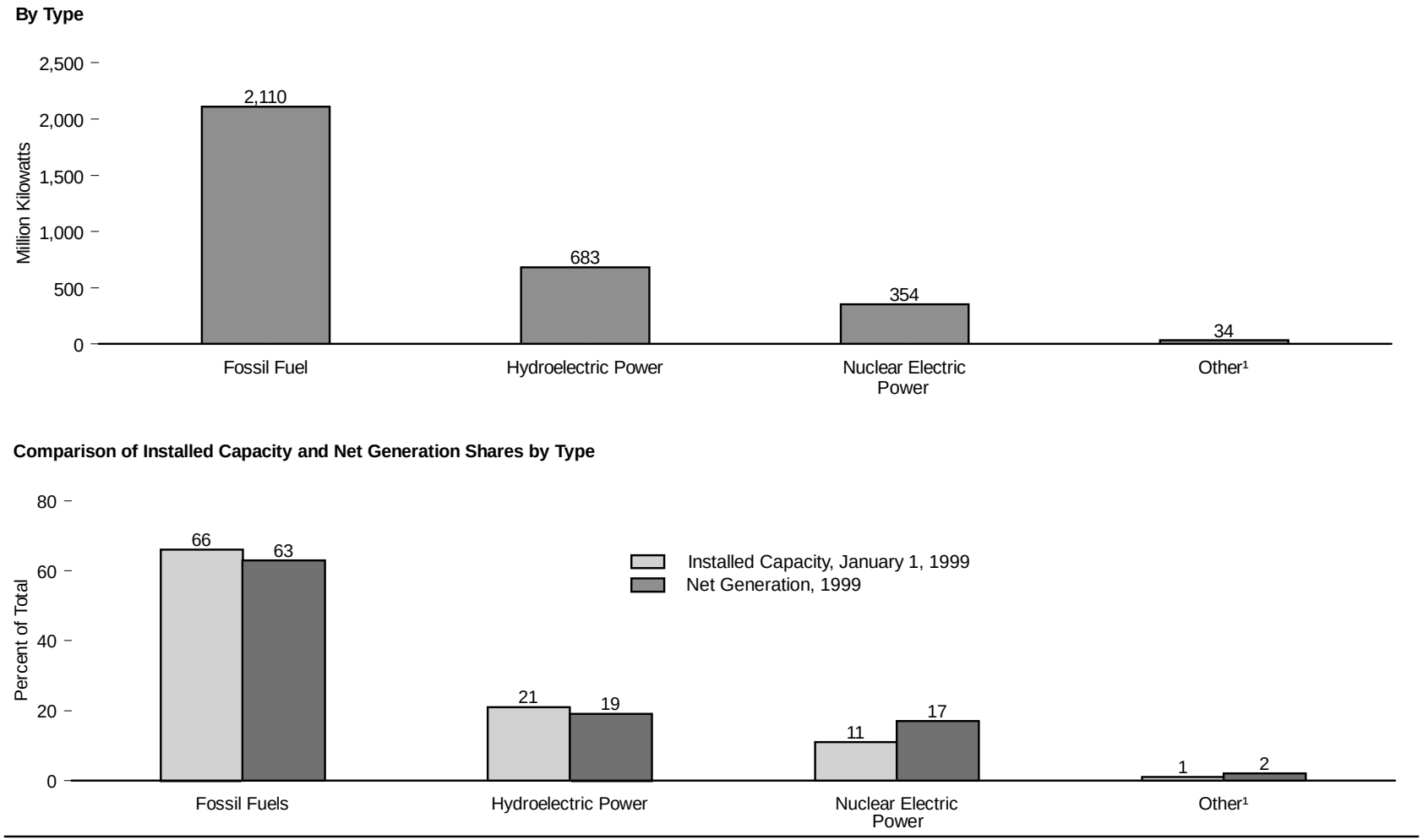
Table 11.15 World Net Generation of Electricity by Type, 1980, 1998, and 1999

(Billion Kilowatthours)

Region and Country	Fossil Fuel			Nuclear Electric Power			Hydroelectric Power [1]			Total [2]		
	1980	1998	1999 P	1980	1998	1999 P	1980	1998	1999 P	1980	1998	1999 P
North America	**1,880.3**	R**2,833.8**	**2,863.1**	**287.0**	R **750.2**	**807.6**	**546.9**	R **671.8**	**685.9**	R**2,718.4**	R **4,342.5**	**4,456.6**
Canada	79.8	R 148.7	149.6	35.9	R 67.7	69.8	251.0	R 328.6	340.3	367.9	R 551.1	567.2
Mexico	46.0	R 134.2	135.3	0.0	8.8	9.5	16.7	R 24.4	32.4	63.6	R 172.8	182.5
United States	R1,753.8	R2,550.0	2,577.4	251.1	673.7	728.3	279.2	318.9	313.2	R2,286.4	3,617.9	3,706.1
Other	0.5	R 0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.5	R 0.8	0.8
Central and South America	**99.8**	R **177.3**	**197.7**	**2.2**	**10.3**	**10.5**	**201.5**	R **521.4**	**528.5**	R **308.2**	R **723.4**	**752.2**
Argentina	22.2	R 37.5	46.5	2.2	7.1	6.7	17.3	35.8	23.7	R 41.5	R 80.6	77.1
Brazil	7.5	15.6	17.8	0.0	3.1	3.8	128.4	288.5	305.9	138.3	316.9	337.4
Paraguay	(s)	0.1	(s)	0.0	0.0	0.0	0.7	50.3	51.4	0.8	50.4	51.6
Venezuela	17.6	R 21.6	26.1	0.0	0.0	0.0	14.4	52.5	55.1	32.0	R 74.0	81.2
Other	R 52.4	R 102.5	107.3	0.0	0.0	0.0	R 40.6	R 94.4	92.3	R 95.7	R 201.4	204.9
Western Europe	**1,180.1**	R**1,327.1**	**1,346.7**	**219.2**	R **841.0**	**850.2**	**431.7**	R **519.8**	**523.1**	**1,844.5**	R **2,746.6**	**2,785.0**
Belgium	38.3	33.4	31.9	11.9	43.9	46.6	0.3	0.4	0.3	50.8	78.7	79.8
Finland	22.0	R 31.2	31.7	6.6	20.8	21.8	10.1	R 14.9	12.7	38.7	R 76.2	75.8
France	118.0	R 52.9	48.2	63.4	R 368.6	375.1	68.3	R 61.4	71.6	250.8	R 485.7	497.3
Germany	390.3	R 347.0	336.3	55.6	R 153.6	161.0	18.8	R 17.0	19.1	469.9	R 530.2	531.4
Italy	125.5	R 194.8	195.9	2.1	0.0	0.0	45.0	R 40.8	44.8	176.4	R 241.7	247.7
Netherlands	58.0	R 81.2	77.0	3.9	3.6	3.6	0.0	0.1	0.1	62.9	R 89.2	85.3
Norway	0.1	0.7	0.8	0.0	0.0	0.0	82.7	R 114.2	120.0	82.9	R 115.2	121.1
Spain	74.5	R 93.2	114.1	5.2	56.0	55.9	29.2	R 33.7	23.9	109.2	R 186.4	197.7
Sweden	10.1	R 9.4	8.1	25.3	R 69.9	66.6	58.1	R 73.6	69.3	94.3	R 156.1	146.6
Switzerland	0.9	2.3	2.3	12.9	24.5	23.7	32.5	R 33.1	39.5	46.4	61.1	66.8
Turkey	12.0	64.6	77.0	0.0	0.0	0.0	11.2	41.8	34.3	23.3	106.7	111.5
United Kingdom	228.9	R 235.3	237.8	32.3	R 95.1	91.5	3.9	R 5.2	5.3	265.1	R 341.9	342.8
Other	R 101.4	R 181.1	185.6	R 0.0	R 5.0	4.5	R 71.7	R 83.6	82.3	R 173.8	R 277.6	281.3
Eastern Europe and Former U.S.S.R.	**1,309.3**	R**1,010.0**	**999.5**	**83.2**	**239.3**	**245.7**	**211.3**	R **261.3**	**261.7**	**1,604.1**	R **1,512.3**	**1,508.6**
Czech Republic	—	R 46.6	45.3	—	12.5	12.7	—	R 1.7	1.6	—	61.5	60.7
Kazakhstan	—	R 40.4	38.6	—	0.1	0.1	—	R 6.1	5.6	—	R 46.6	44.4
Poland	111.1	R 130.2	129.6	0.0	0.0	0.0	3.2	4.3	4.2	114.7	R 135.0	134.4
Romania	51.4	R 27.5	26.5	0.0	4.9	4.8	12.5	R 18.7	17.7	63.9	R 51.1	49.0
Russia	—	R 530.1	529.2	—	98.3	110.9	—	R 157.9	157.9	—	R 786.3	798.1
Ukraine	—	R 83.2	76.0	—	70.6	67.4	—	R 15.8	15.2	—	R 163.2	157.8
Other	1,146.8	R 152.0	154.4	83.2	**52.8**	49.8	195.5	R 56.9	59.4	1,425.6	R 268.5	264.3
Middle East	**82.8**	R **379.8**	**401.7**	**0.0**	**0.0**	**0.0**	**9.6**	R **15.8**	**16.0**	**92.4**	R **395.6**	**417.7**
Iran	15.7	R 90.6	96.0	0.0	0.0	0.0	5.6	R 6.9	7.1	21.3	R 97.6	103.1
Saudi Arabia	20.5	R 116.5	120.0	0.0	0.0	0.0	0.0	0.0	0.0	20.5	R 116.5	120.0
Other	46.6	R 172.7	185.7	0.0	0.0	0.0	4.1	R 8.9	8.9	50.7	R 181.6	194.6
Africa	**129.1**	R **311.0**	**315.3**	**0.0**	**13.6**	**12.8**	**60.6**	**63.1**	**65.6**	**189.7**	R **388.0**	**394.1**
Egypt	8.6	R 47.1	49.5	0.0	0.0	0.0	9.7	R 12.1	15.1	18.3	R 59.2	64.7
South Africa	92.1	R 176.5	173.3	0.0	13.6	12.8	1.0	1.6	0.7	93.1	R 191.7	186.9
Other	28.4	R 87.4	92.5	0.0	0.0	0.0	49.9	R 49.4	49.7	78.4	R 137.1	142.5
Far East and Oceania	**907.7**	R**2,544.9**	**2,689.8**	**92.7**	R **460.8**	**469.1**	**275.2**	R **513.7**	**534.1**	**1,280.5**	R **3,565.4**	**3,742.2**
Australia	74.5	R 167.8	172.4	0.0	0.0	0.0	12.8	15.6	16.0	87.7	R 186.6	191.7
China	227.9	R 880.2	936.5	0.0	13.5	14.1	57.6	202.9	222.8	285.5	R 1,096.5	1,173.4
India	69.7	R 337.2	361.0	3.0	10.6	11.5	46.5	R 75.5	80.8	119.3	R 424.3	454.6
Indonesia	10.6	R 58.6	63.2	0.0	0.0	0.0	3.0	R 10.5	11.5	13.5	R 72.7	78.7
Japan	381.6	R 571.3	599.9	78.6	R 315.7	308.7	87.8	R 91.6	85.0	549.1	R 1,002.4	1,018.3
South Korea	29.8	R 132.9	148.2	3.3	85.2	97.9	1.5	R 4.1	4.1	34.6	R 222.3	250.3
Taiwan	31.3	R 91.7	93.9	7.8	R 35.4	36.9	2.9	R 9.9	8.8	42.0	R 137.0	139.7
Thailand	12.3	R 76.8	81.5	0.0	0.0	0.0	1.3	R 5.1	3.4	13.6	R 85.0	89.4
Other	70.1	R 228.3	233.0	0.0	0.4	0.1	61.8	R 98.5	101.7	135.3	R 338.6	346.1
World	**5,589.0**	R**8,583.9**	**8,813.9**	**684.4**	R**2,315.3**	**2,396.0**	**1,736.8**	R**2,566.9**	**2,614.8**	R**8,037.9**	R**13,673.9**	**14,056.3**

[1] Excludes pumped storage, except for the United States.
[2] Geothermal, wood, other biomass, waste, solar, wind, hydrogen, sulfur, batteries, and chemicals are included in total.
R=Revised. P=Preliminary. — = Not applicable.
Notes: • Data include both electric utility and nonutility sources. • Totals may not equal sum of components due to independent rounding.
Web Page: http://www.eia.doe.gov/international.
Sources: **United States:** Tables 1.2 and 8.2. **All Other Data:** • 1980—Energy Information Administration (EIA), International Energy Database. • 1998 and 1999—EIA, *International Energy Annual 1999* (February 2001) .

Figure 11.16 World Electrical Installed Capacity by Type, January 1, 1999



[1]Geothermal, wood, other biomass, waste, solar, wind, hydrogen, sulfur, batteries, and chemicals.

Note: • Data include both electric utility and non-electric utility sources. • Shares are based on data prior to rounding for publication and may not sum exactly to 100 percent.
Sources: Tables 11.15 and 11.16.

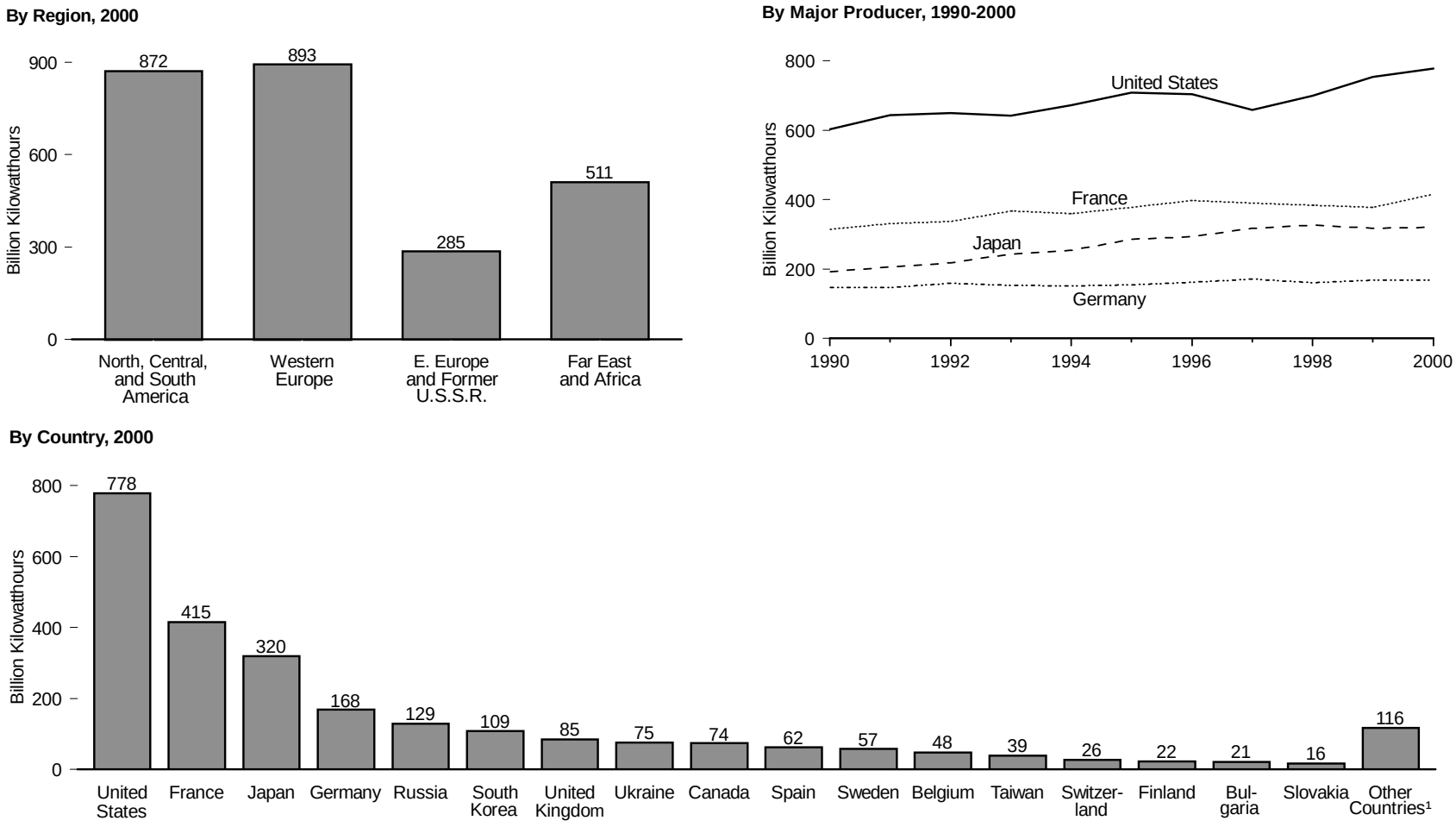
Table 11.16 World Electrical Installed Capacity by Type, 1980, 1998, and 1999

(Million Kilowatts)

Region and Country	Fossil Fuel			Nuclear Electric Power			Hydroelectric Power [1]			Total [2]		
	1980	1998	1999 P	1980	1998	1999 P	1980	1998	1999 P	1980	1998	1999 P
North America	R **470.4**	**621.7**	**621.5**	**55.6**	**114.4**	**109.0**	**136.9**	**175.8**	**174.9**	R**663.8**	**929.4**	**924.5**
Canada	27.4	32.4	32.3	5.9	R 13.4	10.6	47.9	66.6	66.8	81.1	112.5	109.8
Mexico	10.8	26.0	26.7	0.0	1.3	1.3	6.1	10.0	9.7	17.0	38.1	38.5
United States [3]	R 432.1	563.0	562.1	49.7	99.7	97.1	82.9	99.1	98.5	R565.5	778.5	775.9
Other	0.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.3
Central and South America	**36.0**	R **58.9**	**60.3**	**0.4**	**1.7**	**1.7**	**43.0**	R**107.2**	**108.7**	**81.2**	R **170.2**	**173.3**
Argentina	8.0	11.6	12.9	0.4	1.0	1.0	3.6	9.2	9.3	12.0	21.8	23.2
Brazil	4.1	5.2	5.5	0.0	0.7	0.7	27.5	R 54.9	56.8	33.4	R 63.0	65.2
Paraguay	0.1	(s)	(s)	0.0	0.0	0.0	0.2	7.3	7.4	0.2	7.4	7.5
Venezuela	5.8	8.5	8.4	0.0	0.0	0.0	2.7	14.0	13.0	8.5	22.5	21.5
Other	R 18.0	R 33.5	33.5	0.0	0.0	0.0	R 9.0	R 21.7	22.1	R 27.1	R 55.5	55.9
Western Europe	**294.9**	R **340.2**	**338.3**	**44.7**	**127.9**	**126.6**	**126.7**	R**143.2**	**141.4**	**467.0**	R **617.0**	**613.5**
Belgium	8.2	7.6	8.3	1.7	5.7	5.7	0.7	0.1	0.1	10.6	13.4	14.1
Finland	6.3	10.3	10.6	2.2	2.6	2.6	2.4	2.9	2.9	11.0	15.7	16.1
France	30.0	R 25.9	25.6	14.4	62.9	61.7	16.4	20.8	20.8	61.0	R 109.9	108.3
Germany	84.0	80.9	79.8	10.4	22.3	22.3	7.9	4.3	3.0	102.4	109.5	107.8
Italy	29.1	49.7	51.6	1.4	0.0	0.0	15.8	13.1	13.1	46.8	63.5	65.5
Netherlands	16.8	19.3	13.3	0.5	0.4	0.4	0.0	(s)	(s)	17.3	20.1	14.2
Norway	0.2	0.3	0.3	0.0	0.0	0.0	19.8	R 27.3	27.4	20.0	R 27.6	27.6
Spain	15.4	R 24.2	25.2	1.1	R 7.3	7.3	13.5	R 11.6	11.5	29.9	R 43.5	44.9
Sweden	7.9	R 7.9	6.5	4.6	10.1	10.1	14.9	R 16.4	16.2	27.4	R 34.4	32.9
Switzerland	0.7	1.1	1.1	1.9	3.1	3.1	11.5	10.3	10.4	14.1	14.5	14.6
Turkey	3.0	11.8	13.0	0.0	0.0	0.0	2.1	10.1	10.3	5.1	21.9	23.4
United Kingdom	64.7	R 55.2	55.7	6.5	12.9	12.6	2.5	1.5	1.5	73.6	R 69.8	69.9
Other	R 28.4	R 46.2	47.4	R 0.0	R 0.7	0.7	R19.3	R 24.9	24.3	R 47.7	R 73.2	74.2
Eastern Europe and Former U.S.S.R.	**261.1**	R **299.7**	**298.3**	**14.2**	R **48.2**	**48.3**	**61.6**	R **80.0**	**80.5**	**336.9**	R **427.9**	**427.2**
Czech Republic	—	11.3	11.1	—	1.8	1.8	—	0.9	0.9	—	14.0	13.7
Kazakhstan	—	R 15.2	15.1	—	0.1	0.1	—	2.2	2.0	—	R 17.5	17.4
Poland	23.4	27.9	28.0	0.0	0.0	0.0	1.3	2.0	2.1	24.7	29.9	30.1
Romania	12.7	R 15.3	15.6	0.0	0.7	0.7	3.5	5.9	5.9	16.1	R 21.9	22.2
Russia	—	140.5	138.7	—	21.2	21.2	—	43.9	43.9	—	R 205.7	203.9
Ukraine	—	R 36.3	36.3	—	13.9	13.8	—	4.7	4.7	—	R 54.9	54.8
Other	225.0	R 53.2	53.5	14.2	R 10.5	10.8	56.9	20.3	20.9	296.1	R 84.0	85.0
Middle East	**27.9**	R **90.1**	**94.6**	**0.0**	**0.0**	**0.0**	**2.6**	R **4.1**	**4.1**	**30.4**	R **94.2**	**98.7**
Iran	9.4	R 27.4	28.0	0.0	0.0	0.0	1.8	R 2.0	2.0	11.2	R 29.4	30.0
Saudi Arabia	5.9	R 21.7	25.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	R 21.7	25.0
Other	12.5	R 41.0	41.6	0.0	0.0	0.0	0.8	2.1	2.1	13.3	R 43.1	43.7
Africa	**30.5**	R **71.0**	**71.1**	**0.0**	**1.8**	**1.8**	**13.9**	R **20.5**	**20.7**	**44.5**	R **93.4**	**93.7**
Egypt	2.4	R 10.5	10.5	0.0	0.0	0.0	2.4	R 2.8	2.8	4.9	R 13.3	13.3
South Africa	17.8	R 35.2	35.5	0.0	1.8	1.8	0.5	0.7	0.7	18.4	R 37.7	38.0
Other	10.3	R 25.2	25.0	0.0	0.0	0.0	10.9	R17.1	17.2	21.2	R 42.3	42.3
Far East and Oceania	**223.1**	R **592.2**	**625.5**	**18.5**	**65.2**	**66.9**	**74.4**	R**147.7**	**152.5**	**316.7**	R **809.2**	**849.3**
Australia	18.1	31.5	31.9	0.0	0.0	0.0	6.2	7.0	6.0	24.2	38.5	37.9
China	45.6	R 192.4	209.9	0.0	2.2	2.2	20.3	59.7	65.1	65.9	R 254.3	277.1
India	20.7	75.2	77.8	0.9	2.2	2.2	11.8	21.9	22.4	33.3	R 100.2	103.4
Indonesia	3.9	16.1	17.9	0.0	0.0	0.0	1.0	3.4	3.1	4.9	19.9	21.4
Japan	98.1	152.2	159.1	15.7	45.2	45.2	19.6	21.3	21.5	133.4	19.3	226.4
South Korea	6.5	31.9	32.8	0.6	10.3	12.0	0.8	1.5	1.5	7.9	43.7	46.4
Taiwan	6.9	R 16.3	16.3	1.3	5.1	5.1	1.4	4.3	4.3	9.6	R 25.7	25.7
Thailand	2.6	14.3	14.6	0.0	0.0	0.0	1.3	2.9	2.9	3.8	17.3	17.5
Other	20.8	R 62.2	65.2	0.1	0.1	0.1	12.1	R 25.7	25.8	33.6	R 90.2	93.4
World	**1,344.1**	R**2,073.8**	**2,109.5**	**133.5**	R**359.3**	**354.3**	**459.1**	R**678.5**	**682.8**	**1,941.0**	R**3,141.2**	**3,180.1**

[1] Excludes pumped storage, except for the United States.
[2] Geothermal, wood, other biomass, waste, solar, wind, hydrogen, sulfur, batteries, and chemicals are included in total.
[3] Net summer capability at end of previous year. See Table 8.5.
R=Revised. P=Preliminary. (s)=Less than 0.05 million kilowatts. — = Not applicable.
Notes: • Capacity for all years is as of January 1. • Data include both electric utility and nonutility sources. • Totals may not equal sum of components due to independent rounding.
Web Page: http://www.eia.doe.gov/international.
Sources: **United States:** Table 8.5. **All Other Data:** • 1980—Energy Information Administration (EIA), International Energy Database. • 1998 and 1999—EIA, *International Energy Annual 1999* (February 2001), Table 6.4, and the International Energy Database.

Figure 11.17 World Nuclear Electricity Gross Generation



[1] Argentina, Armenia, Brazil, China, Czech Republic, Hungary, India, Lithuania, Mexico, Netherlands, Pakistan, Romania, South Africa, and Slovenia.

Note: Because vertical scales differ, graphs should not be compared.
Source: Table 11.17.

Table 11.17 World Nuclear Electricity Gross Generation, 1990-2000

(Billion Kilowatthours)

Region and Country	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
North America	**681.3**	**733.4**	**735.2**	**744.6**	**787.3**	**E816.1**	**E806.4**	**E752.8**	**E781.0**	**E837.3**	**E860.3**
Canada	75.8	86.1	81.3	97.6	110.7	100.4	95.2	84.1	E72.7	E73.9	73.8
Mexico	2.1	4.2	3.9	4.9	4.2	7.9	7.9	10.4	9.5	10.0	8.2
United States [1]	603.4	643.0	650.0	642.0	672.4	E707.7	E703.3	E658.3	E698.7	E753.4	E778.3
Central and South America	**9.4**	**9.2**	**8.8**	**8.1**	**8.2**	**9.6**	**9.8**	**11.1**	**10.8**	**E11.1**	**E11.5**
Argentina	7.4	7.7	7.1	7.7	8.2	7.1	7.4	8.0	7.5	E7.1	E6.3
Brazil	2.0	1.4	1.8	0.4	0.0	2.5	2.4	3.2	3.3	E4.0	5.2
Western Europe	**738.6**	**769.7**	**E787.8**	**820.9**	**820.2**	**E835.7**	**E879.5**	**E886.5**	**E884.2**	**E878.1**	**E893.1**
Belgium	42.7	42.9	43.5	41.9	40.6	41.4	43.3	47.4	46.1	49.0	E47.8
Finland	18.9	19.2	19.0	19.6	19.1	18.9	19.5	20.9	21.9	23.0	22.5
France	314.1	331.4	337.6	366.7	359.1	377.6	397.0	389.3	E384.4	E377.4	[2]415.2
Germany [3]	147.2	147.3	158.8	153.5	151.1	154.3	161.7	170.4	161.0	E167.8	E168.3
Netherlands	3.4	3.3	3.8	3.9	4.0	4.0	4.2	3.1	3.8	3.8	3.9
Slovenia	NA	NA	E4.0	4.0	4.6	4.8	4.6	5.4	5.3	4.7	E5.0
Spain	54.3	55.6	55.8	56.1	55.1	54.5	59.1	55.4	E58.6	58.9	E62.0
Sweden	68.2	76.8	63.5	61.4	72.8	69.9	76.2	E70.6	73.8	E74.5	57.2
Switzerland	23.6	22.9	23.4	23.3	24.2	24.8	25.0	25.3	25.7	24.8	E26.3
United Kingdom	66.1	70.4	78.5	90.4	89.5	E85.5	E88.8	E98.8	E103.7	E94.1	E84.9
Eastern Europe [4] and Former U.S.S.R.	NA	NA	**E267.5**	**E259.0**	**E227.8**	**E234.9**	**E261.6**	**E247.1**	**E248.9**	**E264.7**	**E285.3**
Armenia	—	—	—	—	—	NA	NA	1.4	1.6	E2.4	E1.9
Bulgaria	NA	NA	E12.2	14.0	14.9	17.2	18.7	E15.5	E19.2	E19.0	E21.3
Czech Republic	NA	NA	E12.9	E13.2	E12.7	E12.8	E13.5	NA	7.6	13.4	E13.8
Hungary	NA	NA	E13.8	13.8	14.0	14.0	14.2	14.0	13.9	E14.2	14.2
Kazakhstan	NA	NA	E0.5	E0.4	E0.4	E0.4	E0.1	E0.3	NA	NA	0.0
Lithuania	NA	NA	E16.4	E12.9	E7.0	E9.7	E13.6	12.1	13.5	9.9	E8.7
Romania	—	—	—	—	—	—	E1.0	3.9	5.1	E5.2	E5.5
Russia	NA	NA	E125.6	120.4	97.7	98.3	108.8	108.1	103.7	118.0	128.9
Slovakia	NA	NA	E11.7	E11.6	E12.7	E12.0	E11.8	11.0	10.3	10.5	16.2
Ukraine	NA	NA	E74.6	E72.7	68.4	70.4	80.0	80.8	E74.0	72.2	E74.8
Africa	**8.9**	**9.7**	**9.9**	**7.7**	**10.3**	**11.9**	**E12.5**	**13.3**	**14.3**	**13.5**	**13.6**
South Africa	8.9	9.7	9.9	7.7	10.3	11.9	E12.5	13.3	14.3	13.5	13.6
Far East	**284.3**	**303.3**	**315.2**	**E345.2**	**E366.7**	**E407.0**	**E426.4**	**E456.2**	**E477.2**	**E478.0**	**E497.1**
China	—	—	—	E2.6	E14.2	E13.0	E14.3	E11.4	E14.5	E14.6	E14.7
India	6.3	5.4	6.3	6.2	5.0	E8.0	8.3	E11.0	E11.2	E13.2	E14.8
Japan	191.9	205.8	218.0	243.5	253.8	286.1	293.2	318.0	326.9	317.4	319.8
Pakistan	0.4	0.4	0.6	0.4	0.6	0.5	0.4	0.4	0.4	0.1	0.4
South Korea	52.8	56.3	56.4	58.1	58.3	64.0	72.5	78.9	87.3	94.6	108.9
Taiwan	32.9	35.3	33.8	34.3	34.8	35.3	37.8	36.6	36.9	38.2	38.5
World	**1,722.5**	**1,825.2**	**E,[5]2,124.5**	**E2,185.6**	**E2,220.4**	**E2,315.1**	**E2,396.3**	**E2,367.0**	**E2,416.4**	**E2,482.6**	**E2,560.9**

[1] See Note 2 at end of section.

[2] Based on data from the Ministry of Industry, General Directorate for Energy and Raw Material, France.

[3] Through 1990, the data for Germany are for the former West Germany only. Beginning in 1991, the data for Germany are for the unified Germany, i.e., the former East Germany and West Germany.

[4] The gross generation estimates for 1992 through 1997 for Eastern European countries are calculated as 5 percent more than the annual net nuclear generation reported by the International Atomic Energy Agency and published annually in *Nuclear Power Reactors in the World.*

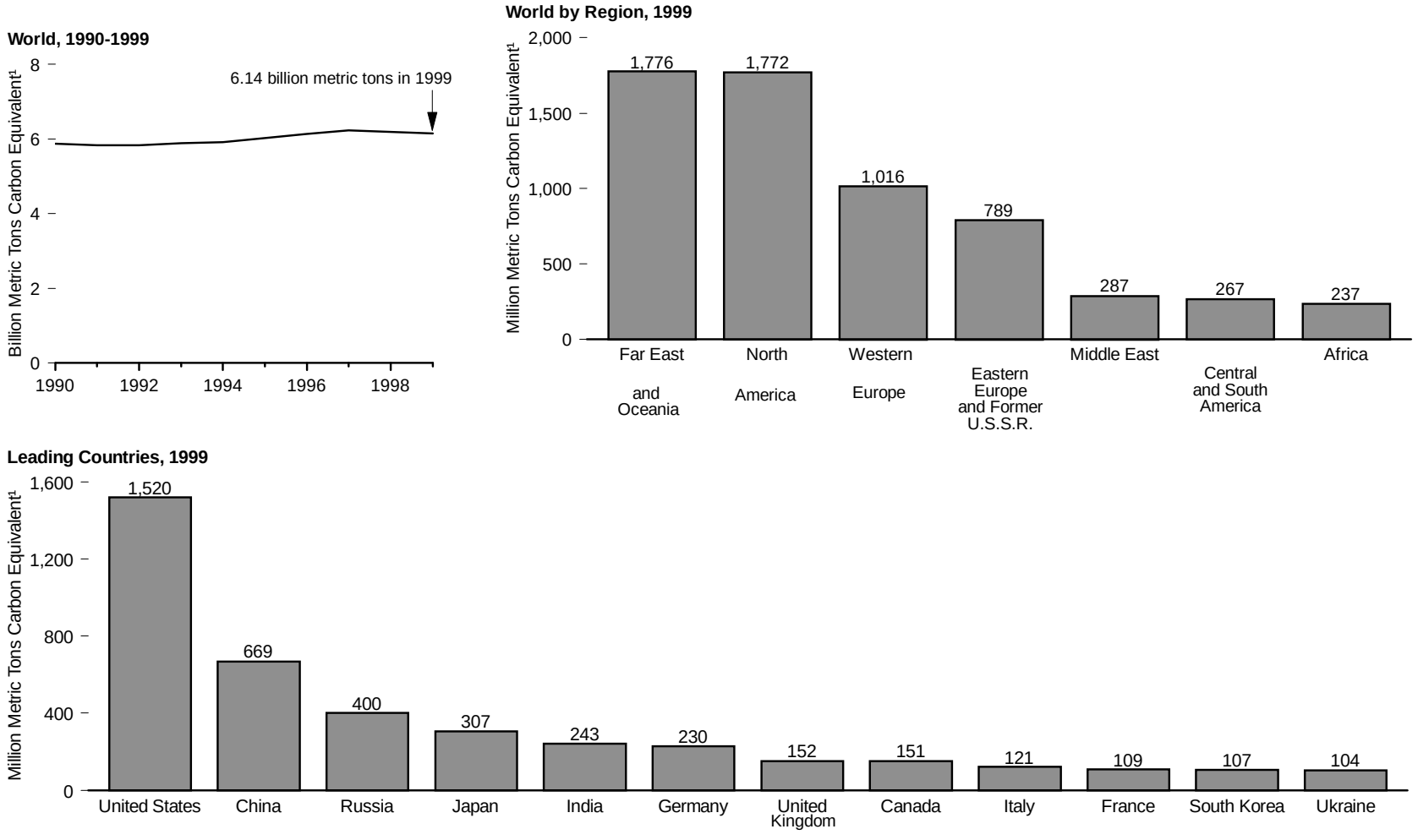
[5] There is a data discontinuity between 1991 and 1992; beginning with 1992, data for Eastern Europe and the Former U.S.S.R. are included for the first time.

R=Revised. E=Estimate. NA=Not available. — = Not applicable.

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

Source: Based on data from *Nucleonics Week,* a copyrighted publication of The McGraw-Hill Publishing Companies, Inc. Used with permission.

Figure 11.18 World Carbon Dioxide Emissions From Energy Consumption and Natural Gas Flaring



[1] Tons of carbon equivalent can be converted to tons of carbon dioxide gas by multiplying by 3.667. One ton of carbon equivalent = 3.667 tons of carbon dioxide gas.

Note: Because vertical scales differ, graphs should not be compared.
Source: Table 11.18.

Table 11.18 World Carbon Dioxide Emissions From Energy Consumption and Natural Gas Flaring, 1990-1999

(Million Metric Tons Carbon Equivalent [1])

Region and Country	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999[P]
North America	R1,567	R1,552	R1,577	R1,609	R1,643	R1,653	R1,713	R1,744	R1,757	1,772
Canada	R128	R125	R124	R130	R135	R135	139	R145	R148	151
Mexico	R84	R84	86	85	90	88	93	R96	R105	101
United States [2]	R1,355	R1,342	R1,366	R1,393	R1,418	R1,430	R1,481	R1,502	R1,504	1,520
Other	(s)	(s)	(s)	(s)	(s)	(s)	(s)	(s)	(s)	(s)
Central and South America	R192	R197	R200	R210	R217	R227	R236	R248	R263	267
Argentina	R28	R30	R31	R33	R32	R33	R35	35	R37	39
Brazil	R63	R65	R65	R67	R71	R74	R76	R80	R88	89
Venezuela	30	R31	R31	31	33	34	36	37	R38	38
Other	R71	R72	75	79	81	86	89	R95	R100	100
Western Europe	R1,006	R1,000	R964	R957	R945	R972	R995	R1,012	R1,027	1,016
Belgium	R34	R35	R34	R34	R35	35	37	R38	R40	38
France	R102	R108	R104	R100	R97	R101	R105	R104	R110	109
Germany [3]	R271	R249	R241	R241	R230	R239	240	R238	R237	230
Italy	R112	R114	R114	R110	R108	R118	116	R118	R122	121
Netherlands	R58	R59	R58	60	60	R61	62	R66	R66	64
Spain	R62	R64	R66	62	64	R67	63	R73	R77	82
Turkey	R35	38	R37	39	38	41	R45	R50	R50	50
United Kingdom	R164	R166	R157	157	155	R153	159	R154	R155	152
Other	R168	R167	R155	R154	R158	R157	R166	R171	R172	170
Eastern Europe and Former U.S.S.R.	R1,298	R1,192	R1,123	1,030	R914	R879	R858	R820	R791	789
Former Czechoslovakia	80	73	65	—	—	—	—	—	—	—
Poland	R89	R89	R89	R92	R87	R83	R78	R91	R85	85
Romania	R48	R37	R35	34	32	33	34	33	R27	26
Former U.S.S.R.	R1,037	R957	—	—	—	—	—	—	—	—
Russia	—	—	R574	536	477	R444	R444	R408	R398	400
Ukraine	—	—	R156	145	121	R124	R108	R102	R98	104
Other	43	R37	R205	R224	R197	R195	R194	R186	R183	174
Middle East	R203	R216	R222	233	242	R250	255	R272	R282	287
Iran	R56	62	64	65	68	71	71	R81	R81	84
Saudi Arabia	R59	R63	R64	65	67	R69	71	R72	R74	74
Other	R89	R90	R94	102	107	R110	113	R119	R127	129
Africa	R198	R204	R208	R216	222	R225	R231	R238	R237	237
Egypt	26	26	26	26	27	27	30	31	32	33
South Africa	R81	R84	R88	90	94	94	96	R105	102	99
Other	R92	R94	R95	R99	R101	R104	R105	R102	R103	105
Far East and Oceania	R1,410	R1,473	R1,537	R1,632	R1,729	R1,812	R1,849	R1,899	R1,841	1,776
Australia	R72	R73	R77	77	77	80	R82	R89	R92	94
China	R617	R646	R668	712	768	788	794	R808	R765	669
India	R156	R161	R176	186	R190	R224	R224	R228	R232	243
Indonesia	R41	R43	R47	54	56	R59	65	R69	R65	64
Japan	R269	R280	R286	R283	R299	R298	R301	R308	R300	307
North Korea	R36	R36	R36	R36	R36	R36	R35	R33	R34	33
South Korea	R61	R70	R74	R86	R96	R103	R107	R117	R101	107
Taiwan	R32	34	R35	43	44	49	53	58	R60	63
Thailand	23	25	27	32	35	43	46	47	R44	45
Other	103	R105	R111	123	129	134	R142	R141	R147	150
World	R5,873	R5,834	R5,831	R5,886	R5,913	R6,018	R6,136	R6,231	R6,198	6,144

[1] Tons of carbon equivalent can be converted to tons of carbon dioxide gas by multiplying by 3.667. One ton of carbon equivalent = 3.667 tons of carbon dioxide gas.

[2] Data, when converted to million metric tons of carbon dioxide gas, may differ from the values shown for the United States in Table 12.1 because they exclude carbon dioxide emissions from geothermal, cement production, other industrial sources, waste combustion, and U.S. Territories, and include emissions from bunker fuels consumption.

[3] Through 1990, this is East and West Germany. Beginning in 1991, this is unified Germany.

R=Revised. P=Preliminary. — = Not applicable. (s)=Less than 0.5 million metric tons.

Notes: • See Note 3 at end of section. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/international.

Source: Energy Information Administration, *International Energy Annual 1999* (February 2001), Table H1, and the International Energy Database.

International Energy

Note 1. World primary energy production includes production of crude oil (including lease condensate), natural gas plant liquids, dry natural gas, and coal; and net electricity generation from hydroelectric power, nuclear electric power, geothermal, wood, waste, solar, and wind. Data for the United States also include wood, waste, geothermal, and solar energy not used for electricity generation. 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 produced that is available to be marketed and consumed as a gas. Coal (anthracite, bituminous, subbituminous, and lignite) 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 mines and normally exclude wastes removed at mines or associated preparation plants. The data on generation of electricity from hydroelectric power, nuclear electric power, wood, waste, geothermal, solar, and wind include data on both electric utility and nonutility generation reported on a net basis, thus excluding electricity that is generally used by the electric power plant for its own operating purposes or electricity losses in the transformers that are considered integral parts of the station.

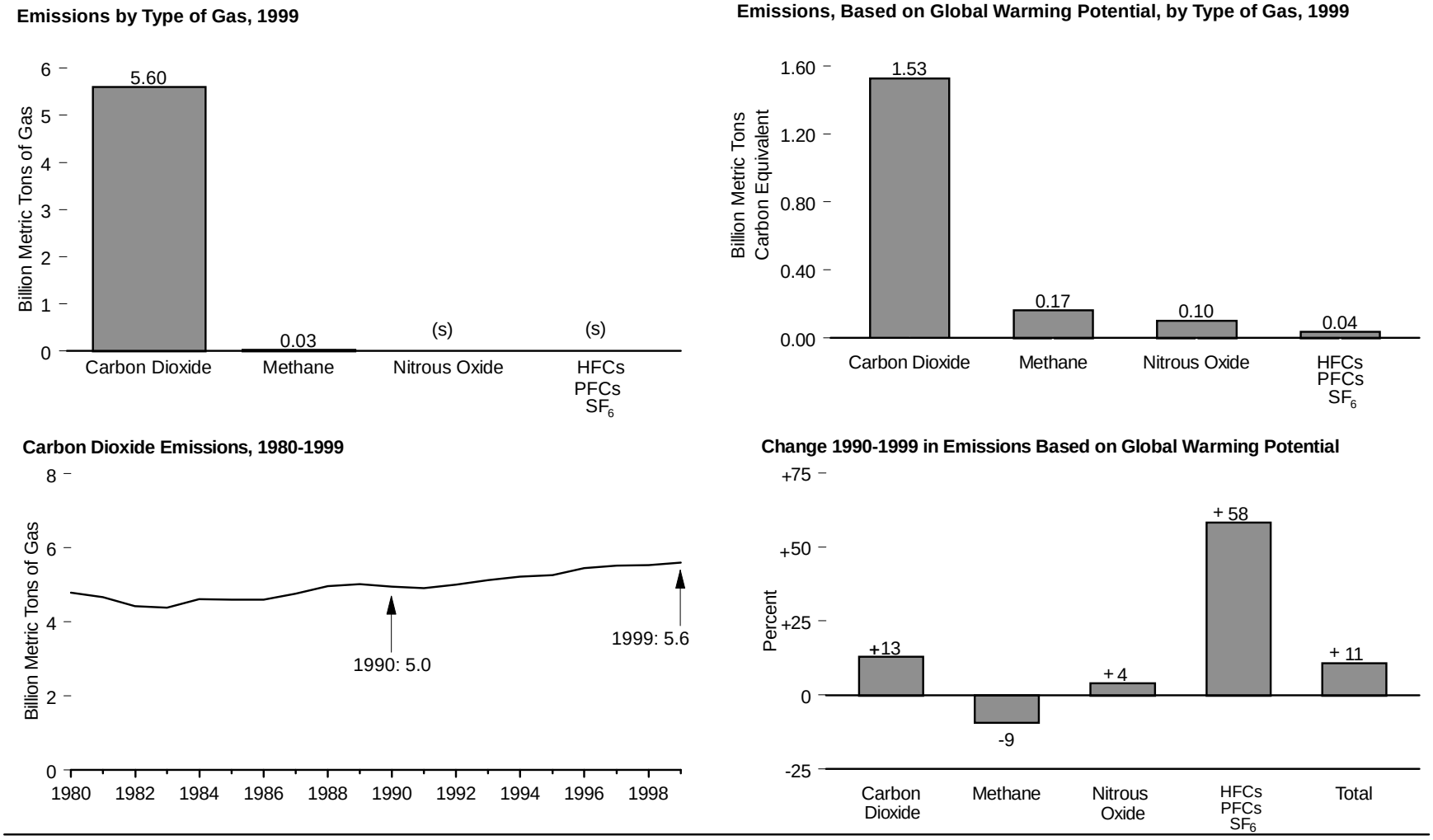
Note 2. Nuclear electricity generation data in Table 11.17 are for gross output of electricity (measured at the generator terminals). Data on the gross generation of electricity in the United States are derived from data for net generation, which is gross output of electricity minus power plant use.

Note 3. Data for carbon dioxide emissions include anthropogenic (human-caused) emissions from the consumption of petroleum, natural gas, and coal, and the flaring of natural gas. They do not include carbon dioxide emissions from cement production and other industrial sources. Hydrocarbon consumption and flaring statistics for each country have been reduced to account for the fraction of fuels not combusted and, in the case of petroleum, for the fraction of sequestration of non-fuel uses. Carbon dioxide emissions have been determined by applying carbon emission coefficients to the adjusted consumption and flaring data. Carbon emission coefficients for petroleum, natural gas, and flared gas are from Energy Information Administration, *Emissions of Greenhouse Gases in the United States 1999*, DOE/EIA-0573(99), October 2000, Table B1 at: http://www.eia.doe.gov/oiaf/1605/ggrpt/tblb1.html. Carbon emission coefficients for coal are from Energy Information Administration, *Emissions of Greenhouse Gases in the United States 1985-1990*, DOE/EIA-0573, October 1993, Table 11.

12 Environmental Indicators

"Harpers Ferry, Junction of the Rivers Shenandoah and Potomac." Engraving by W. Goodacre and James Archer, published in *The History and Topography of the United States of North America*, by John Howard Hinton, 1852. From the collection of the National Park Service, Harpers Ferry National Historical Park, Accession #1297.

Figure 12.1 Estimated Emissions of Greenhouse Gases



(s)=Less than 0.005 billion metric tons of gas.

Notes: • HFCs=hydrofluorocarbons; PFCs=perfluorocarbons; and SF_6=sulfur hexafluoride. • Because vertical scales differ, graphs should not be compared.

Source: Table 12.1.

Table 12.1 Estimated Emissions of Greenhouse Gases, 1980-1999

Year	Greenhouse Gases (million metric tons of gas)				Greenhouse Gases, Based on Global Warming Potential [1] (million metric tons carbon equivalent)				
	Carbon Dioxide	Methane	Nitrous Oxide	HFCs PFCs SF_6	Carbon Dioxide	Methane	Nitrous Oxide	HFCs PFCs SF_6	Total
1980	4,783.8	27.5	1.0	(s)	1,305	158	82	20	1,565
1981	4,661.2	28.1	1.0	(s)	1,271	161	84	21	1,537
1982	4,417.6	28.4	1.0	(s)	1,205	163	82	16	1,466
1983	4,383.9	28.2	0.9	(s)	1,196	162	77	19	1,454
1984	4,619.0	29.0	1.0	(s)	1,260	166	85	21	1,532
1985	R4,595.8	29.3	1.1	(s)	R1,253	168	96	20	R1,537
1986	R4,602.7	R28.8	1.1	(s)	R1,255	165	93	21	R1,534
1987	R4,753.6	29.3	1.1	(s)	R1,296	168	93	22	R1,579
1988	R4,961.8	R29.7	1.1	(s)	R1,353	170	91	26	R1,640
1989	R5,012.4	R29.9	1.1	(s)	R1,367	171	96	26	R1,660
1990	R4,951.9	R31.7	1.2	(s)	R1,351	R182	99	R24	R1,655
1991	R4,907.6	R31.9	1.2	(s)	R1,338	R183	101	22	R1,644
1992	R5,005.3	R32.0	1.2	(s)	R1,365	R183	103	R24	R1,675
1993	R5,121.6	R31.1	1.2	(s)	R1,397	R178	103	24	R1,702
1994	R5,215.7	R31.2	1.3	(s)	R1,422	R179	111	R25	R1,737
1995	R5,260.6	R31.2	1.3	(s)	R1,435	R179	106	R29	R1,748
1996	R5,441.6	R30.2	1.2	(s)	R1,484	R173	105	R33	R1,796
1997	R5,519.0	R30.1	1.2	(s)	R1,505	R172	104	R35	R1,816
1998	R5,527.1	R29.3	1.2	(s)	R1,507	R168	103	40	R1,818
1999P	5,598.2	28.8	1.2	(s)	1,527	165	103	38	1,833

[1] Emissions of greenhouse gases were weighted based upon their relative global warming potential, with carbon dioxide gas equal to a weight of one, and were converted to carbon equivalent by dividing by 3.667.

R=Revised. P=Preliminary. (s)=Less than 0.05 million metric tons.

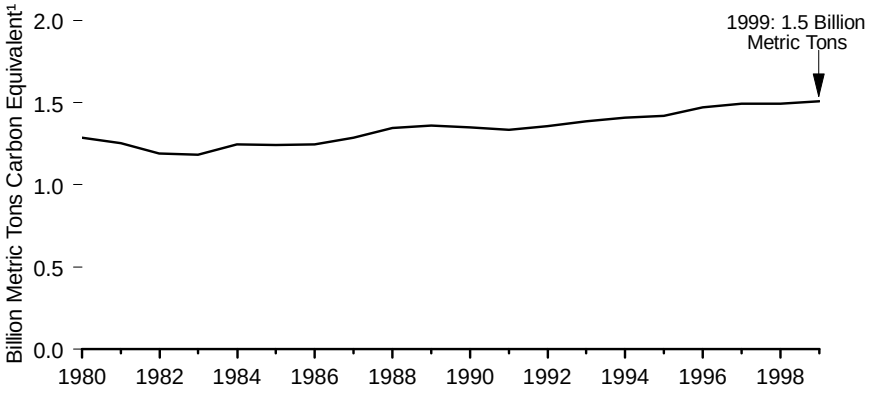
Notes: • HFCs = hydrofluorocarbons; PFCs = perfluorocarbons; and SF_6 = sulfur hexafluoride. • Emissions are from anthropogenic sources. Anthropogenic means produced as the result of human activities, including emissions from agricultural activity and domestic livestock. Emissions from natural sources, such as wetlands and wild animals, are not included. • Because estimation methods for greenhouse gases are currently being developed, data are frequently revised on an annual basis in keeping with the latest findings of the international scientific community. For some of the gases, such as carbon dioxide, revisions are a small percentage of the total (on the order of 1 percent), but for other gases, such as nitrous oxide, they may be on the order of 100 percent.

Web Page: http://www.eia.doe.gov/environment.html.

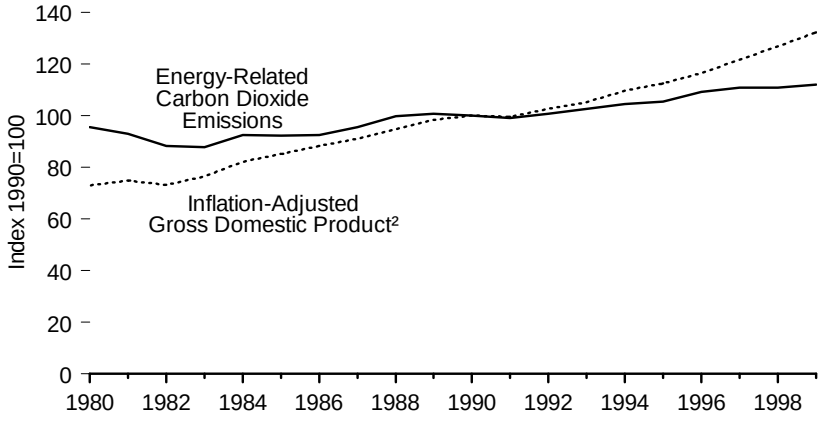
Sources: • 1980-1989—Energy Information Administration (EIA), *Emissions of Greenhouse Gases in the United States,* annual reports. • 1990 forward—EIA, *Emissions of Greenhouse Gases in the United States 1999* (October 2000), Tables ES1 and ES2.

Figure 12.2 Carbon Dioxide Emissions From Energy Consumption by Sector, 1980-1999

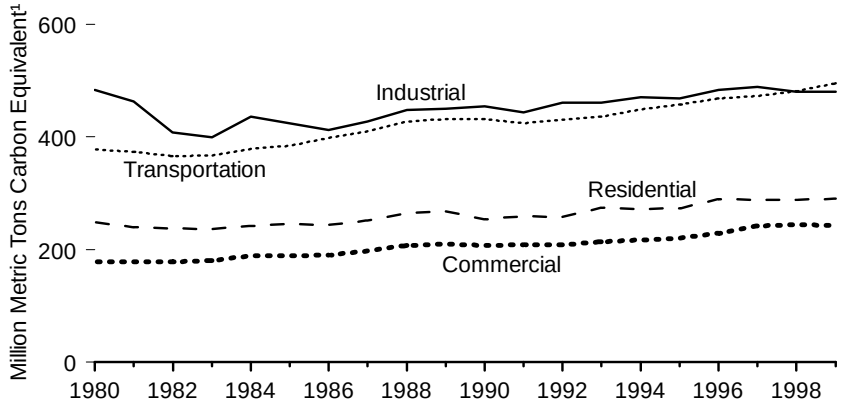
Total, 1980-1999



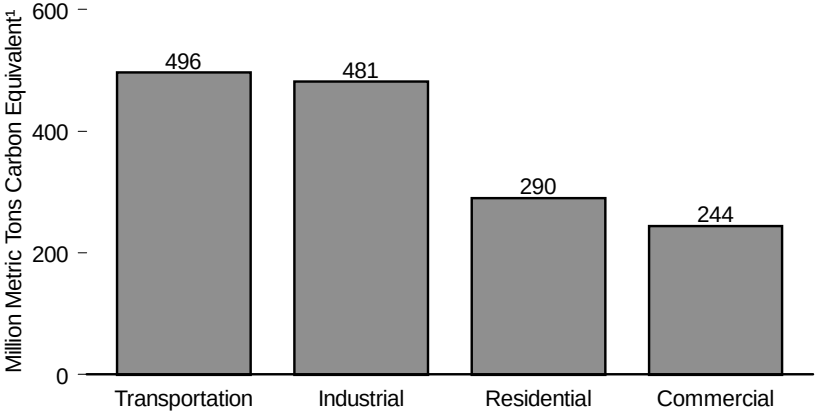
Economic Growth and Carbon Dioxide Emissions, 1980-1999



By Sector, 1980-1999



By Sector, 1999



[1] Tons of carbon equivalent can be converted to tons of carbon dioxide gas by multiplying by 3.667. One ton of carbon equivalent = 3.667 tons of carbon dioxide gas.

[2] Based on chained (1996) dollars.

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

Sources: Tables 1.5 and 12.2.

Table 12.2 Carbon Dioxide Emissions From Energy Consumption by Sector, 1980-1999

(Million Metric Tons Carbon Equivalent [1])

Year	Residential	Commercial	Industrial	Transportation	Total
1980	R247.9	R178.0	R484.2	378.1	R1,288.2
1981	R239.4	R177.9	R463.3	374.1	R1,254.7
1982	R237.9	R178.4	R408.2	365.6	R1,190.1
1983	R236.3	R180.1	R399.6	366.9	R1,182.9
1984	R241.6	R189.2	R436.5	379.0	R1,246.3
1985	R245.4	R189.3	R424.1	384.3	R1,243.1
1986	R244.2	R190.6	R412.5	399.0	R1,246.2
1987	R251.5	R197.6	R427.9	411.0	R1,287.9
1988	R264.5	R207.3	R447.9	427.3	R1,347.0
1989	R267.4	R209.8	R450.0	432.6	R1,359.8
1990	R254.2	R207.7	R454.8	431.8	R1,348.6
1991	R259.0	R208.0	R444.1	424.3	R1,335.3
1992	R258.6	R207.8	R461.6	431.1	R1,359.1
1993	R274.3	R213.6	R461.0	436.4	R1,385.3
1994	R272.2	R217.1	R471.0	449.3	R1,409.6
1995	R273.4	R220.6	R469.2	R457.8	R1,421.0
1996	R289.6	R229.2	R483.8	R468.9	R1,471.5
1997	R288.6	R241.5	R489.7	473.6	R1,493.4
1998	R288.8	R244.5	R480.2	R481.9	R1,495.4
1999P	290.1	243.5	481.2	496.1	1,510.8

[1] Tons of carbon equivalent can be converted to tons of carbon dioxide gas by multiplying by 3.667. One ton of carbon equivalent = 3.667 tons of carbon dioxide gas.

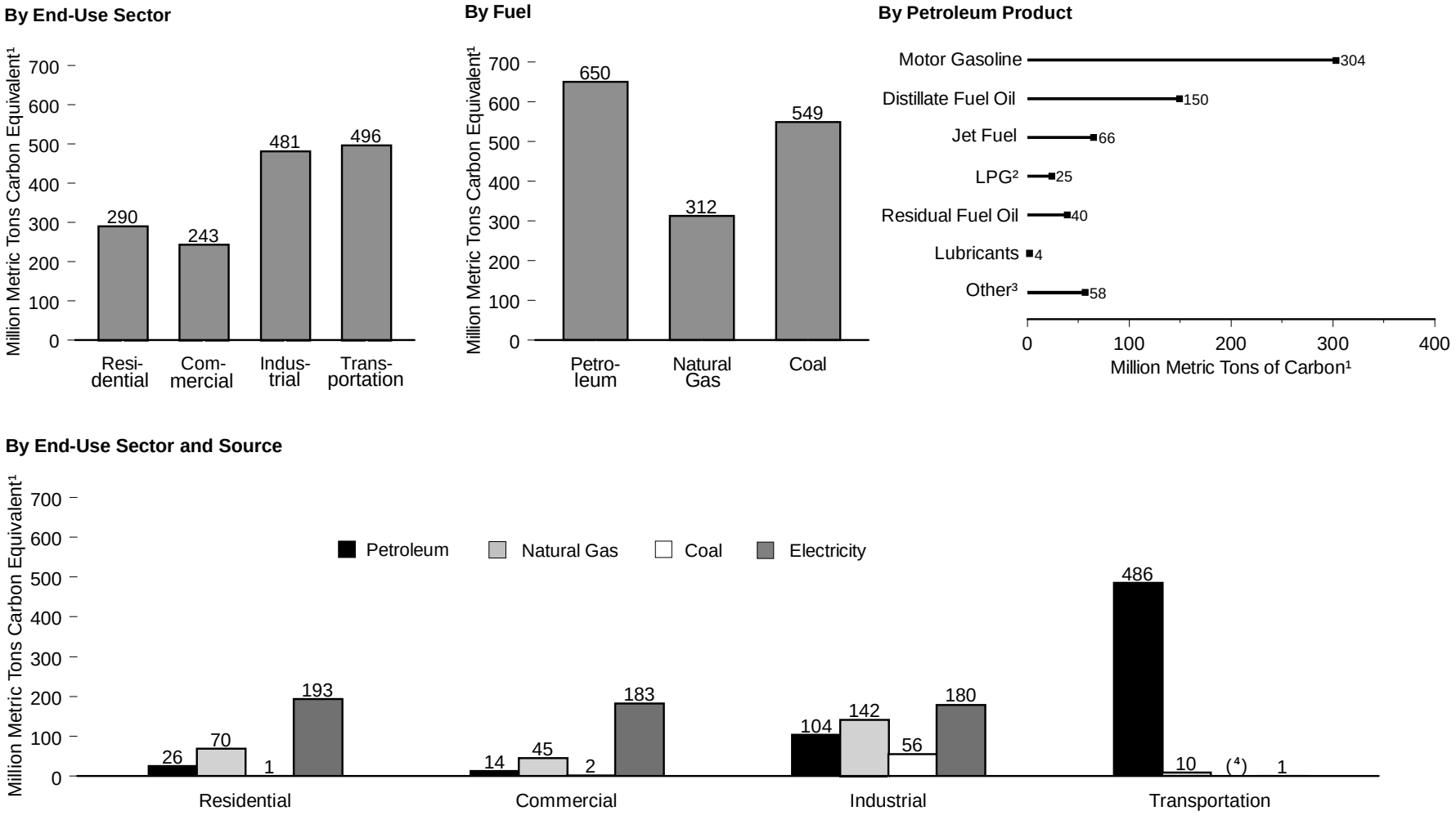
R=Revised. P=Preliminary.

Notes: • Includes energy from petroleum, natural gas, and coal. • Totals may not equal sum of components due to independent rounding.

Web Page: http://www.eia.doe.gov/environment.html.

Sources: • 1980-1989—Energy Information Administration (EIA), *Emissions of Greenhouse Gases in the United States,* annual reports. • 1990 forward—EIA, *Emissions of Greenhouse Gases in the United States 1999* (October 2000), Table 5.

Figure 12.3 Carbon Dioxide Emissions From Energy Consumption by Sector by Energy Source, 1999



[1] Tons of carbon equivalent can be converted to tons of carbon dioxide gas by multiplying by 3.667. One ton of carbon equivalent = 3.667 tons of carbon dioxide gas.

[2] Liquefied petroleum gases.

[3] Aviation gasoline, kerosene, and other products.

[4] Coal used in the transportation sector is included in the industrial sector.

Source: Table 12.3.

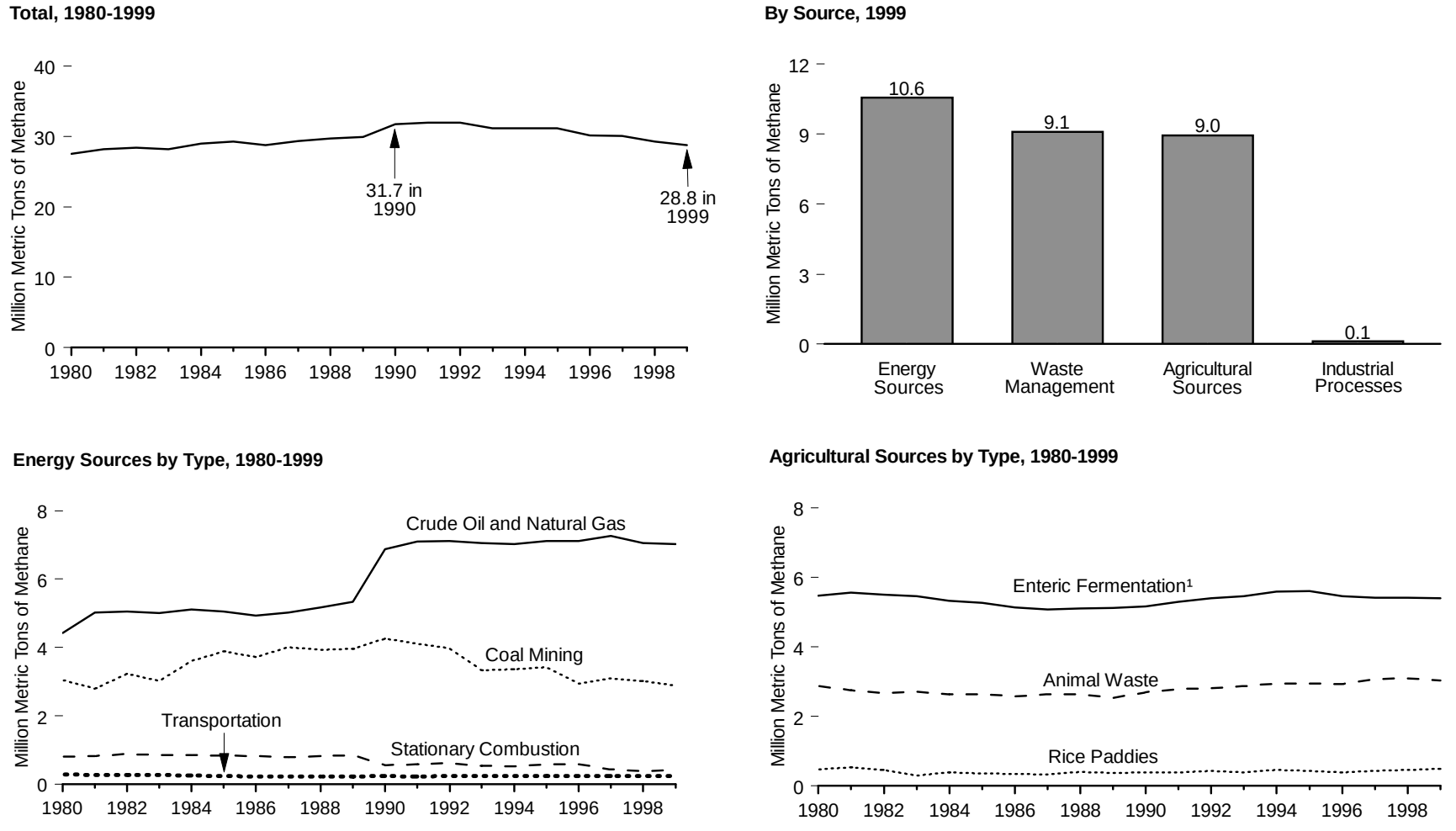
Table 12.3 Carbon Dioxide Emissions From Energy Consumption by Sector by Energy Source, 1999

(Million Metric Tons Carbon Equivalent [1])

Energy Source	End-Use Sectors					Electric Utilities	Total
	Residential	Commercial	Industrial	Transportation	Total		
Petroleum	26.0	13.7	104.2	485.8	629.7	20.0	649.7
Aviation Gasoline	—	—	—	0.7	0.7	—	0.7
Distillate Fuel	16.0	8.6	22.7	100.1	147.4	[2] 2.5	149.9
Jet Fuel	—	—	—	66.3	66.3	—	66.3
Kerosene	2.0	0.6	0.4	—	3.0	—	3.0
Liquefied Petroleum Gases	8.1	1.4	14.9	0.3	24.7	—	24.7
Lubricants	—	—	1.9	1.8	3.7	—	3.7
Motor Gasoline	—	0.9	3.9	299.1	303.9	—	303.9
Residual Fuel	—	2.2	3.9	17.5	23.6	[3] 16.2	39.8
Other	—	—	56.4	—	56.4	[4] 1.3	57.7
Natural Gas	69.5	45.4	141.6	9.5	266.0	45.8	311.8
Coal	1.1	1.7	[5] 56.0	([6])	58.8	490.5	549.3
Electricity	193.4	182.6	179.5	0.8	556.3	—	—
Total	290.1	243.5	481.2	496.1	1,510.8	[7] 556.3	1,510.8

[1] Tons of carbon equivalent can be converted to tons of carbon dioxide gas by multiplying by 3.667. One ton of carbon equivalent = 3.667 tons of carbon dioxide gas.
[2] Light fuel oil.
[3] Heavy fuel oil.
[4] Petroleum coke.
[5] Industrial coal includes net imports of coke.
[6] Included in the industrial sector.
[7] Electric utility emissions are distributed across end-use sectors.
— = Not applicable.
Notes: • Data are preliminary. • Totals may not equal sum of components due to independent rounding.
Web Page: http://www.eia.doe.gov/environment.html.
Source: Energy Information Administration (EIA), *Emissions of Greenhouse Gases in the United States 1999* (October 2000), Tables 6-9 and EIA estimates.

Figure 12.4 Methane Emissions



[1] Animals such as cattle, buffalo, sheep, goats, and camels emit methane as a product of digestion.

Note: Because vertical scales differ, graphs should not be compared.
Source: Table 12.4.

Table 12.4 Methane Emissions, 1980-1999

(Million Metric Tons of Methane)

Year	Energy Sources					Waste Management			Agricultural Sources					Industrial Processes	Total
	Crude Oil and Natural Gas	Coal Mining	Transportation	Stationary Combustion	Total	Landfills	Wastewater Treatment	Total	Enteric Fermentation [1]	Animal Waste	Rice Paddies	Crop Residue Burning	Total		
1980	4.42	3.05	0.28	0.81	8.56	9.85	0.14	9.99	5.47	2.88	0.48	0.03	8.86	0.13	27.54
1981	5.02	2.80	0.27	0.82	8.92	10.07	0.14	10.21	5.56	2.75	0.54	0.04	8.89	0.14	28.15
1982	5.05	3.23	0.27	0.88	9.42	10.12	0.14	10.26	5.50	2.66	0.47	0.04	8.66	0.10	28.44
1983	5.01	3.02	0.27	0.86	9.17	10.30	0.14	10.45	5.46	2.71	0.31	0.03	8.51	0.11	28.23
1984	5.12	3.60	0.26	0.86	9.85	10.46	0.14	10.60	5.33	2.64	0.40	0.04	8.41	0.11	28.97
1985	R5.05	3.88	R0.24	R0.84	R10.01	R10.70	0.14	R10.84	5.27	2.64	0.36	0.04	8.31	0.11	R29.27
1986	R4.93	3.73	R0.23	R0.82	R9.71	R10.75	0.15	R10.90	5.13	2.58	0.34	0.03	8.09	0.10	R28.80
1987	R5.03	4.01	R0.23	0.80	R10.07	R10.99	0.15	R11.14	5.08	2.63	0.33	0.03	8.07	0.11	R29.39
1988	R5.18	3.93	R0.23	0.83	R10.17	R11.09	0.15	R11.24	5.10	2.64	0.41	0.03	8.18	0.12	R29.71
1989	R,2 5.34	3.96	R0.23	0.86	R10.39	R11.19	0.15	R11.34	5.11	2.54	0.38	0.04	8.08	0.12	R29.92
1990	R6.87	4.26	0.25	0.56	R11.94	R11.25	0.15	R11.40	R5.16	R2.69	0.40	0.04	R8.29	0.12	R31.74
1991	R7.10	4.12	0.23	0.59	R12.04	R11.11	0.15	R11.26	5.30	R2.79	0.39	R0.03	R8.52	0.11	R31.93
1992	R7.12	3.97	0.24	0.62	R11.95	R11.06	0.15	R11.22	5.39	R2.81	0.44	0.04	R8.68	0.12	R31.96
1993	R7.05	3.34	0.24	0.54	R11.17	R10.92	0.16	R11.08	R5.46	R2.87	0.40	0.03	R8.76	0.12	R31.14
1994	R7.03	3.36	0.24	0.53	R11.16	R10.68	0.16	R10.83	R5.59	R2.95	0.47	0.04	R9.05	0.13	R31.17
1995	R7.11	3.43	0.25	0.58	R11.38	R10.47	0.16	R10.63	R5.61	R2.95	0.44	0.03	R9.03	0.13	R31.18
1996	R7.11	2.95	0.24	0.58	R10.88	R10.16	0.16	R10.32	R5.46	R2.93	0.40	0.04	R8.83	0.13	R30.16
1997	R7.26	R3.10	0.24	0.44	R11.03	R9.80	0.16	R9.97	5.42	R3.08	0.44	0.04	R8.98	0.13	R30.11
1998	R7.06	R3.02	0.24	R0.39	R10.70	R9.29	0.16	R9.45	5.41	R3.09	0.47	0.04	R9.00	0.13	R29.29
1999P	7.03	2.88	0.24	0.41	10.56	8.94	0.16	9.11	5.40	3.03	0.50	0.04	8.96	0.13	28.76

[1] Animals such as cattle, buffalo, sheep, goats, and camels emit methane as a product of digestion.

[2] There is a discontinuity in this time series between 1989 and 1990 due to the expanded coverage of the emissions from oil production beginning in 1990.

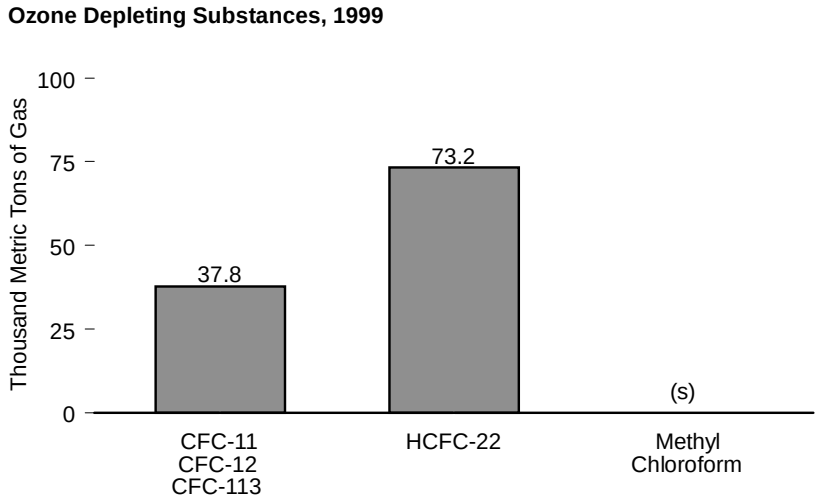
R=Revised. P=Preliminary.

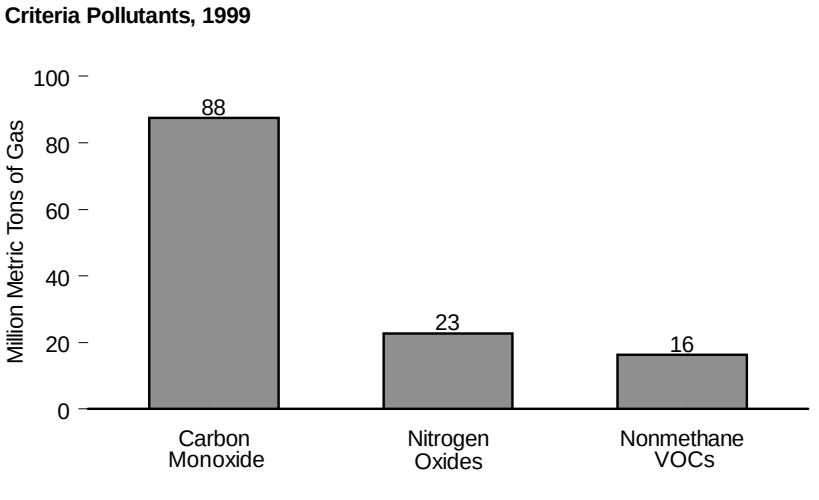
Notes: • Emissions are from anthropogenic sources. Anthropogenic means produced as the result of human activities, including emissions from agricultural activity and domestic livestock. Emissions from natural sources, such as wetlands and wild animals, are not included. • Estimates of methane emissions are, in general, highly uncertain. The level of precision is probably on the order of 30 to 50 percent. For additional information, see "Appendix C, "Uncertainty in Emission Estimates" in the source report. • Under certain conditions, methane may be produced via anaerobic decomposition of organic materials in landfills, animal wastes, and rice paddies. • Because inventory methods for greenhouse gases are currently being developed, data are frequently revised on an annual basis in keeping with the latest findings of the international scientific community. • Totals may not equal sum of components due to independent rounding.

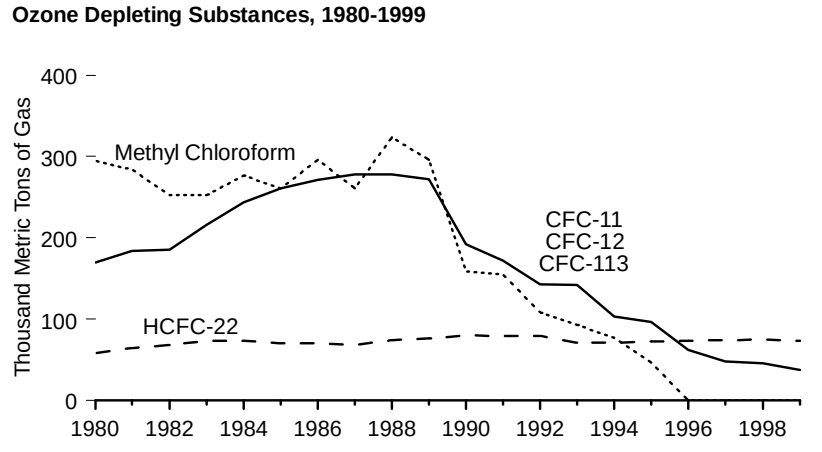
Web Page: http://www.eia.doe.gov/environment.html.

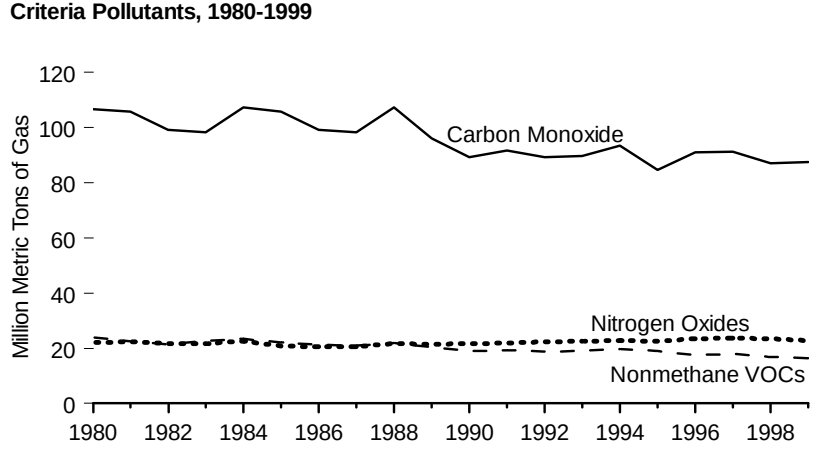
Sources: • 1980-1989—Energy Information Administration (EIA), *Emissions of Greenhouse Gases in the United States,* annual reports. • 1990 forward—EIA, *Emissions of Greenhouse Gases in the United States 1999* (October 2000), Table 14.

Figure 12.5 Ozone Depleting Substances and Criteria Pollutants









(s)=Less than 0.5 thousand metric tons of gas.

Notes: • CFC=chlorofluorocarbons; HCFC=chlorodifluoromethane; VOCs=volatile organic compounds. • Because vertical scales differ, graphs should not be compared.

Source: Table 12.5.

Table 12.5 Ozone Depleting Substances and Criteria Pollutants, 1980-1999

Year	Ozone Depleting Substances (thousand metric tons of gas)			Criteria Pollutants (million metric tons of gas)		
	CFC-11 CFC-12 CFC-113	HCFC-22	Methyl Chloroform	Carbon Monoxide	Nitrogen Oxides	Nonmethane VOCs
1980	169.8	58.6	294.8	106.5	22.1	23.9
1981	183.9	64.4	283.8	105.7	22.4	22.5
1982	185.6	67.8	252.5	99.2	21.8	21.5
1983	216.3	73.2	252.6	98.3	21.7	22.6
1984	243.7	73.6	276.4	107.2	22.6	23.5
1985	260.7	70.3	261.1	105.7	20.9	22.2
1986	271.4	70.3	296.1	99.2	20.5	21.2
1987	278.5	68.1	261.1	98.3	20.6	21.0
1988	278.2	74.0	323.4	107.2	21.8	22.0
1989	271.9	76.4	295.6	96.0	21.5	20.4
1990	192.5	79.8	158.3	R89.3	R21.8	R19.1
1991	172.4	79.5	154.7	R91.7	R21.9	R19.3
1992	142.7	79.5	108.3	R89.2	R22.3	R18.9
1993	141.8	71.2	92.9	R89.8	R22.6	R19.1
1994	102.8	71.4	77.4	R93.4	R22.9	R19.7
1995	96.6	R72.3	46.4	R84.6	R22.5	R19.0
1996	62.1	R73.2	(s)	R91.1	R23.4	R17.6
1997	48.2	R74.2	(s)	R91.2	R23.7	R17.9
1998	R45.9	R75.1	(s)	R87.1	R23.4	R16.9
1999P	37.8	73.2	(s)	87.5	22.8	16.4

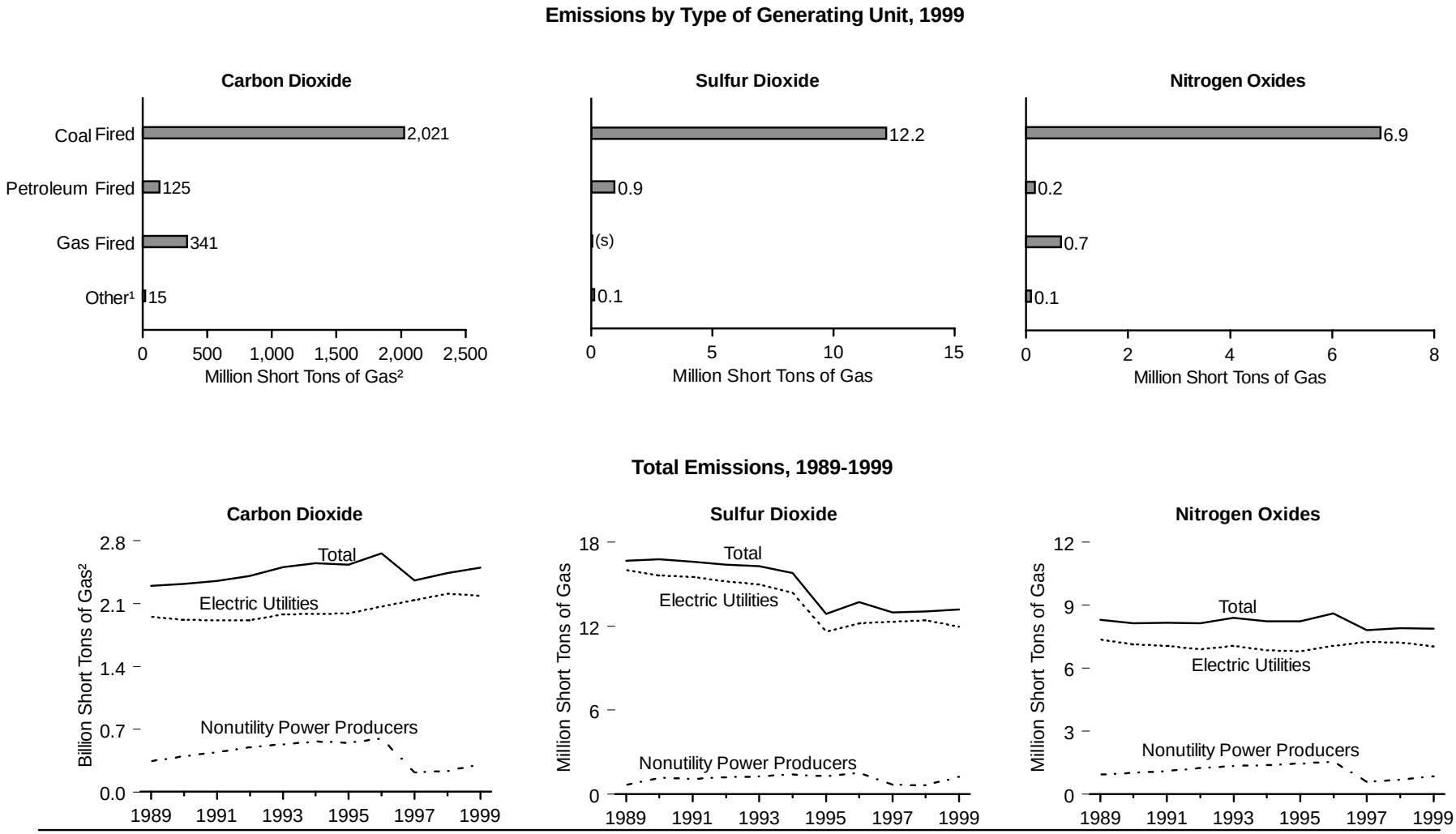
R=Revised. P=Preliminary. (s)=Less than 0.05 thousand metric tons.

Notes: • CFC = chlorofluorocarbons; HCFC = chlorodifluoromethane; and VOCs = volatile organic compounds. • Ozone depleting substances are gases containing chlorine that are being controlled because they deplete ozone. They are thought to have some indeterminate impact on greenhouse gases. • Criteria pollutants are regulated as urban air pollutants. They are thought to have indirect effects on climate because they promote the formation of ozone, itself a greenhouse gas. • Because estimation methods for greenhouse gases are currently being developed, data are frequently revised on an annual basis in keeping with the latest findings of the international scientific community.

Web Page: http://www.eia.doe.gov/environment.html.

Sources: **Ozone Depleting Substances:** • 1980-1989—Energy Information Administration (EIA), *Emissions of Greenhouse Gases in the United States*, annual reports. • 1990 forward—EIA, *Emissions of Greenhouse Gases in the United States 1999* (October 2000). **Criteria Pollutants:** • 1980 forward—EIA, Office of Integrated Analysis and Forecasting estimates based upon data obtained from the Environmental Protection Agency.

Figure 12.6 Emissions From Electricity Generation



[1] Plants fired by light oil, methane, coal-oil mixture, propane gas, blast furnace gas, wood, and refuse.

[2] Carbon dioxide gas can be converted to units of carbon by dividing by 3.667. One ton of carbon = 3.667 tons of carbon dioxide gas. Short tons can be converted to metric tons by dividing by 1.102.

(s)=Less than 0.05 million short tons.

Note: Because horizontal and vertical scales differ, graphs should not be compared.

Source: Table 12.6.

Table 12.6 Emissions From Electricity Generation, 1989-1999

(Thousand Short Tons of Gas)

Year	Coal Fired			Petroleum Fired			Gas Fired			Other [1]			Total		
	Carbon Dioxide [2]	Sulfur Dioxide	Nitrogen Oxides	Carbon Dioxide [2]	Sulfur Dioxide	Nitrogen Oxides	Carbon Dioxide [2]	Sulfur Dioxide	Nitrogen Oxides	Carbon Dioxide [2]	Sulfur Dioxide	Nitrogen Oxides	Carbon Dioxide [2]	Sulfur Dioxide	Nitrogen Oxides
	Electric Utilities														
1989	1,651,813	15,196	6,764	135,734	819	221	161,051	1	359	4,092	4	8	1,952,691	16,020	7,352
1990	1,655,344	14,972	6,600	102,003	648	164	158,227	1	341	4,711	5	9	1,920,285	15,626	7,114
1991	1,653,114	14,838	6,548	97,246	662	156	159,816	1	335	3,756	4	8	1,913,932	15,505	7,047
1992	1,668,404	14,643	6,449	77,516	554	118	160,296	1	306	4,333	4	8	1,910,548	15,202	6,882
1993	1,738,068	14,378	6,625	82,459	625	126	154,141	1	297	3,362	3	6	1,978,029	15,007	7,054
1994	1,737,512	13,836	6,399	75,959	537	111	168,314	1	323	3,415	7	6	1,985,200	14,382	6,840
1995	1,753,974	11,254	6,340	52,702	334	78	179,631	1	363	3,322	10	6	1,989,628	11,599	6,787
1996	1,851,875	11,821	6,651	58,122	384	83	153,085	1	320	3,608	2	6	2,066,691	12,207	7,060
1997	R1,894,000	R11,771	R6,795	R71,814	R544	R96	R175,396	R1	R330	R,3909	R1	R7	R2,142,118	R12,317	R7,227
1998	R1,911,624	R11,652	R6,701	R100,895	R759	R137	R195,866	R1	R377	R897	R1	R7	R2,209,281	R12,413	R7,221
1999P	1,898,133	11,294	6,534	91,912	671	123	198,860	2	376	863	1	5	2,189,769	11,968	7,038
	Nonutility Power Producers														
1989	72,360	548	282	14,884	90	36	142,974	1	531	114,944	27	89	345,162	665	938
1990	71,957	740	280	17,408	193	40	158,355	1	577	150,930	230	113	398,651	1,164	1,011
1991	83,461	661	323	18,704	160	44	174,315	1	617	164,794	281	116	441,274	1,102	1,100
1992	91,833	668	367	23,510	254	56	204,158	1	704	179,943	288	127	499,444	1,211	1,254
1993	97,281	709	395	27,304	266	62	219,859	1	749	185,343	296	132	529,787	1,272	1,337
1994	102,914	797	413	33,612	327	73	232,485	1	763	194,879	301	133	563,889	1,425	1,382
1995	99,500	689	404	29,287	305	65	232,808	1	839	185,514	283	136	547,110	1,278	1,444
1996	105,508	788	422	31,445	410	71	248,891	1	904	207,676	319	148	593,520	1,518	1,545
1997	R,463,705	R,4369	R,4225	R,418,372	R,4191	R,426	R,4108,639	R,40	R,4249	R,427,961	R,4106	R,482	R,4218,677	R,4666	R,4582
1998	72,254	352	259	20,632	204	25	125,163	0	307	14,086	90	86	232,135	646	677
1999P	123,021	864	400	33,295	271	44	142,139	0	300	14,504	103	90	312,959	1,238	834
	Total														
1989	1,724,173	15,744	7,046	150,618	909	257	304,025	2	890	119,036	31	97	2,297,852	16,686	8,290
1990	1,727,301	15,711	6,881	119,411	842	204	316,583	2	918	155,641	235	122	2,318,936	16,790	8,125
1991	1,736,575	15,499	6,870	115,950	822	200	334,131	2	953	168,550	285	124	2,355,207	16,607	8,147
1992	1,760,237	15,311	6,816	101,027	808	174	364,454	2	1,010	184,275	292	135	2,409,992	16,413	8,136
1993	1,835,349	15,087	7,019	109,763	891	188	374,000	2	1,046	188,705	299	138	2,507,817	16,279	8,391
1994	1,840,426	14,633	6,812	109,571	864	185	400,799	2	1,086	198,294	308	139	2,549,089	15,807	8,221
1995	1,853,473	11,943	6,744	81,989	639	143	412,439	2	1,203	188,836	293	141	2,536,738	12,877	8,231
1996	1,957,384	12,609	7,072	89,567	793	155	401,976	2	1,224	211,283	322	154	2,660,210	13,726	8,604
1997	R,41,957,705	R,412,140	R,47,020	R,490,186	R,4735	R,4122	R,4284,035	R,41	R,4579	R,428,870	R,4107	R,489	R,42,360,795	R,412,983	R,47,809
1998	1,983,878	12,004	6,960	121,527	963	162	321,029	1	684	14,983	91	93	2,441,416	13,059	7,898
1999P	2,021,154	12,158	6,934	125,207	942	167	340,999	2	676	15,367	104	95	2,502,728	13,206	7,872

[1] Plants fired by light oil, methane, coal-oil mixture, propane gas, blast furnace gas, wood, and refuse.

[2] Carbon dioxide gas can be converted to units of carbon by dividing by 3.667. One ton of carbon = 3.667 tons of carbon dioxide gas. Short tons can be converted to metric tons by dividing by 1.102.

[3] There is a discontinuity in this time series between 1996 and 1997 due to revised Air Pollutant Emissions Factors (AP-42, 5th edition, Supplement E, Environmental Protection Agency).

[4] There is a discontinuity in this time series between 1996 and 1997. Prior to 1997, nonutility emissions data are for the production of electricity and useful thermal output. Beginning in 1997, data are for the production of electricity only.

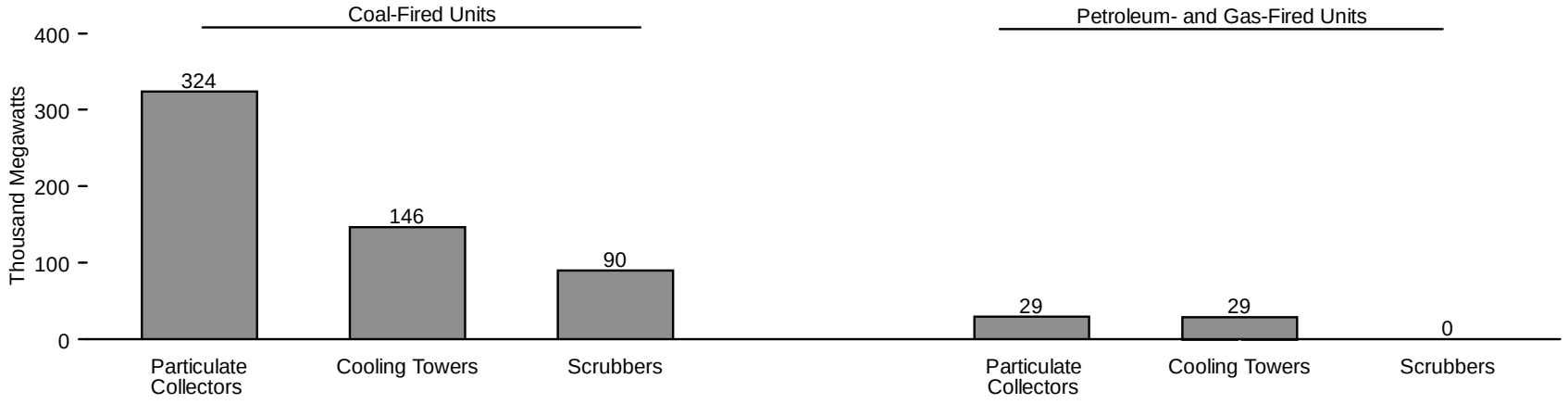
R=Revised. P=Preliminary.

Web Page: http://www.eia.doe.gov/fuelelectric.html.

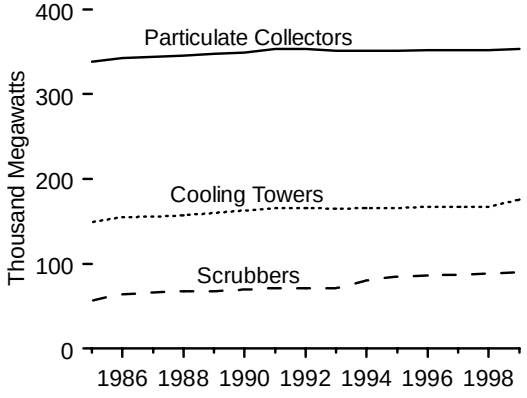
Sources: **Electric Utilities:** • 1989-1994—Energy Information Administration (EIA), *Electric Power Annual,* annual reports. • 1995 forward—EIA, *Electric Power Annual 1999, Volume II, annual reports.* **Nonutility Power Producers:** • 1989 forward—EIA, Form EIA-860B "Annual Electric Generator Report-Nonutility."

Figure 12.7 Installed Nameplate Capacity of Steam-Electric Generators for Electric Utility Plants With Environmental Equipment

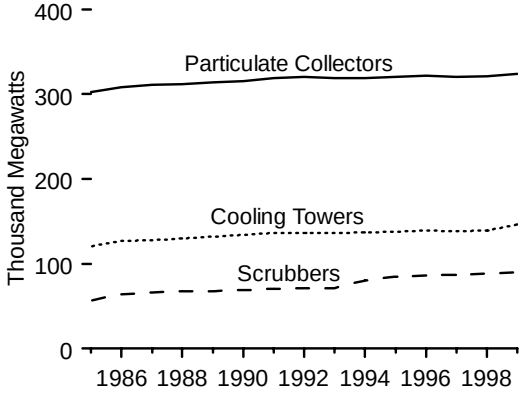
By Fuel and Equipment Type, 1999



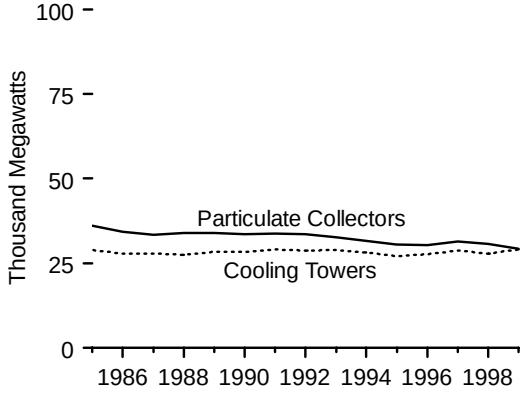
Total Units by Equipment Type, 1985-1999



Coal-Fired Units by Equipment Type, 1985-1999



Petroleum- and Gas-Fired Units by Equipment Type, 1985-1999



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

Source: Table 12.7.

Table 12.7 Installed Nameplate Capacity of Steam-Electric Generators for Electric Utility Plants With Environmental Equipment, 1985-1999

(Megawatts)

Year	Coal-Fired				Petroleum- and Gas-Fired				Total			
	Particulate Collectors	Cooling Towers	Scrubbers	Total [1]	Particulate Collectors	Cooling Towers	Scrubbers	Total [1]	Particulate Collectors	Cooling Towers	Scrubbers	Total [1]
1985	302,056	120,591	56,955	304,706	36,054	28,895	65	62,371	338,110	149,486	57,020	367,078
1986	308,566	126,731	63,735	311,217	34,258	27,919	65	59,618	342,825	154,650	63,800	370,835
1987	311,043	127,875	65,688	312,885	33,431	27,912	65	58,783	344,474	155,786	65,753	371,668
1988	311,776	129,366	67,156	313,618	34,063	27,434	65	58,937	345,839	156,800	67,221	372,555
1989	313,708	131,697	67,506	315,549	33,975	28,386	65	59,736	347,655	160,087	67,534	375,257
1990	315,681	134,199	69,057	317,522	33,639	28,359	65	59,372	349,319	162,557	69,122	376,894
1991	319,127	136,270	70,294	319,189	33,864	29,067	260	59,773	352,990	165,337	70,554	378,963
1992	320,016	136,542	71,157	320,078	33,509	28,764	195	59,116	353,525	165,306	71,351	379,194
1993	318,830	136,028	70,890	318,893	32,620	28,922	0	58,580	351,451	164,951	70,890	377,473
1994	319,309	137,266	80,617	319,600	31,695	28,186	0	57,123	351,180	165,452	80,617	376,899
1995	320,268	137,825	84,260	320,467	30,513	27,187	0	54,942	351,198	165,295	84,677	375,691
1996	321,721	139,065	86,359	321,785	30,349	27,685	0	55,275	352,254	166,749	86,359	377,244
1997	320,832	138,120	86,605	320,896	31,422	28,766	0	56,485	352,254	166,886	86,605	377,381
1998	321,082	139,082	87,783	321,353	30,708	27,814	0	55,764	351,790	166,896	87,783	377,117
1999[P]	324,109	146,377	89,666	331,379	29,371	29,142	0	55,812	353,480	175,520	89,666	387,192

[1] Components are not additive because some generators are included in more than one category.

P=Preliminary.

Notes: • Historical data are revised to include emissions from other fuels (including light oil, methane, coal-oil mixture, propane gas, blast furnace gas, wood, and refuse); to incorporate reevaluation and resubmission of data by respondents to The Clean Air Act Amendments of 1990; and to reflect revisions to the methodology used to estimate emissions. • All data are preliminary and may be revised in future publications. • Data cover only plants with fossil-fueled steam-electric capacity of 100 megawatts or greater.

Web Page: http://www.eia.doe.gov/fuelelectric.html.

Sources: • 1985-1987—Energy Information Administration (EIA), Form EIA-767, "Steam-Electric Plant Operation and Design Report." • 1988-1993—EIA, *Electric Power Annual,* annual reports. • 1994 forward—EIA, *Electric Power Annual Volume II,* annual reports.

Appendix A

Thermal Conversion Factors

Using Thermal Conversion Factors

The thermal conversion factors presented in the following tables can be used to estimate the heat content in British thermal units (Btu) of a given amount of energy measured in physical units, such as barrels or cubic feet. For example, 10 barrels of asphalt has a heat content of approximately 66.36 million Btu (10 barrels x 6.636 million Btu per barrel = 66.36 million Btu).

The heat content rates (i.e., thermal conversion factors) provided in this section represent the gross (or upper) energy content of the fuels. Gross heat content rates are applied in all Btu calculations for the *Annual Energy Review* and are commonly used in energy calculations in the United States; net (or lower) heat content rates are typically used in European energy calculations. The difference between the two rates is the amount of energy that is consumed to vaporize water that is created during the combustion process. Generally, the difference ranges from 2 percent to 10 percent, depending on the specific fuel and its hydrogen content. Some fuels, such as unseasoned wood, can be more than 40 percent different in their gross and net heat content rates.

In general, the annual thermal conversion factors presented in Tables A2 through A6 are computed from final annual data or from the best available data and are labeled "preliminary." Often, the previous year's factor is used as the preliminary value until data become available to calculate the factor appropriate to the year. The source of each factor is described in the section entitled "Thermal Conversion Factor Source Documentation," which follows Table A6 in this appendix.

Thermal conversion factors for hydrocarbon mixes are weighted averages of the thermal conversion factors for each hydrocarbon included in the mix. For example, in calculating the thermal conversion factor for a 60-40 butane-propane mixture, the thermal conversion factor for butane is weighted 1.5 times the thermal conversion factor for propane.

More information about British thermal units (the standardized unit of measure for energy) can be found in the Glossary.

Table A1. Approximate Heat Content of Petroleum Products
(Million Btu per Barrel)

Energy Source	Heat Content
Asphalt	6.636
Aviation Gasoline	5.048
Butane	4.326
Butane-Propane Mixture (60 percent-40 percent)	4.130
Distillate Fuel Oil	5.825
Ethane	3.082
Ethane-Propane Mixture (70 percent-30 percent)	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	
Conventional[1]	5.253
Oxygenated[1]	5.150
Reformulated[1]	5.150
Fuel Ethanol[2]	3.539
Natural Gasoline	4.620
Pentanes Plus	4.620
Petrochemical Feedstocks	
Naphtha less than 401° F	5.248
Other Oils equal to or greater than 401° 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 Naphthas	5.248
Still Gas	6.000
Unfinished Oils	5.825
Unfractionated Stream	5.418
Waxes	5.537
Miscellaneous	5.796

[1]See Table A3 for motor gasoline annual weighted averages beginning in 1994.
[2]Fuel ethanol, which is derived from agricultural feedstocks (primarily corn), is not a petroleum product but is blended into motor gasoline. Its gross heat content (3.539 million Btu per barrel) is used in *Annual Energy Review* calculations; its net heat content (3.192 million Btu per barrel) is used in the Energy Information Administration's *Renewable Energy Annual* calculations.
Source: See "Thermal Conversion Factor Source Documentation," which follows Table A6.

Table A2. Approximate Heat Content of Crude Oil, Crude Oil and Products, and Natural Gas Plant Liquids, 1949-2000

(Million Btu per Barrel)

Year	Crude Oil Only			Crude Oil and Products		Natural Gas Plant Liquids Production
	Production	Imports	Exports	Imports	Exports	
1949	5.800	5.952	5.800	6.059	5.692	4.544
1950	5.800	5.943	5.800	6.080	5.766	4.522
1951	5.800	5.938	5.800	6.075	5.762	4.495
1952	5.800	5.938	5.800	6.067	5.774	4.464
1953	5.800	5.924	5.800	6.052	5.742	4.450
1954	5.800	5.931	5.800	6.052	5.745	4.415
1955	5.800	5.924	5.800	6.040	5.768	4.406
1956	5.800	5.916	5.800	6.024	5.754	4.382
1957	5.800	5.918	5.800	6.023	5.780	4.369
1958	5.800	5.916	5.800	5.993	5.779	4.366
1959	5.800	5.916	5.800	6.020	5.829	4.311
1960	5.800	5.911	5.800	6.021	5.834	4.295
1961	5.800	5.900	5.800	5.991	5.832	4.283
1962	5.800	5.890	5.800	6.004	5.841	4.273
1963	5.800	5.894	5.800	6.002	5.840	4.264
1964	5.800	5.882	5.800	5.998	5.844	4.268
1965	5.800	5.872	5.800	5.997	5.743	4.264
1966	5.800	5.863	5.800	5.993	5.729	4.259
1967	5.800	5.838	5.800	5.999	5.777	4.232
1968	5.800	5.836	5.800	5.977	5.763	4.218
1969	5.800	5.825	5.800	5.974	5.714	4.170
1970	5.800	5.822	5.800	5.985	5.810	4.146
1971	5.800	5.824	5.800	5.961	5.775	4.117
1972	5.800	5.809	5.800	5.935	5.741	4.070
1973	5.800	5.817	5.800	5.897	5.752	4.049
1974	5.800	5.827	5.800	5.884	5.774	4.011
1975	5.800	5.821	5.800	5.858	5.748	3.984
1976	5.800	5.808	5.800	5.856	5.745	3.964
1977	5.800	5.810	5.800	5.834	5.797	3.941
1978	5.800	5.802	5.800	5.839	5.808	3.925
1979	5.800	5.810	5.800	5.810	5.832	3.955
1980	5.800	5.812	5.800	5.796	5.820	3.914
1981	5.800	5.818	5.800	5.775	5.821	3.930
1982	5.800	5.826	5.800	5.775	5.820	3.872
1983	5.800	5.825	5.800	5.774	5.800	3.839
1984	5.800	5.823	5.800	5.745	5.850	3.812
1985	5.800	5.832	5.800	5.736	5.814	3.815
1986	5.800	5.903	5.800	5.808	5.832	3.797
1987	5.800	5.901	5.800	5.820	5.858	3.804
1988	5.800	5.900	5.800	5.820	5.840	3.800
1989	5.800	5.906	5.800	5.833	5.857	3.826
1990	5.800	5.934	5.800	5.849	5.833	3.822
1991	5.800	5.948	5.800	5.873	5.823	3.807
1992	5.800	5.953	5.800	5.877	5.777	3.804
1993	5.800	5.954	5.800	5.883	5.779	3.801
1994	5.800	5.950	5.800	5.861	5.779	3.794
1995	5.800	R5.938	5.800	R5.855	R5.746	3.796
1996	5.800	R5.947	5.800	R5.847	R5.736	3.777
1997	5.800	5.954	5.800	5.862	R5.734	3.762
1998	5.800	5.953	5.800	R5.861	R5.720	3.769
1999	5.800	R5.942	5.800	R5.840	R5.699	R3.744
2000P	5.800	5.958	5.800	5.858	5.658	3.733

R=Revised. P=Preliminary.
Note: Crude oil includes lease condensate.

Source: See "Thermal Conversion Factor Source Documentation," which follows Table A6.

Table A3. Approximate Heat Content of Petroleum Product Weighted Averages, 1949-2000

(Million Btu per Barrel)

Year	Consumption						Imports	Exports	Liquefied Petroleum Gases Consumption	Motor Gasoline Consumption
	Residential	Commercial	Industrial	Transportation	Electric Utilities	Total				
1949	5.493	5.858	5.947	5.465	6.254	5.649	6.261	5.651	4.011	5.253
1950	5.482	5.865	5.940	5.461	6.254	5.649	6.263	5.751	4.011	5.253
1951	5.492	5.856	5.913	5.458	6.254	5.634	6.265	5.753	4.011	5.353
1952	5.488	5.849	5.905	5.442	6.254	5.621	6.261	5.768	4.011	5.253
1953	5.465	5.845	5.897	5.426	6.254	5.608	6.268	5.732	4.011	5.253
1954	5.475	5.832	5.883	5.412	6.254	5.595	6.252	5.738	4.011	5.253
1955	5.480	5.832	5.866	5.408	6.254	5.591	6.234	5.765	4.011	5.253
1956	5.474	5.828	5.856	5.406	6.254	5.585	6.225	5.744	4.011	5.253
1957	5.462	5.813	5.842	5.405	6.254	5.577	6.219	5.774	4.011	5.253
1958	5.465	5.802	5.832	5.393	6.254	5.567	6.091	5.778	4.011	5.253
1959	5.408	5.803	5.811	5.389	6.254	5.557	6.142	5.830	4.011	5.253
1960	5.430	5.849	5.800	5.388	6.267	5.555	6.161	5.835	4.011	5.253
1961	5.432	5.847	5.795	5.386	6.268	5.552	6.102	5.833	4.011	5.253
1962	5.418	5.835	5.784	5.386	6.267	5.545	6.138	5.842	4.011	5.253
1963	5.396	5.818	5.759	5.384	6.266	5.534	6.126	5.841	4.011	5.253
1964	5.375	5.811	5.728	5.388	6.267	5.528	6.129	5.845	4.011	5.253
1965	5.380	5.837	5.728	5.387	6.267	5.532	6.123	5.742	4.011	5.253
1966	5.354	5.839	5.722	5.388	6.266	5.532	6.112	5.728	4.011	5.253
1967	5.291	5.818	5.682	5.391	6.266	5.515	6.128	5.758	[1]3.838	5.253
1968	5.272	5.797	5.646	5.394	6.263	5.504	6.095	5.762	3.818	5.253
1969	5.213	5.769	5.603	5.394	6.259	5.492	6.093	5.713	3.805	5.253
1970	5.216	5.773	5.604	5.393	6.252	5.503	6.088	5.811	3.779	5.253
1971	5.212	5.758	5.600	5.389	6.245	5.504	6.062	5.775	3.772	5.253
1972	5.193	5.733	5.564	5.388	6.233	5.500	6.045	5.741	3.760	5.253
1973	5.205	5.749	5.568	5.395	6.245	5.515	5.983	5.752	3.746	5.253
1974	5.196	5.740	5.538	5.394	6.238	5.504	5.959	5.773	3.730	5.253
1975	5.192	5.704	5.528	5.392	6.250	5.494	5.935	5.747	3.715	5.253
1976	5.215	5.726	5.538	5.395	6.251	5.504	5.980	5.743	3.711	5.253
1977	5.213	5.733	5.555	5.400	6.249	5.518	5.908	5.796	3.677	5.253
1978	5.213	5.716	5.553	5.404	6.251	5.519	5.955	5.814	3.669	5.253
1979	5.298	5.769	5.418	5.428	6.258	5.494	5.811	5.864	3.680	5.253
1980	5.245	5.803	5.376	5.440	6.254	5.479	5.748	5.841	3.674	5.253
1981	5.191	5.751	5.313	5.432	6.258	5.448	5.659	5.837	3.643	5.253
1982	5.167	5.751	5.263	5.422	6.258	5.415	5.664	5.829	3.615	5.253
1983	5.022	5.642	5.273	5.415	6.255	5.406	5.677	5.800	3.614	5.253
1984	5.129	5.700	5.223	5.422	6.251	5.395	5.613	5.867	3.599	5.253
1985	5.115	5.660	5.221	5.423	6.247	5.387	5.572	5.819	3.603	5.253
1986	5.130	5.691	5.286	5.427	6.257	5.418	5.624	5.839	3.640	5.253
1987	5.095	5.659	5.253	5.430	6.249	5.403	5.599	5.860	3.659	5.253
1988	5.118	5.657	5.248	5.434	6.250	5.410	5.618	5.842	3.652	5.253
1989	5.057	5.615	5.233	5.440	6.241	5.410	5.641	5.869	3.683	5.253
1990	4.952	5.612	5.272	5.445	6.247	5.411	5.614	5.838	3.625	5.253
1991	4.912	5.591	5.192	5.442	6.248	5.384	5.636	5.827	3.614	5.253
1992	4.943	5.579	5.188	5.445	6.243	5.378	5.623	5.774	3.624	5.253
1993	4.943	5.573	5.200	5.438	6.241	5.379	5.620	5.777	3.606	5.253
1994	4.940	5.583	5.170	5.427	6.231	5.361	5.534	5.777	3.635	[2]5.230
1995	4.928	5.549	[R]5.140	5.419	6.210	5.341	[R]5.483	[R]5.740	3.623	5.215
1996	4.871	5.497	[R]5.136	5.421	6.212	5.336	[R]5.468	[R]5.728	3.613	5.216
1997	4.873	5.463	[R]5.139	5.417	6.220	5.336	[R]5.469	[R]5.726	3.616	5.213
1998	4.844	5.447	[R]5.156	[R]5.416	6.220	5.349	[R]5.462	[R]5.710	3.614	5.212
1999	4.751	5.368	[R]5.115	5.419	[R]6.208	5.328	[R]5.421	[R]5.684	3.616	[R]5.211
2000[P]	4.760	5.395	5.089	5.427	6.193	5.326	5.445	5.651	3.603	5.210

[1] There is a discontinuity in this time series between 1966 and 1967; beginning in 1967, the single constant factor is replaced by a quantity-weighted average of liquefied petroleum gases' major components.

[2] There is a discontinuity in this time series between 1993 and 1994; beginning in 1994, the single constant factor is replaced by a factor that is a quantity-weighted average of motor gasoline's major components. See Table A1.

R=Revised. P=Preliminary.

Note: Weighted averages of the products included in each category are calculated by using heat content values shown in Table A1.

Source: See "Thermal Conversion Factor Source Documentation," which follows Table A6.

Table A4. Approximate Heat Content of Natural Gas, 1949-2000

(Btu per Cubic Foot)

Year	Production		Consumption			Imports	Exports
	Dry	Marketed	Sectors Other Than Electric Utilities	Electric Utilities	Total		
1949	1,035	1,120	1,035	1,035	1,035	—	1,035
1950	1,035	1,119	1,035	1,035	1,035	—	1,035
1951	1,035	1,114	1,035	1,035	1,035	—	1,035
1952	1,035	1,115	1,035	1,035	1,035	1,035	1,035
1953	1,035	1,116	1,035	1,035	1,035	1,035	1,035
1954	1,035	1,115	1,035	1,035	1,035	1,035	1,035
1955	1,035	1,120	1,035	1,035	1,035	1,035	1,035
1956	1,035	1,116	1,035	1,035	1,035	1,035	1,035
1957	1,035	1,113	1,035	1,035	1,035	1,035	1,035
1958	1,035	1,110	1,035	1,035	1,035	1,035	1,035
1959	1,035	1,109	1,035	1,035	1,035	1,035	1,035
1960	1,035	1,107	1,035	1,035	1,035	1,035	1,035
1961	1,035	1,108	1,035	1,035	1,035	1,035	1,035
1962	1,035	1,107	1,035	1,035	1,035	1,035	1,035
1963	1,031	1,103	1,031	1,031	1,031	1,031	1,031
1964	1,032	1,102	1,032	1,032	1,032	1,032	1,032
1965	1,032	1,101	1,032	1,032	1,032	1,032	1,032
1966	1,033	1,103	1,033	1,033	1,033	1,033	1,033
1967	1,032	1,105	1,032	1,032	1,032	1,032	1,032
1968	1,031	1,115	1,031	1,031	1,031	1,031	1,031
1969	1,031	1,103	1,031	1,031	1,031	1,031	1,031
1970	1,031	1,102	1,031	1,031	1,031	1,031	1,031
1971	1,031	1,103	1,031	1,031	1,031	1,031	1,031
1972	1,027	1,100	1,027	1,027	1,027	1,027	1,027
1973	1,021	1,093	1,020	1,024	1,021	1,026	1,023
1974	1,024	1,097	1,024	1,022	1,024	1,027	1,016
1975	1,021	1,095	1,020	1,026	1,021	1,026	1,014
1976	1,020	1,093	1,019	1,023	1,020	1,025	1,013
1977	1,021	1,093	1,019	1,029	1,021	1,026	1,013
1978	1,019	1,088	1,016	1,034	1,019	1,030	1,013
1979	1,021	1,092	1,018	1,035	1,021	1,037	1,013
1980	1,026	1,098	1,024	1,035	1,026	1,022	1,013
1981	1,027	1,103	1,025	1,035	1,027	1,014	1,011
1982	1,028	1,107	1,026	1,036	1,028	1,018	1,011
1983	1,031	1,115	1,031	1,030	1,031	1,024	1,010
1984	1,031	1,109	1,030	1,035	1,031	1,005	1,010
1985	1,032	1,112	1,031	1,038	1,032	1,002	1,011
1986	1,030	1,110	1,029	1,034	1,030	997	1,008
1987	1,031	1,112	1,031	1,032	1,031	999	1,011
1988	1,029	1,109	1,029	1,028	1,029	1,002	1,018
1989	1,031	1,107	1,031	1,030	1,031	1,004	1,019
1990	1,031	1,106	1,030	1,034	1,031	1,012	1,018
1991	1,030	1,108	1,031	1,024	1,030	1,014	1,022
1992	1,030	1,110	1,031	1,022	1,030	1,011	1,018
1993	1,027	1,106	1,028	1,022	1,027	1,020	1,016
1994	1,028	1,105	1,029	1,022	1,028	1,022	1,011
1995	1,027	1,106	1,027	1,025	1,027	1,021	1,011
1996	1,027	1,109	1,027	1,024	1,027	1,022	1,011
1997	1,026	1,107	1,027	1,019	1,026	1,023	1,011
1998	1,031	1,110	1,033	1,022	1,031	1,023	1,011
1999	R1,027	R1,111	R1,028	R1,019	R1,027	R1,022	R1,006
2000P	1,027	1,111	1,028	1,019	1,027	1,022	1,006

R=Revised. P=Preliminary. — = Not applicable.

Source: See "Thermal Conversion Factor Source Documentation," which follows Table A6.

Table A5. Approximate Heat Content of Coal and Coal Coke, 1949-2000

(Million Btu per Short Ton)

Year	Coal									Coal Coke
		Consumption								
		End-Use Sectors			Electric Power Sector					
			Industrial							
	Production	Residential and Commercial	Coke Plants	Other [1]	Electric Utilities	Other Power Producers [2]	Total	Imports	Exports	Imports and Exports
1949	24.916	24.263	26.797	24.612	23.761	NA	24.793	25.000	26.759	24.800
1950	25.090	24.461	26.798	24.820	23.937	NA	24.989	25.020	26.788	24.800
1951	25.019	24.281	26.796	24.521	23.701	NA	24.813	25.034	26.848	24.800
1952	25.096	24.371	26.796	24.724	23.885	NA	24.901	25.040	26.859	24.800
1953	25.147	24.383	26.796	24.785	23.964	NA	25.006	25.048	26.881	24.800
1954	25.054	24.362	26.795	24.788	23.996	NA	24.913	25.012	26.865	24.800
1955	25.201	24.373	26.794	24.821	24.056	NA	24.982	25.000	26.907	24.800
1956	25.117	24.195	26.792	24.664	23.943	NA	24.843	25.000	26.886	24.800
1957	25.213	24.238	26.792	24.707	23.980	NA	24.905	25.001	26.914	24.800
1958	24.983	24.287	26.794	24.606	23.897	NA	24.716	25.005	26.931	24.800
1959	24.910	24.224	26.790	24.609	23.924	NA	24.719	25.003	26.927	24.800
1960	24.906	24.226	26.791	24.609	23.927	NA	24.713	25.003	26.939	24.800
1961	24.849	24.248	26.792	24.580	23.904	NA	24.653	25.002	26.937	24.800
1962	24.828	24.173	26.788	24.562	23.911	NA	24.627	25.013	26.928	24.800
1963	24.831	24.033	26.784	24.509	23.897	NA	24.588	25.007	26.894	24.800
1964	24.840	24.037	26.785	24.477	23.864	NA	24.602	25.000	26.949	24.800
1965	24.775	24.028	26.787	24.385	23.780	NA	24.537	25.000	26.973	24.800
1966	24.629	23.915	26.786	24.226	23.648	NA	24.396	25.000	26.976	24.800
1967	24.475	23.685	26.781	24.040	23.506	NA	24.243	25.000	26.981	24.800
1968	24.445	23.621	26.780	24.014	23.486	NA	24.186	25.000	26.984	24.800
1969	24.280	23.474	26.779	23.724	23.240	NA	23.976	25.000	26.982	24.800
1970	23.842	23.203	26.784	22.983	22.573	NA	23.440	25.000	26.982	24.800
1971	23.507	23.090	26.784	22.670	22.301	NA	23.124	25.000	26.981	24.800
1972	23.389	22.998	26.782	22.550	22.204	NA	23.036	25.000	26.979	24.800
1973	23.376	22.831	26.780	22.586	22.246	NA	23.057	25.000	26.596	24.800
1974	23.072	22.479	26.778	22.419	21.781	NA	22.677	25.000	26.700	24.800
1975	22.897	22.261	26.782	22.436	21.642	NA	22.506	25.000	26.562	24.800
1976	22.855	22.774	26.781	22.530	21.679	NA	22.498	25.000	26.601	24.800
1977	22.597	22.919	26.787	22.322	21.508	NA	22.265	25.000	26.548	24.800
1978	22.248	22.466	26.789	22.207	21.275	NA	22.017	25.000	26.478	24.800
1979	22.454	22.242	26.788	22.452	21.364	NA	22.100	25.000	26.548	24.800
1980	22.415	22.543	26.790	22.690	21.295	NA	21.947	25.000	26.384	24.800
1981	22.308	22.474	26.794	22.585	21.085	NA	21.713	25.000	26.160	24.800
1982	22.239	22.695	26.797	22.712	21.194	NA	21.674	25.000	26.223	24.800
1983	22.052	22.775	26.798	22.691	21.133	NA	21.576	25.000	26.291	24.800
1984	22.010	22.844	26.799	22.543	21.101	NA	21.573	25.000	26.402	24.800
1985	21.870	22.646	26.798	22.020	20.959	NA	21.366	25.000	26.307	24.800
1986	21.913	22.947	26.798	22.198	21.084	NA	21.462	25.000	26.292	24.800
1987	21.922	23.404	26.799	22.381	21.136	NA	21.517	25.000	26.291	24.800
1988	21.823	23.571	26.799	22.360	20.900	NA	21.328	25.000	26.299	24.800
1989	21.765	23.650	26.800	22.347	20.848	R21.474	R21.268	25.000	26.160	24.800
1990	21.822	23.137	26.799	22.457	20.929	R20.539	R21.324	25.000	26.202	24.800
1991	21.681	23.114	26.799	22.460	20.755	R19.933	R21.131	25.000	26.188	24.800
1992	21.682	23.105	26.799	22.250	20.787	R18.983	21.107	25.000	26.161	24.800
1993	21.418	22.994	26.800	22.123	20.639	R19.040	20.947	25.000	26.335	24.800
1994	21.394	23.112	26.800	22.068	20.673	R19.485	R20.979	25.000	26.329	24.800
1995	21.326	23.118	26.800	21.950	20.495	R19.471	R20.815	25.000	26.180	24.800
1996	21.322	23.011	26.800	22.105	20.525	R19.427	R20.826	25.000	26.174	24.800
1997	21.296	22.494	26.800	22.172	20.548	19.596	R20.836	25.000	26.251	24.800
1998	R21.418	R21.620	R27.426	R23.164	R20.513	20.143	R20.868	25.000	R26.800	24.800
1999	R21.070	R23.880	R27.426	R22.489	R20.401	R20.718	R20.753	25.000	R26.081	24.800
2000P	21.072	23.880	27.426	22.489	20.401	20.718	20.753	25.000	26.117	24.800

[1] Includes transportation.

[2] Nonutility wholesale producers of electricity, and nonutility cogeneration plants that are not included in the end-use sectors.

R=Revised. P=Preliminary. NA=Not available.

Source: Energy Information Administration, Office of Coal, Nuclear, Electric and Alternate Fuels. See "Thermal Conversion Factor Source Documentation," which follows Table A6.

Table A6. Approximate Heat Rates for Electricity, 1949-2000

(Btu per Kilowatthour)

Year	Electricity Net Generation			Electricity Consumption
	Fossil-Fueled Steam-Electric Plants [1]	Nuclear Steam-Electric Plants	Geothermal Energy Plants [2]	
1949	15,033	—	—	3,412
1950	14,030	—	—	3,412
1951	13,641	—	—	3,412
1952	13,361	—	—	3,412
1953	12,889	—	—	3,412
1954	12,180	—	—	3,412
1955	11,699	—	—	3,412
1956	11,456	—	—	3,412
1957	11,365	11,629	—	3,412
1958	11,085	11,629	—	3,412
1959	10,970	11,629	—	3,412
1960	10,760	11,629	23,200	3,412
1961	10,650	11,629	23,200	3,412
1962	10,558	11,629	23,200	3,412
1963	10,482	11,877	22,182	3,412
1964	10,462	11,912	22,182	3,412
1965	10,453	11,804	22,182	3,412
1966	10,415	11,623	22,182	3,412
1967	10,432	11,555	21,770	3,412
1968	10,398	11,297	21,606	3,412
1969	10,447	11,037	21,606	3,412
1970	10,494	10,977	21,606	3,412
1971	10,478	10,837	21,655	3,412
1972	10,379	10,792	21,668	3,412
1973	10,389	10,903	21,674	3,412
1974	10,442	11,161	21,674	3,412
1975	10,406	11,013	21,611	3,412
1976	10,373	11,047	21,611	3,412
1977	10,435	10,769	21,611	3,412
1978	10,361	10,941	21,611	3,412
1979	10,353	10,879	21,545	3,412
1980	10,388	10,908	21,639	3,412
1981	10,453	11,030	21,639	3,412
1982	10,454	11,073	21,629	3,412
1983	10,520	10,905	21,290	3,412
1984	10,440	10,843	21,303	3,412
1985	10,447	10,813	21,263	3,412
1986	10,446	10,799	21,263	3,412
1987	10,419	10,776	21,263	3,412
1988	10,324	10,743	21,096	3,412
1989	10,432	10,724	21,096	3,412
1990	10,402	10,680	21,096	3,412
1991	10,436	10,740	20,997	3,412
1992	10,342	10,678	20,914	3,412
1993	10,309	10,682	20,914	3,412
1994	10,316	10,676	20,914	3,412
1995	10,312	10,658	20,914	3,412
1996	10,340	10,623	20,960	3,412
1997	10,357	10,623	20,960	3,412
1998	10,346	10,623	21,017	3,412
1999	10,346	10,623	21,017	3,412
2000[P]	10,346	10,623	21,017	3,412

[1] Used as the thermal conversion factor for hydroelectric power generation, and for wood and waste, wind, and solar energy consumed for the generation of electricity.

[2] Used as the thermal conversion factor for geothermal energy consumed for the generation of electricity.

R=Revised data. P=Preliminary data. — = Not applicable.

Source: See "Thermal Conversion Factor Source Documentation," which follows this table.

Thermal Conversion Factor Source Documentation

Approximate Heat Content of Petroleum and Natural Gas Plant Liquids

Asphalt. The Energy Information Administration (EIA) adopted the thermal conversion factor of 6.636 million British thermal units (Btu) per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956*.

Aviation Gasoline. EIA adopted the 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,* a 1968 release of historical and projected statistics.

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

Butane-Propane Mixture. EIA adopted the Bureau of Mines calculation of 4.130 million Btu per barrel based on an assumed mixture of 60 percent butane and 40 percent propane. See **Butane** and **Propane**.

Crude Oil, Exports. Assumed by EIA to be 5.800 million Btu per barrel or equal to the thermal conversion factor for crude oil produced in the United States. See **Crude Oil** and **Lease Condensate, Production**.

Crude Oil, Imports. Calculated annually by EIA by weighting the thermal conversion factor of each type of crude oil imported by the quantity imported. Thermal conversion factors for each type were calculated on a foreign country basis, by determining the average American Petroleum Institute (API) gravity of crude imported from each foreign country from Form ERA-60 in 1977 and converting average API gravity to average Btu content by using National Bureau of Standards, Miscellaneous Publication No. 97, *Thermal Properties of Petroleum Products,* 1933.

Crude Oil and Lease Condensate, Production. EIA adopted the thermal conversion factor of 5.800 million Btu per barrel as reported in a Bureau of Mines internal memorandum, "Bureau of Mines Standard Average Heating Values of Various Fuels, Adopted January 3, 1950. "

Crude Oil and Petroleum Products, Exports. Calculated annually by EIA as the average of the thermal conversion factors for each petroleum product exported and crude oil exported weighted by the quantity of each petroleum product and crude oil exported. See **Crude Oil, Exports** and **Exports Petroleum Products**.

Crude Oil and Petroleum Products, Imports. 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**.

Distillate Fuel Oil. EIA adopted the Bureau of Mines thermal conversion factor of 5.825 million Btu per barrel as reported in a Bureau of Mines internal memorandum, "Bureau of Mines Standard Average Heating Values of Various Fuels, Adopted January 3, 1950."

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

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

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

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

Kerosene. EIA adopted the Bureau of Mines thermal conversion factor of 5.670 million Btu per barrel as reported in a Bureau of Mines internal memorandum, "Bureau of Mines Standard Average Heating Values of Various Fuels, Adopted January 3, 1950."

Liquefied Petroleum Gases (LPG) Consumption. Ethane, ethylene, propane, propylene, normal butane, butylene, and isobutane produced at refineries or natural gas processing plants, including plants that fractionate new natural gas plants liquids.

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

Miscellaneous Products. EIA adopted the thermal conversion factor of 5.796 million Btu per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956*.

Motor Gasoline. EIA adopted the Bureau of Mines thermal conversion factor of 5.253 million Btu per barrel for "Gasoline, Motor Fuel" as published by the Texas Eastern Transmission Corporation in the report *Competition and Growth in American Energy Markets 1947-1985,* a 1968 release of historical and projected statistics. Conversion factors for reformulated and oxygenated motor gasolines are calculated by EIA based on data published in the Environmental Protection Agency, Office of Mobile Sources, National Vehicle and Fuel Emissions Laboratory report EPA 420-F-95-003 *Fuel Economy Impact Analysis of Reformulated Gasoline*. Both of the factors are currently 5.150 million Btu per barrel.

Natural Gas Plant Liquids, Production. Calculated annually by EIA as the average of the thermal conversion factors of each natural gas plant liquid produced, weighted by the quantity of each natural gas plant liquid produced.

Natural Gasoline. EIA adopted the thermal conversion factor of 4.620 million Btu per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956*.

Pentanes Plus. EIA assumed the thermal conversion factor to be 4.620 million Btu or equal to that for natural gasoline. See **Natural Gasoline**.

Petrochemical Feedstocks, Naphtha less than 401° F. Assumed by EIA to be 5.248 million Btu per barrel, equal to the thermal conversion factor for special naphthas. See **Special Naphthas**.

Petrochemical Feedstocks, Other Oils equal to or greater than 401° F. Assumed by EIA to be 5.825 million Btu per barrel, equal to the thermal conversion factor for distillate fuel oil. See **Distillate Fuel Oil**.

Petrochemical Feedstocks, Still Gas. Assumed by EIA to be 6.000 million Btu per barrel, equal to the thermal conversion factor for still gas. See **Still Gas**.

Petroleum Coke. EIA adopted the thermal conversion factor of 6.024 million Btu per barrel as reported in Btu per short ton in the Bureau of Mines internal memorandum, "Bureau of Mines Standard Average Heating Values of Various Fuels, Adopted January 3, 1950." The Bureau of Mines calculated this factor by dividing 30.120 million Btu per short ton, as given in the referenced Bureau of Mines internal memorandum, by 5.0 barrels per short ton, as given in the Bureau of Mines Form 6-1300-M and successor EIA forms.

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

Petroleum Products, Consumption by Electric Utilities. Calculated annually by EIA as the average of the thermal conversion factors for all petroleum products consumed at electric utilities, weighted by the quantity of each petroleum product consumed at electric utilities. The quantity of petroleum products consumed is estimated in the State Energy Data System as documented in EIA's *State Energy Data Report*.

Petroleum Products, Consumption by Industrial Users. Calculated annually by EIA as the average of the thermal conversion factors for all

petroleum products consumed in the industrial sector, weighted by the estimated quantity of each petroleum product consumed in the industrial sector. The quantity of petroleum products consumed is estimated in the State Energy Data System as documented in EIA's *State Energy Data Report*.

Petroleum Products, Consumption by Residential and Commercial Users. Calculated annually by EIA as the average of the thermal conversion factors for all petroleum products consumed by the residential and commercial sector, weighted by the estimated quantity of each petroleum product consumed in the residential and commercial sector. The quantity of petroleum products consumed is estimated in the State Energy Data System as documented in EIA's *State Energy Data Report*.

Petroleum Products, Consumption by Transportation Users. Calculated annually by EIA as the average of the thermal conversion factors for all petroleum products consumed in the transportation sector, weighted by the estimated quantity of each petroleum product consumed in the transportation sector. The quantity of petroleum products consumed is estimated in the State Energy Data System as documented in EIA's *State Energy Data Report*.

Petroleum Products, Exports. Calculated annually by EIA as the average of the thermal conversion factors for each petroleum product, weighted by the quantity of each petroleum product exported.

Petroleum Products, Imports. Calculated annually by EIA as the average of the thermal conversion factors for each petroleum product imported, weighted by the quantity of each petroleum product imported.

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

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

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

Road Oil. EIA adopted the Bureau of Mines thermal conversion factor of 6.636 million Btu per barrel, which was assumed to be equal to that of asphalt (see **Asphalt**) and was first published by the Bureau of Mines in the *Petroleum Statement, Annual, 1970*.

Special Naphthas. EIA adopted the Bureau of Mines thermal conversion factor of 5.248 million Btu per barrel, which was assumed to be equal to that of the total gasoline (aviation and motor) factor and was first published in the *Petroleum Statement, Annual, 1970*.

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

Unfinished Oils. EIA assumed the thermal conversion factor to be 5.825 million Btu per barrel or equal to that for distillate fuel (see **Distillate Fuel Oil**) and first published it in EIA's *Annual Report to Congress, Volume 3, 1977*.

Unfractionated Stream. EIA assumed the thermal conversion factor to be 5.418 million Btu per barrel or equal to that for plant condensate (see **Plant Condensate**) and first published it in EIA's *Annual Report to Congress, Volume 2, 1981*.

Waxes. EIA adopted the thermal conversion factor of 5.537 million Btu per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956*.

Approximate Heat Content of Natural Gas

Natural Gas, Total Consumption. • 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 publication. • 1980 forward: Calculated annually by EIA by dividing the total heat content of natural gas consumed by the total quantity of natural gas consumed.

Natural Gas, Consumption by Electric Utilities. Calculated annually by EIA by dividing the total heat content of natural gas received at electric

utilities by the total quantity received at electric utilities. The heat contents and receipts are from Form FERC-423 and predecessor forms.

Natural Gas, Consumption by Sectors Other Than Electric Utilities. Calculated annually by EIA by dividing the heat content of all natural gas consumed less the heat content of natural gas consumed at electric utilities by the quantity of all natural gas consumed less the quantity of natural gas consumed at electric utilities. Data are from Forms EIA-176, FERC-423, EIA-759, and predecessor forms.

Natural Gas, Exports. • 1949-1972: Assumed by EIA to be equal to the thermal conversion factor for the consumption of dry natural gas. (See Natural Gas, Total Consumption). • 1973 forward: Calculated annually by EIA by dividing the heat content of exported natural gas by the quantity of natural gas exported, both reported on Form FPC-14.

Natural Gas Imports. • 1949-1972: Assumed by EIA to be equal to the thermal conversion factor for the consumption of dry natural gas. See **Natural Gas, Total Consumption**. • 1973 forward: Calculated annually by EIA by dividing the heat content of imported natural gas by the quantity of natural gas imported, both reported on Form FPC-14.

Natural Gas, Production (Dry). Assumed by EIA to be equal to the thermal conversion factor for the consumption of dry natural gas. See **Natural Gas, Total Consumption**.

Natural Gas, Production, Marketed (Wet). Calculated annually by EIA by adding the heat content of 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.

Approximate Heat Content of Coal and Coal Coke

Coal, Total Consumption. Calculated annually by EIA by dividing the sum of the heat content of coal consumption by the total tonnage.

Coal, Consumption by Electric Utilities. Calculated annually by EIA by dividing the sum of the heat content of coal received at electric utilities by the sum of the total tonnage received.

Coal, Consumption by Other Power Producers. Calculated annually by dividing the total heat content of coal consumed by other power producers by their total consumption tonnage.

Coal, Consumption by the Electric Power Sector. Calculated annually by dividing the total heat content of coal by total consumption tonnage of the electric power sector.

Coal, Consumption by End-Use Sectors. Calculated annually by EIA by dividing the sum of the heat content of coal consumed by the end-use sectors by the sum of the total tonnage.

Coal, Exports. Calculated annually by EIA by dividing the sum of the heat content of coal exported by the sum of the total tonnage.

Coal, Imports. Calculated annually by EIA by dividing the sum of the heat content of coal imported by the sum of the total tonnage.

Coal, Production. Calculated annually by EIA by dividing the sum of the total heat content of coal produced by the sum of the total tonnage.

Coal Coke, Imports and Exports. EIA adopted the Bureau of Mines estimate of 24.800 million Btu per short ton.

Approximate Heat Rates for Electricity

Fossil-Fueled Steam-Electric Plant Generation. There is no generally accepted practice for measuring the thermal conversion rates for power plants that generate electricity from hydroelectric, wood and waste, wind, photovoltaic, or solar thermal energy sources. Therefore, EIA used data from Form EIA-767, "Steam-Electric Plant Operation and Design Report," to calculate a rate factor that is equal to the prevailing annual average heat rate factor for fossil-fueled steam-electric power plants in the United States. By using that factor, it is possible to evaluate fossil fuel requirements for replacing those sources during periods of interruption, such as droughts. The heat content of a kilowatthour of electricity produced, regardless of the generation process, is 3,412 Btu. • 1949-1955: The weighted annual average heat rate for fossil-fueled steam-electric power 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. • 1956-1988: The weighted annual average heat rate for fossil-fueled steam-electric power plants in the United States, as published in EIA, *Electric Plant Cost and Power Production Expenses 1991*, Table 9. • 1989 forward: Calculated by EIA on the basis of data from Form EIA-767, "Steam-Electric Plant Operation and Design Report."

Geothermal Energy Plant Generation. • 1960-1981: Calculated annually by EIA by weighting the annual average heat rates of operating geothermal units by the installed nameplate capacities as reported on Form FPC-12, "Power System Statement." • 1982 forward: Estimated annually by EIA on the basis of an informal survey of relevant plants.

Nuclear Steam-Electric Plant Generation. • 1957-1991: Calculated annually by dividing the total heat content consumed in nuclear generating units by the total (net) electricity generated by nuclear generating units. The heat content and electricity generation are reported on Form FERC-1, "Annual Report of Major Electric Utilities, Licensees, and Others"; Form EIA-412, "Annual Report of Public Electric Utilities"; and predecessor forms. The factors for 1982 through 1991 are published in the following EIA reports—1982: *Historical Plant Cost and Annual Production Expenses for Selected Electric Plants 1982*, page 215. 1983-1991: *Electric Plant Cost and Power Production Expenses 1991, Table 13. 1992* forward: Calculated annually by EIA by dividing the total heat content of the steam leaving the nuclear generating units to generate electricity by the total (net) electricity generated by nuclear generating units. The heat content and electricity generation data are reported in Nuclear Regulatory Commission, *Licensed Operating Reactors—Status Summary Report, Appendix B.*

Appendix B

Metric and Other Physical Conversion Factors

Data presented in the *Annual Energy Review* and in other Energy Information Administration publications are expressed predominately in units that historically have been used in the United States, such as British thermal units, barrels, cubic feet, and short tons. However, because U.S. commerce involves other nations, most of which use metric units of measure, the U.S. Government is committed to the transition to the metric system, as stated in the Metric Conversion Act of 1975 (Public Law 94-168), amended by the Omnibus Trade and Competitiveness Act of 1988 (Public Law 100-418), and Executive Order 12770 of July 25, 1991.

The metric conversion factors presented in Table B1 can be used to calculate the metric-unit equivalents of values expressed in U.S. customary units. For example, 500 short tons is the equivalent of 453.6 metric tons (500 short tons x 0.9071847 metric tons/short ton = 453.6 metric tons).

In the metric system of weights and measures, the names of multiples and subdivisions of any unit may be derived by combining the name of the unit with prefixes, such as deka, hecto, and kilo, meaning, respectively, 10, 100, 1,000, and deci, centi, and milli, meaning, respectively, one-tenth, one-hundredth, and one-thousandth. Common metric prefixes can be found in Table B2.

The conversion factors presented in Table B3 can be used to calculate equivalents in various physical units commonly used in energy analyses. For example, 10 barrels is the equivalent of 420 U.S. gallons (10 barrels x 42 gallons/barrel = 420 gallons).

Table B1. Metric Conversion Factors

U.S. Unit	*multiplied by*	Conversion Factor	*equals*	Metric Unit
Mass				
short tons (2,000 lb)	x	0.907 184 7	=	metric tons (t)
long tons	x	1.016 047	=	metric tons (t)
pounds (lb)	x	0.453 592 37[a]	=	kilograms (kg)
pounds uranium oxide (lb U_3O_8)	x	0.384 647[b]	=	kilograms uranium (kgU)
ounces, avoirdupois (avdp oz)	x	28.349 52	=	grams (g)
Length				
miles (mi)	x	1.609 344[a]	=	kilometers (km)
yards (yd)	x	0.914 4[a]	=	meters (m)
feet (ft)	x	0.304 8[a]	=	meters (m)
inches (in)	x	2.54[a]	=	centimeters (cm)
Energy				
British Thermal Units (Btu)	x	1,055.055 852 62[a,c]	=	joules (J)
calories (cal)	x	4.186 8[a]	=	joules (J)
kilowatthours (kWh)	x	3.6[a]	=	megajoules (MJ)

U.S. Unit	*multiplied by*	Conversion Factor	*equals*	Metric Unit
Volume				
barrels of oil (bbl)	x	0.158 987 3	=	cubic meters (m^3)
cubic yards (yd^3)	x	0.764 555	=	cubic meters (m^3)
cubic feet (ft^3)	x	0.028 316 85	=	cubic meters (m^3)
U.S. gallons (gal)	x	3.785 412	=	liters (L)
ounces, fluid (fl oz)	x	29.573 53	=	milliliters (mL)
cubic inches (in^3)	x	16.387 06	=	milliliters (mL)
Area				
acres	x	0.404 69	=	hectares (ha)
square miles (mi^2)	x	2.589 988	=	square kilometers (km^2)
square yards (yd^2)	x	0.836 127 4	=	square meters (m^2)
square feet (ft^2)	x	0.092 903 04[a]	=	square meters (m^2)
square inches (in^2)	x	6.451 6[a]	=	square centimeters (cm^2)
Temperature				
degrees Fahrenheit (°F)	x	5/9 (after subtracting 32)[a,d]	=	degrees Celsius (°C)

[a]Exact conversion.

[b]Calculated by the Energy Information Administration.

[c]The Btu used in this table is the International Table Btu adopted by the Fifth International Conference on Properties of Steam, London, 1956.

[d]To convert degrees Celsius (°C) to degrees Fahrenheit (°F) exactly, multiply by 9/5, then add 32.

Notes: • Spaces have been inserted after every third digit to the right of the decimal for ease of reading. • Most metric units shown belong to the International System of Units (SI), and the liter, hectare, and metric ton are accepted for use with the SI units. For more information about the SI units, contact Dr. Barry Taylor at Building 221, Room B610, National Institute of Standards and Technology, Gaithersburg, MD 20899, or on telephone number 301–975–4220.

Sources: General Services Administration, Federal Standard 376B, *Preferred Metric Units for General Use by the Federal Government* (Washington, DC, January 27, 1993), pp. 9–11, 13, and 16. National Institute of Standards and Technology, Special Publications 330, 811, and 814. American National Standards Institute/Institute of Electrical and Electronic Engineers, ANSI/IEEE Std. 268–1992, pp. 28 and 29.

Table B2. Metric Prefixes

Unit Multiple	Prefix	Symbol	Unit Multiple	Prefix	Symbol
10^{1}	deka	da	10^{-1}	deci	d
10^{2}	hecto	h	10^{-2}	centi	c
10^{3}	kilo	k	10^{-3}	milli	m
10^{6}	mega	M	10^{-6}	micro	
10^{9}	giga	G	10^{-9}	nano	n
10^{12}	tera	T	10^{-12}	pico	p
10^{15}	peta	P	10^{-15}	femto	f
10^{18}	exa	E	10^{-18}	atto	a
10^{21}	zetta	Z	10^{-21}	zepto	z
10^{24}	yotta	Y	10^{-24}	yocto	y

Source: U.S. Department of Commerce, National Institute of Standards and Technology, *The International System of Units* (*SI*), NIST Special Publication 330, 1991 Edition (Washington, DC, August 1991), p. 10.

Table B3. Other Physical Conversion Factors

Energy Source	Original Unit	*multiplied by*	Conversion Factor	*equals*	Final Unit
Petroleum	barrels (bbl)	x	42[a]	=	U.S. gallons (gal)
Coal	short tons	x	2,000[a]	=	pounds (lb)
	long tons	x	2,240[a]	=	pounds (lb)
	metric tons (t)	x	1,000[a]	=	kilograms (kg)
Wood	cords (cd)	x	1.25[b]	=	short tons
	cords (cd)	x	128[a]	=	cubic feet (ft^3)

[a]Exact conversion.
[b]Calculated by the Energy Information Administration.
Source: U.S. Department of Commerce, National Institute of Standards and Technology, *Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices*, NIST Handbook 44, 1994 Edition (Washington, DC, October 1993), pp. B-10, C-17, and C-21.

Appendix C

Carbon Dioxide Emission Factors for Coal

Table C1 presents U.S. average carbon dioxide emission factors for coal by sector. The factors measure the emissions produced during the combustion of coal and were derived by the Energy Information Administration (EIA) from 5,426 sample analyses in EIA's Coal Analysis File. The factors are ratios of the carbon dioxide emitted to the heat content of the coal burned, assuming complete combustion. Factors vary according to the rank and geographic origin of the coal. Sectoral factors reflect the rank and origin of the coal consumed in the sector.

Table C1. Average Carbon Dioxide Emission Factors for Coal by Sector, 1980-1999
(Pounds of Carbon Dioxide per Million Btu)

Year	Residential and Commercial	Industrial		Electric Utilities	U.S. Average[b]
		Coke Plants[a]	Other Coal		
1980	210.6	205.8	205.9	206.7	206.5
1981	212.0	205.8	205.9	206.9	206.7
1982	210.4	205.7	206.0	207.0	206.9
1983	209.2	205.5	205.9	207.1	207.0
1984	209.5	205.6	206.2	207.1	207.0
1985	209.3	205.6	206.4	207.3	207.1
1986	209.2	205.4	206.5	207.3	207.1
1987	209.4	205.2	206.4	207.3	207.2
1988	209.1	205.3	206.4	207.6	207.3
1989	209.7	205.3	206.6	207.5	207.3
1990	209.5	206.2	206.8	207.6	207.4
1991	210.2	206.2	206.9	207.7	207.5
1992	211.2	206.2	207.1	207.7	207.6
1993	209.9	206.2	207.0	207.8	207.7
1994	209.8	206.3	207.2	207.9	207.8
1995	210.2	206.4	207.2	208.1	207.9
1996	209.5	206.5	207.0	208.1	208.0
1997	210.2	206.6	207.2	208.2	208.0
1998	209.7	206.7	206.9	204.4	206.9
1999	208.8	206.7	207.0	204.6	204.8

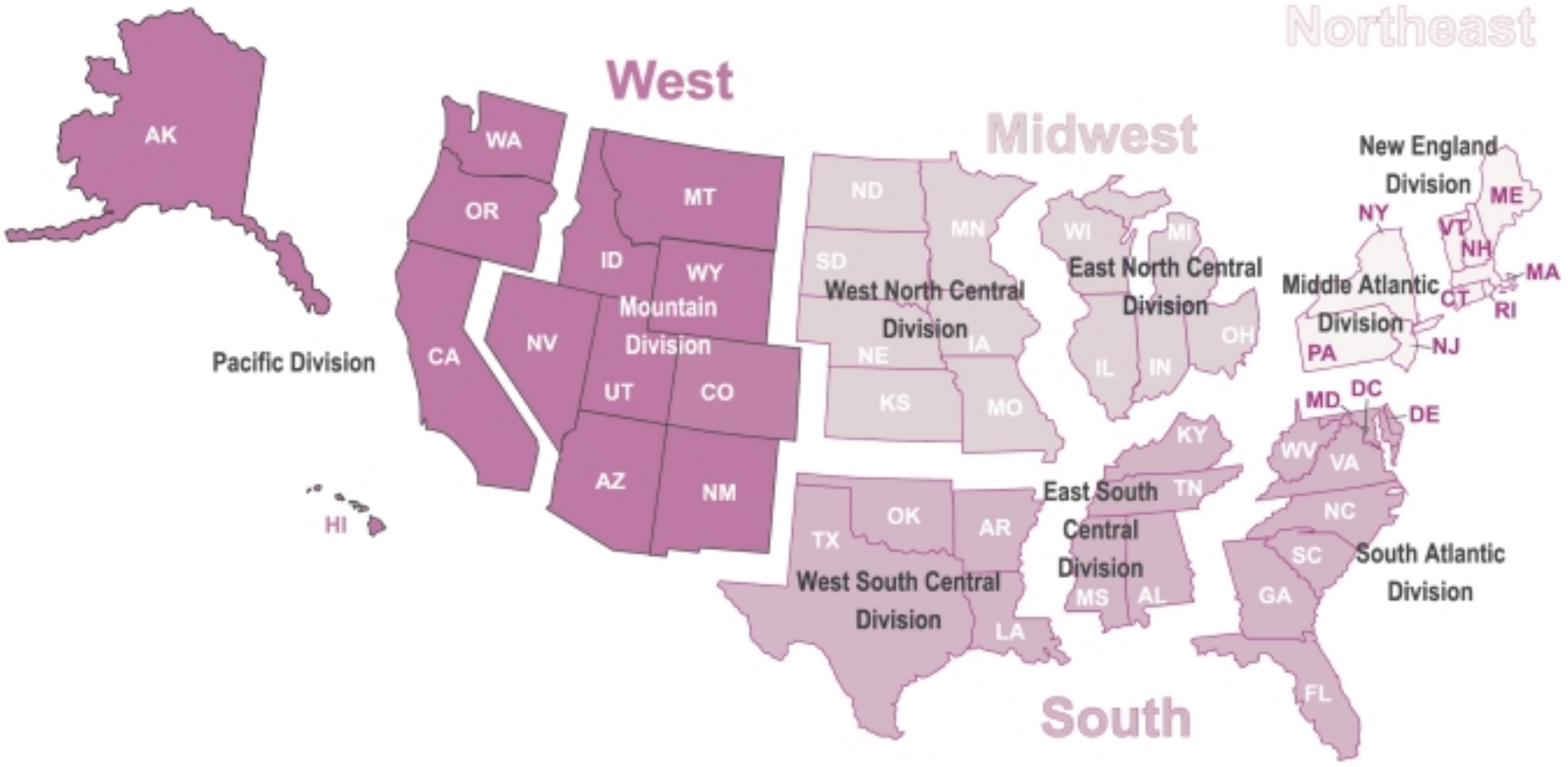
[a]No allowances have been made for carbon retained in non-energy coal chemical byproducts from the carbonization process.

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

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

Appendix D

U.S. Census Regions and Divisions



Note: Map not to scale.
Source: Adapted from U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States, 2000* (Washington, DC, December 2000), Figure 1.

Appendix E

Table E1. Population and U.S. Gross Domestic Product, 1949-2000

Year	Population		U.S. Gross Domestic Product		
	United States [1]	World	Billion Nominal Dollars	Billion Chained (1996) Dollars	Implicit Price Deflator [2] (1996 = 1.0000)
	Million People				
1949	148.7	NA	267.7	1,550.9	0.1726
1950	151.3	R2,555.1	294.3	1,686.6	0.1745
1951	154.0	R2,592.9	339.5	1,815.1	0.1871
1952	156.4	R2,634.9	358.6	1,887.3	0.1900
1953	159.0	R2,680.3	379.9	1,973.9	0.1925
1954	161.9	R2,728.2	381.1	1,960.5	0.1944
1955	165.1	R2,779.7	415.2	2,099.5	0.1978
1956	168.1	R2,832.6	438.0	2,141.1	0.2045
1957	171.2	R2,888.4	461.5	2,183.9	0.2113
1958	174.1	R2,944.9	467.9	2,162.8	0.2164
1959	177.1	R2,997.3	507.4	2,319.0	0.2188
1960	179.3	R3,039.3	527.4	2,376.7	0.2219
1961	183.0	3,080.1	545.7	2,432.0	0.2244
1962	185.7	R3,136.2	586.5	2,578.9	0.2274
1963	188.4	R3,205.7	618.7	2,690.4	0.2300
1964	191.1	R3,276.8	664.4	2,846.5	0.2334
1965	193.5	R3,345.8	720.1	3,028.5	0.2378
1966	195.5	R3,416.1	789.3	3,227.5	0.2446
1967	197.4	R3,485.8	834.1	3,308.3	0.2521
1968	199.3	R3,557.7	911.5	3,466.1	0.2630
1969	201.3	R3,632.3	985.3	3,571.4	0.2759
1970	203.3	R3,707.6	1,039.7	3,578.0	0.2906
1971	206.8	R3,785.2	1,128.6	3,697.7	0.3052
1972	209.3	R3,862.2	1,240.4	3,898.4	0.3182
1973	211.4	R3,938.7	1,385.5	4,123.4	0.3360
1974	213.3	R4,014.6	1,501.0	4,099.0	0.3662
1975	215.5	R4,088.2	1,635.2	4,084.4	0.4003
1976	217.6	R4,160.4	1,823.9	4,311.7	0.4230
1977	219.8	R4,232.9	2,031.4	4,511.8	0.4502
1978	222.1	R4,305.4	2,295.9	4,760.6	0.4823
1979	224.6	R4,380.8	2,566.4	4,912.1	0.5225
1980	226.5	R4,456.7	2,795.6	4,900.9	0.5704
1981	229.5	R4,533.0	3,131.3	5,021.0	0.6237
1982	231.7	R4,613.4	3,259.2	4,919.3	0.6625
1983	233.8	R4,693.9	3,534.9	5,132.3	0.6888
1984	235.8	R4,773.6	3,932.7	5,505.2	0.7144
1985	237.9	R4,854.6	4,213.0	5,717.1	0.7369
1986	240.1	R4,937.6	4,452.9	5,912.4	0.7531
1987	242.3	R5,023.6	4,742.5	6,113.3	0.7758
1988	244.5	R5,110.2	5,108.3	6,368.4	0.8021
1989	246.8	R5,196.3	5,489.1	6,591.8	0.8327
1990	R248.7	R5,283.8	5,803.2	6,707.9	0.8651
1991	252.2	R5,366.9	5,986.2	6,676.4	0.8966
1992	255.0	R5,449.7	6,318.9	6,880.0	0.9184
1993	257.8	R5,531.0	6,642.3	7,062.6	0.9405
1994	260.3	R5,611.0	7,054.3	7,347.7	0.9601
1995	262.8	R5,690.9	7,400.5	7,543.8	0.9810
1996	265.2	R5,768.6	7,813.2	7,813.2	1.0000
1997	267.8	R5,846.8	8,318.4	R8,159.5	R1.0195
1998	270.2	R5,924.6	8,790.2	R8,515.7	R1.0322
1999	272.7	R6,002.5	9,299.2	R8,875.8	R1.0477
2000	281.4	6,080.1	9,963.1	9,318.5	1.0692

[1] Resident population of the 50 States and the District of Columbia estimated for July 1 of each year, except for the April 1 decennial census counts.
[2] See Glossary.
R=Revised. NA=Not available.

Note: See "Chained Dollars" in the Glossary.
Web Pages: • http://www.bea.doc.gov/. • http://www.census.gov/.
Sources: See next page.

Sources: U.S. Population: • 1949-1989–Department of Commerce (DOC), U.S. Bureau of the Census, Current Population Reports Series P-25, November 1998. • 1990 forward–DOC, U.S. Bureau of the Census, State Population Estimates. **World Population:** • 1950 forward–DOC, U.S. Bureau of the Census, International Database. **U.S. Gross Domestic Product:** • 1949 forward–DOC, Bureau of Economic Analysis, National Income and Product Accounts.

Appendix F

Table F1a. Energy Consumption in the United States, Selected Years, 1635-1945

(Quadrillion Btu)

Year	Coal	Natural Gas	Petroleum	Nuclear Electric Power	Hydroelectric Power	Wood
1635	NA	—	—	—	—	(s)
1645	NA	—	—	—	—	0.001
1655	NA	—	—	—	—	0.002
1665	NA	—	—	—	—	0.005
1675	NA	—	—	—	—	0.007
1685	NA	—	—	—	—	0.009
1695	NA	—	—	—	—	0.014
1705	NA	—	—	—	—	0.022
1715	NA	—	—	—	—	0.037
1725	NA	—	—	—	—	0.056
1735	NA	—	—	—	—	0.080
1745	NA	—	—	—	—	0.112
1755	NA	—	—	—	—	0.155
1765	NA	—	—	—	—	0.200
1775	NA	—	—	—	—	0.249
1785	NA	—	—	—	—	0.310
1795	NA	—	—	—	—	0.402
1805	NA	—	—	—	—	0.537
1815	NA	—	—	—	—	0.714
1825	NA	—	—	—	—	0.960
1835	NA	—	—	—	—	1.305
1845	NA	—	—	—	—	1.757
1850	0.219	—	—	—	—	2.138
1855	0.421	—	—	—	—	2.389
1860	0.518	—	0.003	—	—	2.641
1865	0.632	—	0.010	—	—	2.767
1870	1.048	—	0.011	—	—	2.893
1875	1.440	—	0.011	—	—	2.872
1880	2.054	—	0.096	—	—	2.851
1885	2.840	0.082	0.040	—	—	2.683
1890	4.062	0.257	0.156	—	0.022	2.515
1895	4.950	0.147	0.168	—	0.090	2.306
1900	6.841	0.252	0.229	—	0.250	2.015
1905	10.001	0.372	0.610	—	0.386	1.843
1910	12.714	0.540	1.007	—	0.539	1.765
1915	13.294	0.673	1.418	—	0.691	1.688
1920	15.504	0.813	2.676	—	0.775	1.610
1925	14.706	1.191	4.280	—	0.701	1.533
1930	13.639	1.932	5.897	—	0.785	1.455
1935	10.634	1.919	5.675	—	0.831	1.397
1940	12.535	2.665	7.760	—	0.917	1.358
1945	15.972	3.871	10.110	—	1.486	1.261

NA=Not available. — = Not applicable. (s)=Less than 0.0005 quadrillion Btu.

Notes: • No data are available for years not shown. • See end of section for discussion of geographic coverage of data.

Sources: **Coal, Natural Gas, Petroleum, and Hydroelectric Power:** • 1850-1945: *Energy in the American Economy, 1850-1975,* Table VII. **Wood:** • 1635-1845: U.S. Department of Agriculture Circular No. 641, *Fuel Wood Used in the United States 1630-1930,* February 1942. This source estimates fuelwood consumption in cords per decade, which were converted to Btu using the conversion factor of 20 million Btu per cord. The annual average value for each decade was assigned to the fifth year of the decade on the assumption that annual use was likely to increase during any given decade and the average annual value was more likely to reflect mid-decade yearly consumption than use at either the beginning or end of the decade. Values thus begin at 1635 and are plotted at 10-year intervals. • 1850-1945: *Energy in the American Economy, 1850-1975,* Table VII (see Bibliography). Values are plotted at 5-year intervals. There is a discontinuity in the wood plot between 1945 and 1949 due to changes in definitions. Data through 1945 are for fuelwood only, while thereafter include wood-derived fuel and wood byproducts burned as fuel.

Table F1b. Energy Consumption in the United States, 1949-2000

(Quadrillion Btu)

Year	Coal	Natural Gas [1]	Petroleum [2]	Nuclear Electric Power	Hydroelectric Power [3]	Wood
1949	11.981	5.145	11.883	0	1.449	1.549
1950	12.347	5.968	13.315	0	1.440	1.562
1951	12.553	7.049	14.428	0	1.454	1.535
1952	11.306	7.550	14.956	0	1.496	1.474
1953	11.373	7.907	15.556	0	1.439	1.419
1954	9.715	8.330	15.839	0	1.388	1.394
1955	11.167	8.998	17.255	0	1.407	1.424
1956	11.350	9.614	17.937	0	1.487	1.416
1957	10.821	10.191	17.932	(s)	1.557	1.334
1958	9.533	10.663	18.527	0.002	1.629	1.323
1959	9.518	11.717	19.323	0.002	1.587	1.353
1960	9.838	12.385	19.919	0.006	1.657	1.320
1961	9.623	12.926	20.216	0.020	1.680	1.295
1962	9.906	13.731	21.049	0.026	1.822	1.300
1963	10.413	14.403	21.701	0.038	1.772	1.323
1964	10.964	15.288	22.301	0.040	1.907	1.337
1965	11.581	15.769	23.246	0.043	2.058	1.335
1966	12.143	16.995	24.401	0.064	2.073	1.369
1967	11.914	17.945	25.284	0.088	2.344	1.340
1968	12.331	19.210	26.979	0.142	2.342	1.419
1969	12.382	20.678	28.338	0.154	2.659	1.440
1970	12.265	21.795	29.521	0.239	2.654	1.429
1971	11.598	22.469	30.561	0.413	2.861	1.430
1972	12.077	22.698	32.947	0.584	2.944	1.501
1973	12.971	22.512	34.840	0.910	3.010	1.527
1974	12.663	21.732	33.455	1.272	3.309	1.538
1975	12.663	19.948	32.731	1.900	3.219	1.497
1976	13.584	20.345	35.175	2.111	3.066	1.711
1977	13.922	19.931	37.122	2.702	2.515	1.837
1978	13.766	20.000	37.965	3.024	3.141	2.036
1979	15.040	20.666	37.123	2.776	3.141	2.150
1980	15.423	20.394	34.202	2.739	3.118	2.483
1981	15.908	19.928	31.931	3.008	3.105	2.495
1982	15.322	18.505	30.232	3.131	3.572	2.477
1983	15.894	17.357	30.054	3.203	3.899	2.639
1984	17.071	18.507	31.051	3.553	3.800	2.629
1985	17.478	17.834	30.922	4.149	3.398	2.576
1986	17.260	16.708	32.196	4.471	3.446	2.518
1987	18.008	17.744	32.865	4.906	3.117	2.465
1988	18.846	18.552	34.222	5.661	2.662	2.552
1989	R19.043	19.384	34.211	5.677	R3.014	2.635
1990	R19.253	19.296	33.553	6.162	R3.110	2.188
1991	R18.998	19.606	32.845	6.580	R3.112	2.188
1992	R19.152	20.131	33.527	6.608	R2.775	2.288
1993	R19.763	20.827	33.841	6.520	R3.077	2.226
1994	R19.933	21.288	34.670	6.838	R2.958	2.314
1995	R20.025	22.163	34.553	7.177	R3.453	2.418
1996	R20.957	22.559	35.757	7.168	R3.860	2.465
1997	R21.464	22.530	36.266	6.678	R3.919	2.348
1998	R21.667	21.921	36.934	7.157	R3.523	R2.326
1999	R21.693	R22.289	R37.960	R7.736	R3.447	R2.565
2000P	22.407	23.325	37.964	8.009	3.050	2.596

[1] Includes supplemental gaseous fuels.
[2] Petroleum products supplied, including natural gas plant liquids and crude oil burned as fuel.
[3] Conventional hydroelectric power and hydroelectric pumped storage (pumped storage facility production minus energy used for pumping). Through 1988, includes all electricity net imports. From 1989, includes only electricity net imports derived from hydroelectric power.

P=Preliminary. R=Revised data. (s)=Less than 0.0005 quadrillion Btu.

Sources: **Wood:** Table 10.1. **All Other Data:** Table 1.3.

Geographic Coverage Note

Tables F1a and F1b present estimates of U.S. energy consumption by energy source for a period that begins a century and a half before the original 13 colonies formed a political union and continues through the decades during which the United States was still expanding territorially. The question thus arises, what exactly is meant by "U.S. consumption" of an energy source for those years when the United States did not formally exist or consisted of less territory than is now encompassed by the 50 States and the District of Columbia?

The documents used to assemble the estimates, and (as far as possible) the sources of those documents, were reviewed carefully for clues to geographic coverage. For most energy sources, the extent of coverage expanded more rapidly than the Nation, defined as all the official States and the District of Columbia. Estimates or measurements of consumption of each energy source generally appear to follow settlement patterns. That is, they were made for areas of the continent that were settled enough to have economically significant consumption even though those areas were not to become States for years. The wood data series, for example, begins in 1635 and includes 12 of the original colonies (excepting Georgia), as well as Maine, Vermont, and the area that would become the District of Columbia. By the time the series reaches 1810, the rest of the continental States are all included, though the last of the lower-48 States to achieve statehood did not do so until 1912. Likewise, the coal data series begins in 1850 but includes consumption in areas, such as Utah and Washington (State), which were significant coal-producing regions but had not yet attained statehood. (Note: No data were available on State-level historical coal consumption. The coal data shown in Table F1a through 1945 describe *apparent* consumption, i.e., production plus imports minus exports. The geographic coverage for coal was therefore based on a tally of coal-*producing* States listed in various historical issues of *Minerals Yearbook*. It is likely that coal was consumed in States where it was not mined in significant quantities.)

By energy source, the extent of coverage can be summarized as follows: • **Wood**—All 48 contiguous States and the District of Columbia by 1810; Alaska and Hawaii beginning in 1949. • **Coal**—35 coal-producing States by 1885. • **Petroleum and natural gas**—All 48 contiguous States, the District of Columbia, and Alaska by 1885; Hawaii beginning in 1949. • **Hydroelectric power**—Coverage for 1890 and 1895 is uncertain, but probably the 48 contiguous States and the District of Columbia. Coverage for 1900 through 1945 is the 48 contiguous States, and the District of Columbia; Alaska and Hawaii beginning in 1949. • **Nuclear electric power**—Coverage is all 50 States and the District of Columbia throughout.

Glossary

Account of Others (Natural Gas): Natural gas deliveries for the account of others. The transporters that make such deliveries do not own the gas but deliver it for others for a fee. Included are quantities covered by long-term contracts and quantities involved in short-term or spot market sales.

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_3-$(CH_2)_n$-OH (e.g., methanol, ethanol, and tertiary butyl alcohol).

Alternative-fuel Vehicle (AFV): A vehicle designed to operate on alternative fuel (fuel other than gasoline or diesel) either in dedicated or nondedicated mode. A dedicated AFV is designed to operate exclusively on alternative fuel. A nondedicated AFV can operate on alternative fuel and/or a traditional fuel.

Anthracite: The highest rank of coal; used primarily for residential and commercial space heating. It is a hard, brittle, and black lustrous coal, often referred to as hard coal, containing a high percentage of fixed carbon and a low percentage of volatile matter. The moisture content of fresh-mined anthracite generally is less than 15 percent. The heat content of anthracite ranges from 22 to 28 million Btu per short ton on a moist, mineral-matter-free basis. The heat content of anthracite coal consumed in the United States averages 25 million Btu per short ton, on the as-received basis (i.e., containing both inherent moisture and mineral matter). *Note*: Since the 1980's, anthracite refuse or mine waste has been used for steam-electric power generation. This fuel typically has a heat content of 15 million Btu per short ton or less.

Anthracite Culm: Waste from Pennsylvania anthracite preparation plants, consisting of coarse rock fragments containing as much as 30 percent small-sized coal; sometimes defined as including very fine coal particles called silt. Its heat value ranges from 8 to 17 million Btu per short ton.

Anthropogenic: Made or generated by a human or caused by human activity. The term is used in the context of global climate change to refer to gaseous emissions that are produced as the result of human activities.

API: The American Petroleum Institute, a trade association.

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 lighter, less dense product has a higher API gravity.

Asphalt: A dark-brown to black cement-like material obtained by petroleum processing and containing bitumens as the predominant component; used primarily for road construction. It 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. *Note*: The conversion factor for asphalt is 5.5 barrels per short ton.

ASTM: The American Society for Testing and Materials, a trade association.

Aviation Gasoline Blending Components: Naphthas that are used for blending or compounding gasoline into finished aviation gasoline (e.g., straight-run gasoline, alkylate, and reformate). Excluded are oxygenates (alcohols, ethers), butane, and pentanes plus.

Aviation Gasoline, Finished: A complex mixture of relatively volatile hydrocarbons with or without small quantities of additives, blended to form a fuel suitable for use in aviation reciprocating engines. Fuel specifications are provided in ASTM Specification D910 and Military Specification MIL-G-5572. *Note*: Data on blending components are not counted in data on finished aviation gasoline. See **Jet Fuel, Finished; Jet Fuel, Kerosene-Type;** and **Jet Fuel, Naphtha-Type.**

Barrel (Petroleum): A unit of volume equal to 42 U.S. gallons.

Barrels per Calendar Day: The amount of input that a distillation facility can process under usual operating conditions. The amount is expressed in terms of capacity during a 24-hour period and reduces the maximum processing capability of all units at the facility under continuous operation to account for the following limitations that may delay, interrupt, or slow down production: 1) the capability of downstream processing units to

absorb the output of crude oil processing facilities of a given refinery (no reduction is necessary for intermediate streams that are distributed to other than downstream facilities as part of a refinery's normal operation); 2) the types and grades of inputs to be processed; 3) the types and grades of products expected to be manufactured; 4) the environmental constraints associated with refinery operations; 5) the reduction of capacity for scheduled downtime due to such conditions as routine inspection, maintenance, repairs, and turnaround; and 6) the reduction of capacity for unscheduled downtime due to such conditions as mechanical problems, repairs, and slowdowns.

Base (C) Gas: The volume of gas needed as a permanent inventory to maintain adequate underground storage reservoir pressures and deliverability rates throughout the withdrawal season. All native gas is included in the base gas volume.

Biomass: Nonfossil material of biological origin constituting a renewable energy source.

Bituminous Coal: A dense coal, usually black, sometimes dark brown, often with well-defined bands of bright and dull material, used primarily as fuel in steam-electric power generation, with substantial quantities also used for heat and power applications in manufacturing and making coke. Bituminous coal is the most abundant coal in active U.S. mining regions. Its moisture content usually is less than 20 percent. The heat content of bituminous coal ranges from 21 to 30 million Btu per short ton on a moist, mineral-matter-free basis. The heat content of bituminous coal consumed in the United States averages 24 million Btu per short ton, on the as-received basis (i.e., containing both inherent moisture and mineral matter).

British Thermal Unit (Btu): The quantity of heat needed to raise the temperature of 1 pound of water by 1degree Fahrenheit at or near 39.2 degrees Fahrenheit. (See **Heat Content of a Quantity of Fuel**, **Gross,** and **Heat Content of a Quantity of Fuel, Net.**)

Bunker Fuel: Fuel supplied to ships and aircraft, both domestic and foreign, consisting primarily of residual and distillate fuel oil for ships and kerosene-based jet fuel for aircraft. The term "international bunker fuels" is used to denote the consumption of fuel for international transport activities. *Note*: For the purposes of greenhouse gas emissions inventories, emissions from combustion of international bunker fuels are subtracted from national emissions totals.

Butane: A normally gaseous straight-chain or branched-chain hydrocarbon (C_4H_{10}). It is extracted from natural gas or refinery gas streams. It includes isobutane and normal butane and is designated in ASTM Specification D1835 and Gas Processors Association Specifications for commercial butane. *Isobutane:* A normally gaseous branched-chain hydrocarbon. It is a colorless paraffinic gas that boils at a temperature of 10.9 degrees Fahrenheit. It is extracted from natural gas or refinery gas streams. *Normal Butane:* A normally gaseous straight-chain hydrocarbon. It is a colorless paraffinic gas that boils at a temperature of 31.1 degrees Fahrenheit. It is extracted from natural gas or refinery gas streams.

Butylene: An olefinic hydrocarbon (C_4H_8) recovered from refinery processes.

Capability: The maximum output, commonly expressed in megawatts (MW), which electricity generating equipment can produce, as demonstrated by a multi-hour test for a given period of time.

Capacity Factor: The ratio of the electrical energy produced by a generating unit for a given period of time to the electrical energy that could have been produced at continuous full-power operation during the same period.

Carbon Dioxide: A colorless, odorless, non-poisonous gas that is a normal part of the Earth's atmosphere. Carbon dioxide is a product of fossil-fuel combustion as well as other processes. It is considered a greenhouse gas as it traps the earth's heat and contributes to the potential for global warming. Other greenhouse gases are measured in relation to the global warming potential (GWP) of carbon dioxide, which, by international scientific convention, is assigned the value of 1. See **Global Warming Potential (GWP).**

Carbon Dioxide Equivalent: The amount of carbon dioxide by weight emitted into the atmosphere that would produce the same estimated radiative forcing as a given weight of another radiatively active gas. Carbon dioxide equivalents are computed by multiplying the weight of the gas being measured (for example, methane) by its estimated global warming potential (which is 21 for methane). "Carbon equivalent units" are defined as

carbon dioxide equivalents multiplied by the carbon content of carbon dioxide (i.e., 12/44).

Chained Dollars: A measure used to express real prices. Real prices are those that have been adjusted to remove the effect of changes in the purchasing power of the dollar; they usually reflect buying power relative to a reference year. Prior to 1996, real prices were expressed in constant dollars, a measure based on the weights of goods and services in a single year, usually a recent year. In 1996, the U.S. Department of Commerce introduced the chained-dollar measure. The new measure is based on the average weights of goods and services in successive pairs of years. It is "chained" because the second year in each pair, with its weights, becomes the first year of the next pair. The advantage of using the chained-dollar measure is that it is more closely related to any given period covered and is therefore subject to less distortion over time.

Chlorofluorocarbons (CFCs): A family of inert, non-toxic, easily liquefied chemicals used in refrigeration, air conditioning, packaging, and insulation, or as solvents or aerosol propellants.

CIF: See **Cost, Insurance, Freight.**

City Gate: A point or measuring station at which a distribution gas utility receives gas from a natural gas pipeline company or transmission system.

Climate Change: A term used to refer to all forms of climatic inconsistency, but especially to significant change from one prevailing climatic condition to another. In some cases, "climate change" has been used synonymously with the term "global warming"; scientists, however, tend to use the term in a wider sense to include natural changes in climate as well as climatic cooling.

Coal: A readily combustible black or brownish-black rock whose composition, including inherent moisture, consists of more than 50 percent by weight and more than 70 percent by volume of carbonaceous material. It is formed from plant remains that have been compacted, hardened, chemically altered, and metamorphosed by heat and pressure over geologic time. See **Coal Rank.**

Coal Coke: See **Coke, Coal.**

Coal Rank: The classification of coals according to their degree of progressive alteration from lignite to anthracite. In the United States, the standard ranks of coal include lignite, subbituminous coal, bituminous coal, and anthracite and are based on fixed carbon, volatile matter, heating value, and agglomerating (or caking) properties. See **Anthracite, Bituminous Coal, Lignite,** and **Subbituminous Coal.**

Coal Stocks: Coal quantities that are held in storage for future use and disposition. *Note*: When coal data are collected for a particular reporting period (month, quarter, or year), coal stocks are commonly measured as of the last day of this period.

Cogenerator: A generating facility that produces electricity and another form of useful energy (such as heat or steam) used for industrial, commercial, heating, or cooling purposes. See **Electric Utility** and **Nonutility Power Producer.**

Coke, Coal: A solid carbonaceous residue derived from low-ash, low-sulfur bituminous coal from which the volatile constituents are driven off by baking in an oven at temperatures as high as 2,000 degrees Fahrenheit so that the fixed carbon and residual ash are fused together. Coke is used as a fuel and as a reducing agent in smelting iron ore in a blast furnace. Coke from coal is gray, hard, and porous and has a heating value of 24.8 million Btu per short ton.

Coke, Petroleum: A residue high in carbon content and low in hydrogen that is the final product of thermal decomposition in the condensation process in cracking. This product is reported as marketable coke or catalyst coke. The conversion is 5 barrels (of 42 U.S. gallons each) per short ton. Coke from petroleum has a heating value of 6.024 million Btu per barrel.

Commercial Building: A building with more than 50 percent of its floorspace used for commercial activities. Commercial buildings include, but are not limited to, stores, offices, schools, churches, gymnasiums, libraries, museums, hospitals, clinics, warehouses, and jails. Government buildings are included, except buildings on military bases or reservations.

Commercial Sector: Business establishments that are not engaged in transportation or in manufacturing or other types of industrial activity (agriculture, mining, or construction). Commercial establishments include hotels, motels, restaurants, wholesale businesses, retail stores, laundries, and other service enterprises; religious and nonprofit organizations; health,

social, and educational institutions; and Federal, State, and local governments. Street lights, pumps, bridges, and public services are also included if the establishment operating them is considered commercial.

Completion: The installation of permanent equipment for the production of oil or gas. If a well is equipped to produce only oil or gas from one zone or reservoir, the definition of a well (classified as an oil well or gas well) and the definition of a completion are identical. However, if a well is equipped to produce oil and/or gas separately from more than one reservoir, a well is not synonymous with a completion.

Conversion Factor: A number that translates units of one system into corresponding values of another system. Conversion factors can be used to translate physical units of measure for various fuels into Btu equivalents. See **British Thermal Unit.**

Cooling Tower: A common type of environmental equipment installed at power plants used to transfer heat, produced by burning fuel, to the atmosphere. Cooling towers are installed where there is insufficient cooling water available or where waste heat discharged into cooling water would affect marine life.

Cost, Insurance, Freight (CIF): A sales transaction in which the seller pays for the transportation and insurance of the goods to the port of destination specified by the buyer.

Criteria Pollutant: A pollutant determined to be hazardous to human health and regulated under the Environmental Protection Agency's (EPA) National Ambient Air Quality Standards. The 1970 amendments to the Clean Air Act require EPA to describe the health and welfare impacts of a pollutant as the "criteria" for inclusion in the regulatory regime.

Crude Oil: A mixture of hydrocarbons that exists in liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. Depending upon the characteristics of the crude stream, it may also include: 1) small amounts of hydrocarbons that exist in gaseous phase in natural underground reservoirs but are liquid at atmospheric pressure after being recovered from oil well (casinghead) gas in lease separators and are subsequently commingled with the crude stream without being separately measured. Lease condensate recovered as a liquid from natural gas wells in lease or field separation facilities and later mixed into the crude stream is also included; 2) small amounts of nonhydrocarbons produced with the oil, such as sulfur and various metals; and 3) drip gases, and liquid hydrocarbons produced from tar sands, gilsonite, and oil shale.

Liquids produced at natural gas processing plants are excluded. Crude oil is refined to produce a wide array of petroleum products, including heating oils; gasoline, diesel and jet fuels; lubricants; asphalt; ethane, propane, and butane; and many other products used for their energy or chemical content.

Crude Oil Landed Cost: The dollar-per-barrel price of crude oil at the port of discharge. Included are the charges associated with the purchase, transporting, and insuring of a cargo from the purchase point to the port of discharge. Not included are charges incurred at the discharge port (e.g., import tariffs or fees, wharfage charges, and demurrage charges).

Crude Oil Refinery Input: The total crude oil put into processing units at refineries.

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

Crude Oil Used Directly: Crude oil consumed as fuel by crude oil pipelines and on crude oil leases.

Cubic Foot (Natural Gas): A unit of volume equal to 1 cubic foot at a pressure base of 14.73 pounds standard per square inch absolute and a temperature base of 60 degrees Fahrenheit.

Culm: See **Anthracite Culm**.

Degree-Days, Cooling (CDD): A measure of how warm a location is over a period of time relative to a base temperature, most commonly specified as 65 degrees Fahrenheit. The measure is computed for each day by subtracting the base temperature (65 degrees) from the average of the day's high and low temperatures, with negative values set equal to zero. Each day's cooling degree-days are summed to create a cooling degree-day measure for a specified reference period. Cooling degree-days are used in energy analysis as an indicator of air conditioning energy requirements or use.

Degree-Days, Heating (HDD): A measure of how cold a location is over a period of time relative to a base temperature, most commonly specified

as 65 degrees Fahrenheit. The measure is computed for each day by subtracting the average of the day's high and low temperatures from the base temperature (65 degrees), with negative values set equal to zero. Each day's heating degree-days are summed to create a heating degree-day measure for a specified reference period. Heating degree-days are used in energy analysis as an indicator of space heating energy requirements or use.

Degree-Days, Population-Weighted: Heating or cooling degree-days weighted by the population of the area in which the degree-days are recorded. To compute State population-weighted degree-days, each State is divided into from one to nine climatically homogeneous divisions, which are assigned weights based on the ratio of the population of the division to the total population of the State. Degree-day readings for each division are multiplied by the corresponding population weight for each division and those products are then summed to arrive at the State population-weighted degree-day figure. To compute national population-weighted degree-days, the Nation is divided into nine Census regions, each comprising from three to eight States, which are assigned weights based on the ratio of the population of the region to the total population of the Nation. Degree-day readings for each region are multiplied by the corresponding population weight for each region and those products are then summed to arrive at the national population-weighted degree-day figure.

Demand-Side Management: The planning, implementation, and monitoring of utility activities designed to encourage consumers to modify patterns of electricity usage, including the timing and level of electricity demand.

Demonstrated Reserve Base (Coal): A collective term for the sum of coal in both measured and indicated resource categories of reliability, representing 100 percent of the in-place coal in those categories as of a certain date. Includes beds of bituminous coal and anthracite 28 or more inches thick and beds of subbituminous coal 60 or more inches thick that can occur at depths of as much as 1,000 feet. Includes beds of lignite 60 or more inches thick that can be surface mined. Includes also thinner and/or deeper beds that currently are being mined or for which there is evidence that they could be mined commercially at a given time. Represents that portion of the identified coal resource from which reserves are calculated.

Design Electrical Rating, Net: The nominal net electrical output of a nuclear unit as specified by the electric utility for the purpose of plant design.

Development Well: A well drilled within the proved area of an oil or gas reservoir to the depth of a stratigraphic horizon known to be productive.

Distillate Fuel Oil: A general classification for one of the petroleum fractions produced in conventional distillation operations. It includes diesel fuels and fuel oils. Products known as No. 1, No. 2, and No. 4 diesel fuel are used in on-highway diesel engines, such as those found in cars and trucks, as well as off-highway engines, such as those in railroad locomotives and agricultural machinery. Products known as No. 1, No. 2, and No. 4 fuel oils are used primarily for space heating and electric power generation.

Distillation Unit (Atmospheric): The primary distillation unit that processes crude oil (including mixtures of other hydrocarbons) at approximately atmospheric conditions. It includes a pipe still for vaporizing the crude oil and a fractionation tower for separating the vaporized hydrocarbon components in the crude oil into fractions with different boiling ranges. This is done by continuously vaporizing and condensing the components to separate higher boiling point material. The selected boiling ranges are set by the processing scheme, the properties of the crude oil, and the product specifications.

District Heat: Steam or hot water from an outside source used as an energy source in a building. The steam or hot water is produced in a central plant and is piped into the building. District heat may be purchased from a utility or provided by a physical plant in a separate building that is part of the same facility (for example, a hospital complex or university).

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

Dry Natural Gas Production: See **Natural Gas (Dry) Production.**

Dual Fired Unit: A generating unit that can produce electricity using two or more input fuels. In some of these units, only the primary fuel can be used continuously; the alternate fuel(s) can be used only as a start-up fuel or in emergencies.

Eastern Europe and Former U.S.S.R.: Includes Albania, Azerbaijan, Belarus, Bulgaria, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Poland, Romania,

Russia, Slovakia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan. See **U.S.S.R.**

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

Electricity: A form of energy characterized by the presence and motion of elementary charged particles generated by friction, induction, or chemical change.

Electricity Capability: The maximum output, commonly expressed in megawatts, that generating equipment can produce, as demonstrated by a multi-hour test for a given period of time.

Electricity Capacity: The maximum load of electric power, commonly expressed in megawatts, at which generators, turbines, transformers, transmission circuits, stations, or systems are rated.

Electricity Generation: The process of producing electric energy or the amount of electric energy produced by transforming other forms of energy, expressed in kilowatthours (kWh) or megawatthours (MWh).

Electricity Generation, Gross: The total amount of electric energy produced by a generating facility, as measured at the generator terminals.

Electricity Generation, Net: The amount of gross generation less the electrical energy consumed at the generating station(s) for station service or auxiliaries. *Note:* Electricity required for pumping at pumped-storage plants is regarded as station use and is deducted from gross generation.

Electricity Sales: The amount of kilowatthours sold in a given period of time; usually grouped by classes of service, such as residential, commercial, industrial, and other. "Other" sales include sales for public street and highway lighting and other sales to public authorities and railways, and interdepartmental sales.

Electric Power: The rate at which electric energy is transferred. Electric power is used as a measurement of capacity, which is expressed in megawatts (MW).

Electric Power Plant: A station containing prime movers, electric generators, and auxiliary equipment for converting mechanical, chemical, and/or fission energy into electric energy.

Electric Utility: A corporation, person, agency, authority, or other legal entity or instrumentality that owns and/or operates facilities within the United States, its territories, or Puerto Rico for the generation, transmission, distribution, or sale of electric energy, primarily for use by the public, and that files forms listed in the *Code of Federal Regulations*, Title 18, Part 141. Facilities that qualify as cogenerators or small power producers under the Public Utility Regulatory Policies Act are not considered electric utilities.

Electric Utility Noncoincidental Peak Load: The sum of two or more peak loads on individual systems that do not occur in the same time interval. Meaningful only in the context of loads within a limited period of time, such as day, week, month, a heating or cooling season, and usually for not more than 1 year.

Electric Utility Sector: Privately- and publicly-owned establishments that generate, transmit, distribute, or sell electricity primarily for use by the public and that meet the definition of an electric utility. Nonutility power producers are not included in the electric utility sector.

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

Emissions: Anthropogenic releases of gases to the atmosphere. In the context of global climate change, they consist of radiatively important greenhouse gases (e.g., the release of carbon dioxide during fuel combustion).

End-Use Sectors: The residential, commercial, industrial, and transportation sectors of the economy.

Energy: The capacity for doing work as measured by the capability of doing work (potential energy) or the conversion of this capability to motion (kinetic energy). Energy has several forms, some of which are easily convertible and can be changed to another form useful for work. Most of the world's convertible energy comes from fossil fuels that are burned to

produce heat that is then used as a transfer medium to mechanical or other means in order to accomplish tasks. Electrical energy is usually measured in kilowatthours, while heat energy is usually measured in British thermal units.

Energy Consumption: The use of energy as a source of heat or power or as an input in the manufacturing process.

Energy Expenditures: The money spent directly by consumers to purchase energy. Expenditures equal the amount of energy used by the consumer times the price per unit paid by the consumer.

Energy Source: Any substance or natural phenomenon that can be consumed or transformed to supply heat or power. Included are petroleum, coal, natural gas, nuclear, biomass, electricity, wind, sunlight, geothermal, and water movement.

Ethane: A normally gaseous straight-chain hydrocarbon (C_2H_6). It is a colorless, paraffinic gas that boils at a temperature of -127.48 degrees Fahrenheit. It is extracted from natural gas and refinery gas streams.

Ethylene: A colorless, flammable, gaseous, olefinic hydrocarbon recovered from natural gas and petroleum. Ethylene is used as a petrochemical feedstock for numerous chemical applications and the production of consumer goods.

Exploratory Well: A well drilled to find and produce oil or gas in an area previously considered unproductive, to find a new reservoir in a known field (i.e., one previously producing oil or gas in another reservoir), or to extend the limit of a known oil or gas reservoir.

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

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

FAS: See **Free Alongside Ship.**

Federal Energy Administration: A predecessor of the Energy Information Administration.

Federal Energy Regulatory Commission (FERC): The Federal agency with jurisdiction over interstate electricity sales, wholesale electric rates, hydroelectric licensing, natural gas pricing, oil pipeline rates, and gas pipeline certification. FERC is an independent regulatory agency within the Department of Energy and is the successor to the Federal Power Commission.

Federal Power Commission (FPC): The predecessor agency of the Federal Energy Regulatory Commission. The Federal Power Commission was created by an Act of Congress under the Federal Water Power Act on June 10, 1920. It was charged originally with regulating the electric power and natural gas industries. It was abolished on September 30, 1977, when the Department of Energy was created. Its functions were divided between the Department of Energy and the Federal Energy Regulatory Commission, an independent regulatory agency.

Financial Reporting System (FRS): The Energy Information Administration's statutory requirement to identify major energy-producing companies and develop and implement a data-reporting program for energy financial and operating information from these companies. Companies are selected if they are within the top 50 publicly-owned U.S. crude oil producers that have at least 1 percent of either production or reserves of oil, gas, coal, or uranium in the United States, or 1 percent of either refining capacity or petroleum product sales in the United States.

First Use: Manufacturing establishments' consumption of the energy that was originally produced offsite or was produced onsite from input materials not classified as energy**.**

First Purchase Price: The marketed first sales price of domestic crude oil, consistent with the removal price defined by the provisions of the Windfall Profits Tax on Domestic Crude Oil (Public Law 96-223, Sec. 4998 [c]).

Fiscal Year: The U.S. Government's fiscal year runs from October 1 through September 30. The fiscal year is designated by the calendar year in which it ends; e.g., fiscal year 2000 began on October 1, 1999, and ended on September 30, 2000.

Flared Natural Gas: Natural gas burned in flares on the base site or at gas processing plants.

FOB: See **Free on Board.**

Footage Drilled: Total footage for wells in various categories, as reported for any specified period, includes (1) the deepest total depth (length of well bores) of all wells drilled from the surface, (2) the total of all bypassed footage drilled in connection with reported wells, and (3) all new footage drilled for directional sidetrack wells. Footage reported for directional sidetrack wells does not include footage in the common bore, which is reported as footage for the original well. In the case of old wells drilled deeper, the reported footage is that which was drilled below the total depth of the old well.

Former U.S.S.R.: See **U.S.S.R.**

Forward Costs (Uranium): The operating and capital costs that will be incurred in any future production of uranium from in-place reserves. Included are costs for labor, materials, power and fuel, royalties, payroll taxes, insurance, and general and administrative costs that are dependent upon the quantity of production and, thus, applicable as variable costs of production. Excluded from forward costs are prior expenditures, if any, incurred for property acquisition, exploration, mine development, and mill construction, as well as income taxes, profit, and the cost of money. *Note*: By use of forward costing, estimates of reserves for ore deposits in differing geological settings can be aggregated and reported as the maximum amount that can theoretically be extracted to recover the specified costs of uranium oxide production under the listed forward cost categories.

Fossil Fuel: An energy source formed in the Earth's crust from decayed organic material, such as petroleum, coal, and natural gas.

Fossil Fueled Steam-Electric Power Plant: An electricity generation plant in which the prime mover is a turbine rotated by high-pressure steam produced in a boiler by heat from burning fossil fuels.

Fractionation: The process by which saturated hydrocarbons are removed from natural gas and separated into distinct parts, or "fractions" such as propane, butane, and ethane.

Free Alongside Ship (FAS): The value of a commodity at the port of exportation, generally including the purchase price, plus all charges incurred in placing the commodity alongside the carrier at the port of exportation.

Free on Board (FOB): A sales transaction in which the seller makes the product available at a given port and price and the buyer pays for the transportation and insurance.

Fuel Ethanol: An anhydrous, denatured aliphatic alcohol (C_2H_5OH) intended for motor gasoline blending. See **Oxygenates.**

Fuelwood: See **Wood Energy.**

Full-Power Operation: Operation of a nuclear generating unit at 100 percent of its design capacity. Full-power operation precedes commercial operation.

Gasohol: A blend of finished motor gasoline containing alcohol (generally ethanol but sometimes methanol) at a concentration of 10 percent or less by volume. Data on gasohol that has at least 2.7 percent oxygen, by weight, and is intended for sale inside carbon monoxide nonattainment areas are included in data on oxygenated gasoline. See **Oxygenates.**

Gas-Turbine Electric Power Plant: A plant in which the prime mover is a gas turbine. A gas turbine typically consists of an axial-flow air compressor and one or more combustion chambers where liquid or gaseous fuel is burned. The hot gases expand to drive the generator and then are used to run the compressor.

Gas Well: A well completed for the production of natural gas from one or more gas zones or reservoirs. (Wells producing both crude oil and natural gas are classified as oil wells.)

Gas Well Productivity: Derived annually by dividing gross natural gas withdrawals from gas wells by the number of producing gas wells on December 31 and then dividing the quotient by the number of days in the year.

Generator Nameplate Capacity (Installed): The maximum rated output of a generator, prime mover, or other electric power production equipment under specific conditions designated by the manufacturer. Installed

generator nameplate capacity is expressed in megawatts (MW) and is usually indicated on a nameplate physically attached to the generator.

Geothermal Energy: Hot water or steam extracted from geothermal reservoirs in the earth's crust and used for geothermal heat pumps, water heating, or electricity generation.

Global Warming: An increase in the near-surface temperature of the Earth. Global warming has occurred in the distant past as the result of natural influences, but the term is most often used to refer to the warming predicted to occur as a result of increased anthropogenic emissions of greenhouse gases. See **Greenhouse Gases** and **Climate Change.**

Global Warming Potential (GWP): An index used to compare the relative radiative forcing of different gases without directly calculating the changes in atmospheric concentrations. GWPs are calculated as the ratio of the radiative forcing that would result from the emission of one kilogram of a greenhouse gas to that from the emission of one kilogram of carbon dioxide over a period of time, such as 100 years.

Greenhouse Gases: Those gases, such as water vapor, carbon dioxide, nitrous oxide, methane, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride, that are transparent to solar (short-wave) radiation but opaque to long-wave radiation, thus preventing long-wave radiant energy from leaving the atmosphere. The net effect is a trapping of absorbed radiation and a tendency to warm the planet's surface.

Gross Domestic Product (GDP): The total value of goods and services produced by labor and property located in the United States. As long as the labor and property are located in the United States, the supplier (that is, the workers and, for property, the owners) may be either U.S. residents or residents of foreign countries.

Gross Domestic Product (GDP) Implicit Price Deflator: A measure used to convert nominal prices to real prices. See **Chained Dollars.**

Gross Electricity Generation: See **Electricity Generation, Gross.**

Gross Input to Atmospheric Crude Oil Distillation Units: Total input to atmospheric crude oil distillation units. Includes all crude oil, lease condensate, natural gas plant liquids, unfinished oils, liquefied refinery gases, slop oils, and other liquid hydrocarbons produced from tar sands, gilsonite, and oil shale.

Heat Content of a Quantity of Fuel, Gross: The total amount of heat released when a fuel is burned. Coal, crude oil, and natural gas all include chemical compounds of carbon and hydrogen. When those fuels are burned, the carbon and hydrogen combine with oxygen in the air to produce carbon dioxide and water. Some of the energy released in burning goes into transforming the water into steam and is usually lost. The amount of heat spent in transforming the water into steam is counted as part of gross heat content but is not counted as part of net content. Gross heat content is also referred to as the higher heating value. Btu conversion factors typically used by Energy Information Administration represent gross heat content.

Heat Content of a Quantity of Fuel, Net: The amount of usable heat energy released when a fuel is burned under conditions similar to those in which it is normally used. Net heat content is also referred to as the lower heating value. Btu conversion factors typically used by the Energy Information Administration represent gross heat content.

Heavy Oil: The fuel oils remaining after the lighter oils have been distilled off during the refining process. Except for start-up and flame stabilization, virtually all petroleum used in steam-electric power plants is heavy oil.

Hogged Fuel: Wood energy that is the result of chopping, shredding, and/or mincing wood and wood products.

Household: A family, an individual, or a group of up to nine unrelated persons occupying the same housing unit. "Occupy" means the housing unit was the person's usual or permanent place of residence. The household includes babies, lodgers, boarders, employed persons who live in the housing unit, and persons who usually live in the household but are away traveling or in a hospital. The household does not include persons who are normally members of the household but who are away from home as college students or members of the armed forces. The household does not include persons temporarily visiting with the household if they have a place of residence elsewhere, persons who take their meals with the household but usually lodge or sleep elsewhere, domestic employees or other persons employed by the household who do not sleep in the same housing unit, or persons who are former members of the household, but have since become

inmates of correctional or penal institutions, mental institutions, homes for the aged or needy, homes or hospitals for the chronically ill or handicapped, nursing homes, convents or monasteries, or other places in which residents may remain for long periods of time. By definition, the number of households is the same as the number of occupied housing units.

Housing Unit: A structure or part of a structure where a household lives. It has access from the outside of the building either directly or through a common hall. Housing units do not include group quarters, such as prisons or nursing homes, where 10 or more unrelated persons live. Hotel and motel rooms are considered housing units if occupied as the usual or permanent place of residence.

Hydrocarbon: An organic chemical compound of hydrogen and carbon in the gaseous, liquid, or solid phase. The molecular structure of hydrocarbon compounds varies from the simplest (methane, a constituent of natural gas) to the very heavy and very complex.

Hydroelectric Power: The production of electricity from the kinetic energy of falling water.

Hydroelectric Power Plant: A plant in which the turbine generators are driven by falling water.

Hydroelectric Pumped Storage: Hydroelectricity that is generated during peak load periods by using water previously pumped into an elevated storage reservoir during off-peak periods when excess generating capacity is available to do so. When additional generating capacity is needed, the water can be released from the reservoir through a conduit to turbine generators located in a power plant at a lower level.

Hydrofluorocarbons (HFCs): A group of anthropogenic chemicals composed of one or two carbon atoms and varying numbers of hydrogen and fluorine atoms. Most HFCs have 100-year Global Warming Potentials in the thousands.

Implicit Price Deflator: See **Chained Dollars.**

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

Independent Power Producer: A corporation, person, agency, authority, or other legal entity or instrumentality which is a wholesale electricity producer that operates within the franchised service territory of a host electric utility and is usually authorized to sell at market-based rates. Unlike traditional electric utilities, independent power producers do not possess transmission facilities or, unless authorized by law, sell electricity in the retail market. Independent power producers are considered to be nonutility power producers.

Indicated Resources, Coal: Coal for which estimates of the rank, quality, and quantity are based partly on sample analyses and measurements and partly on reasonable geologic projections. Indicated resources are computed partly from specified measurements and partly from projection of visible data for a reasonable distance on the basis of geologic evidence. The points of observation are ½ to 1½ miles apart. Indicated coal is projected to extend as a ½-mile-wide belt that lies more than ¼ mile from the outcrop or points of observation or measurement.

Industrial Sector: Manufacturing industries, which make up the largest part of the sector, along with mining, construction, agriculture, fisheries, and forestry. Establishments in this sector range from steel mills, to small farms, to companies assembling electronic components.

Internal Combustion Electric Power Plant: A power plant in which the prime mover is an internal combustion engine. Diesel or gas-fired engines are the principal types used in electric power plants. The plant is usually operated during periods of high demand for electricity.

International Bunkers: Storage compartments, found on vessels and aircraft engaged in international commerce, where fuel to be used by the vessel or aircraft is stored.

Jet Fuel: A refined petroleum product used in jet aircraft engines. It includes kerosene-type jet fuel and naphtha-type jet fuel.

Jet Fuel, Kerosene-Type: A kerosene-based product with a maximum distillation temperature of 400 degrees Fahrenheit at the 10-percent recovery point and a final maximum boiling point of 572 degrees Fahrenheit and meeting ASTM Specification 1655 and Military Specifications MIL-T-5624P and MIL-T-83133D (Grades JP-5 and JP-8). It is used for commercial and military turbojet and turboprop aircraft engines.

Jet Fuel, Naphtha-Type: A fuel in the heavy naphtha boiling range, with an average gravity of 52.8º API, 20 to 90 percent distillation temperature of 290 to 470 degrees Fahrenheit, and meeting Military Specification MIL-T-5624L (Grade JP-4). It is used primarily for military turbojet and turboprop aircraft engines because it has a lower freeze point than other aviation fuels and meets engine requirements at high altitudes and speeds.

Kerosene: A light petroleum distillate that is used in space heaters, cook stoves, and water heaters and is suitable for use as a light source when burned in wick-fed lamps. Kerosene has a maximum distillation temperature of 400 degrees Fahrenheit at the 10-percent recovery point, a final boiling point of 572 degrees Fahrenheit, and a minimum flash point of 100 degrees Fahrenheit. Included are No. 1-K and No. 2-K, the two grades recognized by ASTM Specification D3699 as well as all other grades of kerosene called range or stove oil, which have properties similar to those of No. 1 fuel oil. See **Jet Fuel, Kerosene-Type.**

Kilowatthour: A measure of electricity defined as a unit of work or energy, measured as 1 kilowatt (1,000 watts) of power expended for 1 hour. One kilowatthour is equivalent to 3,412 Btu.

Landed Cost: See **Crude Oil Landed Cost.**

Lease and Plant Fuel: Natural gas used in well, field, and lease operations (such as gas used in drilling operations, heaters, dehydrators, and field compressors), and used as fuel in natural gas processing plants.

Lease Condensate: A mixture consisting primarily of pentanes and heavier hydrocarbons which is recovered as a liquid from natural gas in lease separation facilities. This category excludes natural gas plant liquids, such as butane and propane, which are recovered at downstream natural gas processing plants or facilities.

Light Oil: Lighter fuel oils distilled off during the refining process. Virtually all petroleum used in internal combustion and gas-turbine engines is light oil.

Lignite: The lowest rank of coal, often referred to as brown coal, used almost exclusively as fuel for steam-electric power generation. It is brownish-black and has a high inherent moisture content, sometimes as high as 45 percent. The heat content of lignite ranges from 9 to 17 million Btu per short ton on a moist, mineral-matter-free basis. The heat content of lignite consumed in the United States averages 13 million Btu per short ton, on the as-received basis (i.e., containing both inherent moisture and mineral matter).

Liquefied Natural Gas (LNG): Natural gas (primarily methane) that has been liquefied by reducing its temperature to -260 degrees Fahrenheit at atmospheric pressure.

Liquefied Petroleum Gases (LPG): A group of hydrocarbon-based gases derived from crude oil refining or natural gas fractionation. They include ethane, ethylene, propane, propylene, normal butane, butylene, isobutane, and isobutylene. For convenience of transportation, these gases are liquefied through pressurization.

Liquefied Refinery Gases (LRG): Liquefied petroleum gases fractionated from refinery or still gases. Through compression and/or refrigeration, they are retained in the liquid state. The reported categories are ethane/ethylene, propane/propylene, normal butane/butylene, and isobutane. Excludes still gas.

Losses: See **Electrical System Energy Losses.**

Low-Power Testing: The period of time between a nuclear generating unit's initial fuel loading date and the issuance of its operating (full-power) license. The maximum level of operation during that period is 5 percent of the unit's design thermal rating.

Lubricants: Substances used to reduce friction between bearing surfaces or incorporated into other materials used as processing aids in the manufacture of other products, or used as carriers of other materials. Petroleum lubricants may be produced either from distillates or residues. Lubricants include all grades of lubricating oils, from spindle oil to cylinder oil, and those used in greases.

Major Energy Producers: The top publicly-owned crude oil and natural gas producers and petroleum refiners that form the Financial Reporting System. See **Financial Reporting System**.

Manufacturing Establishment: An economic unit at a single physical location where the mechanical or chemical transformation of materials or substances into new products is performed. Those operations are generally conducted in facilities described as plants, factories, or mills and

characteristically use power-driven machines and material-handling equipment. In addition, the assembly of components of manufactured products is considered manufacturing, as is the blending of materials, such as lubricating oil, plastics, resins, or liquors. Manufacturing establishments are covered by North American Industry Classification System (NAICS) codes 31 through 33.

Manufacturing Sector: The universe of manufacturing establishments within the 50 States and the District of Columbia. North American Industry Classification System (NAICS) codes used to classify an establishment as a manufacturer are 31 through 33.

Marketed Production, Natural Gas: Gross withdrawals less gas used for repressuring, quantities vented and flared, and nonhydrocarbon gases removed in treating or processing operations. Includes all quantities of gas used in field and processing operations.

Measured Resources, Coal: Coal resources for which estimates of the rank, quality, and quantity have been computed, within a margin of error of less than 20 percent, from sample analyses and measurements from closely spaced and geologically well known sample sites. Measured resources are computed from dimensions revealed in outcrops, trenches, mine workings, and drill holes. The points of observation and measurement are so closely spaced and the thickness and extent of coals are so well defined that the tonnage is judged to be accurate within 20 percent. Although the spacing of the point of observation necessary to demonstrate continuity of the coal differs from region to region, according to the character of the coalbeds, the points of observation are no greater than ½ mile apart. Measured coal is projected to extend as a belt ¼ mile wide from the outcrop or points of observation or measurement.

Metallurgical Coal: Coal that meets the requirements for making coke. It must be low in ash and sulfur and form a coke that is capable of supporting the charge of iron ore and limestone in a blast furnace. A blend of two or more bituminous coals is usually required to make coke.

Methane: A colorless, flammable, odorless hydrocarbon gas (CH_4), which is the major component of natural gas. It is also an important source of hydrogen in various industrial processes.

Methanol: A light, volatile alcohol (CH_3OH) eligible for motor gasoline blending. See **Oxygenates.**

Methyl Tertiary Butyl Ether (MTBE): An ether, $(CH_3)_3COCH_3$, intended for motor gasoline blending. See **Oxygenates.**

Miscellaneous Petroleum Products: All finished petroleum products not classified elsewhere—for example, petrolatum, lube refining byproducts (aromatic extracts and tars), absorption oils, ram-jet fuel, petroleum rocket fuels, synthetic natural gas feedstocks, and specialty oils.

Motor Gasoline Blending: Mechanical mixing of motor gasoline blending components, and oxygenates, when required, to produce finished motor gasoline. Finished motor gasoline may be further mixed with other motor gasoline blending components or oxygenates, resulting in increased volumes of finished motor gasoline and/or changes in the formulation of finished motor gasoline (e.g., conventional motor gasoline mixed with MTBE to produce oxygenated motor gasoline).

Motor Gasoline Blending Components: Naphthas (e.g., straight-run gasoline, alkylate, reformate, benzene, toluene, xylene) used for blending or compounding into finished motor gasoline. These components include reformulated gasoline blendstock for oxygenate blending (RBOB) but exclude oxygenates (alcohols, ethers), butane, and pentanes plus. *Note*: Oxygenates are reported as individual components and are included in the total for other hydrocarbons, hydrogens, and oxygenates.

Motor Gasoline, Conventional: Finished motor gasoline not included in the oxygenated or reformulated gasoline categories. *Note*: This category excludes reformulated gasoline blendstock for oxygenate blending (RBOB) as well as other blendstock. Conventional motor gasoline can be leaded or unleaded; regular, midgrade, or premium. See **Motor Gasoline Grades.**

Motor Gasoline, Finished: A complex mixture of relatively volatile hydrocarbons with or without small quantities of additives, blended to form a fuel suitable for use in spark-ignition engines. Motor gasoline, as defined in ASTM Specification D4814 or Federal Specification VV-G-1690C, is characterized as having a boiling range of 122 to 158 degrees Fahrenheit at the 10-percent recovery point and from 365 to 374 Fahrenheit at the 90-percent recovery point. "Motor gasoline" includes conventional gasoline; all types of oxygenated gasoline, including gasohol; reformulated gasoline; and all grades of leaded and unleaded gasoline; but it excludes aviation gasoline. *Note:* Volumetric data on blending components, as well

as oxygenates, are not counted in data on finished motor gasoline until the blending components are blended into the gasoline.

Motor Gasoline, Finished Gasohol: A blend of finished motor gasoline containing 10 percent of alcohol by volume (generally ethanol but sometimes methanol) or less. See **Motor Gasoline, Oxygenated.**

Motor Gasoline, Finished Leaded: Motor gasoline that contains more than 0.05 gram of lead per gallon or more than 0.005 gram of phosphorus per gallon. Premium, midgrade, and regular grades are included, depending on the octane rating. Includes leaded gasohol. Blendstock is excluded until blending has been completed. Alcohol that is to be used in the blending of gasohol is also excluded.

Motor Gasoline, Finished Unleaded: Motor gasoline containing not more than 0.05 gram of lead per gallon and not more than 0.005 gram of phosphorus per gallon. Premium, midgrade, and regular grades are included, depending on the octane rating. Includes unleaded gasohol. Blendstock is excluded until blending has been completed. Alcohol that is to be used in the blending of gasohol is also excluded.

Motor Gasoline Grades: The classification of gasoline by octane ratings. Each type of gasoline (conventional, oxygenated, and reformulated; leaded or unleaded) is classified by three grades: regular, midgrade, and premium. *Note*: Gasoline sales are reported by grade in accordance with their classification at the time of sale. In general, automotive octane requirements are lower at high altitudes. Therefore, in some areas of the United States, such as the Rocky Mountain States, the octane ratings for the gasoline grades may be 2 or more octane points lower.

> *Regular Gasoline:* Gasoline having an antiknock index, i.e., octane rating, greater than or equal to 85 and less than 88.
>
> *Midgrade Gasoline:* Gasoline having an antiknock index, i.e., octane rating, greater than or equal to 88 and less than or equal to 90.
>
> *Premium Gasoline:* Gasoline having an antiknock index, i.e., octane rating, greater than 90.

Motor Gasoline, Oxygenated: Finished motor gasoline other than reformulated gasoline, having an oxygen content of 2.7 percent or higher by weight and required by the U.S. Environmental Protection Agency (EPA) to be sold in areas designated by EPA as carbon monoxide (CO) nonattainment areas. *Note*: Oxygenated gasoline excludes reformulated gasoline, oxygenated fuels program reformulated gasoline (OPRG), and reformulated gasoline blendstock for oxygenated blending (RBOB). It can be formulated for regular, midgrade, or premium grade. See **Motor Gasoline Grades.**

Motor Gasoline, Reformulated: Finished motor gasoline formulated for use in motor vehicles, the composition and properties of which meet the requirements of the reformulated gasoline regulations promulgated by the U.S. Environmental Protection Agency under Section 211(k) of the Clean Air Act. *Note*: This category includes oxygenated fuels program reformulated gasoline (OPRG) but excludes reformulated gasoline blendstock for oxygenate blending (RBOB). It can be formulated for regular, midgrade, and premium grades. See **Motor Gasoline Grades.**

Motor Gasoline Retail Prices: Motor gasoline prices calculated each month by the Bureau of Labor Statistics (BLS) in conjunction with the construction of the Consumer Price Index (CPI). These prices are collected in 85 urban areas selected to represent all urban consumers—about 80 percent of the total U.S. population. The service stations are selected initially, and on a replacement basis, in such a way that they represent the purchasing habits of the CPI population. Service stations in the current sample include those providing all types of service (i.e., full-, mini-, and self-service).

Motor Gasoline, Total: For stock-level data, a sum including finished motor gasoline stocks plus stocks of motor gasoline blending components but excluding stocks of oxygenates.

MTBE: See **Methyl Tertiary Butyl Ether.**

NAICS: See **North American Industry Classification System**.

Naphtha: A generic term applied to a petroleum fraction with an approximate boiling range between 122 and 400 degrees Fahrenheit.

Natural Gas: A gaseous mixture of hydrocarbon compounds, primarily methane, used as a fuel for electricity generation and in a variety of ways in buildings, and as raw material input and fuel for industrial processes.

Natural Gas, Dry: Natural gas which remains after: 1) the liquefiable hydrocarbon portion has been removed from the gas stream (i.e., gas after lease, field,

and/or plant separation); and 2) any volumes of nonhydrocarbon gases have been removed where they occur in sufficient quantity to render the gas unmarketable. *Note:* Dry natural gas is also known as consumer-grade natural gas. The parameters for measurement are cubic feet at 60 degrees Fahrenheit and 14.73 pounds per square inch absolute.

Natural Gas (Dry) Production: The process of producing consumer-grade natural gas. Natural gas withdrawn from reservoirs is reduced by volumes used at the production (lease) site and by processing losses. Volumes used at the production site include 1) the volume returned to reservoirs in cycling, repressuring of oil reservoirs, and conservation operations; and 2) gas vented and flared. Processing losses include 1) nonhydrocarbon gases (e.g., water vapor, carbon dioxide, helium, hydrogen sulfide, and nitrogen) removed from the gas stream; and 2) gas converted to liquid form, such as lease condensate and plant liquids. Volumes of dry gas withdrawn from gas storage reservoirs are not considered part of production. Dry natural gas production equals marketed production less extraction loss.

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

Natural Gas Liquids (NGL): Those hydrocarbons in natural gas that are separated as liquids from the gas. Natural gas liquids include natural gas plant liquids (primarily ethane, propane, butane, and isobutane) and lease condensate (primarily pentanes produced from natural gas at lease separators and field facilities).

Natural Gas Marketed Production: See **Marketed Production, Natural Gas.**

Natural Gas Plant Liquids (NGPL): Those hydrocarbons in natural gas that are separated as liquids at downstream gas processing plants, fractionating and cycling plants, and in some instances at field facilities. Lease condensate is excluded. Products obtained include liquefied petroleum gases and pentanes plus.

Natural Gas Processing Plants: Facilities designed to recover natural gas liquids from a stream of natural gas that may or may not have passed through lease separators and/or field separation facilities. These facilities also control the quality of the natural gas to be marketed. Cycling plants are classified as natural gas processing plants.

Natural Gas Wellhead Price: Price of natural gas 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. Mineral Management Service. The price includes all costs prior to shipment from the lease, including gathering and compression costs, in addition to State production, severance, and similar charges.

Natural Gas, Wet: A mixture of hydrocarbon compounds and small quantities of various nonhydrocarbons existing in the gaseous phase or in solution with crude oil in porous rock formations at reservoir conditions. The principal hydrocarbons normally contained in the mixture are methane, ethane, propane, butane, and pentanes. Typical nonhydrocarbon gases that may be present in reservoir natural gas are water vapor, carbon dioxide, helium, hydrogen sulfide, and nitrogen. Under reservoir conditions, natural gas and the liquefiable portions occur either in a single gaseous phase in the reservoir or in solution with crude oil and are not distinguishable at the time as separate substances.

Natural Gasoline: A term used in the gas processing industry to refer to a mixture of hydrocarbons (mostly pentanes and heavier hydrocarbons containing 5 or more carbon molecules) extracted from natural gas. It includes isopentane.

NERC: See **North American Electric Reliability Council.**

Net Internal Demand: Internal Demand less Direct Control Load Management and Interruptible Demand.

Net Electricity Generation: See **Electricity Generation, Net.**

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 Investment in Place: Net property, plant, and equipment plus investments and advances to unconsolidated affiliates.

Net Ownership Interest: Net working interest plus own royalty interest.

Net Summer Capability: The maximum output, commonly expressed in megawatts (MW), that generating equipment can supply to system load, as demonstrated by a multi-hour test, at the time of summer peak demand. This output reflects a reduction in capacity due to electricity use for station service or auxiliaries.

Neutral Zone: A 6,200 square-mile area shared equally between Kuwait and Saudi Arabia under a 1992 agreement.

Nitrogen Oxides (NO_x): Compounds of nitrogen and oxygen produced by the burning of fossil fuels.

Nominal Dollars: A measure used to express nominal prices.

Nominal Price: The price paid for goods or services at the time of the transaction. Nominal prices are those that have not been adjusted to remove the effect of changes in the purchasing power of the dollar; they reflect buying power in the year in which the transaction occurred.

Noncoincidental Peak Load: The sum of two or more peak loads on individual systems that do not occur in the same time interval.

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

Nontraceables: Energy companies' revenues, costs, assays, and liabilities that cannot be directly attributed to a type of business by use of a reasonable allocation method developed on the basis of operating-level utilities.

Nonutility Power Producer: A corporation, person, agency, authority, or other legal entity or instrumentality that owns electric generating capacity and is not an electric utility. Nonutility power producers include qualifying cogenerators, qualifying small power producers, and other nonutility generators (including independent power producers) without a designated, franchised service area that do not file forms listed in the *Code of Federal Regulations*, Title 18, Part 141. See **Cogenerator, Independent Power Producer**, and **Small Power Producer**.

North American Electric Reliability Council (NERC): A council formed in 1968 by the electric utility industry to promote the reliability and adequacy of bulk power supply in the electric utility systems of North America. The NERC consists of ten regional reliability councils and encompasses essentially all the power systems of the contiguous United States and Canada. The NERC regions are as follows: (1) East Central Area Reliability Coordination Agreement (ECAR); (2) Electric Reliability Council of Texas (ERCOT); (3) Florida Reliability Coordinating Council (FRCC); (4) Mid-America Interpol Network (MAIN); (5) Mid-Atlantic Area Council (MAAC); (6) Mid-Continent Area Power Pool (MAPP); (7) Northeast Power Coordinating Council (NPCC); (8) Southeastern Electric Reliability Council (SERC); (9) Southwest Power Pool (SPP); and (10) Western Systems Coordinating Council (WSCC); and Alaska Systems Coordinating Council (ASCC), which is an affiliate NERC member.

North American Industry Classification System (NAICS). A coding system developed jointly by the United States, Canada, and Mexico to classify businesses and industries according to the type of economic activity in which they are engaged. NAICS replaces the Standard Industrial Classification (SIC) codes.

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

Nuclear Electric Power Plant: A single-unit or multi-unit facility in which heat produced in one or more reactors by the fissioning of nuclear fuel is used to drive one or more steam turbines.

Nuclear reactor: An apparatus in which a nuclear fission chain reaction can be initiated, controlled, and sustained at a specific rate. A reactor includes fuel (fissionable material), moderating material to control the rate of fission, a heavy-walled pressure vessel to house reactor components, shielding to protect personnel, a system to conduct heat away from the reactor, and instrumentation for monitoring and controlling the reactor's systems.

Octane Rating: A number used to indicate motor gasoline's antiknock performance in motor vehicle engines. The two recognized laboratory engine test methods for determining the antiknock rating, i.e., octane rating, of gasoline are the Research method and the Motor method. To provide a single number as guidance to the consumer, the antiknock index ® + M)/2,

which is the average of the Research and Motor octane numbers, was developed. See **Motor Gasoline Grades.**

OECD: See **Organization for Economic Cooperation and Development.**

Offshore: That geographic area that lies seaward of the coastline. In general, the coastline is the line of ordinary low water along with that portion of the coast that is in direct contact with the open sea or the line marking the seaward limit of inland water.

Oil: See **Crude Oil.**

Oil Well: A well completed for the production of crude oil from one or more oil zones or reservoirs. Wells producing both crude oil and natural gas are classified as oil wells.

Operable Unit (Nuclear): In the United States, a nuclear generating unit that has completed low-power testing and has been issued a full-power operating license by the Nuclear Regulatory Commission, or equivalent permission to operate.

Operable Refineries: Refineries that were in one of the following three categories at the beginning of a given year: in operation; not in operation and not under active repair, but capable of being placed into operation within 30 days; or not in operation, but under active repair that could 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 changes.

Organization for Economic Cooperation and Development (OECD): Members as of December 31, 1999 were Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, South Korea, Spain, Sweden, Switzerland, Turkey, United Kingdom, and United States.

Organization of Petroleum Exporting Countries (OPEC): Current members are Algeria, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela. (Ecuador withdrew from OPEC on December 31, 1992 and Gabon withdrew on December 31, 1994.)

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

Oxygenated Motor Gasoline: See **Motor Gasoline, Oxygenated.**

Oxygenates: Substances which, when added to motor gasoline, increase the amount of oxygen in that gasoline blend. Ethanol, methyl tertiary butyl ether (MTBE), ethyl tertiary butyl ether (ETBE), and methanol are common oxygenates. See **Motor Gasoline, Oxygenated**.

Ozone: A molecule made up of three atoms of oxygen. It occurs naturally in the stratosphere and provides a protective layer shielding the Earth from harmful ultraviolet radiation. In the troposphere, it is a chemical oxidant, a greenhouse gas, and a major component of photochemical smog.

Ozone-Depleting Substance: Gases containing chlorine that are being controlled because they deplete ozone. They are thought to have some indeterminate impact on greenhouse gases.

Particulate Collectors: Equipment used to remove fly ash from the combustion gases of a boiler plant before discharge to the atmosphere. Particulate collectors include electrostatic precipitators, mechanical collectors (cyclones, fabric filters [baghouses]), and wet scrubbers.

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

Perfluorocarbons (PFCs): A group of anthropogenic chemicals composed of one or two carbon atoms and four to six flourine atoms, containing no chlorine. PFCs have no commercial uses and are emitted as a byproduct of aluminum smelting and semiconductor manufacturing. PFCs have very high 100-year Global Warming Potentials and are very long-lived in the atmosphere.

Petrochemical Feedstocks: Chemical feedstocks derived from petroleum principally for the manufacture of chemicals, synthetic rubber, and a

variety of plastics. Categories reported are naphthas with less than 401degrees Fahrenheit endpoint and other oils equal to or greater than 401 degrees Fahrenheit endpoint.

Petroleum: A broadly defined class of liquid hydrocarbon mixtures. Included are crude oil, lease condensate, unfinished oils, refined products obtained from the processing of crude oil, and natural gas plant liquids. Nonhydrocarbon compounds blended into finished petroleum products, such as additives and detergents, are included after blending has been completed.

Petroleum Coke: See **Coke, Petroleum.**

Petroleum Coke, Catalyst: The carbonaceous residue that is deposited on and deactivates the catalyst used in many catalytic operations (e.g., catalytic cracking). The catalyst is reactivated by burning off the carbon, which is used as a fuel in the refining process. That carbon or coke is not recoverable in a concentrated form.

Petroleum Coke, Marketable: Those grades of coke produced in delayed or fluid cokers that may be recovered as relatively pure carbon. Marketable petroleum coke may be sold as is or may be further purified by calcining.

Petroleum Consumption: The sum of all refined petroleum products supplied. For each refined petroleum product, the amount supplied is calculated by adding production and imports, then subtracting changes in primary stocks (net withdrawals are a plus quantity and net additions are a minus quantity) and exports.

Petroleum Imports: Imports of petroleum into the 50 States and the District of Columbia from foreign countries and from Puerto Rico, the Virgin Islands, and other U.S. territories and possessions. Included are imports for the Strategic Petroleum Reserve and withdrawals from bonded warehouses for onshore consumption, offshore bunker use, and military use. Excluded are receipts of foreign petroleum into bonded warehouses and into U.S. territories and U.S. Foreign Trade Zones.

Petroleum Products: Products obtained from the processing of crude oil (including lease condensate), natural gas, and other hydrocarbon compounds. Petroleum products include unfinished oils, liquefied petroleum gases, pentanes plus, aviation gasoline, motor gasoline, naphtha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, petrochemical feedstocks, special naphthas, lubricants, waxes, petroleum coke, asphalt, road oil, still gas, and miscellaneous products.

Petroleum Products Supplied: An approximate measure of consumption. It measures the disappearance of the products from primary sources, i.e., refineries, blending plants, and bulk terminals. In general, products supplied in any given period are computed as follows: field production, plus imports, plus unaccounted-for crude oil (plus net receipts when calculated on a PAD District basis) minus stock change, minus crude oil losses, minus refinery inputs, and minus exports. See also **Petroleum Consumption.**

Petroleum Sludge: See **Sludge.**

Petroleum Stocks, Primary: For individual products, quantities that are held at refineries, in pipelines, and at bulk terminals that have a capacity of 50,000 barrels or more, or that are in transit thereto. Stocks held by product retailers and resellers, as well as tertiary stocks held at the point of consumption, are excluded. Stocks of individual products held at gas processing plants are excluded from individual product estimates but are included in other oil estimates and total.

Photovoltaic Energy: Direct-current electricity generated from sunlight through solid-state semiconductor devices that have no moving parts.

Photovoltaic Module: A group of photovoltaic cells. (Cells are solid-state devices that produce electricity when exposed to sunlight.) The electricity is used primarily in applications requiring remote power, such as radio communication, cathodic protection, and navigational aids.

Pipeline Fuel: Natural gas consumed in the operation of pipelines, primarily in compressors.

Pipeline, Natural Gas: A continuous pipe conduit, complete with such equipment as valves, compressor stations, communications systems, and meters, for transporting natural gas and/or supplemental gaseous fuels from one point to another, usually from a point in or beyond the producing field or processing plant to another pipeline or to points of utilization. Also refers to a company operating such facilities.

Pipeline, Petroleum: Crude oil and product pipelines (including interstate, intrastate, and intracompany pipelines) used to transport crude oil and

petroleum products, respectively, within the 50 States and the District of Columbia.

Plant Condensate: One of the natural gas liquids, mostly pentanes and heavier hydrocarbons, recovered and separated as liquids at gas inlet separators or scrubbers in processing plants.

Prime Mover: The engine, turbine, water wheel, or similar machine that drives an electric generator; or, for reporting purposes, a device that converts energy to electricity directly.

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

Processing Gain: The amount by which total volume of refinery output is greater than the volume of input for a given period of time. The processing gain arises when crude oil and other hydrocarbons are processed into products that are, on average, less dense than the input.

Processing Loss: The amount by which total volume of refinery output is less than input for a given period of time. The processing loss arises when crude oil and other hydrocarbons are processed into products that are, on average, more dense than the input.

Processing Plant (Natural Gas): A surface installation designed to separate and recover natural gas liquids from a stream of produced natural gas through the processes of condensation, absorption, refrigeration, or other methods, and to control the quality of natural gas marketed or returned to oil or gas reservoirs for pressure maintenance, repressuring, or cycling.

Propane: A normally gaseous straight-chain hydrocarbon (C_3H_8). It is a colorless paraffinic gas that boils at a temperature of -43.67 degrees Fahrenheit. It is extracted from natural gas or refinery gas streams. It includes all products designated in ASTM Specification D1835 and Gas Processors Association Specifications for commercial propane and HD-5 propane.

Propylene: An olefinic hydrocarbon (C_3H_6) recovered from refinery or petrochemical processes.

Proved Reserves, Crude Oil: The estimated quantities of all liquids 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, Lease Condensate: The volumes of lease condensate expected to be recovered in future years in conjunction with the production of proved reserves of natural gas based on the recovery efficiency of lease and/or field separation facilities installed.

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

Proved Reserves, Natural Gas Liquids: Those volumes of natural gas liquids (including lease condensate) demonstrated with reasonable certainty to be separable in the future from proved natural gas reserves, under existing economic and operating conditions.

Pumped Storage: See **Hydroelectric Pumped Storage.**

Real Price: A price that has been adjusted to remove the effect of changes in the purchasing power of the dollar. Real prices, which are expressed in chained dollars in this report, reflect buying power relative to a reference year. See **Chained Dollars.**

Refiner Acquisition Cost of Crude Oil: The cost of crude oil to the refiner, including transportation and other fees. The composite cost is the weighted average of domestic and imported crude oil costs. The refiner acquisition cost does not include the cost of crude oil purchased for the Strategic Petroleum Reserve.

Refinery Input: The raw materials and intermediate materials processed at refineries to produce finished petroleum products. They include crude oil, products of natural gas processing plants, unfinished oils, other hydrocarbons and alcohol, motor gasoline and aviation gasoline blending components, and finished petroleum products.

Refinery Output: The total amount of petroleum products produced at a refinery. Includes petroleum consumed by the refinery.

Refinery (Petroleum): An installation that manufactures finished petroleum products from crude oil, unfinished oils, natural gas liquids, other hydrocarbons, and alcohol.

Renewable Energy: Energy obtained from sources that are essentially inexhaustible (unlike, for example, fossil fuels, which are in finite supply). Renewable sources of energy include conventional hydroelectric power, wood, waste, geothermal, wind, photovoltaic, and solar thermal energy.

Repressuring: The injection of a pressurized fluid (such as air, gas, or water) into oil and gas reservoir formations to effect greater ultimate recovery.

Residential Sector: All private residences, whether occupied or vacant, owned or rented, including single-family homes, multifamily housing units, and mobile homes. Secondary homes, such as summer homes, are also included. Institutional housing, such as school dormitories, hospitals, and military barracks, generally are not included in the residential sector; they are included in the commercial sector.

Residential Vehicles: Motorized vehicles used by U.S. households for personal transportation. Excluded are motorcycles, mopeds, large trucks, and buses. Included are automobiles, station wagons, passenger vans, cargo vans, motor homes, pickup trucks, and jeeps or similar vehicles. In order to be included, vehicles must be: (1) owned by members of the household, or (2) company cars not owned by household members but regularly available to household members for their personal use and ordinarily kept at home, or (3) rented or leased for 1 month or more.

Residual Fuel Oil: The heavier oils, known as No. 5 and No. 6 fuel oils, that remain after the distillate fuel oils and lighter hydrocarbons are distilled away in refinery operations. Residual fuel oil conforms to ASTM Specifications D396 and D975 and Federal Specification VV-F-815C. No. 5, a residual fuel oil of medium viscosity, is also known as Navy Special and is defined in Military Specification MIL-F-859E, including Amendment 2 (NATO Symbol F-770). It is used in steam-powered vessels in government service and inshore powerplants. No. 6 fuel oil includes Bunker C fuel oil and is used for the production of electric power, space heating, vessel bunkering, and various industrial purposes.

Road Oil: Any heavy petroleum oil, including residual asphaltic oil, used as a dust palliative and surface treatment on roads and highways. It is generally produced in six grades, from 0, the most liquid, to 5, the most viscous.

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

Royalty Interest: An interest in a mineral property provided through a royalty contract.

Scrubber: Equipment used to remove sulfur oxides from the combustion gases of a boiler plant before discharge to the atmosphere. Chemicals, such as lime, are used as scrubbing media.

Short Ton (Coal): A unit of weight equal to 2,000 pounds.

Sludge: A dense, slushy, liquid- to semifluid product that accumulates as an end result of an industrial or technological process designed to purify a substance. Industrial sludges are produced from the processing of energy-related raw materials, chemical products, water, mined ores, sewage, and other natural and man-made products. Sludges can also form from natural processes, such as the runoff produced by rainfall, and accumulate on the bottom of bogs, streams, lakes, and tidelands.

Small Power Producer: Under the Public Utility Regulatory Policies Act, a small power producer generates electricity by using renewable energy (wood, waste, conventional hydroelectric, wind, solar, and geothermal) as a primary energy source. Fossil fuels can be used, but renewable resources must provide at least 75 percent of the total energy input. See **Nonutility Power Producer.**

Solar Collector: Equipment that actively concentrates thermal energy from the sun. The energy is usually used for space heating, for water heating, or for heating swimming pools. Either air or liquid is the working fluid.

Solar Thermal Collector: A device designed to receive solar radiation and convert it to thermal energy. Normally, a solar thermal collector includes a frame, glazing, and an absorber, together with appropriate insulation. The heat collected by the solar thermal collector may be used immediately or stored for later use. Solar collectors are used for space heating, domestic hot water heating, and heating wrimming pools, hot tubs, or spas.

Solar Thermal Collector, High-Temperature: A collector that generally operates at temperatures above 180 degrees Fahrenheit.

Solar Thermal Collector, Low-Temperature: A collector that generally operates at temperatures below 110 degrees Fahrenheit. Typically, it has no glazing or insulation and is made of plastic or rubber, although some are made of metal.

Solar Thermal Collector, Medium-Temperature: A collector that generally operates at temperatures of 140 to 180 degrees Fahrenheit but can also operate at temperatures as low as 110 degrees Fahrenheit. 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.

Solar Thermal Collector, Special: 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).

Solar Thermal Energy: The radiant energy of the sun that can be converted into other forms of energy, such as heat or electricity. Electricity produced from solar energy heats a medium that powers an electricity-generating device.

Space Heating: The use of mechanical equipment (including wood stoves and active solar heating devices) to heat all, or part, of a building to at least 50 degrees Fahrenheit.

Special Naphthas: All finished products within the naphtha boiling range that are used as paint thinners, cleaners, or solvents. Those products are refined to a specified flash point. Special naphthas include all commercial hexane and cleaning solvents conforming to ASTM Specifications D1836 and D484, respectively. Naphthas to be blended or marketed as motor gasoline or aviation gasoline, or that are to be used as petrochemical and synthetic natural gas (SNG) feedstocks, are excluded.

Spent Liquor: The liquid residue left after an industrial process; can be a component of waste materials used as fuel.

Spot Market Price: See Spot Price.

Spot Price: The price for a one-time open market transaction for immediate deliver of the specific quantity of product at a specific location where the commodity is purchased "on the spot" at current market rates.

Steam-Electric Power Plant: A plant in which the prime mover is a steam turbine. The steam used to drive the turbine is produced in a boiler where fossil fuels are burned.

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 (Natural Gas): A well that produces 60 thousand cubic feet per day or less of gas-well gas for a period of 3 consecutive months while producing at its maximum rate flow. In determining abandonments, a stripper well is one that produced less than 22.5 million cubic feet in its last 12 months of production.

Stripper Well Property (Petroleum): A property whose average daily production of crude oil per well (excluding condensate recovered in 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.

Stocks: Supplies of fuel or other energy source(s) stored for future use. Stocks are reported as of the end of the reporting period.

Subbituminous Coal: A coal with properties ranging from those of lignite to those of bituminous coal and used primarily as fuel for steam-electric power generation. At the lower end of the range it may be dull, dark brown or black, soft, and crumbly, while at the upper end it may be bright, jet black, hard, and relatively strong. Subbituminous coal contains 20 to 30 percent inherent moisture by weight. The heat content of subbituminous coal ranges from 17 to 24 million Btu per short ton on a moist, mineral-matter-free basis. The heat content of subbituminous coal consumed in the United States averages 17 to 18 million Btu per short ton, on the

as-received basis (i.e., containing both inherent moisture and mineral matter).

Sulfur Dioxide (SO_2): A toxic, irritating, colorless gas soluble in water, alcohol, and ether. Used as a chemical intermediate, in paper pulping and ore refining, and as a solvent.

Sulfur Hexafluoride (SF_6): A colorless gas soluble in alcohol and ether, and slightly less soluble in water. It is used as a dielectric in electronics.

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

Synthetic Natural Gas (SNG): A manufactured product chemically similar in most respects to natural gas, resulting from the conversion or reforming of petroleum hydrocarbons. It may easily be substituted for, or interchanged with, pipeline quality natural gas. Also referred to as substitute natural gas.

Tall Oil: The oily mixture of rosin acids, fatty acids, and other materials obtained by acid treatment of the alkaline liquors from the digesting (pulping) of pine wood.

Transportation Sector: Private and public vehicles that move people and commodities. Included are automobiles, trucks, buses, motorcycles, railroads, and railways (including streetcars), aircraft, ships, barges, and natural gas pipelines.

Unaccounted-for Crude Oil: Represents the arithmetic difference between the calculated supply and the calculated disposition of crude oil. The calculated supply is the sum of crude oil production and imports, less changes in crude oil stocks. The calculated disposition of crude oil is the sum of crude oil input to refineries, crude oil exports, crude oil burned as fuel, and crude oil losses.

Unaccounted-for Natural Gas: Quantities lost, the net result of flow data metered at varying temperature and pressure conditions and converted to a standard temperature and pressure base; metering inaccuracies; differences between the billing cycle and calendar period timeframes; the effect of variations in company accounting and billing practices; and imbalances from the merger of data reporting systems which vary in scope, format, definitions, and type of respondents.

Underground Storage: The storage of natural gas in underground reservoirs at locations other than those from which it was produced.

Undiscovered Recoverable Reserves (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 Oils: All oils requiring further refinery processing, except those requiring only mechanical blending. In most cases, these are produced by partial refining or are purchased in an unfinished state for conversion to finish products by further refining.

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: A heavy, naturally radioactive, metallic element (atomic number 92). Its two principally occurring isotopes are uranium-235 and uranium-238. Uranium-235 is indispensable to the nuclear industry, because it is the only isotope existing in nature to any appreciable extent that is fissionable by thermal neutrons. Uranium-238 is also important, because it absorbs neutrons to produce a radioactive isotope that subsequently decays to plutonium-239, an isotope that also is fissionable by thermal neutrons.

Uranium Concentrate: A yellow or brown powder obtained by the milling of uranium ore, processing of in situ leach mining solutions, or as a by-product of phosphoric acid production.

Uranium Ore: Rock containing uranium mineralization (typically 1 to 4 pounds of U_3O_8 per ton or 0.05 percent to 0.2 percent U_3O_8) that can be mined economically.

Uranium Resource Categories: Three categories of uranium resources defined by the international community to reflect differing levels of confidence in the existence of the resources. **Reasonably assured resources (RAR)**, **estimated additional resources (EAR)**, and **speculative resources (SR)** are described below.

Reasonably assured resources (RAR): Uranium that occurs in known mineral deposits of such size, grade, and configuration that it could be recovered within the given production cost ranges, with currently proven mining and processing technology. Estimates of tonnage and grade are based on specific sample data and measurements of the deposits and on knowledge of deposit characteristics. *Note:* **RAR** corresponds to DOE's **uranium reserves** category.

Estimated additional resources (EAR): Uranium in addition to **RAR** that is expected to occur, mostly on the basis of geological evidence, in extensions of well-explored deposits, in little-explored deposits, and in undiscovered deposits believed to exist along well-defined geological trends with known deposits. This uranium can subsequently be recovered within the given cost ranges. Estimates of tonnage and grade are based on available sampling data and on knowledge of the deposit characteristics, as determined in the best-known parts of the deposit or in similar deposits. *Note*: **EAR** corresponds to DOE's probable potential resources category.

Speculative resources (SR): Uranium in addition to **EAR** that is thought to exist, mostly on the basis of indirect evidence and geological extrapolations, in deposits discoverable with existing exploration techniques. The location of deposits in this category can generally be specified only as being somewhere within given regions or geological trends. The estimates in this category are less reliable than estimates of **RAR** and **EAR**. *Note*: **SR** corresponds to the combination of DOE's possible potential resources and speculative potential resources categories.

Useful Thermal Output: The thermal energy made available for use in any industrial or commercial process, or used in any heating or cooling application, i.e., total thermal energy made available for processes and applications other than electrical generation.

U.S.S.R.: The Union of Soviet Socialist Republics consisted of 15 constituent republics: Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan. As a political entity, the U.S.S.R. ceased to exist as of December 31, 1991.

Vented Natural Gas: Gas released into the air on the base site or at processing plants.

Vessel: Tankers used to transport crude oil and petroleum products. Vessel categories are as follows: Ultra Large Crude Carrier (ULCC), Very Large Crude Carrier (VLCC), Other Tanker, and Specialty Ships (LPG/LNG).

Vessel Bunkering: Includes sales for the fueling of commercial or private boats, such as pleasure craft, fishing boats, tugboats, and ocean-going vessels, including vessels operated by oil companies. Excluded are volumes sold to the U.S. Armed Forces.

Waste Energy: Garbage, bagasse, sewerage gas, and other industrial, agricultural, and urban refuse used to generate electricity.

Watt (W): The unit of electrical power equal to 1 ampere under a pressure of 1 volt. A watt is equal to 1/746 horsepower.

Watthour (Wh): An electrical energy unit of measure equal to 1 watt of power supplied to, or taken from, an electric circuit steadily for 1 hour.

Waxes: Solid or semisolid materials derived from petroleum distillates or residues. Waxes are light-colored, more or less translucent crystalline masses, slightly greasy to the touch, consisting of a mixture of solid hydrocarbons in which the paraffin series predominates. Included are all marketable waxes, whether crude scale or fully refined. Waxes are used primarily as industrial coating for surface protection.

Well: A hole drilled in the Earth 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 test wells, or service wells. The latter two types of wells are counted for Federal Reporting System data reporting. Oil wells, gas wells, and dry holes are classified as exploratory wells or development wells. Exploratory wells are subclassified as new-pool wildcats, deeper-pool tests, shallow-pool tests, and outpost (extension) tests. Well classifications reflect the status of wells after drilling has been completed.

Wellhead Price: The value of crude oil or natural gas at the mouth of the well.

Well Servicing Unit: Truck-mounted equipment generally used for downhole services after a well is drilled. Services include well completions and recompletions, maintenance, repairs, workovers, and well plugging and abandonments. Jobs range from minor operations, such as pulling the rods and rod pumps out of an oil well, to major workovers, such as milling out and repairing collapsed casing. Well depth and characteristics determine the type of equipment used.

Western Europe: Includes Austria, Belgium, Bosnia and Herzegovina, Croatia, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Macedonia (The Former Yugoslav Republic of), Malta, Netherlands, Norway, Portugal, Serbia and Montenegro, Slovenia, Spain, Sweden, Switzerland, Turkey, and the United Kingdom.

Wind Energy: The kinetic energy of wind converted into mechanical energy by wind turbines (i.e., blades rotating from a hub) that drive generators to produce electricity.

Wood Energy: Wood and wood products used as fuel, including round wood (cord wood), limb wood, wood chips, bark, sawdust, forest residues, charcoal, pulp waste, and spent pulping liquor.

Wood Sludge: See **Sludge.**

Working Gas: The gas in a reservoir that is in addition to the base (cushion) gas. It may or may not be completely withdrawn during any particular withdrawal season. Conditions permitting, the total working capacity could be used more than once during any given season.

Working Interest: An interest in a mineral property that entitles the owner to explore, develop, and operate a property. The working interest owner bears the costs of exploration, development, and operation of the property and, in return, is entitled to a share of the mineral production from the property or to a share of the proceeds.

Yellowcake: A natural uranium concentrate that takes its name from its color and texture. Yellowcake typically contains 70 to 90 percent U_3O_8 by weight. It is used as feedstock for uranium fuel enrichment and fuel pellet fabrication