DOE/EIA-0035(95/11)

Monthly Energy Review

November 1995

In this issue:

Readership survey results

Highlights: *Annual Energy Review 1994*

Environmental externalities in electric power markets

EIA
Energy Information Administration

Monthly Energy Review

The *Monthly Energy Review* (*MER*) presents an overview of the Energy Information Administration's recent monthly energy statistics. The statistics cover the major activities of U.S. production, consumption, trade, stocks, and prices for petroleum, natural gas, coal, electricity, and nuclear energy. Also included are international energy and thermal and metric conversion factors.

Publication of this report is in keeping with responsibilities given to the Energy Information Administration (EIA) in Public Law 95–91 (Department of Energy Organization Act), which states, in part, in Section 205(a)(2) that:

> *"The Administrator shall be responsible for carrying out a central, comprehensive, and unified energy data and information program which will collect, evaluate, assemble, analyze, and disseminate data and information...."*

The *MER* is intended for use by Members of Congress, Federal and State agencies, energy analysts, and the general public. EIA welcomes suggestions from readers regarding data series in the *MER* and in other EIA publications.

Related Publication:

Readers of the *MER* may also be interested in EIA's *Annual Energy Review*, where many of the same data series are provided annually beginning with 1949. Contact our National Energy Information Center at 202–586–8800 for more information.

Electronic Access

Monthly Energy Review (*MER*) data are also available through these electronic means:

- For **all *MER* tables on the Internet**, access EIA's home page at http://www.eia.doe.gov.
- For **all *MER* tables via modem**, access EIA's Electronic Publishing System at 202–586–2557.
- For obtaining **personal computer diskettes** by mail, call the Office of Scientific and Technical Information at 615–576–8401 or the National Technical Information Service at 703–487–4650.

Ordering Information

This publication and other EIA publications may be purchased from the Superintendent of Documents, U.S. Government Printing Office.

Telephone and fax orders should be directed to:

Superintendent of Documents
U.S. Government Printing Office
Main Order Desk
202–512–1800
Fax: 202–512–2250
8 a.m. to 4:30 p.m., eastern time, M-F

Mail orders should be directed to:

U.S. Government Printing Office
P.O. Box 371954
Pittsburgh, PA 15250–7954

Complimentary subscriptions and single issues are available to certain groups of subscribers, such as public and academic libraries; Federal, State, local, and foreign governments; EIA survey respondents; and the media. For further information and for answers to questions on energy statistics, please contact EIA's National Energy Information Center. Address, telephone numbers, and hours are as follows:

National Energy Information Center, EI–231
Energy Information Administration
Forrestal Building, Room 1F–048
Washington, DC 20585
202–586–8800
Fax: 202–586–0727
TTY: For people who are deaf or hard of hearing: 202–586–1181
9 a.m. to 5 p.m., eastern time, M-F

Timing of Release:

MER data are normally released in the afternoon of the third-from-the-last workday of each month and are usually available electronically late that day.

Internet Addresses:

E–Mail: infoctr@eia.doe.gov
World Wide Web Site: http://www.eia.doe.gov
Gopher Site: gopher://gopher.eia.doe.gov
FTP Site: ftp://ftp.eia.doe.gov

The *Monthly Energy Review* (ISSN 0095-7356) is published monthly by the Energy Information Administration, 1000 Independence Avenue, S.W., Washington, DC 20585, and sells for $87.00 per year (price is subject to change without advance notice). Second-class postage rates are paid at Washington, DC 20066-9998, and at additional mailing offices. POSTMASTER: Send address changes to *Monthly Energy Review*, Energy Information Administration, EI-231, 1000 Independence Avenue, S.W., Washington, DC 20585.

Released for Printing: November 28, 1995

Printed with soy ink on recycled paper

DOE/EIA-0035(95/11)
Distribution Category UC-950

Monthly Energy Review

November 1995

Energy Information Administration
Office of Energy Markets and End Use
U.S. Department of Energy
Washington, DC 20585

Contacts

The *Monthly Energy Review* is prepared by the Energy Information Administration. General information may be obtained from W. Calvin Kilgore, Director, Office of Energy Markets and End Use, 202-586-1617; Lynda T. Carlson, Director, Energy End Use and Integrated Statistics Division, 202-586-1112; and Katherine E. Seiferlein, Chief, Integrated Statistics Branch, 202-586-5692. Questions and comments concerning the contents of the *Monthly Energy Review* may be directed to the Principal Analyst, Chuck Allen, 202-586-5692, or to Diane D. Perritt, 202-586-2788, or the following subject specialists:

Features	Barbara T. Fichman	202-586-5737
Section 1. Energy Overview	Dianne R. Dunn	202-586-2792
Section 2. Energy Consumption	Dianne R. Dunn	202-586-2792
Section 3. Petroleum	Michael Conner	202-586-1795
Section 4. Natural Gas	Donna Guerrina	202-586-6135
Section 5. Oil and Gas Resource Development	Robert F. King	202-586-4787
Section 6. Coal	Paulette Young	202-426-1150
Section 7. Electricity	Deborah Bolden	202-426-1235
Section 8. Nuclear Energy	Douglas C. Bonnar	202-426-1249
Section 9. Energy Prices		
Petroleum	Elizabeth Scott	202-586-1258
Natural Gas	Donna Guerrina	202-586-6135
Electricity		
Retail Prices	Deborah Bolden	202-426-1235
Fossil-Fuel Receipts	Kenneth M. McClevey	202-254-5655
Section 10. International Energy		
Petroleum		
Production	Patricia Smith	202-586-6925
Consumption and Stocks	H. Vicky McLaine	202-586-9412
Nuclear Electricity Gross Generation	Douglas C. Bonnar	202-426-1249

Requests for additional information on other energy statistics available from the Energy Information Administration and questions concerning subscriptions and report distribution may be directed to the National Energy Information Center, 202-586-8800 (TTY, for people who are deaf or hard of hearing, 202-586-1181).

Contents

Tables

Tables (Continued)

Figures

Special Communication:

Results of the *Monthly Energy Review* Features Readership Survey

In an effort to secure the greatest return on its resource investments, the Energy Information Administration (EIA) has been concentrating for some time on strengthening its customer focus. The backbone of this initiative is customer surveys, several of which have been conducted since 1994 to help EIA understand its customers' needs more precisely and comprehensively. The Office of Energy Markets and End Use (EMEU), as producer of EIA's flagship *Monthly Energy Review (MER)* and several other publications, has done its share of this outreach work.

A recent example is a systematic survey of the readership of the features appearing in the *MER*. *MER* readers are a diverse group that includes energy analysts in industry, government, and academia, as well as journalists, policymakers, and private citizens. This diversity is well served by the vast and varied array of detailed data on energy production and consumption offered every month in the *MER*. However, the features—generally appearing one or two at a time and being necessarily narrower in scope, though more analytical—cannot hope to satisfy every reader all the time. The survey of the features readership was undertaken to learn whether readers found the features useful and if they felt changes were necessary.

Survey development was begun in late 1994 and the survey itself was conducted in the spring and summer of 1995 by EMEU's Energy End Use and Integrated Statistics Division. The survey sought responses from a representative sample of 378 *MER* subscribers (about 12.5 percent of the *MER* subscription population of 3,121) and achieved a final response rate of 50 percent. Respondents were asked about their awareness and use of the features, their satisfaction with the features in particular and the *MER* in general, their opinions of eight alternative *MER* format possibilities, and their strongest energy interests. In summary, the survey revealed that readers take a keen interest in the four types of features that were offered at the time (five types are now offered), especially Highlights and full-length articles; generally find them highly satisfactory; and see the need for few changes. Here are the survey results in more detail:

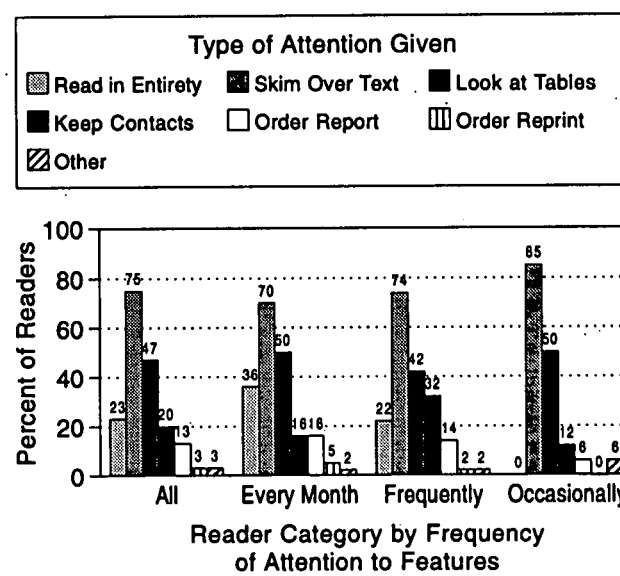
Awareness and uses. Eighty-seven percent of respondents said they were aware of the features in the *MER*. Of those respondents, only 2 percent said they never looked at any features. Seventy-five percent reported looking at the features "every month" or "frequently" (the other choices were "occasionally" and "never"). Respondents said that Highlights were the feature type they were most likely to look at (42 percent), followed by articles (32 percent). Markedly fewer respondents said they were most likely to look at Energy Previews (14 percent) and EIA Data News (11 percent). Highlights and articles were also the features that readers named as the second most likely to be looked at (36 percent and 28 percent, respectively).

Among subscribers who looked at features at least occasionally, 75 percent reported that they skimmed over the text, and 23 percent said they read the entire feature (Figure 1). One in five respondents reported keeping in mind the EIA contacts mentioned with the features. Sixty-five percent said they used the information in features to keep generally informed, and more than two-thirds kept the information for future reference.

Satisfaction. Respondents who were aware of the *MER* features and looked at them at least occasionally were asked to rate their general level of satisfaction on a scale that ranged from -3 (very dissatisfied) to +3 (very satisfied). (Zero denoted indifference.) Eighty-five percent reported positive scores (Figure 2) and 59 percent reported scores of either +2 or +3. Only 1 percent of respondents gave the features a negative satisfaction score. Not surprisingly, satisfaction levels tended to correlate with how often readers looked at the features: 92 percent of readers who looked at features every month gave them positive scores. The corresponding numbers for frequent and occasional readers were 90 percent and 64 percent, respectively.

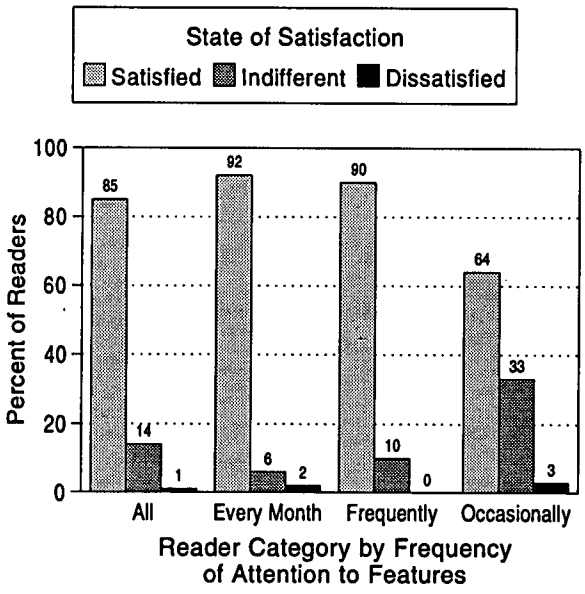
Using the same 7-point scale, respondents also rated both the features and the *MER* in general in terms of ease of access, relevance, accuracy, timeliness, readability, and comprehensiveness. On all counts, respondents generally expressed high

Figure 1. Type of Attention Given the Features by Features Readers



Source: Energy Information Administration, Office of Energy Markets and End Use, Survey of *Monthly Energy Review* Features Readership, June 1995.

Figure 2. State of Satisfaction With the Features



Source: Energy Information Administration, Office of Energy Markets and End Use, Survey of *Monthly Energy Review* Features Readership, June 1995.

levels of satisfaction with both the *MER* and the features. The lowest ratings were given for timeliness, but 71 percent of respondents still gave positive scores for the timeliness of the features and 75 percent gave positive scores for the timeliness of the *MER*.

Interest in alternatives. Survey respondents were asked to rate eight alternative features formats: more space for features; reprints of EIA report executive summaries in place of Highlights; the features section expanded and published separately from the *MER*; more, but shorter, features of various kinds; less text and more tables and graphs; more emphasis on emerging issues, such as renewable fuels and greenhouse gases; new types of features; and no features at all. The strongest feelings were elicited by the last alternative; only 4 percent of respondents thought that eliminating the features would result in "notable improvement," while 62 percent said it would make the *MER* "less effective." About four out of five said that gathering features into a separate publication would either make no difference or would make the *MER* less effective. Fifty-two percent said that more coverage of emerging issues would be a notable improvement.

Respondents were also asked how, if at all, they would shift the mix of feature types from its current balance. In every case, clear majorities said they would continue to allot to each feature type about the same amount of space it currently receives.

The data collected by this survey will help EIA in its ongoing efforts to assess our customers' needs and respond to them effectively. The data are particularly useful in view of the environment of shrinking resources within which EIA is operating. EIA will continue to concentrate on the output of high-quality energy data and analyses. In the *MER* we intend to stress timeliness more than ever and to concentrate on shorter, more tightly drawn "Energy Plugs" designed to apprise our customers of the range of recent products available from EIA. In addition, we intend to continue providing a limited number of features in the *MER* each year.

Readers may also find it valuable to make use of EIA's World Wide Web site (http://www.eia.doe.gov), which is now operational. The potential of the Web site for rapid dissemination of data and other information is obvious and we plan to steadily expand the site's capabilities in the coming months. Ultimately, we hope to be able to offer our customers the options of accessing entire features and data sets electronically and making suggestions and criticisms on line.

EIA Contact:	Michael Laurence
Telephone:	202–586–2453
Internet E–Mail:	mlaurenc@eia.doe.gov
Fax:	202–586–0018

Highlights:

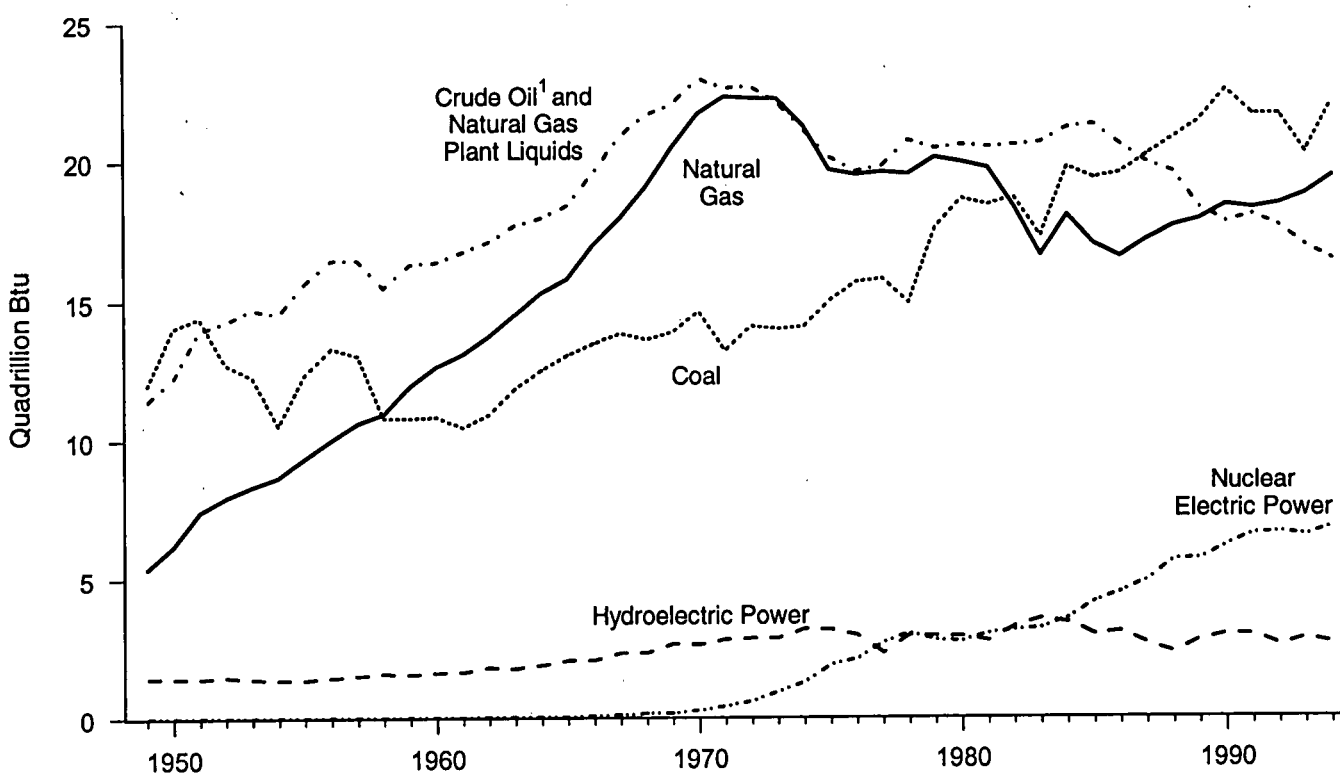
Annual Energy Review 1994

At the halfway mark of this century, coal was the leading source of energy produced in the United States. Now, as we approach the end of the 20th century, coal is still the leading source of energy produced in this country (Figure 1). Between those points of time, however, dramatic changes occurred in the composition of our Nation's energy production. For example, crude oil and natural gas plant liquids production overtook coal production in the early 1950s. That source was matched by natural gas for a few years in the mid-1970s, and then, in the early 1980s, coal regained its prominence. After 1985, crude oil production suffered a nearly steady annual decline.

While the fossil fuels moved up and down in their individual contributions to the Nation's energy production total, hydroelectric power was a smaller but steady and dependable contributor, and a new source of energy—nuclear electric power—grew from making a minuscule contribution in the 1960s to playing a significant role in the Nation's energy capacity.

These and many other observations about the history of energy can be drawn from the data available in the Energy Information Administration's *Annual Energy Review 1994 (AER)*. The *AER*, a companion report to the *Monthly Energy Review (MER)*, is useful in analyzing trends and milestones in energy production, consumption, trade, storage, and pricing from a long-term perspective.

Figure 1. Major Sources of U.S. Energy Production, 1949-1994



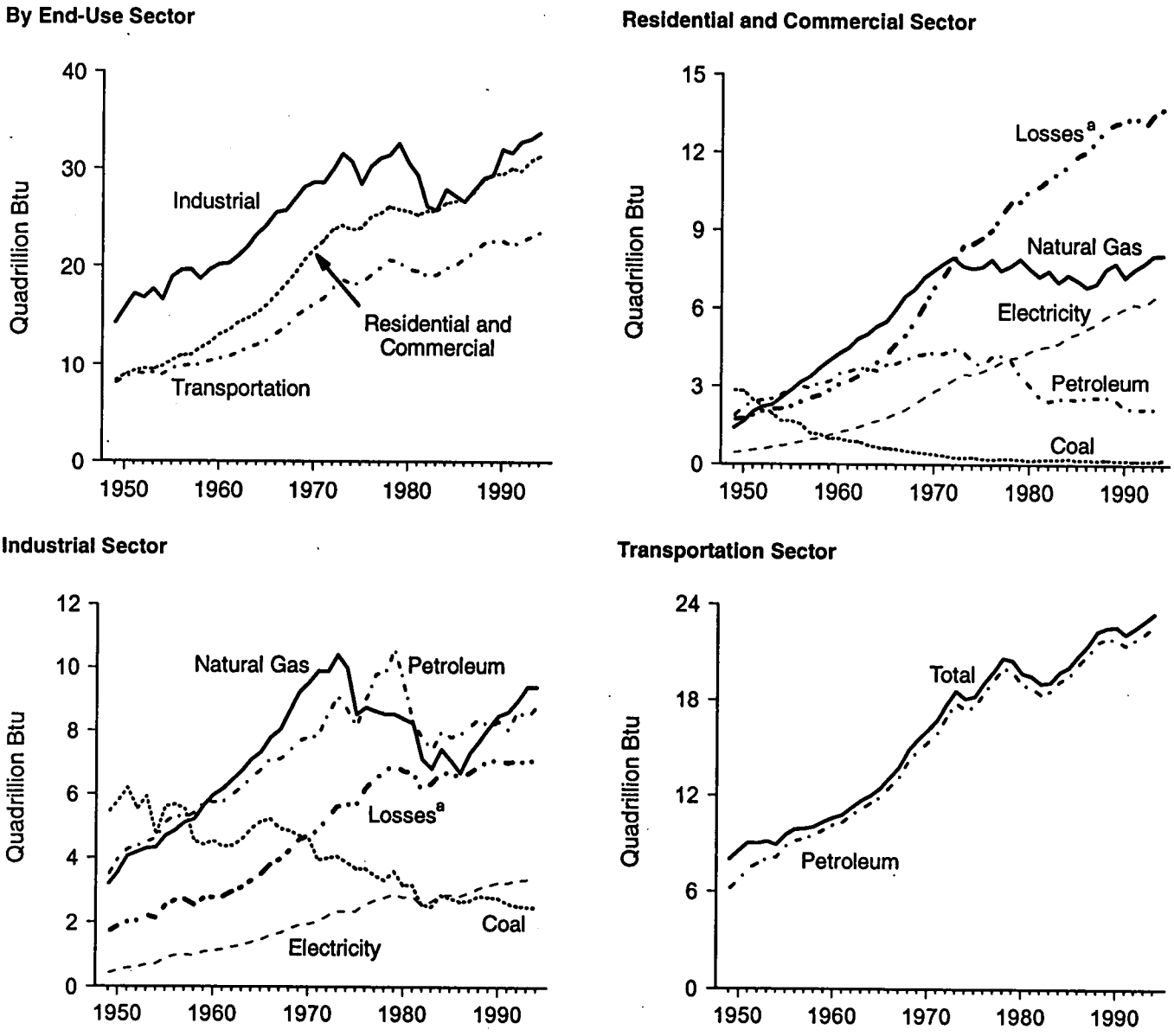
[1]Includes lease condensate.
Source: Energy Information Administration, *Annual Energy Review 1994*, DOE/EIA-0384(94) (Washington, DC, July 1995), Table 1.2.

Energy consumption data by end-use sector, parallel to those in *MER* Section 2, are presented in the *AER* as annual data series from 1949 through 1994. Analysis of extended time series reveals changing patterns in sector usage of energy (Figure 2). For example, the industrial sector's use of energy showed the greatest fluctuation among the major economic sectors, occasionally experiencing sharp changes in direction. The residential and commercial sector and the transportation sector, on the other hand, displayed much smoother courses, with only mild temporary downturns in their overall upward patterns.

Within the sectors, the use of energy sources changed dramatically over time. For example, in the residential and commercial sector, electricity use grew in every year except two (1974 and 1992) over the 45-year period, and the energy losses associated with producing and delivering electricity soared. Natural gas consumption in the same sector surpassed petroleum consumption in 1956 and led thereafter. Meanwhile, petroleum's usage began tapering off in the late 1970s, and consumption of coal—once the leading fuel in the sector—fell to virtually nothing.

While electricity and its associated losses grew steadily in the industrial sector also, the use of coal shrank. Natural gas and petroleum use in the industrial sector rose steadily and in tandem until the oil embargo in 1973, after which the use of both fuels moderated. The transportation sector's reliance on petroleum was nearly total for the entire period reported.

Figure 2. Energy Consumption by End-Use Sector, 1949-1994



[a]Electrical system energy losses associated with the generation, transmission, and distribution of energy in the form of electricity.
Note: Because vertical scales differ, graphs should not be compared.
Source: Energy Information Administration, *Annual Energy Review 1994*, DOE/EIA-0384(94) (Washington, DC, July 1995), Table 2.1.

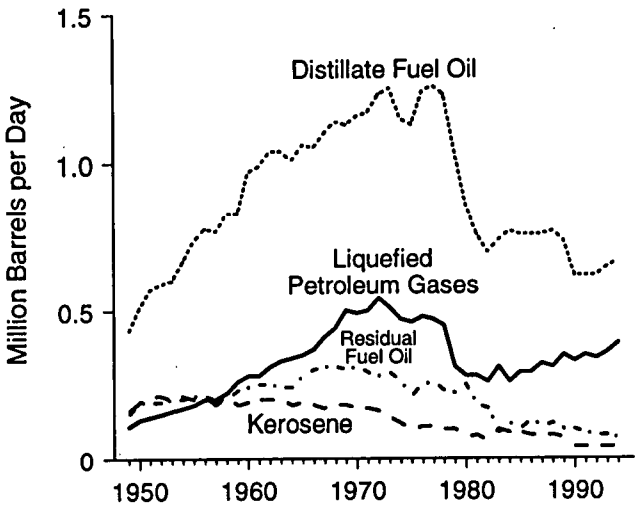
AER data also reveal shifts in patterns within specific fuel types. For example, consumption of the leading petroleum products by sector is reported (Figure 3). In the residential and commercial sector, the use of distillate fuel oil generally expanded until the late 1970s, when a steep drop in its consumption occurred.

In the industrial sector, the use of liquefied petroleum gases (LPG) recorded a smooth, steady growth pattern through the mid-1970s; from that point on, the general overall upward growth continued but, within that larger pattern, notable year-to-year ups and downs occurred. In 1968, LPG usage surpassed that of any other product in the sector and, by the early 1990s, far exceeded the others.

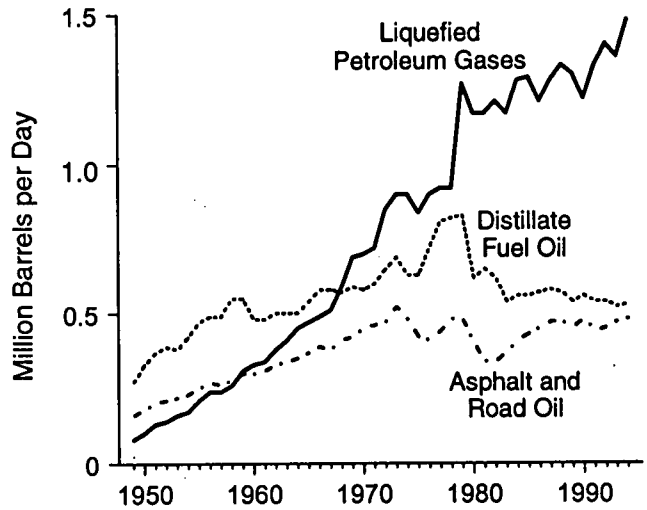
In the transportation sector, motor gasoline was overwhelmingly the fuel of choice. Its usage pattern is one of remarkably steady expansion, with only two temporary setbacks after the price shocks of the 1970s. In the electric utility sector, there was the unusual occurrence of a fuel's usage—heavy oil's—growing suddenly and then falling precipitously, all within a 20-year span.

Figure 3. Petroleum Products Supplied by Product by Sector, 1949-1994

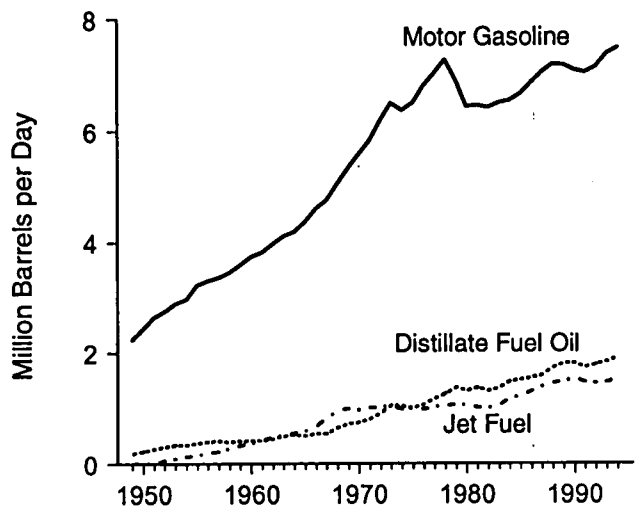
Residential and Commercial Sector, Selected Products



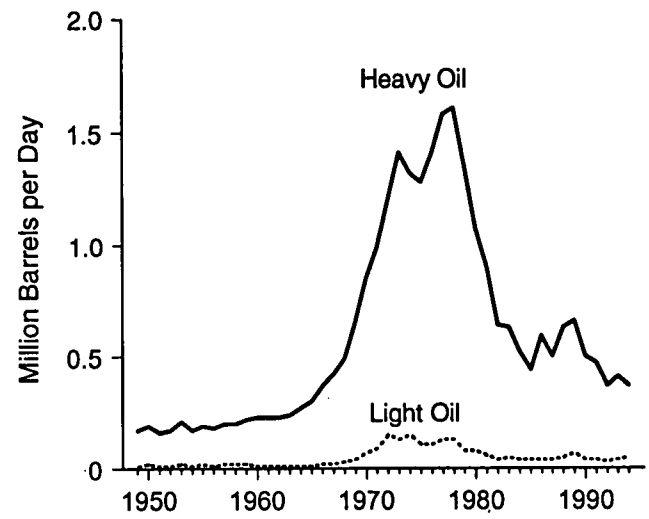
Industrial Sector, Selected Products



Transportation Sector, Selected Products



Electric Utilities, Selected Products



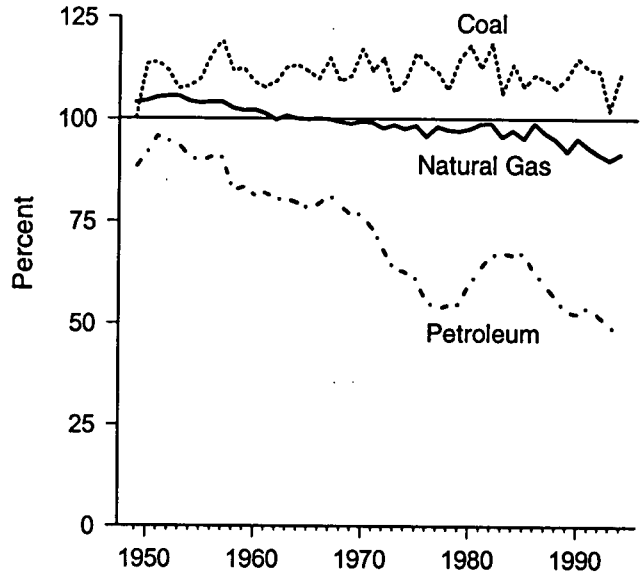
Note: Because vertical scales differ, graphs should not be compared.
Source: Energy Information Administration, *Annual Energy Review 1994*, DOE/EIA-0384(94) (Washington, DC, July 1995), Table 5.12b.

Each of the three major fossil fuels in the United States recorded distinctly different production-to-consumption ratios over the period covered in the *AER* (Figure 4). For example, after 1949, U.S. coal production always exceeded the Nation's consumption needs, and large quantities of coal were exported to other countries. The pattern for natural gas reversed in the 1960s, changing from production levels in excess of consumption to just the opposite. Petroleum, the third and most compelling case, moved from near balance of domestic production and consumption around 1950, to levels of consumption well in excess of domestic production by the mid-1970s and thereafter.

Underlying patterns within energy production are revealed in the long historical time series published in the *AER*. For example, the transition from underground to surface-mined coal (Figure 5) and the sharp increase in western coal production (Figure 6) are examples of the changing pictures that emerge from one decade to another.

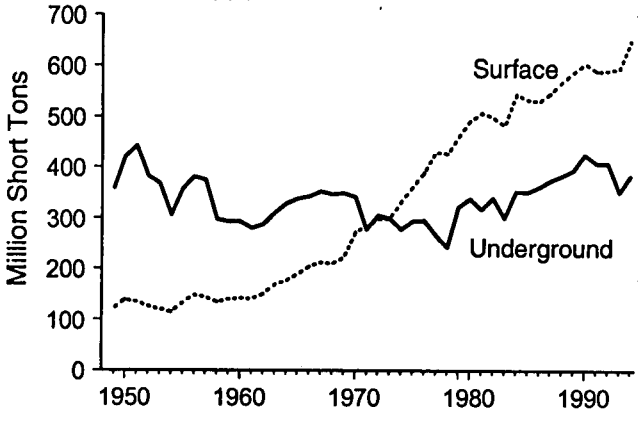
In addition to extending most of the *MER* historical time series, the *AER* provides other data that are useful to energy analysts, such as a wide range of international data series, financial and environmental indicators, renewable energy data, and selected series of non-electric utility data.

Figure 4. Production as Share of Consumption by Type of Fossil Fuel, 1949-1994



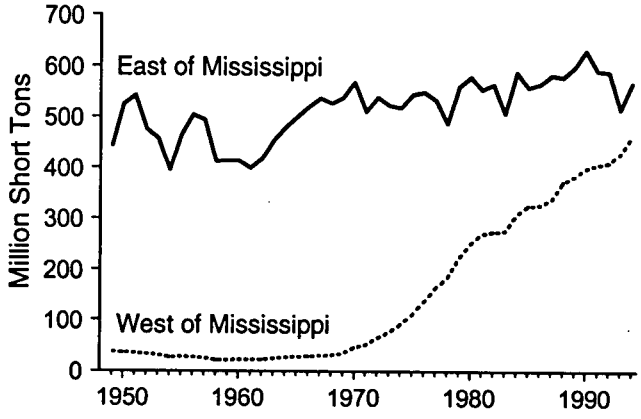
Source: Energy Information Administration, *Annual Energy Review 1994*, DOE/EIA-0384(94) (Washington, DC, July 1995), Table 7.1.

Figure 5. Coal Production by Mining Method, 1949-1994



Source: Energy Information Administration, *Annual Energy Review 1994*, DOE/EIA-0384(94) (Washington, DC, July 1995), Table 7.2.

Figure 6. Coal Production by Location, 1949-1994



Source: Energy Information Administration, *Annual Energy Review 1994*, DOE/EIA-0384(94) (Washington, DC, July 1995), Table 7.2.

EIA Contact: Samuel E. Brown
Telephone: 202–586–5103
Internet E–Mail: sbrown@eia.doe.gov
Fax: 202–586–0018

The *Annual Energy Review 1994* may be obtained by using the order form in the back of this publication. Most of the data that are published in the report are also available on personal computer diskettes. For more information about the 2-diskette set, call the Office of Scientific and Technical Information at 615–576–8401 or the National Technical Information Service at 703–487–4650.

Environmental Externalities in Electric Power Markets: Acid Rain, Urban Ozone, and Climate Change

by John Carlin*

Electric power plants that burn fossil fuels emit several pollutants linked to the environmental problems of acid rain, urban ozone, and the possibility of global climate change. Damages caused by those emissions are viewed by many economists as "externalities" and an inefficiency of the market when electric power rates do not reflect, nor ratepayers directly pay, the associated social costs. Until recently, efforts to control power plant emissions have focused on the command-and-control approach of setting standards. More recent efforts, including the Clean Air Act Amendments of 1990, have involved incentive-based measures, such as emissions fees and systems of marketable emissions allowances. A few State regulatory bodies are experimenting with methodologies to "price" environmental externalities and incorporate that cost information in deliberations about least-cost ways to meet projected demand for electric power. The spread of these methodologies could be affected by increased competition in the electricity industry, which would allow electric power customers direct access to a variety of electric power providers.

The central theme of the 1991 National Energy Strategy, developed by the U.S. Department of Energy (DOE), was to secure "a more efficient, less vulnerable, and environmentally sustainable energy future."[1] Also, the Energy Policy Act of 1992[2] (EPACT) required DOE to develop a least-cost national energy strategy that considers the economic, energy, environmental, and social costs of various energy technologies. Many observers argue that this requires incorporating all environmental costs of energy production, including the generation of electric power, in the costs of energy. When these costs are not captured by the marketplace, government involvement at the Federal, State, or local level may be proposed to "internalize" them in electric power prices.

This article discusses the emissions resulting from the generation of electricity by utilities and their role in contributing to the environmental problems of acid rain, urban ozone, and climate change. It then discusses the general concept of environmental externalities and assesses the means that have been devised to ameliorate them. The article analyzes the emissions-control requirements for electric utilities of the Clean Air Act Amendments of 1990 (CAAA)[3] and concludes with a brief examination of State initiatives directed at addressing environmental externalities associated with electric power generation. The article does not purport to analyze all externality costs and benefits associated with electric power generation or suggest what actual externality costs are or should be.

*The author is an industry analyst in the Office of Coal, Nuclear, Electric and Alternate Fuels at the Energy Information Administration (EIA). Comments may be directed to Mr. Carlin at 202-426-1146.

Air Emissions from Electric Power Plants

Pursuant to the provisions of the Clean Air Act of 1970[4] and its amendments, the Environmental Protection Agency (EPA) identified six common "criteria air pollutants" that are found all over the United States: volatile organic compounds (VOC's), nitrogen oxides (NO_x), carbon monoxide (CO), particulate matter less than 10 microns in diameter (PM_{10}), sulfur dioxide (SO_2), and lead. These pollutants are all subject to limits established by EPA in the National Ambient Air Quality Standards (NAAQS). Fossil-fired electric power plants emit all (though only trace amounts of lead) as byproducts of electricity generation. Several of these pollutants contribute to acid rain and urban smog, and some may contribute to global climate change.

In addition to the criteria pollutants, many State public utility commissions (PUC's) have been examining carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) as well. Those gases are greenhouse gases, which accumulate in the atmosphere, block infrared radiation to outer space, and reradiate the captured heat to the atmosphere. Many scientists believe that the resultant augmentation of the atmosphere's natural warming effect will ultimately change the Earth's climate.

The composition of emissions from electric power plants is, in part, a function of the completeness of the combustion process. The primary fuels burned in electric power plants (coal, natural gas, and distillate or residual oils) are carbon-hydrogen compounds that produce CO_2 and water vapor byproducts when completely combusted (oxidized). However, combustion is seldom complete, and incomplete combustion yields unburned fuel molecules, smoke

particles (primarily carbon), and partially oxidized carbon as CO. Nitrogen oxides result from the combustion of hydrocarbons in the presence of air, which is 21 percent oxygen and 78 percent nitrogen. During combustion, portions of both the atmospheric nitrogen and the fuel-bound nitrogen react with oxygen to form NO and NO_2. These compounds are referred to collectively as nitrogen oxides.[5]

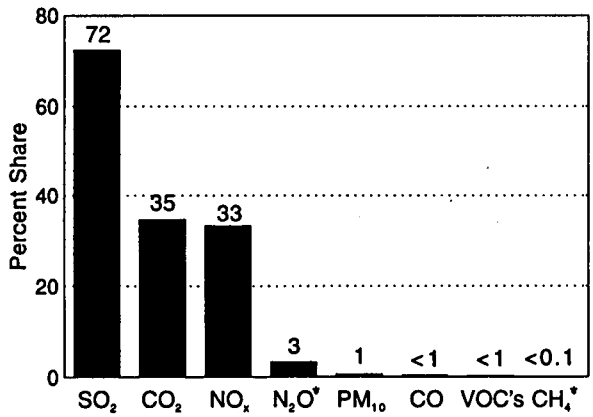
Fossil fuels also contain varying amounts of sulfur, which is oxidized to sulfur dioxide (SO_2) during combustion. The level of SO_2 emitted is a function of the type of fuel burned and the control equipment used rather than the combustion process. Sulfur is present in virtually all coals and fuel oils at levels ranging from trace amounts to 6 percent by weight.[6]

Electric utility power plants currently account for only a small percentage of U.S. total particulate emissions (Figure 1) because control devices, such as baghouse filters and electrostatic precipitators, remove most of the particulates from power plant waste gases. Similarly, electric utility power plants contribute only small percentages of total emissions of VOC's, CO, N_2O, and CH_4.* On the other hand, 72 percent, 35 percent, and 33 percent of total emissions of SO_2,[7] CO_2,[8] and NO_x,[9] respectively, come from utility power plants.

DOE has increasingly recognized that the lack of accurate and consistent (across fuel types) information on external costs distorts Federal energy research decisions and PUC decisions about emission control technologies. In 1991, DOE and the Commission of the European Communities committed to a joint study to develop comparative analytical methodologies to determine the external costs of the major fuels. Preliminary emissions data from the application of these methodologies by Oak Ridge National Laboratory indicate that substituting any major fuel for coal (or using clean-coal technology) reduces emissions of the key pollutants SO_2, NO_x, and CO_2 (Table 1).**

*Particulate, CO, and VOC emissions are much more significant at biomass electric generating plants.

Figure 1. Electric Utilities' Share of Total U.S. Emissions of Eight Air Pollutants, 1993



SO_2=sulfur dioxide, CO_2=carbon dioxide, NO_x=nitrogen oxides, N_2O=nitrous oxide, PM_{10}=particulate matter less than 10 microns in diameter, CO=carbon monoxide, VOC's=volatile organic compounds, CH_4=methane.

*1992 data.

Notes: • Approximately 37 percent of all methane emitted into the environment comes from landfills. • Nitrous oxide emissions are only from coal-fired plants. • PM_{10} data are for primary particulates only.

Sources: **CO_2, N_2O, CH_4:** Energy Information Administration, *Emissions of Greenhouse Gases in the United States, 1987–1992* DOE/EIA–0573 (Washington, DC, November 1994) pp. 9, 12, 25, 33, 45, 48. **SO_2, NO_x, PM_{10}, VOC's, CO:** Environmental Protection Agency, *National Air Pollutant Emission Trends, 1900-1993*, EPA–454/R–94–027 (Research Triangle Park, NC, October 1994) pp. 2–8, 2–9, 2–10.

Environmental Problems Related to Electric Power Plant Emissions

Electric power plant emissions are factors in three major environmental issues: acid rain, urban air quality, and global climate change. These issues are discussed below.

Acid rain. Acid rain refers to rain, fog, mist, or snow that is more acidic than normal. The acidity of precipitation is stated in terms of its pH level, which describes the concentration of hydrogen ions along a scale (from 0 to 14) that defines the continuum from acid to base. The pH scale is logarithmic; pH levels of 4.0 and 3.0, for example, are 10 and 100 times more acidic, respectively, than a pH level of 5.0. Although a pH level of 7.0 is neutral, unpolluted rainfall is normally slightly acidic (pH=5.6). Acid rain is defined as any precipitation with a pH of 5.5 or less.

Chemical analysis of data collected by means of cloud sampling and experimentation reveals the presence of sulfuric acid and nitric acid in precipitation in the United

**These emission data are specific to particular technologies and locations and provide only rough estimates of emission levels. For example, the coal-fired plants are assumed to be 500-megawatt facilities, each with a capacity factor of 75.0 percent and an efficiency rating of 34.5 percent. Also assumed is the use of electrostatic precipitators to control particulates (99.5 percent effectiveness), scrubbers to control SO_2 emissions (90 percent effectiveness), and low-NO_x burners to control emissions of oxides of nitrogen. The coal used in the East is assumed to have a sulfur content of 2.1 percent by weight, while that used in the West is assumed to contain 0.7 percent sulfur by weight.

Table 1. Estimated Emissions from Electric Power Generation (Tons per Gigawatthour)

Fuel	SO_2	NO_x	PM_{10}	CO_2	VOC's
Eastern Coal	1.74	2.90	0.10	1,000	0.06
Western Coal	0.81	2.20	0.06	1,039	0.09
Gas	0.003	0.57	0.02	640	0.05
Biomass	0.06	1.25	0.11	0[a]	0.61
Oil	0.51	0.63	0.02	840	0.03
Wind	0	0	0	0	0
Geothermal	0	0	0	0	0
Hydro	0	0	0	0	0
Solar	0	0	0	0	0
Nuclear	0	0	0	0	0

[a]Net emission.

SO_2=sulfur dioxide, NO_x=nitrogen oxides, PM_{10}=particulate matter with diameter less than 10 microns, CO_2=carbon dioxide, VOC's=volatile organic compounds.

Note: Estimates are hypothetical and are technology and location specific. They should only be used to give an order-of-magnitude estimate of relative damages.

Source: Oak Ridge National Laboratory, unpublished report, *The Impact of Environmental Externality Requirements on Renewable Energy* (Oak Ridge, TN, July 1994).

States (Figure 2).[10] Sulfur dioxide and nitrogen oxides in the air, partly the result of emissions from electric power plants, gradually react with water vapor and become acids. Precipitation becomes acidic by mixing with these acids. The acidity of the precipitation depends upon the amount of acid in the atmosphere and the amount of water in which it is dissolved. Undissolved acids may also fall to Earth by themselves or in combination with dust particles.

The most severely acidic conditions are found in the eastern United States. EPA believes that acid rain has been the primary cause of the acidification of hundreds of streams in the mid-Atlantic highlands and the New Jersey Pine Barrens and of many lakes in the Adirondack Mountains of New York.[11] The National Acid Precipitation Assessment Program (NAPAP) identified acid rain as one of several possible causes of increased nitrate leaching and acidification of surface waters in several northeastern watersheds. Episodes of acidification are believed to harm populations of fish and invertebrates in small streams and lakes.[12]

Field studies have implicated acid rain in observed damage to high-elevation red spruce forests in the northeastern United States. Nutrient leaching and changes in soil chemistry due to acid deposition have also been detected in forests south of the Great Lakes. In general, NAPAP concluded that acid deposition, among other stressors, threatens the long-term structure, function, and productivity of many sensitive ecosystems.[13]

Some research suggests that emissions of sulfates and other pollutants from the combustion of fossil fuels may be linked to abnormally high mortality rates in humans.[14] Clinical studies have shown lung irritation and impaired lung cleansing in human subjects exposed to acidic aerosols.[15]

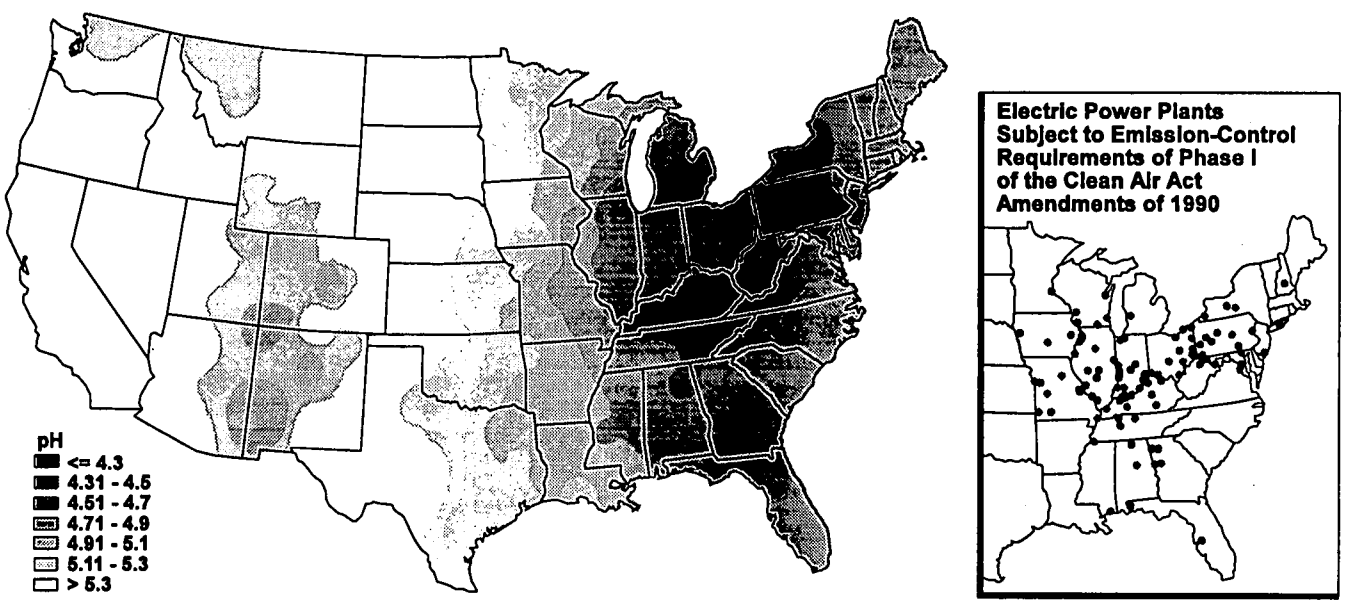
Urban ozone. Electric power plants contribute heavily to NO_x emissions, which are precursor chemicals that (along with VOC's) react in the atmosphere in the presence of sunlight to form ozone. Strong concentrations of ozone often occur in and downwind of large urban areas.

During cardiovascular exercise, human exposure to ozone at concentrations both above and below the 120-part-per-billion maximum allowed under the NAAQS has been shown to result in transient respiratory problems.[16] Ozone can also seriously irritate the eyes and mucous membranes. The effects of elevated ozone levels are not known for all types of vegetation, but such levels are harmful to many types of trees and crops. High ozone concentrations seem to be more detrimental than low-level extended exposure.[17]

The assessment of the impact of NO_x controls on ozone concentrations is complex and must be studied carefully in developing ozone abatement strategies, according to a 1992 report[18] from a National Research Council committee. The committee found that ambient measurements of VOC/NO_x ratios—which, as they vary, have different effects on ozone formation—were larger than expected from an assessment of emission inventories. The committee also determined that the effectiveness of efforts to control VOC and NO_x emissions depends on ambient VOC/NO_x ratios. Generally, at ratios of 10 or less, VOC control is more effective and NO_x control may be counterproductive. At ratios greater than 20, NO_x control is generally more effective. Hence, if VOC emission inventories have been understated, past ozone control strategies may have been misdirected. Tighter controls on NO_x may be more effective in controlling ozone under certain circumstances.

The committee also found that combinations of biogenic VOC's and anthropogenic NO_x can significantly affect ozone

Figure 2. Electric Utility Power Plants Subject to Emission-Control Requirements of Phase I of the Clean Air Act Amendments of 1990 and Average Acidity of Precipitation in the Continental United States, 1993



Sources: **Acid precipitation map:** National Atmospheric Deposition Program/National Trends Network, Natural Resource Ecology Laboratory, Colorado State University. **Power plant map:** Environmental Protection Agency, Office of Air and Radiation.

formation in some urban and rural regions of the United States and concluded, again, that the appropriate strategy may be to monitor and control NO_x emissions.

Global climate change. Greenhouse gases are necessary for life on Earth because they keep ambient temperatures well above what they would otherwise be. Many scientists believe that anthropogenic additions (some from electric power plants) to the Earth's natural complement of greenhouse gases are augmenting this greenhouse effect and thus raising global temperatures.

The principle greenhouse gases are water vapor, CO_2, CH_4, N_2O, and chlorofluorocarbons (CFC's).[19] The levels of CO_2 and N_2O in the atmosphere can be influenced by the amount of electricity generated and the fuel used. Of the fossil fuels, coal has the highest carbon content. Oil and natural gas have approximately 80 percent and 60 percent of the carbon content of coal, respectively, on an energy-equivalency basis.[20]

Although CO_2 is not a regulated pollutant, the reduction of greenhouse gas emissions in general, including those of CO_2, is the focus of several international efforts. The United States signed the Framework Convention on Climate Change during the 1992 United Nations Conference on Environment and Development. President Clinton reaffirmed the U.S. commitment to control greenhouse gases by developing the Climate Change Action Plan. This largely voluntary plan is intended to stabilize greenhouse gases at 1990 levels by 2000. In 1994, electric utility groups signed a memorandum of understanding with DOE to pursue voluntary reductions in emissions of greenhouse gases and DOE completed draft guidelines for utilities to report emissions reductions voluntarily.

Electric Power Environmental Externalities and Their Control

Externalities are defined as "benefits or costs, generated as a by-product of an economic activity, that do not accrue to the parties involved in the activity. Environmental externalities are benefits or costs that manifest themselves through changes in the physical-biological environment."[21] For example, the pollution emitted by fossil fuel-fired power plants may result in harm to people or the environment. Although those generators of electricity comply with environmental regulations and certainly do not intend to cause that harm, the costs (economic value) of the harm, if any, may not be included in the price of electricity. To the extent that the electricity industry does not pay these environmental costs and consumers do not pay the full cost of electricity they purchase, energy resources may not be allocated efficiently.

The practice of including all costs and benefits in market transactions is known as full-cost pricing. Full-cost pricing of electricity is a complex and controversial matter. Each policy or regulation to ameliorate externalities must account for the existing layer of policies and regulations. Many of these are environmental regulations. Others are regulators' decisions on electricity prices, which may cause prices to exceed the marginal costs of producing electricity. It is also difficult to precisely estimate the magnitude of the externalities. If environmental regulations are not stringent enough, some environmental externalities will remain; if regulations are too stringent, resources will be over-allocated to controls.

Further, the environment can absorb a certain level of pollution without damage. This threshold, below which control is not warranted, may be uniform throughout the country or may vary from region to region, depending on the pollutant and the environmental concern in question. The nature of the pollutant and the environmental problem greatly influence the viability of any abatement approach or strategy, which in turn influences the efficiency of resource allocations.

From the standpoint of developing an efficient control framework, perhaps the most important characteristics of an air pollutant are the sensitivity of its point of emission and whether it causes local, regional, or national air pollution. "Uniformly mixed" pollutants have the same effect on the atmosphere regardless of their geographic point of origin. For example, emissions of CO_2 from anywhere in the country or world have uniform impacts on climate change. The effects of "nonuniformly mixed" pollutants, on the other hand, are very sensitive to conditions around the point of emission. This sensitivity depends upon the state of the area's environment and whether the prevailing winds might transport the emissions to another area and exacerbate the problems there. The pollutants that cause urban ozone and acid rain are nonuniformly mixed pollutants. The emission of these pollutants in certain areas may not be a problem or result in externalities, and environmental economic theory states that they should be regulated (or not) accordingly.

Historically, three pollution-control techniques have been considered: emission standards, which are an important form of command-and-control measure; emission charges, fees, or taxes; and marketable emission allowances:

- An *emission standard* is simply a legal emissions rate or a limit on the amount of a pollutant an entity can emit. Standards allow pollutant emission levels to be precisely controlled, but they do little or nothing to promote cost minimization and seldom vary with the relative impact of the pollutant.

- *Emission charges or fees* are financial penalties imposed on each unit of emission from a source. In principle, each emission source reduces its emissions to the point where its marginal control costs are equal to the emission charge. This approach thus encourages emission sources to minimize the cost of control even though the regulating body does not know what the control cost is or how it differs from one facility to another. In theory, the emission fee should equal the marginal damage from the emission, i.e., the externality, had it not been internalized by the emission fee. A disadvantage of this approach, as well as the others, is that it does not account for the impact of these fees on the rest of the economy.

  One form of emission fee is expressed in the externality values ("adders") used by some PUC's. Those values are used to monetize the external costs of emissions so that they may be considered in decisions to build new electric power plants.

The two principal methods of monetization are calculating damage costs and calculating control (mitigation) costs. Damage cost estimations involve analysis and prediction of four factors: 1) emission quantities; 2) emission concentrations in the receiving medium; 3) the effect of those concentrations on the medium; and 4) the economic value of those effects. All four factors are subject to significant uncertainty.

Because of the difficulty in estimating damage costs, control costs (usually the cost of the most stringent emission control) are sometimes used as a proxy for damage costs. The implicit assumption in control costing is that society controls pollution until the benefits of additional controls would be outweighed by the costs. However, this assumption may not be valid. For instance, criteria air pollutants are controlled to satisfy health-based standards, not some criterion of overall economic efficiency. Furthermore, control costs seldom reflect the variability in damage costs and are thus often poor proxies.

- The use of *marketable emission allowances* permits regulating bodies to precisely control the total level of emissions and also to minimize the costs of control. Under this approach, each source needs an allowance for each unit of emission and the total number of allowances is limited to reflect the desired emission total. Along with technical options, such as changing fuel mixes or retrofitting facilities with pollution control devices, sources can use their marketable allowances to comply with emission regulations. If the operator of a source perceives the value of an allowance to be greater than the costs of retrofitting or switching fuels, the allowance may be saved for future use or sold in the marketplace to the highest bidder. The regulating body has precisely achieved its goal of a certain emission level by issuing the appropriate number of allowances. Because all marginal control costs for the last unit of emission for each source are equal, the total cost of controlling emissions to the desired level has been achieved at minimum cost. A limitation of this approach is the difficulty of agreeing upon the desired emission total. The use of offsets—for example, planting trees to absorb the CO_2 that would be emitted by a new fossil-fueled power plant—is similar to an allowance system and is being tried in several States.

Efficient control programs are much more easily developed for uniformly mixed pollutants than for nonuniformly mixed pollutants because emissions of the former have the same potential for damage regardless of their points of release. The policy objective is simply to control the level of total emissions at the lowest possible cost. The control of a nonuniformly mixed pollutant, on the other hand, is much more complicated. In addition to controlling the total quantity of emissions, regulators must also know the location of the emission sources, relevant wind and rain patterns, and existing environmental conditions within the geographic reach of the pollutant. Because of these factors, a single pollutant emitted from different sources may cause different degrees of damage. Emission charges and marketable allowance systems ideally should account for these differences in order to be as efficient as the systems designed for uniformly mixed pollutants. However, the impracticality of developing such designs could lead to regional dislocations.

Electric Utilities and the Clean Air Act Amendments of 1990

The 1963 Clean Air Act was the first attempt by the Federal Government to establish air quality standards requiring States to control pollution for the protection of human health and the environment. The act has since been amended several times, most recently by passage of the Clean Air Act Amendments of 1990. The CAAA significantly revised U.S. air pollution laws and mandated stringent regulations that were designed to become stricter and more comprehensive over time.*

The CAAA's acid rain program controls the emissions of SO_2 and NO_x from electric utilities. A system of marketable allowances is used to limit total emissions and minimize the costs of the SO_2 reduction program. The CAAA also requires EPA periodically to classify communities according to their success in meeting the NAAQS and to set attainment deadlines for those communities that have not yet met the standards. Until recently, more stringent ambient air quality control has not had much impact on the utility industry. However, as discussed above, studies completed after the CAAA became law have revealed that NO_x emissions under certain circumstances contribute to urban air quality problems.**

Acid Rain. Title IV of the CAAA authorizes EPA to develop a program to reduce SO_2 and NO_x emissions by 10 million tons annually and 2 million tons annually, respectively, from 1980 emission levels by 2000. The program is divided into two phases. Phase I, effective January 1, 1995, set an SO_2 emission limit of 2.5 pounds per million Btu for 261 generating units at 110 electric utility power plants in 21 States, all of them east of the 100th meridian (Figure 2). More than 75 percent of the affected generating capacity is located in eight States: Georgia, Illinois, Indiana, Missouri, Ohio, Pennsylvania, Tennessee, and West Virginia.[22] Also effective January 1, 1995, Phase I sets NO_x emission limits for the same 261 generating units if they use dry-bottom wall-fired boilers or tangentially-fired boilers.

Phase II, which begins January 1, 2000, will establish more stringent and far-reaching SO_2 reduction requirements. Virtually all electric utilities with fossil-fueled power plants will be covered. The maximum emission rate for SO_2 at most facilities will be 1.2 pounds per million Btu. Nationwide total SO_2 emissions will be capped at 8.9 million tons annually (14.8 million tons were emitted in 1993[23]). Newly constructed facilities will be able to emit SO_2 only to the extent that they purchase marketable allowances from existing facilities. Phase II also extends the NO_x standards to all remaining electric utility generating units (including wet-bottom boilers; cyclone-fired boilers; dry-bottom, vertically fired boilers; boilers with cell

*This discussion focuses on electric utilities. Under the provisions of the CAAA, control of emissions from nonutility generators may vary from State to State and according to facility size and startup date.

**The sections of the CAAA that address urban air quality and acid rain also have indirect impacts on greenhouse gases. However, those impacts are not discussed in this article.

burners; stokers; and fluidized bed combustion boilers) at the 261 Phase I generating units that were not regulated for NO_x emissions during Phase I.

CAAA Title IV allocates SO_2 allowances to affected power plants based on the prescribed emission limits during Phase I or Phase II.* The allowances can be used, sold, or saved for future use. In contrast to traditional "command and control" regulations, this market-based approach of selling allowances encourages the limitation of total SO_2 emissions at minimum cost. The Electric Power Research Institute has predicted that the value of the allowances will range from $190 per ton of SO_2 to $650 per ton during the period from 1995 through 2007, with the mid-range scenario predicting an increase in allowance prices from $250 per ton in 1995 to $480 per ton in 2007.[24]

In the near term, the upper limit on allowance prices can be estimated as the avoided cost of capital equipment for pollution control ($300 per ton and $600 per ton in Phase I and Phase II, respectively), or the cost of switching to low-sulfur coal,** whichever is lower. However, the March 1994 annual allowance auction produced prices of approximately $150 per ton.[25] This low price is partially the result of the mix of strategies chosen by electric utility power plant operators to meet the Phase I SO_2 standards. EIA data reveal that the primary strategy, chosen by 62 percent of operators on grounds of cost-effectiveness, is switching to low-sulfur coal. Approximately 15 percent of operators plan to comply by acquiring SO_2 allowances and 10 percent by installing scrubbers. Most utilities appear able to meet the Phase I standards for both SO_2 and NO_x with minor increases in rates.[26] Given the fixed number of allowances, long-term allowance prices will be driven by growth in both coal-fired generation and its cost.

The marketable allowance approach has been developed for uniform national application. However, acid rain problems vary from region to region. Theoretically, concerns of economic efficiency dictate that regions suffering greater damage from acid rain should allocate more resources to the minimization of SO_2 emissions. However, the CAAA regulations do not impose tighter standards in areas with greater damage, and they prohibit regulating authorities from restricting or controlling the acquisition or transfer of allowances. Although States can develop more stringent standards, it is not clear what steps they can take collectively to address serious region-wide damages. This problem could become more apparent during Phase II, when the western regions might sell excess allowances to the East.***

It is not yet clear which compliance strategies will be the most cost-effective for electric utilities. Phase II tightens the standards and extends them to virtually the entire industry, including new electric power plants that must compete for allowances if they are to be constructed. Plants in western States, which were not subject to Phase I requirements, will be covered under Phase II. Because 59 percent of the recoverable coal reserve base in the Western Region is low-sulfur coal (only 11 percent of the coal in the Interior Region and Appalachian Region is low-sulfur),[27]**** it is likely that enough low-sulfur coal will be available for western facilities to meet the standard for some time without turning to other means.

Title IV of the CAAA represents a compromise among the interests of various constituencies. The emphasis of Title IV was significantly to reduce national SO_2 emissions by means of a national cost-sharing and cost-minimization program, rather than to optimize the relationship between compliance costs and damage control. A more ideal program (from an environmental and economic point of view) would have attempted to vary the standards in accordance with the different levels of damage resulting from SO_2 emissions and to allow transfer of marketable allowances only among utilities that contribute to common damages. The current program could result in national compliance but disproportionately high emissions in certain regions of the country, particularly in the East, where damage is believed to be more severe.

Urban Ozone. In 1991, in accordance with the requirements of the CAAA, EPA designated 98 areas of the country as "nonattainment" areas with respect to the NAAQS for ground-level ozone.*****Since then, EPA has redesignated several of those areas as attainment areas, and in October 1994 EPA released air quality data indicating that many of the remaining nonattainment areas had met the standard and could officially be redesignated as attainment areas upon EPA approval of their State strategies to remain in compliance over the next 10 years. However, almost 100 million people still live in areas with below-standard air quality, primarily in the northeastern States and California (Figure 3).[28] The northeastern States are attempting to address their regional ozone problems through the Ozone Transport Commission,****** discussed further below.

Nitrogen oxides are the only pollutant emitted by electric power plants in significant amounts that contributes to local air pollution. Prior to the passage of the CAAA, NO_x emissions had received little attention. Los Angeles was the only area of the country that violated the NAAQS for nitrogen dioxide. In order to combat ozone formation, the CAAA strengthened NO_x automotive standards, placed controls on NO_x emissions from industrial plants in ozone nonattainment areas, and required coal-fired electric utility

*Specifically, a unit affected by Phase I requirements is allocated allowances equal to its annual average fuel consumption during the period 1985 through 1987, multiplied by an emissions rate of 2.5 pounds of SO_2 per million Btu. Phase II allowances are computed by using the same fuel consumption number multiplied by an emissions rate of 1.2 pounds of SO_2 per million Btu.

**Low-sulfur coal is defined as coal that, when burned, meets an emission standard of 1.2 pounds or less of SO_2 per million Btu.

***EIA forecasts that approximately 20 percent (net) of the West's allowances will be transferred to eastern facilities in 2005. See the Supplement to the *Annual Energy Outlook 1995*, DOE/EIA-0554(95)(Washington, DC, February 1995), Detailed Tables 54 through 66.

****U.S. coal producing regions are defined as follows: The Western Region is Alaska, Arizona, Colorado, Montana, New Mexico, North Dakota, Utah, Washington, and Wyoming. The Interior Region is Arkansas, Illinois, Indiana, Iowa, Kansas, western Kentucky, Louisiana, Missouri, Oklahoma, and Texas. The Appalachian Region is Alabama, eastern Kentucky, Maryland, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia.

*****EPA has set the ozone standard at 0.12 parts per million daily maximum one-hour average concentration, not to be exceeded more than once per year.

******The CAAA established the Ozone Transport Commission (OTC) to coordinate the efforts of States in the Northeast to solve their ozone problems. State-level coordination is necessary because ozone and its precursors, VOC's and NO_x, can be transported over long distances by winds. The OTC includes 12 Northeastern and mid-Atlantic States, the District of Columbia, and the EPA.

plants to meet maximum emission standards that varied with the type of boiler used.

As discussed in the preceding section, recent studies have indicated that, under certain circumstances, more extensive control of NO_x may be more effective at controlling urban ozone than aggressive controls on VOC's. Current NO_x standards under the CAAA may not be tight enough to reduce regional ozone levels in the northern or southeastern United States. Overall control strategies may need to be rethought and cost-effective strategies developed.[29]

Selected State Air Pollution Control Activities

States and EPA share responsibility under the CAAA for ensuring that all areas achieve compliance with air quality regulations. States are responsible for developing State Implementation Plans (SIP's), which define the means whereby States expect to achieve and maintain compliance with the NAAQS.

Some States have been developing emission control programs more stringent than those required by the CAAA. Among the more significant approaches are consideration of externalities in the deliberations of PUC's and State cooperation to address regional problems.

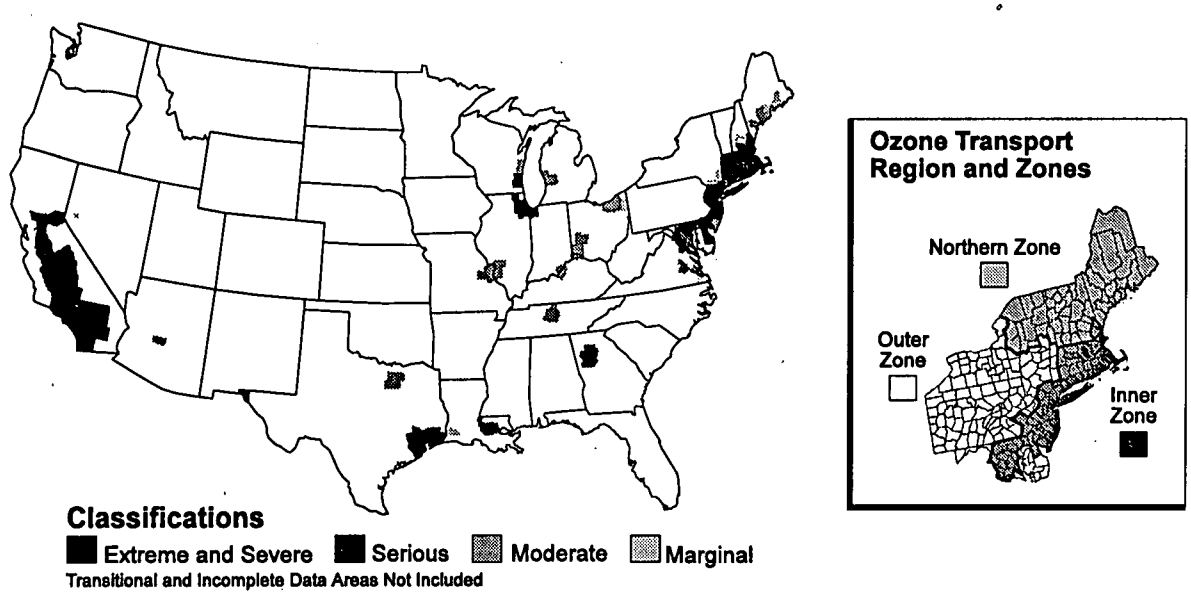
Public Utility Commissions. Some electric utilities have begun to consider externalities in the context of the integrated resource planning (IRP) mandated by a number of PUC's. Specifically, utilities may meet the demand for electric power by means of both supply- and demand-side resources. Supply-side resources include the construction of new capacity and purchases of power from independent power producers. Demand-side resources include demand-side management (DSM) programs, in which projected future demand is addressed in part by reducing energy consumption through the use of more energy-efficient appliances, equipment, and building materials. Integrated resource planning requires utilities to submit plans that consider both supply- and demand-side resources as part of their overall strategy of providing reliable electric power services at least cost. In some States, utilities must consider externalities, reflecting the desire of those PUC's to ensure that utilities consider the full costs of electricity in their new-resource decisions. Under those regulations, utilities add the externality values as if they were real costs in the utilities' tally of the overall costs of their resource options, and decide on new resources on the basis of the overall costs.

IRP is still a relatively new concept in many States.* Several have only recently issued orders requiring IRP plans and the plans are still being filed or are in public hearings and thus are not yet approved. EPACT mandated that all State PUC's and Federal power marketing authorities hold hearings on integrated resource planning for electric utilities so that all States will develop some sort of IRP process.

Although many State PUC's have rejected the use of externalities in IRP, as of July 1995, six PUC's were quantifying the estimated costs of air pollution (Table 2) for consideration

*Readers interested in more detail on State IRP planning and externality considerations may wish to consult a recent EIA report, *Electricity Generation and Environmental Externalities: Case Studies*, DOE/EIA-0598 (Washington, DC, September 1995). See also the following: a recent unpublished report from Oak Ridge National Laboratory entitled *The Impact of Environmental Externality Requirements on Renewable Energy* (Oak Ridge, TN, July 1994) (contact Mr. Carlin for more information); National Association of Regulatory Utility Commissioners, *Environmental Externalities and Electric Utility Regulation* (Washington, DC, September 1993); and National Renewable Energy Laboratory, *Issues and Methods in Incorporating Environmental Externalities into the Integrated Resource Planning Process*, NREL/TP-461-6684 (Golden, CO, November 1994).

Figure 3. The Ozone Transport Region and Areas with Air Quality Not Meeting National Ambient Air Quality Standards for Ozone as of January 1995



Sources: **Main map:** Derived by EIA from data supplied by Environmental Protection Agency, Office of Air Quality Planning and Standards. **Inset map:** Memorandum of Understanding Among the States of the Ozone Transport Commission on Development of a Regional Strategy Concerning the Control of Stationary Source Nitrogen Oxide Emissions (September 27, 1994).

in their decisions to construct new plants.[30] Nevada, for example, arrives at the full cost of electricity by imposing a penalty of over 4 cents per kilowatthour on utility coal-fired plants. These costs vary significantly from State to State (and sometimes within a State), in part because PUC's are just beginning to quantify environmental costs and no consensual approach or methodology yet exists. In general, PUC's employ control-cost values. The recently completed joint DOE-European Commission study,[31] as well as other studies,* confirmed the feasibility of calculating damage-cost values, which are theoretically preferred to control-cost estimates. Damage-cost estimates are usually smaller in magnitude than control-cost estimates.

The California Direct Access Proposal. External costs, however, are certainly not the only factors PUC's must address in their deliberations. Customer concerns for lower rates and the prospect of increased competition among all generators of electric power are leading to a deemphasis of externality considerations.

These concerns are, perhaps, most prominent in California. Seeking to lower the cost of electric service in an increasingly competitive economic environment, the California PUC in April 1994 began an investigation and rulemaking on a major restructuring of the State's electric services industry to dismantle the traditional arrangement by which utilities hold regulated monopolies on electric power services in their service areas. The restructuring revolves around the concept of retail wheeling, also known as direct access. Under a direct access regime, customers would pay their local utilities a retail wheeling charge for transmission and distribution services and could buy electricity generation service from any supplier. The development of competition in the industry could lead to substantially lower consumer prices for electricity and to major gains in the productivity of the economy as a whole.

In its most recent proposal, in April 1995, the California PUC favored the creation of a "pool" that would serve as the operator of the electric grid system, by coordinating dispatch and delivery of electricity, and as a clearinghouse for all electricity transactions. Utilities would purchase power from the pool on behalf of their customers and bid into the pool to sell their generation. All suppliers of electricity (except for existing qualifying facilities and wholesale contracts, and investor-owned nuclear and hydroelectric supplies, which reflect past investment commitments) would compete with one another. They would submit bids to supply power to the pool in specific time increments.**

The California proposal retains environmental quality as an important goal but provides little detail on how environmental

*See Office of Technology Assessment, *Studies of the Environmental Costs of Electricity*, OTA-ETI-134 (Washington, DC, September 1994) for discussion.

**One commissioner advocated a "purer" model of direct access that omitted the pool.

Table 2. Selected Externality Values Used by State Public Utility Commissions

States	SO_2		NO_x		CO_2		N_2O		PM_{10}	
	$/ton	¢/kWh	$/ton	¢/kWh	$/ton	¢/kWh	$/ton	¢/kWh	$/ton	¢/kWh
California Nonattainment Areas:										
S. Cal. Ed./S.D. G.&E.	23,490	1.90	31,448	6.92	9.00	0.94	–	–	6,804	0.04
Pacific Gas & Electric	4,486	0.36	9,120	2.01	9.00	0.94	–	–	2,624	0.02
California Attainment Areas	1,720	0.14	1,720	0.38	9.00	0.94	–	–	4,608	0.03
Massachusetts[a]	1,700	0.30	7,200	2.09	24.00	2.40	4,400	cu	–	–
Minnesota[b]										
Low	0	0.00	59	0.02	5.99	0.60	–	–	–	–
High	300	0.05	1,640	0.48	13.60	1.36	–	–	–	–
Nevada	1,716	0.14	7,480	1.65	24.00	2.50	4,554	cu	4,598	0.03
New York	1,437	0.25	1,897	0.55	1.00	0.10	–	–	–	–
Oregon[b]										
Low	–	–	2,000	0.44	10.00	1.04	–	–	–	–
High	–	–	5,000	1.10	40.00	4.16	–	–	–	–
Wisconsin	–	–	–	–	15.00	1.50	2,700	cu	–	–

[a]In December 1994, the Massachusetts Supreme Court ruled that the State public utility commission had no authority to require the use of these values and they are no longer in effect.

[b]State uses a range of externality values.

SO_2=sulfur dioxide, NO_x=nitrogen oxides, CO_2=carbon dioxide, N_2O=nitrous oxide, PM_{10}=particulate matter less than 10 microns in diameter.

S. Cal. Ed./S.D. G.&E.=Southern California Edison and San Diego Gas & Electric.

–=Not applicable; externality value not required by public utility commission.

cu=No conversion because emissions data not available.

Note: Conversions of dollars per ton to cents per kilowatthour are estimates by Oak Ridge National Laboratory. The estimates assume that all electric power plants involved burn pulverized coal, that power plants east of the Mississippi River burn bituminous eastern coal, and that power plants west of the Mississippi River burn subbituminous western coal. Cents-per-kilowatthour values are calculated by multiplying dollar-per-ton numbers by the emissions values found in Table 1. For example, the cents-per-kilowatthour value for SO_2 in the service area of Southern California Edison and San Diego Gas & Electric is derived by multiplying ($23,490 per ton) x (0.81 tons per gigawatthour) and converting to cents per kilowatthour (1.9).

Source: Oak Ridge National Laboratory, *The Impact of Environmental Externality Requirements on Renewable Energy*, unpublished report prepared for the Energy Information Administration (Oak Ridge, Tennessee, July 1994), Table A-1.

quality would be preserved under the new regulatory arrangement. The option favored by the PUC is to shift all responsibility for environmental protection to environmental, rather than energy, regulators, although one commissioner favored environmental performance standards for local distribution companies. None of the commissioners favored emissions surcharges that would internalize the damages for environmental externalities.

California is not the only State interested in increased competition and deregulation. The National Conference of State Legislatures (NCSL) has reported a major increase in the number of calls from legislators asking for advice on retail wheeling bills. Among the major opponents of direct access proposals are environmentalists and those supporting energy conservation. Environmentalists fear that the focus on reducing rates will cause the external costs of fossil fuel-fired generation to be overlooked, thereby rendering renewable energy projects financially infeasible. Opponents also fear the demise of demand-side management programs, because utilities that have made investments in such programs would lose market share if they intended to recover their investments through higher rates. In April 1994, a coalition of almost 60 organizations banded together to oppose such plans, citing environmental and energy conservation concerns.[32] Since then, many fruitful discussions have taken place among the various stakeholders, but there is no consensus yet on an effective means of reducing environmental externalities in a deregulated environment.

If retail wheeling policies are adopted across the country, investor-owned utilities could point to disparities between the requirements they face and those faced by independent generators not under the jurisdiction of State PUC's. PUC-regulated utilities could argue for greater flexibility in selecting the lowest cost resources, unburdened by requirements to consider externalities or non-fossil energy set-asides, both of which increase utilities' costs.

Widespread adoption of retail wheeling would give rise to complex jurisdictional concerns and result in regional markets that transcend State boundaries. It would also introduce a variety of generators into electric power markets; many of those generators would not be under the jurisdiction of State PUC's. Thus, to the extent that damages to human health and the environment are regarded as true economic costs, some public action would be needed if these costs were to be internalized. Such action would require public support and might entail additional Federal involvement. Such a Federal role might reduce the problems associated with piecemeal State-by-State regulation of retail wheeling and might also provide a regulatory framework for addressing environmental externality issues that cross State lines.

Northeast Ozone Transport Commission. Another major activity involving the States is the creation of the Ozone Transport Commission (OTC) to coordinate control efforts among the States in the Northeast that make up the Ozone Transport Region (OTR). The OTR is divided into the Inner Zone, the Outer Zone, and the Northern Zone (Figure 3). The OTC's primary mission is to develop strategies for controlling and reducing ozone and its precursors throughout the region. To achieve this objective, a memorandum of understanding among the States of the region to control stationary-source NO_x has been developed. Key sections of the agreement are as follows:

- The States agree to propose regulations and/or legislation for the control of NO_x emissions from fossil-fueled boilers and other indirect heat exchangers with a maximum gross heat input rate of at least 250 million Btu per hour during the period May 1 to September 30 of each year.

- The States agree to propose regulations that require subject sources in the Inner Zone and Outer Zone to reduce their rate of NO_x emissions by 65 percent and 55 percent, respectively, from base year levels by May 1, 1999, or to emit NO_x at a rate no greater than 0.2 pounds per million Btu.

- The States agree to propose regulations that require sources* in the Inner Zone and Outer Zone to reduce their rates of NO_x emissions by 75 percent from base year levels by May 1, 2003, or to emit NO_x at a rate no greater than 0.15 pounds per million Btu.** The regulations for the Northern Zone are similar, except that NO_x emission levels are to be reduced by 55 percent or to a rate no greater than 0.2 pounds per million Btu.

- The States agree to develop a regionwide trading mechanism in consultation with EPA.[33]

Several utilities in the region have said that complying with the NO_x regulations would cost "tens of millions of dollars."[34] It is likely that utilities in the Northeast will coordinate individual control efforts for NO_x and SO_2 emissions so that a least-cost program that minimizes the combined cost of control is developed.

Summary and Conclusions

Electric power plants emit significant quantities of three pollutants (CO_2, SO_2, and NO_x) that contribute heavily to local, regional, or national environmental problems, or all three. National standards to address problems that vary by region may not optimize the relationship between compliance costs and damage control.

The Phase I provisions of Title IV of the CAAA and the creation of the Ozone Transport Commission reflect a Federal effort to require primarily eastern States to work together in resolving common environmental problems that cross State lines. However, SO_2, a pollutant that leads to different levels of damage in different parts of the country, is being controlled with a national standard. States, particularly those in the Northeast that are believed to be suffering the most severe damages, could develop more stringent standards. They need the cooperation of other States in the region if significant emission reductions are to be achieved. States seeking such cooperation may have to make further

*The reductions for 1999 are limited to fossil fuel-fired boilers and other heat exchangers with 250-million-Btu/hour heat inputs and with a potential to emit about 250 tons per year of NO_x at a 50-percent capacity factor and an emission rate of 0.5 pounds of NO_x per million Btu.

**The cutoff point for 1999 reductions does not apply (see previous footnote).

adjustments during Phase II, when there could be a net inflow of allowances from the West.

Many States and PUC's have developed utility emission control programs to address the States' particular environmental problems. One such approach is the incorporation of external environmental costs into decisions about how best to meet projected demand for electric power. The possibility that externality considerations could become standard practice in the PUC community is strongly related to the theoretical soundness of the approach chosen, the perception of fairness by all affected parties, and the consistency of treatment from State to State. The more the externality values chosen by PUC's reflect real (even if estimated) damages caused by a particular utility's emissions, the more efficient, fair, and consistent the approach. A key factor in determining the value of the externality is the sensitivity of the location of the source of a particular emission and any damage to the environment it may cause. Some emissions (such as SO_2) cause measurable damage only if they are emitted or blown into an area of the country that exceeds the threshold for SO_2. On the other hand, any damage to the environment from an emission such as CO_2 is insensitive to the point of emission.

A perfectly efficient and fair policy is elusive. The use of externalities in IRP decision making is complicated by other related regulations, the possible effect of utilities' use of adders on their electricity prices, and the divergence between regulated prices and utilities' marginal costs. Also, the concept of externalities applies not only to different fuels and technologies but also to all electric generating competitors, including utilities in neighboring States, unregulated independent power producers, companies that generate power for their own use, and the nonelectric sectors of the economy.* Externalities need to be considered during the debate over increasing electric utility competition. As the debate evolves, PUC's will have to determine whether their concerns for externalities can be addressed equitably and efficiently.

*For more information concerning these "piecemeal problems," see National Association of Regulatory Utility Commissioners, *Environmental Externalities and Electric Utility Regulation* (Washington, DC, September 1993) and National Renewable Energy Laboratory, *Issues and Methods in Incorporating Environmental Externalities into the Integrated Resource Planning Process*, NREL/TP-461-6684 (Golden, CO, November 1994).

Notes

[1]U.S. Department of Energy, *National Energy Strategy*, DOE/S-0082P (Washington, DC, February 1991), p. 2.

[2]Public Law 102-486, 42 U.S.C. 13201, "Energy Policy Act of 1992" (Enacted October 24, 1992).

[3]Public Law 101-549, 42 U.S.C. 7401, "Clean Air Act Amendments of 1990" (Enacted November 15, 1990).

[4]Public Law 91-604, 42 U.S.C. 1857, "Clean Air Act" (Enacted December 31, 1970).

[5]B. Nebel, *Environmental Science: The Way the World Works* (Englewood Cliffs, NJ: Prentice Hall, 1990), p. 307.

[6]IEA Coal Research, *Coal Specifications—Impact on Power Station Performance*, IEACR/52 (London, England, January 1993), p. 21.

[7]U.S. Environmental Protection Agency, *National Air Pollutant Emission Trends, 1900–1993*, EPA 454/R-94-027 (Research Triangle Park, NC, October 1994), Table A-4.

[8]Energy Information Administration, *Emissions of Greenhouse Gases in the United States 1987-1992*, DOE/EIA-0573 (Washington, DC, November 1994), Tables 4 and 5.

[9]*National Air Pollutant Emission Trends*, Table A-2.

[10]*Environmental Science*, p. 324.

[11]U.S. Environmental Protection Agency, *Energy Efficiency and Renewable Energy; Opportunities from Title IV of the Clean Air Act*, EPA 430-R-94-001 (Washington, DC, February 1994), p. 8.

[12]National Acid Precipitation Assessment Program, *1992 Report to Congress* (Washington, DC, June 1993), p. 6.

[13]NAPAP *1992 Report to Congress*, p. 5.

[14]*Energy Efficiency and Renewable Energy*, p. 10.

[15]NAPAP *1992 Report to Congress*, p. 90.

[16]National Research Council, *Rethinking the Urban Ozone Problem in Urban and Regional Air Pollution* (Washington, DC: National Academy Press, 1992), pp. 31–33.

[17]Ibid., p. 37.

[18]Ibid., pp. 11,12.

[19]Energy Information Administration, *Emissions of Greenhouse Gases in the United States 1985–1990*, DOE/EIA-0573 (Washington, DC, September 1993), p. 1.

[20]D.J. Wuebbles and J. Edmonds, *Primer on Greenhouse Gases*, (Chelsea, MI: Lewis Publishers, Inc., 1991), p. 33.

[21]National Association of Regulatory Utility Commissioners, *Environmental Externalities and Electric Utility Regulation* (Washington, DC, September 1993), p. 3.

[22]Energy Information Administration, *Acid Rain Compliance Strategies for the Clean Air Act Amendments of 1990*, DOE/EIA-0582 (Washington, DC, March 1994), Table 2.

[23]Energy Information Administration, *Annual Energy Outlook, with Projections to 2010*, DOE/EIA-0383(95) (Washington, DC, January 1995), p. 30.

[24]*Energy Efficiency and Renewable Energy*, p. 9.

[25]A.D. Kissam, "Pollution Control for Cash," *Independent Energy*, Vol. 25, No. 1 (January 1995), pp. 52–54.

[26]*Acid Rain Compliance Strategies*, pp. x–xi.

[27]Energy Information Administration, *U.S. Coal Reserves: An Update by Heat and Sulfur Content*, DOE/EIA-0529(92) (Washington, DC, February 1993), Table 8.

[28]U.S. Environmental Protection Agency press release R-255, "EPA report shows continuing progress in cleaning Nation's air," October 19, 1994.

[29]U.S. Environmental Protection Agency, *Implementing the 1990 Clean Air Act: The First Two Years*, EPA-400-R-92-013 (Washington, DC, November 1992), pp. 66-67.

[30]Oak Ridge National Laboratory, *The Impact of Environmental Externality Requirements on Renewable Energy*, unpublished report prepared for the Energy Information Administration (Oak Ridge, Tennessee, July 1994), Table A-1.

[31]McGraw-Hill/Utility Data Institute, *U.S.-EC Fuel Cycle Externality Study, Volumes I-VII* (Washington, DC, 1994-95).

[32]D. Wagman and J. Simpson, "Retail Wheeling Opponents Join Forces," *Fortnightly*, Vol. 38, No. 8 (April 15, 1994), p. 7.

[33]Memorandum of Understanding Among the States of the Ozone Transport Commission on Development of a Regional Strategy Concerning the Control of Stationary Source Nitrogen Oxide Emissions (September 27, 1994).

[34]"Eastern Utilities Say OTC NO_x Plan Compliance Would Run Into Millions," *Electric Utility Week* (October 17, 1994), p. 12.

Section 1. Energy Overview

Energy production during August 1995 totaled 5.8 quadrillion Btu, a 0.7-percent decrease from the level of production during August 1994. Coal production decreased 3.7 percent, crude oil and natural gas plant liquids decreased 1.3 percent, and production of natural gas decreased 0.1 percent. All other forms of energy production combined were up 6.4 percent from the level of production during August 1994.

Energy consumption during August 1995 totaled 7.5 quadrillion Btu, 4.9 percent above the level of consumption during August 1994. Consumption of natural gas increased 10.3 percent, consumption of coal was up 9.8 percent, and petroleum products consumption fell 0.7 percent. Consumption of all other forms of energy combined increased 5.2 percent from the level 1 year earlier.

Net imports of energy during August 1995 totaled 1.6 quadrillion Btu, 1509percent below the level of net imports 1 year earlier. Net imports of petroleum decreased 4.3 percent and net imports of natural gas were up 1.8 percent. Net exports of coal rose 17.3 percent from the level in 1994.

Table 1.1 Energy Summary for August 1995

(Quadrillion Btu)

	August			Cumulative January Through August				
	1995	1994	Percent Change[a]	1995	1995 Daily Rate	1994	1994 Daily Rate	Percent Change[a]
Production[b]	**5.825**	**5.866**	**-0.7**	**45.475**	**0.187**	**44.812**	**0.184**	**1.5**
Coal	1.940	2.014	-3.7	14.613	.060	14.610	.060	.0
Natural Gas (Dry)	1.610	1.612	-.1	13.007	.054	12.870	.053	1.1
Crude Oil[c] and Natural Gas Plant Liquids	1.365	1.384	-1.3	10.872	.045	10.949	.045	-.7
Other[d]	.910	.855	6.4	6.984	.029	6.382	.026	9.4
Consumption[b]	**7.511**	**7.159**	**4.9**	**58.323**	**.240**	**57.579**	**.237**	**1.3**
Coal	1.957	1.782	9.8	13.187	.054	13.264	.055	-.6
Natural Gas[e]	1.601	1.451	10.3	14.949	.062	14.475	.060	3.3
Petroleum Products[f]	2.996	3.016	-.7	22.912	.094	23.126	.095	-.9
Other[g]	.958	.910	5.2	7.274	.030	6.714	.028	8.3
Net Imports	**1.573**	**1.671**	**-5.9**	**11.838**	**.049**	**12.447**	**.051**	**-4.9**
Coal[h]	-.185	-.157	17.3	-1.370	-.006	-1.070	-.004	28.1
Natural Gas	.213	.209	1.8	1.730	.007	1.656	.007	4.5
Petroleum[i]	1.497	1.565	-4.3	11.189	.046	11.529	.047	-3.0
Other[j]	.047	.054	-12.9	.290	.001	.332	.001	-12.5

[a] Based on daily rates prior to rounding.

[b] Due to a lack of consistent historical data, some renewable energy sources are not included. For example, in 1992, 3.0 quadrillion Btu of renewable energy consumed by U.S. electric utilities to generate electricity for distribution is included, but an estimated 3.0 quadrillion Btu of renewable energy used by other sectors is not included.

[c] Includes lease condensate.

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

[e] Includes supplemental gaseous fuels.

[f] Products obtained from the processing of crude oil (including lease condensate), natural gas, and other hydrocarbon compounds.

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

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

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

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

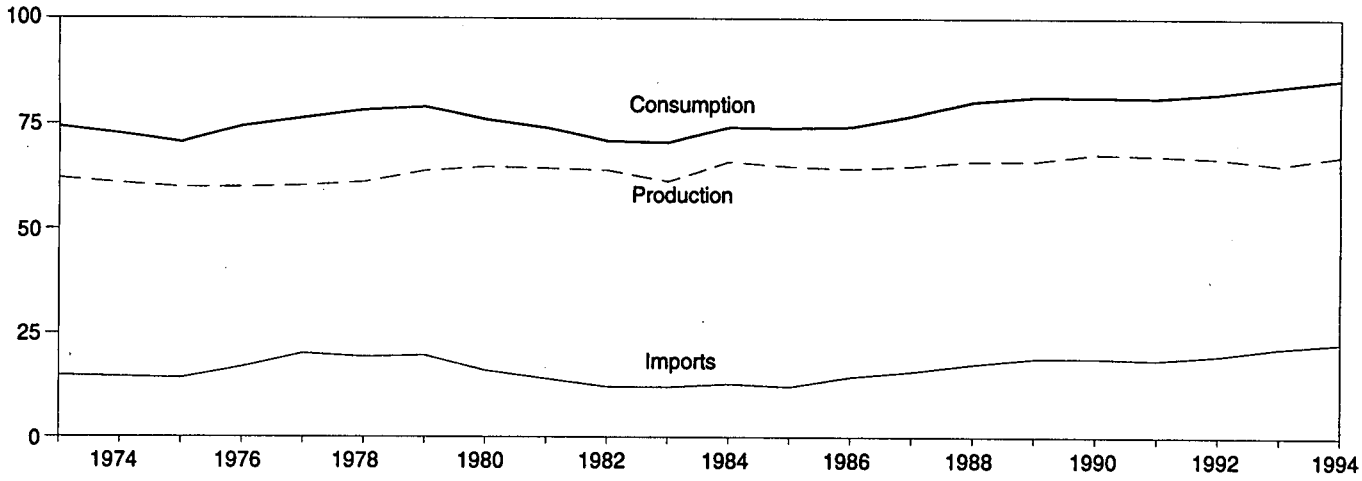
Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: Tables 1.3, 1.4, and 1.5.

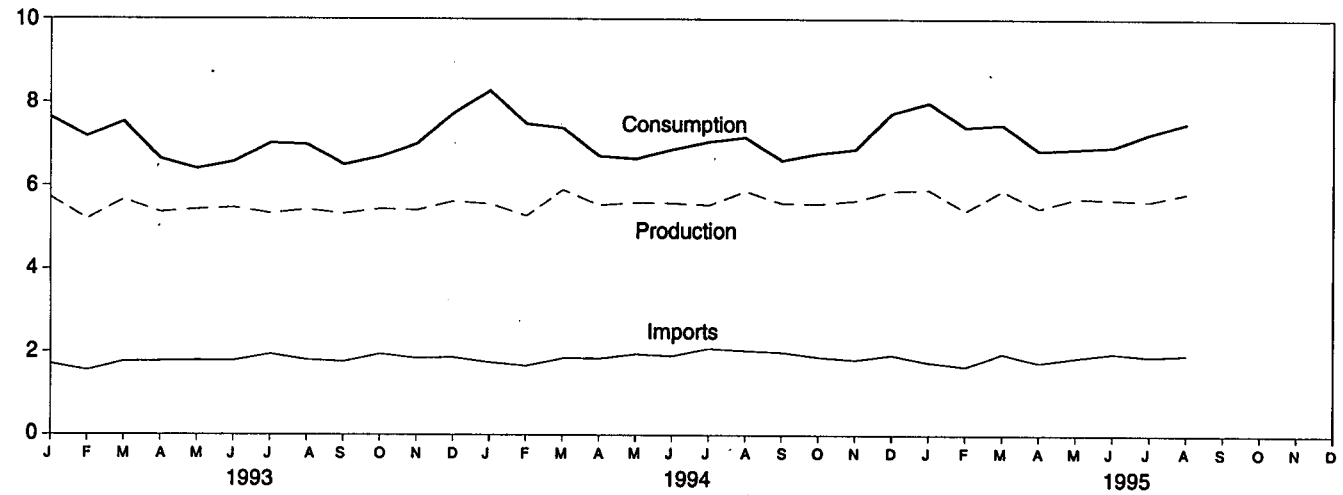
Figure 1.1 Energy Overview

(Quadrillion Btu)

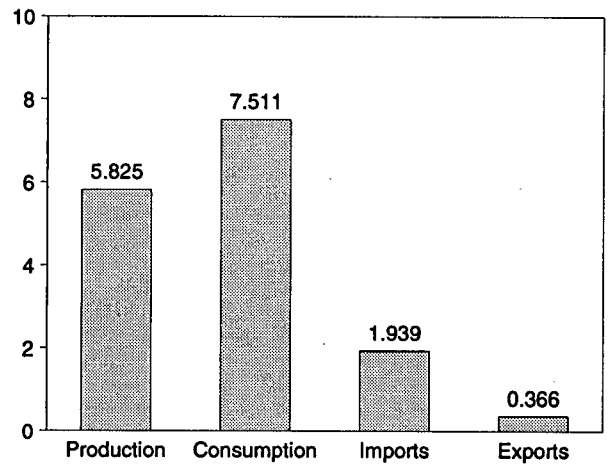
Consumption, Production, and Imports, 1973-1994



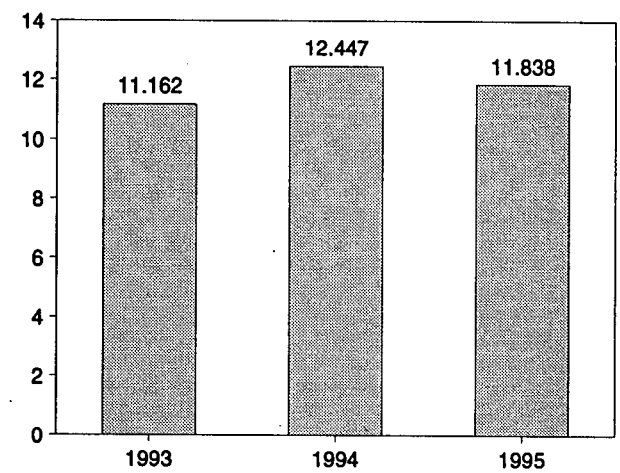
Consumption, Production, and Imports, Monthly



Overview, August 1995



Net Imports, January-August



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

Table 1.2 Energy Overview

(Quadrillion Btu)

	Production[a]	Consumption[a,b]	Imports	Exports	Net Imports
1973 Total	**62.060**	**74.282**	**14.731**	**2.051**	**12.680**
1974 Total	**60.835**	**72.543**	**14.413**	**2.223**	**12.190**
1975 Total	**59.860**	**70.546**	**14.111**	**2.359**	**11.752**
1976 Total	**59.892**	**74.362**	**16.837**	**2.188**	**14.648**
1977 Total	**60.219**	**76.288**	**20.090**	**2.071**	**18.019**
1978 Total	**61.103**	**78.089**	**19.254**	**1.931**	**17.323**
1979 Total	**63.801**	**78.898**	**19.616**	**2.870**	**16.746**
1980 Total	**64.761**	**75.955**	**15.971**	**3.723**	**12.247**
1981 Total	**64.421**	**73.990**	**13.975**	**4.329**	**9.646**
1982 Total	**63.962**	**70.848**	**12.092**	**4.633**	**7.460**
1983 Total	**61.279**	**70.524**	**12.027**	**3.717**	**8.310**
1984 Total	**65.962**	**74.144**	**12.767**	**3.804**	**8.963**
1985 Total	**64.871**	**73.981**	**12.103**	**4.231**	**7.872**
1986 Total	**64.350**	**74.297**	**14.438**	**4.055**	**10.382**
1987 Total	**64.952**	**76.894**	**15.764**	**3.853**	**11.911**
1988 Total	**66.105**	**80.218**	**17.564**	**4.415**	**13.149**
1989 Total	**66.129**	**81.325**	**18.947**	**4.765**	**14.181**
1990 Total	**67.853**	**81.265**	**18.987**	**4.910**	**14.077**
1991 Total	**67.484**	**81.116**	**18.577**	**5.220**	**13.357**
1992 Total	**66.853**	**82.144**	**19.650**	**5.017**	**14.633**
1993 January	5.714	7.640	1.707	.399	1.308
February	5.189	7.175	1.545	.364	1.181
March	5.657	7.526	1.762	.347	1.414
April	5.354	6.637	1.775	.345	1.430
May	5.420	6.406	1.791	.382	1.408
June	5.462	6.570	1.786	.411	1.375
July	5.327	7.015	1.936	.376	1.560
August	5.416	6.981	1.807	.320	1.486
September	5.321	6.503	1.765	.339	1.426
October	5.435	6.687	1.941	.347	1.595
November	5.403	7.000	1.849	.324	1.524
December	5.619	7.737	1.867	.395	1.472
Total	**65.315**	**83.877**	**21.530**	**4.350**	**17.180**
1994 January	5.553	8.283	1.747	.307	1.440
February	5.269	7.480	1.665	.275	1.390
March	5.892	7.382	1.847	.349	1.498
April	5.529	6.703	1.845	.296	1.549
May	5.591	6.643	1.943	.326	1.617
June	5.578	6.874	1.905	.374	1.532
July	5.533	7.055	2.079	.329	1.750
August	5.866	7.159	2.031	.360	1.671
September	5.578	6.609	1.992	.366	1.626
October	5.561	6.776	1.884	.363	1.521
November	5.645	6.880	1.822	.362	1.460
December	5.872	7.752	1.930	.418	1.512
Total	**67.468**	**85.595**	**22.692**	**4.126**	**18.567**
1995 January	5.900	7.997	1.760	.362	1.397
February	5.395	7.411	1.656	.348	1.308
March	5.885	7.472	1.964	.382	1.582
April	5.457	[R]6.844	1.756	.384	1.372
May	[R]5.703	[R]6.892	1.876	.393	1.484
June	[R]5.674	[R]6.943	1.974	.397	1.577
July	[R]5.635	[R]7.253	[R]1.901	.355	[R]1.546
August	5.825	7.511	1.939	.366	1.573
8-Month Total	**45.475**	**58.323**	**14.826**	**2.987**	**11.838**
1994 8-Month Total	**44.812**	**57.579**	**15.063**	**2.616**	**12.447**
1993 8-Month Total	**43.537**	**55.950**	**14.108**	**2.945**	**11.162**

[a] Due to a lack of consistent historical data, some renewable energy sources are not included. For example, in 1992, 3.0 quadrillion Btu of renewable energy consumed by U.S. electric utilities to generate electricity for distribution is included, but an estimated 3.0 quadrillion Btu of renewable energy used by other sectors is not included.

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

R=Revised data.

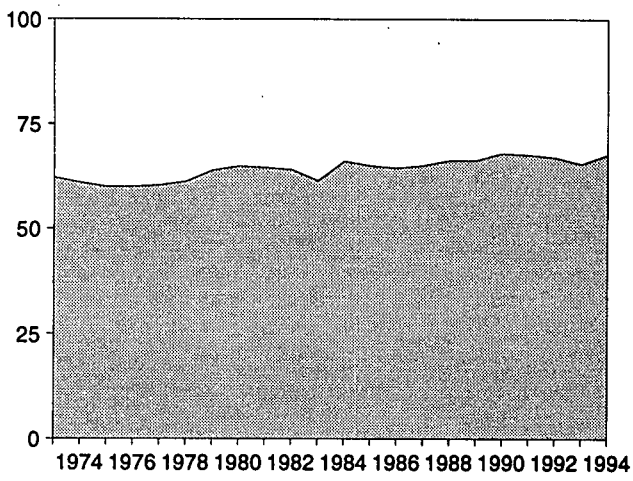
Notes: • For definitions, see Notes 1 through 4 at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

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

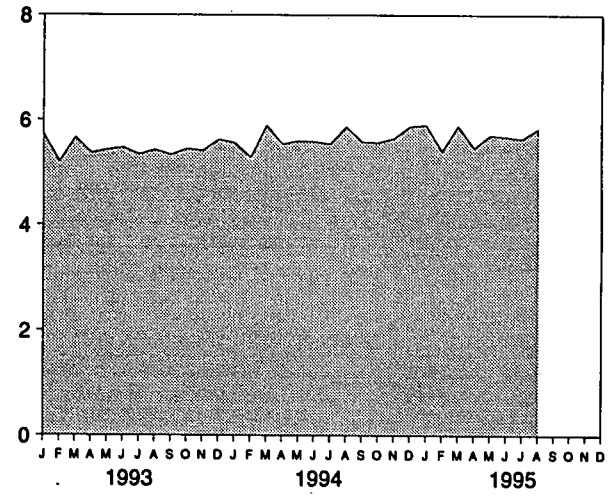
Figure 1.2 Energy Production

(Quadrillion Btu)

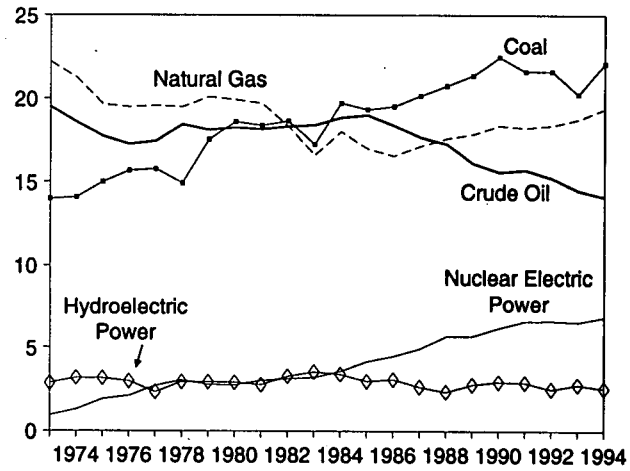
Total, 1973-1994



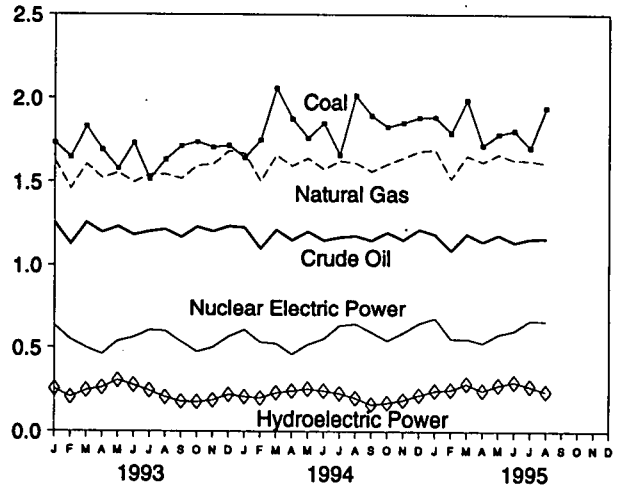
Total, Monthly



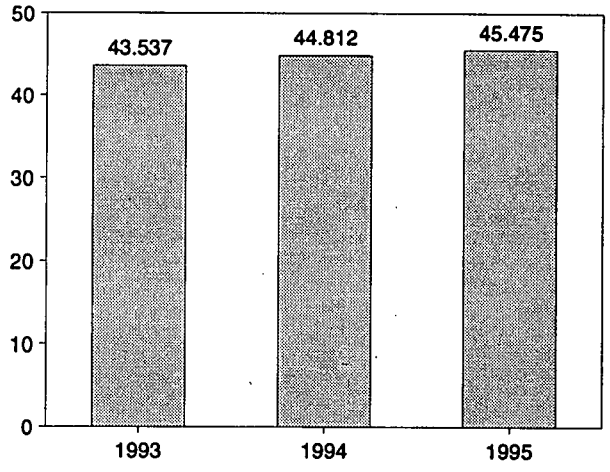
By Major Sources, 1973-1994



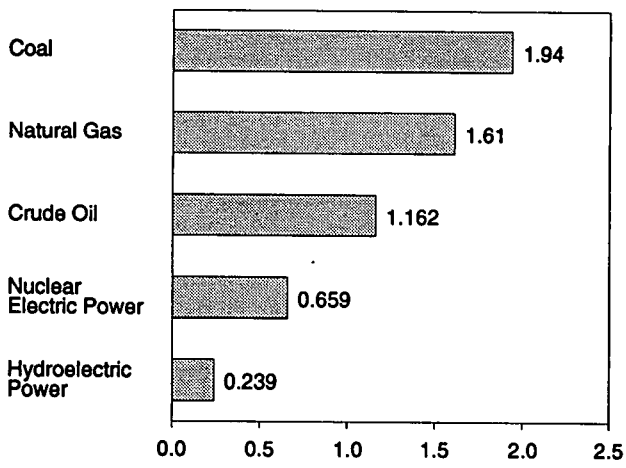
By Major Sources, Monthly



Total, January-August



By Major Sources, August 1995



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

Table 1.3 Energy Production by Source

(Quadrillion Btu)

	Coal	Natural Gas (Dry)	Crude Oil[a]	Natural Gas Plant Liquids	Nuclear Electric Power	Hydro-electric Power[b]	Geothermal Energy	Other[c]	Total[d]
1973 Total	13.993	22.187	19.493	2.569	0.910	2.861	0.043	0.003	62.060
1974 Total	14.074	21.210	18.575	2.471	1.272	3.177	.053	.003	60.835
1975 Total	14.990	19.640	17.729	2.374	1.900	3.155	.070	.002	59.860
1976 Total	15.654	19.480	17.262	2.327	2.111	2.976	.078	.003	59.892
1977 Total	15.755	19.565	17.454	2.327	2.702	2.333	.077	.005	60.219
1978 Total	14.910	19.485	18.434	2.245	3.024	2.937	.064	.003	61.103
1979 Total	17.539	20.076	18.104	2.286	2.776	2.931	.084	.005	63.801
1980 Total	18.597	19.908	18.249	2.254	2.739	2.900	.110	.005	64.761
1981 Total	18.376	19.699	18.146	2.307	3.008	2.758	.123	.004	64.421
1982 Total	18.639	18.319	18.309	2.191	3.131	3.266	.105	.003	63.962
1983 Total	17.246	16.593	18.392	2.184	3.203	3.527	.129	.004	61.279
1984 Total	19.719	18.008	18.848	2.274	3.553	3.386	.165	.009	65.962
1985 Total	19.325	16.980	18.992	2.241	4.149	2.970	.198	.015	64.871
1986 Total	19.510	16.541	18.376	2.149	4.471	3.071	.219	.012	64.350
1987 Total	20.142	17.136	17.675	2.215	4.906	2.635	.229	.016	64.952
1988 Total	20.737	17.599	17.279	2.260	5.661	2.334	.217	.017	66.105
1989 Total	21.345	17.847	16.117	2.158	5.677	2.767	.197	.020	66.129
1990 Total	22.456	18.362	15.571	2.175	6.161	2.926	.181	.021	67.853
1991 Total	21.594	18.229	15.701	2.306	6.579	2.885	.170	.021	67.484
1992 Total	21.593	18.375	15.223	2.363	6.607	2.501	.170	.022	66.853
1993 January	1.732	1.624	1.252	.205	.631	.254	.014	.002	5.714
February	1.645	1.459	1.127	.189	.548	.205	.013	.002	5.189
March	1.829	1.603	1.254	.211	.498	.245	.014	.002	5.657
April	1.691	1.521	1.197	.205	.461	.262	.014	.002	5.354
May	1.577	1.552	1.231	.204	.538	.305	.012	.001	5.420
June	1.731	1.496	1.182	.200	.562	.277	.012	.001	5.462
July	1.514	1.541	1.203	.205	.604	.245	.013	.001	5.327
August	1.631	1.543	1.215	.206	.600	.205	.014	.002	5.416
September	1.712	1.516	1.168	.198	.534	.178	.013	.002	5.321
October	1.738	1.594	1.230	.208	.475	.176	.013	.002	5.435
November	1.705	1.604	1.203	.190	.501	.186	.013	.002	5.403
December	1.715	1.683	1.233	.186	.567	.220	.013	.002	5.619
Total	20.221	18.736	14.494	2.408	6.519	2.757	.158	.021	65.315
1994 January	1.642	1.667	1.226	.190	.607	.207	.013	.002	5.553
February	1.749	1.502	1.100	.174	.532	.199	.012	.002	5.269
March	2.058	1.658	1.213	.196	.523	.231	.012	.002	5.892
April	1.877	1.593	1.151	.191	.461	.242	.012	.002	5.529
May	1.761	1.641	1.203	.201	.518	.254	.012	.002	5.591
June	1.849	1.573	1.150	.197	.553	.243	.011	.002	5.578
July	1.660	1.624	1.169	.206	.632	.228	.012	.002	5.533
August	2.014	1.612	1.177	.207	.642	.199	.013	.002	5.866
September	1.895	1.560	1.150	.204	.594	.161	.012	.002	5.578
October	1.827	1.605	1.197	.206	.542	.170	.012	.002	5.561
November	1.853	1.643	1.153	.207	.590	.186	.012	.002	5.645
December	1.884	1.682	1.215	.213	.646	.217	.012	.002	5.872
Total	22.069	19.361	14.103	2.391	6.841	2.538	.145	.020	67.468
1995 January	1.886	1.690	1.186	.209	.677	.243	.009	.001	5.900
February	1.791	1.517	1.089	.188	.554	.249	.006	.001	5.395
March	1.987	1.655	1.188	.209	.554	.285	.007	.001	5.885
April	1.716	1.617	1.142	.204	.527	.244	.006	.002	5.457
May	1.785	R1.663	1.182	.210	.581	.277	.005	.001	R5.703
June	1.805	R1.629	1.138	.198	.602	.295	.006	.001	R5.674
July	1.703	R1.626	1.160	.206	.663	.270	.006	.002	R5.635
August	1.940	1.610	1.162	.203	.659	.239	.011	.002	5.825
8-Month Total	14.613	13.007	9.245	1.627	4.816	2.101	.056	.011	45.475
1994 8-Month Total	14.610	12.870	9.387	1.562	4.469	1.803	.097	.013	44.812
1993 8-Month Total	13.351	12.339	9.661	1.626	4.443	1.998	.106	.013	43.537

[a] Includes lease condensate.

[b] Electric utility and industrial generation.

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

[d] Due to a lack of consistent historical data, some renewable energy sources are not included. For example, in 1992, 3.0 quadrillion Btu of renewable energy consumed by U.S. electric utilities to generate electricity for distribution is included, but an estimated 3.0 quadrillion Btu of renewable energy used by other sectors is not included.

R=Revised data.

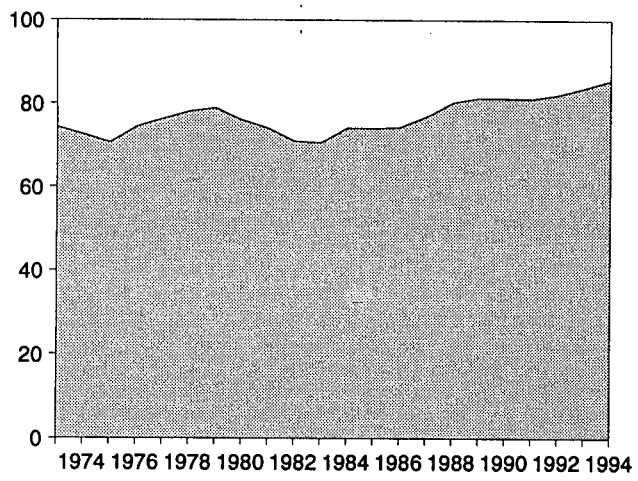
Notes: • See Note 1 at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

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

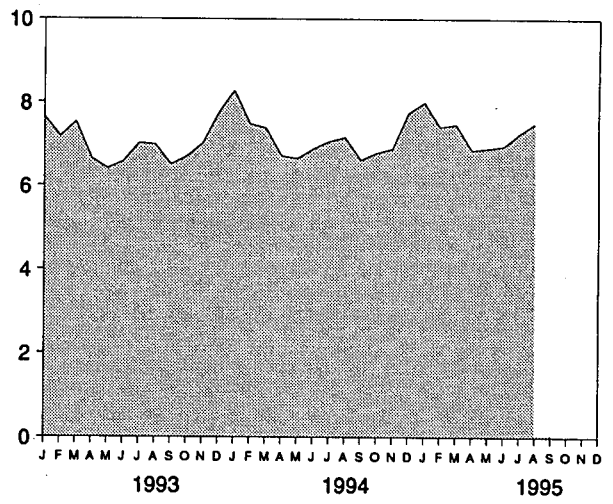
Figure 1.3 Energy Consumption

(Quadrillion Btu)

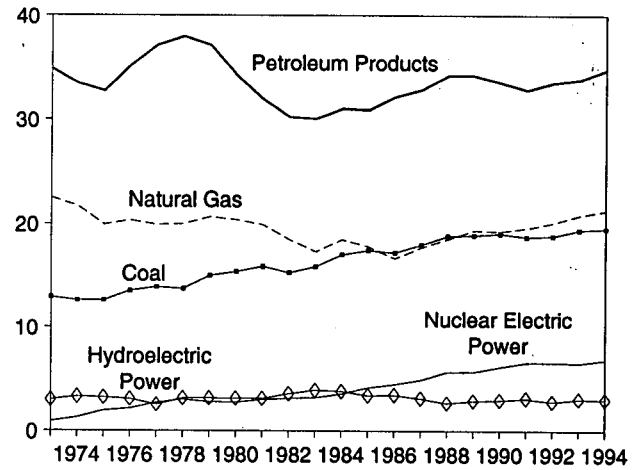
Total, 1973-1994



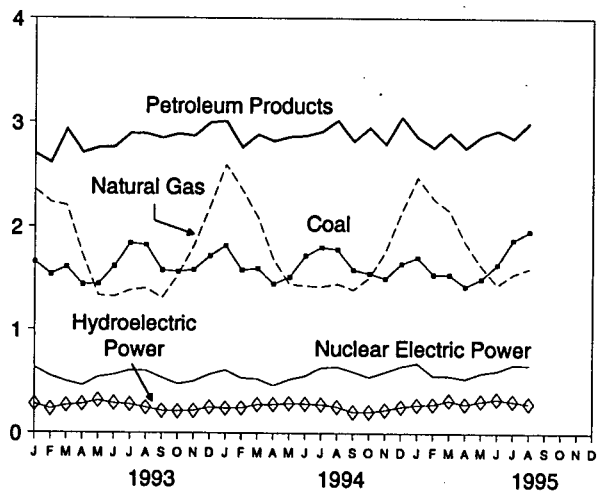
Total, Monthly



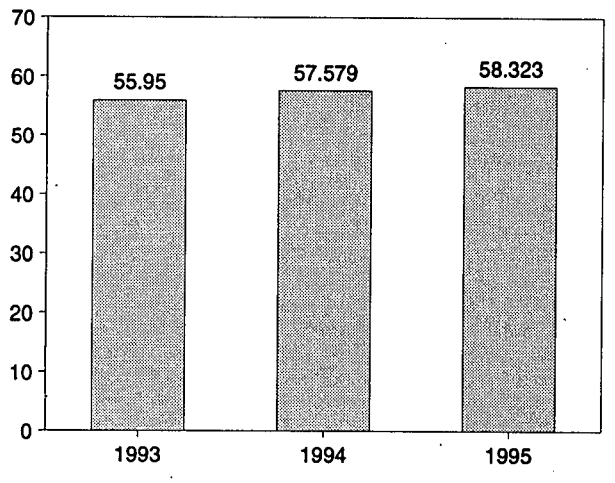
By Major Sources, 1973-1994



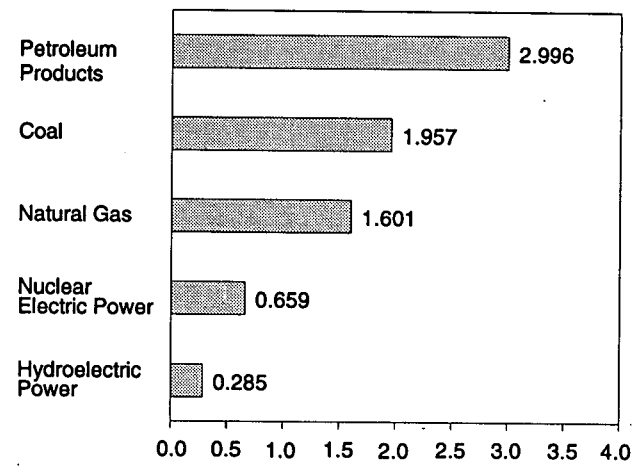
By Major Sources, Monthly



Total, January-August



By Major Sources, August 1995



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

Table 1.4 Energy Consumption by Source

(Quadrillion Btu)

	Coal	Natural Gas[a]	Petroleum Products[b]	Nuclear Electric Power	Hydro-electric Power[c]	Geothermal Energy	Other[d]	Total[e]
1973 Total	**12.971**	**22.512**	**34.840**	**0.910**	**3.010**	**0.043**	**-0.004**	**74.282**
1974 Total	**12.663**	**21.732**	**33.455**	**1.272**	**3.309**	**.053**	**.059**	**72.543**
1975 Total	**12.663**	**19.948**	**32.731**	**1.900**	**3.219**	**.070**	**.016**	**70.546**
1976 Total	**13.584**	**20.345**	**35.175**	**2.111**	**3.066**	**.078**	**.003**	**74.362**
1977 Total	**13.922**	**19.931**	**37.122**	**2.702**	**2.515**	**.077**	**.020**	**76.288**
1978 Total	**13.765**	**20.000**	**37.965**	**3.024**	**3.141**	**.064**	**.128**	**78.089**
1979 Total	**15.039**	**20.666**	**37.123**	**2.776**	**3.141**	**.084**	**.068**	**78.898**
1980 Total	**15.423**	**20.394**	**34.202**	**2.739**	**3.118**	**.110**	**-.031**	**75.955**
1981 Total	**15.907**	**19.928**	**31.931**	**3.008**	**3.105**	**.123**	**-.012**	**73.990**
1982 Total	**15.322**	**18.505**	**30.231**	**3.131**	**3.572**	**.105**	**-.018**	**70.848**
1983 Total	**15.894**	**17.357**	**30.054**	**3.203**	**3.899**	**.129**	**-.012**	**70.524**
1984 Total	**17.071**	**18.507**	**31.051**	**3.553**	**3.800**	**.165**	**-.002**	**74.144**
1985 Total	**17.478**	**17.834**	**30.922**	**4.149**	**3.398**	**.198**	**.001**	**73.981**
1986 Total	**17.261**	**16.708**	**32.196**	**4.471**	**3.446**	**.219**	**-.004**	**74.297**
1987 Total	**18.008**	**17.744**	**32.865**	**4.906**	**3.117**	**.229**	**.024**	**76.894**
1988 Total	**18.846**	**18.552**	**34.222**	**5.661**	**2.662**	**.217**	**.057**	**80.218**
1989 Total	**18.925**	**19.384**	**34.211**	**5.677**	**2.881**	**.197**	**.051**	**81.325**
1990 Total	**19.101**	**19.296**	**33.553**	**6.161**	**2.946**	**.181**	**.026**	**81.265**
1991 Total	**18.770**	**19.606**	**32.845**	**6.579**	**3.115**	**.170**	**.030**	**81.116**
1992 Total	**18.868**	**20.131**	**33.527**	**6.607**	**2.793**	**.170**	**.049**	**82.144**
1993 January	1.660	2.354	2.697	.631	.278	.014	.006	7.640
February	1.540	2.233	2.611	.548	.229	.013	.001	7.175
March	1.609	2.204	2.931	.498	.266	.014	.005	7.526
April	1.442	1.730	2.708	.461	.278	.014	.004	6.637
May	1.448	1.338	2.753	.538	.314	.012	.004	6.406
June	1.618	1.328	2.759	.562	.287	.012	.004	6.570
July	1.840	1.388	2.894	.604	.275	.013	.001	7.015
August	1.823	1.406	2.890	.600	.245	.014	.004	6.981
September	1.580	1.315	2.848	.534	.212	.013	.001	6.503
October	1.566	1.534	2.889	.475	.208	.013	.003	6.687
November	1.584	1.819	2.869	.501	.213	.013	.002	7.000
December	1.720	2.192	2.994	.567	.247	.013	.004	7.737
Total	**19.430**	**20.841**	**33.841**	**6.519**	**3.050**	**.158**	**.038**	**83.877**
1994 January	1.816	2.594	3.009	.607	.237	.013	.006	8.283
February	1.581	2.357	2.758	.532	.240	.012	.001	7.480
March	1.596	2.091	2.883	.523	.274	.012	.003	7.382
April	1.450	1.682	2.818	.461	.275	.012	.004	6.703
May	1.515	1.447	2.861	.518	.286	.012	.003	6.643
June	1.724	1.431	2.871	.553	.281	.011	.004	6.874
July	1.800	1.424	2.911	.632	.275	.012	.002	7.055
August	1.782	1.451	3.016	.642	.252	.013	.003	7.159
September	1.584	1.395	2.818	.594	.201	.012	.004	6.609
October	1.551	1.512	2.950	.542	.202	.012	.007	6.776
November	1.504	1.762	2.790	.590	.221	.012	.001	6.880
December	1.645	2.142	3.050	.646	.252	.012	.004	7.752
Total	**19.547**	**21.286**	**34.735**	**6.841**	**2.997**	**.145**	**.044**	**85.595**
1995 January	1.706	2.472	2.858	.677	.270	.009	.005	7.997
February	1.542	2.269	2.760	.554	.276	.006	.003	7.411
March	1.539	2.154	2.898	.554	.316	.007	.004	7.472
April	R1.428	1.846	2.756	.527	.279	.006	.003	R6.844
May	R1.501	1.620	2.871	.581	.309	.005	.006	R6.892
June	R1.638	1.441	2.924	.602	.329	.006	.002	R6.943
July	1.876	R1.547	2.849	.663	.309	.006	.003	R7.253
August	1.957	1.601	2.996	.659	.285	.011	.003	7.511
8-Month Total	**13.187**	**14.949**	**22.912**	**4.816**	**2.373**	**.056**	**.029**	**58.323**
1994 8-Month Total	**13.264**	**14.475**	**23.126**	**4.469**	**2.120**	**.097**	**.028**	**57.579**
1993 8-Month Total	**12.980**	**13.981**	**22.242**	**4.443**	**2.170**	**.106**	**.029**	**55.950**

[a] Includes supplemental gaseous fuels.

[b] Products obtained from the processing of crude oil (including lease condensate), natural gas, and other hydrocarbon compounds.

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

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

[e] Due to a lack of consistent historical data, some renewable energy sources are not included. For example, in 1992, 3.0 quadrillion Btu of renewable energy consumed by U.S. electric utilities to generate electricity for distribution is included, but an estimated 3.0 quadrillion Btu of renewable energy used by other sectors is not included.

R=Revised data.

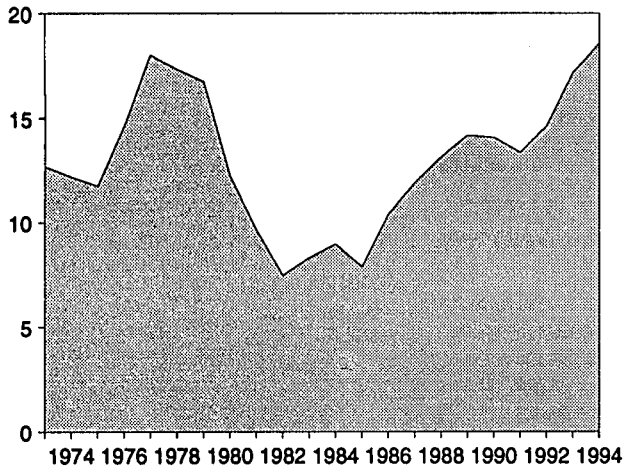
Notes: • See Note 2 at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

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

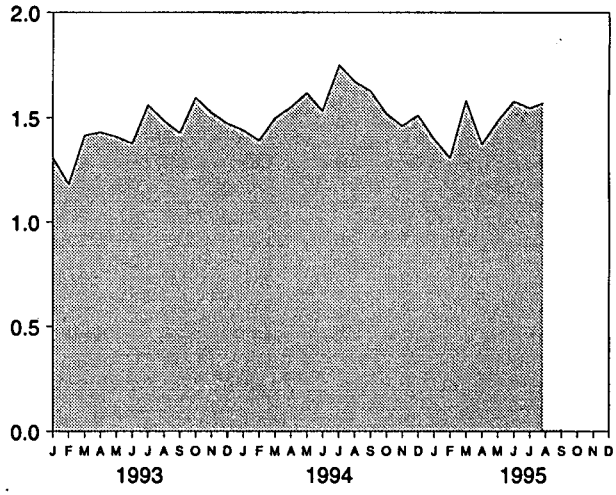
Figure 1.4 Energy Net Imports

(Quadrillion Btu, Except as Noted)

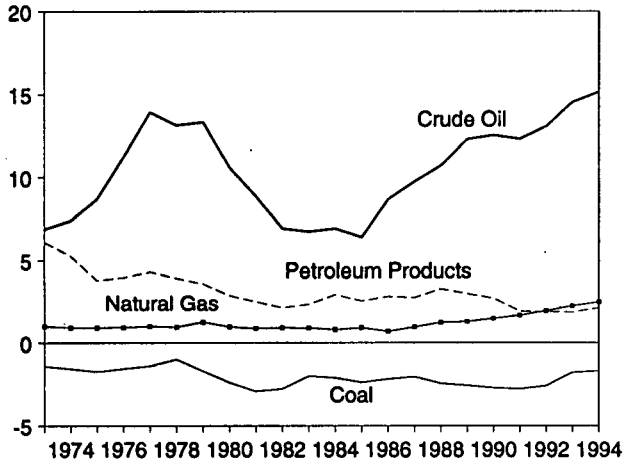
Total, 1973-1994



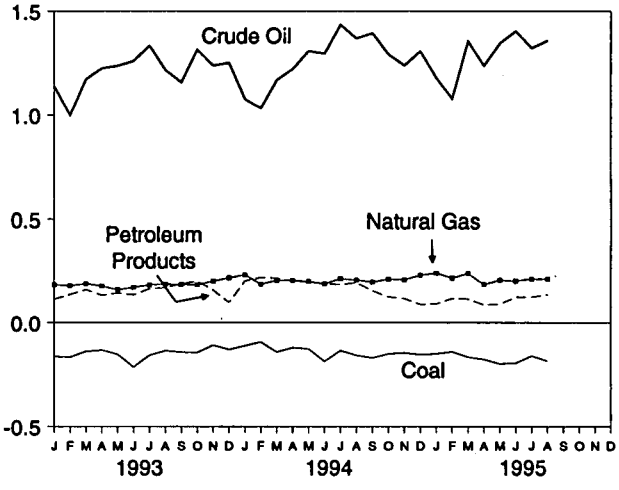
Total, Monthly



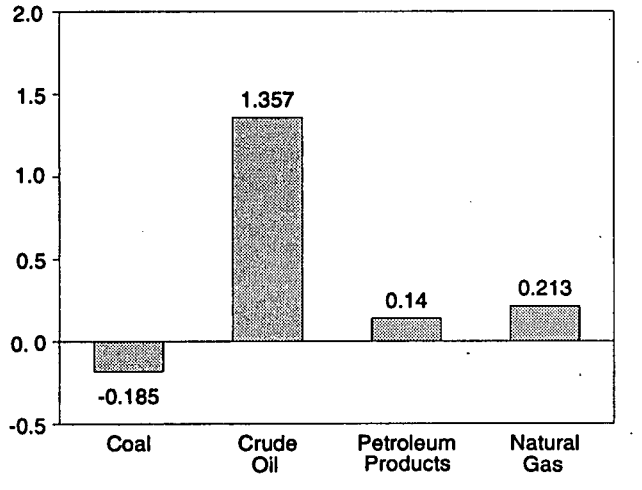
By Major Sources, 1973-1994



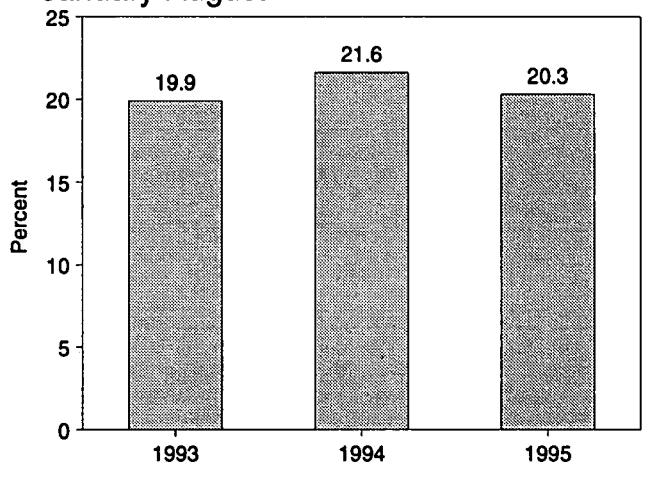
By Major Sources, Monthly



By Major Sources, August 1995



As Share of Consumption, January-August



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

Table 1.5 Energy Net Imports by Source

(Quadrillion Btu)

	Coal	Natural Gas	Crude Oil[a]	Petroleum Products[b]	Electricity[c]	Coal Coke	Total
1973 Total	**-1.422**	**0.981**	**6.883**	**6.097**	**0.148**	**-0.007**	**12.680**
1974 Total	**-1.568**	**.907**	**7.389**	**5.273**	**.133**	**.056**	**12.190**
1975 Total	**-1.738**	**.904**	**8.708**	**3.800**	**.064**	**.014**	**11.752**
1976 Total	**-1.567**	**.922**	**11.221**	**3.982**	**.089**	**(s)**	**14.648**
1977 Total	**-1.401**	**.981**	**13.921**	**4.321**	**.182**	**.015**	**18.019**
1978 Total	**-1.004**	**.941**	**13.125**	**3.932**	**.204**	**.125**	**17.323**
1979 Total	**-1.702**	**1.243**	**13.328**	**3.603**	**.211**	**.063**	**16.746**
1980 Total	**-2.391**	**.957**	**10.586**	**2.912**	**.217**	**-.035**	**12.247**
1981 Total	**-2.918**	**.857**	**8.854**	**2.522**	**.347**	**-.016**	**9.646**
1982 Total	**-2.768**	**.898**	**6.917**	**2.128**	**.306**	**-.022**	**7.460**
1983 Total	**-2.013**	**.885**	**6.731**	**2.351**	**.372**	**-.016**	**8.310**
1984 Total	**-2.119**	**.792**	**6.918**	**2.970**	**.414**	**-.011**	**8.963**
1985 Total	**-2.389**	**.896**	**6.381**	**2.570**	**.428**	**-.013**	**7.872**
1986 Total	**-2.193**	**.686**	**8.676**	**2.855**	**.375**	**-.017**	**10.382**
1987 Total	**-2.049**	**.937**	**9.748**	**2.784**	**.483**	**.009**	**11.911**
1988 Total	**-2.446**	**1.221**	**10.698**	**3.308**	**.328**	**.040**	**13.149**
1989 Total	**-2.566**	**1.278**	**12.296**	**3.029**	**.113**	**.030**	**14.181**
1990 Total	**-2.705**	**1.464**	**12.536**	**2.757**	**.020**	**.005**	**14.077**
1991 Total	**-2.769**	**1.666**	**12.308**	**1.912**	**.231**	**.009**	**13.357**
1992 Total	**-2.587**	**1.941**	**13.065**	**1.895**	**.292**	**.027**	**14.633**
1993 January	-.163	.187	1.138	.118	.023	.004	1.308
February	-.166	.182	.999	.142	.023	(s)	1.181
March	-.138	.192	1.172	.164	.021	.003	1.414
April	-.132	.181	1.225	.138	.016	.002	1.430
May	-.152	.163	1.237	.149	.009	.002	1.408
June	-.214	.175	1.260	.140	.010	.003	1.375
July	-.157	.186	1.334	.168	.030	(s)	1.560
August	-.135	.190	1.216	.173	.040	.002	1.486
September	-.142	.188	1.157	.191	.034	-.001	1.426
October	-.144	.187	1.314	.204	.032	.001	1.595
November	-.108	.204	1.238	.163	.027	(s)	1.524
December	-.129	.219	1.251	.102	.028	.002	1.472
Total	**-1.780**	**2.255**	**14.542**	**1.854**	**.292**	**.017**	**17.180**
1994 January	-.111	.234	1.077	.205	.030	.004	1.440
February	-.093	.190	1.033	.221	.041	-.001	1.390
March	-.141	.208	1.168	.218	.044	.002	1.498
April	-.120	.207	1.221	.205	.033	.003	1.549
May	-.126	.202	1.307	.201	.032	.002	1.617
June	-.187	.192	1.295	.192	.037	.003	1.532
July	-.134	.215	1.434	.188	.047	(s)	1.750
August	-.157	.209	1.368	.197	.053	.002	1.671
September	-.170	.200	1.394	.159	.040	.003	1.626
October	-.150	.213	1.292	.130	.032	.005	1.521
November	-.145	.211	1.238	.122	.035	-.001	1.460
December	-.154	.232	1.306	.091	.035	.002	1.512
Total	**-1.689**	**2.512**	**15.133**	**2.128**	**.459**	**.024**	**18.567**
1995 January	-.150	.242	1.179	.094	E .028	.004	1.397
February	-.140	.219	1.078	.122	E .027	.002	1.308
March	-.166	.240	1.355	.119	E .031	.003	1.582
April	-.177	.188	1.236	.089	E .035	.001	1.372
May	-.199	.209	1.344	.093	E .032	.004	1.484
June	-.195	.205	1.403	.129	E .034	.001	1.577
July	-.160	R .214	1.322	.129	E .039	.002	R 1.546
August	-.185	.213	1.357	.140	E .046	.001	1.573
8-Month Total	**-1.370**	**1.730**	**10.273**	**.915**	E **.272**	**.018**	**11.838**
1994 8-Month Total	**-1.070**	**1.656**	**9.904**	**1.625**	**.317**	**.014**	**12.447**
1993 8-Month Total	**-1.257**	**1.457**	**9.581**	**1.193**	**.172**	**.016**	**11.162**

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

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

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

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

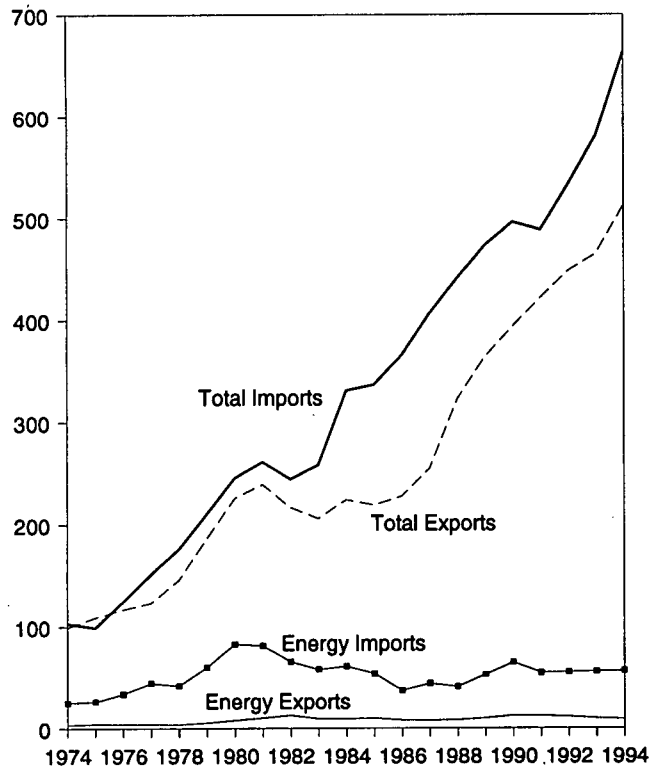
Notes: • See Notes 3 and 4 at end of section. • Net imports equal imports minus exports. Minus sign indicates exports are greater than imports. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

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

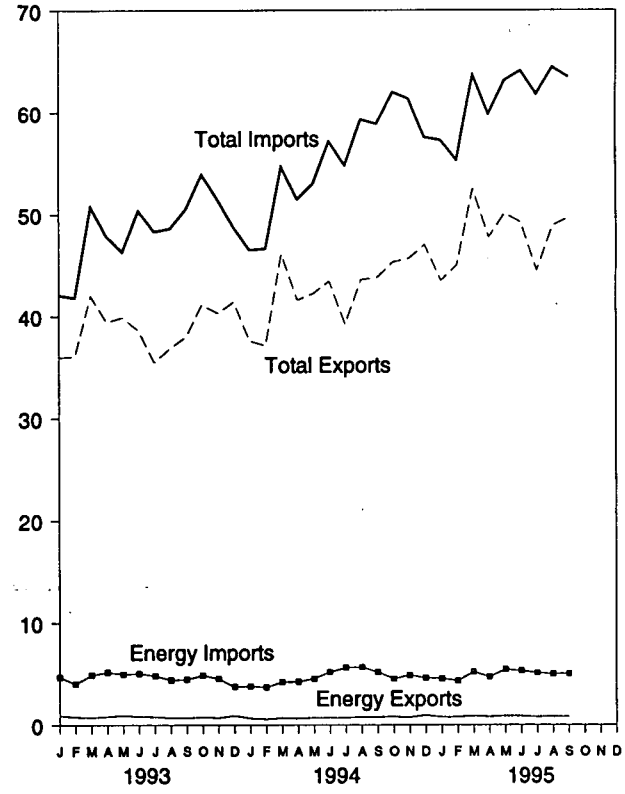
Figure 1.5 Merchandise Trade Value

(Billion Dollars)

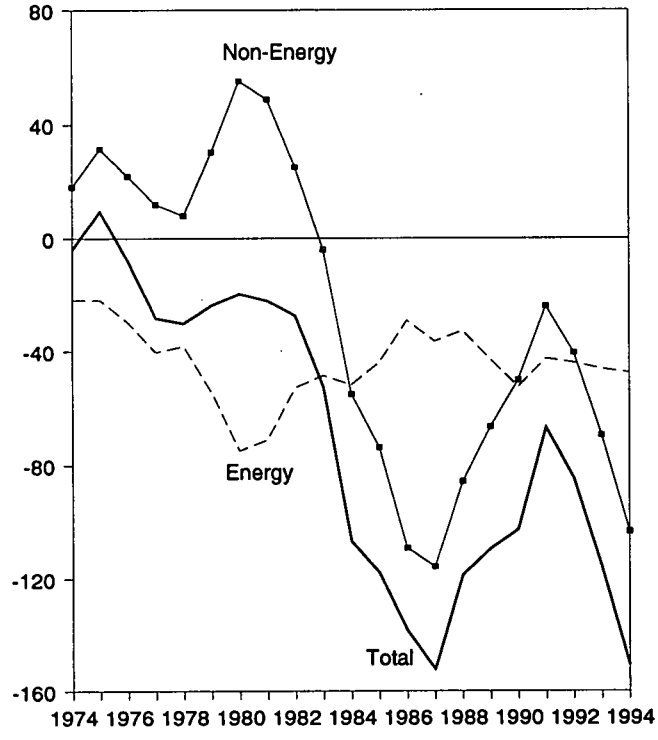
Imports and Exports, 1974-1994



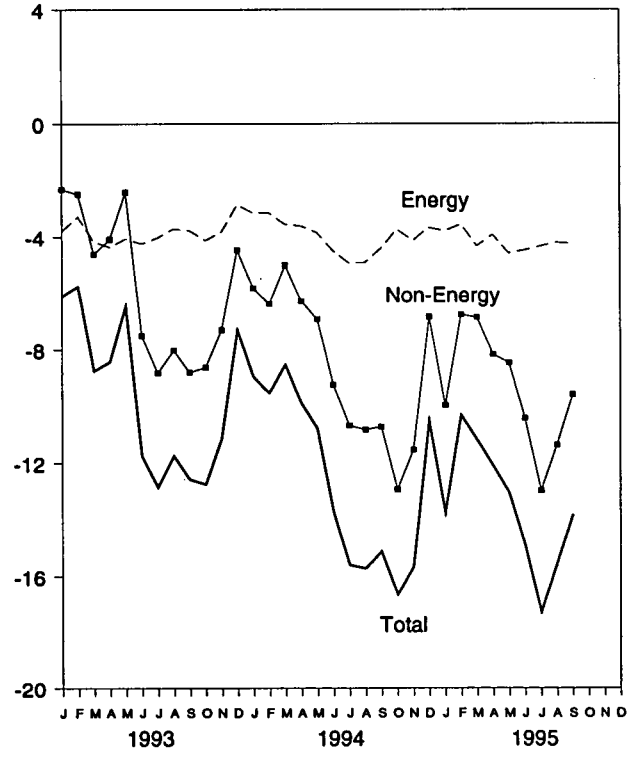
Imports and Exports, Monthly



Trade Balance, 1974-1994



Trade Balance, Monthly



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

Table 1.6 Merchandise Trade Value

(Million Dollars)

	Petroleum			Energy			Non-Energy Balance	Total Merchandise		
	Exports	Imports	Balance	Exports	Imports	Balance		Exports	Imports	Balance
1974 Total	792	24,668	-23,876	3,444	25,454	-22,010	18,126	99,437	103,321	-3,884
1975 Total	907	25,197	-24,289	4,470	26,476	-22,006	31,557	108,856	99,305	9,551
1976 Total	998	32,226	-31,228	4,226	33,996	-29,770	21,950	116,794	124,614	-7,820
1977 Total	1,276	42,368	-41,093	4,184	44,537	-40,354	12,001	123,182	151,534	-28,353
1978 Total	1,561	39,526	-37,965	3,881	42,096	-38,215	8,010	145,847	176,052	-30,205
1979 Total	1,914	56,715	-54,801	5,621	59,998	-54,377	30,455	186,363	210,285	-23,922
1980 Total	2,833	78,637	-75,803	7,982	82,924	-74,942	55,246	225,566	245,262	-19,696
1981 Total	3,696	76,659	-72,963	10,279	81,360	-71,081	48,814	238,715	260,982	-22,267
1982 Total	5,947	60,458	-54,511	12,729	65,409	-52,680	25,170	216,442	243,952	-27,510
1983 Total	4,557	53,217	-48,659	9,500	57,952	-48,452	-3,957	205,639	258,048	-52,409
1984 Total	4,470	56,924	-52,454	9,311	60,980	-51,669	-55,033	223,976	330,678	-106,703
1985 Total	4,707	50,475	-45,768	9,971	53,917	-43,946	-73,765	218,815	336,526	-117,712
1986 Total	3,640	35,142	-31,503	8,115	37,310	-29,195	-109,084	227,159	365,438	-138,279
1987 Total	3,922	42,285	-38,363	7,713	44,220	-36,506	-115,613	254,122	406,241	-152,119
1988 Total	3,693	38,787	-35,094	8,235	41,042	-32,806	-85,720	322,426	440,952	-118,526
1989 Total	5,021	49,704	-44,683	9,869	52,779	-42,910	-66,490	363,812	473,211	-109,399
1990 Total	6,901	61,583	-54,682	12,233	64,661	-52,428	-50,068	393,592	496,088	-102,496
1991 Total	6,954	51,350	-44,396	12,081	54,629	-42,548	-24,175	421,730	488,453	-66,723
1992 Total	6,412	51,217	-44,805	11,254	55,256	-44,002	-40,500	448,164	532,665	-84,501
1993 January	601	4,282	-3,681	923	4,711	-3,788	-2,313	35,958	42,058	-6,101
February	477	3,718	-3,241	807	4,075	-3,268	-2,478	36,070	41,817	-5,746
March	470	4,498	-4,028	753	4,904	-4,151	-4,596	41,999	50,745	-8,747
April	590	4,814	-4,225	844	5,194	-4,350	-4,081	39,421	47,851	-8,431
May	641	4,619	-3,978	939	4,990	-4,051	-2,410	39,870	46,331	-6,461
June	443	4,714	-4,272	843	5,069	-4,226	-7,513	38,624	50,362	-11,738
July	514	4,464	-3,950	819	4,845	-4,026	-8,826	35,465	48,317	-12,852
August	453	4,000	-3,547	714	4,426	-3,712	-8,022	36,876	48,611	-11,735
September	422	4,056	-3,634	712	4,480	-3,769	-8,802	37,956	50,526	-12,570
October	467	4,449	-3,982	761	4,876	-4,115	-8,626	41,148	53,889	-12,742
November	479	4,084	-3,605	720	4,553	-3,833	-7,307	40,294	51,434	-11,140
December	658	3,348	-2,690	922	3,778	-2,856	-4,452	41,412	48,719	-7,307
Total	6,215	51,046	-44,831	9,756	55,900	-46,144	-69,425	465,091	580,659	-115,568
1994 January	450	3,272	-2,822	674	3,815	-3,141	-5,813	37,561	46,514	-8,954
February	381	3,243	-2,862	594	3,735	-3,141	-6,387	37,126	46,654	-9,528
March	440	3,695	-3,255	710	4,249	-3,539	-4,985	46,139	54,663	-8,524
April	426	3,790	-3,364	659	4,263	-3,604	-6,281	41,587	51,472	-9,885
May	483	4,115	-3,632	717	4,562	-3,845	-6,927	42,215	52,987	-10,772
June	413	4,794	-4,381	736	5,213	-4,477	-9,237	43,425	57,139	-13,714
July	450	5,168	-4,718	718	5,629	-4,911	-10,678	39,218	54,807	-15,589
August	499	5,225	-4,726	793	5,691	-4,898	-10,817	43,589	59,304	-15,715
September	472	4,773	-4,301	792	5,185	-4,393	-10,721	43,766	58,880	-15,114
October	530	4,153	-3,623	809	4,543	-3,734	-12,923	45,314	61,970	-16,657
November	478	4,475	-3,997	764	4,890	-4,126	-11,534	45,674	61,334	-15,660
December	637	4,135	-3,498	944	4,615	-3,671	-6,847	47,013	57,531	-10,518
Total	5,659	50,835	-45,176	8,911	56,391	-47,480	-103,149	512,626	663,256	-150,629
1995 January	488	4,129	-3,641	783	4,568	-3,785	-9,967	43,496	57,249	-13,752
February	528	3,909	-3,381	798	4,345	-3,547	-6,761	45,010	55,318	-10,308
March	553	4,712	-4,159	879	5,188	-4,309	-6,867	52,503	63,679	-11,176
April	498	4,337	-3,839	814	4,732	-3,918	-8,170	47,761	59,848	-12,088
May	540	5,060	-4,520	886	5,453	-4,567	-8,470	50,099	63,136	-13,037
June	513	4,957	-4,444	863	5,322	-4,459	-10,427	49,210	64,096	-14,886
July	476	4,724	-4,248	794	5,116	-4,322	-12,959	44,495	61,776	-17,281
August	469	4,588	-4,119	816	5,003	-4,187	R-11,368	R48,888	R64,443	R-15,555
September	441	4,661	-4,220	806	5,041	-4,235	-9,584	49,661	63,479	-13,819
9-Month Total	4,502	41,075	-36,573	7,440	44,768	-37,328	-84,573	431,123	553,024	-121,901
1994 9-Month Total	4,014	38,075	-34,061	6,393	42,342	-35,949	-71,846	374,626	482,420	-107,795
1993 9-Month Total	4,612	39,166	-34,554	7,353	42,693	-35,339	-49,040	342,237	426,617	-84,380

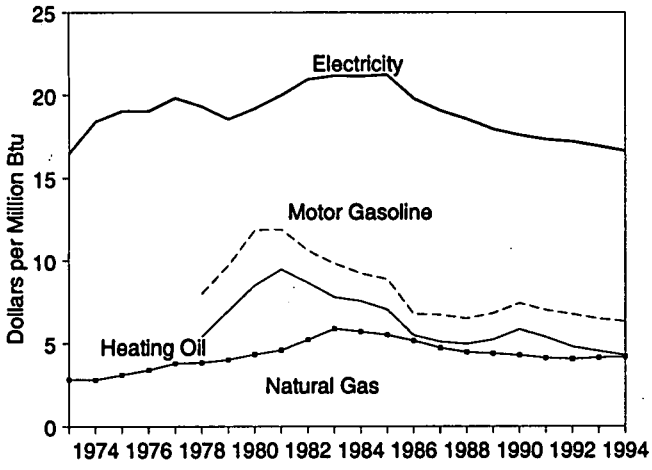
R=Revised data.

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

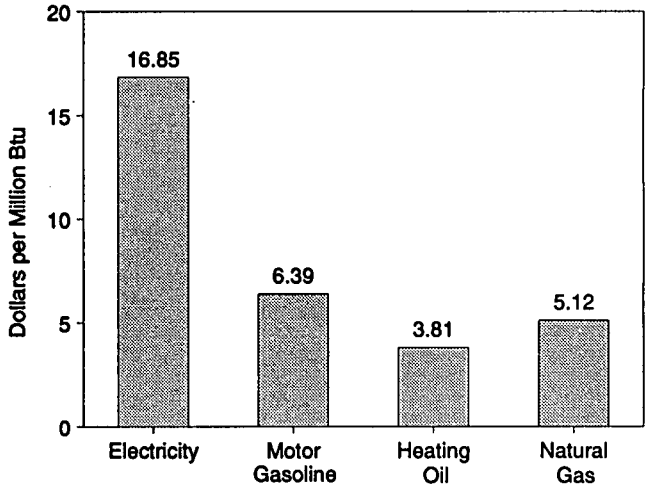
Sources: • U.S. Department of Commerce, Bureau of the Census, Foreign Trade Division. For details, see "Sources for Table 1.6" at the end of this section.

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

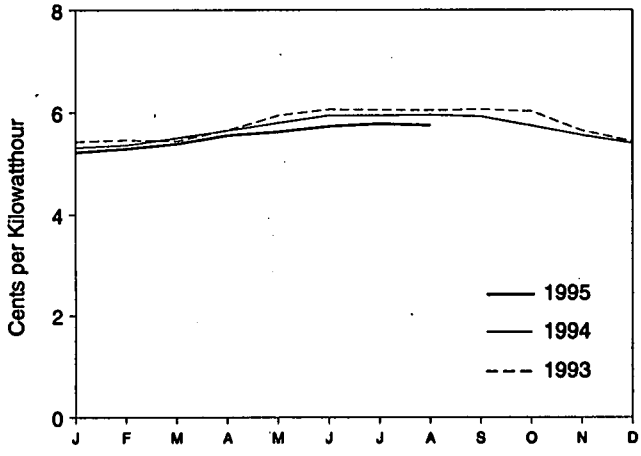
Costs, 1973-1994



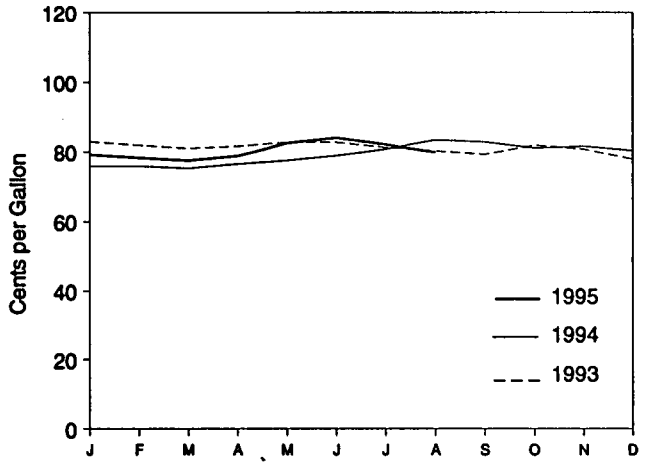
Costs, August 1995



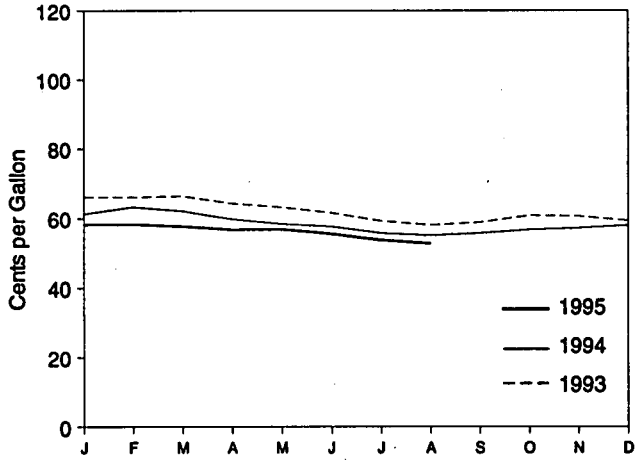
Electricity, Monthly



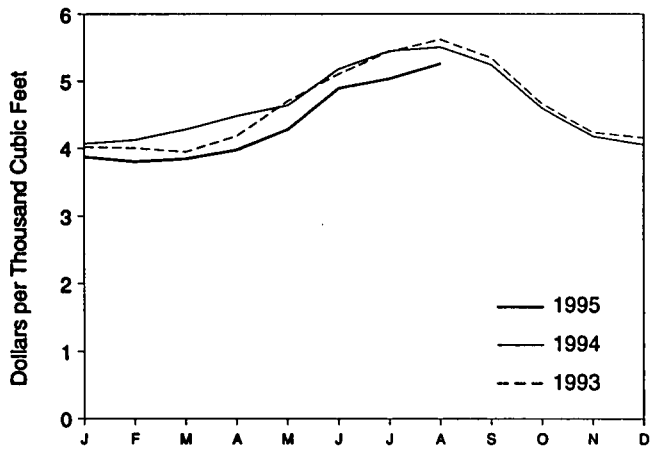
Motor Gasoline, Monthly



Heating Oil, Monthly



Natural Gas, Monthly



Source: Table 1.7.

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

	Consumer Price Index (Urban)[a]	Motor Gasoline (All Types)		Residential Heating Oil		Residential Natural Gas		Residential Electricity	
	Index 1982-1984=100	Cents per Gallon	Dollars per Million Btu	Cents per Gallon	Dollars per Million Btu	Cents per Thousand Cubic Feet	Dollars per Million Btu	Cents per Kilowatthour	Dollars per Million Btu
1973 Average	**44.4**	**NA**	**NA**	**NA**	**NA**	**290.5**	**2.85**	**5.6**	**16.50**
1974 Average	**49.3**	**NA**	**NA**	**NA**	**NA**	**290.1**	**2.83**	**6.3**	**18.43**
1975 Average	**53.8**	**NA**	**NA**	**NA**	**NA**	**317.8**	**3.12**	**6.5**	**19.07**
1976 Average	**56.9**	**NA**	**NA**	**NA**	**NA**	**348.0**	**3.41**	**6.5**	**19.06**
1977 Average	**60.6**	**NA**	**NA**	**NA**	**NA**	**387.8**	**3.81**	**6.8**	**19.83**
1978 Average	**65.2**	**100.0**	**8.00**	**75.2**	**5.42**	**392.6**	**3.86**	**6.6**	**19.33**
1979 Average	**72.6**	**121.5**	**9.71**	**97.0**	**6.99**	**410.5**	**4.03**	**6.3**	**18.57**
1980 Average	**82.4**	**148.2**	**11.85**	**118.2**	**8.52**	**446.6**	**4.36**	**6.6**	**19.21**
1981 Average	**90.9**	**148.8**	**11.90**	**131.4**	**9.47**	**471.9**	**4.60**	**6.8**	**19.99**
1982 Average	**96.5**	**132.7**	**10.61**	**120.2**	**8.67**	**535.8**	**5.22**	**7.2**	**20.96**
1983 Average	**99.6**	**123.0**	**9.83**	**108.2**	**7.80**	**608.4**	**5.90**	**7.2**	**21.19**
1984 Average	**103.9**	**115.3**	**9.22**	**105.0**	**7.57**	**589.0**	**5.72**	**7.2**	**21.16**
1985 Average	**107.6**	**111.2**	**8.89**	**97.9**	**7.06**	**568.8**	**5.52**	**7.2**	**21.25**
1986 Average	**109.6**	**84.9**	**6.79**	**76.3**	**5.50**	**531.9**	**5.17**	**6.8**	**19.79**
1987 Average	**113.6**	**84.2**	**6.74**	**70.7**	**5.10**	**487.7**	**4.73**	**6.5**	**19.09**
1988 Average	**118.3**	**81.4**	**6.51**	**68.7**	**4.96**	**462.4**	**4.49**	**6.3**	**18.58**
1989 Average	**124.0**	**85.5**	**6.83**	**72.6**	**5.23**	**454.8**	**4.41**	**6.1**	**17.96**
1990 Average	**130.7**	**93.1**	**7.44**	**81.3**	**5.86**	**443.8**	**4.31**	**6.01**	**17.60**
1991 Average	**136.2**	**87.8**	**7.02**	**74.8**	**5.39**	**427.3**	**4.14**	**5.91**	**17.32**
1992 Average	**140.3**	**84.8**	**6.78**	**66.6**	**4.80**	**419.8**	**4.07**	**5.87**	**17.19**
1993 January	142.6	82.9	6.63	66.1	4.77	401.8	3.91	5.43	15.93
February	143.1	81.9	6.55	66.1	4.77	400.4	3.90	5.46	16.00
March	143.6	81.0	6.48	66.4	4.79	394.8	3.84	5.44	15.94
April	144.0	81.6	6.52	64.3	4.64	418.1	4.07	5.65	16.57
May	144.2	82.7	6.61	63.2	4.56	470.2	4.57	5.94	17.42
June	144.4	82.7	6.61	61.6	4.44	510.4	4.96	6.06	17.76
July	144.4	81.3	6.50	59.3	4.27	543.6	5.29	6.05	17.74
August	144.8	80.3	6.42	58.1	4.19	561.5	5.46	6.04	17.69
September	145.1	79.3	6.34	58.9	4.25	534.1	5.20	6.06	17.77
October	145.7	81.9	6.55	60.9	4.39	466.0	4.53	6.02	17.64
November	145.8	80.8	6.46	60.7	4.38	423.2	4.12	5.64	16.52
December	145.8	77.9	6.23	59.4	4.28	415.6	4.04	5.43	15.92
Average	**144.5**	**81.2**	**6.49**	**63.0**	**4.55**	**426.3**	**4.15**	**5.77**	**16.92**
1994 January	146.2	75.9	6.06	61.3	4.42	407.0	3.96	5.31	15.56
February	146.7	75.9	6.07	63.3	4.57	412.4	4.01	5.36	15.70
March	147.2	75.3	6.02	62.1	4.48	428.0	4.16	5.50	16.13
April	147.4	76.5	6.12	59.8	4.31	448.4	4.36	5.64	16.54
May	147.5	77.5	6.20	58.4	4.21	463.7	4.51	5.80	16.99
June	148.0	78.9	6.30	57.6	4.15	517.6	5.03	5.94	17.41
July	148.4	80.8	6.46	55.7	4.02	544.5	5.30	5.94	17.42
August	149.0	83.4	6.67	55.1	3.97	550.3	5.35	5.95	17.45
September	149.4	82.8	6.62	55.7	4.02	524.1	5.10	5.92	17.36
October	149.5	81.1	6.48	56.7	4.09	459.5	4.47	5.74	16.82
November	149.7	81.6	6.53	57.2	4.13	417.5	4.06	5.55	16.27
December	149.7	80.4	6.43	58.0	4.18	405.5	3.94	5.40	15.82
Average	**148.2**	**79.2**	**6.33**	**59.6**	**4.30**	**432.5**	**4.21**	**5.67**	**16.63**
1995 January	150.3	79.2	6.33	58.2	4.19	387.2	3.77	5.22	15.31
February	150.9	78.3	6.26	58.3	4.20	380.4	3.70	5.29	15.50
March	151.4	77.5	6.19	57.7	4.16	384.4	3.74	5.39	15.80
April	151.9	78.8	6.30	56.7	4.09	397.6	3.87	5.55	16.27
May	152.2	82.5	6.60	56.8	4.09	427.7	4.16	5.62	16.46
June	152.5	84.0	6.72	55.5	4.00	489.2	4.76	5.73	16.80
July	152.5	82.1	6.56	R53.8	R3.88	503.6	4.90	5.78	16.93
August	152.9	79.9	6.39	52.8	3.81	525.8	5.12	5.75	16.85

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

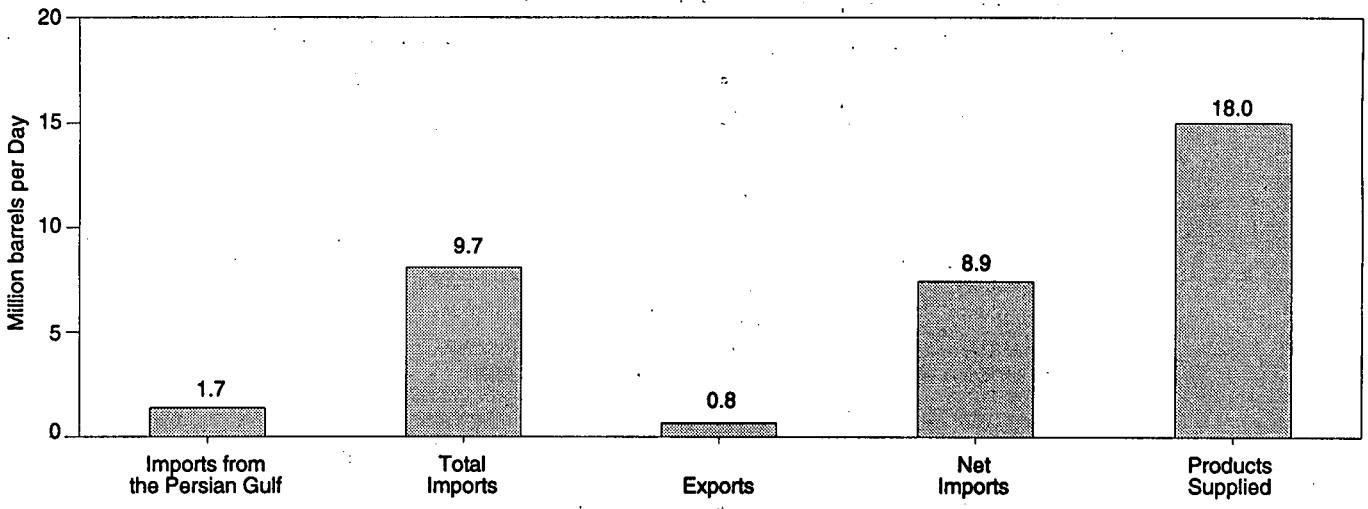
R=Revised data. NA=Not available.

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

Sources: • **Annual Data:** Annual prices in Tables 9.4 (All Types), 9.8c, 9.11, and 9.9 (Monthly Series), adjusted by the CPI. • **Monthly Data:** Monthly prices in Tables 9.4 (All Types), 9.8c, 9.11, and 9.9 (Monthly Series), adjusted by the CPI. • **CPI: 1973-1993**—*Economic Report of the President*, February 1995, Table B-59. **1994 forward**—Council of Economic Advisers, *Economic Indicators*, October 1995, "Consumer Prices - All Urban Consumers." • **Conversion Factors:** Tables A1, A4, and A8.

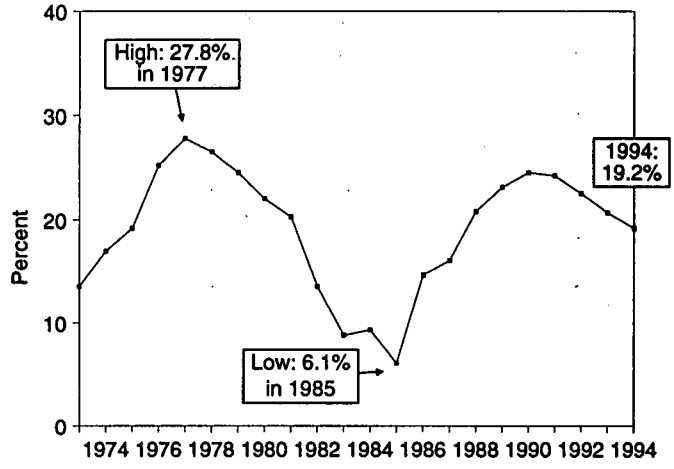
Figure 1.7 Overview of U.S. Petroleum Trade
(Quadrillion Btu)

Overview, September 1995

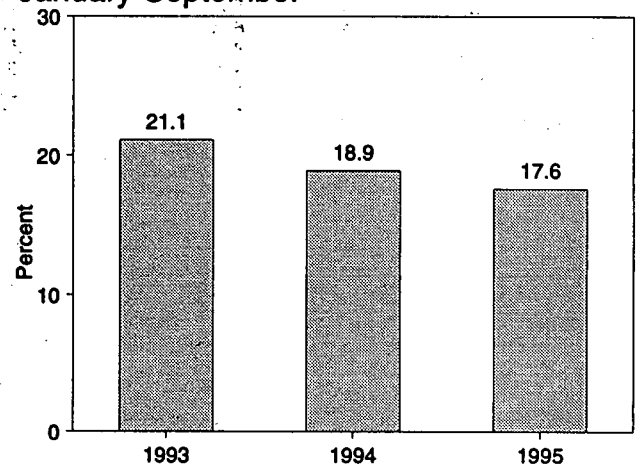


Imports from the Persian Gulf as a Share of Total Imports

1973-1994

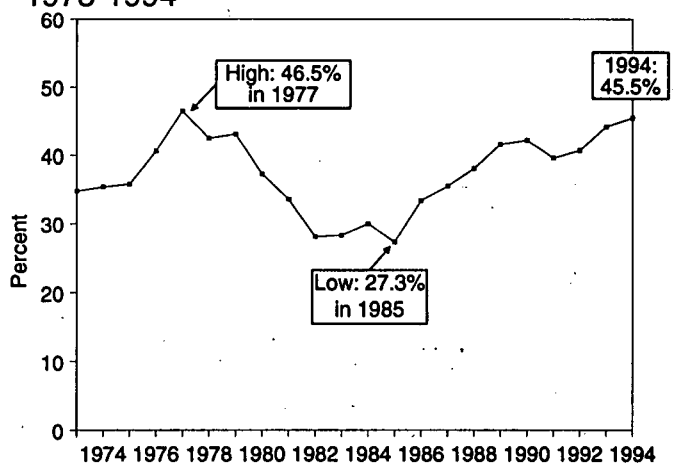


January-September

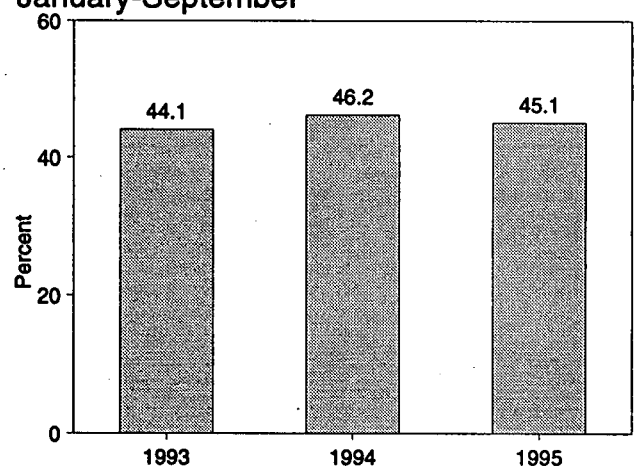


Net Imports as Share of Product Supplied

1973-1994



January-September



Note: Because vertical scales differ, graphs should not be compared.
Source: Table 1.8.

Table 1.8 Overview of U.S. Petroleum Trade

	Imports from the Persian Gulf[a]	Total Imports	Exports	Net Imports	Products Supplied	As Share of Products Supplied: Imports from the Persian Gulf[a]	As Share of Products Supplied: Total Imports	As Share of Products Supplied: Net Imports	Imports from the Persian Gulf[a] as a Share of Total Imports
	Thousand Barrels per Day					Percent			
1973 Average	848	6,256	231	6,025	17,308	4.9	36.1	34.8	13.6
1974 Average	1,039	6,112	221	5,892	16,653	6.2	36.7	35.4	17.0
1975 Average	1,165	6,056	209	5,846	16,322	7.1	37.1	35.8	19.2
1976 Average	1,840	7,313	223	7,090	17,461	10.5	41.9	40.6	25.2
1977 Average	2,448	8,807	243	8,565	18,431	13.3	47.8	46.5	27.8
1978 Average	2,219	8,363	362	8,002	18,847	11.8	44.4	42.5	26.5
1979 Average	2,069	8,456	471	7,985	18,513	11.2	45.7	43.1	24.5
1980 Average	1,519	6,909	544	6,365	17,056	8.9	40.5	37.3	22.0
1981 Average	1,219	5,996	595	5,401	16,058	7.6	37.3	33.6	20.3
1982 Average	696	5,113	815	4,298	15,296	4.5	33.4	28.1	13.6
1983 Average	442	5,051	739	4,312	15,231	2.9	33.2	28.3	8.8
1984 Average	506	5,437	722	4,715	15,726	3.2	34.6	30.0	9.3
1985 Average	311	5,067	781	4,286	15,726	2.0	32.2	27.3	6.1
1986 Average	912	6,224	785	5,439	16,281	5.6	38.2	33.4	14.7
1987 Average	1,077	6,678	764	5,914	16,665	6.5	40.1	35.5	16.1
1988 Average	1,541	7,402	815	6,587	17,283	8.9	42.8	38.1	20.8
1989 Average	1,861	8,061	859	7,202	17,325	10.7	46.5	41.6	23.1
1990 Average	1,966	8,018	857	7,161	16,988	11.6	47.2	42.2	24.5
1991 Average	1,845	7,627	1,001	6,626	16,714	11.0	45.6	39.6	24.2
1992 Average	1,778	7,888	950	6,938	17,033	10.4	46.3	40.7	22.5
1993 January	1,831	8,004	1,135	6,869	16,173	11.3	49.5	42.5	22.9
February	1,877	7,948	1,033	6,915	17,334	10.8	45.9	39.9	23.6
March	1,811	8,285	970	7,315	17,575	10.3	47.1	41.6	21.9
April	1,940	8,768	1,067	7,701	16,781	11.6	52.3	45.9	22.1
May	1,805	8,663	1,082	7,581	16,508	10.9	52.5	45.9	20.8
June	1,841	8,805	900	7,905	17,096	10.8	51.5	46.2	20.9
July	1,671	9,219	1,001	8,218	17,357	9.6	53.1	47.3	18.1
August	1,619	8,429	829	7,600	17,332	9.3	48.6	43.9	19.2
September	1,774	8,531	902	7,629	17,650	10.1	48.3	43.2	20.8
October	1,644	9,197	881	8,316	17,323	9.5	53.1	48.0	17.9
November	1,767	8,903	980	7,923	17,780	9.9	50.1	44.6	19.9
December	1,814	8,645	1,250	7,394	17,953	10.1	48.2	41.2	21.0
Average	1,782	8,620	1,003	7,618	17,237	10.3	50.0	44.2	20.7
1994 January	1,630	7,993	927	7,066	18,072	9.0	44.2	39.1	20.4
February	1,493	8,539	882	7,657	18,337	8.1	46.6	41.8	17.5
March	1,617	8,574	936	7,638	17,313	9.3	49.5	44.1	18.9
April	1,851	8,968	868	8,100	17,489	10.6	51.3	46.3	20.6
May	1,800	9,213	929	8,284	17,181	10.5	53.6	48.2	19.5
June	1,650	9,305	867	8,438	17,815	9.3	52.2	47.4	17.7
July	1,812	9,779	877	8,902	17,485	10.4	55.9	50.9	18.5
August	1,669	9,510	913	8,597	18,117	9.2	52.5	47.5	17.5
September	1,887	9,693	891	8,802	17,490	10.8	55.4	50.3	19.5
October	1,804	8,788	997	7,791	17,719	10.2	49.6	44.0	20.5
November	1,726	8,707	1,000	7,707	17,315	10.0	50.3	44.5	19.8
December	1,781	8,863	1,208	7,655	18,319	9.7	48.4	41.8	20.1
Average	1,728	8,996	942	8,054	17,718	9.8	50.8	45.5	19.2
1995 January	1,459	7,955	978	6,977	17,167	8.5	46.3	40.6	18.3
February	1,550	8,358	1,062	7,296	18,355	8.4	45.5	39.8	18.5
March	1,788	9,020	948	8,073	17,403	10.3	51.8	46.4	19.8
April	1,547	8,486	998	7,488	17,102	9.0	49.6	43.8	18.2
May	1,490	8,736	876	7,860	17,241	8.6	50.7	45.6	17.1
June	1,558	9,585	919	8,666	18,149	8.6	52.8	47.8	16.3
July	1,460	8,845	894	7,950	17,113	8.5	51.7	46.5	16.5
August	1,530	9,024	821	8,203	17,993	8.5	50.2	45.6	17.0
September	1,680	9,726	805	8,921	18,011	9.3	54.0	49.5	17.3
9-Month Average	1,562	8,861	921	7,940	17,605	8.9	50.3	45.1	17.6
1994 9-Month Average	1,714	9,067	899	8,167	17,694	9.7	51.2	46.2	18.9
1993 9-Month Average	1,795	8,521	991	7,530	17,086	10.5	49.9	44.1	21.1

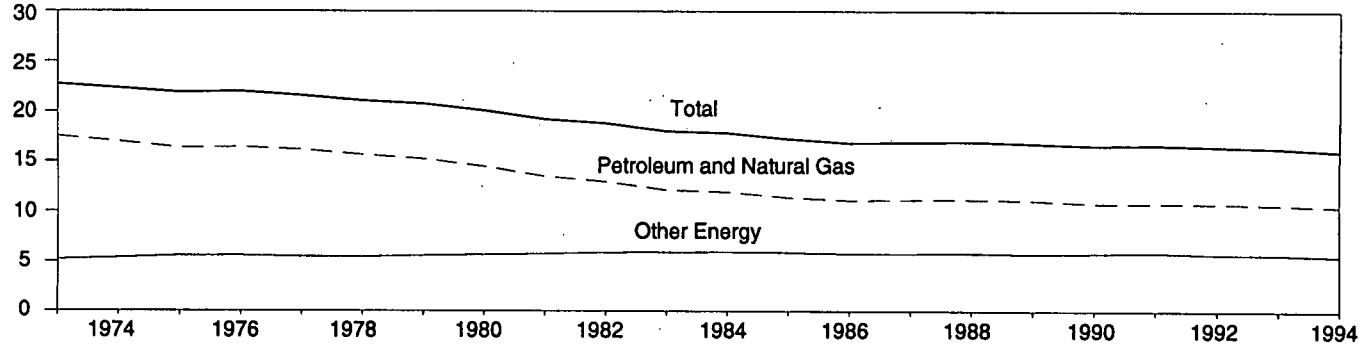
[a] Bahrain, Iran, Iraq, Kuwait, Qatar, Saudi Arabia, and the United Arab Emirates.

Notes: • Readers of Table 1.8 may be interested in a feature article, "Measuring Dependence on Imported Oil," that was published in the August 1995 *Monthly Energy Review*. • Petroleum is crude oil, lease condensate, unfinished oils, petroleum products, natural gas plant liquids, and nonhydrocarbon compounds blended into finished petroleum products. • Beginning in October 1977, petroleum imported for the Strategic Petroleum Reserves is included. • Annual averages may not equal average of months due to independent rounding. • U.S. geographic coverage is the 50 States and the District of Columbia. U.S. exports include shipments to U.S. territories, and imports include receipts from U.S. territories.

Sources: • **Column 1:** Table 3.3b. • **Columns 2 - 4:** Table 3.1b. • **Column 5:** Table 3.1a. • **Column 6:** Column 1 divided by column 5 times 100. • **Column 7:** Column 2 divided by column 5 times 100. • **Column 8:** Column 4 divided by column 5 times 100. • **Column 9:** Column 1 divided by column 2 times 100.

Figure 1.8 Energy Consumption per Dollar of Gross Domestic Product

(Thousand Btu per 1987 Dollar)



Source: Table 1.8.

Table 1.9 Energy Consumption per Dollar of Gross Domestic Product

(Seasonally Adjusted at Annual Rates)

	Energy Consumption			Gross Domestic Product (GDP)	Energy Consumption per Dollar of GDP		
	Petroleum and Natural Gas	Other Energy	Total[a]		Petroleum and Natural Gas	Other Energy	Total
	Quadrillion Btu			Billion 1987 Dollars	Thousand Btu per 1987 Dollar		
1973 Year	57.352	16.930	74.282	3,268.6	17.55	5.18	22.73
1974 Year	55.187	17.356	72.543	3,248.1	16.99	5.34	22.33
1975 Year	52.678	17.867	70.546	3,221.7	16.35	5.55	21.90
1976 Year	55.520	18.842	74.362	3,380.8	16.42	5.57	22.00
1977 Year	57.053	19.236	76.288	3,533.3	16.15	5.44	21.59
1978 Year	57.966	20.123	78.089	3,703.5	15.65	5.43	21.09
1979 Year	57.789	21.108	78.898	3,796.8	15.22	5.56	20.78
1980 Year	54.596	21.359	75.955	3,776.3	14.46	5.66	20.11
1981 Year	51.859	22.131	73.990	3,843.1	13.49	5.76	19.25
1982 Year	48.736	22.111	70.848	3,760.3	12.96	5.88	18.84
1983 Year	47.411	23.114	70.524	3,906.6	12.14	5.92	18.05
1984 Year	49.558	24.586	74.144	4,148.5	11.95	5.93	17.87
1985 Year	48.756	25.225	73.981	4,279.8	11.39	5.89	17.29
1986 Year	48.904	25.393	74.297	4,404.5	11.10	5.77	16.87
1987 Year	50.609	26.285	76.894	4,539.9	11.15	5.79	16.94
1988 Year	52.774	27.443	80.218	4,718.6	11.18	5.82	17.00
1989 Year	53.595	27.731	81.325	4,838.0	11.08	5.73	16.81
1990 Year	52.849	28.416	81.265	4,897.3	10.79	5.80	16.59
1991 Year	52.452	28.665	81.116	4,867.6	10.78	5.89	16.66
1992 Year	53.657	28.487	82.144	4,979.3	10.78	5.72	16.50
1993 1st Quarter	55.263	29.322	84.585	5,075.3	10.89	5.78	16.67
2nd Quarter	53.750	29.611	83.361	5,105.4	10.53	5.80	16.33
3rd Quarter	54.538	29.131	83.668	5,139.4	10.61	5.67	16.28
4th Quarter	55.180	28.722	83.902	5,218.0	10.57	5.50	16.08
Year	54.682	29.195	83.877	5,134.5	10.65	5.69	16.34
1994 1st Quarter	57.620	R29.914	R87.534	5,261.1	10.95	5.69	16.64
2nd Quarter	55.938	R29.976	R85.914	5,314.1	10.53	5.64	R16.17
3rd Quarter	55.692	R29.295	R84.987	5,367.0	10.38	5.46	15.84
4th Quarter	54.869	R29.124	R83.993	5,433.8	10.10	5.36	15.46
Year	56.021	29.574	85.595	5,344.0	10.48	5.53	16.02
1995 1st Quarter	56.598	R29.973	R86.571	5,470.1	10.35	5.48	15.83
2nd Quarter	R57.448	R30.442	R87.891	5,487.8	10.47	R5.55	R16.02

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

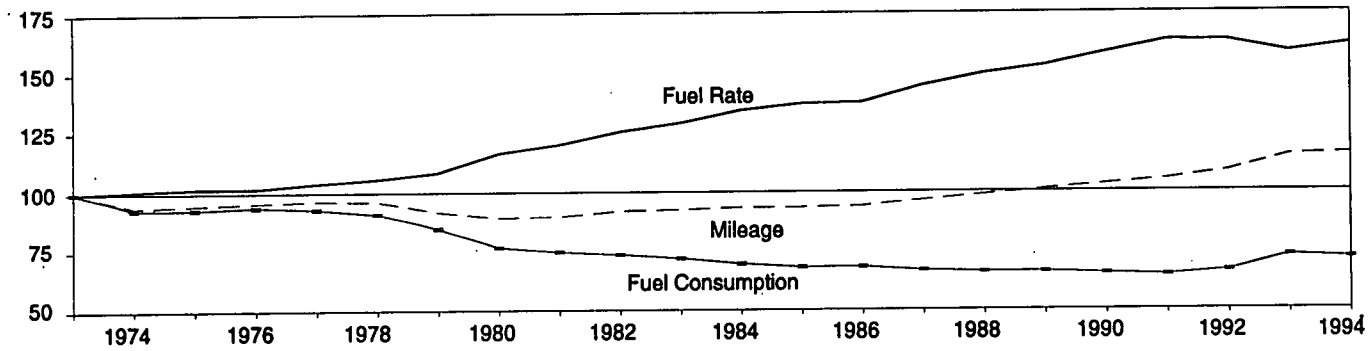
R=Revised data.

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

Sources: • **Energy Consumption:** Table 1.4. • **Gross Domestic Product: 1973-1992**—U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, September 1994, Table 2. **1993 forward**—U.S. Department of Commerce, Bureau of Economic Analysis, *United States Department of Commerce News*, October 27, 1995, Table 2.

Figure 1.9 Passenger Car Efficiency

(Index, 1973 = 100)



Source: Table 1.9.

Table 1.10 Passenger Car Efficiency

	Mileage		Fuel Consumption		Fuel Rate	
	Miles per Car	Index 1973=100.0	Gallons per Car	Index 1973=100.0	Miles per Gallon	Index 1973=100.0
1973	10,256	100.0	771	100.0	13.30	100.0
1974	9,606	93.7	716	92.9	13.42	100.9
1975	9,690	94.5	716	92.9	13.52	101.7
1976	9,785	95.4	723	93.8	13.53	101.7
1977	9,879	96.3	716	92.9	13.80	103.8
1978	9,835	95.9	701	90.9	14.04	105.6
1979	9,403	91.7	653	84.7	14.41	108.3
1980	9,141	89.1	591	76.7	15.46	116.2
1981	9,186	89.6	576	74.7	15.94	119.8
1982	9,428	91.9	566	73.4	16.65	125.2
1983	9,475	92.4	553	71.7	17.14	128.9
1984	9,558	93.2	536	69.5	17.83	134.1
1985	9,560	93.2	525	68.1	18.20	136.8
1986	9,608	93.7	526	68.2	18.27	137.4
1987	9,878	96.3	514	66.7	19.20	144.4
1988	10,121	98.7	509	66.0	19.87	149.4
1989	10,332	100.7	509	66.0	20.31	152.7
1990	10,548	102.8	502	65.1	21.02	158.0
1991	10,757	104.9	496	64.3	21.69	163.1
1992	11,100	108.2	512	66.4	21.68	163.0
1993	R11,760	R114.7	R559	R72.5	R21.04	R158.2
1994[a]	11,839	115.4	551	71.5	21.48	161.5

[a] Preliminary data.
R=Revised data.
Note: Geographic coverage is the 50 States and the District of Columbia.
Sources: Indices are prepared from statistics published by the U.S. Department of Transportation, Federal Highway Administration, Federal Highway Statistics Division. • **1973-1985:** *Highway Statistics Summary to 1985*, Table VM-201A. • **1986 forward:** *Highway Statistics*, annual, Table VM-1.

Table 1.11 Heating Degree-Days by Census Division

Census Divisions	October 1 through October 31					Cumulative July 1 through October 31				
				Percent Change					Percent Change	
	Normal[a]	1994	1995	Normal to 1995	1994 to 1995	Normal[a]	1994	1995	Normal to 1995	1994 to 1995
New England										
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont	439	416	342	-22.1	-17.8	609	662	604	-0.8	-8.8
Middle Atlantic										
New Jersey, New York, Pennsylvania	368	352	260	-29.3	-26.1	473	503	395	-16.5	-21.5
East North Central										
Illinois, Indiana, Michigan, Ohio, Wisconsin	401	346	362	-9.7	4.6	529	527	544	2.8	3.2
West North Central										
Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota	396	328	401	1.3	22.3	551	510	600	8.9	17.6
South Atlantic										
Delaware, Florida, Georgia, Maryland and the District of Columbia, North Carolina, South Carolina, Virginia, West Virginia	158	157	129	-18.4	-17.8	178	189	162	-9.0	-14.3
East South Central										
Alabama, Kentucky, Mississippi, Tennessee	204	182	201	-1.5	10.4	229	228	246	7.4	7.9
West South Central										
Arkansas, Louisiana, Oklahoma, Texas	77	86	78	([c])	([c])	82	101	104	([c])	([c])
Mountain										
Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming	357	363	365	2.2	.6	530	492	562	6.0	14.2
Pacific[b]										
California, Oregon, Washington	174	204	181	4.0	-11.3	278	291	303	9.0	4.1
U.S. Average[b]	**271**	**257**	**239**	**-11.8**	**-7.0**	**360**	**368**	**360**	**.0**	**-2.2**

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

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

Sources: See end of section.

Table 1.12 Cooling Degree-Days by Census Division

Census Divisions	October 1 through October 31					Cumulative January 1 through October 31				
				Percent Change					Percent Change	
	Normal[a]	1994	1995	Normal to 1995	1994 to 1995	Normal[a]	1994	1995	Normal to 1995	1994 to 1995
New England										
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont	1	0	0	(c)	(c)	420	545	540	28.6	-0.9
Middle Atlantic										
New Jersey, New York, Pennsylvania	6	0	10	(c)	(c)	675	777	842	24.7	8.4
East North Central										
Illinois, Indiana, Michigan, Ohio, Wisconsin	11	3	4	(c)	(c)	736	723	942	28.0	30.3
West North Central										
Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota	16	12	10	(c)	(c)	981	897	1,022	4.2	13.9
South Atlantic										
Delaware, Florida, Georgia, Maryland and the District of Columbia, North Carolina, South Carolina, Virginia, West Virginia	118	108	143	21.2	32.4	1,847	1,916	2,037	10.3	6.3
East South Central										
Alabama, Kentucky, Mississippi, Tennessee	57	33	34	(c)	(c)	1,555	1,447	1,663	6.9	14.9
West South Central										
Arkansas, Louisiana, Oklahoma, Texas	137	152	108	-21.2	-28.9	2,417	2,414	2,394	-1.0	-.8
Mountain										
Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming	51	29	44	(c)	(c)	1,169	1,319	1,134	-3.0	-14.0
Pacific[b]										
California, Oregon, Washington	38	15	17	(c)	(c)	689	719	629	-8.7	-12.5
U.S. Average[b]	52	43	47	(c)	(c)	1,172	1,204	1,268	8.2	5.3

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

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

Sources: See end of section.

Energy Summary Notes

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

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

3. Energy Imports: Energy imports include imports of coal, crude oil (including crude oil imported for the Strategic Petroleum Reserve), petroleum products, natural gas, electricity (assumed to be hydroelectricity), and coal coke. Approximate heat contents (Btu values) are derived by using the conversion factors provided in Appendix A. For further information on electricity, see "Note for imports and exports of electricity" under Note 8 of Section 2, Energy Consumption Section Notes and Sources.

4. Energy Exports: Energy exports include coal, crude oil, petroleum products, natural gas, electricity produced from hydroelectric power, and coal coke. Approximate heat contents (Btu values) are derived by using the conversion factors provided in Appendix A. For more information on electricity, see "Note for imports and exports of electricity" under Note 8 of Section 2, Energy Consumption Section Notes and Sources.

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

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

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

Sources for Table 1.6

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

Petroleum Exports

1974-1987: "U.S. Exports," FT410, December issues.
1988: "Report on U.S. Merchandise Trade, 1988 Final Revisions."
1989: "Report on U.S. Merchandise Trade, 1989 Revisions."
1990: "U.S. Merchandise Trade, 1990 Final Report."
1991: "U.S. Merchandise Trade, 1991 Final Report," May 13, 1992.
1992: "U.S. Merchandise Trade, 1992 Final Report," May 12, 1993.
1993: "U.S. International Trade in Goods and Services, Annual Revision for 1993."
1994: "U.S. International Trade in Goods and Services, Annual Revision for 1994."
1995: "U.S. International Trade in Goods and Services," FT900, monthly.

Petroleum Imports

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

1994: "U.S. International Trade in Goods and Services, Annual Revision for 1994."
1995: "U.S. International Trade in Goods and Services," FT900, monthly.

Energy Exports and Imports

1974-1987: U.S. merchandise trade press releases and database printouts for adjustments.
1988: January-July, monthly FT900 supplement, 1989 issues. August-December, monthly FT900, 1989 issues.
1989: Monthly FT900, 1990 issues.
1990: "U.S. Merchandise Trade, 1990 Final Report."
1991: "U.S. Merchandise Trade, 1991 Final Report," May 13, 1992, and "U.S. Merchandise Trade, October 1992," December 17, 1992, page 3.
1992: "U.S. Merchandise Trade, 1992 Final Report," May 12, 1993.
1993: "U.S. International Trade in Goods and Services, Annual Revision for 1993."
1994: "U.S. International Trade in Goods and Services, Annual Revision for 1994."
1995: "U.S. International Trade in Goods and Services," FT900, monthly.

Total Merchandise

1974-1987: U.S. merchandise trade press releases and database printouts for adjustments.
1988: "Report on U.S. Merchandise Trade, 1988 Final Revisions," August 18, 1989.
1989: "Report on U.S. Merchandise Trade, 1989 Revisions," July 10, 1990.
1990: "U.S. Merchandise Trade, 1990 Final Report," May 10, 1991, and "U.S. Merchandise Trade, December 1992," February 18, 1993, page 3.
1991: "U.S. Merchandise Trade, 1992 Final Report," May 12, 1993.
1992-1994: "U.S. International Trade in Goods and Services, Annual Revision for 1994."
1995: "U.S. International Trade in Goods and Services," FT900, monthly.

Petroleum Balance, Energy Balance, and Non-Energy Balance

Calculated by the Energy Information Administration.

Sources for Tables 1.11 and 1.12

There are several degree-day databases maintained by the National Oceanic and Atmospheric Administration. The information published here is developed by the National Weather Service Climate Analysis Center, Camp Springs, MD. The data are available weekly with monthly summaries and are based on mean daily temperatures recorded at about 200 major weather stations around the country. The temperature information recorded at those weather stations is used to calculate statewide degree-day averages based on population.

The State figures are then aggregated into Census Divisions and into the national average. The population weights currently used represent resident State population data estimated for 1990 by the U.S. Department of Commerce, Bureau of the Census. The data provided here are available sooner than the Historical Climatology Series 5-1 (heating degree-days) and 5-2 (cooling degree-days) developed by the National Climatic Center, Asheville, NC, which compiles data from some 8,000 weather stations.

Section 2. Energy Consumption

U.S. total energy consumption in August 1995 was 7.5 quadrillion Btu. Petroleum products accounted for 40 percent[1] of the energy consumed in August 1995, while coal accounted for 26 percent, and natural gas accounted for 21 percent.

Residential and commercial sector consumption was 2.7 quadrillion Btu in August 1995, up 12 percent from the August 1994 level. The sector accounted for 36 percent of August 1995 total consumption, up 2 percentage points from its 34-percent share in August 1994.

Industrial sector consumption was 2.7 quadrillion Btu in August 1995, up 3 percent from the August 1994 level. The industrial sector accounted for 36 percent of August 1995 total consumption, about the same share as in August 1994.

Transportation sector consumption of energy was 2.1 quadrillion Btu in August 1995, down 1 percent from the August 1994 level. The sector accounted for 28 percent of August 1995 total consumption, down 2 percentage points from its 30-percent share in August 1994.

Electric utility consumption of energy totaled 3.3 quadrillion Btu in August 1995, up 11 percent from the August 1994 level. Coal contributed 53 percent of the energy consumed by electric utilities in August 1995, while nuclear electric power contributed 20 percent; natural gas 15 percent; hydroelectric 9 percent; petroleum 3 percent; and geothermal, wood, waste, wind, photovoltaic, and solar thermal energy, less than 1 percent.

Table 2.1 Energy Consumption Summary for August 1995

(Quadrillion Btu)

Energy Source	End-Use Sectors				Electric Utilities	Total
	Residential and Commercial	Industrial	Transportation	Total[a]		
Coal	0.022	0.202	([b])	0.226	1.731	1.957
Natural Gas[c]	.261	.812	.049	1.124	.477	1.601
Petroleum Products[d]	.188	.670	2.047	2.905	.091	2.996
Nuclear Electric Power	–	–	–	–	.659	.659
Hydroelectric Power[e]	–	.002	–	.002	.283	.285
Geothermal	–	–	–	–	.011	.011
Net Imports of Coal Coke	–	.001	–	.001	–	.001
Other[f]	–	–	–	–	.002	.002
Primary Consumption	**.470**	**1.688**	**2.096**	**4.258**	**3.253**	**7.511**
Electricity	.709	.308	.001	1.018	–	–
Net Consumption	**1.179**	**1.996**	**2.097**	**5.276**	–	–
Electrical System Energy Losses	1.556	.676	.003	2.235	–	–
Total Consumption[g]	**2.736**	**2.672**	**2.100**	**7.511**	–	–

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

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

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

[d] Products obtained from the processing of crude oil (including lease condensate), natural gas, and other hydrocarbon compounds.

[e] Includes net imports of electricity.

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

[g] Due to a lack of consistent historical data, some renewable energy sources are not included. For example, in 1992, 3.0 quadrillion Btu of renewable energy consumed by U.S. electric utilities to generate electricity for distribution is included, but an estimated 3.0 quadrillion Btu of renewable energy used by other sectors is not included.

– =Not applicable.

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

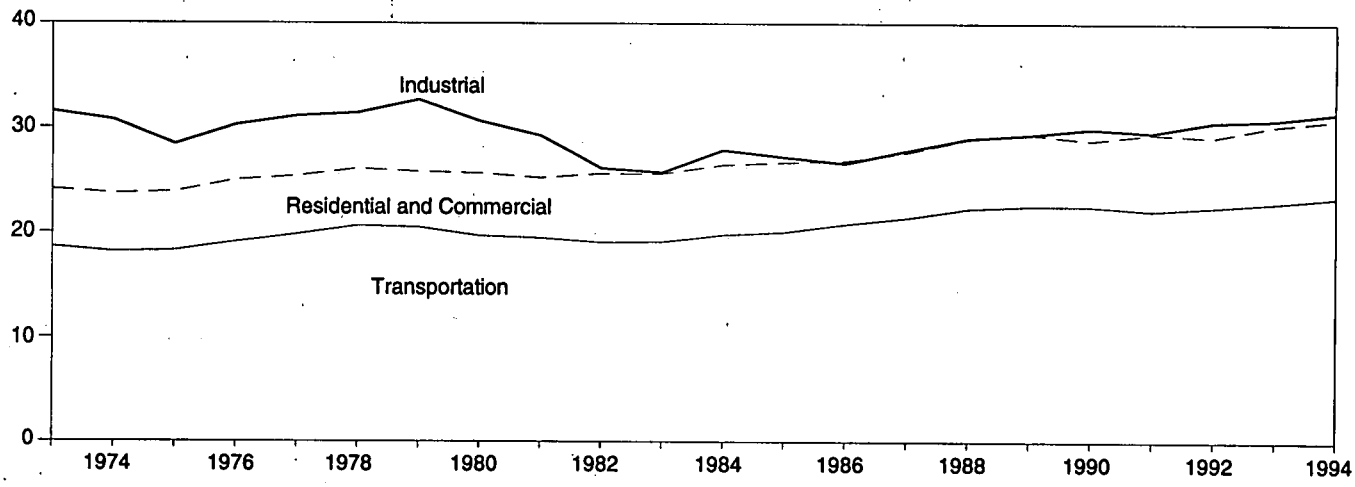
Additional Notes and Sources: See Tables 2.2-2.6 and end of section.

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

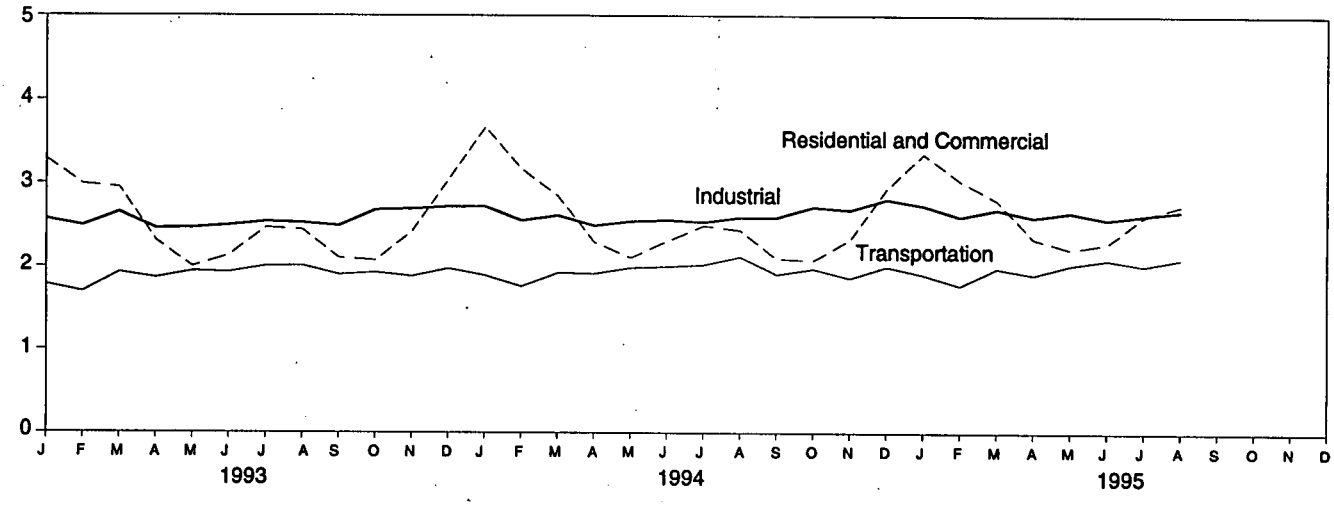
Figure 2.1 Energy Consumption by End-Use Sector

(Quadrillion Btu)

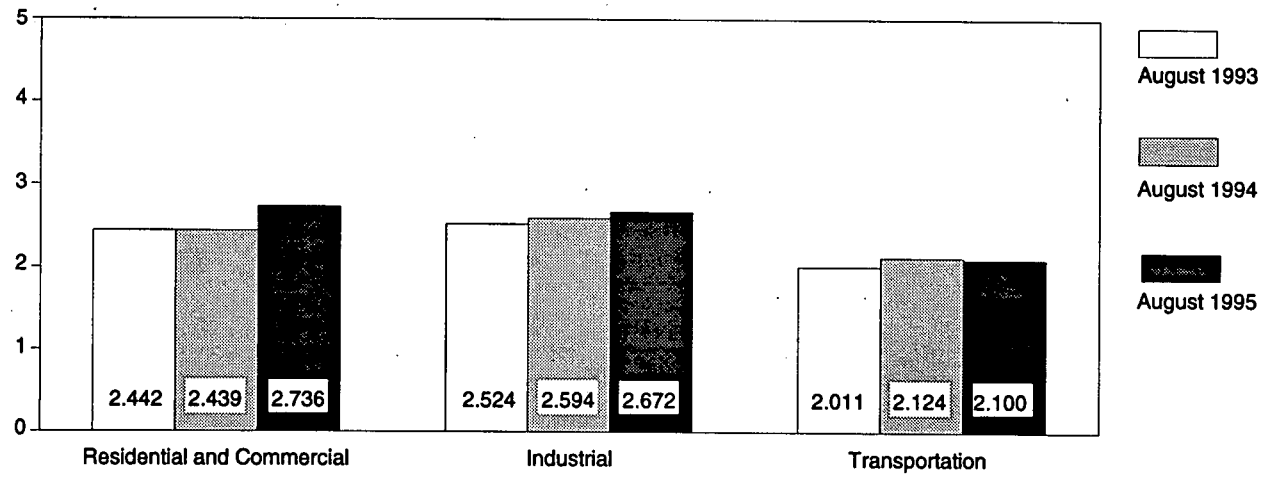
Overview, 1973-1994



Overview, Monthly



Overview, August



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

Table 2.2 Energy Consumption by End-Use Sector

(Quadrillion Btu)

	Residential and Commercial		Industrial		Transportation			
	Net	Total	Net	Total	Net	Total	Net	Total[a]
1973 Total	15.766	24.143	25.917	31.528	18.584	18.605	60.274	74.282
1974 Total	15.246	23.725	24.994	30.694	18.095	18.117	58.341	72.543
1975 Total	15.200	23.899	22.737	28.402	18.219	18.244	56.157	70.546
1976 Total	15.997	25.018	24.038	30.236	19.076	19.101	59.119	74.362
1977 Total	15.828	25.384	24.593	31.077	19.794	19.819	60.223	76.288
1978 Total	16.023	26.084	24.637	31.392	20.589	20.611	61.251	78.089
1979 Total	15.709	25.808	25.679	32.616	20.447	20.472	61.836	78.898
1980 Total	15.075	25.655	23.854	30.606	19.669	19.695	58.597	75.955
1981 Total	14.541	25.241	22.533	29.240	19.480	19.507	56.556	73.990
1982 Total	14.629	25.629	20.020	26.145	19.043	19.069	53.697	70.848
1983 Total	14.395	25.627	19.401	25.759	19.109	19.135	52.907	70.524
1984 Total	14.964	26.474	21.184	27.867	19.773	19.801	55.923	74.144
1985 Total	14.839	26.704	20.520	27.214	20.036	20.067	55.391	73.981
1986 Total	14.791	26.852	20.101	26.630	20.781	20.812	55.676	74.297
1987 Total	15.146	27.623	21.116	27.826	21.419	21.448	57.678	76.894
1988 Total	16.004	28.925	22.085	28.986	22.274	22.305	60.366	80.218
1989 Total	16.261	29.404	22.272	29.353	22.530	22.561	61.070	81.325
1990 Total	15.568	28.786	22.841	29.936	22.504	22.535	60.921	81.265
1991 Total	15.986	29.424	22.549	29.570	22.090	22.120	60.626	81.116
1992 Total	16.090	29.100	23.498	30.577	22.432	22.461	62.025	82.144
1993 January	2.081	3.286	2.007	2.569	1.785	1.787	5.871	7.640
February	1.946	2.986	1.965	2.490	1.700	1.702	5.609	7.175
March	1.859	2.947	2.085	2.650	1.928	1.931	5.871	7.526
April	1.380	2.315	1.916	2.456	1.866	1.868	5.159	6.637
May	1.012	2.000	1.858	2.464	1.943	1.945	4.811	6.406
June	.982	2.140	1.855	2.494	1.933	1.935	4.771	6.570
July	1.058	2.466	1.894	2.539	2.003	2.006	4.960	7.015
August	1.058	2.442	1.887	2.524	2.008	2.011	4.958	6.981
September	1.013	2.108	1.951	2.489	1.903	1.906	4.868	6.503
October	1.078	2.079	2.107	2.679	1.928	1.930	5.111	6.687
November	1.398	2.422	2.105	2.692	1.884	1.886	5.387	7.000
December	1.870	3.043	2.124	2.719	1.974	1.976	5.966	7.737
Total	16.734	30.231	23.756	30.766	22.856	22.883	63.341	83.877
1994 January	2.363	3.667	2.144	2.720	1.894	1.897	6.400	8.283
February	2.096	3.165	2.042	2.552	1.763	1.765	5.898	7.480
March	1.757	2.845	2.041	2.614	1.924	1.927	5.719	7.382
April	1.323	2.296	1.936	2.492	1.916	1.918	5.171	6.703
May	1.074	2.113	1.925	2.544	1.986	1.988	4.982	6.643
June	1.040	2.310	1.904	2.560	1.999	2.002	4.945	6.874
July	1.094	2.492	1.911	2.536	2.022	2.025	5.030	7.055
August	1.092	2.439	1.943	2.594	2.121	2.124	5.159	7.159
September	1.002	2.103	2.026	2.594	1.910	1.912	4.938	6.609
October	1.060	2.082	2.129	2.718	1.975	1.978	5.163	6.776
November	1.307	2.330	2.091	2.683	1.869	1.871	5.262	6.880
December	1.775	2.938	2.219	2.813	2.002	2.005	5.993	7.752
Total	16.984	30.779	24.310	31.423	23.383	23.411	64.660	85.595
1995 January	2.122	3.352	2.155	2.737	1.909	1.911	6.184	7.997
February	1.970	3.031	2.073	2.603	1.779	1.781	5.819	7.411
March	1.716	2.800	2.103	2.690	1.984	1.986	5.799	7.472
April	R1.366	R2.341	R2.025	R2.597	1.908	1.910	R5.295	R6.844
May	R1.137	R2.216	R2.017	R2.655	2.021	2.024	R5.172	R6.892
June	R1.067	R2.282	R1.932	R2.570	2.088	2.091	R5.087	R6.943
July	1.120	2.610	R1.959	R2.625	R2.015	2.017	R5.094	R7.253
August	1.179	2.736	1.996	2.672	2.097	2.100	5.276	7.511
8-Month Total	11.677	21.367	16.262	21.150	15.801	15.819	43.726	58.323
1994 8-Month Total	11.839	21.327	15.845	20.614	15.627	15.646	43.304	57.579
1993 8-Month Total	11.377	20.581	15.467	20.185	15.167	15.185	42.010	55.950

[a] Due to a lack of consistent historical data, some renewable energy sources are not included. For example, in 1992, 3.0 quadrillion Btu of renewable energy consumed by U.S. electric utilities to generate electricity for distribution is included, but an estimated 3.0 quadrillion Btu of renewable energy used by other sectors is not included.

R=Revised data.

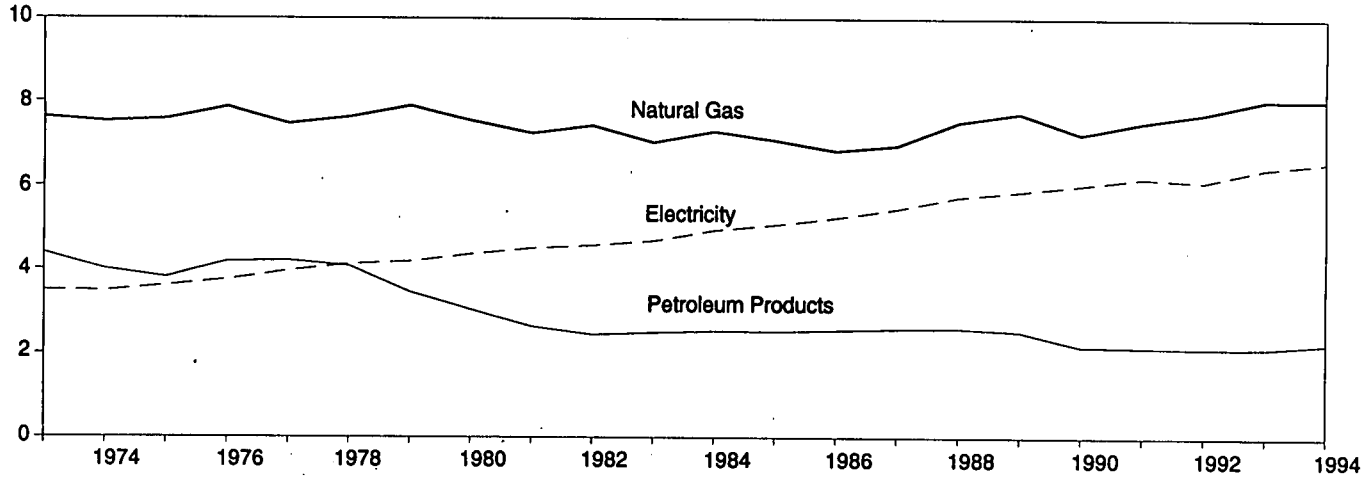
Notes: • Totals may not equal sum of components due to independent rounding and the use of sector-specific conversion factors for natural gas and coal. • Geographic coverage is the 50 States and the District of Columbia.

Additional Notes and Sources: See end of section.

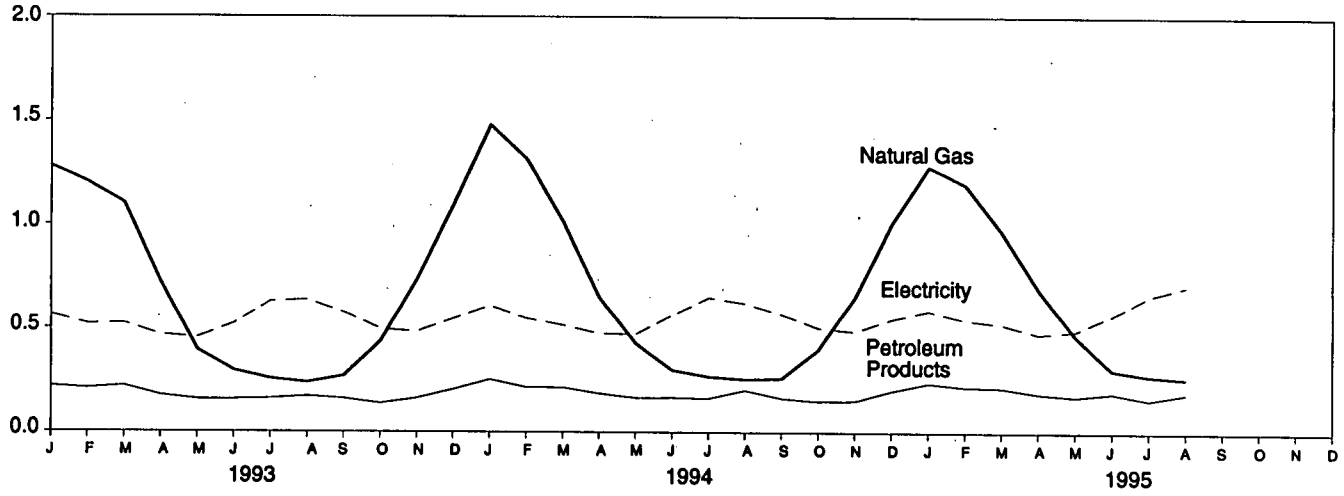
Figure 2.2 Residential and Commercial Energy Consumption

(Quadrillion Btu)

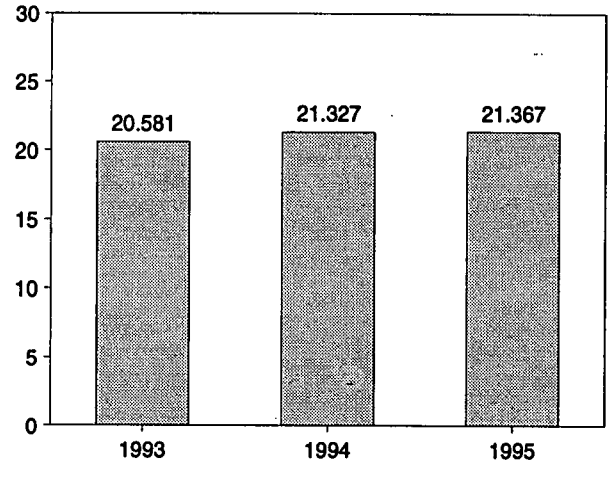
By Major Sources, 1973-1994



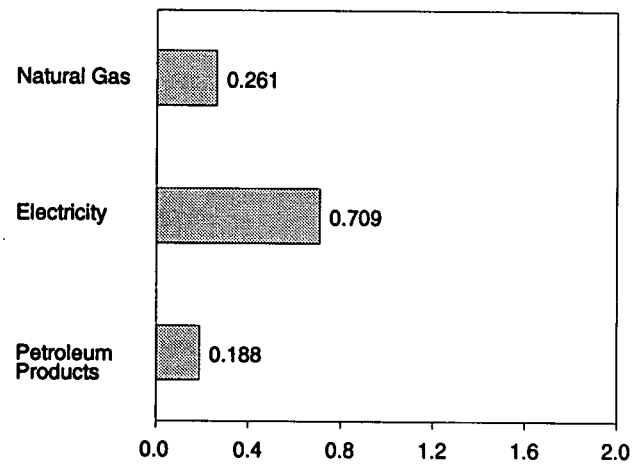
By Major Sources, Monthly



Total, January-August



By Major Sources, August 1995



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

Table 2.3 Residential and Commercial Energy Consumption

(Quadrillion Btu)

	Coal	Natural Gas[a]	Petroleum Products[b]	Primary Consumption	Electricity	Net Consumption	Electrical System Energy Losses	Total Consumption[c]
1973 Total	0.254	7.626	4.391	12.270	3.495	15.766	8.377	24.143
1974 Total	.257	7.518	3.996	11.771	3.475	15.246	8.480	23.725
1975 Total	.209	7.581	3.805	11.595	3.604	15.200	8.700	23.899
1976 Total	.203	7.866	4.181	12.250	3.747	15.997	9.021	25.018
1977 Total	.205	7.461	4.206	11.873	3.955	15.828	9.556	25.384
1978 Total	.214	7.624	4.070	11.908	4.116	16.023	10.061	26.084
1979 Total	.187	7.891	3.448	11.525	4.184	15.709	10.100	25.808
1980 Total	.145	7.540	3.035	10.721	4.355	15.075	10.580	25.655
1981 Total	.167	7.243	2.634	10.043	4.497	14.541	10.700	25.241
1982 Total	.187	7.427	2.449	10.063	4.566	14.629	11.000	25.629
1983 Total	.192	7.024	2.498	9.715	4.680	14.395	11.232	25.627
1984 Total	.209	7.292	2.535	10.036	4.928	14.964	11.510	26.474
1985 Total	.176	7.079	2.522	9.777	5.061	14.839	11.865	26.704
1986 Total	.176	6.825	2.555	9.556	5.235	14.791	12.061	26.852
1987 Total	.162	6.954	2.587	9.703	5.443	15.146	12.477	27.623
1988 Total	.168	7.513	2.600	10.280	5.724	16.004	12.920	28.925
1989 Total	.146	7.731	2.525	10.402	5.859	16.261	13.143	29.404
1990 Total	.156	7.225	2.173	9.553	6.015	15.568	13.218	28.786
1991 Total	.141	7.510	2.154	9.805	6.180	15.986	13.439	29.424
1992 Total	.142	7.726	2.126	9.993	6.096	16.090	13.010	29.100
1993 January	.015	1.281	.219	1.516	.565	2.081	1.204	3.286
February	.015	1.204	.209	1.428	.518	1.946	1.040	2.986
March	.012	1.104	.221	1.337	.522	1.859	1.088	2.947
April	.014	.724	.176	.914	.466	1.380	.935	2.315
May	.007	.395	.157	.559	.453	1.012	.987	2.000
June	.010	.295	.157	.461	.521	.982	1.157	2.140
July	.010	.256	.161	.427	.632	1.058	1.408	2.466
August	.009	.238	.172	.419	.639	1.058	1.384	2.442
September	.007	.269	.161	.436	.577	1.013	1.095	2.108
October	.009	.435	.138	.583	.495	1.078	1.002	2.079
November	.015	.738	.163	.916	.483	1.398	1.024	2.422
December	.021	1.098	.205	1.324	.546	1.870	1.174	3.043
Total	.143	8.039	2.136	10.318	6.416	16.734	13.497	30.231
1994 January	.020	1.478	.253	1.752	.611	2.363	1.304	3.667
February	.016	1.316	.216	1.548	.548	2.096	1.069	3.165
March	.012	1.015	.215	1.242	.515	1.757	1.088	2.845
April	.011	.651	.186	.848	.475	1.323	.973	2.296
May	.008	.428	.166	.602	.472	1.074	1.039	2.113
June	.009	.299	.167	.475	.565	1.040	1.270	2.310
July	.011	.268	.164	.443	.652	1.094	1.397	2.492
August	.009	.256	.203	.468	.624	1.092	1.347	2.439
September	.007	.260	.165	.432	.570	1.002	1.101	2.103
October	.008	.399	.151	.558	.503	1.060	1.022	2.082
November	.013	.655	.153	.821	.486	1.307	1.023	2.330
December	.019	1.010	.201	1.230	.546	1.775	1.162	2.938
Total	.142	8.036	2.239	10.417	6.567	16.984	13.795	30.779
1995 January	.015	1.281	.238	1.534	.588	2.122	1.229	3.352
February	.014	1.196	.220	1.429	.542	1.970	1.061	3.031
March	.010	.969	.216	1.196	.521	1.716	1.084	2.800
April	R.011	.693	.188	R.891	.474	R1.366	.975	R2.341
May	R.007	.466	.174	R.648	.489	R1.137	1.079	R2.216
June	R.007	.301	.191	R.499	.567	R1.067	1.215	R2.282
July	.024	.274	.159	.457	.662	1.120	1.490	2.610
August	.022	.261	.188	.470	.709	1.179	1.556	2.736
8-Month Total	.109	5.440	1.574	7.124	4.553	11.677	9.690	21.367
1994 8-Month Total	.096	5.711	1.570	7.377	4.462	11.839	9.488	21.327
1993 8-Month Total	.091	5.499	1.472	7.062	4.315	11.377	9.204	20.581

[a] Includes supplemental gaseous fuels.

[b] Products obtained from the processing of crude oil (including lease condensate), natural gas, and other hydrocarbon compounds.

[c] Due to a lack of consistent historical data, some renewable energy sources are not included. For example, in 1992, an estimated 0.7 quadrillion Btu of renewable energy consumed by the U.S. residential and commercial sectors (primarily the residential sector) is not included.

R=Revised data.

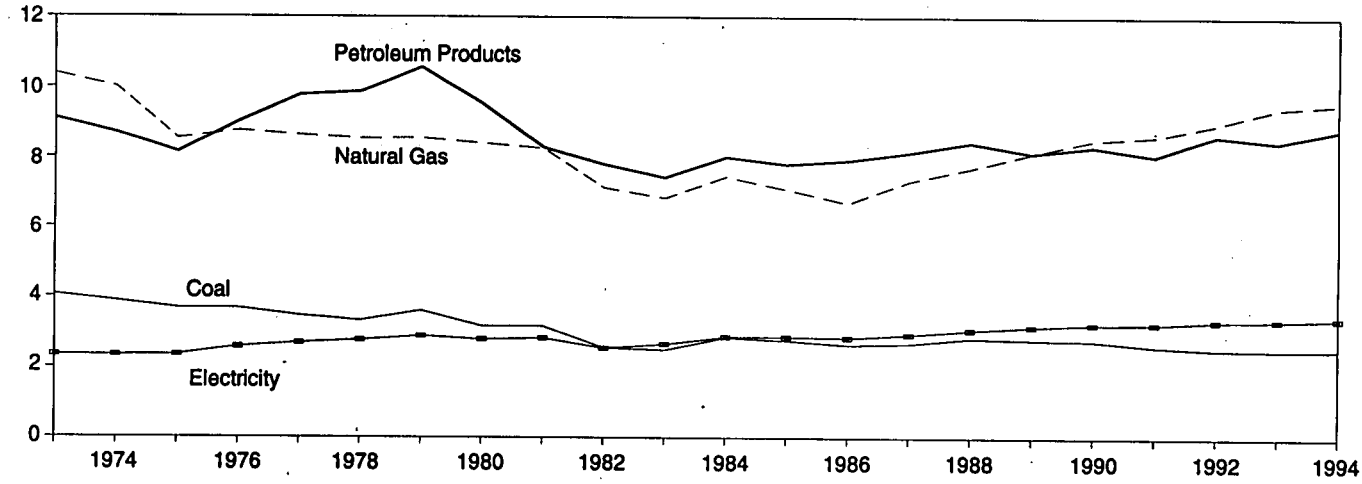
Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Additional Notes and Sources: See end of section.

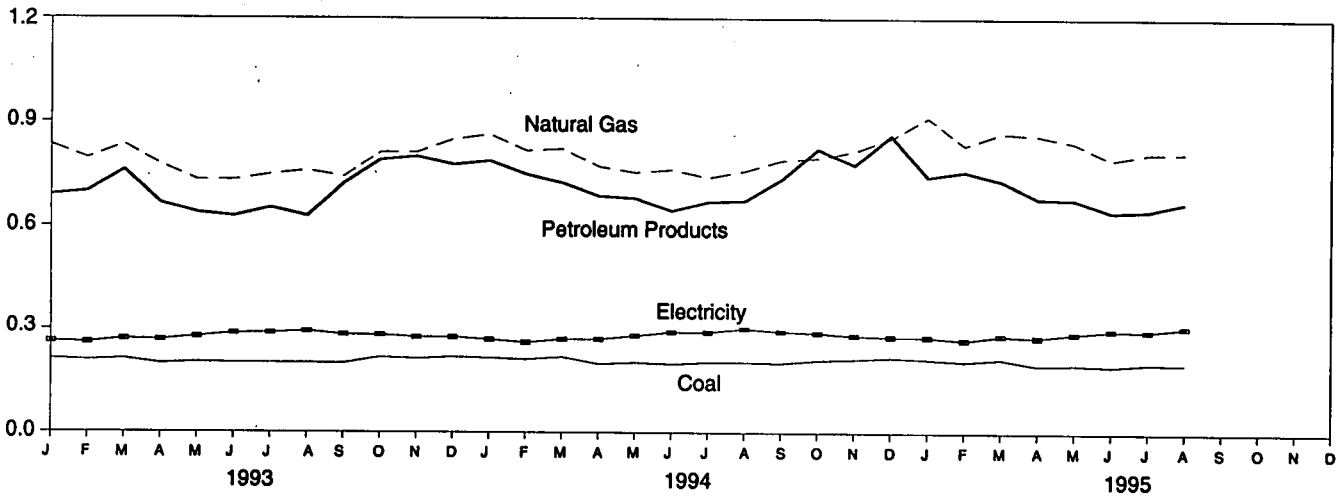
Figure 2.3 Industrial Energy Consumption

(Quadrillion Btu)

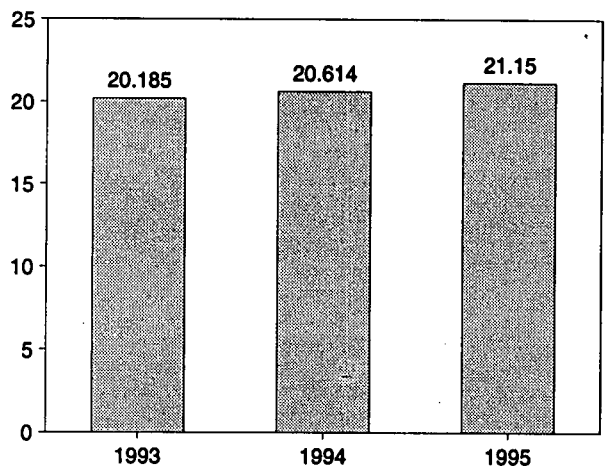
By Major Sources, 1973-1994



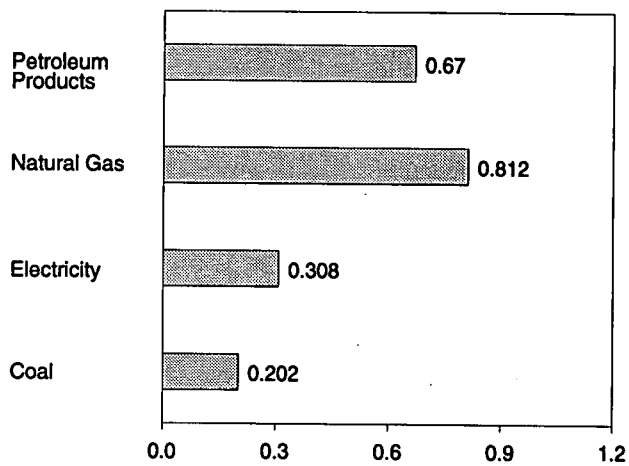
By Major Sources, Monthly



Total, January-August



By Major Sources, August 1995



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

Table 2.4 Industrial Energy Consumption

(Quadrillion Btu)

	Coal	Natural Gas[a]	Petroleum Products[b]	Hydro-electric Power	Net Imports of Coal Coke	Primary Consumption	Electricity	Net Consumption	Electrical System Energy Losses	Total Consumption[c]
1973 Total	4.057	10.388	9.104	0.035	-0.007	23.576	2.341	25.917	5.611	31.528
1974 Total	3.870	10.004	8.694	.033	.056	22.657	2.337	24.994	5.700	30.694
1975 Total	3.667	8.532	8.146	.032	.014	20.391	2.346	22.737	5.665	28.402
1976 Total	3.661	8.762	9.010	.033	(s)	21.465	2.573	24.038	6.198	30.236
1977 Total	3.454	8.635	9.774	.033	.015	21.911	2.682	24.593	6.484	31.077
1978 Total	3.314	8.539	9.867	.032	.125	21.876	2.761	24.637	6.755	31.392
1979 Total	3.593	8.549	10.568	.034	.063	22.807	2.873	25.679	6.936	32.616
1980 Total	3.155	8.395	9.525	.033	-.035	21.073	2.781	23.854	6.752	30.606
1981 Total	3.157	8.257	8.285	.033	-.016	19.715	2.817	22.533	6.707	29.240
1982 Total	2.552	7.121	7.794	.033	-.022	17.479	2.542	20.020	6.125	26.145
1983 Total	2.490	6.826	7.420	.033	-.016	16.753	2.648	19.401	6.359	25.759
1984 Total	2.842	7.448	8.014	.033	-.011	18.325	2.859	21.184	6.683	27.867
1985 Total	2.760	7.080	7.805	.033	-.013	17.665	2.855	20.520	6.694	27.214
1986 Total	2.640	6.690	7.920	.033	-.017	17.267	2.834	20.101	6.529	26.630
1987 Total	2.673	7.323	8.150	.033	.009	18.188	2.928	21.116	6.710	27.826
1988 Total	2.828	7.696	8.430	.033	.040	19.026	3.059	22.085	6.901	28.986
1989 Total	2.787	8.131	8.133	.033	.030	19.113	3.158	22.272	7.082	29.353
1990 Total	2.756	8.502	8.319	.033	.005	19.615	3.226	22.841	7.095	29.936
1991 Total	2.601	8.619	8.057	.033	.009	19.319	3.230	22.549	7.021	29.570
1992 Total	2.515	8.967	8.638	.033	.027	20.180	3.319	23.498	7.079	30.577
1993 January	.213	.833	.690	.003	.004	1.743	.264	2.007	.562	2.569
February	.209	.795	.699	.003	(s)	1.704	.261	1.965	.524	2.490
March	.213	.834	.760	.003	.003	1.814	.271	2.085	.566	2.650
April	.200	.776	.666	.003	.002	1.647	.269	1.916	.540	2.456
May	.204	.732	.638	.003	.002	1.580	.278	1.858	.606	2.464
June	.202	.732	.628	.003	.003	1.568	.288	1.855	.639	2.494
July	.202	.748	.652	.003	(s)	1.605	.289	1.894	.645	2.539
August	.202	.759	.628	.002	.002	1.593	.294	1.887	.637	2.524
September	.201	.742	.722	.002	-.001	1.667	.284	1.951	.539	2.489
October	.218	.812	.790	.002	.001	1.824	.283	2.107	.572	2.679
November	.214	.812	.800	.002	(s)	1.828	.277	2.105	.587	2.692
December	.219	.849	.776	.002	.002	1.847	.277	2.124	.595	2.719
Total	2.496	9.423	8.453	.032	.017	20.422	3.334	23.756	7.010	30.766
1994 January	.216	.863	.787	.003	.004	1.873	.270	2.144	.577	2.720
February	.212	.817	.749	.003	-.001	1.780	.262	2.042	.511	2.552
March	.219	.822	.724	.003	.002	1.770	.271	2.041	.573	2.614
April	.200	.771	.687	.003	.003	1.664	.271	1.936	.557	2.492
May	.204	.754	.681	.003	.002	1.644	.281	1.925	.619	2.544
June	.200	.762	.644	.003	.003	1.612	.292	1.904	.656	2.560
July	.205	.740	.671	.003	(s)	1.619	.292	1.911	.626	2.536
August	.205	.759	.674	.002	.002	1.642	.302	1.943	.651	2.594
September	.203	.789	.735	.002	.003	1.732	.294	2.026	.568	2.594
October	.211	.797	.823	.002	.005	1.839	.290	2.129	.589	2.718
November	.214	.817	.777	.002	-.001	1.809	.282	2.091	.592	2.683
December	.219	.854	.862	.002	.002	1.940	.279	2.219	.594	2.813
Total	2.510	9.545	8.813	.032	.024	20.924	3.386	24.310	7.113	31.423
1995 January	.214	.913	.743	.003	.004	1.877	.278	2.155	.581	2.737
February	.208	.833	.758	.003	.002	1.803	.270	2.073	.529	2.603
March	.215	.869	.732	.003	.003	1.821	.282	2.103	.587	2.690
April	R.198	.862	.682	.003	.001	R1.747	.278	R2.025	.572	R2.597
May	R.200	.840	.679	.003	.004	R1.728	.289	R2.017	.638	R2.655
June	R.196	.792	.642	.003	.001	R1.634	.298	R1.932	.638	R2.570
July	.203	R.811	.646	.003	.002	R1.664	.296	R1.959	.666	R2.625
August	.202	.812	.670	.002	.001	1.688	.308	1.996	.676	2.672
8-Month Total	1.638	6.732	5.551	.023	.018	13.963	2.300	16.262	4.887	21.150
1994 8-Month Total	1.662	6.288	5.616	.023	.014	13.604	2.241	15.845	4.768	20.614
1993 8-Month Total	1.644	6.208	5.361	.023	.016	13.253	2.214	15.467	4.718	20.185

[a] Includes supplemental gaseous fuels.

[b] Products obtained from the processing of crude oil (including lease condensate), natural gas, and other hydrocarbon compounds.

[c] Due to a lack of consistent historical data, some renewable energy sources are not included. For example, in 1992, an estimated 2.3 quadrillion Btu of renewable energy consumed by the U.S. industrial sector (primarily the pulp and paper industry) is not included.

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

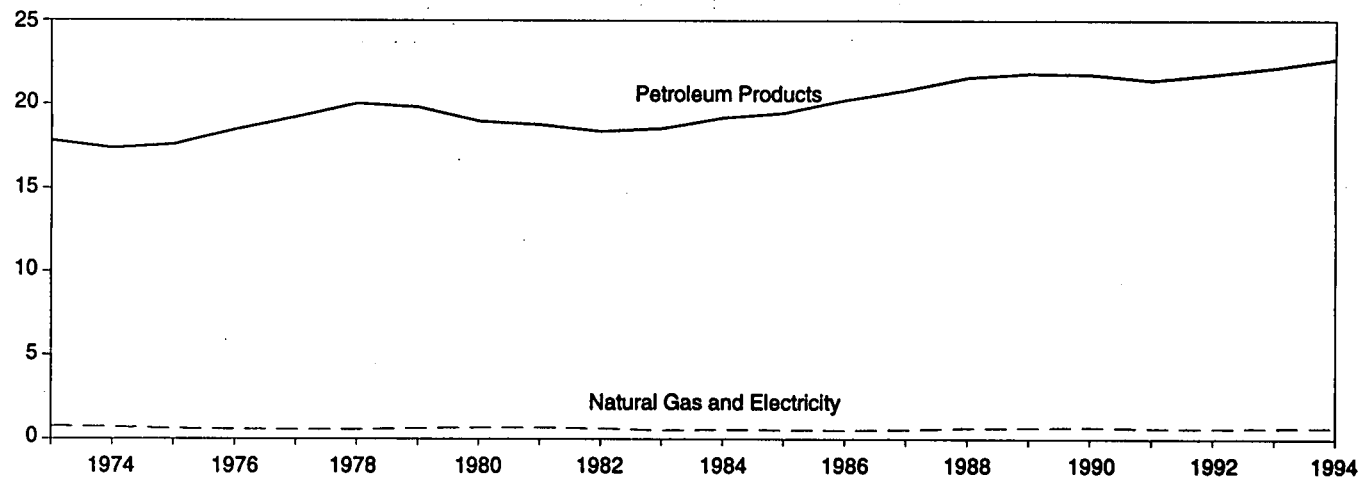
Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Additional Notes and Sources: See end of section.

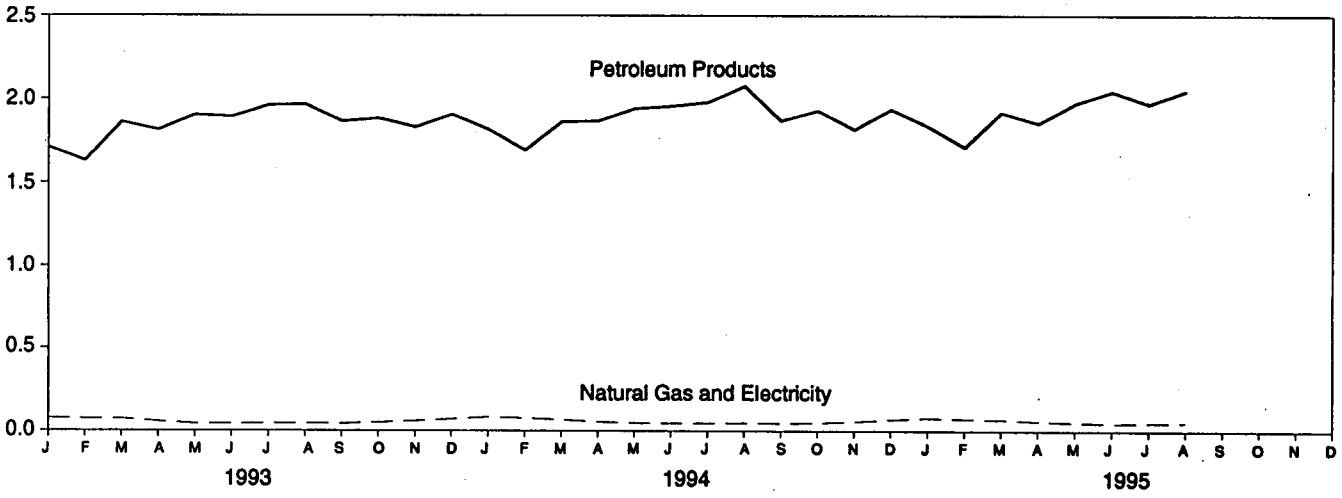
Figure 2.4 Transportation Energy Consumption

(Quadrillion Btu)

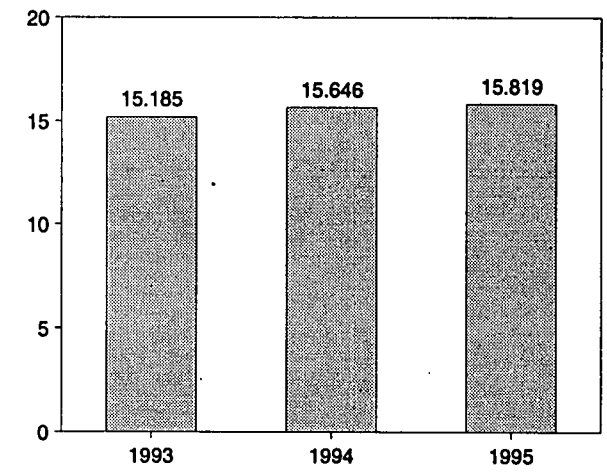
By Major Sources, 1973-1994



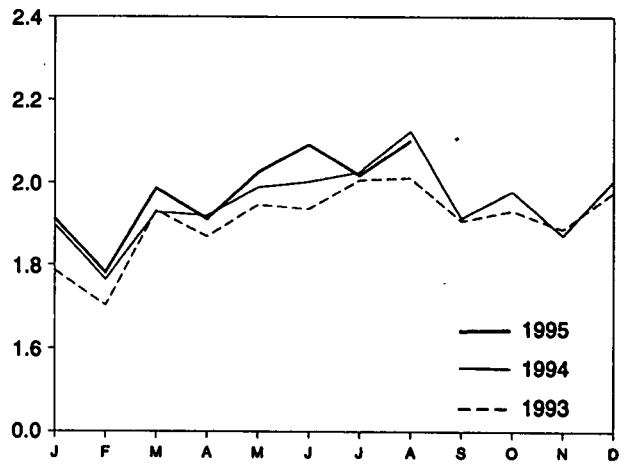
By Major Sources, Monthly



Total, January-August



Total, Monthly



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

Table 2.5 Transportation Energy Consumption

(Quadrillion Btu)

	Coal	Natural Gas[a]	Petroleum Products[b]	Primary Consumption	Electricity	Net Consumption	Electrical System Energy Losses	Total Consumption[c]
1973 Total	0.003	0.743	17.831	18.576	0.008	18.584	0.020	18.605
1974 Total	.002	.685	17.399	18.086	.009	18.095	.022	18.117
1975 Total	.001	.595	17.614	18.209	.010	18.219	.025	18.244
1976 Total	(s)	.559	18.506	19.065	.010	19.076	.025	19.101
1977 Total	(s)	.543	19.241	19.784	.010	19.794	.025	19.819
1978 Total	(d)	.539	20.041	20.580	.009	20.589	.022	20.611
1979 Total	(d)	.612	19.825	20.436	.010	20.447	.025	20.472
1980 Total	(d)	.650	19.008	19.658	.011	19.669	.026	19.695
1981 Total	(d)	.658	18.811	19.469	.011	19.480	.026	19.507
1982 Total	(d)	.612	18.420	19.032	.011	19.043	.026	19.069
1983 Total	(d)	.505	18.593	19.098	.011	19.109	.026	19.135
1984 Total	(d)	.545	19.216	19.761	.012	19.773	.028	19.801
1985 Total	(d)	.519	19.504	20.024	.013	20.036	.030	20.067
1986 Total	(d)	.499	20.269	20.768	.013	20.781	.031	20.812
1987 Total	(d)	.535	20.871	21.406	.013	21.419	.029	21.448
1988 Total	(d)	.632	21.629	22.260	.014	22.274	.031	22.305
1989 Total	(d)	.649	21.868	22.517	.014	22.530	.031	22.561
1990 Total	(d)	.680	21.810	22.490	.014	22.504	.031	22.535
1991 Total	(d)	.620	21.456	22.076	.014	22.090	.030	22.120
1992 Total	(d)	.606	21.812	22.418	.014	22.432	.029	22.461
1993 January	(d)	.074	1.710	1.784	.001	1.785	.002	1.787
February	(d)	.070	1.629	1.699	.001	1.700	.002	1.702
March	(d)	.069	1.859	1.927	.001	1.928	.002	1.931
April	(d)	.053	1.812	1.865	.001	1.866	.002	1.868
May	(d)	.040	1.902	1.942	.001	1.943	.002	1.945
June	(d)	.040	1.891	1.931	.001	1.933	.002	1.935
July	(d)	.042	1.960	2.002	.001	2.003	.003	2.006
August	(d)	.043	1.965	2.007	.001	2.008	.003	2.011
September	(d)	.040	1.862	1.902	.001	1.903	.002	1.906
October	(d)	.047	1.880	1.927	.001	1.928	.002	1.930
November	(d)	.056	1.827	1.883	.001	1.884	.002	1.886
December	(d)	.068	1.904	1.972	.001	1.974	.002	1.976
Total	(d)	**.642**	**22.201**	**22.842**	**.013**	**22.856**	**.028**	**22.883**
1994 January	(d)	.080	1.813	1.893	.001	1.894	.002	1.897
February	(d)	.073	1.690	1.762	.001	1.763	.002	1.765
March	(d)	.064	1.859	1.923	.001	1.924	.002	1.927
April	(d)	.052	1.864	1.915	.001	1.916	.002	1.918
May	(d)	.045	1.940	1.985	.001	1.986	.002	1.988
June	(d)	.044	1.954	1.998	.001	1.999	.003	2.002
July	(d)	.044	1.977	2.021	.001	2.022	.003	2.025
August	(d)	.045	2.075	2.120	.001	2.121	.003	2.124
September	(d)	.043	1.866	1.909	.001	1.910	.002	1.912
October	(d)	.047	1.928	1.974	.001	1.975	.002	1.978
November	(d)	.054	1.813	1.868	.001	1.869	.002	1.871
December	(d)	.066	1.935	2.001	.001	2.002	.002	2.005
Total	(d)	**.656**	**22.714**	**23.370**	**.013**	**23.383**	**.028**	**23.411**
1995 January	(d)	.076	1.832	1.908	.001	1.909	.002	1.911
February	(d)	.070	1.708	1.778	.001	1.779	.002	1.781
March	(d)	.066	1.916	1.982	.001	1.984	.002	1.986
April	(d)	.057	1.850	1.907	.001	1.908	.002	1.910
May	(d)	.050	1.970	2.020	.001	2.021	.002	2.024
June	(d)	.044	2.043	2.087	.001	2.088	.002	2.091
July	(d)	.048	1.966	2.013	.001	R2.015	.003	2.017
August	(d)	.049	2.047	2.096	.001	2.097	.003	2.100
8-Month Total	(d)	**.460**	**15.331**	**15.792**	**.009**	**15.801**	**.019**	**15.819**
1994 8-Month Total	(d)	**.446**	**15.172**	**15.618**	**.009**	**15.627**	**.019**	**15.646**
1993 8-Month Total	(d)	**.431**	**14.727**	**15.158**	**.009**	**15.167**	**.019**	**15.185**

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

[b] Products obtained from the processing of crude oil (including lease condensate), natural gas, and other hydrocarbon compounds.

[c] Due to a lack of consistent historical data, some renewable energy sources are not included. For example, in 1992, an estimated 0.1 quadrillion Btu of renewable energy consumed by the U.S. transportation sector is not included.

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

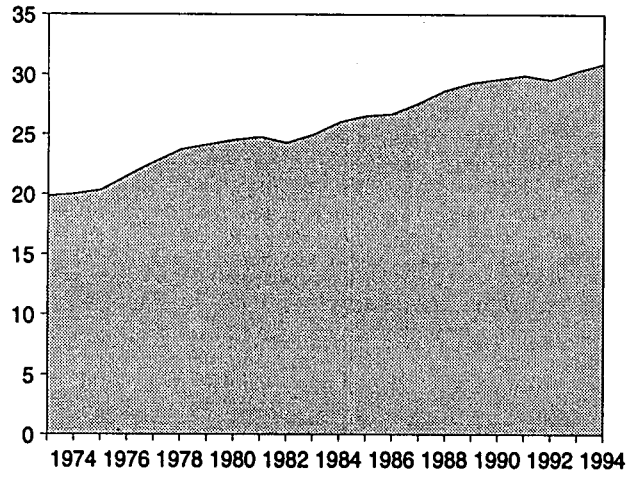
R=Revised data. (s)=Less than 0.5 trillion Btu.

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

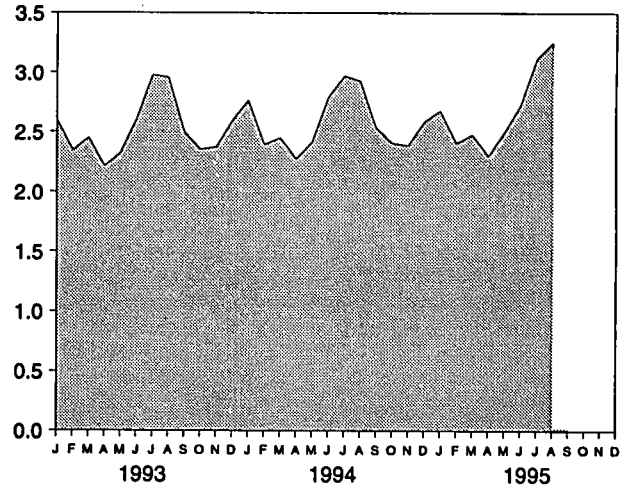
Additional Notes and Sources: See end of section.

Figure 2.5 Energy Input at Electric Utilities
(Quadrillion Btu)

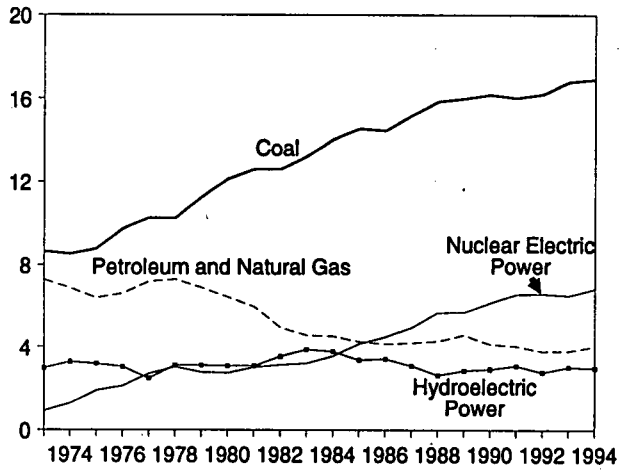
Total, 1973-1994



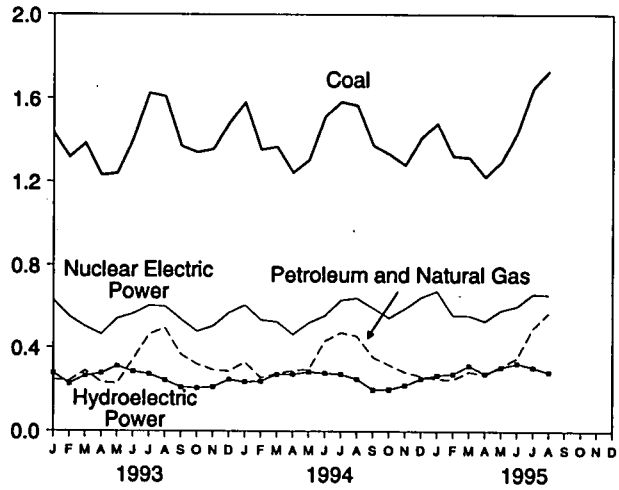
Total, Monthly



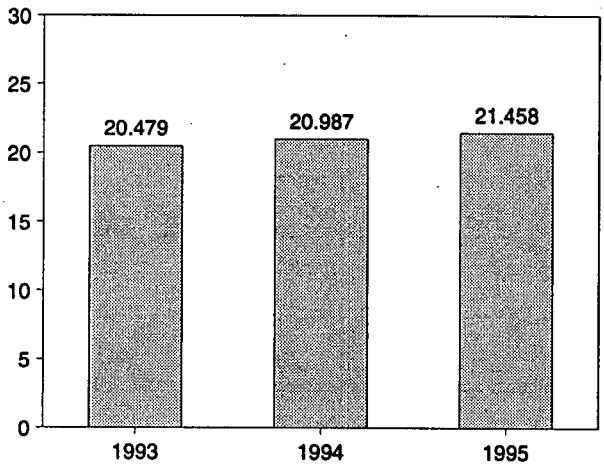
By Major Sources, 1973-1994



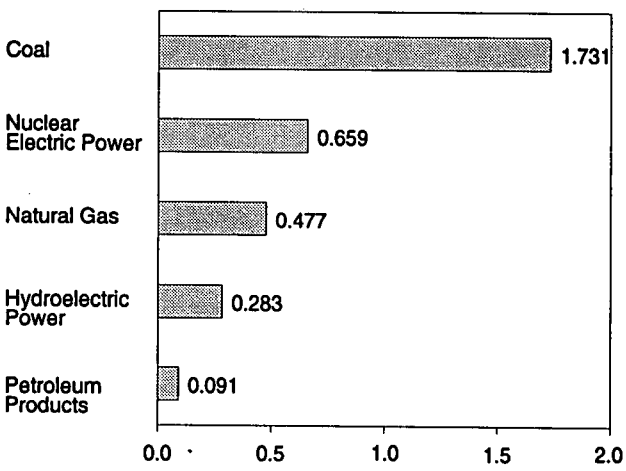
By Major Sources, Monthly



Total, January-August



By Major Sources, August 1995



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

Table 2.6 Energy Input at Electric Utilities

(Quadrillion Btu)

	Coal	Natural Gas[a]	Petroleum Products[b]	Nuclear Electric Power	Hydro-electric Power[c]	Geothermal Energy	Other[d]	Total
1973 Total	8.658	3.748	3.515	0.910	2.975	0.043	0.003	19.852
1974 Total	8.534	3.519	3.365	1.272	3.276	.053	.003	20.022
1975 Total	8.786	3.240	3.166	1.900	3.187	.070	.002	20.350
1976 Total	9.720	3.152	3.477	2.111	3.032	.078	.003	21.574
1977 Total	10.262	3.284	3.901	2.702	2.482	.077	.005	22.713
1978 Total	10.238	3.297	3.987	3.024	3.110	.064	.003	23.724
1979 Total	11.260	3.613	3.283	2.776	3.107	.084	.005	24.128
1980 Total	12.123	3.810	2.634	2.739	3.085	.110	.005	24.505
1981 Total	12.583	3.768	2.202	3.008	3.072	.123	.004	24.760
1982 Total	12.582	3.342	1.568	3.131	3.539	.105	.003	24.270
1983 Total	13.213	2.998	1.544	3.203	3.866	.129	.004	24.956
1984 Total	14.020	3.220	1.286	3.553	3.767	.165	.009	26.020
1985 Total	14.542	3.160	1.090	4.149	3.365	.198	.015	26.519
1986 Total	14.444	2.691	1.452	4.471	3.413	.219	.012	26.703
1987 Total	15.173	2.935	1.257	4.906	3.084	.229	.016	27.600
1988 Total	15.850	2.709	1.563	5.661	2.630	.217	.017	28.648
1989 Total	15.988	2.871	1.685	5.677	2.848	.197	.020	29.286
1990 Total	16.189	2.882	1.250	6.161	2.914	.181	.021	29.599
1991 Total	16.028	2.856	1.178	6.579	3.083	.170	.021	29.915
1992 Total	16.211	2.826	.951	6.607	2.760	.170	.022	29.547
1993 January	1.432	.168	.077	.631	.275	.014	.002	2.599
February	1.317	.165	.074	.548	.226	.013	.002	2.346
March	1.384	.198	.090	.498	.263	.014	.002	2.450
April	1.230	.178	.055	.461	.275	.014	.002	2.214
May	1.239	.171	.056	.538	.310	.012	.001	2.328
June	1.406	.260	.083	.562	.284	.012	.001	2.608
July	1.625	.341	.121	.604	.272	.013	.001	2.977
August	1.609	.365	.126	.600	.242	.014	.002	2.957
September	1.372	.264	.102	.534	.210	.013	.002	2.497
October	1.340	.240	.080	.475	.205	.013	.002	2.355
November	1.356	.213	.079	.501	.211	.013	.002	2.374
December	1.480	.178	.108	.567	.245	.013	.002	2.594
Total	**16.790**	**2.741**	**1.052**	**6.519**	**3.017**	**.158**	**.021**	**30.299**
1994 January	1.580	.174	.155	.607	.234	.013	.002	2.766
February	1.354	.152	.103	.532	.238	.012	.002	2.393
March	1.368	.190	.084	.523	.271	.012	.002	2.450
April	1.242	.208	.081	.461	.272	.012	.002	2.279
May	1.305	.221	.074	.518	.283	.012	.002	2.414
June	1.513	.326	.106	.553	.277	.011	.002	2.787
July	1.583	.370	.100	.632	.272	.012	.002	2.970
August	1.566	.391	.064	.642	.249	.013	.002	2.927
September	1.375	.302	.053	.594	.199	.012	.002	2.537
October	1.333	.270	.048	.542	.200	.012	.002	2.407
November	1.280	.236	.047	.590	.219	.012	.002	2.387
December	1.410	.212	.052	.646	.250	.012	.002	2.585
Total	**16.910**	**3.053**	**.968**	**6.841**	**2.964**	**.145**	**.020**	**30.902**
1995 January	1.478	.203	.046	.677	.267	.009	.001	2.680
February	1.323	.172	.075	.554	.274	.006	.001	2.406
March	1.317	.251	.034	.554	.313	.007	.001	2.477
April	1.223	.234	.036	.527	.276	.006	.002	2.303
May	1.296	.263	.047	.581	.305	.005	.001	2.499
June	1.435	.303	.048	.602	.326	.006	.001	2.722
July	1.649	.414	.079	.663	.306	.006	.002	3.118
August	1.731	.477	.091	.659	.283	.011	.002	3.253
8-Month Total	**11.453**	**2.317**	**.455**	**4.816**	**2.350**	**.056**	**.011**	**21.458**
1994 8-Month Total	**11.511**	**2.032**	**.768**	**4.469**	**2.097**	**.097**	**.013**	**20.987**
1993 8-Month Total	**11.242**	**1.846**	**.682**	**4.443**	**2.147**	**.106**	**.013**	**20.479**

[a] Includes supplemental gaseous fuels.

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

[c] Includes net imports of electricity.

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

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

Additional Notes and Sources: See end of section.

Energy Consumption Notes and Sources

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

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

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

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

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

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

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

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

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

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

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

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

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

- 1973-1975: DOI, BOM, *Mineral Industry Surveys*, "Petroleum Statement, Annual."
- 1976-1980: EIA, *Energy Data Reports*, "Petroleum Statement, Annual."
- 1981-1994: EIA, *Petroleum Supply Annual.*
- 1995: EIA, *Petroleum Supply Monthly.*

Specific petroleum products' end-use allocation procedures follow:

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

Electric Utilities, All Periods.

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

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

Sectors Other Than Electric Utilities, Annual Estimates Through 1993.

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

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

- Since 1979, the commercial sector adjusted sales total is directly from the *Sales* reports. Prior to 1979, each year's sales subtotal of the heating plus

industrial category is split into residential, commercial, and industrial (including farm) in proportion to the 1979 shares.

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

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

Sectors Other Than Electric Utilities, Monthly Estimates Through 1993.

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

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

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

Sectors Other Than Electric Utilities, 1994 and 1995.

Each month's non-electric utility consumption subtotal is disaggregated into the major end-use sectors in proportion to the shares each sector held of the non-electric utility subtotal in the same month in 1993.

- **Jet Fuel**—Through 1982, small amounts of kerosene-type jet fuel were consumed by electric utilities. Kerosene-type jet fuel deliveries to electric utilities as reported on the Form FERC-423 (formerly Form FPC-423) were used as estimates of this consumption. All remaining jet fuel (kerosene-type and naphtha-type) is consumed by the transportation sector.

- **Kerosene**—Total product supplied monthly is allocated to the major end-use sectors in proportion to annual sales grouped into end-use sectors from EIA's *Fuel Oil and Kerosene Sales* reports (based primarily on data collected by Form EIA-821, previously Form EIA-172), as follows:

  - Residential deliveries are taken directly from the *Sales* reports for 1979-1993. Sales for 1993 are used as estimates for succeeding periods. Prior to 1979, each year's sales category called "heating" is split into residential, commercial, and industrial in proportion to the 1979 shares.

  - Commercial sales are directly from the *Sales* reports for 1979-1993. Sales for 1993 are used as estimates for succeeding periods. Prior to 1979, each year's sales category called "heating" is split into residential, commercial, and industrial in proportion to the 1979 shares.

  - Industrial sales are directly from the *Sales* reports for 1979-1993. Sales for 1993 are used as estimates for succeeding periods. Prior to 1979, each year's sales category called "heating" is split into residential, commercial and industrial in proportion to the 1979 shares, and this estimated industrial (including farm) portion is added to all other uses.

- **Liquefied Petroleum Gases (LPG)**—The annual shares of LPG's total consumption that are estimated to be consumed by each end-use sector are applied to each month's total LPG consumption (i.e., product supplied) to create monthly end-use consumption estimates. The annual end-use shares are calculated in the following manner:

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

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

  - LPG consumed annually by the industrial sector is estimated as the difference between LPG total supplied and the estimated consumption of LPG by the sum of the residential and commercial sector

and the transportation sector. The industrial sector includes LPG used by chemical plants as raw materials or solvents and used in the production of synthetic rubber; refinery fuel use; use as synthetic natural gas feedstock and use in secondary recovery projects; all farm use; LPG sold to gas utility companies for distribution through the mains; and a portion of the use of LPG as an internal combustion engine fuel.

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

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

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

- 1984-1993: American Petroleum Institute (API), "Sales of Natural Gas Liquids and Liquefied Refinery Gases," which is based on an LPG sales survey jointly sponsored by API, the Gas Processors Association, and the National Liquefied Petroleum Gas Association.

- 1994 and 1995: The 1993 source is used to estimate succeeding periods.

- **Lubricants**—Total product supplied is allocated to the industrial and transportation sectors for all months according to proportions developed from annual sales of lubricants to the two sectors from U.S. Department of Commerce, Bureau of the Census, *Current Industrial Reports*, "Sales of Lubricating and Industrial Oils and Greases." The 1973 shares are applied to 1973 and 1974; the 1975 shares are applied to 1975 and 1976; and the 1977 shares are applied to 1977 forward.

- **Motor Gasoline**—Total product supplied monthly is allocated to the major end-use sectors in proportion to aggregations of annual sales categories created on the basis of the U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics*, Tables MF-21, MF-24, and MF-25, as follows:

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

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

  - Transportation sales are the sum of sales for highway use (minus the sales of special fuels, which are primarily diesel fuel and are accounted for in the transportation sector of distillate fuel) and sales for marine use.

- **Petroleum Coke**—The portion consumed by electric utilities is from Form EIA-759, "Monthly Power Plant Report" (formerly Form FPC-4). The remaining petroleum coke is assigned to the industrial sector.

- **Residual Fuel**—Product supplied is assigned to electric utilities and non-electric utilities as follows:

  Electric Utilities, All Periods.

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

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

  Sectors Other Than Electric Utilities, Annual Estimates Through 1993.

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

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

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

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

  Sectors Other Than Electric Utilities, Monthly Estimates Through 1993.

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

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

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

Sectors Other Than Electric Utilities, 1994 and 1995.

Each month's non-electric utility consumption subtotal is disaggregated into the major end-use sectors in proportion to the shares each sector held of the non-electric utility subtotal in the same month in 1993.

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

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

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

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

Sources for electric utilities sector:

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

Sources for industrial sector:

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

Sources for imports and exports of electricity:

- 1973-September 1977: Unpublished Federal Power Commission data.
- October 1977-1980: Unpublished Economic Regulatory Administration (ERA) data.
- 1981: DOE, Office of Energy Emergency Operations, "Report on Electric Energy Exchanges with Canada and Mexico for Calendar Year 1981," April 1982 (revised June 1982).
- 1982 and 1983: DOE, ERA, *Electricity Exchanges Across International Borders.*
- 1984-1986: DOE, ERA, *Electricity Transactions Across International Borders.*
- 1987 and 1988: DOE, ERA, Form ERA-781R, "Annual Report of International Electrical Export/Import Data."
- 1989-1992: DOE, Assistant Secretary for Fossil Energy, Form FE-781-R, "Annual Report of International Electrical Export/Import Data."
- 1993 forward: EIA estimates based on preliminary data from the National Energy Board of Canada and DOE, Assistant Secretary for Fossil Energy.

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

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

- 1981: EIA, *Energy Data Report*, "Coke Plant Report," quarterly.
- 1982 forward: EIA, *Quarterly Coal Report.*

10. Electricity: End-use consumption of electricity is based on Table 7.2 sales data. "Other," which is primarily for use in government buildings, is added to the commercial sector, except for approximately 4 percent used by railroads and railways and attributed to the transportation sector. For 1973-1983 and 1994, "Monthly Series" data are used directly. For 1984-1993, monthly estimates are created by dividing each month's "Monthly Series" value by the "Monthly Series" total for the year and multiplying by the "Annual Series" value for the year. Kilowatthours are converted to Btu at the rate of 3,412 Btu per kilowatthour. See Table 7.2 for sources of the electricity sales data.

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

Section 3. Petroleum

Total petroleum imports[2] averaged 8.5 million barrels per day in October 1995, 13 percent lower than the previous month's rate and 4 percent[3] lower than the October 1994 rate.

In October 1995, 17.9 million barrels per day of petroleum products were supplied for domestic use, 1 percent higher than the October 1994 rate. Motor gasoline accounted for 44 percent of the total; distillate fuel oil, 18 percent; and residual fuel oil, 5 percent.

Motor gasoline supplied during October 1995 averaged 7.9 million barrels per day, 1 percent higher than the previous month's rate and 4 percent higher than the October 1994 rate. Total motor gasoline stocks were 196 million barrels at the end of October 1995, 3 million barrels below the stock level in the previous month and 5 million barrels below the stock level 1 year earlier.

Distillate fuel oil supplied during October 1995 averaged 3.3 million barrels per day, slightly higher than the previous month's rate and 7 percent higher than the October 1994 rate. Distillate fuel oil ending stocks for October 1995 were 130 million barrels, 2 million barrels below the stock level in the previous month and 16 million barrels below the level 1 year earlier.

Residual fuel oil supplied in October 1995 averaged 0.8 million barrels per day, 2 percent lower than the previous month's rate and 4 percent lower than the October 1994 rate. Residual fuel oil stocks measured 39 million barrels at the end of October 1995, 1 million barrels below the stock level in the previous month and 4 million barrels below the stock level 1 year earlier.

Estimates (except of crude production) for the most current month are based on Energy Information Administration (EIA) weekly data and will be revised to conform with data from the EIA Petroleum Reporting System as available. For the most recent month, crude production is an EIA estimate based on historical and provisional data through July 1995.

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

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

	Field Production			Stock Change[a]		Petroleum Products Supplied	Ending Stocks[b]
	Total Domestic[c]	Crude Oil	Natural Gas Plant Liquids	Crude Oil[d]	Petroleum Products		Crude Oil[d] and Petroleum Products
	Thousand Barrels per Day						Million Barrels
1973 Average	**10,975**	**9,208**	**1,738**	**-11**	**146**	**17,308**	**1,008**
1974 Average	**10,498**	**8,774**	**1,688**	**62**	**117**	**16,653**	[e]**1,074**
1975 Average	**10,045**	**8,375**	**1,633**	[e]**17**	[e]**15**	**16,322**	**1,133**
1976 Average	**9,774**	**8,132**	[f]**1,604**	**39**	**-96**	**17,461**	**1,112**
1977 Average	**9,913**	**8,245**	**1,618**	**170**	**378**	**18,431**	**1,312**
1978 Average	**10,328**	**8,707**	**1,567**	**78**	**-172**	**18,847**	**1,278**
1979 Average	**10,179**	**8,552**	**1,584**	**148**	**25**	**18,513**	**1,341**
1980 Average	**10,214**	**8,597**	**1,573**	**98**	**42**	**17,056**	[e]**1,392**
1981 Average	**10,230**	**8,572**	**1,609**	[e]**290**	[e]**-130**	**16,058**	**1,484**
1982 Average	**10,252**	**8,649**	**1,550**	**136**	**-283**	**15,296**	[e]**1,430**
1983 Average	**10,299**	**8,688**	**1,559**	[e]**214**	[e]**-234**	**15,231**	**1,454**
1984 Average	**10,554**	**8,879**	**1,630**	**199**	**81**	**15,726**	**1,556**
1985 Average	**10,636**	**8,971**	**1,609**	**50**	**-153**	**15,726**	**1,519**
1986 Average	**10,289**	**8,680**	**1,551**	**78**	**124**	**16,281**	**1,593**
1987 Average	**10,008**	**8,349**	**1,595**	**128**	**-87**	**16,665**	**1,607**
1988 Average	**9,818**	**8,140**	**1,625**	**1**	**-29**	**17,283**	**1,597**
1989 Average	**9,219**	**7,613**	**1,546**	**86**	**-129**	**17,325**	**1,581**
1990 Average	**8,994**	**7,355**	**1,559**	**-35**	**142**	**16,988**	**1,621**
1991 Average	**9,168**	**7,417**	**1,659**	**-42**	**32**	**16,714**	**1,617**
1992 Average	**8,996**	**7,171**	**1,697**	**-1**	**-68**	**17,033**	[e]**1,592**
1993 January	[g]9,254	6,961	1,737	295	[e]560	16,173	1,618
February	8,907	6,943	1,777	219	-796	17,334	1,602
March	8,987	6,974	1,793	212	-602	17,575	1,590
April	8,897	6,881	1,802	523	356	16,781	1,617
May	8,800	6,847	1,732	147	915	16,508	1,650
June	8,747	6,795	1,753	2	573	17,096	1,667
July	8,657	6,688	1,741	6	497	17,357	1,682
August	8,720	6,758	1,747	-505	299	17,332	1,676
September	8,652	6,712	1,732	-439	86	17,650	1,665
October	8,893	6,839	1,768	328	403	17,323	1,688
November	8,847	6,912	1,670	251	-320	17,780	1,686
December	8,668	6,858	1,579	-53	-1,198	17,953	1,647
Average	**8,836**	**6,847**	**1,736**	**81**	**70**	**17,237**	**1,647**
1994 January	8,694	6,817	1,615	90	-906	18,072	1,622
February	8,611	6,770	1,633	-97	-1,190	18,337	1,586
March	8,675	6,746	1,668	324	-379	17,313	1,584
April	8,524	6,612	1,679	-68	284	17,489	1,591
May	8,614	6,688	1,711	-253	954	17,181	1,612
June	8,586	6,611	1,733	-104	497	17,815	1,624
July	8,550	6,501	1,753	148	824	17,485	1,654
August	8,526	6,544	1,760	-129	291	18,117	1,659
September	8,670	6,609	1,792	227	579	17,490	1,684
October	8,683	6,658	1,748	255	-607	17,719	1,673
November	8,758	6,628	1,815	102	380	17,315	1,687
December	8,842	6,760	1,807	-292	-813	18,319	1,653
Average	**8,645**	**6,662**	**1,727**	**18**	**-2**	**17,718**	**1,653**
1995 January	[E]8,664	[E]6,596	1,773	-279	-117	17,167	1,641
February	[E]8,832	[E]6,703	1,774	-48	-1,315	18,355	1,603
March	[E]8,625	[E]6,606	1,773	344	-484	17,403	1,599
April	[E]8,680	[E]6,561	1,789	-101	123	17,102	1,600
May	[E]8,663	[E]6,572	1,785	-111	494	17,241	1,611
June	[E]8,568	[E]6,540	1,740	-135	39	18,149	1,609
July	[E]8,500	[E]6,449	1,751	-415	885	17,113	1,623
August	[E]8,511	[E]6,462	1,730	-247	-71	17,993	1,613
September	[RE]8,444	[RE]6,380	[R]1,773	[R]-62	[R]222	[R]18,011	[R]1,618
October	[E]8,491	[PE]6,441	[E]1,742	[E]100	[E]-656	[E]17,868	[E]1,605
10-Month Average	[E]**8,596**	[PE]**6,530**	[E]**1,763**	[E]**-96**	[E]**-78**	[E]**17,632**	[E]**1,605**
1994 10-Month Average	**8,614**	**6,655**	**1,710**	**41**	**43**	**17,697**	**1,673**
1993 10-Month Average	**8,852**	**6,839**	**1,758**	**78**	**238**	**17,110**	**1,688**

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

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

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

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S1. • **1981 forward:** EIA, *Petroleum Supply Monthly*, November 1995, Table S1.

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

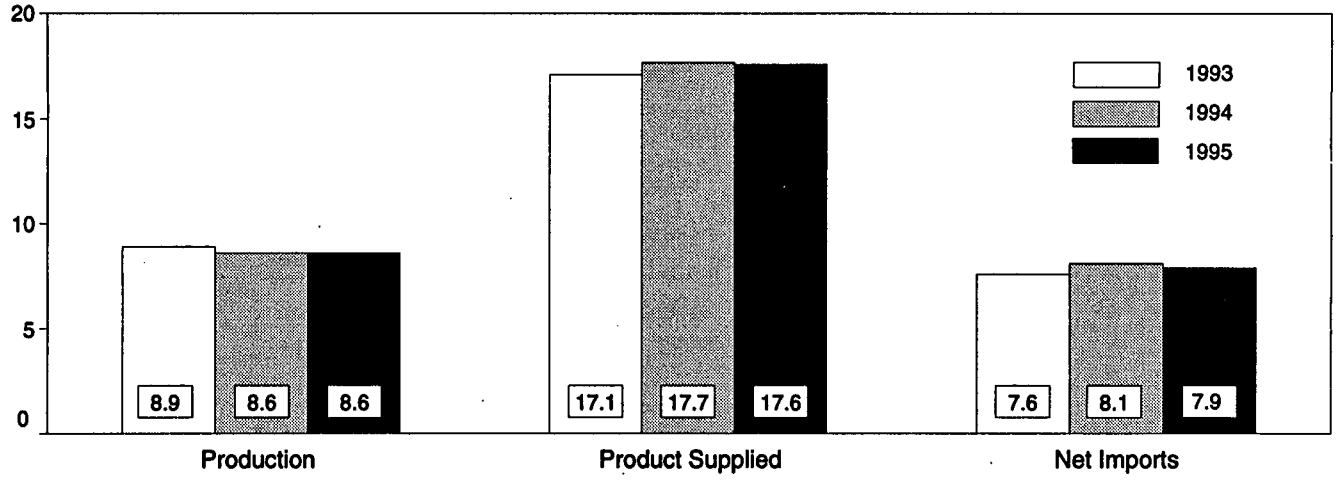
	Imports			Exports			Net Imports[b]
	Total	Crude Oil[a]	Petroleum Products	Total	Crude Oil	Petroleum Products	
	Thousand Barrels per Day						
1973 Average	6,256	3,244	3,012	231	2	229	6,025
1974 Average	6,112	3,477	2,635	221	3	218	5,892
1975 Average	6,056	4,105	1,951	209	6	204	5,846
1976 Average	7,313	5,287	2,026	223	8	215	7,090
1977 Average	8,807	6,615	2,193	243	50	193	8,565
1978 Average	8,363	6,356	2,008	362	158	204	8,002
1979 Average	8,456	6,519	1,937	[c] 471	235	[c] 236	[c] 7,985
1980 Average	6,909	5,263	1,646	544	287	258	6,365
1981 Average	5,996	4,396	1,599	595	228	367	5,401
1982 Average	5,113	3,488	1,625	815	236	579	4,298
1983 Average	5,051	3,329	1,722	739	164	575	4,312
1984 Average	5,437	3,426	2,011	722	181	541	4,715
1985 Average	5,067	3,201	1,866	781	204	577	4,286
1986 Average	6,224	4,178	2,045	785	154	631	5,439
1987 Average	6,678	4,674	2,004	764	151	613	5,914
1988 Average	7,402	5,107	2,295	815	155	661	6,587
1989 Average	8,061	5,843	2,217	859	142	717	7,202
1990 Average	8,018	5,894	2,123	857	109	748	7,161
1991 Average	7,627	5,782	1,844	1,001	116	885	6,626
1992 Average	7,888	6,083	1,805	950	89	861	6,938
1993 January	8,004	6,292	1,712	1,135	129	1,006	6,869
February	7,948	6,156	1,792	1,033	166	867	6,915
March	8,285	6,488	1,797	970	139	831	7,315
April	8,768	6,928	1,840	1,067	73	994	7,701
May	8,663	6,809	1,854	1,082	112	970	7,581
June	8,805	7,201	1,604	900	150	750	7,905
July	9,219	7,289	1,930	1,001	62	938	8,218
August	8,429	6,641	1,789	829	55	774	7,600
September	8,531	6,581	1,950	902	107	795	7,629
October	9,197	7,181	2,015	881	62	819	8,316
November	8,903	6,997	1,906	980	67	913	7,923
December	8,645	6,838	1,807	1,250	63	1,188	7,394
Average	8,620	6,787	1,833	1,003	98	904	7,618
1994 January	7,993	5,945	2,048	927	110	817	7,066
February	8,539	6,313	2,226	882	116	766	7,657
March	8,574	6,372	2,202	936	40	896	7,638
April	8,968	6,955	2,013	868	120	749	8,100
May	9,213	7,198	2,015	929	118	812	8,284
June	9,305	7,358	1,947	867	107	760	8,438
July	9,779	7,857	1,922	877	84	793	8,902
August	9,510	7,488	2,022	913	72	841	8,597
September	9,693	7,868	1,825	891	61	830	8,802
October	8,788	7,136	1,651	997	138	859	7,791
November	8,707	7,034	1,674	1,000	102	898	7,707
December	8,863	7,193	1,670	1,208	118	1,090	7,655
Average	8,996	7,063	1,933	942	99	843	8,054
1995 January	7,955	6,503	1,452	978	113	865	6,977
February	8,358	6,565	1,793	1,062	95	967	7,296
March	9,020	7,409	1,612	948	68	880	8,073
April	8,486	7,073	1,413	998	155	842	7,488
May	8,736	7,354	1,382	876	73	803	7,860
June	9,585	7,957	1,629	919	101	818	8,666
July	8,845	7,265	1,579	894	103	792	7,950
August	9,024	7,415	1,609	821	61	759	8,203
September	[R] 9,726	[R] 8,041	[R] 1,685	[R] 805	[R] 75	[R] 731	[R] 8,921
October	[E] 8,453	[E] 7,003	[E] 1,451	[E] 805	[E] 88	[E] 718	[E] 7,648
10-Month Average	[E] 8,819	[E] 7,261	[E] 1,558	[E] 909	[E] 93	[E] 816	[E] 7,910
1994 10-Month Average	9,038	7,053	1,985	909	96	813	8,129
1993 10-Month Average	8,590	6,761	1,829	980	105	875	7,610

[a] Includes crude oil for storage in the Strategic Petroleum Reserve.
[b] Net imports equals imports minus exports.
[c] See Note 6 at end of section.
R=Revised data. E=Estimate.
Notes: • Crude oil includes lease condensate. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.
Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S1. • **1981 forward:** EIA, *Petroleum Supply Monthly*, November 1995, Table S1.

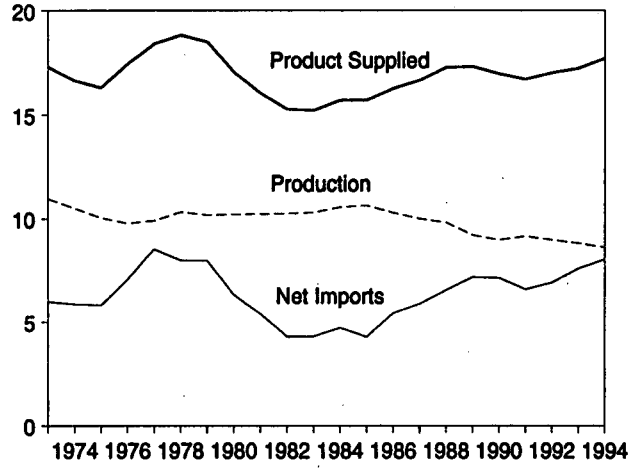
Figure 3.1 Petroleum Overview

(Million Barrels per Day)

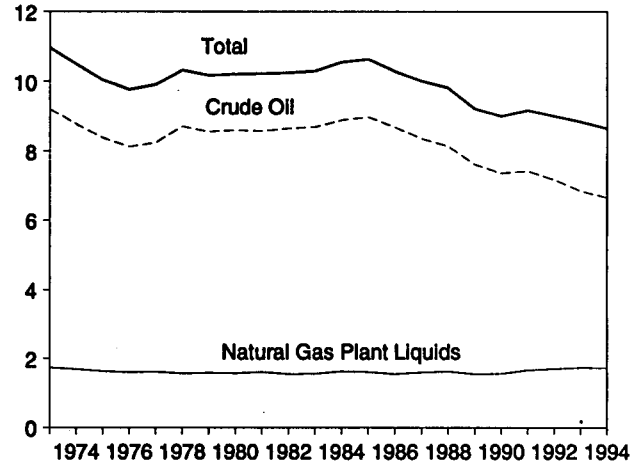
Overview, January-October



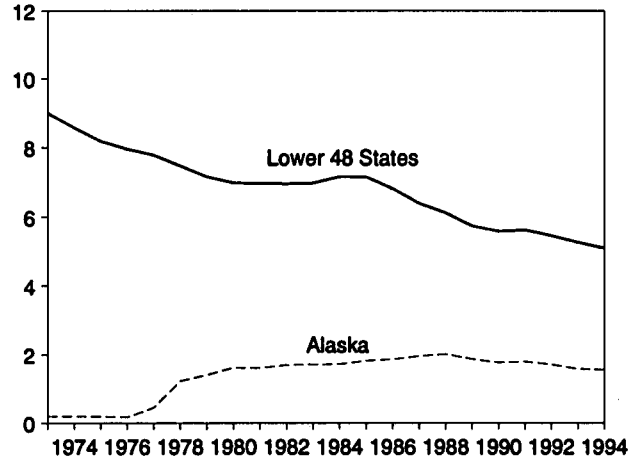
Overview, 1973-1994



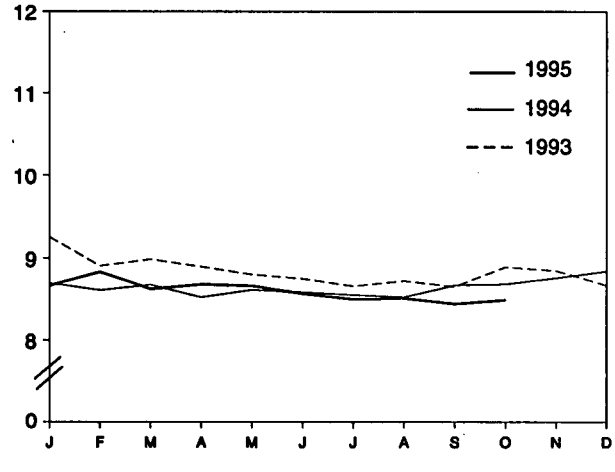
Production, 1973-1994



Crude Oil Production, 1973-1994



Total Production, Monthly

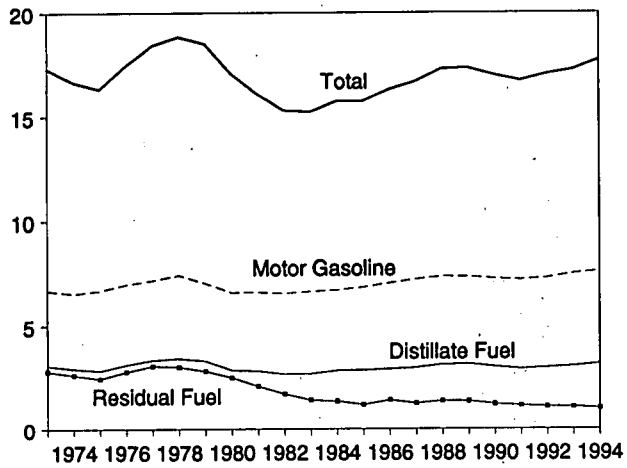


Note: Because vertical scales differ, graphs should not be compared.
Sources: Tables 3.1a, 3.1b, and 3.2a.

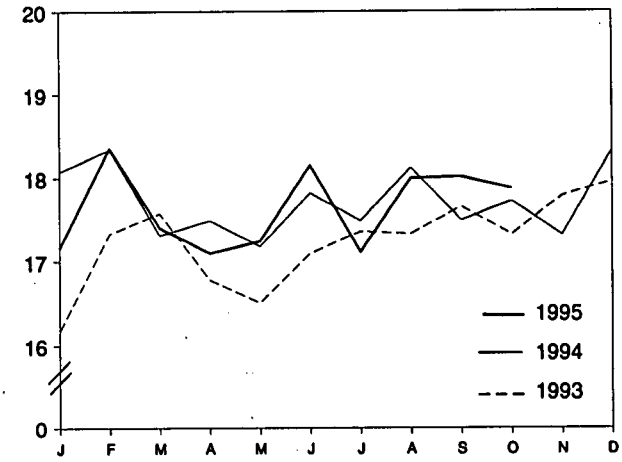
Figure 3.1 Petroleum Overview (Continued)

(Million Barrels per Day, Except as Noted)

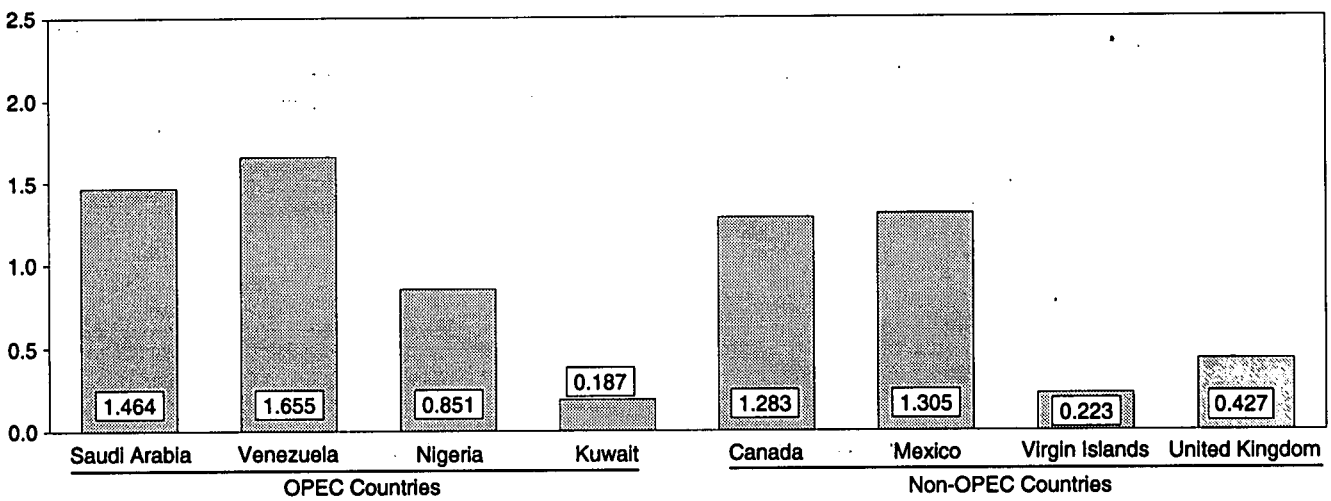
Product Supplied, 1973-1994



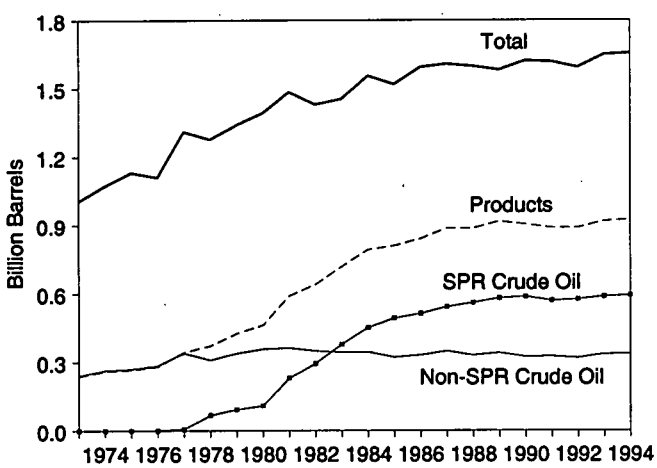
Product Supplied, Monthly



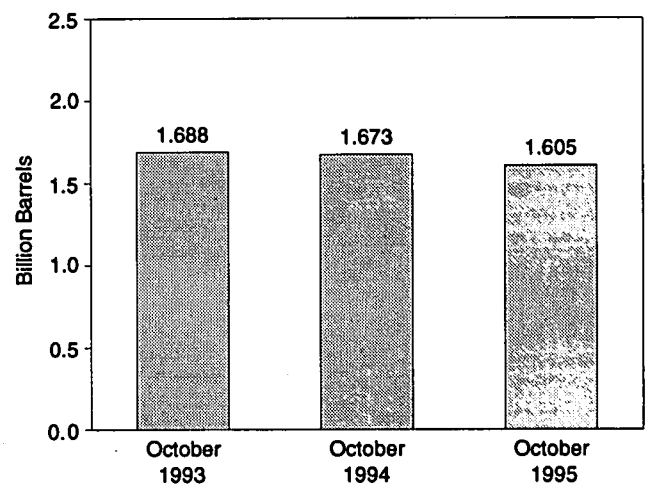
Imports from Selected Countries, October 1995



Stocks, End of Year, 1973-1994



Total Stocks, End of Month



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

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

Table 3.2a Crude Oil Supply and Disposition: Supply

	Supply						
	Field Production		Imports			Unaccounted-for Crude Oil[b]	Crude Oil Used Directly[c]
	Total Domestic	Alaskan	Total	SPR[a]	Other		
	Thousand Barrels per Day						
1973 Average	9,208	198	3,244	–	3,244	3	-19
1974 Average	8,774	193	3,477	–	3,477	-25	-15
1975 Average	8,375	191	4,105	–	4,105	17	-17
1976 Average	8,132	173	5,287	–	5,287	77	[d]-19
1977 Average	8,245	464	6,615	21	6,594	-6	-14
1978 Average	8,707	1,229	6,356	[d]161	6,195	-57	[d]-15
1979 Average	8,552	1,401	6,519	67	6,452	-11	[d]-14
1980 Average	8,597	1,617	5,263	44	5,219	34	[d]-14
1981 Average	8,572	1,609	4,396	256	4,141	83	-58
1982 Average	8,649	1,696	3,488	165	3,323	71	-59
1983 Average	8,688	1,714	3,329	234	3,096	114	–
1984 Average	8,879	1,722	3,426	197	3,229	185	–
1985 Average	8,971	1,825	3,201	118	3,083	145	–
1986 Average	8,680	1,867	4,178	48	4,130	139	–
1987 Average	8,349	1,962	4,674	73	4,601	145	–
1988 Average	8,140	2,017	5,107	51	5,055	196	–
1989 Average	7,613	1,874	5,843	56	5,787	200	–
1990 Average	7,355	1,773	5,894	27	5,867	258	–
1991 Average	7,417	1,798	5,782	0	5,782	195	–
1992 Average	7,171	1,714	6,083	10	6,073	258	–
1993 January	6,961	1,654	6,292	0	6,292	118	–
February	6,943	1,628	6,156	0	6,156	162	–
March	6,974	1,639	6,488	32	6,455	101	–
April	6,881	1,587	6,928	112	6,817	333	–
May	6,847	1,568	6,809	0	6,809	443	–
June	6,795	1,520	7,201	0	7,201	293	–
July	6,688	1,441	7,289	0	7,289	236	–
August	6,758	1,528	6,641	0	6,641	3	–
September	6,712	1,471	6,581	34	6,547	224	–
October	6,839	1,610	7,181	0	7,181	109	–
November	6,912	1,670	6,997	0	6,997	106	–
December	6,858	1,671	6,838	0	6,838	-98	–
Average	6,847	1,582	6,787	15	6,772	168	–
1994 January	6,817	1,658	5,945	0	5,945	734	–
February	6,770	1,597	6,313	0	6,313	77	–
March	6,746	1,583	6,372	99	6,273	242	–
April	6,612	1,504	6,955	31	6,925	302	–
May	6,688	1,578	7,198	0	7,198	260	–
June	6,611	1,517	7,358	17	7,341	393	–
July	6,501	1,495	7,857	0	7,857	226	–
August	6,544	1,500	7,488	0	7,488	409	–
September	6,609	1,514	7,868	0	7,868	54	–
October	6,658	1,604	7,136	0	7,136	136	–
November	6,628	1,518	7,034	0	7,034	516	–
December	6,760	1,636	7,193	0	7,193	-165	–
Average	6,662	1,559	7,063	12	7,051	266	–
1995 January	[E]6,596	[E]1,575	6,503	0	6,503	352	–
February	[E]6,703	[E]1,578	6,565	0	6,565	155	–
March	[E]6,606	[E]1,525	7,409	0	7,409	-117	–
April	[E]6,561	[E]1,511	7,073	0	7,073	243	–
May	[E]6,572	[E]1,518	7,354	0	7,354	343	–
June	[E]6,540	[E]1,484	7,957	0	7,957	42	–
July	[E]6,449	[E]1,401	7,265	0	7,265	360	–
August	[E]6,462	[E]1,432	7,415	0	7,415	189	–
September	[RE]6,380	[RE]1,377	[R]8,041	0	[R]8,041	[R](s)	–
October	[PE]6,441	[PE]1,478	[E]7,003	[E]0	[E]7,003	[E]425	–
10-Month Average	[PE]6,530	[PE]1,487	[E]7,261	[E]0	[E]7,261	[E]201	–
1994 10-Month Average	6,655	1,555	7,053	15	7,038	286	–
1993 10-Month Average	6,839	1,564	6,761	18	6,743	202	–

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

Notes: • Crude oil includes lease condensate. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.
Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S2. • **1981 forward:** EIA, *Petroleum Supply Monthly*, November 1995, Table S2.

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

	Disposition						Ending Stocks[a]		
	Crude Losses	Stock Change[b] SPR[c]	Stock Change[b] Other	Refinery Inputs	Exports	Product Supplied[d]	Total	SPR[c]	Other Primary
	Thousand Barrels per Day						Million Barrels		
1973 Average	13	–	-11	12,431	2	–	242	–	242
1974 Average	13	–	62	12,133	3	–	265	–	265
1975 Average	13	–	17	12,442	6	–	271	–	271
1976 Average	[e]14	–	39	13,416	8	–	285	–	285
1977 Average	16	20	150	14,602	50	–	348	7	340
1978 Average	16	163	-84	14,739	158	–	376	67	309
1979 Average	16	67	81	14,648	235	–	430	91	339
1980 Average	[e]14	45	52	13,481	287	–	[f]466	108	[f]358
1981 Average	5	336	[f]-46	12,470	228	–	594	230	363
1982 Average	3	174	-38	11,774	236	–	[g]644	294	[g]350
1983 Average	2	234	[g]-20	11,685	164	66	723	379	344
1984 Average	2	195	4	12,044	181	64	796	451	345
1985 Average	1	117	-67	12,002	204	60	814	493	321
1986 Average	(s)	50	28	12,716	154	49	843	512	331
1987 Average	(s)	80	49	12,854	151	34	890	541	349
1988 Average	(s)	52	-51	13,246	155	40	890	560	330
1989 Average	(s)	56	30	13,401	142	28	921	580	341
1990 Average	(s)	16	-51	13,409	109	24	908	586	323
1991 Average	(s)	-47	5	13,301	116	18	893	569	325
1992 Average	(s)	17	-18	13,411	89	13	893	575	318
1993 January	(s)	19	276	12,938	129	10	902	575	327
February	(s)	18	201	12,865	166	10	908	576	332
March	0	58	154	13,200	139	11	915	578	337
April	(s)	136	387	13,538	73	9	930	582	349
May	0	13	134	13,829	112	10	935	582	353
June	0	21	-20	14,129	150	8	935	583	352
July	0	19	-13	14,136	62	9	935	583	352
August	0	24	-529	13,844	55	8	920	584	335
September	(s)	52	-491	13,841	107	8	906	586	321
October	0	19	309	13,729	62	10	917	586	330
November	0	18	233	13,686	67	10	924	587	337
December	0	9	-62	13,571	63	16	922	587	335
Average	(s)	34	47	13,613	98	10	922	587	335
1994 January	0	4	87	13,286	110	10	925	587	338
February	0	(s)	-97	13,130	116	12	923	587	335
March	(s)	99	226	12,985	40	10	933	590	342
April	(s)	31	-98	13,809	120	9	931	591	339
May	0	(s)	-253	14,272	118	9	923	591	332
June	(s)	16	-120	14,351	107	7	920	592	328
July	0	(s)	148	14,344	84	8	924	592	333
August	0	(s)	-129	14,491	72	7	920	592	329
September	0	0	227	14,234	61	9	927	592	335
October	0	0	255	13,529	138	8	935	592	343
November	0	(s)	102	13,968	102	7	938	592	346
December	0	(s)	-292	13,951	118	10	929	592	337
Average	(s)	13	5	13,866	99	9	929	592	337
1995 January	0	(s)	-279	13,610	113	7	920	592	328
February	0	(s)	-48	13,367	95	8	919	592	327
March	(s)	(s)	344	13,478	68	7	929	592	338
April	0	(s)	-101	13,816	155	7	926	592	335
May	0	(s)	-110	14,299	73	7	923	592	331
June	(s)	(s)	-135	14,568	101	5	919	592	327
July	(s)	(s)	-415	14,380	103	7	906	592	314
August	(s)	(s)	-247	14,245	61	6	898	592	307
September	[R](s)	(s)	[R]-62	[R]14,402	[R]75	6	[R]897	592	[R]305
October	[E]0	[E](s)	[E]100	[E]13,674	[E]88	[E]7	[E]896	[E]592	[E]305
10-Month Average	[E](s)	[E](s)	[E]-96	[E]13,987	[E]93	[E]7	[E]896	[E]592	[E]305
1994 10-Month Average	(s)	15	26	13,847	96	9	935	592	343
1993 10-Month Average	(s)	38	40	13,610	105	9	917	586	330

[a] Stocks are totals as of end of period.
[b] A negative number indicates a decrease in stocks and a positive number indicates an increase.
[c] Strategic Petroleum Reserve.
[d] Beginning in January 1983, crude oil used directly as fuel is shown as product supplied.
[e] See Note 6 at end of section.
[f] Stocks of Alaskan crude oil in transit are included from January 1981 forward. See Note 5 at end of section.
[g] See Note 4 at end of section.

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

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

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S2. • **1981 forward:** EIA, *Petroleum Supply Monthly*, November 1995, Table S2.

Table 3.3a Petroleum Imports: Bahrain, Iran, Iraq, and Kuwait

(Thousand Barrels per Day)

	Persian Gulf[a]							
	Bahrain		Iran		Iraq		Kuwait[b]	
	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil
1973 Average	**11**	**0**	**223**	**216**	**4**	**4**	**47**	**42**
1974 Average	**12**	**0**	**469**	**463**	**0**	**0**	**5**	**5**
1975 Average	**16**	**0**	**280**	**278**	**2**	**2**	**16**	**4**
1976 Average	**3**	**0**	**298**	**298**	**26**	**26**	**5**	**1**
1977 Average	**10**	**0**	**535**	**530**	**74**	**74**	**48**	**42**
1978 Average	**3**	**0**	**555**	**554**	**62**	**62**	**6**	**5**
1979 Average	**1**	**0**	**304**	**297**	**88**	**88**	**8**	**5**
1980 Average	**(s)**	**0**	**9**	**8**	**28**	**28**	**27**	**27**
1981 Average	**1**	**0**	**0**	**0**	**(s)**	**0**	**0**	**0**
1982 Average	**1**	**0**	**35**	**35**	**3**	**3**	**5**	**2**
1983 Average	**2**	**0**	**48**	**48**	**10**	**10**	**14**	**7**
1984 Average	**1**	**0**	**10**	**10**	**12**	**12**	**36**	**24**
1985 Average	**4**	**0**	**27**	**27**	**46**	**46**	**21**	**4**
1986 Average	**2**	**0**	**19**	**19**	**81**	**81**	**68**	**28**
1987 Average	**0**	**0**	**98**	**98**	**83**	**82**	**84**	**70**
1988 Average	**2**	**0**	**[c] (s)**	**[c] (s)**	**345**	**343**	**92**	**80**
1989 Average	**0**	**0**	**0**	**0**	**449**	**441**	**157**	**155**
1990 Average	**1**	**0**	**0**	**0**	**518**	**514**	**86**	**79**
1991 Average	**2**	**0**	**32**	**32**	**0**	**0**	**6**	**6**
1992 Average	**0**	**0**	**0**	**0**	**0**	**0**	**51**	**39**
1993 January	0	0	0	0	0	0	144	129
February	0	0	0	0	0	0	251	229
March	9	0	0	0	0	0	316	300
April	0	0	0	0	0	0	279	279
May	0	0	0	0	0	0	222	222
June	0	0	0	0	0	0	235	235
July	0	0	0	0	0	0	368	362
August	0	0	0	0	0	0	467	451
September	0	0	0	0	0	0	445	431
October	0	0	0	0	0	0	530	526
November	0	0	0	0	0	0	486	470
December	0	0	0	0	0	0	484	484
Average	**1**	**0**	**0**	**0**	**0**	**0**	**353**	**344**
1994 January	0	0	0	0	0	0	309	309
February	0	0	0	0	0	0	423	423
March	8	0	0	0	0	0	476	476
April	0	0	0	0	0	0	261	238
May	0	0	0	0	0	0	362	362
June	0	0	0	0	0	0	255	255
July	0	0	0	0	0	0	345	345
August	0	0	0	0	0	0	306	306
September	0	0	0	0	0	0	361	361
October	0	0	0	0	0	0	165	148
November	0	0	0	0	0	0	249	240
December	0	0	0	0	0	0	240	227
Average	**1**	**0**	**0**	**0**	**0**	**0**	**312**	**307**
1995 January	0	0	0	0	0	0	130	120
February	11	0	0	0	0	0	346	324
March	0	0	0	0	0	0	252	252
April	0	0	0	0	0	0	171	164
May	0	0	0	0	0	0	208	204
June	0	0	0	0	0	0	260	259
July	0	0	0	0	0	0	195	195
August	0	0	0	0	0	0	180	175
September	0	0	0	0	0	0	187	182
9-Month Average	**1**	**0**	**0**	**0**	**0**	**0**	**213**	**207**
1994 9-Month Average	**1**	**0**	**0**	**0**	**0**	**0**	**344**	**342**
1993 9-Month Average	**1**	**0**	**0**	**0**	**0**	**0**	**303**	**294**

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

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

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

(s)=Less than 500 barrels per day.

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

Sources: • **Bahrain:** Energy Information Administration (EIA), Form EIA-814, "Monthly Imports Report." • **All Other Data: 1973-1980**—EIA, *Petroleum Supply Monthly*, February 1993, Table S3. **1981 forward**—EIA, *Petroleum Supply Monthly*, November 1995, Table S3.

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

(Thousand Barrels per Day)

	Persian Gulf[a]							
	Qatar		Saudi Arabia[b]		United Arab Emirates		Total[a]	
	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil
1973 Average	7	7	486	462	71	71	848	802
1974 Average	17	17	461	438	74	69	1,039	992
1975 Average	18	18	715	701	117	117	1,165	1,121
1976 Average	24	24	1,230	1,222	254	254	1,840	1,825
1977 Average	67	67	1,380	1,373	335	333	2,448	2,418
1978 Average	64	64	1,144	1,142	385	385	2,219	2,212
1979 Average	31	31	1,356	1,347	281	281	2,069	2,049
1980 Average	22	22	1,261	1,250	172	172	1,519	1,508
1981 Average	7	7	1,129	1,112	81	77	1,219	1,196
1982 Average	7	7	552	530	92	81	696	659
1983 Average	(s)	0	337	321	30	18	442	405
1984 Average	5	4	325	309	117	90	506	450
1985 Average	(s)	0	168	132	45	35	311	244
1986 Average	13	12	685	618	44	38	912	796
1987 Average	0	0	751	642	61	56	1,077	949
1988 Average	0	0	1,073	911	29	23	1,541	1,357
1989 Average	2	2	1,224	1,116	28	21	1,861	1,734
1990 Average	4	4	1,339	1,195	17	9	1,966	1,801
1991 Average	0	0	1,802	1,703	3	2	1,845	1,743
1992 Average	1	0	1,720	1,597	6	0	1,778	1,636
1993 January	0	0	1,688	1,571	0	0	1,831	1,700
February	0	0	1,626	1,480	0	0	1,677	1,709
March	6	0	1,479	1,349	0	0	1,811	1,649
April	0	0	1,644	1,515	17	17	1,940	1,811
May	0	0	1,524	1,361	59	59	1,805	1,642
June	0	0	1,540	1,413	66	66	1,841	1,714
July	0	0	1,283	1,171	19	0	1,671	1,533
August	0	0	1,151	1,036	0	0	1,619	1,487
September	0	0	1,329	1,181	0	0	1,774	1,612
October	0	0	1,115	969	0	0	1,644	1,494
November	0	0	1,281	1,152	1	0	1,767	1,621
December	0	0	1,330	1,205	0	0	1,814	1,689
Average	1	0	1,414	1,282	14	12	1,782	1,637
1994 January	0	0	1,320	1,175	0	0	1,630	1,484
February	0	0	1,071	1,023	0	0	1,493	1,446
March	0	0	1,132	1,055	0	0	1,617	1,531
April	0	0	1,586	1,428	4	0	1,851	1,666
May	0	0	1,438	1,394	0	0	1,800	1,757
June	0	0	1,395	1,277	0	0	1,650	1,533
July	0	0	1,414	1,310	53	53	1,812	1,708
August	0	0	1,363	1,271	0	0	1,669	1,577
September	0	0	1,486	1,364	40	40	1,887	1,766
October	0	0	1,601	1,500	38	23	1,804	1,671
November	0	0	1,477	1,357	0	0	1,726	1,597
December	0	0	1,526	1,388	15	15	1,781	1,631
Average	0	0	1,402	1,297	13	11	1,728	1,615
1995 January	0	0	1,309	1,251	20	20	1,459	1,391
February	0	0	1,181	1,134	13	13	1,550	1,471
March	0	0	1,535	1,410	0	0	1,788	1,662
April	0	0	1,375	1,321	0	0	1,547	1,485
May	0	0	1,281	1,237	0	0	1,490	1,441
June	0	0	1,287	1,221	12	1	1,558	1,481
July	0	0	1,265	1,165	0	0	1,460	1,360
August	0	0	1,340	1,245	10	10	1,530	1,430
September	0	0	1,464	1,357	29	0	1,680	1,539
9-Month Average	0	0	1,339	1,261	9	5	1,562	1,473
1994 9-Month Average	0	0	1,358	1,257	11	10	1,714	1,609
1993 9-Month Average	1	0	1,472	1,340	18	16	1,795	1,650

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

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

(s)=Less than 500 barrels per day.

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

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S3. • **1981 forward:** EIA, *Petroleum Supply Monthly*, November 1995, Table S3.

Table 3.3c Petroleum Imports: Algeria, Ecuador, Gabon, Indonesia, and Libya

(Thousand Barrels per Day)

	Other OPEC[a]									
	Algeria		Ecuador[b]		Gabon		Indonesia		Libya	
	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil
1973 Average	136	120	48	47	0	0	213	200	164	133
1974 Average	190	180	42	42	23	23	300	284	4	4
1975 Average	282	264	57	57	27	27	390	379	232	223
1976 Average	432	408	51	51	28	26	539	537	453	444
1977 Average	559	544	57	55	42	35	541	507	723	704
1978 Average	649	634	54	38	41	38	573	533	654	638
1979 Average	636	608	42	30	42	42	420	380	658	642
1980 Average	488	456	27	17	26	25	348	314	554	548
1981 Average	311	261	48	38	35	35	366	318	319	317
1982 Average	170	90	42	32	40	40	248	226	26	23
1983 Average	240	176	61	56	59	59	338	315	0	0
1984 Average	323	194	55	47	58	57	343	304	1	0
1985 Average	187	84	67	56	52	51	314	292	4	0
1986 Average	271	78	77	64	26	25	318	297	0	0
1987 Average	295	115	29	23	35	35	285	262	0	0
1988 Average	300	58	47	33	16	15	205	186	0	0
1989 Average	269	60	89	80	50	49	183	158	0	0
1990 Average	280	63	49	38	64	64	114	98	0	0
1991 Average	253	44	63	53	84	84	111	102	0	0
1992 Average	196	24	65	62	124	123	78	70	0	0
1993 January	153	28	(b)	(b)	90	89	37	37	0	0
February	256	0	(b)	(b)	88	88	52	51	0	0
March	185	7	(b)	(b)	126	123	67	64	0	0
April	258	26	(b)	(b)	127	127	76	76	0	0
May	228	3	(b)	(b)	169	169	82	82	0	0
June	169	32	(b)	(b)	107	107	97	67	0	0
July	246	6	(b)	(b)	168	166	55	55	0	0
August	241	28	(b)	(b)	152	152	95	80	0	0
September	192	0	(b)	(b)	211	211	51	40	0	0
October	317	80	(b)	(b)	242	242	131	82	0	0
November	222	52	(b)	(b)	143	136	74	34	0	0
December	169	25	(b)	(b)	191	191	156	114	0	0
Average	220	24	(b)	(b)	152	151	81	65	0	0
1994 January	224	8	(b)	(b)	144	144	140	81	0	0
February	226	20	(b)	(b)	212	208	103	59	0	0
March	278	0	(b)	(b)	91	91	112	50	0	0
April	245	30	(b)	(b)	288	288	88	88	0	0
May	261	0	(b)	(b)	187	187	94	76	0	0
June	178	2	(b)	(b)	223	223	155	155	0	0
July	301	38	(b)	(b)	216	216	178	178	0	0
August	282	39	(b)	(b)	142	142	119	112	0	0
September	237	20	(b)	(b)	194	194	61	61	0	0
October	217	38	(b)	(b)	235	235	96	89	0	0
November	203	20	(b)	(b)	254	254	71	56	0	0
December	259	39	(b)	(b)	154	154	113	95	0	0
Average	243	21	(b)	(b)	194	194	111	92	0	0
1995 January	168	0	(b)	(b)	224	224	38	38	0	0
February	358	64	(b)	(b)	186	186	129	87	0	0
March	196	19	(b)	(b)	159	159	51	29	0	0
April	251	31	(b)	(b)	163	163	95	87	0	0
May	163	36	(b)	(b)	206	206	65	36	0	0
June	277	39	(b)	(b)	357	357	96	51	0	0
July	257	11	(b)	(b)	296	296	104	96	0	0
August	298	65	(b)	(b)	246	246	122	95	0	0
September	250	20	(b)	(b)	216	216	94	66	0	0
9-Month Average	245	31	(b)	(b)	228	228	88	65	0	0
1994 9-Month Average	249	17	(b)	(b)	188	187	117	96	0	0
1993 9-Month Average	214	14	(b)	(b)	138	137	68	61	0	0

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

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

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

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S3. • **1981 forward:** EIA, *Petroleum Supply Monthly*, November 1995, Table S3.

Table 3.3d Petroleum Imports: Nigeria, Venezuela, Total Other OPEC, and Total OPEC

(Thousand Barrels per Day)

	Other OPEC[a]						Total OPEC[b]	
	Nigeria		Venezuela		Total			
	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil
1973 Average	459	448	1,135	344	2,156	1,293	2,993	2,095
1974 Average	713	697	979	319	2,253	1,549	3,280	2,540
1975 Average	762	746	702	395	2,452	2,091	3,601	3,211
1976 Average	1,025	1,014	700	241	3,229	2,721	5,066	4,545
1977 Average	1,143	1,130	690	250	3,754	3,225	6,193	5,643
1978 Average	919	910	646	181	3,536	2,972	5,751	5,184
1979 Average	1,080	1,069	690	293	3,569	3,063	5,637	5,112
1980 Average	857	841	481	156	2,781	2,356	4,300	3,864
1981 Average	620	611	406	147	2,106	1,726	3,323	2,922
1982 Average	514	510	412	155	1,451	1,075	2,146	1,734
1983 Average	302	301	422	164	1,422	1,072	1,862	1,477
1984 Average	216	207	548	253	1,544	1,062	2,049	1,512
1985 Average	293	280	605	306	1,522	1,069	1,830	1,312
1986 Average	440	437	793	416	1,926	1,317	2,837	2,113
1987 Average	535	529	804	488	1,983	1,451	3,060	2,400
1988 Average	618	607	794	439	1,981	1,339	3,520	2,696
1989 Average	815	800	873	495	2,279	1,642	4,140	3,376
1990 Average	800	784	1,025	666	2,332	1,713	4,296	3,514
1991 Average	703	683	1,035	668	2,249	1,634	4,092	3,377
1992 Average	681	665	1,170	826	2,313	1,770	4,092	3,406
1993 January	729	729	1,397	1,038	2,407	1,920	4,238	3,620
February	927	913	1,296	925	2,619	1,976	4,496	3,685
March	928	892	1,173	835	2,480	1,921	4,282	3,570
April	892	871	1,314	1,023	2,667	2,122	4,608	3,934
May	760	741	1,264	992	2,504	1,988	4,309	3,630
June	848	827	1,292	999	2,512	2,032	4,353	3,746
July	893	888	1,384	1,068	2,746	2,183	4,417	3,715
August	562	549	1,383	1,135	2,432	1,943	4,051	3,431
September	514	496	1,273	1,050	2,240	1,796	4,014	3,408
October	603	593	1,276	993	2,568	1,989	4,213	3,484
November	636	612	1,322	1,108	2,397	1,942	4,165	3,563
December	598	569	1,230	952	2,345	1,851	4,159	3,540
Average	740	722	1,300	1,010	2,493	1,972	4,273	3,609
1994 January	310	274	1,211	901	2,030	1,408	3,660	2,892
February	576	557	1,224	946	2,341	1,790	3,834	3,237
March	441	402	1,261	932	2,182	1,474	3,790	3,006
April	631	621	1,303	1,035	2,556	2,062	4,408	3,728
May	732	730	1,334	1,022	2,608	2,014	4,409	3,771
June	842	837	1,469	1,088	2,868	2,305	4,518	3,838
July	703	694	1,296	1,029	2,694	2,154	4,506	3,861
August	1,037	1,010	1,255	982	2,834	2,284	4,503	3,861
September	578	578	1,428	1,106	2,498	1,959	4,386	3,725
October	569	559	1,385	1,101	2,501	2,022	4,304	3,693
November	485	478	1,432	1,084	2,445	1,891	4,171	3,488
December	739	739	1,405	1,183	2,671	2,210	4,451	3,840
Average	637	624	1,334	1,034	2,520	1,965	4,247	3,580
1995 January	583	575	1,355	1,059	2,369	1,897	3,828	3,288
February	463	463	1,439	1,083	2,575	1,883	4,114	3,354
March	687	676	1,499	1,209	2,591	2,092	4,379	3,754
April	467	458	1,374	1,100	2,350	1,840	3,897	3,324
May	603	592	1,498	1,193	2,535	2,064	4,025	3,505
June	696	696	1,479	1,209	2,905	2,352	4,463	3,833
July	711	711	1,536	1,162	2,903	2,276	4,363	3,636
August	482	463	1,447	1,162	2,596	2,030	4,126	3,460
September	851	841	1,655	1,288	3,067	2,431	4,747	3,970
9-Month Average	617	609	1,476	1,163	2,654	2,097	4,215	3,570
1994 9-Month Average	650	634	1,309	1,004	2,513	1,939	4,226	3,548
1993 9-Month Average	782	766	1,309	1,008	2,511	1,987	4,305	3,637

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

[b] OPEC includes the Persian Gulf nations that are displayed on Tables 3.3a and 3.3b except Bahrain, which is not a member of OPEC, and the nations displayed under "Other OPEC" on Tables 3.3c and 3.3d. Ecuador withdrew from OPEC on December 31, 1992; as of January 1993, imports from Ecuador appear on Table 3.3f under "Non-OPEC." Imports from Bahrain are accounted for under "Other Non-OPEC" on Table 3.3h.

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

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S3. • **1981 forward:** EIA, *Petroleum Supply Monthly*, November 1995, Table S3.

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

(Thousand Barrels per Day)

	Non-OPEC[a]											
	Angola		Australia		Bahama Islands		Brazil		Canada		China	
	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil
1973 Average	49	49	2	0	174	0	9	0	1,325	1,001	(s)	0
1974 Average	49	48	1	0	164	0	2	0	1,070	791	0	0
1975 Average	75	71	5	0	152	0	5	0	846	600	0	0
1976 Average	12	7	2	0	118	0	0	0	599	371	0	0
1977 Average	24	17	3	0	171	0	0	0	517	279	0	0
1978 Average	20	6	5	0	160	0	0	0	467	248	0	0
1979 Average	43	39	6	0	147	0	1	0	538	271	13	13
1980 Average	42	37	1	0	78	0	3	1	455	199	(s)	0
1981 Average	49	45	5	0	74	0	23	14	447	164	18	0
1982 Average	44	42	5	(s)	65	0	47	19	482	214	40	8
1983 Average	78	71	4	0	125	0	41	2	547	274	34	6
1984 Average	90	85	38	25	88	0	60	(s)	630	341	46	15
1985 Average	110	104	37	21	40	0	61	0	770	468	59	36
1986 Average	112	102	41	30	37	0	50	0	807	570	90	68
1987 Average	192	180	58	49	37	0	84	0	848	608	82	63
1988 Average	212	203	64	59	32	0	98	0	999	681	88	82
1989 Average	284	279	36	31	34	0	82	0	931	630	80	76
1990 Average	237	236	53	47	37	0	49	0	934	643	80	77
1991 Average	254	254	26	21	35	0	22	0	1,033	743	91	87
1992 Average	336	336	19	17	36	0	20	0	1,069	797	90	84
1993 January	354	354	(s)	0	18	0	3	0	1,052	778	60	60
February	348	348	0	0	26	0	22	0	1,095	782	44	44
March	408	408	0	0	38	0	27	0	1,033	770	79	73
April	344	344	0	0	16	0	56	0	1,052	783	0	0
May	299	299	13	13	8	0	41	0	1,128	874	40	40
June	209	209	34	34	7	0	19	0	1,117	911	48	46
July	402	402	40	40	31	0	48	0	1,264	991	24	24
August	258	258	33	27	41	0	32	0	1,247	966	38	38
September	282	282	0	0	37	0	59	0	1,319	1,023	91	89
October	440	440	53	47	53	0	15	0	1,370	1,030	61	61
November	307	307	0	0	29	0	61	0	1,236	917	68	68
December	379	379	53	53	30	0	10	0	1,255	964	61	61
Average	336	336	19	18	28	0	33	0	1,181	900	51	50
1994 January	338	338	12	0	28	0	11	0	1,242	905	81	78
February	295	282	0	0	79	0	12	0	1,374	994	44	44
March	291	265	11	11	52	0	10	0	1,326	987	112	104
April	284	284	0	0	39	0	42	0	1,194	930	70	67
May	354	331	32	32	58	0	96	0	1,160	905	80	80
June	278	278	11	11	14	0	62	0	1,206	973	37	36
July	304	299	44	44	18	0	53	0	1,237	994	92	92
August	358	347	13	13	20	0	38	0	1,357	1,059	64	64
September	455	448	35	35	17	0	21	0	1,300	1,031	63	63
October	286	286	22	22	15	0	18	0	1,238	982	18	18
November	328	328	22	22	8	0	0	0	1,251	988	79	79
December	402	380	0	0	6	0	8	8	1,388	1,054	40	40
Average	331	322	17	16	29	0	31	1	1,272	983	65	64
1995 January	273	262	21	21	6	0	0	0	1,349	1,009	64	62
February	348	335	22	22	8	0	0	0	1,310	965	21	21
March	427	416	0	0	7	0	0	0	1,206	891	54	54
April	412	402	33	33	0	0	0	0	1,240	999	65	65
May	419	407	21	21	0	0	0	0	1,405	1,167	35	35
June	371	358	10	10	0	0	0	0	1,418	1,169	26	26
July	295	287	42	42	0	0	8	0	1,269	1,028	80	80
August	367	355	0	0	0	0	9	0	1,348	1,062	40	40
September	444	444	0	0	8	0	27	0	1,283	993	73	73
9-Month Average	373	363	17	17	3	0	5	0	1,314	1,032	51	51
1994 9-Month Average	329	319	18	16	36	0	38	0	1,265	975	72	70
1993 9-Month Average	323	323	14	13	25	0	34	0	1,146	876	47	46

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

(s)=Less than 500 barrels per day.

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

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S3. • **1981 forward:** EIA, *Petroleum Supply Monthly*, November 1995, Table S3.

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

(Thousand Barrels per Day)

	Non-OPEC[a]											
	Colombia		Ecuador[b]		Italy		Malaysia		Mexico		Netherlands	
	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil
1973 Average	9	2	–	–	125	0	12	1	16	1	53	0
1974 Average	5	0	–	–	74	0	12	1	8	2	43	0
1975 Average	9	0	–	–	27	0	8	5	71	70	19	4
1976 Average	21	6	–	–	39	0	18	16	87	87	8	0
1977 Average	17	0	–	–	51	0	66	55	179	177	31	4
1978 Average	20	0	–	–	38	0	42	37	318	316	5	2
1979 Average	18	0	–	–	30	0	66	52	439	437	23	7
1980 Average	4	0	–	–	4	0	70	61	533	507	2	(s)
1981 Average	1	0	–	–	11	0	36	33	522	469	30	(s)
1982 Average	5	0	–	–	18	(s)	20	18	685	645	35	(s)
1983 Average	10	0	–	–	18	(s)	4	3	826	766	65	3
1984 Average	8	0	–	–	45	(s)	1	0	748	659	65	3
1985 Average	23	0	–	–	60	(s)	3	1	816	715	58	0
1986 Average	87	57	–	–	76	0	12	11	699	621	54	0
1987 Average	148	115	–	–	54	1	13	12	655	602	60	0
1988 Average	134	106	–	–	65	5	19	19	747	674	61	0
1989 Average	172	136	–	–	34	3	39	39	767	716	49	0
1990 Average	182	140	–	–	58	2	41	40	755	689	55	0
1991 Average	163	123	–	–	47	3	24	24	807	759	29	0
1992 Average	126	102	–	–	55	0	10	10	830	787	26	0
1993 January	188	167	76	70	56	0	0	0	858	820	11	0
February	148	137	14	14	34	0	0	0	807	748	18	0
March	161	129	59	59	43	0	11	10	844	798	10	0
April	178	165	74	62	14	0	8	8	832	796	0	0
May	147	90	56	56	26	0	21	10	917	846	10	0
June	176	143	75	75	25	0	0	0	987	959	10	0
July	204	184	96	96	25	0	11	11	943	878	21	0
August	131	101	121	121	50	0	14	14	862	809	17	0
September	224	170	49	49	32	0	28	28	929	867	22	0
October	192	182	146	135	40	0	14	10	1,013	951	0	0
November	164	143	115	106	30	0	0	0	1,116	1,041	(s)	0
December	134	85	84	84	0	0	28	28	909	837	6	0
Average	171	141	81	78	31	0	11	10	919	863	10	0
1994 January	182	149	128	128	8	0	11	11	971	945	37	0
February	184	131	96	96	35	0	19	15	967	926	43	0
March	188	167	37	37	16	0	13	0	1,067	1,014	43	0
April	241	197	52	52	13	0	3	0	987	963	24	0
May	105	75	85	85	19	0	0	0	975	934	79	0
June	112	101	72	72	12	0	10	10	1,040	974	38	0
July	127	127	144	144	35	0	36	36	926	889	35	0
August	181	181	115	115	52	0	13	7	894	852	33	0
September	144	144	63	63	34	0	9	0	1,043	963	34	0
October	215	215	110	110	21	0	0	0	940	881	18	0
November	134	134	97	97	17	0	0	0	1,037	981	1	0
December	124	124	96	96	9	0	6	0	963	944	4	0
Average	161	146	91	91	22	0	10	6	984	939	32	0
1995 January	191	181	130	130	4	0	21	21	942	909	0	0
February	158	148	107	107	1	0	0	0	919	888	17	0
March	257	238	104	104	8	0	0	0	1,006	961	29	0
April	193	193	146	146	13	0	7	0	993	963	3	0
May	171	153	128	128	0	0	0	0	1,118	1,063	24	0
June	243	220	149	149	13	0	7	0	1,138	1,076	37	0
July	223	223	87	87	4	0	0	0	1,188	1,166	0	0
August	330	311	116	104	0	0	0	0	1,185	1,156	21	0
September	252	236	61	61	0	0	14	14	1,305	1,238	0	0
9-Month Average	225	212	114	113	5	0	5	4	1,089	1,048	14	0
1994 9-Month Average	162	141	88	88	25	0	13	9	985	940	41	0
1993 9-Month Average	173	143	69	67	34	0	10	9	887	836	13	0

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

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

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

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

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S3. • **1981 forward:** EIA, *Petroleum Supply Monthly*, November 1995, Table S3.

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

(Thousand Barrels per Day)

	Non-OPEC[a]											
	Netherlands Antilles		Norway		Puerto Rico		Russia[b]		Spain		Trinidad and Tobago	
	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil
1973 Average	585	0	1	0	99	0	26	0	26	0	255	60
1974 Average	511	0	1	1	90	0	20	0	12	0	251	63
1975 Average	332	0	17	12	90	0	14	0	1	0	242	115
1976 Average	275	0	36	35	88	0	11	2	1	0	274	104
1977 Average	211	0	50	48	105	0	12	2	10	0	289	134
1978 Average	229	0	104	104	94	0	8	1	3	0	253	142
1979 Average	231	0	75	75	92	0	1	0	4	0	190	123
1980 Average	225	0	144	144	88	0	1	0	1	0	176	115
1981 Average	197	0	119	114	62	0	5	(s)	1	(s)	133	102
1982 Average	175	0	102	102	50	0	1	0	3	(s)	112	92
1983 Average	189	0	66	65	40	0	1	(s)	2	(s)	96	83
1984 Average	188	0	114	112	42	0	13	(s)	11	0	94	87
1985 Average	40	0	32	31	28	0	8	(s)	29	1	113	98
1986 Average	25	0	60	53	21	0	18	(s)	53	0	125	93
1987 Average	29	0	80	70	21	0	11	0	55	0	106	75
1988 Average	36	0	67	62	22	0	29	0	68	0	97	71
1989 Average	42	0	138	127	32	0	48	0	67	0	94	73
1990 Average	31	0	102	96	32	0	45	1	47	0	96	76
1991 Average	81	0	82	74	27	0	29	1	33	0	88	72
1992 Average	65	0	127	119	26	0	18	5	32	0	95	70
1993 January	73	0	70	70	37	0	0	0	44	0	59	48
February	80	0	62	61	21	0	0	0	19	0	72	58
March	61	0	122	115	26	0	0	0	21	0	92	71
April	97	0	170	170	18	0	32	32	61	0	78	55
May	81	0	222	222	38	0	32	32	42	0	68	51
June	55	0	160	160	29	0	77	51	20	0	77	55
July	52	0	215	215	49	0	157	134	41	0	82	53
August	56	0	180	161	30	0	26	0	37	0	50	37
September	101	0	113	113	28	0	57	29	54	0	70	55
October	122	0	115	93	30	0	176	123	33	0	69	54
November	90	0	162	155	23	0	56	32	30	0	66	55
December	118	0	108	101	14	0	38	0	42	0	103	71
Average	**82**	**0**	**142**	**137**	**29**	**0**	**55**	**36**	**37**	**0**	**74**	**55**
1994 January	189	0	101	96	26	0	11	0	26	0	90	60
February	119	0	199	166	19	0	14	0	31	0	92	80
March	112	0	108	108	21	0	34	34	37	0	68	54
April	73	0	205	184	17	0	0	0	45	0	76	56
May	70	0	159	159	21	0	32	32	53	0	68	58
June	69	0	176	158	42	0	133	133	50	0	106	79
July	121	0	276	257	43	0	82	82	25	0	69	55
August	114	0	206	198	23	0	21	15	38	0	85	55
September	95	0	347	336	17	0	6	0	56	0	64	56
October	77	0	310	300	20	0	30	30	35	0	79	65
November	96	0	214	195	6	0	0	0	22	0	59	55
December	43	0	125	123	10	0	0	0	26	0	74	74
Average	**98**	**0**	**202**	**190**	**22**	**0**	**30**	**27**	**37**	**0**	**77**	**62**
1995 January	75	0	200	170	6	0	0	0	7	0	91	91
February	58	0	194	164	7	0	0	0	9	0	60	60
March	68	0	241	209	13	0	0	0	16	0	70	70
April	0	0	315	291	9	0	0	0	16	7	55	55
May	86	0	292	292	19	0	12	0	25	0	61	53
June	50	0	370	370	16	0	15	0	27	0	78	74
July	65	0	263	256	17	0	41	32	10	0	73	54
August	62	0	279	264	26	0	136	98	17	0	74	53
September	33	0	364	359	12	0	50	32	19	0	73	55
9-Month Average	**55**	**0**	**280**	**264**	**14**	**0**	**28**	**18**	**16**	**1**	**71**	**63**
1994 9-Month Average	**107**	**0**	**197**	**184**	**25**	**0**	**37**	**33**	**40**	**0**	**80**	**61**
1993 9-Month Average	**73**	**0**	**147**	**144**	**31**	**0**	**43**	**31**	**38**	**0**	**72**	**54**

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

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

(s)=Less than 500 barrels per day.

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

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S3. • **1981 forward:** EIA, *Petroleum Supply Monthly*, November 1995, Table S3.

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

(Thousand Barrels per Day)

	Non-OPEC[a]								Total Imports	
	United Kingdom		Virgin Islands		Other Non-OPEC[b]		Total[b,c]			
	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil	Total	Crude Oil
1973 Average	15	0	329	0	153	36	3,263	1,149	6,256	3,244
1974 Average	8	0	391	0	122	30	2,832	937	6,112	3,477
1975 Average	14	(s)	406	0	120	14	2,454	893	6,056	4,105
1976 Average	31	13	422	0	203	101	2,247	742	7,313	5,287
1977 Average	126	97	466	0	287	157	2,614	971	8,807	6,615
1978 Average	180	169	428	0	239	146	2,612	1,172	8,363	6,356
1979 Average	202	197	431	0	269	192	2,819	1,407	8,456	6,519
1980 Average	176	173	388	0	219	162	2,609	1,399	6,909	5,263
1981 Average	375	369	327	0	236	163	2,672	1,474	5,996	4,396
1982 Average	456	441	316	0	306	174	2,968	1,754	5,113	3,488
1983 Average	382	365	282	0	378	215	3,189	1,853	5,051	3,329
1984 Average	402	378	294	0	411	210	3,388	1,914	5,437	3,426
1985 Average	310	278	247	0	394	137	3,237	1,888	5,067	3,201
1986 Average	350	317	244	0	426	144	3,387	2,065	6,224	4,178
1987 Average	352	304	272	0	459	196	3,617	2,274	6,678	4,674
1988 Average	315	254	242	0	487	196	3,882	2,411	7,402	5,107
1989 Average	215	160	321	0	457	197	3,921	2,467	8,061	5,843
1990 Average	189	155	282	0	417	180	3,721	2,381	8,018	5,894
1991 Average	138	106	243	0	282	137	3,535	2,405	7,627	5,782
1992 Average	230	200	249	0	335	149	3,796	2,676	7,888	6,083
1993 January	229	201	252	0	325	104	[c]3,766	[c]2,672	8,004	6,292
February	173	127	244	0	223	151	3,452	2,471	7,948	6,156
March	332	298	244	0	393	186	4,003	2,918	8,285	6,488
April	413	337	245	0	472	243	4,161	2,995	8,768	6,928
May	522	495	279	0	363	152	4,353	3,179	8,663	6,809
June	458	408	290	0	581	405	4,452	3,455	8,805	7,201
July	292	247	202	0	600	299	4,801	3,574	9,219	7,289
August	343	323	256	0	556	356	4,378	3,210	8,429	6,641
September	286	217	184	0	552	251	4,517	3,173	8,531	6,581
October	353	338	236	0	453	233	4,984	3,698	9,197	7,181
November	351	340	330	0	503	270	4,739	3,434	8,903	6,997
December	432	403	288	0	394	231	4,486	3,298	8,645	6,838
Average	**350**	**312**	**254**	**0**	**452**	**240**	**4,347**	**3,178**	**8,620**	**6,787**
1994 January	205	161	276	0	361	181	4,333	3,053	7,993	5,945
February	290	232	351	0	441	111	4,705	3,077	8,539	6,313
March	459	394	325	0	453	191	4,784	3,366	8,574	6,372
April	377	282	325	0	496	212	4,561	3,227	8,968	6,955
May	404	345	312	0	643	390	4,805	3,427	9,213	7,198
June	537	485	361	0	423	209	4,787	3,520	9,305	7,358
July	678	578	294	0	635	400	5,273	3,996	9,779	7,857
August	514	473	356	0	513	249	5,007	3,627	9,510	7,488
September	736	717	360	0	409	287	5,307	4,143	9,693	7,868
October	370	323	313	0	350	212	4,484	3,444	8,788	7,136
November	618	507	292	0	257	159	4,536	3,545	8,707	7,034
December	305	255	369	0	414	254	4,411	3,352	8,863	7,193
Average	**458**	**396**	**328**	**0**	**450**	**239**	**4,749**	**3,483**	**8,996**	**7,063**
1995 January	256	228	283	0	209	131	4,126	3,215	7,955	6,503
February	382	359	322	0	300	143	4,244	3,211	8,358	6,565
March	663	621	298	0	174	91	4,641	3,655	9,020	7,409
April	491	450	284	0	314	143	4,589	3,748	8,486	7,073
May	405	366	203	0	286	165	4,711	3,849	8,736	7,354
June	520	418	268	0	368	253	5,123	4,123	9,585	7,957
July	137	97	240	0	441	277	4,482	3,630	8,845	7,265
August	288	249	264	0	336	261	4,898	3,954	9,024	7,415
September	427	386	223	0	312	180	4,979	4,072	9,726	8,041
9-Month Average	**396**	**352**	**264**	**0**	**304**	**183**	**4,645**	**3,720**	**8,861**	**7,290**
1994 9-Month Average	**468**	**408**	**329**	**0**	**487**	**250**	**4,841**	**3,496**	**9,067**	**7,043**
1993 9-Month Average	**340**	**296**	**244**	**0**	**453**	**239**	**4,216**	**3,077**	**8,521**	**6,713**

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

[b] Includes Bahrain, which is shown on Table 3.3a.

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

(s)=Less than 500 barrels per day.

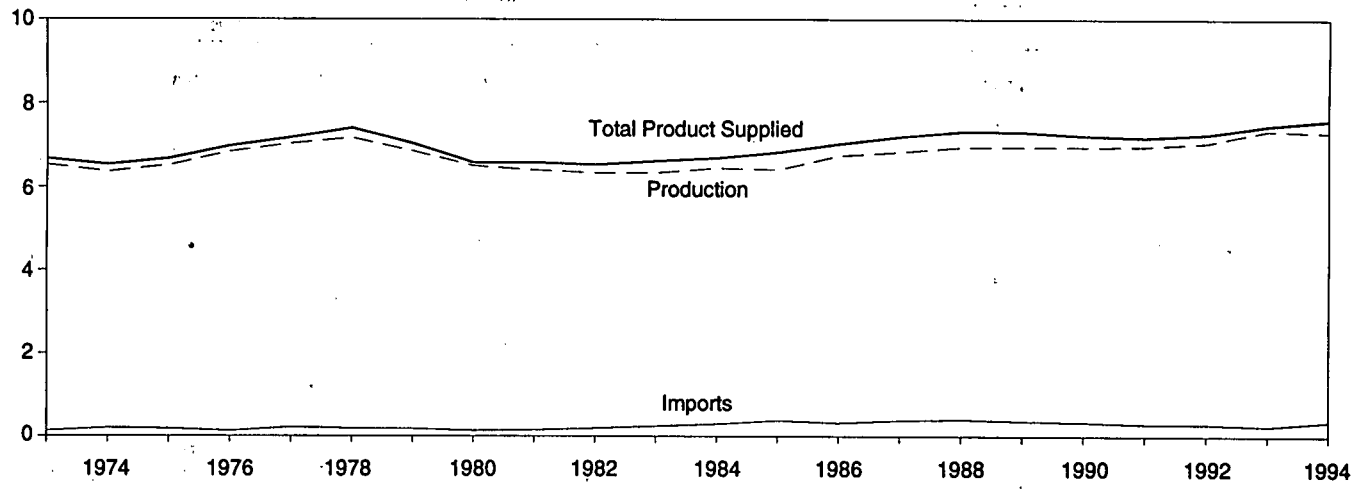
Notes: • Beginning in October 1977, Strategic Petroleum Reserve imports are included. • Totals may not equal sum of components due to independent rounding. • U.S. geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S3. • **1981 forward:** EIA, *Petroleum Supply Monthly*, November 1995, Table S3.

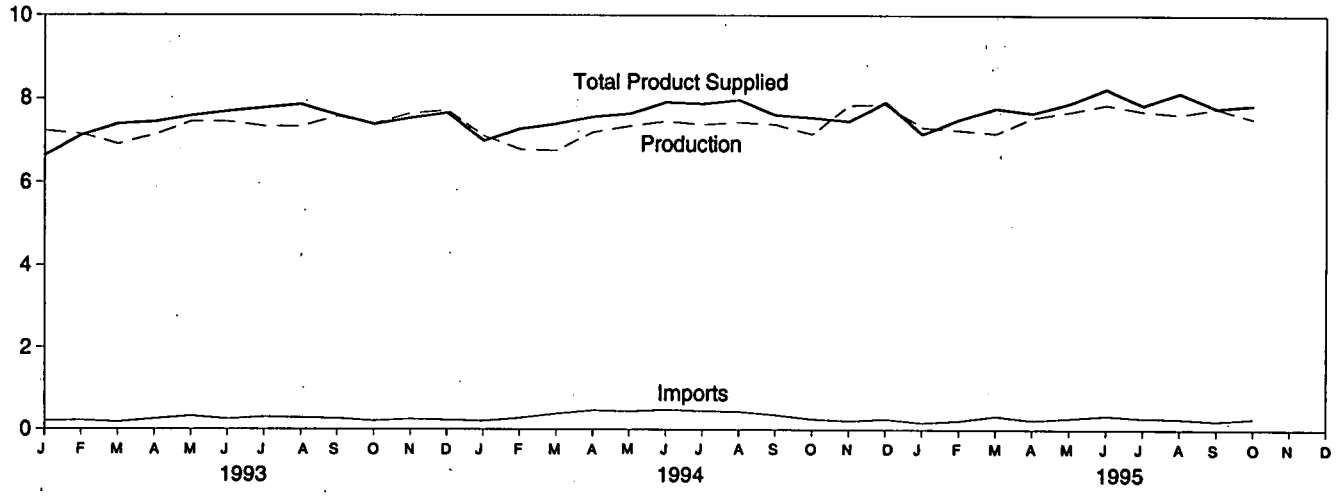
Figure 3.2 Finished Motor Gasoline

(Million Barrels per Day, Except as Noted)

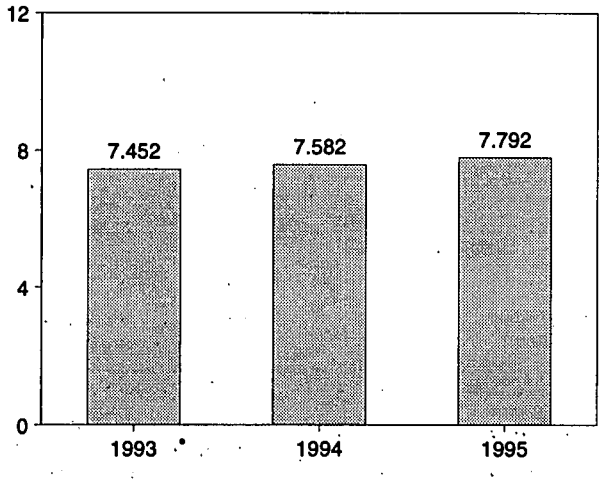
Overview, 1973-1994



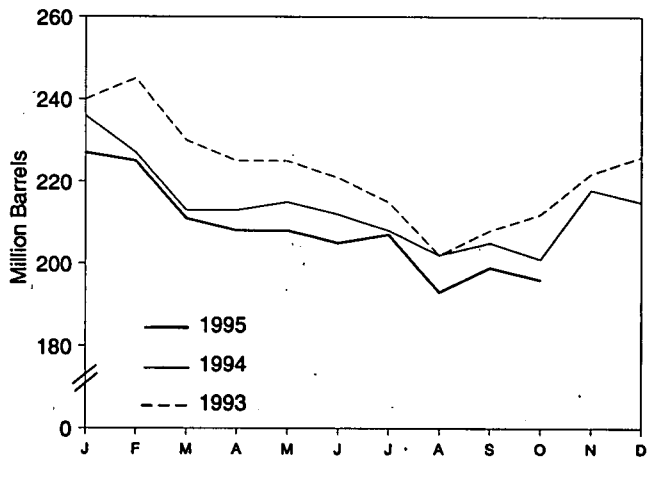
Overview, Monthly



Product Supplied, January-October



Stocks, End of Month



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

Table 3.4 Finished Motor Gasoline Supply and Disposition

	Supply		Disposition			Motor Gasoline Ending Stocks[a]		Oxygenates Ending Stocks[a]
	Total Production	Imports[b]	Stock Change[b,c]	Exports	Product Supplied	Total[d]	Finished	
	Thousand Barrels per Day					Million Barrels		
1973 Average	6,535	134	-9	4	6,674	209	NA	NA
1974 Average	6,360	204	24	2	6,537	[e]218	NA	NA
1975 Average	6,520	184	[e]28	2	6,675	235	NA	NA
1976 Average	6,841	131	-10	3	6,978	231	NA	NA
1977 Average	7,033	217	72	2	7,177	258	NA	NA
1978 Average	7,169	190	-54	1	7,412	238	NA	NA
1979 Average	6,852	181	-2	(s)	7,034	237	NA	NA
1980 Average	6,506	140	66	1	6,579	[e]261	NA	NA
1981 Average[f]	6,405	157	[e]-28	2	6,588	253	203	NA
1982 Average	6,338	197	-25	20	6,539	[e]235	[e]194	NA
1983 Average	6,340	247	[e]-45	10	6,622	222	186	NA
1984 Average	6,453	299	54	6	6,693	243	205	NA
1985 Average	6,419	381	-41	10	6,831	223	190	NA
1986 Average	6,752	326	11	33	7,034	233	194	NA
1987 Average	6,841	384	-15	35	7,206	226	189	NA
1988 Average	6,956	405	3	22	7,336	228	190	NA
1989 Average	6,963	369	-35	39	7,328	213	177	NA
1990 Average	6,959	342	10	55	7,235	220	181	NA
1991 Average	6,975	297	3	82	7,188	219	182	NA
1992 Average	7,058	294	-11	96	7,268	216	178	NA
1993 January	[g]7,228	204	652	142	[g]6,639	240	198	[h]15
February	7,144	216	149	99	7,112	245	202	14
March	6,904	177	-417	109	7,389	230	189	15
April	7,126	253	-168	111	7,435	225	184	15
May	7,446	323	93	90	7,585	225	187	17
June	7,442	251	-88	81	7,700	221	184	18
July	7,337	300	-240	92	7,785	215	177	20
August	7,335	283	-323	77	7,864	202	167	21
September	7,573	267	148	85	7,607	208	171	19
October	7,394	210	142	80	7,382	212	176	18
November	7,652	252	245	126	7,533	222	183	16
December	7,725	231	132	162	7,661	226	187	13
Average	**7,360**	**247**	**26**	**105**	**7,476**	**226**	**187**	**13**
1994 January	7,097	206	227	97	6,980	236	194	11
February	6,790	281	-281	77	7,275	227	186	11
March	6,760	382	-341	88	7,395	213	176	13
April	7,195	467	26	73	7,564	213	176	15
May	7,348	446	85	64	7,644	215	179	16
June	7,455	483	-72	88	7,922	212	177	18
July	7,380	455	-127	78	7,884	208	173	22
August	7,432	439	-172	70	7,975	202	168	24
September	7,385	360	55	74	7,615	205	169	25
October	7,151	263	-244	110	7,548	201	162	23
November	7,849	219	496	108	7,464	218	177	20
December	7,867	265	-23	231	7,924	215	176	17
Average	**7,312**	**356**	**-31**	**97**	**7,601**	**215**	**176**	**17**
1995 January	7,317	174	235	100	7,157	227	183	16
February	7,250	223	-116	84	7,505	225	180	16
March	7,171	336	-380	107	7,780	211	168	15
April	7,547	235	-26	139	7,670	208	167	15
May	7,697	286	18	67	7,898	208	168	15
June	7,866	347	-121	91	8,243	205	164	14
July	7,718	290	68	86	7,854	207	166	15
August	7,634	276	-343	103	8,151	193	155	16
September	[R]7,785	[R]219	[R]122	[R]94	[R]7,788	[R]199	[R]159	15
October	[E]7,528	[E]282	[E]-144	[E]95	[E]7,859	[E]196	[E]156	NA
10-Month Average	[E]7,553	[E]267	[E]-69	[E]97	[E]7,792	[E]196	[E]156	NA
1994 10-Month Average	**7,202**	**379**	**-83**	**82**	**7,582**	**201**	**162**	**23**
1993 10-Month Average	**7,294**	**248**	**-7**	**97**	**7,452**	**212**	**176**	**18**

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

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

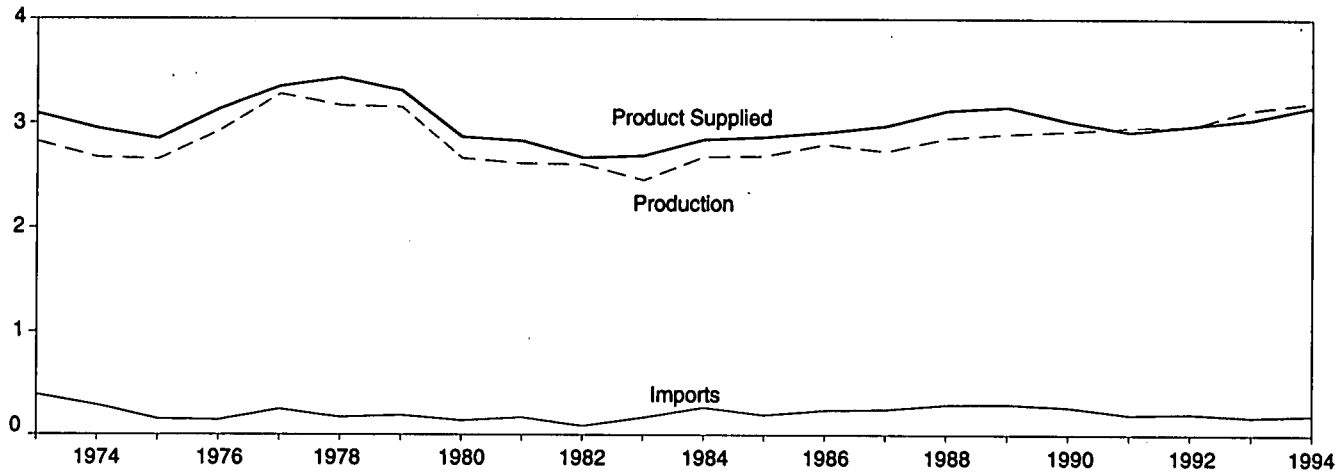
Note: Geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S4. • **1981 forward:** EIA, *Petroleum Supply Monthly*, November 1995, Table S4.

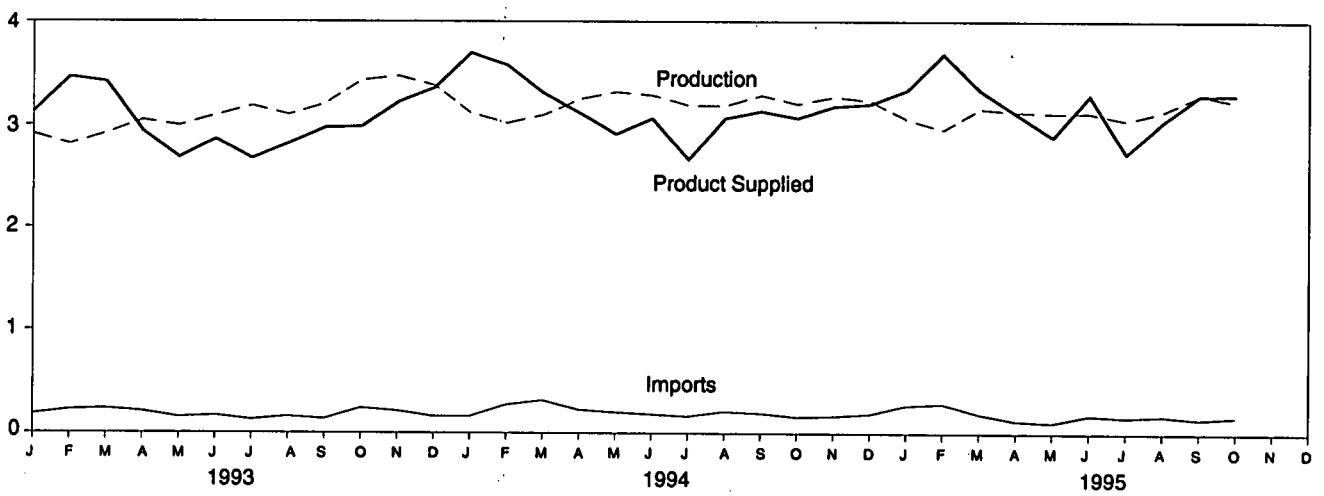
Figure 3.3 Distillate Fuel

(Million Barrels per Day, Except as Noted)

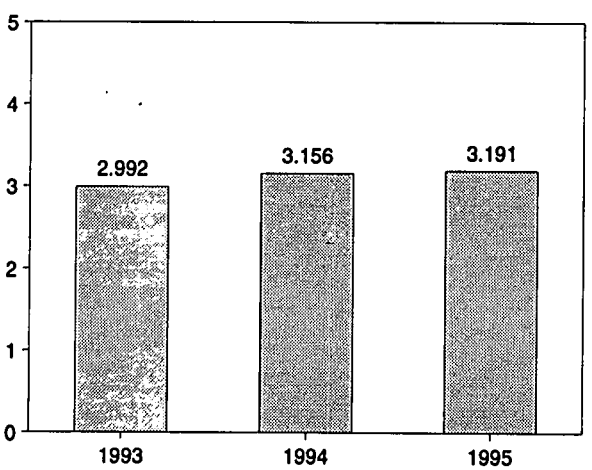
Overview, 1973-1994



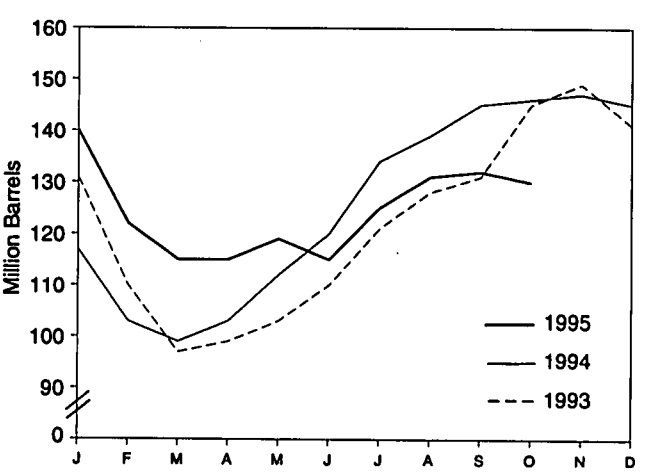
Overview, Monthly



Product Supplied, January-October



Stocks, End of Month



Source: Table 3.5.

Table 3.5 Distillate Fuel Oil Supply and Disposition

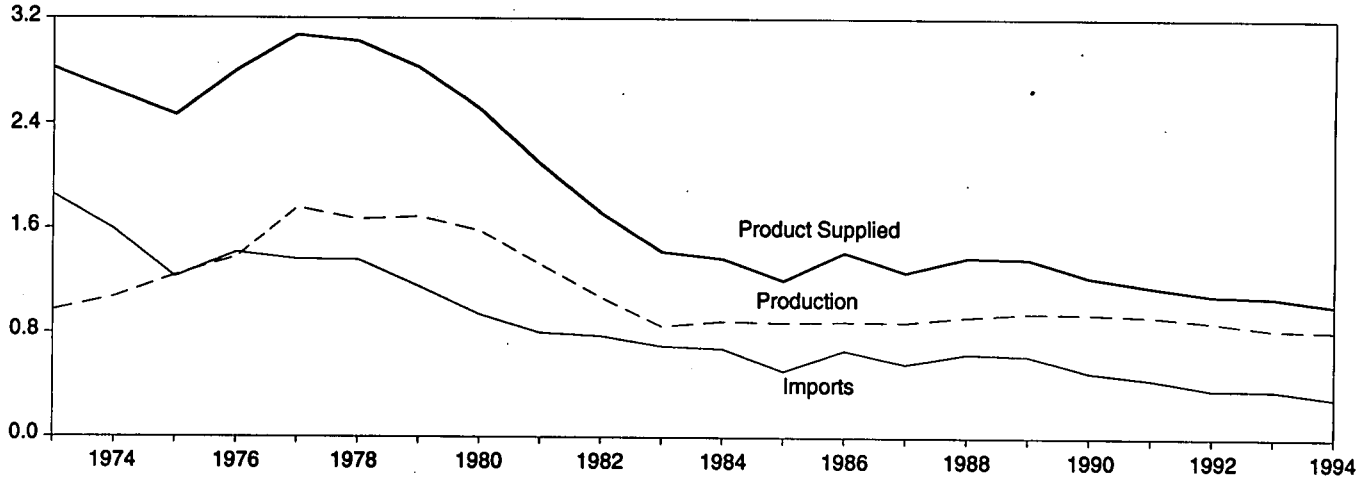
	Supply			Disposition			Ending Stocks[a]		
								Sulfur Content	
	Total Production	Imports	Crude Oil Used Directly[b]	Stock Change[c]	Exports	Product Supplied[b]	Total	0.05 Percent or Less[d]	Greater Than 0.05 Percent[d]
	Thousand Barrels per Day						Million Barrels		
1973 Average	2,822	392	2	115	9	3,092	196	NA	NA
1974 Average	2,669	289	2	[e] 10	2	2,948	[f] 200	NA	NA
1975 Average	2,654	155	2	[e,f] -41	1	2,851	209	NA	NA
1976 Average	2,924	146	1	-62	1	3,133	186	NA	NA
1977 Average	3,278	250	1	176	1	3,352	250	NA	NA
1978 Average	3,167	173	1	-93	3	3,432	216	NA	NA
1979 Average	3,153	193	1	34	3	3,311	229	NA	NA
1980 Average	2,662	142	1	-64	3	2,866	[f] 205	NA	NA
1981 Average[g]	2,613	173	10	[f] -38	5	2,829	192	NA	NA
1982 Average	2,606	93	10	-35	74	2,671	[f] 179	NA	NA
1983 Average	2,456	174	–	[f] -124	64	2,690	140	NA	NA
1984 Average	2,681	272	–	57	51	2,845	161	NA	NA
1985 Average	2,687	200	–	-48	67	2,868	144	NA	NA
1986 Average	2,798	247	–	31	100	2,914	155	NA	NA
1987 Average	2,731	255	–	-56	66	2,976	134	NA	NA
1988 Average	2,859	302	–	-30	69	3,122	124	NA	NA
1989 Average	2,899	306	–	-49	97	3,157	106	NA	NA
1990 Average	2,925	278	–	73	109	3,021	132	NA	NA
1991 Average	2,962	205	–	31	215	2,921	144	NA	NA
1992 Average	2,974	216	–	-8	219	2,979	141	NA	NA
1993 January	2,914	182	–	-318	287	3,128	131	[g] 15	[g] 115
February	2,815	224	–	-727	301	3,465	110	12	99
March	2,919	235	–	-420	154	3,420	97	11	87
April	3,047	209	–	71	241	2,943	99	12	88
May	2,994	153	–	106	355	2,685	103	12	91
June	3,093	168	–	241	158	2,863	110	15	95
July	3,186	130	–	346	296	2,674	121	21	100
August	3,100	159	–	243	196	2,820	128	44	84
September	3,205	137	–	102	267	2,973	131	48	84
October	3,432	242	–	453	237	2,983	145	55	90
November	3,474	214	–	127	342	3,218	149	64	85
December	3,382	160	–	-267	453	3,357	141	64	77
Average	**3,132**	**184**	–	**1**	**274**	**3,041**	**141**	**64**	**77**
1994 January	3,114	161	–	-754	332	3,698	117	55	62
February	3,018	276	–	-521	235	3,581	103	49	54
March	3,096	318	–	-113	220	3,307	99	51	49
April	3,249	226	–	106	252	3,116	103	57	46
May	3,317	202	–	318	289	2,912	112	61	51
June	3,285	182	–	237	168	3,062	120	62	58
July	3,191	164	–	472	220	2,663	134	69	65
August	3,187	211	–	142	193	3,063	139	67	71
September	3,285	193	–	205	140	3,133	145	66	78
October	3,203	159	–	40	256	3,066	146	67	79
November	3,270	166	–	45	211	3,180	147	70	77
December	3,232	187	–	-68	284	3,203	145	73	73
Average	**3,205**	**203**	–	**12**	**234**	**3,162**	**145**	**73**	**73**
1995 January	3,055	270	–	-152	141	3,335	140	69	71
February	2,954	287	–	-660	212	3,689	122	63	59
March	3,156	188	–	-208	216	3,336	115	59	56
April	3,125	125	–	-30	172	3,108	115	61	53
May	3,111	108	–	135	202	2,883	119	62	56
June	3,114	176	–	-132	137	3,284	115	59	56
July	3,041	157	–	332	148	2,718	125	61	64
August	3,130	171	–	186	84	3,031	131	61	70
September	[R] 3,288	[R] 142	–	[R] 28	[R] 116	[R] 3,286	132	[R] 63	68
October	[E] 3,222	[E] 162	–	[E] -70	[E] 167	[E] 3,287	[E] 130	[E] 61	[E] 68
10-Month Average	[E] 3,121	[E] 178	–	[E] -51	[E] 159	[E] 3,191	[E] 130	[E] 61	[E] 68
1994 10-Month Average	**3,195**	**209**	–	**17**	**231**	**3,156**	**146**	**67**	**79**
1993 10-Month Average	**3,072**	**184**	–	**16**	**249**	**2,992**	**145**	**55**	**90**

[a] Stocks are totals as of end of period.
[b] Beginning in January 1983, crude oil used directly as distillate fuel oil is reported as crude oil product supplied on Table 3.2b rather than as distillate fuel oil product supplied.
[c] A negative number indicates a decrease in stocks and a positive number indicates an increase.
[d] By weight.
[e] See Note 6 at end of section.
[f] See Note 4 at end of section.
[g] See Note 3 at end of section.
R=Revised data. NA=Not available. – =Not applicable. E=Estimate.
Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.
Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S5. • **1981 forward:** EIA, *Petroleum Supply Monthly*, November 1995, Table S5.

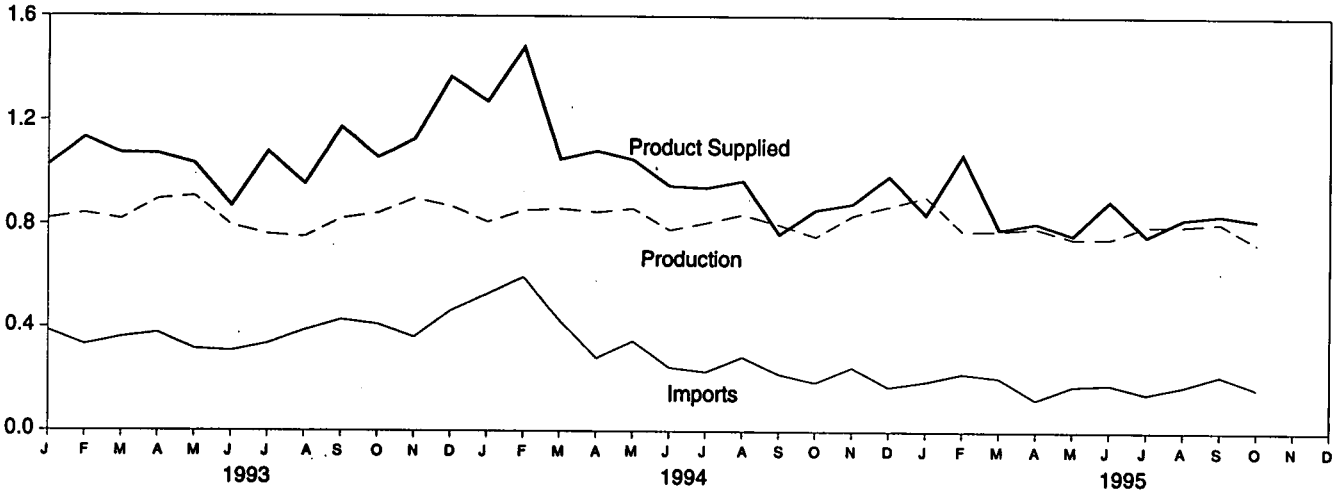
Figure 3.4 Residual Fuel

(Million Barrels per Day, Except as Noted)

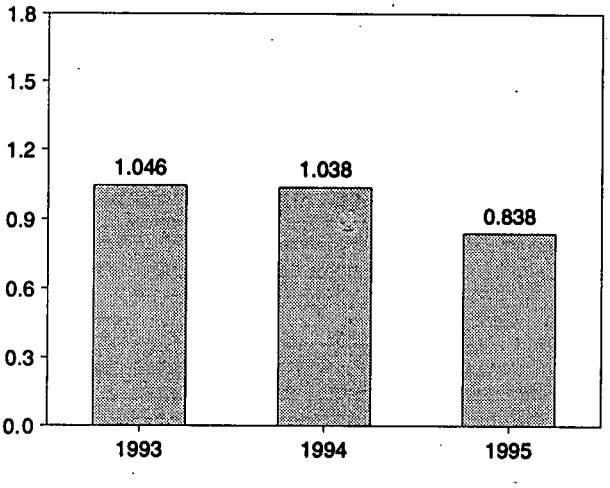
Overview, 1973-1994



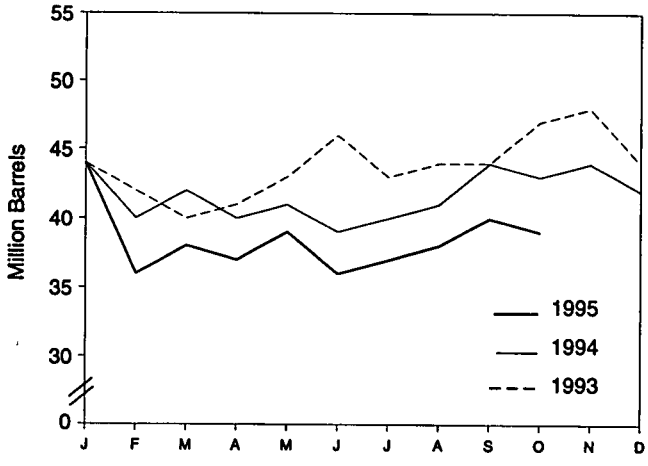
Overview, Monthly



Product Supplied, January-October



Stocks, End of Month



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

Table 3.6 Residual Fuel Oil Supply and Disposition

	Supply			Disposition			
	Total Production	Imports	Crude Oil Used Directly[a]	Stock Change[b]	Exports	Product Supplied[a]	Ending Stocks[c]
	Thousand Barrels per Day						Million Barrels
1973 Average	971	1,853	17	-5	23	2,822	53
1974 Average	1,070	1,587	13	17	14	2,639	[d]60
1975 Average	1,235	1,223	15	[d]-2	15	2,462	74
1976 Average	1,377	1,413	17	-5	12	2,801	72
1977 Average	1,754	1,359	13	48	6	3,071	90
1978 Average	1,667	1,355	13	1	13	3,023	90
1979 Average	1,687	1,151	12	15	9	2,826	96
1980 Average	1,580	939	12	-10	33	2,508	[d]92
1981 Average[e]	1,321	800	48	[d]-37	118	2,088	78
1982 Average	1,070	776	48	-32	209	1,716	[d]66
1983 Average	852	699	–	[d]-55	185	1,421	49
1984 Average	891	681	–	12	190	1,369	53
1985 Average	882	510	–	-7	197	1,202	50
1986 Average	889	669	–	-8	147	1,418	47
1987 Average	885	565	–	(s)	186	1,264	47
1988 Average	926	644	–	-8	200	1,378	45
1989 Average	954	629	–	-2	215	1,370	44
1990 Average	950	504	–	13	211	1,229	49
1991 Average	934	453	–	4	226	1,158	50
1992 Average	892	375	–	-20	193	1,094	43
1993 January	820	385	–	44	133	1,028	44
February	840	332	–	-74	113	1,132	42
March	818	360	–	-47	152	1,073	40
April	896	377	–	32	169	1,071	41
May	908	316	–	54	137	1,033	43
June	795	308	–	87	147	870	46
July	762	337	–	-102	122	1,079	43
August	752	387	–	64	120	955	44
September	822	430	–	-31	110	1,173	44
October	841	412	–	103	94	1,057	47
November	899	361	–	48	86	1,126	48
December	869	467	–	-129	98	1,367	44
Average	835	373	–	4	123	1,080	44
1994 January	809	532	–	4	64	1,272	44
February	852	597	–	-159	127	1,481	40
March	859	426	–	61	175	1,050	42
April	846	282	–	-65	110	1,083	40
May	860	348	–	30	129	1,049	41
June	779	247	–	-43	122	948	39
July	807	230	–	12	83	941	40
August	838	287	–	37	120	968	41
September	800	222	–	117	141	764	44
October	755	190	–	-45	134	856	43
November	835	248	–	19	182	881	44
December	871	173	–	-58	115	988	42
Average	826	314	–	-6	125	1,021	42
1995 January	909	194	–	60	203	839	44
February	776	225	–	-275	208	1,069	36
March	778	209	–	50	154	783	38
April	789	126	–	-23	129	808	37
May	749	177	–	48	115	762	39
June	749	184	–	-82	120	894	36
July	798	149	–	25	164	759	37
August	799	177	–	28	122	825	38
September	[R]810	[R]219	–	[R]64	[R]124	[R]840	[R]40
October	[E]731	[E]169	–	[E]-12	[E]92	[E]820	[E]39
10-Month Average	[E]789	[E]182	–	[E]-9	[E]143	[E]838	[E]39
1994 10-Month Average	820	334	–	-4	120	1,038	43
1993 10-Month Average	825	365	–	14	130	1,046	47

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

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

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

[d] See Note 4 at end of section.

[e] See Note 3 at end of section.

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

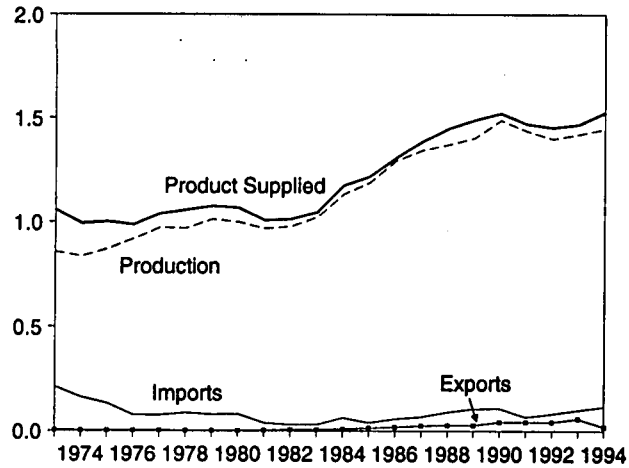
Note: Geographic coverage is the 50 States and the District of Columbia.

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S6. • **1981 forward:** EIA, *Petroleum Supply Monthly*, November 1995, Table S6.

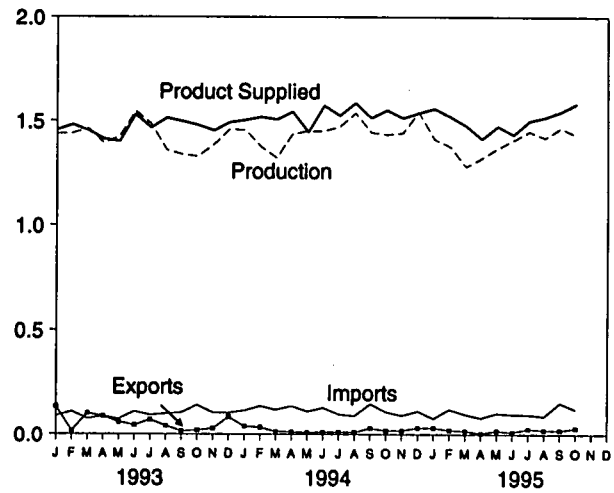
Figure 3.5 Jet Fuel

(Million Barrels per Day, Except as Noted)

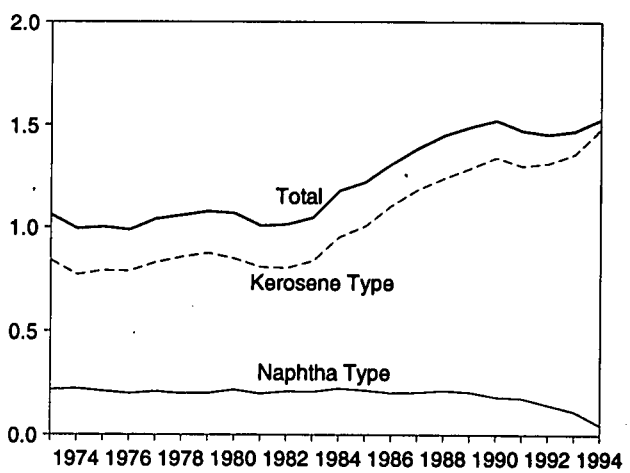
Overview, 1973-1994



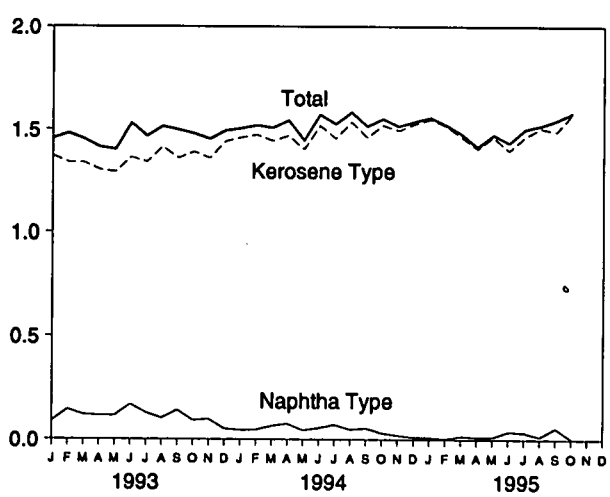
Overview, Monthly



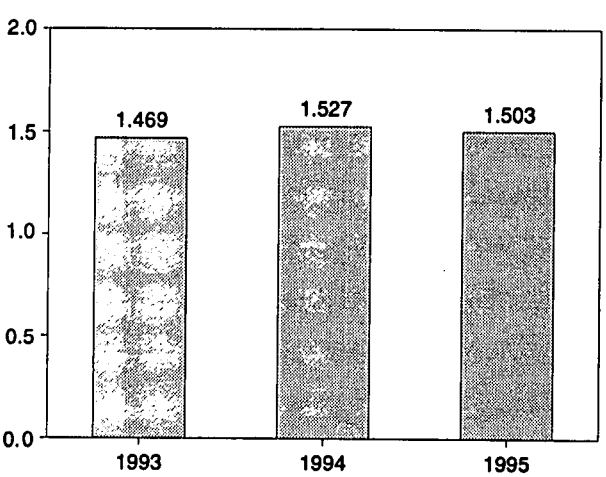
Product Supplied by Type, 1973-1994



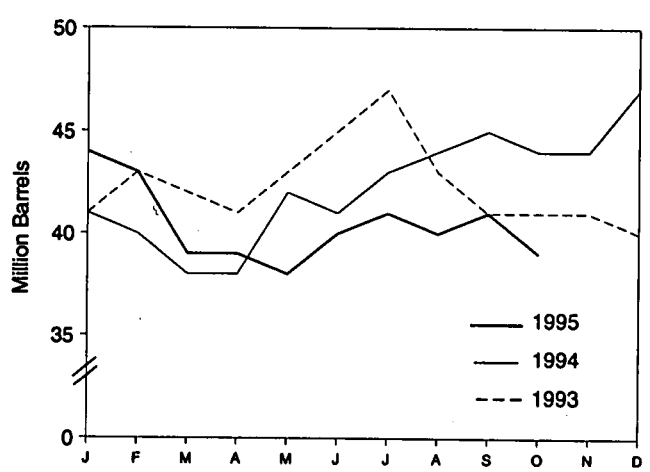
Product Supplied by Type, Monthly



Product Supplied, January-October



Stocks, End of Month



Source: Table 3.7.

Table 3.7 Jet Fuel Supply and Disposition

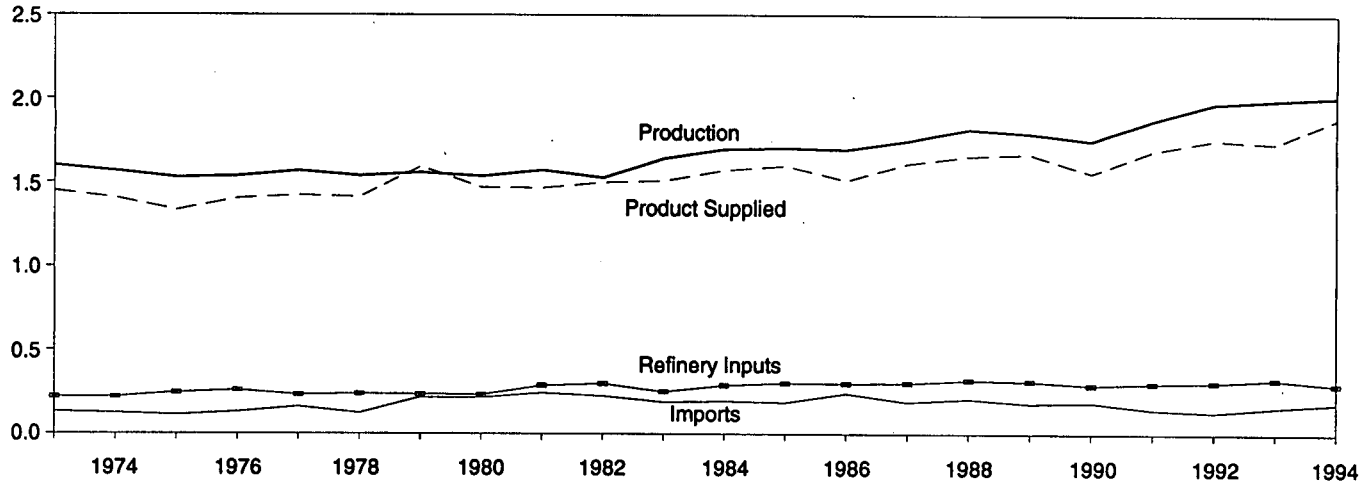
	Supply			Disposition				Ending Stocks[a]	
	Production		Imports	Stock Change[b]	Exports	Product Supplied			
	Total	Kerosene Type				Total	Kerosene Type	Total	Kerosene Type
	Thousand Barrels per Day							Million Barrels	
1973 Average	859	679	212	8	4	1,059	842	29	23
1974 Average	836	641	163	2	3	993	771	[c] 29	[c] 24
1975 Average	871	691	133	[c] 2	2	1,001	791	30	25
1976 Average	918	731	76	5	2	987	789	32	26
1977 Average	973	787	75	7	2	1,039	831	35	28
1978 Average	970	791	86	-2	1	1,057	858	34	28
1979 Average	1,012	835	78	13	1	1,076	876	39	33
1980 Average	999	811	80	10	1	1,068	851	[c] 42	[c] 36
1981 Average	968	775	38	[c] -4	2	1,007	809	41	34
1982 Average	978	778	29	-12	6	1,013	804	[c] 37	[c] 31
1983 Average	1,022	817	29	[c] (s)	6	1,046	839	39	32
1984 Average	1,132	919	62	9	9	1,175	953	42	35
1985 Average	1,189	983	39	-4	13	1,218	1,005	40	34
1986 Average	1,293	1,097	57	25	18	1,307	1,105	50	43
1987 Average	1,343	1,138	67	(s)	24	1,385	1,181	50	42
1988 Average	1,370	1,164	90	-17	28	1,449	1,236	44	38
1989 Average	1,403	1,197	106	-8	27	1,489	1,284	41	34
1990 Average	1,488	1,311	108	31	43	1,522	1,340	52	46
1991 Average	1,438	1,274	67	-9	43	1,471	1,296	49	44
1992 Average	1,399	1,254	82	-16	43	1,454	1,310	43	39
1993 January	1,437	1,308	89	-64	134	1,456	1,369	41	36
February	1,440	1,316	110	53	17	1,480	1,337	43	38
March	1,463	1,332	76	-15	101	1,453	1,335	42	38
April	1,391	1,265	88	-23	88	1,413	1,299	41	37
May	1,427	1,302	75	42	60	1,401	1,288	43	38
June	1,547	1,407	111	83	45	1,530	1,362	45	41
July	1,485	1,359	94	42	71	1,466	1,338	47	43
August	1,358	1,257	100	-98	42	1,514	1,413	43	40
September	1,338	1,241	106	-69	16	1,497	1,357	41	38
October	1,329	1,242	143	-27	20	1,479	1,389	41	37
November	1,386	1,301	105	8	29	1,453	1,357	41	38
December	1,459	1,382	105	-13	85	1,493	1,441	40	38
Average	**1,422**	**1,309**	**100**	**-7**	**59**	**1,469**	**1,357**	**40**	**38**
1994 January	1,456	1,394	116	29	40	1,504	1,460	41	39
February	1,374	1,331	138	-43	35	1,519	1,473	40	38
March	1,322	1,272	120	-80	14	1,507	1,444	38	36
April	1,437	1,395	138	20	12	1,544	1,469	38	36
May	1,451	1,403	112	108	9	1,446	1,402	42	40
June	1,451	1,400	130	-2	11	1,573	1,518	41	40
July	1,472	1,422	98	34	11	1,526	1,456	43	41
August	1,538	1,498	91	33	10	1,585	1,536	44	42
September	1,444	1,419	149	47	31	1,515	1,461	45	44
October	1,434	1,409	110	-27	18	1,552	1,520	44	43
November	1,442	1,433	93	(s)	19	1,515	1,494	44	43
December	1,543	1,533	114	86	33	1,538	1,526	47	46
Average	**1,448**	**1,410**	**117**	**18**	**20**	**1,527**	**1,480**	**47**	**46**
1995 January	1,412	1,402	79	-101	33	1,559	1,548	44	43
February	1,376	1,366	123	-44	21	1,522	1,516	43	42
March	1,281	1,272	99	-113	17	1,477	1,461	39	38
April	1,322	1,318	82	-16	5	1,414	1,403	39	38
May	1,368	1,356	104	-21	18	1,474	1,463	38	37
June	1,408	1,395	99	62	11	1,434	1,395	40	39
July	1,449	1,435	97	19	27	1,500	1,465	41	40
August	1,419	1,411	90	-32	21	1,519	1,505	40	39
September	[R] 1,466	[R] 1,460	[R] 155	[R] 56	[R] 20	[R] 1,545	[R] 1,489	[R] 41	[R] 41
October	[E] 1,432	[E] 1,426	[E] 124	[E] -57	[E] 31	[E] 1,582	[E] 1,577	[E] 39	[E] 38
10-Month Average	[E] 1,394	[E] 1,384	[E] 105	[E] -25	[E] 20	[E] 1,503	[E] 1,482	[E] 39	[E] 38
1994 10-Month Average	**1,438**	**1,395**	**120**	**12**	**19**	**1,527**	**1,474**	**44**	**43**
1993 10-Month Average	**1,421**	**1,303**	**99**	**-8**	**60**	**1,469**	**1,349**	**41**	**37**

[a] Stocks are totals as of end of period.
[b] A negative number indicates a decrease in stocks and a positive number indicates an increase.
[c] See Note 4 at end of section.
R=Revised data. E=Estimate. (s)=Less than +500 barrels per day and greater than -500 barrels per day.
Note: Geographic coverage is the 50 States and the District of Columbia.
Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S7. • **1981 forward:** EIA, *Petroleum Supply Monthly*, November 1995, Table S7.

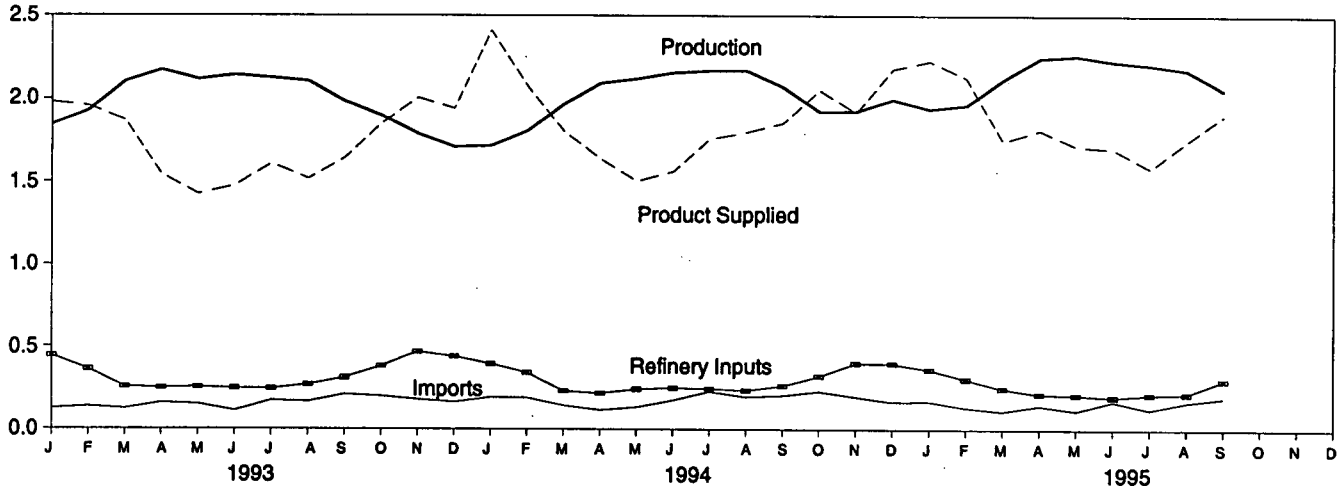
Figure 3.6 Liquefied Petroleum Gases

(Million Barrels per Day, Except as Noted)

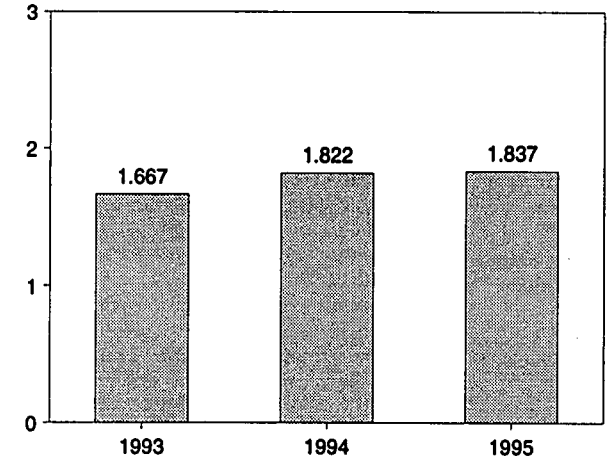
Overview, 1973-1994



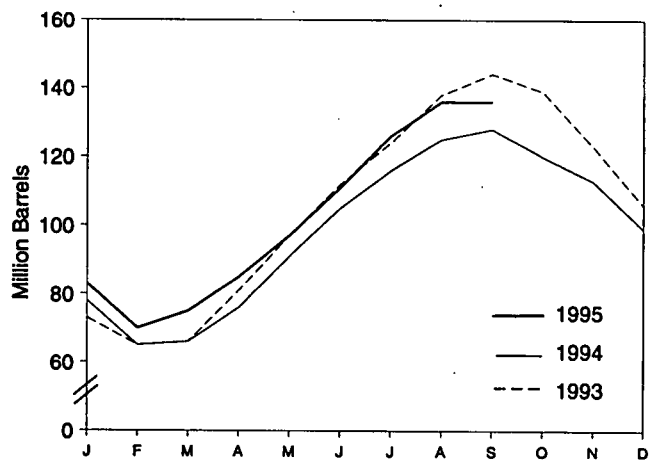
Overview, Monthly



Product Supplied, January-September



Stocks, End of Month



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

Table 3.8 Liquefied Petroleum Gases Supply and Disposition

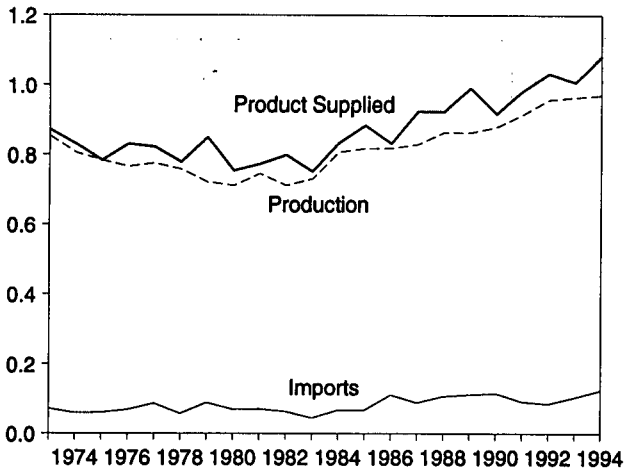
	Supply		Disposition				Ending Stocks[b]
	Total Production	Imports	Stock Change[a]	Refinery Inputs	Exports	Product Supplied	
	Thousand Barrels per Day						Million Barrels
1973 Average	1,600	132	35	220	27	1,449	99
1974 Average	1,565	123	38	220	25	1,406	[c] 113
1975 Average	1,527	112	[c] 35	246	26	1,333	125
1976 Average	1,535	130	-24	260	25	1,404	116
1977 Average	1,566	161	55	233	18	1,422	136
1978 Average	1,537	123	-12	239	20	1,413	[c] 132
1979 Average	1,556	217	[c] -70	236	15	1,592	111
1980 Average	1,535	216	27	233	21	1,469	[c] 120
1981 Average	1,571	244	[c] 18	289	42	1,466	135
1982 Average	[d] 1,527	226	-111	300	65	1,499	[c] 94
1983 Average	1,642	190	[c] -4	253	73	1,509	[c] 101
1984 Average	1,697	195	[c] -19	291	48	1,572	101
1985 Average	1,704	187	-75	304	62	1,599	74
1986 Average	1,695	242	80	302	42	1,512	103
1987 Average	1,748	190	-15	304	38	1,612	97
1988 Average	1,817	209	1	321	49	1,656	97
1989 Average	1,791	181	-47	315	35	1,668	80
1990 Average	1,749	188	48	293	40	1,556	98
1991 Average	1,871	147	-15	304	41	1,689	92
1992 Average	1,972	131	-10	309	49	1,755	89
1993 January	1,845	126	-492	444	39	1,980	73
February	1,929	138	-309	363	55	1,958	65
March	2,103	124	53	256	47	1,871	66
April	2,172	161	472	250	69	1,542	81
May	2,116	153	540	254	50	1,425	97
June	2,141	111	489	247	41	1,476	112
July	2,125	175	391	246	54	1,609	124
August	2,105	168	442	269	45	1,517	138
September	1,984	210	204	312	35	1,644	144
October	1,899	200	-154	381	21	1,851	139
November	1,789	181	-527	469	21	2,007	123
December	1,710	166	-545	440	40	1,942	106
Average	**1,993**	**160**	**49**	**327**	**43**	**1,734**	**106**
1994 January	1,717	194	-923	396	28	2,410	78
February	1,807	192	-463	343	44	2,075	65
March	1,969	146	42	232	37	1,804	66
April	2,093	116	323	218	29	1,639	76
May	2,120	135	478	243	32	1,503	91
June	2,156	178	480	251	41	1,562	105
July	2,169	229	353	246	40	1,759	116
August	2,170	198	296	236	37	1,799	125
September	2,073	206	104	264	56	1,854	128
October	1,926	230	-259	322	40	2,054	120
November	1,927	199	-228	401	35	1,919	113
December	1,998	169	-452	399	41	2,179	99
Average	**2,012**	**183**	**-19**	**296**	**38**	**1,880**	**99**
1995 January	1,941	172	-542	363	64	2,228	83
February	1,964	134	-456	306	122	2,125	70
March	2,117	111	175	248	57	1,747	75
April	2,246	147	323	216	43	1,812	85
May	2,260	115	386	211	62	1,716	97
June	2,227	174	447	198	55	1,701	111
July	2,205	123	489	213	41	1,583	126
August	2,174	169	322	217	57	1,747	136
September	2,054	195	17	300	29	1,903	136
9-Month Average	**2,133**	**149**	**134**	**252**	**58**	**1,837**	**136**
1994 9-Month Average	**2,032**	**177**	**80**	**269**	**38**	**1,822**	**128**
1993 9-Month Average	**2,059**	**152**	**202**	**293**	**48**	**1,667**	**144**

[a] A negative number indicates a decrease in stocks and a positive number indicates an increase.
[b] Stocks are totals as of end of period.
[c] See Note 4 at end of section.
[d] See Note 6 at end of section.
Notes: • Liquefied petroleum gases include ethane, ethylene, propane, propylene, normal butane, butylene, isobutane and isobutylene. • Geographic coverage is the 50 States and the District of Columbia.
Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S8. • **1981 forward:** EIA, *Petroleum Supply Monthly*, November 1995, Table S9.

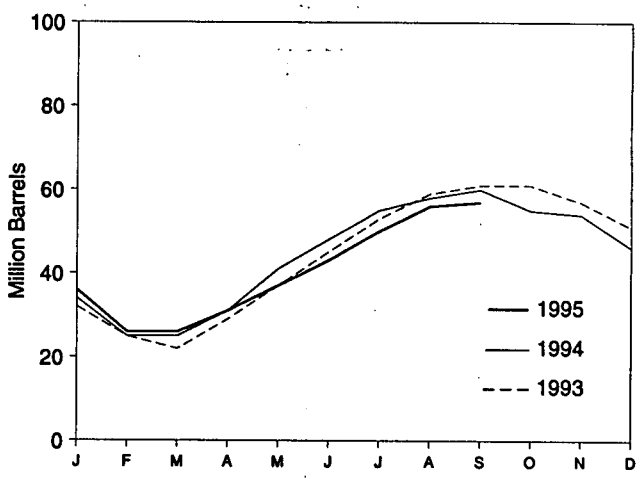
Figure 3.7 Propane and Propylene

(Million Barrels per Day, Except as Noted)

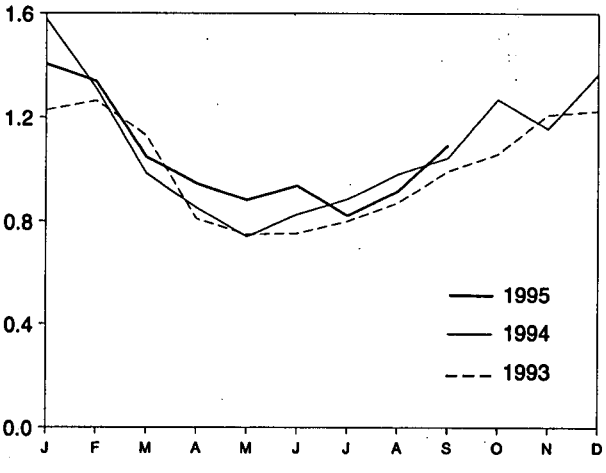
Overview, 1973-1994



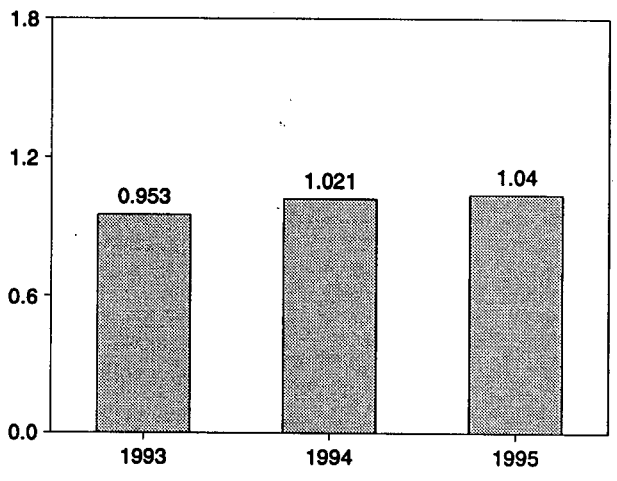
Stocks, End of Month



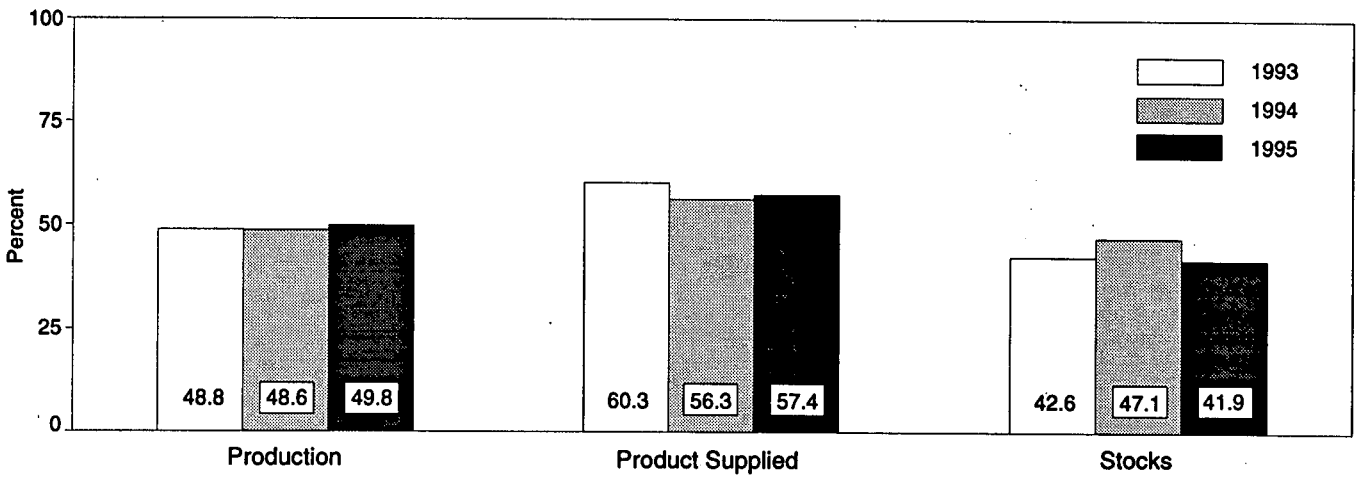
Product Supplied, Monthly



Product Supplied, January-September



Share of Liquefied Petroleum Gases, September



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

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

	Supply		Disposition				
	Total Production	Imports	Stock Change[a]	Refinery Inputs	Exports	Product Supplied	Ending Stocks[b]
	Thousand Barrels per Day						Million Barrels
1973 Average	854	71	30	8	15	872	65
1974 Average	805	59	11	9	14	830	69
1975 Average	783	60	36	11	13	783	82
1976 Average	766	68	-22	12	13	830	74
1977 Average	775	86	21	10	10	821	81
1978 Average	758	57	15	13	9	778	[c]87
1979 Average	721	88	[c]-61	14	8	849	64
1980 Average	711	69	4	12	10	754	[c]65
1981 Average	745	70	[c]18	5	18	773	76
1982 Average	711	63	-59	4	31	798	[c]54
1983 Average	730	44	[c]-24	4	43	751	[c]48
1984 Average	806	67	[c]7	4	30	833	58
1985 Average	816	67	-50	3	48	883	39
1986 Average	817	110	64	4	28	831	63
1987 Average	828	88	-41	8	24	924	48
1988 Average	863	106	7	8	31	923	50
1989 Average	862	111	-52	11	24	990	32
1990 Average	878	115	48	(s)	28	917	49
1991 Average	915	91	-3	(s)	28	982	48
1992 Average	956	85	-24	(s)	33	1,032	39
1993 January	968	79	-212	1	31	1,227	32
February	964	82	-255	(s)	37	1,264	25
March	966	85	-109	(s)	32	1,129	22
April	980	108	238	(s)	40	809	29
May	951	96	266	0	30	750	37
June	967	75	265	0	23	754	45
July	963	118	256	0	26	800	53
August	960	116	178	0	27	871	59
September	969	132	92	0	17	992	61
October	954	107	-11	0	13	1,059	61
November	963	138	-126	0	17	1,209	57
December	953	102	-195	0	25	1,225	51
Average	963	103	34	(s)	26	1,006	51
1994 January	889	141	-566	0	19	1,577	34
February	905	128	-308	0	30	1,311	25
March	939	87	13	0	29	984	25
April	978	83	188	0	20	852	31
May	976	90	306	0	20	741	41
June	978	117	247	0	20	827	48
July	977	151	221	0	22	885	55
August	980	135	107	0	28	980	58
September	1,008	133	77	0	20	1,044	60
October	954	164	-175	0	24	1,269	55
November	1,002	137	-43	0	27	1,155	54
December	1,034	127	-233	0	29	1,366	46
Average	969	124	-13	0	24	1,082	46
1995 January	1,002	108	-350	0	55	1,405	36
February	983	94	-361	0	100	1,338	26
March	1,013	90	16	(s)	39	1,048	26
April	1,029	107	159	0	31	946	31
May	1,042	73	204	0	29	882	37
June	1,038	114	187	0	27	938	43
July	1,011	73	235	0	27	822	50
August	1,009	107	176	0	24	916	56
September	1,023	145	51	0	25	1,092	57
9-Month Average	1,017	101	39	(s)	39	1,040	57
1994 9-Month Average	959	118	34	0	23	1,021	60
1993 9-Month Average	965	99	82	(s)	29	953	61

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

Sources: • **1973 through 1975:** U.S. Department of the Interior, Bureau of Mines, *Mineral Industry Surveys*, "Petroleum Statement, Annual." • **1976 through 1980:** Energy Information Administration (EIA), *Energy Data Reports*, Petroleum Statement, Annual." • **1981 forward:** EIA, *Petroleum Supply Monthly*, November 1995, Table S8.

Table 3.10 Other Petroleum Products Supply and Disposition

	Supply		Disposition				
	Total Production	Imports	Stock Change[a]	Refinery Inputs	Exports	Products Supplied	Ending Stocks[b]
	Thousand Barrels per Day						Million Barrels
1973 Average	2,833	290	1	750	162	2,211	179
1974 Average	2,722	269	25	665	172	2,129	[c]188
1975 Average	2,547	144	[c]-6	537	158	2,001	188
1976 Average	2,725	129	(s)	524	172	2,158	188
1977 Average	2,939	130	20	514	164	2,371	195
1978 Average	3,076	80	-12	492	165	2,511	191
1979 Average	3,141	116	24	352	208	2,673	200
1980 Average	2,957	130	15	310	197	2,566	[c]205
1981 Average	2,771	188	[c]-42	723	197	2,081	241
1982 Average	2,475	305	-68	787	205	[d]1,857	[c]216
1983 Average	2,437	382	[c]-6	712	236	1,877	[c]217
1984 Average	2,500	503	[c]-32	791	236	2,007	198
1985 Average	2,532	550	22	886	227	1,947	206
1986 Average	2,704	504	-15	888	291	2,045	201
1987 Average	2,737	543	-1	829	264	2,187	200
1988 Average	2,773	645	22	799	294	2,303	208
1989 Average	2,771	627	12	797	305	2,285	213
1990 Average	2,842	705	-32	887	289	2,402	201
1991 Average	2,826	675	18	936	277	2,269	208
1992 Average	2,928	707	-3	906	263	2,470	[c]207
1993 January	[e]3,147	726	[c]739	929	[e]271	[e]1,933	229
February	2,853	773	111	1,057	282	2,176	233
March	2,887	826	245	843	269	2,356	240
April	2,935	753	-29	1,033	315	2,368	239
May	2,941	834	80	1,048	278	2,368	242
June	3,099	654	-239	1,064	278	2,650	235
July	3,213	894	61	1,008	303	2,735	237
August	3,167	693	-28	940	294	2,654	236
September	3,067	800	-268	1,104	282	2,749	228
October	3,195	810	-114	1,189	369	2,561	224
November	3,080	795	-222	1,355	309	2,433	217
December	2,816	678	-376	1,403	349	2,117	206
Average	3,035	770	-2	1,081	300	2,426	206
1994 January	2,712	838	511	585	256	2,198	222
February	2,790	743	277	613	248	2,394	229
March	2,777	810	52	934	361	2,241	231
April	2,914	783	-126	1,016	272	2,534	227
May	3,078	773	-64	1,009	288	2,617	225
June	3,131	726	-103	887	331	2,742	222
July	3,158	746	80	759	361	2,704	225
August	3,093	797	-46	803	411	2,721	223
September	3,088	695	50	745	388	2,600	225
October	3,067	700	-72	902	300	2,636	223
November	3,001	749	47	1,013	344	2,347	224
December	2,852	762	-298	1,049	386	2,478	215
Average	2,973	761	24	861	329	2,518	215
1995 January	2,819	563	383	634	324	2,041	227
February	2,914	802	236	722	320	2,438	234
March	2,797	669	-8	873	329	2,273	234
April	2,843	699	-106	1,008	355	2,283	231
May	2,955	592	-72	780	339	2,501	228
June	3,099	649	-135	893	403	2,588	224
July	3,276	763	-48	1,069	326	2,692	223
August	3,246	727	-233	1,119	372	2,714	216
September	3,216	756	-64	1,045	348	2,643	214
9-Month Average	3,019	690	-7	906	346	2,463	214
1994 9-Month Average	2,972	769	69	818	325	2,528	225
1993 9-Month Average	3,036	773	77	1,002	286	2,445	228

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

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

Sources: • **1973-1980:** Energy Information Administration (EIA), *Petroleum Supply Monthly*, February 1993, Table S9. • **1981 forward:** EIA, *Petroleum Supply Monthly*, November 1995, Table S10.

Petroleum Notes

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

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

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

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

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

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

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

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

- Crude Oil: 1982—645 (Total) and 351 (Other Primary).
- Crude Oil and Petroleum Products: 1974—1,121; 1980—1,425; and 1982—1,461.
- Motor Gasoline: 1974—225; 1980—263 (Total) and 214 (Finished); 1982—244 (Total) and 202 (Finished).
- Distillate Fuel Oil: 1974—224; 1980—205; and 1982—186.
- Residual Fuel Oil: 1974—75; 1980—91; and 1982—69.
- Jet Fuel: 1974—30 (Total) and 24 (Kerosene Type); 1980—42 (Total) and 36 (Kerosene Type); and 1982—39 (Total) and 32 (Kerosene Type).
- Liquefied Petroleum Gases: 1974—113; 1978—136; 1980—128; and 1982—102.
- Propane and Propylene: 1978—86; 1980—69; and 1982—57.
- Other Petroleum Products: 1974—190; 1980—207; and 1982—219.

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

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

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

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

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

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

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

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

Section 4. Natural Gas

Total dry natural gas production in the United States during September 1995 was an estimated 1.5 trillion cubic feet, 1 percent[4] lower than production during the previous September. Dry natural gas production during the first 3 quarters of 1995 was 14.2 trillion cubic feet, 1 percent higher than during the first 3 quarters of 1994.

Consumption of natural and supplemental gas in September 1995 was 1.5 trillion cubic feet, 10 percent above the level in September 1994. Consumption of natural and supplemental gas during the first 3 quarters of 1995 was an estimated 16.1 trillion cubic feet, 4 percent higher than the consumption level during the first 3 quarters of 1994.

Deliveries to residential consumers in August 1995 (latest date for which data are available) were 116 billion cubic feet, 6 percent below the previous August's deliveries. Total deliveries to industrial customers during August 1995 were 687 billion cubic feet, 8 percent higher than the previous August's level.

Imports of natural gas in September 1995 were 211 billion cubic feet, slightly higher than imports in the previous September. Imports of natural gas during the first 3 quarters of 1995 were 2.0 trillion cubic feet, 5 percent higher than imports during the first 3 quarters of 1994.

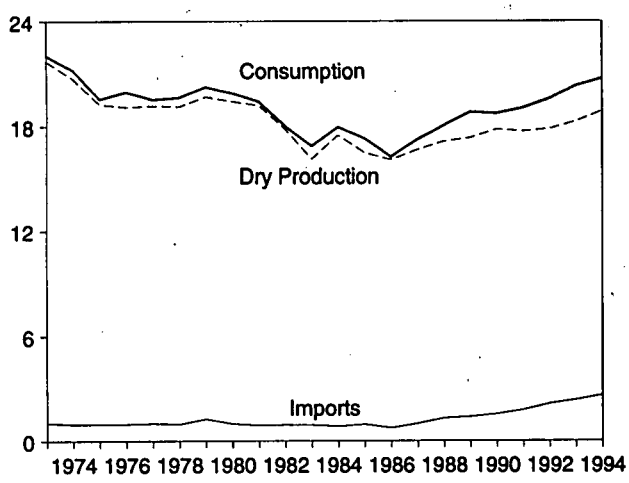
Stocks of working gas[5] in underground natural gas storage reservoirs at the end of September 1995 totaled 2.8 trillion cubic feet, 4 percent below the level of stocks available 1 year earlier. Net injections into storage during September 1995 were 296 billion cubic feet, 5 percent lower than the amount of net injections during the previous September.

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

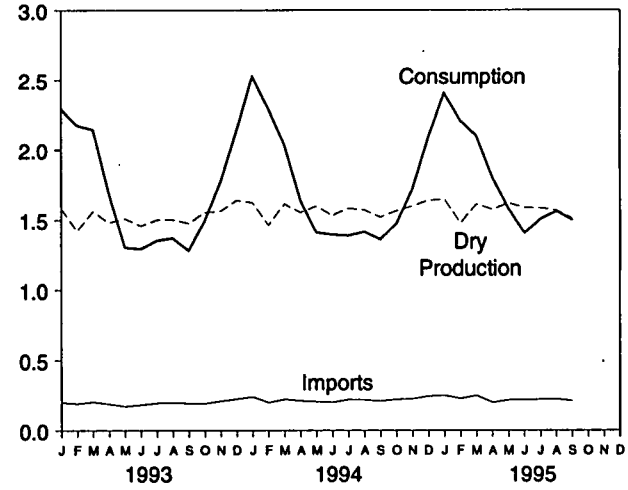
Figure 4.1 Natural Gas

(Trillion Cubic Feet)

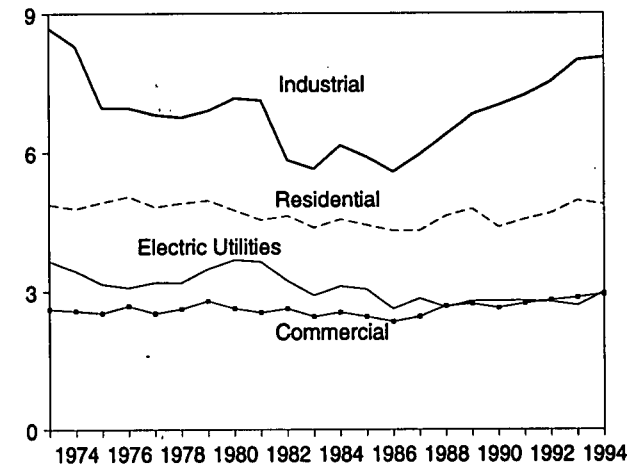
Overview, 1973-1994



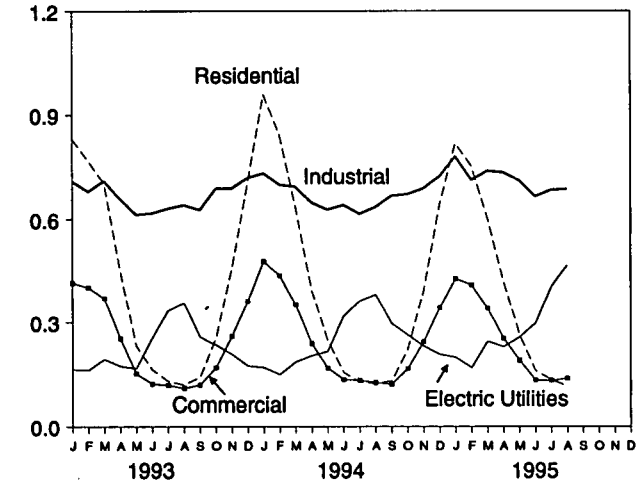
Overview, Monthly



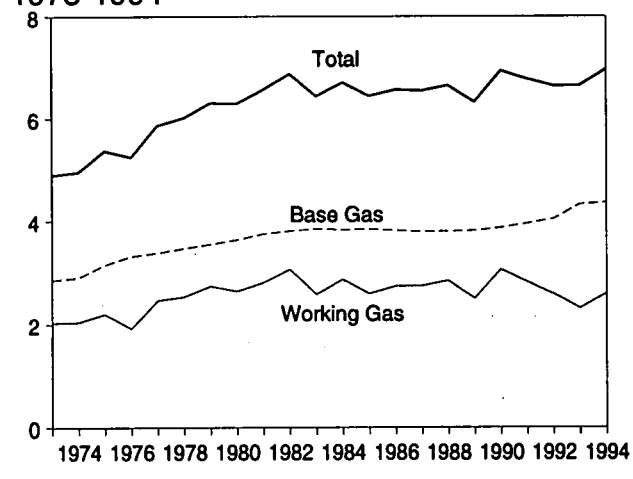
Consumption by Sector, 1973-1994



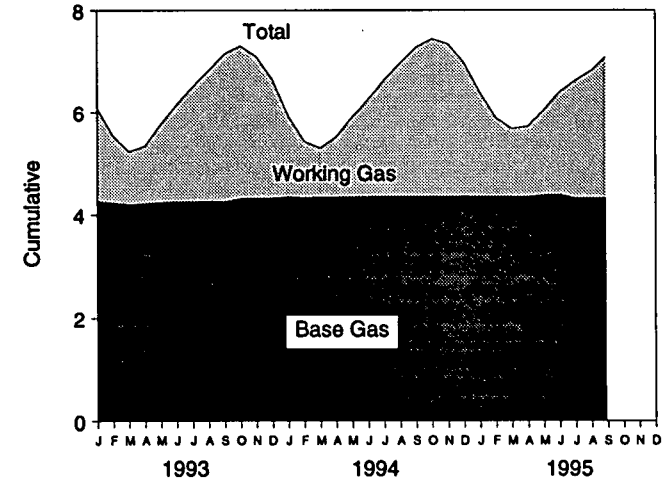
Consumption by Sector, Monthly



Underground Storage, End of Year, 1973-1994



Underground Storage, End of Month



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

Table 4.1 Natural Gas Production

(Billion Cubic Feet)

	Gross Withdrawals[a]	Repressuring[b]	Nonhydrocarbon Gases Removed[c]	Vented and Flared[d]	Marketed Production (Wet)[e]	Extraction Loss[f]	Total Dry Gas Production[g]
1973 Total	24,067	1,171	NA	248	[h] 22,648	917	[h] 21,731
1974 Total	22,850	1,080	NA	169	[h] 21,601	887	[h] 20,713
1975 Total	21,104	861	NA	134	[h] 20,109	872	[h] 19,236
1976 Total	20,944	859	NA	132	[h] 19,952	854	[h] 19,098
1977 Total	21,097	935	NA	137	[h] 20,025	863	[h] 19,163
1978 Total	21,309	1,181	NA	153	[h] 19,974	852	[h] 19,122
1979 Total	21,883	1,245	NA	167	[h] 20,471	808	[h] 19,663
1980 Total	21,870	1,365	199	125	20,180	777	19,403
1981 Total	21,587	1,312	222	98	19,956	775	19,181
1982 Total	20,272	1,388	208	93	18,582	762	17,820
1983 Total	18,659	1,458	222	95	16,884	790	16,094
1984 Total	20,267	1,630	224	108	18,304	838	17,466
1985 Total	19,607	1,915	326	95	17,270	816	16,454
1986 Total	19,131	1,838	337	98	16,859	800	16,059
1987 Total	20,140	2,208	376	124	17,433	812	16,621
1988 Total	20,999	2,478	460	143	17,918	816	17,103
1989 Total	21,074	2,475	362	142	18,095	785	17,311
1990 Total	21,523	2,489	289	150	18,594	784	17,810
1991 Total	21,750	2,772	276	170	18,532	835	17,698
1992 Total	22,132	2,973	280	168	18,712	872	17,840
1993 January	1,965	261	35	10	1,658	77	1,581
February	1,767	235	31	11	1,490	69	1,421
March	1,943	262	35	9	1,637	76	1,561
April	1,843	247	33	9	1,553	72	1,481
May	1,879	252	35	9	1,584	73	1,511
June	1,795	229	27	11	1,527	71	1,457
July	1,851	232	36	9	1,573	73	1,501
August	1,871	250	37	9	1,575	73	1,502
September	1,832	240	35	10	1,548	72	1,476
October	1,951	277	36	10	1,628	75	1,552
November	1,967	285	36	8	1,637	76	1,561
December	2,064	299	37	10	1,719	80	1,639
Total	22,729	3,069	414	116	19,130	886	18,244
1994 January	2,045	300	33	9	1,702	79	1,623
February	1,843	270	30	8	1,534	71	1,462
March	2,037	300	35	9	1,693	79	1,614
April	1,943	274	33	9	1,627	76	1,552
May	2,004	285	34	9	1,676	78	1,598
June	1,903	261	27	9	1,606	75	1,531
July	1,967	269	30	10	1,659	77	1,582
August	1,951	267	28	10	1,646	77	1,570
September	1,893	262	29	10	1,593	74	1,519
October	1,987	308	30	9	1,640	76	1,563
November	2,014	296	30	10	1,678	78	1,599
December	2,093	335	30	9	1,718	80	1,638
Total	23,679	3,426	369	111	19,773	921	18,852
1995 January	2,096	328	32	10	1,726	80	1,646
February	1,886	300	28	9	1,549	72	1,477
March	2,043	313	30	9	1,690	79	1,611
April	1,993	303	30	9	1,651	77	1,574
May	2,052	313	31	9	[R] 1,698	79	[R] 1,619
June	[R] 1,999	293	[R] 29	13	[R] 1,663	78	[R] 1,586
July	[R] 1,994	[R] 289	30	[R] 14	[R] 1,661	77	[R] 1,584
August	[R] 1,979	[R] 293	[R] 29	[R] 12	[R] 1,645	77	[R] 1,568
September	[E] 1,902	[E] 279	[E] 28	[E] 12	[E] 1,583	[E] 74	[E] 1,509
9-Month Total	[E] 17,943	[E] 2,711	[E] 267	[E] 97	[E] 14,867	[E] 693	[E] 14,174
1994 9-Month Total	17,585	2,487	278	82	14,738	687	14,051
1993 9-Month Total	16,747	2,209	304	87	14,147	656	13,491

[a] Gas withdrawn from gas and oil wells.

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

[c] See Note 1 at end of section.

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

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

[f] See Note 3 at end of section.

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

[h] May include unknown quantities of nonhydrocarbon gases.

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

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

Sources: • **1973-1986:** Energy Information Administration (EIA), *Natural Gas Annual 1991*, Table 95. • **1987-1992:** EIA, *Natural Gas Monthly*, November 1995, Table 1. • **1993 forward:** Estimated by EIA.

Table 4.2 Natural Gas Supply and Disposition

(Billion Cubic Feet)

	Supply						Disposition		
	Total Dry Gas Production	Withdrawals from Storage[a]	Supplemental Gaseous Fuels[b]	Imports[c]	Balancing Item[b]	Total Supply/ Disposition[d]	Additions to Storage[a]	Exports[c]	Consumption[b]
1973 Total	[e] 21,731	1,533	NA	1,033	-196	24,101	1,974	77	22,049
1974 Total	[e] 20,713	1,701	NA	959	-289	23,084	1,784	77	21,223
1975 Total	[e] 19,236	1,760	NA	953	-235	21,714	2,104	73	19,538
1976 Total	[e] 19,098	1,921	NA	964	-216	21,767	1,756	65	19,946
1977 Total	[e] 19,163	1,750	NA	1,011	-41	21,883	2,307	56	19,521
1978 Total	[e] 19,122	2,158	NA	966	-287	21,958	2,278	53	19,627
1979 Total	[e] 19,663	2,047	NA	1,253	-372	22,591	2,295	56	20,241
1980 Total	19,403	1,972	155	985	-640	21,875	1,949	49	19,877
1981 Total	19,181	1,930	176	904	-500	21,691	2,228	59	19,404
1982 Total	17,820	2,164	145	933	-537	20,525	2,472	52	18,001
1983 Total	16,094	2,270	132	918	[f] -703	18,712	1,822	55	16,835
1984 Total	17,466	2,098	110	843	[f] -217	20,300	2,295	55	17,951
1985 Total	16,454	2,397	126	950	-428	19,499	2,163	55	17,281
1986 Total	16,059	1,837	113	750	-493	18,266	1,984	61	16,221
1987 Total	16,621	1,905	101	993	-444	19,176	1,911	54	17,211
1988 Total	17,103	2,270	101	1,294	-453	20,315	2,211	74	18,030
1989 Total	17,311	2,854	107	1,382	-218	21,435	2,528	107	18,801
1990 Total	17,810	1,986	123	1,532	-149	21,302	2,499	86	18,716
1991 Total	17,698	2,752	113	1,773	-500	21,836	2,672	129	19,035
1992 Total	17,840	2,772	118	2,138	-508	22,360	2,599	216	19,544
1993 January	1,581	614	13	200	-63	2,346	37	17	2,292
February	1,421	591	11	191	-5	2,209	22	12	2,175
March	1,561	395	12	204	69	2,241	79	16	2,146
April	1,481	103	10	189	129	1,912	216	11	1,685
May	1,511	30	7	171	66	1,786	471	11	1,303
June	1,457	36	9	182	44	1,727	424	11	1,293
July	1,501	35	8	195	24	1,762	398	13	1,352
August	1,502	45	8	197	2	1,755	375	11	1,369
September	1,476	26	8	194	-23	1,681	391	10	1,280
October	1,552	103	10	192	-93	1,764	262	9	1,493
November	1,561	311	11	210	-206	1,887	106	10	1,771
December	1,639	510	13	225	-188	2,198	54	10	2,134
Total	18,244	2,799	119	2,350	-244	23,268	2,835	140	20,293
1994 January	1,623	757	14	241	-65	2,570	33	11	2,526
February	1,462	543	12	199	140	2,357	49	13	2,295
March	1,614	236	11	223	74	2,158	103	19	2,036
April	1,552	68	10	212	85	1,926	280	9	1,638
May	1,598	25	10	206	-4	1,834	417	8	1,409
June	1,531	33	9	201	7	1,781	375	13	1,393
July	1,582	24	10	221	-37	1,800	403	11	1,386
August	1,570	29	9	219	-37	1,790	364	14	1,413
September	1,519	21	10	210	-52	1,708	335	14	1,359
October	1,563	53	10	222	-148	1,700	215	13	1,472
November	1,599	196	11	226	-199	1,833	98	19	1,716
December	1,638	422	13	245	-161	2,157	54	18	2,085
Total	18,852	2,408	129	2,624	-399	23,614	2,726	162	20,727
1995 January	1,646	620	14	251	-69	2,461	41	14	2,407
February	1,477	543	12	228	5	2,265	42	13	2,210
March	1,611	314	12	250	25	2,213	101	15	2,098
April	1,574	121	9	199	76	1,980	168	14	1,797
May	[R] 1,619	31	10	217	[R] 64	1,941	351	13	1,577
June	[R] 1,586	37	10	217	[R] -40	1,810	[R] 391	16	1,403
July	[R] 1,584	[R] 51	10	[R] 222	[R] -5	[R] 1,862	[R] 344	13	[R] 1,506
August	[R] 1,568	[R] 83	10	[R] 225	[R] -33	[R] 1,852	[R] 278	16	[R] 1,559
September	[E] 1,509	27	9	211	79	1,836	323	14	1,499
9-Month Total	[E] 14,174	1,827	96	2,021	102	18,221	2,037	128	16,056
1994 9-Month Total	14,051	1,737	95	1,931	110	17,923	2,358	112	15,453
1993 9-Month Total	13,491	1,875	86	1,723	243	17,419	2,413	112	14,894

[a] Data for 1980-1993 include underground storage and liquefied natural gas storage. All other data include underground storage only. Computation procedures are discussed in Note 8 at end of section.

[b] See Notes at end of section.

[c] See Table 4.3.

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

[e] May include unknown quantities of nonhydrocarbon gases.

[f] See Note 7 at end of section.

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

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

Sources: See end of section.

Table 4.3 Natural Gas Trade by Country

(Billion Cubic Feet)

	Imports				Exports			
	Canada[a]	Algeria[b]	Other[c]	Total	Canada[a]	Mexico[a]	Japan[b]	Total
1973 Total	**1,028**	**3**	**2**	**1,033**	**15**	**14**	**48**	**77**
1974 Total	**959**	**0**	**(s)**	**959**	**13**	**13**	**50**	**77**
1975 Total	**948**	**5**	**0**	**953**	**10**	**9**	**53**	**73**
1976 Total	**954**	**10**	**0**	**964**	**8**	**7**	**50**	**65**
1977 Total	**997**	**11**	**2**	**1,011**	**(s)**	**4**	**52**	**56**
1978 Total	**881**	**84**	**0**	**966**	**(s)**	**4**	**48**	**53**
1979 Total	**1,001**	**253**	**0**	**1,253**	**(s)**	**4**	**51**	**56**
1980 Total	**797**	**86**	**102**	**985**	**(s)**	**4**	**45**	**49**
1981 Total	**762**	**37**	**105**	**904**	**(s)**	**3**	**56**	**59**
1982 Total	**783**	**55**	**95**	**933**	**(s)**	**2**	**50**	**52**
1983 Total	**712**	**131**	**75**	**918**	**(s)**	**2**	**53**	**55**
1984 Total	**755**	**36**	**52**	**843**	**(s)**	**2**	**53**	**55**
1985 Total	**926**	**24**	**0**	**950**	**(s)**	**2**	**53**	**55**
1986 Total	**749**	**0**	**2**	**750**	**9**	**2**	**50**	**61**
1987 Total	**993**	**0**	**0**	**993**	**3**	**2**	**49**	**54**
1988 Total	**1,276**	**17**	**0**	**1,294**	**20**	**2**	**52**	**74**
1989 Total	**1,339**	**42**	**0**	**1,382**	**38**	**17**	**51**	**107**
1990 Total	**1,448**	**84**	**0**	**1,532**	**17**	**16**	**53**	**86**
1991 Total	**1,710**	**64**	**0**	**1,773**	**15**	**60**	**54**	**129**
1992 Total	**2,094**	**43**	**0**	**2,138**	**68**	**96**	**53**	**216**
1993 January	195	5	0	200	4	8	4	17
February	183	8	0	191	6	2	4	12
March	199	5	0	204	7	4	6	16
April	181	8	0	189	4	3	4	11
May	166	5	0	171	3	4	4	11
June	175	8	0	182	3	4	3	11
July	187	8	0	195	4	4	5	13
August	192	5	0	197	3	3	5	11
September	184	10	0	194	2	2	5	10
October	187	5	0	192	3	2	3	9
November	202	8	0	210	3	2	5	10
December	216	8	2	225	3	1	7	10
Total	**2,267**	**82**	**2**	**2,350**	**45**	**40**	**56**	**140**
1994 January	229	10	2	241	4	2	5	11
February	193	5	1	199	8	1	4	13
March	213	8	2	223	12	1	6	19
April	204	8	0	212	4	1	4	9
May	199	5	2	206	3	2	4	8
June	194	5	1	201	6	1	6	13
July	213	8	0	221	3	2	6	11
August	219	0	0	219	1	7	6	14
September	207	3	0	210	2	7	6	14
October	222	0	0	222	2	6	6	13
November	226	0	0	226	4	9	6	19
December	245	0	0	245	4	6	7	18
Total	**2,566**	**51**	**7**	**2,624**	**53**	**47**	**63**	**162**
1995 January	248	3	(s)	251	3	6	6	14
February	225	3	0	228	2	6	6	13
March	247	3	(s)	250	3	7	6	15
April	199	0	0	199	3	6	6	14
May	215	3	0	217	2	7	4	13
June	217	0	0	217	3	8	6	16
July	R222	0	0	R222	3	5	6	13
August	R222	3	0	R225	3	6	8	16
September	211	0	0	211	3	6	6	14
9-Month Total	**2,007**	**13**	**0**	**2,021**	**23**	**55**	**50**	**128**
1994 9-Month Total	**1,873**	**51**	**7**	**1,931**	**43**	**25**	**44**	**112**
1993 9-Month Total	**1,662**	**61**	**0**	**1,723**	**36**	**34**	**41**	**112**

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

[b] As liquefied natural gas.

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

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

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

Sources: • **1973-1987:** Energy Information Administration (EIA), Form FPC-14, "Annual Report for Importers and Exporters of Natural Gas." • **1988-1992:** EIA, *Natural Gas Monthly*, November 1995, Tables 5 and 6. • **1993 forward:** Estimated by EIA.

Table 4.4 Natural Gas Consumption by End-Use Sector

(Billion Cubic Feet)

	Lease and Plant Fuel	Pipeline Fuel[a]	Delivered to Consumers					Total Consumption
			Residential	Commercial[b]	Industrial	Electric Utilities	Total	
1973 Total	**1,496**	**728**	**4,879**	**2,597**	**8,689**	**3,660**	**19,825**	**22,049**
1974 Total	**1,477**	**669**	**4,786**	**2,556**	**8,292**	**3,443**	**19,077**	**21,223**
1975 Total	**1,396**	**583**	**4,924**	**2,508**	**6,968**	**3,158**	**17,558**	**19,538**
1976 Total	**1,634**	**548**	**5,051**	**2,668**	**6,964**	**3,081**	**17,764**	**19,946**
1977 Total	**1,659**	**533**	**4,821**	**2,501**	**6,815**	**3,191**	**17,329**	**19,521**
1978 Total	**1,648**	**530**	**4,903**	**2,601**	**6,757**	**3,188**	**17,449**	**19,627**
1979 Total	**1,499**	**601**	**4,965**	**2,786**	**6,899**	**3,491**	**18,141**	**20,241**
1980 Total	**1,026**	**635**	**4,752**	**2,611**	**7,172**	**3,682**	**18,216**	**19,877**
1981 Total	**928**	**642**	**4,546**	**2,520**	**7,128**	**3,640**	**17,834**	**19,404**
1982 Total	**1,109**	**596**	**4,633**	**2,606**	**5,831**	**3,226**	**16,295**	**18,001**
1983 Total	**978**	**490**	**4,381**	**2,433**	**5,643**	**2,911**	**15,367**	**16,835**
1984 Total	**1,077**	**529**	**4,555**	**2,524**	**6,154**	**3,111**	**16,345**	**17,951**
1985 Total	**966**	**504**	**4,433**	**2,432**	**5,901**	**3,044**	**15,811**	**17,281**
1986 Total	**923**	**485**	**4,314**	**2,318**	**5,579**	**2,602**	**14,814**	**16,221**
1987 Total	**1,149**	**519**	**4,315**	**2,430**	**5,953**	**2,844**	**15,542**	**17,211**
1988 Total	**1,096**	**614**	**4,630**	**2,670**	**6,383**	**2,636**	**16,320**	**18,030**
1989 Total	**1,070**	**629**	**4,781**	**2,718**	**6,816**	**2,787**	**17,102**	**18,801**
1990 Total	**1,236**	**660**	**4,391**	**2,623**	**7,018**	**2,787**	**16,820**	**18,716**
1991 Total	**1,129**	**601**	**4,556**	**2,729**	**7,231**	**2,789**	**17,305**	**19,035**
1992 Total	**1,171**	**588**	**4,690**	**2,803**	**7,527**	**2,766**	**17,786**	**19,544**
1993 January	102	72	831	416	708	164	2,119	2,292
February	92	68	768	403	681	162	2,015	2,175
March	101	67	703	371	710	194	1,978	2,146
April	96	52	450	254	659	174	1,537	1,685
May	98	39	232	152	614	167	1,166	1,303
June	94	39	164	123	618	255	1,160	1,293
July	96	41	130	119	631	334	1,214	1,352
August	97	42	120	111	641	357	1,230	1,369
September	95	39	142	120	627	258	1,146	1,280
October	101	45	255	169	689	235	1,347	1,493
November	102	55	457	260	689	208	1,615	1,771
December	107	66	705	362	719	174	1,961	2,134
Total	**1,180**	**624**	**4,957**	**2,863**	**7,986**	**2,682**	**18,488**	**20,293**
1994 January	107	78	959	479	733	170	2,341	2,526
February	96	71	843	437	699	149	2,128	2,295
March	106	63	635	352	694	186	1,867	2,036
April	102	50	395	239	648	204	1,485	1,638
May	105	43	248	168	628	216	1,261	1,409
June	101	43	155	135	641	319	1,250	1,393
July	104	43	128	133	616	362	1,240	1,386
August	103	43	123	126	635	382	1,266	1,413
September	100	42	131	122	668	296	1,217	1,359
October	103	45	222	166	673	264	1,325	1,472
November	105	53	393	244	689	231	1,558	1,716
December	108	64	641	342	723	208	1,914	2,085
Total	**1,238**	**638**	**4,874**	**2,943**	**8,047**	**2,987**	**18,851**	**20,727**
1995 January	108	74	818	428	780	199	2,225	2,407
February	97	68	753	410	713	169	2,045	2,210
March	106	65	603	340	739	245	1,927	2,098
April	103	55	420	254	735	229	1,638	1,797
May	106	49	264	190	711	258	1,422	1,577
June	104	43	160	133	666	297	1,256	1,403
July	R 104	46	134	132	685	405	1,356	R 1,506
August	103	48	116	138	687	467	1,408	1,559
8-Month Total	**832**	**448**	**3,269**	**2,023**	**5,717**	**2,267**	**13,277**	**14,556**
1994 8-Month Total	**823**	**434**	**3,487**	**2,069**	**5,294**	**1,988**	**12,838**	**14,095**
1993 8-Month Total	**775**	**419**	**3,399**	**1,950**	**5,263**	**1,807**	**12,419**	**13,614**

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

[b] Small quantities of natural gas delivered for use as vehicle fuel are included in the 1990-1993 annual totals but not in the monthly data.

R=Revised data.

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

Sources: • **1973-1986:** Energy Information Administration (EIA), *Natural Gas Annual 1991*, Table 97. • **1987-1992:** EIA, *Natural Gas Monthly*, November 1995, Table 3. • **1993 forward:** Estimated by EIA.

Table 4.5 Natural Gas in Underground Storage

(Volumes in Billion Cubic Feet)

	Natural Gas in Underground Storage, End of Period			Change in Working Gas from Same Period Previous Year		Storage Activity		
	Base Gas	Working Gas	Total[a]	Volume	Percent	Injections[b]	Withdrawals[b]	Net[c]
1973 Total	**2,864**	**2,034**	**4,898**	**305**	**17.6**	**1,974**	**1,533**	**442**
1974 Total	**2,912**	**2,050**	**4,962**	**16**	**.8**	**1,784**	**1,701**	**84**
1975 Total	**3,162**	**2,212**	**5,374**	**162**	**7.9**	**2,104**	**1,760**	**344**
1976 Total	**3,323**	**1,926**	**5,250**	**-286**	**-12.9**	**1,756**	**1,921**	**-165**
1977 Total	**3,391**	**2,475**	**5,866**	**549**	**28.5**	**2,307**	**1,750**	**557**
1978 Total	**3,473**	**2,547**	**6,020**	**72**	**2.9**	**2,278**	**2,158**	**120**
1979 Total	**3,553**	**2,753**	**6,306**	**207**	**8.1**	**2,295**	**2,047**	**248**
1980 Total	**3,642**	**2,655**	**6,297**	**-99**	**-3.6**	**1,896**	**1,910**	**-14**
1981 Total	**3,752**	**2,817**	**6,569**	**162**	**6.1**	**2,180**	**1,887**	**293**
1982 Total	**3,808**	**3,071**	**6,879**	**255**	**9.0**	**2,399**	**2,094**	**306**
1983 Total	**3,847**	**2,595**	**6,442**	**-476**	**-15.5**	**1,700**	**2,142**	**-442**
1984 Total	**3,830**	**2,876**	**6,706**	**281**	**10.8**	**2,252**	**2,064**	**188**
1985 Total	**3,842**	**2,607**	**6,448**	**-270**	**-9.4**	**2,128**	**2,359**	**-231**
1986 Total	**3,819**	**2,749**	**6,567**	**142**	**5.5**	**1,952**	**1,812**	**140**
1987 Total	**3,792**	**2,756**	**6,548**	**7**	**.3**	**1,887**	**1,881**	**6**
1988 Total	**3,800**	**2,850**	**6,650**	**94**	**3.4**	**2,174**	**2,244**	**-69**
1989 Total	**3,812**	**2,513**	**6,325**	**-337**	**-11.8**	**2,491**	**2,804**	**-313**
1990 Total	**3,868**	**3,068**	**6,936**	**555**	**22.1**	**2,433**	**1,934**	**499**
1991 Total	**3,954**	**2,824**	**6,778**	**-244**	**-8.0**	**2,608**	**2,689**	**-80**
1992 Total	**4,044**	**2,597**	**6,641**	**-227**	**-8.0**	**2,555**	**2,724**	**-168**
1993 January	4,259	1,827	6,085	-389	-17.6	37	592	-555
February	4,231	1,303	5,533	-535	-29.1	22	569	-547
March	4,204	1,029	5,233	-516	-33.4	79	383	-304
April	4,219	1,120	5,340	-453	-28.8	212	103	109
May	4,244	1,521	5,765	-327	-17.7	456	30	426
June	4,257	1,895	6,151	-258	-12.0	410	36	374
July	4,256	2,240	6,497	-219	-8.9	385	35	350
August	4,263	2,554	6,817	-207	-7.5	364	45	319
September	4,256	2,884	7,140	-160	-5.3	378	26	353
October	4,315	2,978	7,292	-245	-7.6	256	103	153
November	4,326	2,762	7,088	-292	-9.5	106	303	-197
December	4,327	2,322	6,649	-275	-10.6	54	492	-439
Total	**4,327**	**2,322**	**6,649**	**-275**	**-10.6**	**2,760**	**2,717**	**43**
1994 January	4,348	1,579	5,927	-247	-13.5	33	757	-724
February	4,337	1,091	5,428	-212	-16.3	49	543	-494
March	4,343	958	5,301	-71	-6.9	103	236	-133
April	4,345	1,172	5,517	52	4.6	280	68	212
May	4,352	1,554	5,906	33	2.2	417	25	392
June	4,352	1,896	6,248	2	.1	375	33	342
July	4,355	2,273	6,629	33	1.5	403	24	379
August	4,355	2,607	6,962	53	2.1	364	29	334
September	4,353	2,912	7,265	28	1.0	335	21	313
October	4,354	3,075	7,429	97	3.3	215	53	161
November	4,353	2,978	7,331	216	7.8	98	196	-98
December	4,360	2,606	6,966	284	12.2	54	422	-368
Total	**4,360**	**2,606**	**6,966**	**284**	**12.2**	**2,726**	**2,408**	**317**
1995 January	4,356	2,032	6,388	453	28.7	41	620	-579
February	4,359	1,531	5,890	440	40.4	42	543	-501
March	4,353	1,323	5,676	366	38.2	101	314	-214
April	4,351	1,371	5,723	199	17.0	168	121	47
May	4,384	1,661	6,045	106	6.8	351	31	320
June	4,390	2,011	6,401	114	6.0	R391	37	R353
July	4,323	R2,301	R6,624	R27	1.2	R344	R51	R292
August	4,322	R2,499	6,821	R-108	-4.1	R278	R83	R195
September	4,323	2,790	7,113	-122	-4.2	323	27	296

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

[b] For 1980-1993, data differ from those shown on Table 4.2, which includes liquefied natural gas storage for that period.

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

R=Revised data.

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

Sources: See end of section.

Natural Gas Notes

1. Nonhydrocarbon Gases Removed: Annual data on nonhydrocarbon gases removed from marketed production—carbon dioxide, helium, hydrogen sulfide, and nitrogen—are from the Energy Information Administration (EIA) *Natural Gas Annual (NGA) 1992*. Data are not available prior to 1980. Monthly data are reported by three States and computed for six States. Monthly data are preliminary until after publication of the EIA *NGA*. Differences between annual data published in the EIA *NGA* and the sum of the preliminary monthly data (January-December) are allocated proportionally to the months to create final monthly data. For further information on methods of estimating preliminary monthly data, see the EIA *Natural Gas Monthly (NGM)*.

2. Production.

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

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

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

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

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

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

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

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

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

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

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

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

Final data are from the EIA *NGA*. Monthly data are considered preliminary until after publication of the EIA *NGA*. For more detailed information on the methods of estimating preliminary and final monthly data, see the EIA *NGM*.

7. Balancing Item: The balancing item for natural gas represents the difference between the sum of the components of natural gas supply and the sum of components of natural gas disposition. The differences may be due to quantities lost or to the effects of data reporting problems. Reporting problems include differences due to the

net result of conversions of flow data metered at varying temperature and pressure bases and converted to a standard temperature and pressure base; the effect of variations in company accounting and billing practices; differences between billing cycle and calendar period time frames; and imbalances resulting from the merger of data reporting systems which vary in scope, format, definitions, and type of respondents.

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

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

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

The final monthly and annual storage and withdrawal data for 1980-1993 include both underground and liquefied natural gas (LNG) storage. Annual data on LNG additions and withdrawals are from Form EIA-176. Monthly data are estimated by computing the ratio of each month's underground storage additions and withdrawals to annual underground storage additions and withdrawals and applying the ratio to the annual LNG data.

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

1975	6,280	1985	8,087
1976	6,544	1986	8,145
1977	6,678	1987	8,124
1978	6,890	1988	8,124
1979	6,929	1989	8,124
1980	7,434	1990	8,125
1981	7,805	1991	7,993
1982	7,915	1992	7,932
1983	7,985	1993	7,989
1984	8,043	1994	8,043

Current capacity is 8,043 billion cubic feet.

Sources for Table 4.2

1973-1986

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

1987 forward

EIA, *Natural Gas Monthly*, November 1995, Table 2.

Sources for Table 4.5

Storage Activity

1973-1975: Energy Information Administration (EIA) *Natural Gas Annual 1990, Volume 2*, Table 9.
1976-1979: EIA, *Natural Gas Production and Consumption 1979*, Table 1.
1980-1986: EIA, *Natural Gas Annual 1990, Volume 2*, Table 11.
1987-1991: EIA, *Natural Gas Monthly*, February 1995, Table 13.
1992 forward: Estimated by EIA.

Other Data

1973 and 1974: American Gas Association (AGA), *Gas Facts, 1972 Data, Table 57, Gas Facts, 1973 Data*, Table 57, and *Gas Facts, 1974 Data*, Table 40.
1975 and 1976: Federal Energy Administration (FEA), Form FEA-G318-M-O, "Underground Gas Storage Report," and Federal Power Commission (FPC), Form FPC-8, "Underground Gas Storage Report."
1977 and 1978: EIA, Form FEA-G-318-M-O, "Underground Gas Storage Report," and Federal Energy Regulatory Commission (FERC), Form FERC-8, "Underground Gas Storage Report.
1979-1986: EIA, Form EIA-191, "Underground Gas Storage Report," and FERC, Form FERC-8, "Underground Gas Storage Report."
1987 forward: EIA, *Natural Gas Monthly*, November 1995, Table 13.

Section 5. Oil and Gas Resource Development

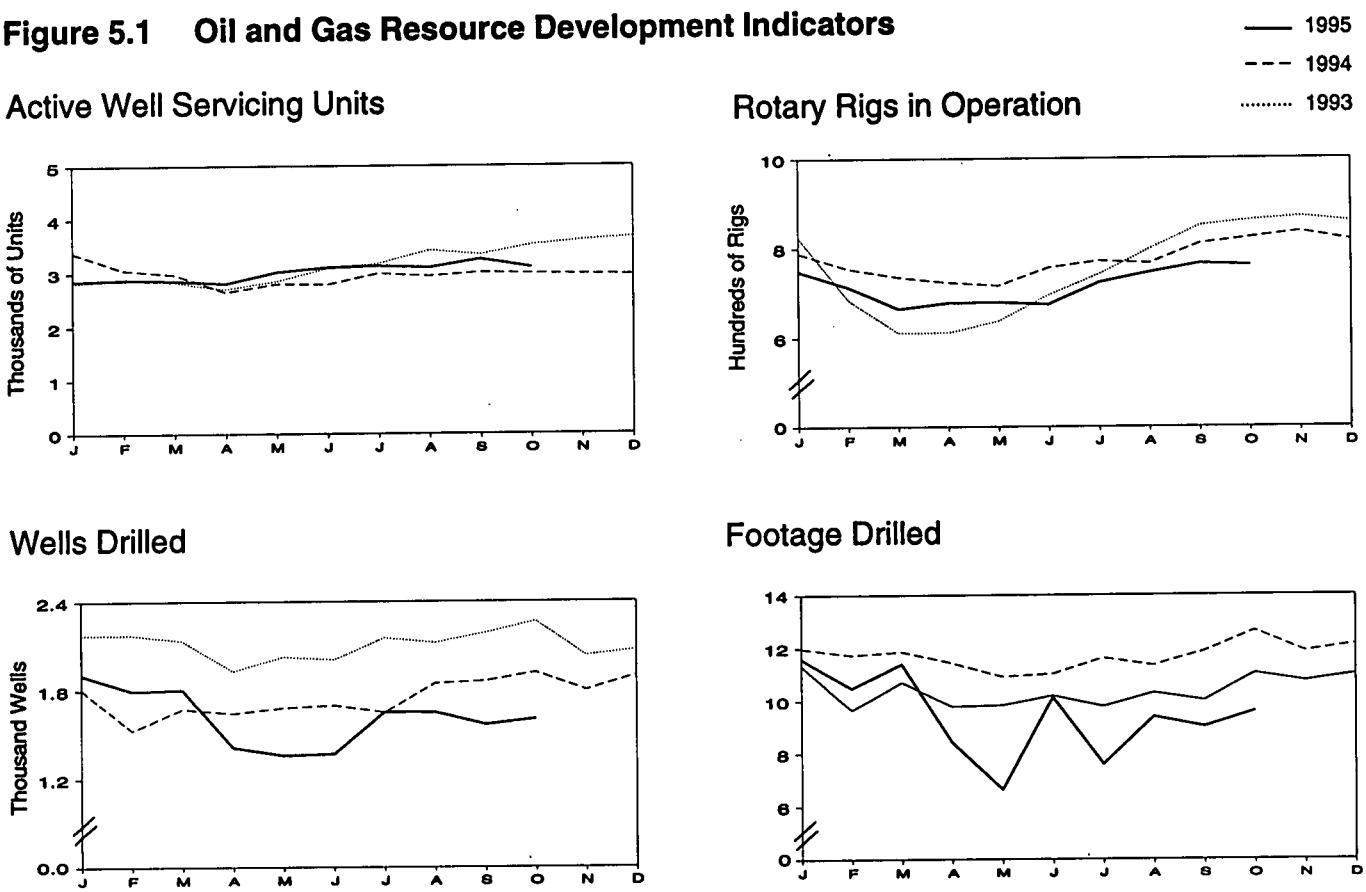
The October 1995 rotary rig count of 761, was 1 percent less than the count in the previous month and 7 percent lower than the count in October 1994. Of the total number of rigs in operation, 656 were onshore and 105 were offshore. The number of onshore rigs was down 9 percent from the number in October 1994, and the number of offshore rigs was up 6 percent.

Total footage drilled in October 1995 was 9.61 million feet, up 7 percent from footage drilled in September 1995 but down 13 percent from that drilled in October 1994.

The estimated number of exploratory and development oil and gas wells drilled during October 1995 was 1,269, 5 percent higher than the number drilled in September 1995 but 12 percent lower than the number drilled in October 1994. The estimated number of oil wells drilled was 619, and the estimated number of gas wells was 650, 1 percent higher and 22 percent lower, respectively, than their October 1994 levels. The estimated number of dry holes drilled in October 1995 was 334, down 5 percent from the number drilled in September 1995 and 29 percent lower than the number drilled in October 1994.

Seismic activity statistics are not available for this month. The Society of Exploration Geophysics, source of these data, is reorganizing its survey effort. An alternative source of seismic crew data is the *World Geophysical Report* by Petroleum Information Corporation.

Figure 5.1 Oil and Gas Resource Development Indicators



Sources: Tables 5.1 and 5.2.

Table 5.1 Oil and Gas Drilling Activity Measurements

	Crews Engaged in Seismic Exploration			Rotary Rigs in Operation[a]					Total Footage Drilled[c]	Active Well Servicing Units[d]
				By Site		By Type				
	Offshore	Onshore	Total	Offshore	Onshore	Oil	Gas	Total[b]		
	Monthly Average			Weekly Average					Thousand Feet	Number
1973 Average	23	227	250	84	1,110	NA	NA	1,194	139,427	NA
1974 Average	31	274	305	94	1,378	NA	NA	1,472	153,791	NA
1975 Average	30	254	284	106	1,554	NA	NA	1,660	181,046	NA
1976 Average	25	237	262	129	1,529	NA	NA	1,658	187,291	2,601
1977 Average	27	281	308	167	1,834	NA	NA	2,001	215,696	2,828
1978 Average	25	327	352	185	2,074	NA	NA	2,259	238,388	2,988
1979 Average	30	370	400	207	1,970	NA	NA	2,177	243,686	3,399
1980 Average	37	493	530	231	2,678	NA	NA	2,909	312,303	4,089
1981 Average	44	637	681	256	3,714	NA	NA	3,970	408,842	4,850
1982 Average	57	531	588	243	2,862	NA	NA	3,105	378,437	4,248
1983 Average	47	426	473	199	2,033	NA	NA	2,232	318,585	3,732
1984 Average	49	445	494	213	2,215	NA	NA	2,428	370,730	4,663
1985 Average	45	333	378	206	1,774	NA	NA	1,980	312,569	4,716
1986 Average	24	176	200	99	865	NA	NA	964	177,486	3,036
1987 Average	24	153	177	95	841	NA	NA	936	161,226	3,060
1988 Average	29	153	182	123	813	554	354	936	153,340	3,341
1989 Average	23	109	132	105	764	453	401	869	133,383	3,391
1990 Average	23	102	125	108	902	532	464	1,010	154,632	3,658
1991 Average	19	85	104	81	779	482	351	860	146,383	3,331
1992 Average	12	64	76	52	669	373	331	721	124,879	2,732
1993 January	17	55	72	72	752	335	454	824	11,972	2,807
February	15	63	78	69	615	311	334	684	11,720	2,899
March	16	55	71	62	549	315	268	611	11,850	2,829
April	14	63	77	69	543	320	270	612	11,424	2,703
May	15	64	79	73	564	323	294	637	10,915	2,848
June	17	65	82	83	612	350	327	695	11,020	3,087
July	15	65	80	85	656	368	360	741	11,601	3,178
August	16	66	82	87	710	397	390	797	R11,332	3,423
September	18	66	84	89	759	418	421	848	11,864	3,341
October	15	66	81	93	767	441	411	860	R12,647	3,519
November	17	65	82	99	769	453	408	868	11,862	3,604
December	18	66	84	103	754	425	426	857	12,137	3,662
Average	16	63	79	82	672	373	364	754	R140,344	3,158
1994 January	18	60	78	99	690	356	425	789	11,312	3,386
February	18	69	87	95	659	337	405	754	9,655	3,063
March	19	75	94	99	636	323	403	735	10,704	2,977
April	20	68	88	106	617	314	398	723	9,790	2,649
May	22	65	87	104	612	320	382	716	9,839	2,798
June	20	69	89	113	643	331	408	756	10,206	2,785
July	23	64	87	107	664	341	415	771	9,790	2,992
August	NA	NA	NA	95	671	320	433	766	R10,311	2,941
September	NA	NA	NA	97	712	325	471	809	R10,026	3,010
October	NA	NA	NA	99	723	342	467	822	R11,036	2,991
November	NA	NA	NA	106	729	361	460	835	10,739	2,977
December	NA	NA	NA	107	709	354	447	816	11,002	2,964
Average	NA	NA	NA	102	673	335	427	775	R124,410	2,961
1995 January	NA	NA	NA	106	642	325	411	748	11,567	2,855
February	NA	NA	NA	100	613	326	375	713	R10,482	2,877
March	NA	NA	NA	90	575	322	331	665	R11,394	2,862
April	NA	NA	NA	91	587	328	336	678	R8,437	2,806
May	NA	NA	NA	100	579	325	335	679	6,649	3,020
June	NA	NA	NA	96	578	301	352	674	10,141	3,107
July	NA	NA	NA	104	619	301	399	723	R7,598	3,133
August	NA	NA	NA	103	642	327	399	745	9,400	3,103
September	NA	NA	NA	103	662	333	413	765	9,021	R3,255
October	NA	NA	NA	105	656	332	414	761	9,608	3,105
10-Month Average	NA	NA	NA	99	615	322	376	714	94,297	3,012
1994 10-Month Average	NA	NA	NA	101	663	331	421	765	102,669	2,959
1993 10-Month Average	NA	NA	NA	79	653	359	353	732	116,345	3,063

[a] Monthly data are averages of 4- or 5-week reporting periods, not calendar months. Annual data are averages of 52- or 53-week reporting periods, not calendar years.
[b] Sum of oil, gas, and miscellaneous other rigs, which is not shown.
[c] Values shown are totals.
[d] See Glossary.
R=Revised data. NA=Not available.
Note: Geographic coverage is the 50 States and the District of Columbia.

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

Table 5.2 Oil and Gas Wells Drilled

(Number of Wells)

	Exploratory				Development				Total			
	Oil	Gas	Dry	Total	Oil	Gas	Dry	Total	Oil	Gas	Dry	Total
1973 Total	654	1,079	6,038	7,771	9,597	5,896	4,428	19,921	10,251	6,975	10,466	27,692
1974 Total	870	1,205	6,894	8,969	12,794	5,965	5,311	24,070	13,664	7,170	12,205	33,039
1975 Total	991	1,263	7,207	9,461	15,988	6,907	6,529	29,424	16,979	8,170	13,736	38,885
1976 Total	1,100	1,362	6,854	9,316	16,597	8,076	6,951	31,624	17,697	9,438	13,805	40,940
1977 Total	1,183	1,562	7,402	10,147	17,517	10,557	7,634	35,708	18,700	12,119	15,036	45,855
1978 Total	1,191	1,792	8,054	11,037	17,874	12,613	8,537	39,024	19,065	14,405	16,591	50,061
1979 Total	1,335	1,920	7,478	10,733	19,368	13,250	8,560	41,178	20,703	15,170	16,038	51,911
1980 Total	1,781	2,094	9,035	12,910	30,497	15,129	11,302	56,928	32,278	17,223	20,337	69,838
1981 Total	2,667	2,533	12,297	17,497	40,176	17,374	14,987	72,537	42,843	19,907	27,284	90,034
1982 Total	2,470	2,168	11,346	15,984	36,672	16,776	15,036	68,484	39,142	18,944	26,382	84,468
1983 Total	2,113	1,660	10,271	14,044	35,086	12,896	14,065	62,047	37,199	14,556	24,336	76,091
1984 Total	2,335	1,599	11,482	15,416	40,250	15,413	14,315	69,978	42,585	17,012	25,797	85,394
1985 Total	1,879	1,282	9,445	12,606	33,142	12,970	11,763	57,875	35,021	14,252	21,208	70,481
1986 Total	988	733	5,511	7,232	17,713	7,402	7,255	32,370	18,701	8,135	12,766	39,602
1987 Total	859	673	5,179	6,711	15,327	7,084	6,302	28,713	16,186	7,757	11,481	35,424
1988 Total	792	663	4,766	6,221	12,530	7,575	5,476	25,581	13,322	8,238	10,242	31,802
1989 Total	580	654	4,001	5,235	9,759	8,571	4,490	22,820	10,339	9,225	8,491	28,055
1990 Total	628	641	3,855	5,124	11,522	10,064	4,757	26,343	12,150	10,705	8,612	31,467
1991 Total	573	534	3,393	4,500	11,335	8,918	4,521	24,774	11,908	9,452	7,914	29,274
1992 Total	505	407	2,656	3,568	8,518	7,666	R3,965	R20,149	9,023	8,073	R6,621	R23,717
1993 January	47	41	162	250	662	973	290	1,925	709	1,014	452	2,175
February	33	48	177	258	615	971	330	1,916	648	1,019	507	2,174
March	28	R35	184	R247	677	R963	248	R1,888	705	998	432	2,135
April	51	30	218	299	615	676	338	1,629	666	706	556	1,928
May	44	43	175	262	636	705	421	1,762	680	748	596	2,024
June	46	35	225	306	658	689	352	1,699	704	724	577	2,005
July	37	35	264	336	716	611	490	1,817	753	646	754	2,153
August	30	43	237	310	769	R695	346	R1,810	799	R738	583	R2,120
September	R39	38	231	R308	R736	745	R397	R1,878	775	783	R628	R2,186
October	46	56	210	312	777	824	R353	R1,954	823	880	R563	R2,266
November	38	44	212	294	705	712	320	1,737	743	756	532	2,031
December	42	43	218	303	695	746	327	1,768	737	789	545	2,071
Total	R481	R491	2,513	R3,485	R8,261	R9,310	R4,212	R21,783	8,742	R9,801	R6,725	R25,268
1994 January	R51	51	196	R298	R616	647	243	R1,506	667	698	439	1,804
February	28	38	123	189	524	606	209	1,339	552	644	332	1,528
March	32	62	154	248	517	666	242	1,425	549	728	396	1,673
April	54	52	161	267	489	644	242	1,375	543	696	403	1,642
May	45	R46	177	R268	436	R652	325	R1,413	481	698	502	1,681
June	53	51	215	319	458	664	257	1,379	511	715	472	1,698
July	53	75	177	305	435	667	242	1,344	488	742	419	1,649
August	48	55	201	304	567	R695	279	R1,541	615	R750	480	R1,845
September	50	46	197	293	517	R781	270	R1,568	567	R827	467	R1,861
October	48	R61	182	R291	564	R777	286	R1,627	612	R838	468	R1,918
November	64	77	200	341	507	712	238	1,457	571	789	438	1,798
December	77	116	217	410	553	675	260	1,488	630	791	477	1,898
Total	R603	R730	2,200	R3,533	R6,183	R8,186	3,093	R17,462	6,786	R8,916	5,293	R20,995
1995 January	85	105	223	413	551	721	219	1,491	636	826	442	1,904
February	79	R82	R177	R338	537	R641	R280	R1,458	616	R723	R457	R1,796
March	56	R60	R160	R276	598	R726	R204	R1,528	654	R786	R364	R1,804
April	61	R49	154	R264	R499	R441	208	R1,148	R560	R490	362	R1,412
May	51	39	122	212	595	386	166	1,147	646	425	288	1,359
June	69	74	117	260	503	450	155	1,108	572	524	272	1,368
July	68	R34	216	R318	536	R518	280	R1,334	604	552	496	1,652
August	63	64	182	309	560	544	236	1,340	623	608	418	1,649
September	62	R44	147	R253	558	R549	206	R1,313	620	593	353	1,566
October	59	55	131	245	560	595	203	1,358	619	650	334	1,603
10-Month Total	653	606	1,629	2,888	5,497	5,571	2,157	13,225	6,150	6,177	3,786	16,113
1994 10-Month Total	462	537	1,783	2,782	5,123	6,799	2,595	14,517	5,585	7,336	4,378	17,299
1993 10-Month Total	401	404	2,083	2,888	6,861	7,852	3,565	18,278	7,262	8,256	5,648	21,166

R=Revised data.

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

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

Oil and Gas Resource Development Notes

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

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

Estimates for a given month are first published in the *MER* for that month. Revisions of the "oil," "gas," and "dry" components are made in the 6th, 12th, and 24th subsequent months, as newly reported data allow refinement of the estimates. Unscheduled revisions may also occur when the latest estimate differs by more than 15 percent during the first 5 months, more than 10 percent during the next 6 months, or more than 2 percent thereafter through 5 years. After 5 years, the reported API data are published in lieu of EIA-generated estimates. A comprehensive, one-time reestimation of Total Footage Drilled (Table 5.1) and Oil and Gas Wells Drilled (Table 5.2) from 1990 through March 1995 was published in the June 1995 *MER*.

Additional information about the EIA estimation methodology may be found in "Estimating Well Completions," the feature article published in the March 1985 *MER*.

Section 6. Coal

Coal production in September 1995 totaled 88 million short tons, 1 percent lower[6] than the rate in September 1994. Coal production for the first 9 months of 1995 totaled 772 million short tons, slightly lower than the 773 million short tons produced during the first 9 months of 1994.

Electric utility coal consumption in August 1995 totaled 84 million short tons, 11 percent higher than the consumption level in August 1994.

Electric utility coal stocks were 120 million short tons at the end of August 1995, up 11 percent from the 109 million short tons at the end of August 1994.

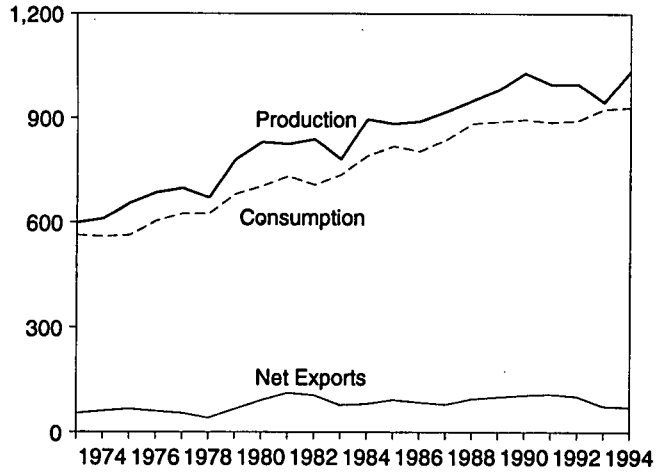
Coal exports in August 1995 totaled 8 million short tons, 13 percent higher than exports in August 1994. Coal imports in August 1995 totaled 547 thousand short tons, 25 percent lower than imports in August 1994.

[6]Percentage changes are based on unrounded data.

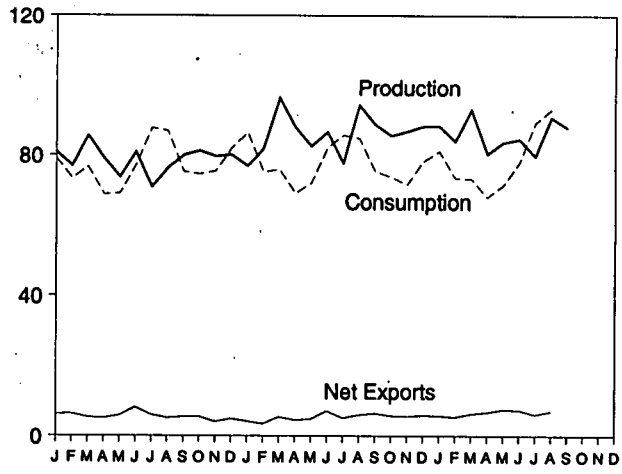
Figure 6.1 Coal

(Million Short Tons)

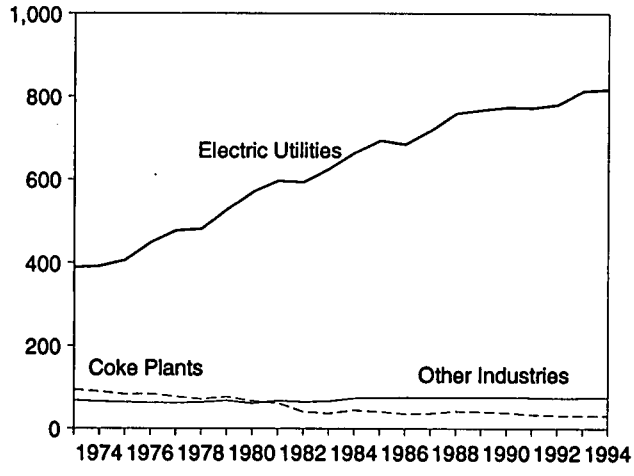
Overview, 1973-1994



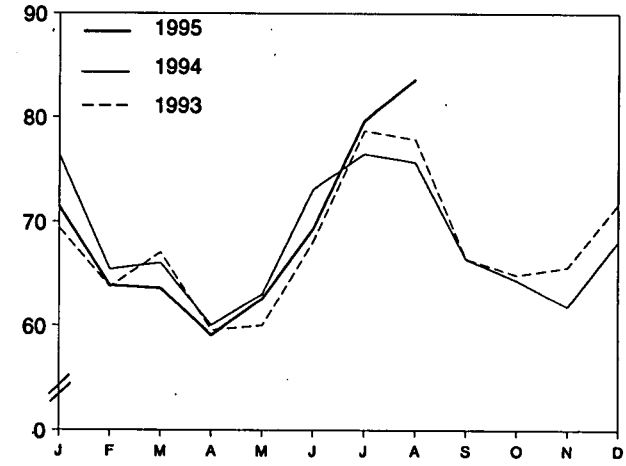
Overview, Monthly



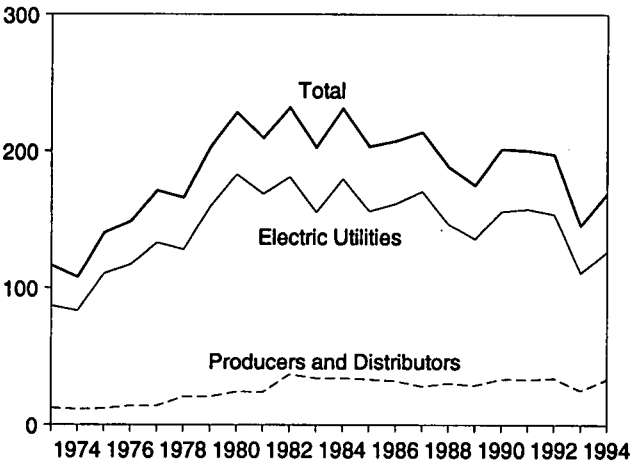
Consumption by Sector, 1973-1994



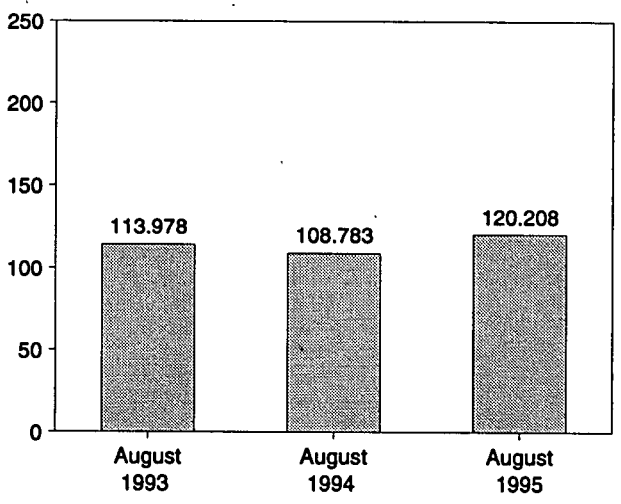
Consumption by Electric Utilities, Monthly



Stocks, End of Year, 1973-1994



Stocks at Electric Utilities, End of Month



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

Table 6.1 Coal Overview

(Thousand Short Tons)

	Production	Consumption	Imports[a]	Exports	Stocks[b]
1973 Total	598,568	562,584	127	53,587	116,865
1974 Total	610,023	558,402	2,080	60,661	107,957
1975 Total	654,641	562,640	940	66,309	140,158
1976 Total	684,913	603,790	1,203	60,021	148,659
1977 Total	697,205	625,291	1,647	54,312	171,323
1978 Total	670,164	625,225	2,953	40,714	166,246
1979 Total	781,134	680,524	2,059	66,042	202,472
1980 Total	829,700	702,730	1,194	91,742	228,407
1981 Total	823,775	732,627	1,043	112,541	209,423
1982 Total	838,112	706,911	742	106,277	232,038
1983 Total	782,091	736,672	1,271	77,772	202,584
1984 Total	895,921	791,296	1,286	81,483	231,300
1985 Total	883,638	818,049	1,952	92,680	203,367
1986 Total	890,315	804,231	2,212	85,518	207,319
1987 Total	918,762	836,941	1,747	79,607	213,780
1988 Total	950,265	883,642	2,134	95,023	188,831
1989 Total	980,729	889,699	2,851	100,815	175,087
1990 Total	1,029,076	895,480	2,699	105,804	201,629
1991 Total	995,984	887,621	3,390	108,969	200,682
1992 Total	997,545	892,421	3,803	102,516	197,685
1993 January	80,982	79,116	344	6,506	195,037
February	76,919	73,372	454	6,715	192,442
March	85,516	76,677	415	5,648	191,072
April	79,074	68,719	281	5,268	194,213
May	73,728	68,998	298	6,060	195,654
June	80,948	77,102	514	8,619	189,669
July	70,798	87,695	643	6,573	168,179
August	76,277	86,870	747	5,830	152,790
September	80,056	75,306	753	6,120	149,092
October	81,232	74,635	1,054	6,485	150,745
November	79,720	75,471	970	5,019	151,116
December	80,176	81,981	836	5,677	145,742
Total	945,424	925,944	7,309	74,519	145,742
1994 January	76,886	86,432	540	4,731	134,972
February	81,895	75,215	753	4,252	136,693
March	96,372	75,949	557	5,894	146,417
April	87,903	69,007	456	4,976	155,498
May	82,470	72,092	550	5,326	163,660
June	86,591	82,046	571	7,637	162,451
July	77,758	85,644	833	5,882	152,748
August	94,338	84,791	731	6,670	151,381
September	88,757	75,385	740	7,152	154,180
October	85,538	73,799	434	6,110	158,738
November	86,756	71,556	601	6,098	165,592
December	88,240	78,285	819	6,630	169,358
Total	1,033,504	930,201	7,584	71,359	169,358
1995 January	88,333	81,185	530	6,184	170,609
February	83,891	73,378	486	5,774	177,765
March	93,038	73,241	780	7,029	185,796
April	80,386	R 67,956	525	7,212	193,465
May	83,587	R 71,423	517	8,036	198,177
June	84,523	R 77,959	567	7,935	193,930
July	79,759	E 89,268	566	6,632	E 174,524
August	90,826	E 93,112	547	7,530	E 163,627
September	87,937	NA	NA	NA	NA
9-Month Total	772,280	NA	NA	NA	NA
1994 9-Month Total	772,970	706,561	5,731	52,521	154,180
1993 9-Month Total	704,298	693,857	4,448	57,338	149,092

[a] Includes Puerto Rico.

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

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

Notes: • Data through 1994 are final. Subsequent data are preliminary. • For methodology used to calculate production, consumption, and stocks, see Notes 1, 2, and 3 at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: See end of section.

Table 6.2 Coal Consumption by End-Use Sector

(Thousand Short Tons)

	Residential and Commercial	Industrial		Electric Utilities	Total
		Coke Plants	Other Industrial including Transportation		
1973 Total	**11,117**	**94,101**	**68,154**	**389,212**	**562,584**
1974 Total	**11,417**	**90,191**	**64,983**	**391,811**	**558,402**
1975 Total	**9,410**	**83,598**	**63,670**	**405,962**	**562,640**
1976 Total	**8,916**	**84,704**	**61,799**	**448,371**	**603,790**
1977 Total	**8,954**	**77,739**	**61,472**	**477,126**	**625,291**
1978 Total	**9,511**	**71,394**	**63,085**	**481,235**	**625,225**
1979 Total	**8,388**	**77,368**	**67,717**	**527,051**	**680,524**
1980 Total	**6,452**	**66,657**	**60,347**	**569,274**	**702,730**
1981 Total	**7,421**	**61,014**	**67,395**	**596,797**	**732,627**
1982 Total	**8,240**	**40,908**	**64,097**	**593,666**	**706,911**
1983 Total	**8,448**	**37,033**	**65,980**	**625,211**	**736,672**
1984 Total	**9,130**	**44,022**	**73,745**	**664,399**	**791,296**
1985 Total	**7,779**	**41,056**	**75,372**	**693,841**	**818,049**
1986 Total	**7,667**	**35,924**	**75,583**	**685,056**	**804,231**
1987 Total	**6,914**	**36,957**	**75,175**	**717,894**	**836,941**
1988 Total	**7,130**	**41,888**	**76,252**	**758,372**	**883,642**
1989 Total	**6,167**	**40,508**	**76,134**	**766,888**	**889,699**
1990 Total	**6,724**	**38,877**	**76,330**	**773,549**	**895,480**
1991 Total	**6,094**	**33,854**	**75,405**	**772,268**	**887,621**
1992 Total	**6,153**	**32,366**	**74,042**	**779,860**	**892,421**
1993 January	662	2,674	6,380	69,400	79,116
February	641	2,468	6,451	63,812	73,372
March	514	2,640	6,450	67,073	76,677
April	613	2,578	5,931	59,596	68,719
May	323	2,719	5,925	60,032	68,998
June	418	2,588	5,978	68,118	77,102
July	424	2,678	5,876	78,717	87,695
August	382	2,664	5,892	77,932	86,870
September	288	2,618	5,907	66,493	75,306
October	386	2,660	6,647	64,941	74,635
November	649	2,447	6,697	65,677	75,471
December	921	2,587	6,757	71,717	81,981
Total	**6,221**	**31,323**	**74,892**	**813,508**	**925,944**
1994 January	854	2,619	6,598	76,362	86,432
February	669	2,481	6,610	65,455	75,215
March	493	2,654	6,703	66,098	75,949
April	455	2,632	5,880	60,040	69,007
May	334	2,742	5,931	63,084	72,092
June	398	2,591	5,928	73,130	82,046
July	456	2,673	6,027	76,489	85,644
August	392	2,659	6,057	75,682	84,791
September	288	2,613	6,039	66,445	75,385
October	337	2,643	6,371	64,447	73,799
November	541	2,666	6,473	61,877	71,556
December	796	2,767	6,562	68,161	78,285
Total	**6,013**	**31,740**	**75,179**	**817,270**	**930,201**
1995 January	638	2,758	6,358	71,431	81,185
February	572	2,549	6,317	63,940	73,378
March	428	2,833	6,321	63,659	73,241
April	R449	R2,769	R5,629	59,110	R67,956
May	R291	R2,820	R5,656	62,656	R71,423
June	R292	R2,702	R5,623	69,342	R77,959
July	E969	E2,685	E5,926	79,688	E89,268
August	E864	E2,679	E5,911	83,658	E93,112
8-Month Total	**E4,503**	**E21,795**	**E47,741**	**553,484**	**E627,523**
1994 8-Month Total	**4,051**	**21,051**	**49,735**	**556,340**	**631,176**
1993 8-Month Total	**3,977**	**21,010**	**48,884**	**544,680**	**618,552**

R=Revised data. E=Estimate.

Notes: • For sector-specific reporting and estimating information, see Note 2 at end of section. • Data through 1994 are final. Subsequent data are preliminary. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: See end of section.

Table 6.3 Coal Stocks, End of Period

(Thousand Short Tons)

	Consumer				Producers and Distributors	Total[a]
	Coke Plants	Other Industrial	Electric Utilities	Total[a]		
1973 Year	6,998	10,370	86,967	104,335	12,530	116,865
1974 Year	6,209	6,605	83,509	96,323	11,634	107,957
1975 Year	8,797	8,529	110,724	128,050	12,108	140,158
1976 Year	9,902	7,100	117,436	134,438	14,221	148,659
1977 Year	12,816	11,063	133,219	157,098	14,225	171,323
1978 Year	8,278	9,048	128,225	145,551	20,695	166,246
1979 Year	10,155	11,777	159,714	181,646	20,826	202,472
1980 Year	9,067	11,951	183,010	204,028	24,379	228,407
1981 Year	6,475	9,906	168,893	185,274	24,149	209,423
1982 Year	4,642	9,479	181,132	195,254	36,784	232,038
1983 Year	4,346	8,710	155,598	168,654	33,931	202,584
1984 Year	6,166	11,317	179,727	197,211	34,090	231,300
1985 Year	3,420	10,438	156,376	170,234	33,133	203,367
1986 Year	2,992	10,429	161,806	175,226	32,093	207,319
1987 Year	3,884	10,777	170,797	185,459	28,321	213,780
1988 Year	3,137	8,768	146,507	158,413	30,418	188,831
1989 Year	2,864	7,363	135,860	146,087	29,000	175,087
1990 Year	3,329	8,716	156,166	168,210	33,418	201,629
1991 Year	2,773	7,061	157,876	167,711	32,971	200,682
1992 Year	2,597	6,965	154,130	163,692	33,993	197,685
1993 January	2,668	6,587	150,302	159,557	35,480	195,037
February	2,739	6,209	146,528	155,476	36,967	192,442
March	2,809	5,831	143,978	152,619	38,453	191,072
April	2,879	5,911	148,178	156,968	37,245	194,213
May	2,949	5,990	150,678	159,618	36,036	195,654
June	3,020	6,070	145,753	154,842	34,827	189,669
July	2,858	6,227	126,815	135,900	32,279	168,179
August	2,697	6,383	113,978	123,058	29,731	152,790
September	2,536	6,540	112,833	121,909	27,183	149,092
October	2,491	6,599	115,105	124,195	26,550	150,745
November	2,446	6,657	116,095	125,199	25,917	151,116
December	2,401	6,716	111,341	120,458	25,284	145,742
1994 January	2,345	6,097	98,294	106,736	28,236	134,972
February	2,289	5,478	97,739	105,506	31,188	136,693
March	2,232	4,859	105,186	112,278	34,139	146,417
April	2,408	5,087	113,324	120,819	34,679	155,498
May	2,583	5,315	120,543	128,442	35,218	163,660
June	2,759	5,543	118,391	126,694	35,758	162,451
July	2,741	5,764	109,419	117,925	34,823	152,748
August	2,724	5,985	108,783	117,492	33,889	151,381
September	2,706	6,206	112,314	121,225	32,955	154,180
October	2,690	6,332	116,673	125,695	33,043	158,738
November	2,673	6,459	123,328	132,461	33,131	165,592
December	2,657	6,585	126,897	136,139	33,219	169,358
1995 January	2,678	6,198	125,475	134,350	36,259	170,609
February	2,698	5,810	129,957	138,465	39,300	177,765
March	2,719	5,422	135,315	143,456	42,340	185,796
April	2,687	5,486	143,033	151,206	42,259	193,465
May	2,656	5,549	147,794	155,999	42,178	198,177
June	2,624	5,612	143,596	151,833	42,097	193,930
July	E 2,471	E 6,742	130,311	E 139,524	E 35,000	E 174,524
August	E 2,265	E 6,154	120,208	E 128,627	E 35,000	E 163,627

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

E=Estimate.

Notes: • For sector-specific reporting and estimating information, see Note 3 at end of section. • Data through 1994 are final. Subsequent data are preliminary. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: See end of section.

Coal Notes

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

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

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

- Residential and Commercial—Prior to 1980, monthly consumption estimates for the residential and commercial sector were derived by using reported data to modify baseline figures developed by the Bureau of Mines. From 1980-1987, monthly estimates were derived by proportioning reported quarterly data by using the ratios of monthly-to-quarterly consumption data in 1979, the last year in which monthly data were reported on Form EIA-2. During 1981 and 1982, the estimates were also modified to reflect air temperature degree-days. Quarterly consumption data were taken directly from reported data and were defined as distribution to the residential and commercial sector as reported by coal producers and distributors on Form EIA-6. Beginning in January 1988, monthly residential and commercial consumption estimates are derived from reported quarterly data by using monthly national average population weighted heating/cooling degree-days obtained from the National Oceanic and Atmospheric Administration. The monthly ratios are the monthly national sum of heating and cooling degree-days as a proportion of the quarterly national sum. Quarterly consumption data are taken directly from reported data.

- Coke Plants—Prior to 1980, monthly coke plant consumption data were taken directly from reported data. From 1980-1987, coke plant consumption estimates were derived by proportioning reported quarterly data by using the ratios of monthly-to-quarterly consumption data in 1979, the last year in which monthly data were reported. Beginning in January 1988, monthly coke plant consumption estimates are derived from the reported quarterly data by using monthly ratios of raw steel production data from the American Iron and Steel Institute. The ratios are the monthly raw steel production from open hearth and basic oxygen process furnaces as a proportion of the quarterly production from those kinds of furnaces.

- Other Industrial—Prior to 1978, monthly consumption data for the other industrial sector (all industrial users minus coke plants) were derived by using reported data to modify baseline consumption figures from the most recent Bureau of the Census Annual Survey of Manufactures or Census of Manufactures. For 1978 and 1979, monthly estimates were derived from data reported on Forms EIA-3 and EIA-6. From 1980-1987, monthly figures were estimated by proportioning quarterly data by using the ratios of monthly-to-quarterly consumption data in 1979, the last year in which monthly data were reported on Form EIA-3. Quarterly consumption data were derived by adding beginning stocks at manufacturing plants to current receipts and subtracting ending stocks at manufacturing plants. In this calculation, current receipts were the greater of either reported receipts from manufacturing plants (Form EIA-3) or reported shipments to the other industrial sector (Form EIA-6), thereby ensuring that agriculture, forestry, fishing, mining, and construction consumption data were included where appropriate. Starting in January 1988, monthly consumption for the other industrial sector is estimated from reported quarterly data by using ratios derived from industrial production indices published by the Board of

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

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

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

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

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

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

Sources for Table 6.1

Production

1973-September 1977—U.S. Department of the Interior, Bureau of Mines, *Minerals Yearbook* and *Minerals Industry Surveys.*
October 1977 forward—Energy Information Administration, *Weekly Coal Production.*

Consumption

Table 6.2.

Imports and Exports

U.S. Department of Commerce, Bureau of the Census, Monthly Reports IM-145 (Imports) and EM-545 (Exports).

Stocks

Table 6.3.

Sources for Table 6.2

Residential and Commercial

1973-1976—U.S. Department of the Interior (DOI), Bureau of Mines (BOM), *Minerals Yearbook.*
January-September 1977—DOI, BOM, Form 6-1400, "Monthly Coal Report, Retail Dealers-Upper Lake Docks."
October 1977-1979—Energy Information Administration (EIA), Form EIA-2, "Monthly Coal Report, Retail Dealers-Upper Lake Docks."
1980 forward—EIA, Form EIA-6, "Coal Distribution Report," quarterly.

Coke Plants

1973-September 1977—DOI, BOM, *Minerals Yearbook* and *Minerals Industry Surveys*
October 1977-1980—EIA, Form EIA-5/5A, "Coke and Coal Chemicals-Monthly/Annual Supplement."
1981-1984—EIA, Form EIA-5/5A, "Coke Plant Report-Quarterly/Annual Supplement."
1985 forward—EIA, Form EIA-5, "Coke Plant Report-Quarterly."

Other Industrial

1973-September 1977—DOI, BOM, *Minerals Yearbook*

and *Minerals Industry Surveys.*
October 1977-1979—EIA, Form EIA-3, "Monthly Coal Consumption Report-Manufacturing Plants."
1980 forward—EIA, Form EIA-3, "Quarterly Coal Consumption Report-Manufacturing Plants," and Form EIA-6, "Coal Distribution Report," quarterly.

Electric Utilities

1973-September 1977—DOI, BOM, *Minerals Yearbook* and *Minerals Industry Surveys.*
October 1977 forward—EIA, Form EIA-759 (formerly Form FPC-4), "Monthly Power Plant Report."

Sources for Table 6.3

Coke Plants

1973-September 1977—U.S. Department of the Interior (DOI), Bureau of Mines (BOM), *Minerals Yearbook* and *Minerals Industry Surveys.*
October 1977-1980—Energy Information Administration (EIA), Form EIA-5/5A, "Coke and Coal Chemicals-Monthly/Annual."
1981-1984—EIA, Form EIA 5/5A, "Coke Plant Report-Quarterly/Annual Supplement."
1985 forward—EIA, Form EIA-5, "Coke Plant Report-Quarterly."

Other Industrial

1973-September 1977—DOI, BOM, *Minerals Yearbook* and *Minerals Industry Surveys.*
October 1977-1979—EIA, Form EIA-3, "Monthly Coal Consumption Report-Manufacturing Plants."
1980 forward—EIA, Form EIA-3, "Quarterly Coal Consumption Report-Manufacturing Plants," and Form EIA-6, "Coal Distribution Report," quarterly.

Electric Utilities

1973-September 1977—DOI, BOM, *Minerals Yearbook* and *Minerals Industry Surveys.*
October 1977 forward—EIA, Form EI-A759 (formerly Form FPC-4), "Monthly Power Plant Report."

Producers and Distributors

EIA, Form EIA-6, "Coal Distribution Report," quarterly.

Section 7. Electricity

During August 1995, electric utilities generated 305 billion kilowatthours of electricity, 11 percent[7] more than in August 1994. Coal-fired generation totaled 167 billion kilowatthours, 10 percent above the August 1994 level. Nuclear generation totaled 62 billion kilowatthours, 3 percent above the level 1 year earlier. Hydroelectric generation totaled 23 billion kilowatthours, 20 percent higher than the August 1994 level. Natural gas-fired generation was 44 billion kilowatthours, 19 percent higher than the August 1994 level. Petroleum-fired generation totaled 8 billion kilowatthours, 37 percent above the level 1 year earlier.

Sales of electricity to all ultimate consumers in the United States in August 1995 were 298 billion kilowatthours, 10 percent higher than sales during August 1994. Sales to residential consumers during August 1995 were 115 billion kilowatthours, 19 percent higher than the level of sales during the previous year. Sales to industrial consumers totaled 90 billion kilowatthours in August 1995, 2 percent above the level 1 year earlier. Commercial sales were 84 billion kilowatthours, 8 percent higher than the level of commercial sales during the previous year. In August 1995, other sales totaled 9 billion kilowatthours, 4 percent higher than the August 1994 level.

Electric utility consumption of coal during August 1995 was 84 million short tons, 11 percent above consumption in August 1994. Petroleum consumption (excluding petroleum coke) during August 1995 was 14 million barrels, 43 percent above the level of consumption in August 1994. During August 1995, electric utilities consumed 467 billion cubic feet of natural gas, 22 percent above the August 1994 consumption level.

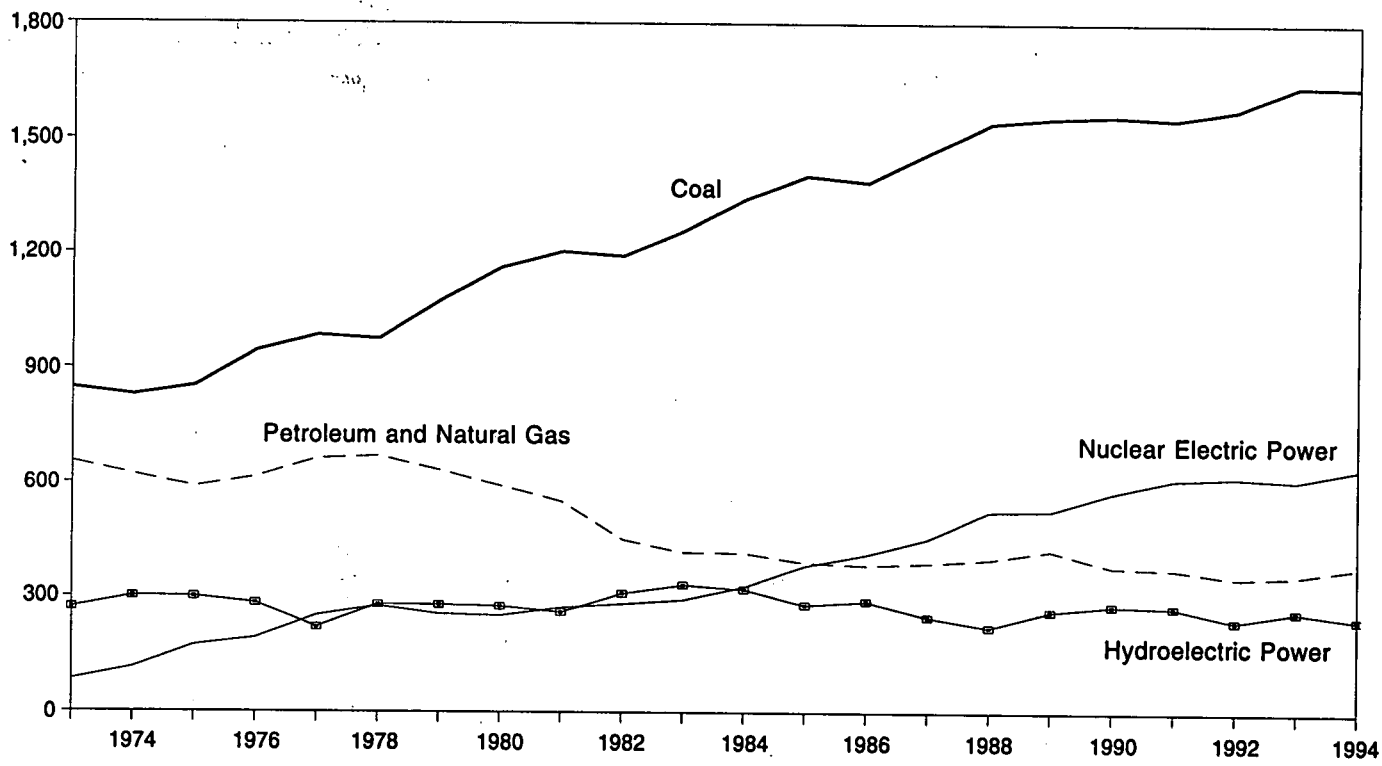
On August 31, 1995, electric utility stocks of all types of coal totaled 120 million short tons, 11 percent above the level on August 31, 1994. Stocks of petroleum (excluding petroleum coke) on August 31, 1995, totaled 53 million barrels, 15 percent below the level on August 31, 1994.

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

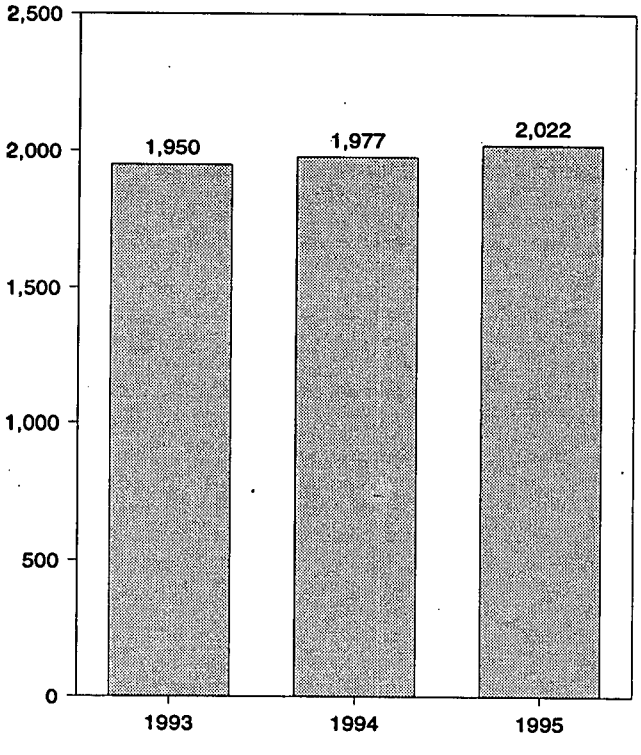
Figure 7.1 Electric Utility Net Generation of Electricity

(Billion Kilowatthours)

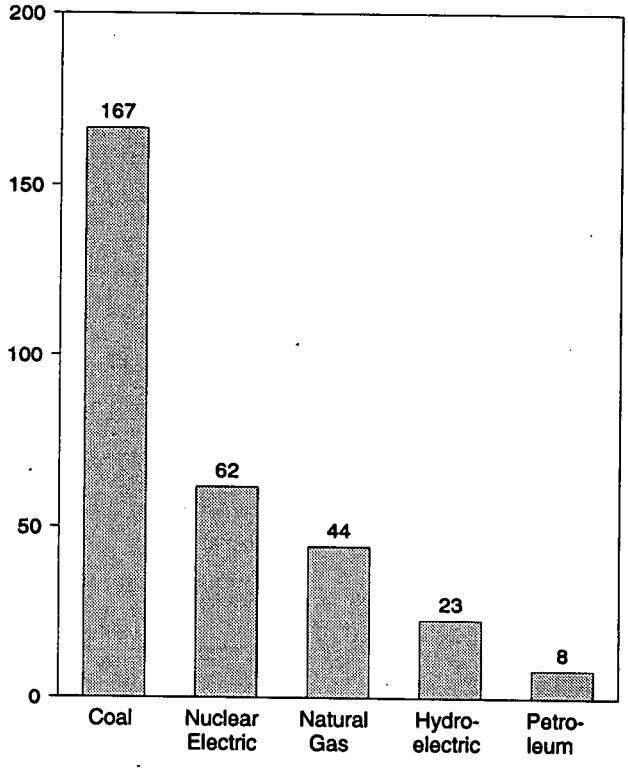
By Source, 1973-1994



Total, January-August



Total by Source, August 1995



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

Table 7.1 Electric Utility Net Generation of Electricity

(Million Kilowatthours)

	Coal	Natural Gas[a]	Petroleum[b]	Nuclear Electric Power	Hydro-Electric Power	Geothermal Energy	Other[c]	Total
1973 Total	847,651	340,858	314,343	83,479	272,083	1,966	328	1,860,710
1974 Total	828,433	320,065	300,931	113,976	301,032	2,453	251	1,867,140
1975 Total	852,786	299,778	289,095	172,505	300,047	3,246	191	1,917,649
1976 Total	944,391	294,624	319,988	191,104	283,707	3,616	266	2,037,696
1977 Total	985,219	305,505	358,179	250,883	220,475	3,582	481	2,124,323
1978 Total	975,742	305,391	365,060	276,403	280,419	2,978	338	2,206,331
1979 Total	1,075,037	329,485	303,525	255,155	279,783	3,889	498	2,247,372
1980 Total	1,161,562	346,240	245,994	251,116	276,021	5,073	433	2,286,439
1981 Total	1,203,203	345,777	206,421	272,674	260,684	5,686	368	2,294,812
1982 Total	1,192,004	305,260	146,797	282,773	309,213	4,843	321	2,241,211
1983 Total	1,259,424	274,098	144,499	293,677	332,130	6,075	381	2,310,285
1984 Total	1,341,681	297,394	119,808	327,634	321,150	7,741	898	2,416,304
1985 Total	1,402,128	291,946	100,202	383,691	281,149	9,325	1,399	2,469,841
1986 Total	1,385,831	248,508	136,585	414,038	290,844	10,308	1,195	2,487,310
1987 Total	1,463,781	272,621	118,493	455,270	249,695	10,775	1,491	2,572,127
1988 Total	1,540,653	252,801	148,900	526,973	222,940	10,300	1,684	2,704,250
1989 Total	1,553,661	266,598	158,318	529,355	265,063	9,342	1,968	2,784,304
1990 Total	1,559,606	264,089	117,017	576,862	279,926	8,581	2,070	2,808,151
1991 Total	1,551,167	264,172	111,463	612,565	275,519	8,087	2,050	2,825,023
1992 Total	1,575,895	263,872	88,916	618,776	239,559	8,104	2,096	2,797,219
1993 January	138,354	15,807	7,239	59,076	24,453	651	202	245,782
February	130,069	15,768	6,939	51,319	19,722	633	167	224,617
March	136,404	18,783	8,569	46,606	23,587	659	193	234,801
April	120,325	16,684	5,205	43,199	25,160	654	148	211,374
May	120,878	15,845	5,267	50,367	29,323	582	135	222,396
June	137,485	24,393	7,809	52,620	26,600	586	139	249,633
July	158,400	31,705	11,341	56,502	23,556	643	144	282,292
August	156,197	34,263	11,975	56,209	19,667	653	167	279,132
September	134,001	24,978	9,759	49,989	17,073	630	173	236,603
October	130,926	22,912	7,659	44,434	16,899	625	174	223,629
November	132,288	20,535	7,479	46,862	17,898	618	174	225,855
December	143,824	17,242	10,299	53,108	21,125	637	178	246,412
Total	1,639,151	258,915	99,539	610,291	265,063	7,571	1,994	2,882,525
1994 January	152,752	16,847	14,600	56,847	19,843	631	177	261,697
February	131,138	14,523	9,655	49,821	19,146	574	154	225,011
March	133,528	18,177	7,960	48,969	22,161	578	170	231,544
April	119,755	20,235	7,674	43,192	23,219	592	150	214,817
May	126,454	20,676	6,991	48,525	24,329	581	147	227,703
June	147,440	30,744	9,887	51,751	23,360	522	154	263,859
July	152,182	34,857	9,317	59,123	21,938	553	179	278,149
August	151,389	37,195	6,064	60,104	19,119	610	164	274,645
September	132,059	28,803	5,027	55,628	15,431	564	151	237,663
October	129,637	25,936	4,566	50,703	16,368	578	184	227,972
November	123,604	22,774	4,480	55,280	17,858	572	177	224,746
December	135,556	20,348	4,815	60,497	20,919	584	187	242,906
Total	1,635,493	291,115	91,039	640,440	243,693	6,941	1,992	2,910,712
1995 January	142,412	19,338	4,159	63,342	23,299	408	126	253,085
February	128,917	16,422	7,042	51,858	23,953	296	106	228,594
March	126,978	23,844	3,080	51,880	27,465	326	117	233,689
April	118,787	22,082	3,310	49,321	23,474	282	151	217,408
May	126,013	24,656	4,390	54,387	26,570	255	104	236,375
June	138,090	28,368	4,422	56,381	28,395	281	129	256,066
July	158,378	38,410	7,321	62,037	25,942	305	157	292,550
August	166,630	44,330	8,296	61,661	22,999	524	165	304,605
8-Month Total	1,106,206	217,451	42,021	450,866	202,098	2,677	1,054	2,022,372
1994 8-Month Total	1,114,638	193,254	72,150	418,332	173,117	4,642	1,294	1,977,426
1993 8-Month Total	1,098,112	173,248	64,343	415,898	192,068	5,061	1,295	1,950,025

[a] Includes supplemental gaseous fuel.

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

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

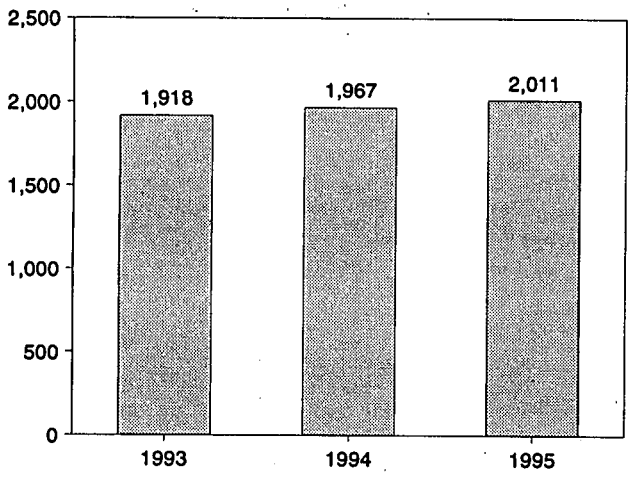
Notes: • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 States and the District of Columbia.

Sources: See end of section.

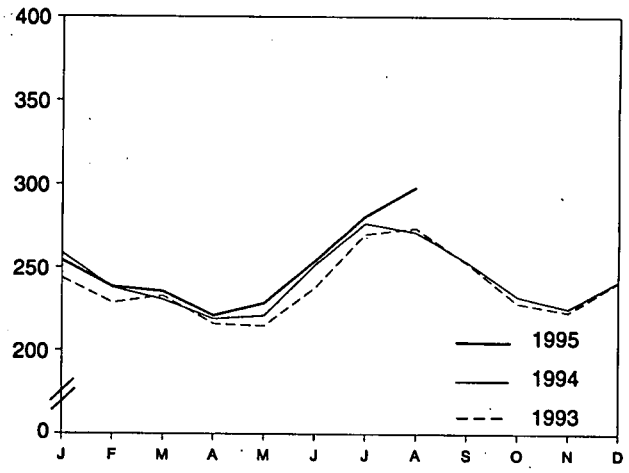
Figure 7.2 Electric Utility Retail Sales of Electricity

(Billion Kilowatthours)

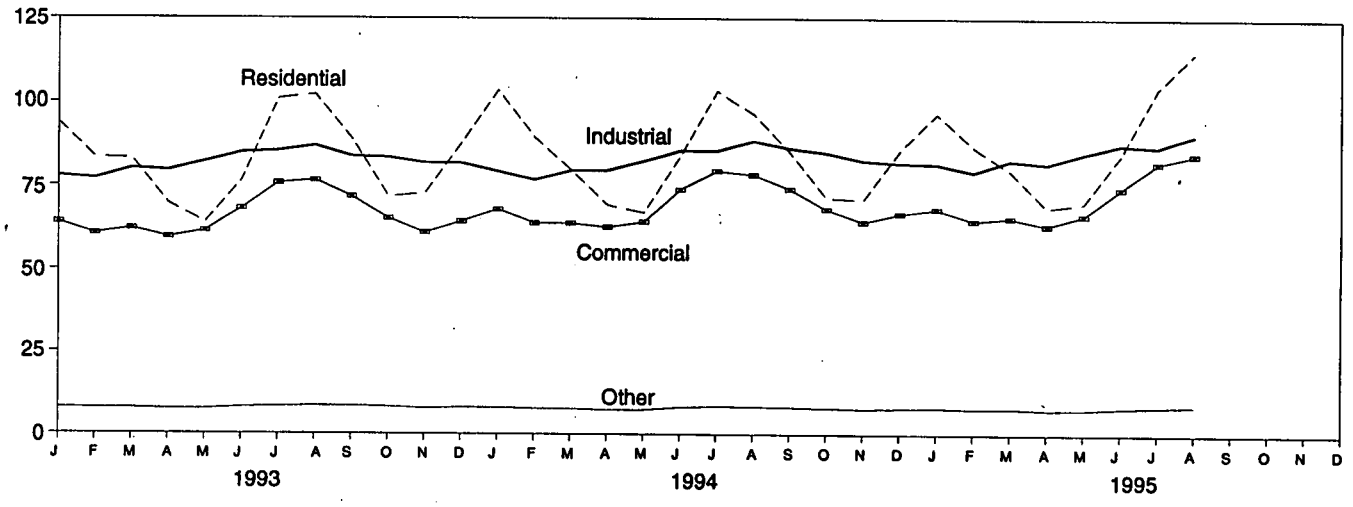
Total, January-August



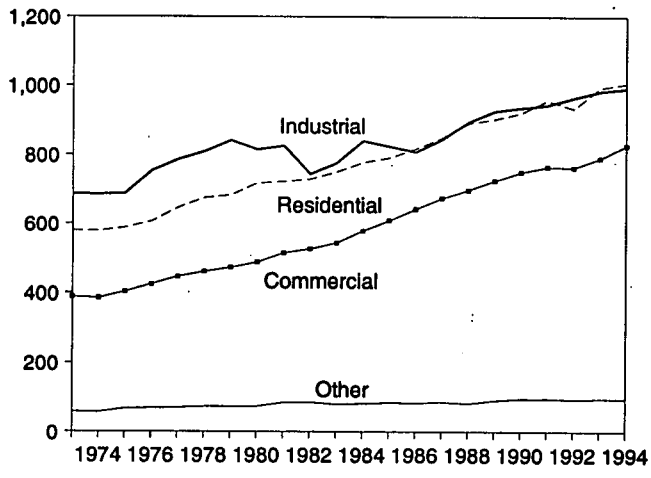
Total, Monthly



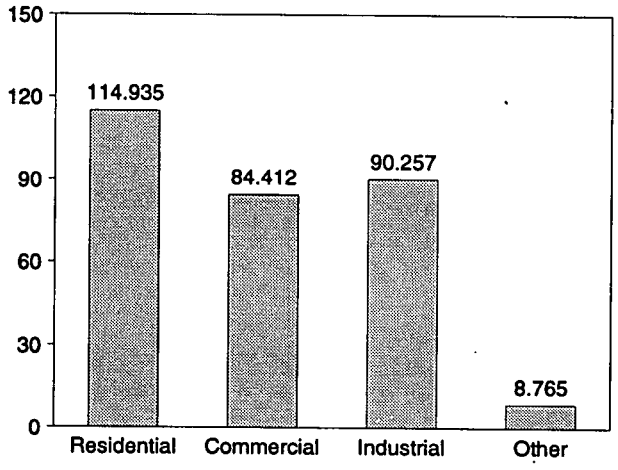
By Sector, Monthly



By Sector, 1973-1994



By Sector, August 1995



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

Table 7.2 Electric Utility Retail Sales of Electricity by End-Use Sector

(Million Kilowatthours)

	Residential		Commercial		Industrial		Other[a]		Total	
	Monthly Series[b]	Annual Series	Monthly Series[b]	Annual Series	Monthly Series[b]	Annual Series	Monthly Series[b]	Annual Series	Monthly Series[b]	Annual Series
1973 Total	579,231	NA	388,266	NA	686,085	NA	59,326	NA	1,712,909	NA
1974 Total	578,184	NA	384,826	NA	684,875	NA	58,039	NA	1,705,924	NA
1975 Total	588,140	NA	403,049	NA	687,680	NA	68,222	NA	1,747,091	NA
1976 Total	606,452	NA	425,094	NA	754,069	NA	69,631	NA	1,855,246	NA
1977 Total	645,239	NA	446,514	NA	786,037	NA	70,571	NA	1,948,361	NA
1978 Total	674,466	NA	461,163	NA	809,078	NA	73,215	NA	2,017,922	NA
1979 Total	682,819	NA	473,307	NA	841,903	NA	73,070	NA	2,071,099	NA
1980 Total	717,495	NA	488,155	NA	815,067	NA	73,732	NA	2,094,449	NA
1981 Total	722,265	NA	514,338	NA	825,743	NA	84,756	NA	2,147,103	NA
1982 Total	729,520	NA	526,397	NA	744,949	NA	85,575	NA	2,086,441	NA
1983 Total	750,948	NA	543,788	NA	775,999	NA	80,219	NA	2,150,955	NA
1984 Total	777,654	780,092	578,281	582,621	840,588	837,836	81,849	85,248	2,278,372	2,285,796
1985 Total	790,977	793,934	608,968	605,989	824,523	836,772	85,075	87,279	2,309,543	2,323,974
1986 Total	817,663	819,088	641,469	630,520	808,292	830,531	83,409	88,615	2,350,835	2,368,753
1987 Total	849,613	850,410	673,707	660,433	845,266	858,233	86,854	88,196	2,455,440	2,457,272
1988 Total	892,125	892,866	697,711	699,100	895,751	896,498	82,362	89,598	2,567,949	2,578,062
1989 Total	903,979	905,525	725,229	725,861	926,376	925,659	91,066	89,765	2,646,651	2,646,809
1990 Total	921,473	924,019	750,835	751,027	936,428	945,522	95,936	91,988	2,704,672	2,712,555
1991 Total	957,801	955,417	765,476	765,664	944,684	946,583	96,513	94,339	2,764,474	2,762,003
1992 Total	934,044	935,939	763,664	761,271	965,356	972,714	94,003	93,442	2,757,067	2,763,365
1993 January	93,740	–	63,998	–	77,832	–	7,930	–	243,499	–
February	83,376	–	60,609	–	77,008	–	7,752	–	228,745	–
March	83,023	–	62,169	–	80,028	–	7,734	–	232,954	–
April	69,669	–	59,479	–	79,465	–	7,511	–	216,123	–
May	63,852	–	61,430	–	82,090	–	7,496	–	214,868	–
June	76,555	–	68,107	–	84,887	–	8,088	–	237,637	–
July	101,026	–	75,706	–	85,371	–	8,351	–	270,454	–
August	102,181	–	76,533	–	86,814	–	8,551	–	274,080	–
September	88,884	–	71,734	–	83,804	–	8,525	–	252,948	–
October	71,731	–	65,180	–	83,443	–	8,271	–	228,625	–
November	72,687	–	61,023	–	81,738	–	7,795	–	223,244	–
December	87,656	–	64,257	–	81,632	–	8,059	–	241,604	–
Total	994,380	994,781	790,225	794,573	984,111	977,164	96,065	94,944	2,864,782	2,861,462
1994 January	103,502	–	67,928	–	79,231	–	8,046	–	258,706	–
February	89,432	–	63,815	–	76,758	–	7,746	–	237,750	–
March	79,708	–	63,786	–	79,494	–	7,676	–	230,664	–
April	69,318	–	62,713	–	79,556	–	7,389	–	218,976	–
May	66,991	–	64,174	–	82,362	–	7,403	–	220,931	–
June	83,868	–	73,936	–	85,553	–	8,214	–	251,570	–
July	103,327	–	79,470	–	85,517	–	8,530	–	276,844	–
August	96,486	–	78,336	–	88,378	–	8,441	–	271,641	–
September	85,122	–	74,120	–	86,257	–	8,220	–	253,720	–
October	71,511	–	68,107	–	84,979	–	8,004	–	232,602	–
November	70,901	–	64,226	–	82,534	–	7,728	–	225,388	–
December	85,637	–	66,698	–	81,803	–	7,929	–	242,068	–
Total	1,005,804	NA	827,309	NA	992,422	NA	95,326	NA	2,920,860	NA
1995 January	96,576	–	68,089	–	81,499	–	8,061	–	254,226	–
February	86,648	–	64,616	–	79,214	–	7,809	–	238,286	–
March	79,503	–	65,482	–	82,624	–	7,924	–	235,533	–
April	68,593	–	63,278	–	81,583	–	7,479	–	220,933	–
May	69,975	–	66,185	–	84,791	–	7,554	–	228,506	–
June	84,288	–	74,221	–	87,333	–	8,124	–	253,967	–
July	104,131	–	81,832	–	86,685	–	8,503	–	281,151	–
August	114,935	–	84,412	–	90,257	–	8,765	–	298,369	–
8-Month Total	704,649	–	568,116	–	673,986	–	64,221	–	2,010,971	–
1994 8-Month Total	692,632	–	554,158	–	656,848	–	63,444	–	1,967,082	–
1993 8-Month Total	673,422	–	528,031	–	653,494	–	63,415	–	1,918,361	–

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

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

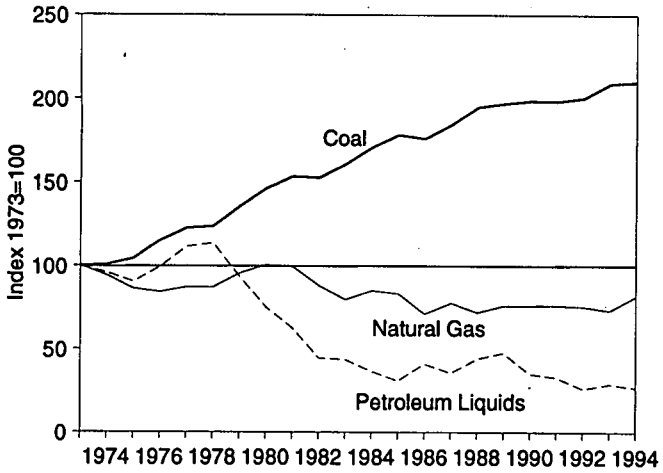
NA=Not available.

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

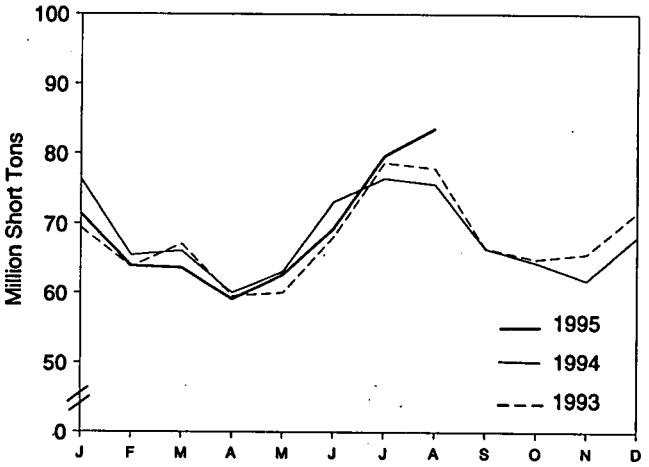
Sources: See end of section.

Figure 7.3 Electric Utility Consumption and Stocks of Fossil Fuels

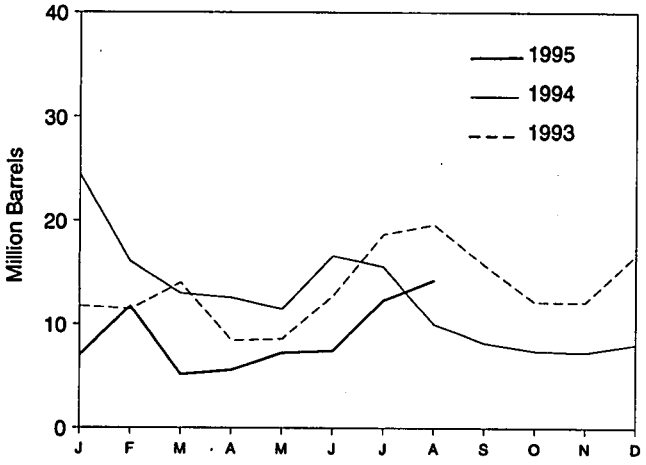
Fuels Consumed, 1973-1994



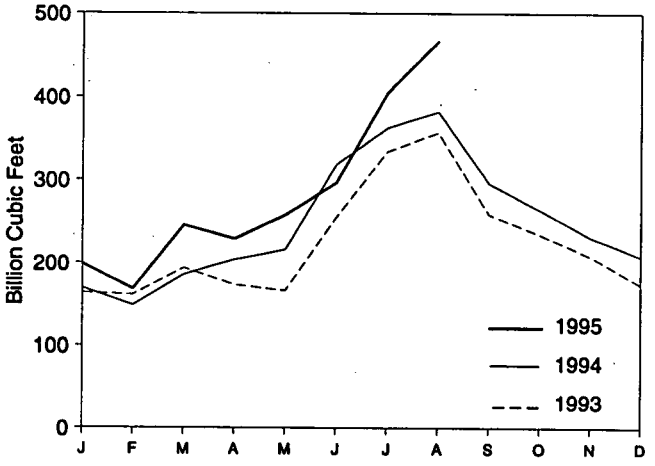
Coal Consumed, Monthly



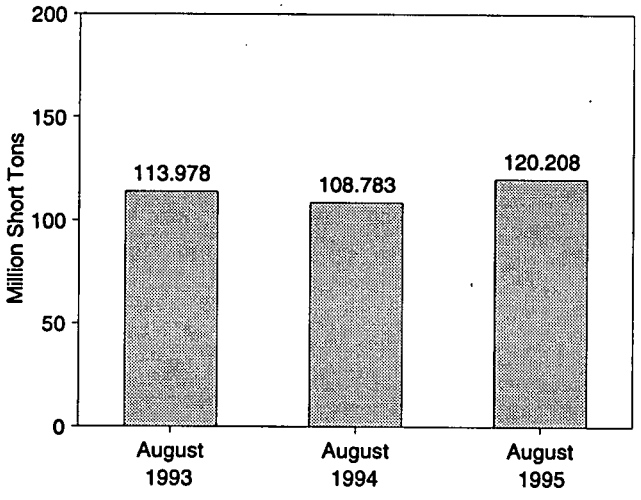
Petroleum Liquids Consumed, Monthly



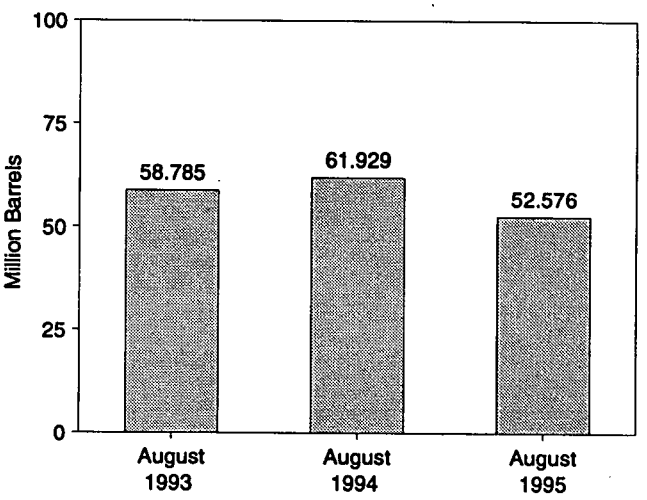
Natural Gas Consumed, Monthly



Coal Stocks, End of Month



Petroleum Liquids Stocks, End of Month



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

Table 7.3 Electric Utility Consumption of Fossil Fuels To Generate Electricity

	Coal				Petroleum						
					By Type of Petroleum		By Prime Mover Type				
	Anthracite	Bituminous Coal	Lignite	Total	Heavy Oil[a]	Light Oil[b]	Steam Plants	GT/IC[c]	Total Liquids	Petroleum Coke	Natural Gas[d]
	Thousand Short Tons				Thousand Barrels					Thousand Short Tons	Million Cubic Feet
1973 Total	**1,443**	**376,975**	**10,794**	**389,212**	**NA**	**NA**	**513,190**	**47,058**	**560,248**	**507**	**3,660,172**
1974 Total	**1,498**	**378,643**	**11,670**	**391,811**	**NA**	**NA**	**483,146**	**53,128**	**536,274**	**625**	**3,443,428**
1975 Total	**1,480**	**388,523**	**15,960**	**405,962**	**NA**	**NA**	**467,221**	**38,907**	**506,128**	**70**	**3,157,669**
1976 Total	**1,350**	**425,205**	**21,817**	**448,371**	**NA**	**NA**	**514,077**	**41,843**	**555,920**	**68**	**3,080,868**
1977 Total	**1,425**	**451,051**	**24,650**	**477,126**	**NA**	**NA**	**574,869**	**48,837**	**623,705**	**98**	**3,191,200**
1978 Total	**1,064**	**448,763**	**31,407**	**481,235**	**NA**	**NA**	**588,319**	**47,520**	**635,839**	**398**	**3,188,363**
1979 Total	**1,046**	**488,129**	**37,876**	**527,051**	**NA**	**NA**	**492,606**	**30,691**	**523,297**	**268**	**3,490,523**
1980 Total	**951**	**526,680**	**41,642**	**569,274**	**391,163**	**29,051**	**401,863**	**18,351**	**420,214**	**179**	**3,681,595**
1981 Total	**1,221**	**550,784**	**44,792**	**596,797**	**329,798**	**21,313**	**339,680**	**11,431**	**351,111**	**139**	**3,640,154**
1982 Total	**1,075**	**543,346**	**49,245**	**593,666**	**234,434**	**15,337**	**243,537**	**6,234**	**249,771**	**149**	**3,225,518**
1983 Total	**1,036**	**570,108**	**54,067**	**625,211**	**228,984**	**16,512**	**237,845**	**7,652**	**245,497**	**261**	**2,910,767**
1984 Total	**1,070**	**606,339**	**56,990**	**664,399**	**189,289**	**15,190**	**197,050**	**7,429**	**204,479**	**252**	**3,111,342**
1985 Total	**1,033**	**631,885**	**60,923**	**693,841**	**158,779**	**14,635**	**166,842**	**6,572**	**173,414**	**231**	**3,044,083**
1986 Total	**829**	**616,134**	**68,093**	**685,056**	**216,156**	**14,326**	**222,500**	**7,983**	**230,482**	**313**	**2,602,370**
1987 Total	**972**	**647,824**	**69,098**	**717,894**	**184,011**	**15,367**	**190,818**	**8,560**	**199,378**	**348**	**2,844,051**
1988 Total	**1,063**	**681,048**	**76,260**	**758,372**	**229,327**	**18,769**	**235,817**	**12,279**	**248,096**	**409**	**2,635,613**
1989 Total	**1,049**	**688,504**	**77,335**	**766,888**	**241,960**	**25,491**	**250,315**	**17,136**	**267,451**	**517**	**2,787,012**
1990 Total	**1,031**	**694,317**	**78,201**	**773,549**	**181,231**	**14,823**	**187,531**	**8,523**	**196,054**	**819**	**2,787,332**
1991 Total	**994**	**691,275**	**79,999**	**772,268**	**171,157**	**13,729**	**177,286**	**7,600**	**184,886**	**722**	**2,789,014**
1992 Total	**986**	**698,626**	**80,248**	**779,860**	**135,779**	**11,556**	**141,163**	**6,172**	**147,335**	**999**	**2,765,608**
1993 January	**79**	**61,703**	**7,617**	**69,400**	**10,804**	**1,013**	**11,265**	**552**	**11,817**	**92**	**164,374**
February	**88**	**57,293**	**6,431**	**63,812**	**10,569**	**935**	**11,002**	**503**	**11,504**	**81**	**161,928**
March	**101**	**60,969**	**6,002**	**67,073**	**12,784**	**1,277**	**13,313**	**748**	**14,061**	**87**	**193,811**
April	**84**	**53,755**	**5,757**	**59,596**	**7,629**	**819**	**8,094**	**354**	**8,448**	**79**	**173,834**
May	**81**	**53,380**	**6,570**	**60,032**	**7,722**	**868**	**8,198**	**392**	**8,590**	**86**	**166,840**
June	**80**	**61,090**	**6,948**	**68,118**	**11,756**	**1,033**	**12,249**	**540**	**12,789**	**98**	**254,823**
July	**73**	**71,134**	**7,511**	**78,717**	**16,896**	**1,817**	**17,406**	**1,306**	**18,713**	**125**	**334,101**
August	**67**	**70,241**	**7,624**	**77,932**	**18,044**	**1,566**	**18,509**	**1,101**	**19,610**	**112**	**357,027**
September	**60**	**60,143**	**6,289**	**66,493**	**14,730**	**1,031**	**15,111**	**650**	**15,761**	**129**	**258,325**
October	**64**	**59,125**	**5,752**	**64,941**	**11,318**	**897**	**11,771**	**444**	**12,216**	**112**	**234,544**
November	**81**	**59,385**	**6,211**	**65,677**	**11,339**	**886**	**11,781**	**444**	**12,225**	**101**	**208,335**
December	**92**	**64,516**	**7,109**	**71,717**	**15,694**	**1,027**	**16,206**	**514**	**16,720**	**120**	**174,498**
Total	**951**	**732,736**	**79,821**	**813,508**	**149,287**	**13,168**	**154,905**	**7,549**	**162,454**	**1,220**	**2,682,440**
1994 January	**82**	**69,022**	**7,257**	**76,362**	**20,743**	**3,709**	**21,602**	**2,850**	**24,452**	**112**	**169,983**
February	**98**	**58,843**	**6,514**	**65,455**	**14,697**	**1,397**	**15,242**	**851**	**16,094**	**88**	**149,156**
March	**100**	**59,696**	**6,303**	**66,098**	**12,026**	**1,014**	**12,532**	**509**	**13,040**	**93**	**185,924**
April	**88**	**54,246**	**5,706**	**60,040**	**11,585**	**1,041**	**12,043**	**583**	**12,626**	**71**	**203,934**
May	**89**	**56,482**	**6,513**	**63,084**	**10,346**	**1,164**	**10,839**	**670**	**11,510**	**59**	**216,022**
June	**87**	**66,162**	**6,881**	**73,130**	**14,775**	**1,871**	**15,369**	**1,278**	**16,646**	**71**	**318,528**
July	**98**	**69,428**	**6,964**	**76,489**	**14,062**	**1,530**	**14,576**	**1,016**	**15,592**	**76**	**362,444**
August	**92**	**68,713**	**6,877**	**75,682**	**8,992**	**1,021**	**9,453**	**559**	**10,013**	**65**	**382,114**
September	**93**	**59,873**	**6,479**	**66,445**	**7,346**	**870**	**7,759**	**456**	**8,216**	**62**	**295,956**
October	**107**	**58,011**	**6,330**	**64,447**	**6,634**	**811**	**7,057**	**387**	**7,444**	**62**	**263,958**
November	**90**	**55,542**	**6,245**	**61,877**	**6,432**	**863**	**6,910**	**385**	**7,294**	**59**	**231,242**
December	**100**	**61,084**	**6,977**	**68,161**	**7,029**	**1,048**	**7,523**	**554**	**8,077**	**57**	**207,886**
Total	**1,123**	**737,102**	**79,045**	**817,270**	**134,666**	**16,338**	**140,907**	**10,097**	**151,004**	**875**	**2,987,146**
1995 January	**75**	**64,253**	**7,103**	**71,431**	**5,955**	**1,057**	**6,380**	**632**	**7,012**	**64**	**198,657**
February	**82**	**58,129**	**5,729**	**63,940**	**10,457**	**1,316**	**10,883**	**890**	**11,773**	**61**	**168,710**
March	**83**	**57,885**	**5,692**	**63,659**	**4,276**	**907**	**4,730**	**452**	**5,183**	**52**	**245,166**
April	**77**	**53,889**	**5,144**	**59,110**	**4,673**	**918**	**5,111**	**480**	**5,591**	**36**	**228,820**
May	**86**	**57,068**	**5,502**	**62,656**	**6,121**	**1,133**	**6,648**	**607**	**7,254**	**59**	**257,592**
June	**72**	**62,422**	**6,849**	**69,342**	**6,262**	**1,194**	**6,828**	**628**	**7,456**	**68**	**296,692**
July	**67**	**72,082**	**7,539**	**79,688**	**10,507**	**1,884**	**10,949**	**1,441**	**12,390**	**57**	**404,725**
August	**79**	**76,043**	**7,536**	**83,658**	**11,446**	**2,853**	**11,934**	**2,365**	**14,299**	**80**	**466,821**
8-Month Total	**619**	**501,771**	**51,094**	**553,484**	**59,697**	**11,262**	**63,464**	**7,496**	**70,959**	**477**	**2,267,183**
1994 8-Month Total	**733**	**502,592**	**53,015**	**556,340**	**107,226**	**12,747**	**111,657**	**8,316**	**119,973**	**635**	**1,988,105**
1993 8-Month Total	**653**	**489,566**	**54,461**	**544,680**	**96,205**	**9,327**	**100,035**	**5,497**	**105,533**	**759**	**1,806,738**

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

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

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

	Coal				Petroleum					
					By Type of Petroleum		By Prime Mover Type			
	Anthracite	Bituminous Coal	Lignite	Total	Heavy Oil[a]	Light Oil[b]	Steam Plants	GT/IC[c]	Total Liquids	Petroleum Coke
	Thousand Short Tons				Thousand Barrels					Thousand Short Tons
1973 Total	1,066	84,941	961	86,967	NA	NA	79,121	10,095	89,216	312
1974 Total	930	81,712	867	83,509	NA	NA	97,718	15,199	112,917	35
1975 Total	982	107,927	1,815	110,724	NA	NA	108,825	16,432	125,257	31
1976 Total	1,000	114,130	2,306	117,436	NA	NA	106,993	14,703	121,696	32
1977 Total	2,321	128,210	2,688	133,219	NA	NA	124,750	19,281	144,031	44
1978 Total	2,178	123,020	3,027	128,225	NA	NA	102,402	16,386	118,788	198
1979 Total	3,274	152,981	3,459	159,714	NA	NA	111,121	20,301	131,422	183
1980 Total	4,741	174,154	4,115	183,010	105,351	30,023	117,227	18,147	135,374	52
1981 Total	5,537	158,258	5,098	168,893	102,042	26,094	112,380	15,756	128,136	42
1982 Total	6,080	170,480	4,573	181,132	95,515	23,369	105,287	13,597	118,884	41
1983 Total	6,507	145,250	3,841	155,598	70,573	18,801	78,285	11,090	89,375	55
1984 Total	6,710	167,118	5,899	179,727	68,503	19,116	76,836	10,784	87,619	50
1985 Total	7,189	142,144	7,043	156,376	57,304	16,386	64,704	8,985	73,689	49
1986 Total	7,099	148,665	6,042	161,806	56,841	16,269	64,258	8,853	73,111	40
1987 Total	6,940	156,670	7,187	170,797	55,069	15,759	61,705	9,123	70,827	51
1988 Total	6,561	133,434	6,512	146,507	54,187	15,099	60,311	8,974	69,285	86
1989 Total	6,403	122,967	6,490	135,860	47,446	13,824	53,309	7,962	61,270	105
1990 Total	6,499	142,650	7,016	156,166	67,030	16,471	73,306	10,195	83,501	94
1991 Total	6,513	145,367	5,996	157,876	58,636	16,357	65,032	9,961	74,993	70
1992 Total	6,215	142,156	5,759	154,130	56,135	15,714	62,374	9,475	71,849	67
1993 January	6,166	138,615	5,521	150,302	53,781	15,840	60,193	9,428	69,620	65
February	6,107	135,063	5,357	146,528	50,005	15,131	56,303	8,833	65,136	60
March	6,036	132,183	5,758	143,978	45,313	14,914	51,528	8,698	60,227	66
April	5,802	136,199	6,177	148,178	47,356	14,856	53,475	8,736	62,211	77
May	5,773	138,668	6,238	150,678	50,422	14,669	56,495	8,596	65,091	82
June	5,766	133,977	6,009	145,753	49,294	14,936	55,604	8,626	64,230	92
July	5,755	115,383	5,677	126,815	47,401	14,618	53,639	8,380	62,019	90
August	5,745	102,582	5,651	113,978	43,943	14,842	50,223	8,562	58,785	99
September	5,735	100,951	6,147	112,833	45,913	14,774	52,071	8,617	60,687	62
October	5,718	102,700	6,687	115,105	46,298	14,822	52,385	8,735	61,120	69
November	5,693	103,447	6,955	116,095	46,603	14,878	52,812	8,668	61,481	84
December	5,639	98,560	7,142	111,341	46,769	15,674	53,360	9,083	62,443	89
1994 January	5,576	86,043	6,676	98,294	42,781	15,127	49,922	7,986	57,908	83
February	5,496	85,523	6,720	97,739	44,764	15,289	51,209	8,843	60,053	73
March	5,420	92,333	7,433	105,186	45,750	15,024	51,950	8,824	60,774	89
April	5,360	100,161	7,803	113,324	44,221	14,937	50,528	8,630	59,158	103
May	5,309	107,716	7,518	120,543	46,104	15,170	52,623	8,651	61,274	78
June	5,275	105,668	7,449	118,391	44,719	15,541	51,361	8,898	60,259	63
July	5,214	96,502	7,704	109,419	44,259	15,323	50,654	8,928	59,582	37
August	5,173	95,932	7,679	108,783	46,420	15,509	52,643	9,286	61,929	25
September	5,133	99,793	7,388	112,314	47,111	15,586	53,261	9,437	62,697	35
October	5,080	104,432	7,161	116,673	45,971	15,930	52,182	9,720	61,902	33
November	4,903	110,569	7,856	123,328	46,475	16,128	52,730	9,873	62,603	51
December	4,879	115,325	6,693	126,897	46,342	16,644	52,814	10,172	62,986	69
1995 January	4,849	114,316	6,309	125,475	45,428	16,615	51,758	10,285	62,043	75
February	4,791	118,880	6,286	129,957	39,922	16,005	46,101	9,826	55,927	95
March	4,748	124,452	6,115	135,315	41,032	15,608	47,073	9,568	56,641	128
April	4,711	132,108	6,215	143,033	38,859	15,447	44,832	9,474	54,306	162
May	4,656	136,770	6,369	147,794	38,280	15,560	44,284	9,556	53,840	173
June	4,634	132,778	6,184	143,596	39,810	15,793	45,749	9,854	55,603	144
July	4,608	119,991	5,712	130,311	37,561	15,613	43,824	9,351	53,175	117
August	4,591	110,183	5,435	120,208	37,122	15,454	43,440	9,135	52,576	98

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

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

Sources for Table 7.1

1973-September 1977—Federal Power Commission Form FPC-4, "Monthly Power Plant Report."
October 1977-1979—Federal Energy Regulatory Commission (FERC), Form FPC-4, "Monthly Power Plant Report."
1980—Energy Information Administration (EIA), *Electric Power Monthly,* March 1991, Table 4, and (for geothermal energy and other) FERC, Form FPC-4, "Monthly Power Plant Report."
1981—EIA, *Electric Power Monthly,* March 1992, Table 4, and (for geothermal energy and other) FERC, Form FPC-4, "Monthly Power Plant Report."
1982—EIA, *Electric Power Monthly,* March 1993, Table 4, and (for geothermal energy and other) EIA, Form EIA-759, "Monthly Power Plant Report."
1983-1992—EIA, *Electric Power Monthly,* March 1994, Table 4, and (for geothermal energy and other) EIA, Form EIA-759, "Monthly Power Plant Report."
1993 and 1994—EIA, *Electric Power Monthly,* May 1995, Tables 4 and 5.
1995—EIA, Form EIA-759, "Monthly Power Plant Report."

Sources for Table 7.2

1973-September 1977—Federal Power Commission, Form FPC-5, "Monthly Statement of Electric Operating Revenue and Income."
October 1977-1979—Federal Energy Regulatory Commission, Form FERC-5, "Electric Operating Revenue and Income."
1980—Energy Information Administration (EIA), *Electric Power Monthly,* March 1991, Table 51.
1981—EIA, *Electric Power Monthly,* March 1992, Table 51.
1982—EIA, *Electric Power Monthly,* March 1993, Table 51.
1983 and 1992 monthly data—EIA, *Electric Power Monthly,* March 1994, Table 51.
1984 forward (except 1992 monthly data)—EIA, *Electric Power Monthly,* November 1995, Table 52.

Sources for Table 7.3

Prime Mover Type Data

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

All Other Data

1973-September 1977—FPC, Form FPC-4, "Monthly Power Plant Report."
October 1977-1979—FERC, Form FPC-4, "Monthly Power Plant Report."
1980—EIA, Electric Power Monthly, March 1991, Table 17.
1981—EIA, *Electric Power Monthly,* March 1992, Table 17.
1982—EIA, *Electric Power Monthly,* March 1993, Table 17.
1983—EIA, *Electric Power Monthly,* March 1994, Table 18.
1984—EIA, *Electric Power Monthly,* March 1995, Table 18.
1985 forward—EIA, *Electric Power Monthly,* November 1995, Table 18.

Sources for Table 7.4

Prime Mover Type Data

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

All Other Data

1973-September 1977—FPC, Form FPC-4, "Monthly Power Plant Report."
October 1977-1979—FERC, Form FPC-4 "Monthly Power Plant Report."
1980—EIA, *Electric Power Monthly,* March 1991, Table 29.
1981—EIA, *Electric Power Monthly,* March 1992, Table 29.
1982—EIA, *Electric Power Monthly,* March 1993, Table 29.
1983 and 1992 monthly data—EIA, *Electric Power Monthly,* March 1994, Table 29.
1984 forward (except 1992 monthly data)—EIA, *Electric Power Monthly,* November 1995, Table 29.

Section 8. Nuclear Energy

In August 1995, U.S. nuclear generating units produced a total of 62 net terawatthours (billion kilowatthours) of electricity, 3 percent[8] more than in August 1994. Nuclear units generated at an average capacity factor of 83.6 percent, 2 percentage points higher than in August 1994. Nuclear power supplied 20.2 percent of the total electric utility-generated electricity in August 1995, compared with 21.9 percent in August 1994.

No low- or full power licenses for nuclear power plants were issued by the Nuclear Regulatory Commission during August 1995.

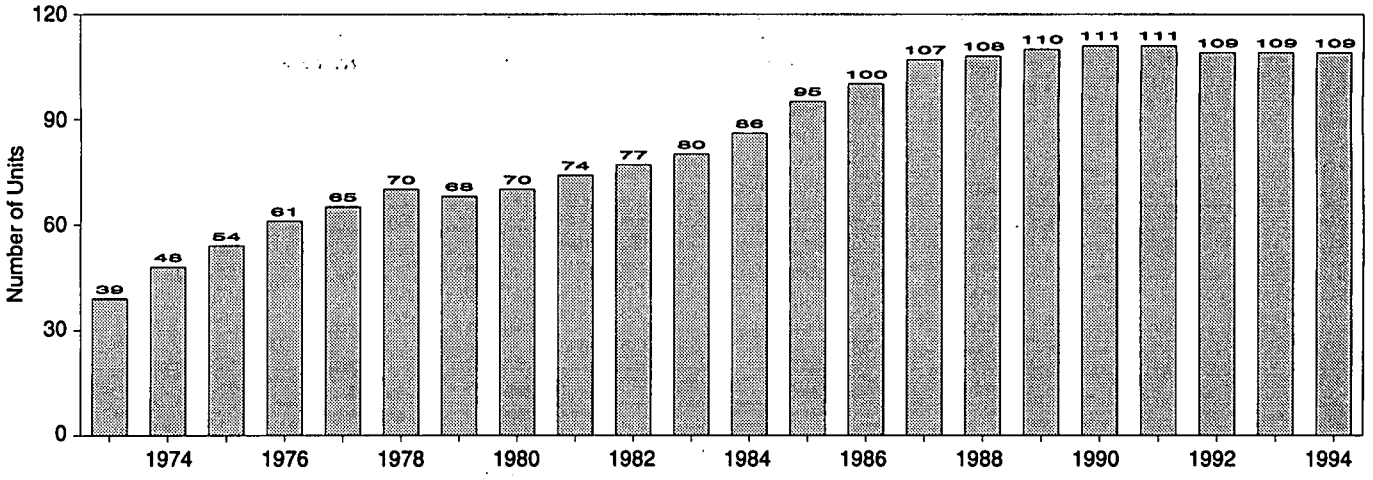
On August 31, 1995, there were 109 operable nuclear generating units in the United States, with a collective net summer capability of 99.1 million kilowatts of electricity. Of the 109 operable units, 11 units generated at less than 25 percent of capacity because of maintenance, refueling, or repair outage, and 9 of the 11 units generated no electricity during the month including two operable units, Browns Ferry 1 and 3, that have been shut down since March 1985.

As of August 31, 1995, there were 116 domestic nuclear generating units in all stages of construction and operation. Seven units possess construction permits, although construction for 6 of the 7 units was canceled or halted. The aggregate net design capacity of the 109 operable units was 101.1 million kilowatts, and the design capacity of the 7 units with construction permits was 8.5 million kilowatts, for a total design capacity of 109.6 million kilowatts.

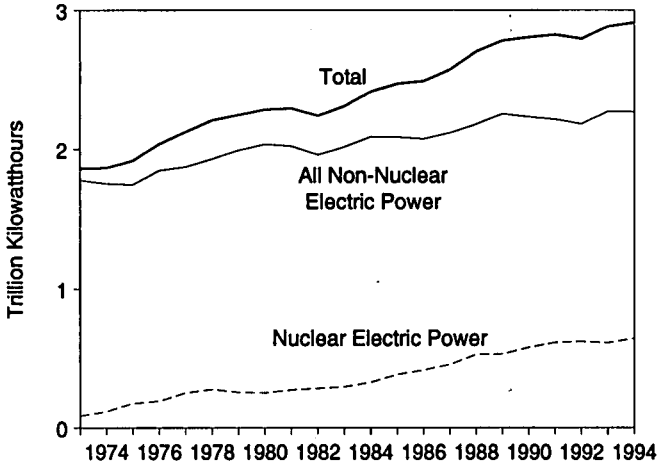
[8]Percent changes are based on numbers shown in the following tables.

Figure 8.1 Nuclear Power Plant Operations

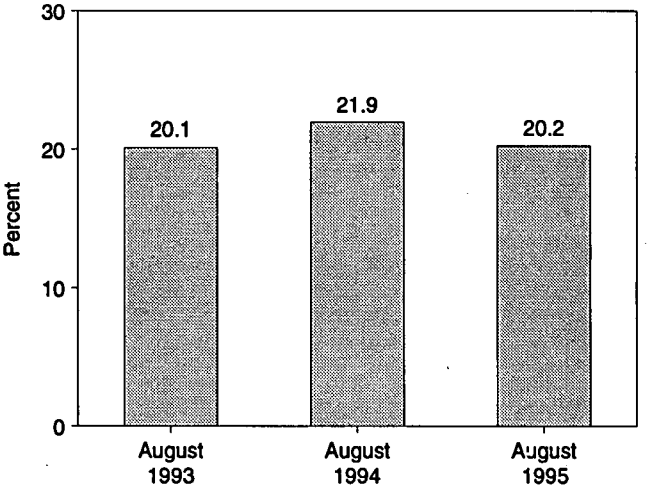
Operable Units, End of Year, 1973-1994



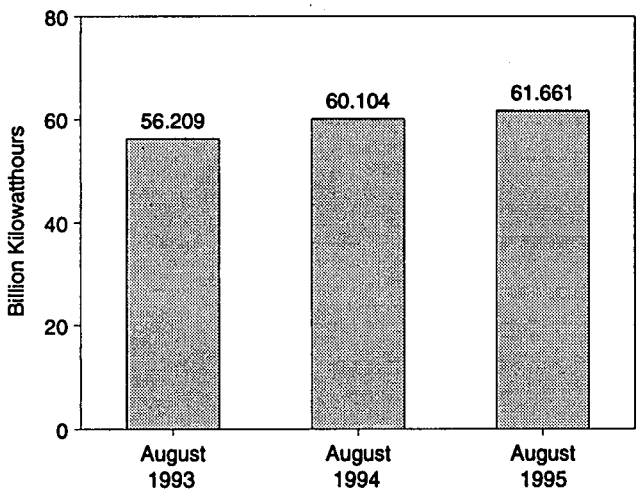
Net Generation of Electricity, 1973-1994



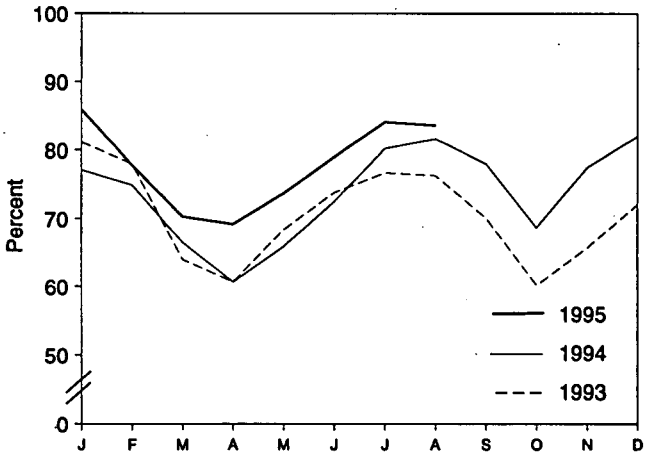
Nuclear Portion of Domestic Electricity Net Generation



Nuclear Electricity Net Generation



Capacity Factor, Monthly



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

Table 8.1 Nuclear Power Plant Operations

	Operable Units[a,b]	Nuclear Electricity Net Generation	Nuclear Portion of Domestic Electricity Net Generation	Net Summer Capability of Operable Units[a,c]	Capacity Factor[d]
	Number	Million Kilowatthours	Percent	Million Kilowatts	Percent
1973 Year	**39**	**83,479**	**4.5**	**22.683**	**53.5**
1974 Year	**48**	**113,976**	**6.1**	**31.867**	**47.8**
1975 Year	**54**	**172,505**	**9.0**	**37.267**	**55.9**
1976 Year	**61**	**191,104**	**9.4**	**43.822**	**54.7**
1977 Year	**65**	**250,883**	**11.8**	**46.303**	**63.3**
1978 Year	**70**	**276,403**	**12.5**	**50.824**	**64.5**
1979 Year	**68**	**255,155**	**11.4**	**49.747**	**58.4**
1980 Year	**70**	**251,116**	**11.0**	**51.810**	**56.3**
1981 Year	**74**	**272,674**	**11.9**	**56.042**	**58.2**
1982 Year	**77**	**282,773**	**12.6**	**60.035**	**56.6**
1983 Year	**80**	**293,677**	**12.7**	**63.009**	**54.4**
1984 Year	**86**	**327,634**	**13.6**	**69.652**	**56.3**
1985 Year	**95**	**383,691**	**15.5**	**79.397**	**58.0**
1986 Year	**100**	**414,038**	**16.6**	**85.241**	**56.9**
1987 Year	**107**	**455,270**	**17.7**	**93.583**	**57.4**
1988 Year	**108**	**526,973**	**19.5**	**94.695**	**63.5**
1989 Year	**110**	**529,355**	**19.0**	**98.161**	**62.2**
1990 Year	**111**	**576,862**	**20.5**	**99.624**	**66.0**
1991 Year	**111**	**612,565**	**21.7**	**99.589**	**70.2**
1992 Year	**109**	**618,776**	**22.1**	**98.985**	**70.9**
1993 January	108	59,076	24.0	97.881	81.1
February	108	51,319	22.8	97.881	78.0
March	108	46,606	19.8	97.881	64.0
April	109	43,199	20.4	99.031	60.7
May	109	50,367	22.6	99.031	68.4
June	109	52,620	21.1	99.031	73.8
July	109	56,502	20.0	99.031	76.7
August	109	56,209	20.1	99.031	76.3
September	109	49,989	21.1	99.031	70.1
October	109	44,434	19.9	99.094	60.2
November	109	46,862	20.7	99.094	65.7
December	109	53,108	21.6	99.041	72.1
Year	**109**	**610,291**	**21.2**	**99.041**	**70.5**
1994 January	109	56,847	21.7	99.041	77.1
February	109	49,821	22.1	99.041	74.9
March	109	48,969	21.1	99.041	66.5
April	109	43,192	20.1	99.041	60.7
May	109	48,525	21.3	99.041	65.9
June	109	51,751	19.6	99.041	72.5
July	109	59,123	21.3	99.041	80.2
August	109	60,104	21.9	99.041	81.6
September	109	55,628	23.4	99.041	78.0
October	109	50,703	22.2	99.041	68.7
November	109	55,280	24.6	99.041	77.5
December	109	60,497	24.9	99.148	82.0
Year	**109**	**640,440**	**22.0**	**99.148**	**73.8**
1995 January	109	63,342	25.0	99.148	85.9
February	109	51,858	22.7	99.148	77.8
March	109	51,880	22.2	99.148	70.3
April	109	49,321	22.7	99.148	69.2
May	109	54,387	23.0	99.148	73.7
June	109	56,381	22.0	99.148	79.0
July	109	62,037	21.2	99.148	84.1
August	109	61,661	20.2	99.148	83.6
8-Month Total	**109**	**450,866**	**22.3**	**99.148**	**78.0**
1994 8-Month Total	**109**	**418,332**	**21.2**	**99.041**	**72.4**
1993 8-Month Total	**109**	**415,898**	**21.3**	**99.031**	**72.3**

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

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

Table 8.2 Nuclear Generating Units, End of Period

	Licensed for Operation		Construction Permits					Total Design Capacity[c]
	Operable[a]	In Startup[b]	Granted	Pending	On Order	Announced	Total	
	Number of Units							Million Kilowatts
1973 Year	39	2	57	52	49	9	208	198
1974 Year	48	5	62	75	30	6	226	223
1975 Year	54	2	69	69	14	5	213	212
1976 Year	61	1	71	63	16	2	214	211
1977 Year	65	2	78	49	13	2	209	203
1978 Year	70	0	88	32	5	0	195	191
1979 Year	68	0	90	24	3	0	185	180
1980 Year	70	1	82	12	3	0	168	162
1981 Year	74	0	76	11	2	0	163	157
1982 Year	77	2	60	3	2	0	144	134
1983 Year	80	3	53	0	2	0	138	129
1984 Year	86	6	38	0	2	0	132	123
1985 Year	95	3	30	0	2	0	130	121
1986 Year	100	7	19	0	2	0	128	119
1987 Year	107	4	14	0	2	0	127	119
1988 Year	108	3	12	0	0	0	123	115
1989 Year	110	1	10	0	0	0	121	113
1990 Year	111	0	8	0	0	0	119	111
1991 Year	111	0	8	0	0	0	119	111
1992 Year	109	0	8	0	0	0	117	111
1993 January	108	0	8	0	0	0	116	110
February	108	1	7	0	0	0	116	110
March	108	1	7	0	0	0	116	110
April	109	0	7	0	0	0	116	110
May	109	0	7	0	0	0	116	110
June	109	0	7	0	0	0	116	110
July	109	0	7	0	0	0	116	110
August	109	0	7	0	0	0	116	110
September	109	0	7	0	0	0	116	110
October	109	0	7	0	0	0	116	110
November	109	0	7	0	0	0	116	110
December	109	0	7	0	0	0	116	110
1994 January	109	0	7	0	0	0	116	110
February	109	0	7	0	0	0	116	110
March	109	0	7	0	0	0	116	110
April	109	0	7	0	0	0	116	110
May	109	0	7	0	0	0	116	110
June	109	0	7	0	0	0	116	110
July	109	0	7	0	0	0	116	110
August	109	0	7	0	0	0	116	110
September	109	0	7	0	0	0	116	110
October	109	0	7	0	0	0	116	110
November	109	0	7	0	0	0	116	110
December	109	0	7	0	0	0	116	110
1995 January	109	0	7	0	0	0	116	110
February	109	0	7	0	0	0	116	110
March	109	0	7	0	0	0	116	110
April	109	0	7	0	0	0	116	110
May	109	0	7	0	0	0	116	110
June	109	0	7	0	0	0	116	110
July	109	0	7	0	0	0	116	110
August	109	0	7	0	0	0	116	110

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

Note: Geographic coverage is the 50 States and the District of Columbia.
Sources: See end of section.

Nuclear Energy Notes

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

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

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

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

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

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

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

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

Sources for Table 8.1

Operable Units

1973-1982: U.S. Department of Energy (DOE), Office of Nuclear Programs, "U.S. Central Station Nuclear Electric Generating Units: Significant Milestones."
1983 forward: Nuclear Regulatory Commission (NRC), "Licensed Operating Reactors" (NUREG-0020).

Nuclear Electricity Net Generation

Table 7.1.

Nuclear Portion of Domestic Electricity Net Generation

Calculated from data in Table 7.1.

Net Summer Capability of Operable Units

1973-1982: Compiled from various sources, primarily DOE, Office of Nuclear Reactor Programs, "U.S. Central Station Nuclear Electric Generating Units: Significant Milestones."
1983 forward: Energy Information Administration (EIA), Form EIA-860, "Annual Electric Generator Report," and monthly updates as appropriate.

Capacity Factor

EIA, Office of Coal, Nuclear, Electric and Alternate Fuels.

Sources for Table 8.2

Licensed for Operation

1973-1982: U.S. Department of Energy (DOE), Office of Nuclear Programs, "U.S. Central Station

Nuclear Electric Generating Units: Significant Milestones."
1983 forward: Nuclear Regulatory Commission (NRC), "Licensed Operating Reactors" (NUREG-0020).

Construction Permits, On Order, and Announced

1973-1982: Compiled from various sources, primarily DOE, Office of Nuclear Reactor Programs, "U.S. Central Station Nuclear Electric Generating Units: Significant Milestones"; Energy Information Administration (EIA), Office of Coal, Nuclear, Electric and Alternate Fuels (CNEAF), "Nuclear Steam-Electric Units That Have Been in Operation as of 1957-1989"; EIA, CNEAF, "Nuclear Plant Cancellations: Causes, Costs, and Consequences"; and Utility Data Institute, Inc., "U.S. Nuclear Plant Statistics, 1987.
1983 forward: NRC, "Summary Information Report" (NUREG-0871); NRC, "Licensed Operating Reactors" (NUREG-0020); and various journals.

Total Design Capacity

1973-1982: Compiled from various sources, primarily DOE, Office of Nuclear Reactor Programs, "U.S. Central Station Nuclear Electric Generating Units: Significant Milestones"; EIA, CNEAF, "Nuclear Steam-Electric Units That Have Been in Operation as of 1957-1987"; EIA, CNEAF, "Monthly Report for Electric Utilities-Power Generation"; EIA, CNEAF, "Nuclear Plant Cancellations: Causes, Costs, and Consequences"; and Utility Data Institute, Inc., "U.S. Nuclear Plant Statistics, 1987."
1983 forward: NRC, "Summary Information Report" (NUREG-0871); NRC, "Licensed Operating Reactors" (NUREG-0020); and EIA, Form EIA-860, "Annual Electric Generator Report."

Section 9. Energy Prices

Crude Oil. The average price of domestic crude oil purchased at the wellhead was $14.41 per barrel in August 1995, 2 percent lower than the level in August 1994. The refiner acquisition cost of imported crude oil in August 1995 was $16.44 per barrel, 1 percent below the August 1994 level. The average cost of domestic crude oil in August 1995 was $16.98, 1 percent lower than the August 1994 average.

Motor Gasoline. The national city average retail price of unleaded regular gasoline at all types of stations was $1.15 per gallon in September 1995, 2 percent lower than the price in September 1994. The price of unleaded premium gasoline averaged $1.33 per gallon in September 1995, 2 percent lower than the price in September 1994.

Residual Fuel Oil. The average price, excluding taxes, of residual fuel oil sold to end users in August 1995 was 35 cents per gallon, 8 percent lower than the previous month's price and 11 percent below the August 1994 average. The average resale price, excluding taxes, of residual fuel oil in August 1995 was 33 cents per gallon, 6 percent lower than both the previous month's average and the price 1 year earlier.

Aviation Fuel. The average price, excluding taxes, of aviation gasoline sold to end users in August 1995 was 99 cents per gallon, 3 percent lower than the previous month's price and 2 percent lower than the August 1994 price. The average price, excluding taxes, of kerosene-type jet fuel sold to end users in August 1995 was 53 cents per gallon, 3 percent higher than the previous month's price but 2 percent less than the August 1994 average price.

No. 2 Distillate Fuel Oil. The August 1995 national average price, excluding taxes, of heating oil sold to residential customers was 81 cents per gallon, 2 percent lower than both the previous month's price and the price 1 year earlier. The average price of No. 2 fuel oil sold to all end users was 53 cents per gallon in August 1995, 3 percent higher than the July 1995 price but 3 percent lower than the August 1994 price.

Electricity. The average price of electricity sold to all ultimate consumers in the United States in August 1995 was 7.36 cents per kilowatthour, 1 percent higher than the August 1994 mean price. The price of electricity sold to residential consumers in August 1995 averaged 8.79 cents per kilowatthour, 1 percent lower than the August 1994 price. The price of electricity sold to commercial consumers averaged 7.96 cents per kilowatthour in August 1995, 2 percent less than the August 1994 price. The price of electricity sold to other consumers was 6.82 cents per kilowatthour, 1 percent below the August 1994 price. The price of electricity sold to industrial users in August 1995 averaged 5.01 cents per kilowatthour, 3 percent higher than the price 1 year earlier.

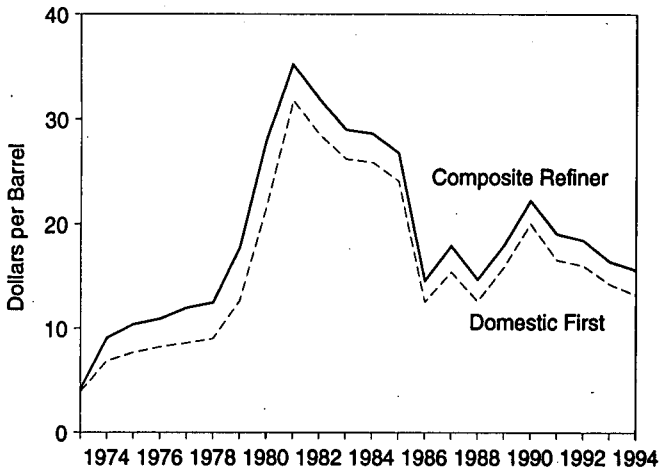
Beginning with January 1986, new series of national average price estimates were based on a statistically derived sample of both publicly and privately owned electric utilities. Previously, average price estimates were derived from selected privately owned electric utilities and were not national averages.

Natural Gas. The estimated average wellhead price of natural gas for August 1995 was $1.53 per thousand cubic feet, 12 percent below the August 1994 price.

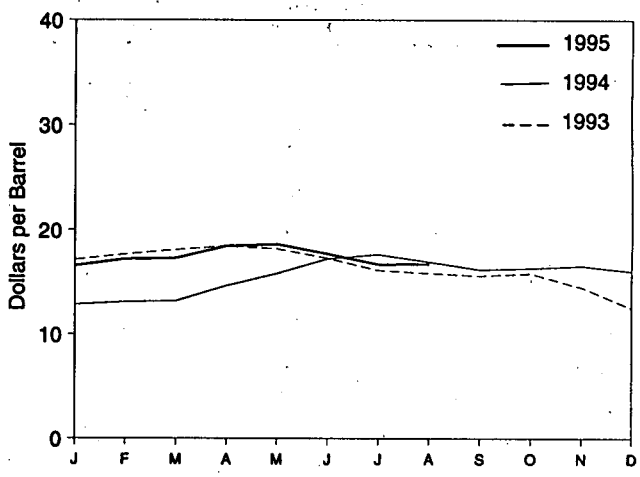
The average price of natural gas delivered to electric utility plants was $1.90 per thousand cubic feet in July 1995 (latest date for which data are available) 16 percent below the July 1994 price. The average price of natural gas used by residential consumers in August 1995 was $8.04 per thousand cubic feet, 2 percent lower than the August 1994 price. The average price of natural gas used by commercial consumers in August 1995 was $4.92 per thousand cubic feet, 7 percent lower than the August 1994 price. The average price of natural gas used by industrial consumers in August 1995 was $2.35 per thousand cubic feet, 15 percent below the August 1994 price.

Figure 9.1 Petroleum Prices

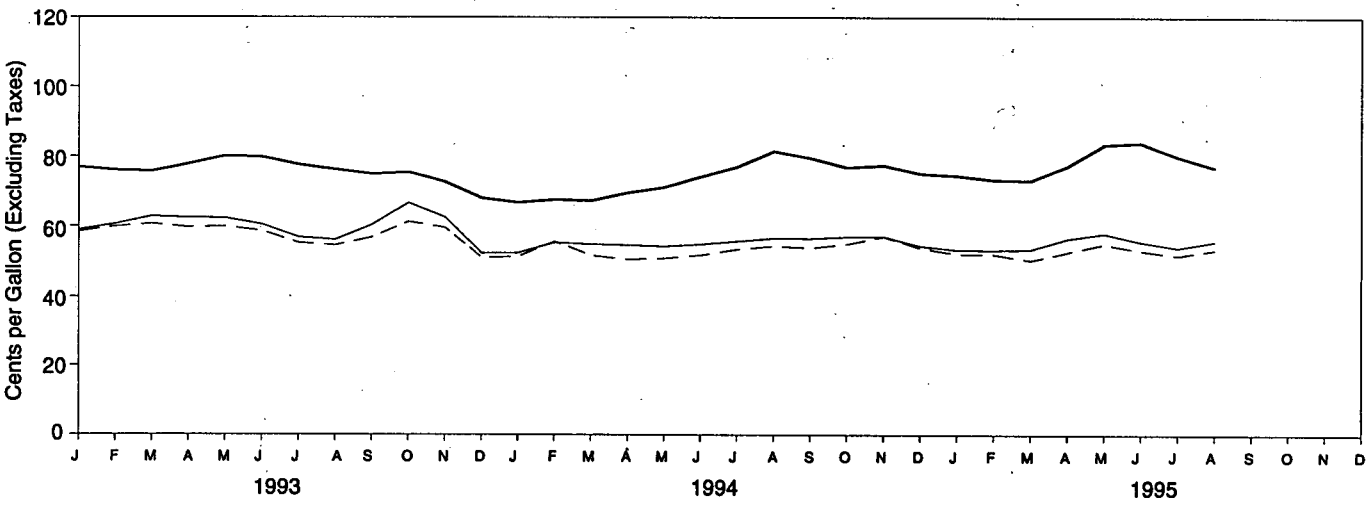
Crude Oil Prices, 1973-1994



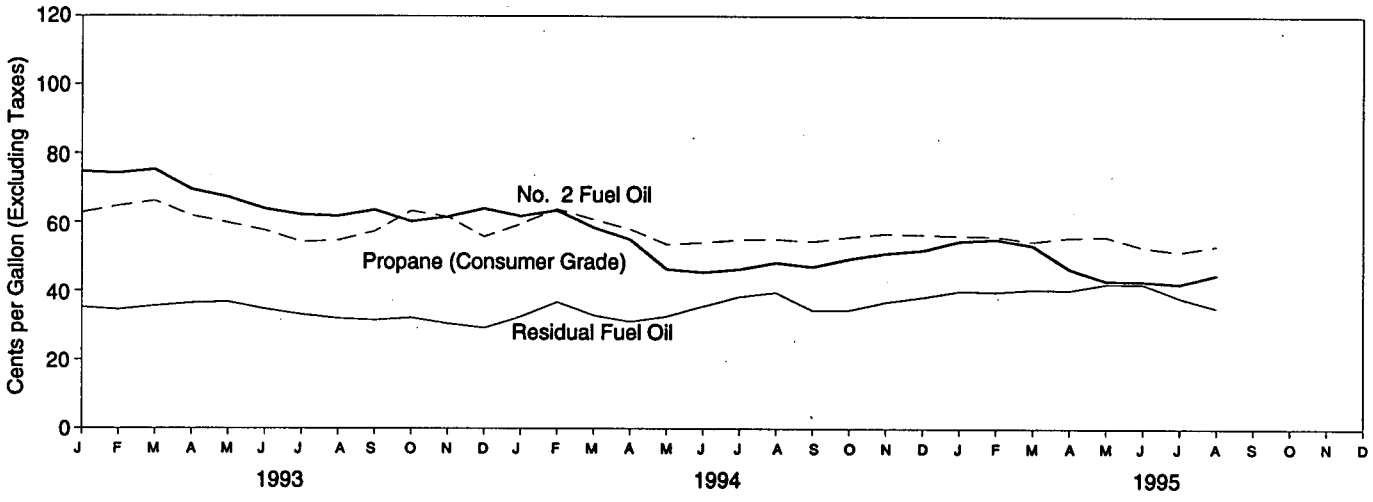
Composite Refiner Acquisition Cost, Monthly



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



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



Sources: Tables 9.1, 9.5, and 9.7.

Table 9.1 Crude Oil Price Summary

(Dollars per Barrel)

	Domestic First Purchase Price[b]	F.O.B. Cost of Imports[c]	Landed Cost of Imports[d]	Refiner Acquisition Cost[a]		
				Domestic	Imported	Composite
1973 Average	3.89	[e] 5.21	[e] 6.41	[E] 4.17	[E] 4.08	[E] 4.15
1974 Average	6.87	10.91	12.32	7.18	12.52	9.07
1975 Average	7.67	11.18	12.70	8.39	13.93	10.38
1976 Average	8.19	12.15	13.32	8.84	13.48	10.89
1977 Average	8.57	13.24	14.36	9.55	14.53	11.96
1978 Average	9.00	13.29	14.35	10.61	14.57	12.46
1979 Average	12.64	20.07	21.45	14.27	21.67	17.72
1980 Average	21.59	32.37	33.67	24.23	33.89	28.07
1981 Average	31.77	35.15	36.47	34.33	37.05	35.24
1982 Average	28.52	32.02	33.18	31.22	33.55	31.87
1983 Average	26.19	27.81	28.93	28.87	29.30	28.99
1984 Average	25.88	27.60	28.54	28.53	28.88	28.63
1985 Average	24.09	25.84	26.67	26.66	26.99	26.75
1986 Average	12.51	12.52	13.49	14.82	14.00	14.55
1987 Average	15.40	16.69	17.65	17.76	18.13	17.90
1988 Average	12.58	13.25	14.08	14.74	14.56	14.67
1989 Average	15.86	16.89	17.68	17.87	18.08	17.97
1990 Average	20.03	20.37	21.13	22.59	21.76	22.22
1991 Average	16.54	16.89	18.02	19.33	18.70	19.06
1992 Average	15.99	16.77	17.75	18.63	18.20	18.43
1993 January	14.70	15.24	16.36	17.40	16.80	17.11
February	15.53	16.09	17.12	17.84	17.41	17.64
March	15.94	16.60	17.56	18.31	17.82	18.08
April	16.15	16.30	17.55	18.49	18.35	18.42
May	16.03	16.19	17.30	18.44	17.89	18.16
June	15.06	15.10	16.32	17.70	16.80	17.26
July	13.83	14.23	15.45	16.39	15.81	16.10
August	13.75	14.19	15.26	16.01	15.64	15.83
September	13.39	14.09	14.95	15.82	15.32	15.59
October	13.72	14.12	15.01	16.04	15.59	15.81
November	12.45	12.90	13.83	14.99	14.05	14.51
December	10.38	11.63	12.33	12.46	12.56	12.51
Average	14.25	14.71	15.72	16.67	16.14	16.41
1994 January	10.49	12.07	12.74	12.73	12.93	12.83
February	10.71	12.05	12.71	13.24	12.90	13.07
March	10.94	12.38	13.00	13.14	13.18	13.16
April	12.31	13.55	14.30	14.74	14.54	14.64
May	14.02	14.67	15.62	15.86	15.74	15.80
June	14.93	15.44	16.51	17.38	17.04	17.21
July	15.34	16.10	17.15	17.74	17.52	17.62
August	14.50	14.94	16.07	17.22	16.66	16.92
September	13.62	14.32	15.47	16.46	15.91	16.18
October	13.84	14.74	15.66	16.35	16.27	16.31
November	14.14	14.88	15.98	16.63	16.46	16.54
December	13.43	14.46	15.61	16.22	15.78	16.03
Average	13.19	14.18	15.18	15.67	15.51	15.59
1995 January	14.00	15.08	16.23	16.52	16.56	16.54
February	14.69	15.63	16.73	17.16	17.21	17.18
March	14.68	15.88	17.04	17.31	17.22	17.27
April	15.84	17.28	18.26	18.20	18.73	18.44
May	15.85	17.30	18.18	18.68	18.51	18.60
June	15.02	[R] 15.91	[R] 17.07	17.94	17.44	17.69
July	14.01	[R] 14.82	[R] 15.92	[R] 16.85	[R] 16.50	[R] 16.68
August	14.14	15.01	16.08	16.98	16.44	16.71

[a] See Note 4 at end of section.
[b] See Note 1 at end of section.
[c] See Note 2 at end of section.
[d] See Note 3 at end of section.
[e] Based on October, November, and December data only.
R=Revised data. E=Estimate.
Notes: • Values for Domestic First Purchase Price and Refiner Acquisition Cost for the current month and for F.O.B. and Landed Costs of Imports for the current 2 months are preliminary. • F.O.B. and landed costs through 1980 reflect the period of reporting; prices since then reflect the period of loading. • Annual averages are the averages of the monthly prices, weighted by volume. • Geographic coverage is the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, and all U.S. Territories and Possessions.
Sources: See end of section.

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

(Dollars per Barrel)

	Algeria	Indonesia	Iran[a]	Mexico	Nigeria	Saudi Arabia	United Kingdom	Venezuela	Other Countries	Arab OPEC[b]	Total OPEC[c]
1973 Average[d]	7.23	5.67	4.24	NA	7.81	3.25	NA	5.39	4.84	4.06	5.43
1974 Average	13.23	11.99	10.85	W	12.44	10.17	NA	10.71	10.02	10.96	11.33
1975 Average	11.93	12.55	10.81	11.44	11.82	10.87	NA	11.04	10.86	11.18	11.34
1976 Average	13.05	12.76	11.61	12.22	13.08	11.62	W	11.39	11.92	12.06	12.23
1977 Average	14.35	13.57	12.68	13.42	14.44	12.38	14.11	12.63	13.19	13.13	13.29
1978 Average	14.12	13.61	12.65	13.24	14.05	12.70	13.82	12.38	13.35	13.28	13.31
1979 Average	20.53	19.03	22.93	20.27	21.69	17.28	21.70	16.90	21.10	19.27	19.88
1980 Average	36.67	32.17	NA	31.06	35.93	28.17	34.36	24.81	34.34	31.57	32.21
1981 Average	39.08	35.62	(e)	33.01	38.31	32.60	36.06	28.95	36.69	34.79	35.17
1982 Average	34.20	35.11	30.97	28.08	35.13	33.73	33.42	23.74	31.96	33.84	33.48
1983 Average	30.09	29.92	28.39	25.20	29.81	27.53	29.91	21.48	27.96	28.28	28.46
1984 Average	28.34	29.13	27.42	26.39	29.51	27.67	28.87	24.23	27.79	27.79	27.79
1985 Average	26.89	27.12	W	25.33	28.04	22.04	27.64	23.64	26.12	24.34	25.67
1986 Average	13.62	13.19	W	11.84	14.35	11.36	13.84	10.92	13.32	11.59	12.21
1987 Average	16.79	17.40	W	16.36	18.47	15.12	18.28	15.08	17.11	15.80	16.43
1988 Average	W	13.81	(e)	12.18	15.16	12.16	14.80	12.96	13.45	12.57	13.43
1989 Average	W	17.01	(e)	15.96	18.31	16.29	17.89	16.09	17.12	16.72	17.06
1990 Average	W	21.29	(e)	19.26	22.46	20.36	23.43	19.55	19.88	18.84	20.40
1991 Average	W	18.69	15.58	15.37	20.29	14.62	20.81	14.91	17.79	15.59	16.99
1992 Average	W	17.06	(e)	15.26	19.98	15.85	19.61	14.39	17.65	16.50	16.87
1993 January	(e)	W	(e)	14.14	17.95	15.55	18.29	12.99	15.19	15.63	15.63
February	(e)	W	(e)	14.64	19.06	16.13	18.13	13.68	16.51	16.36	16.49
March	W	W	(e)	15.16	19.33	16.34	18.51	14.22	16.84	16.73	16.91
April	(e)	W	(e)	15.04	19.21	15.23	18.36	14.52	16.76	15.46	16.41
May	(e)	19.14	(e)	15.15	18.90	13.62	18.29	13.89	16.63	14.09	16.16
June	(e)	W	(e)	14.04	18.00	W	17.03	12.44	15.86	14.20	14.95
July	W	16.48	(e)	13.09	17.46	W	16.07	11.96	14.97	13.67	14.19
August	(e)	17.74	(e)	13.20	17.42	W	16.73	12.56	14.68	14.13	14.18
September	W	W	(e)	13.50	16.73	W	16.06	12.72	14.23	12.72	14.13
October	W	W	(e)	13.74	17.02	11.16	16.31	11.87	14.88	12.94	13.75
November	W	W	(e)	12.27	15.80	11.15	15.29	9.97	13.85	12.19	12.45
December	W	W	(e)	11.19	14.21	W	14.19	9.34	11.86	11.47	11.44
Average	**W**	**17.13**	**(e)**	**13.74**	**17.79**	**13.77**	**16.64**	**12.46**	**15.17**	**14.25**	**14.78**
1994 January	W	W	(e)	11.26	15.02	10.29	W	10.93	12.16	10.73	12.35
February	(e)	14.46	(a)	11.44	14.00	12.81	W	10.35	12.16	12.19	11.96
March	W	W	(a)	11.68	14.27	14.19	13.68	11.09	12.36	13.70	12.58
April	W	13.52	(a)	12.88	15.65	14.91	W	11.81	13.73	14.53	13.75
May	(e)	15.26	(a)	13.67	16.77	15.59	15.77	12.80	15.23	15.72	14.73
June	W	15.91	(a)	15.02	17.32	14.83	16.53	13.21	16.11	15.21	15.24
July	W	17.56	(a)	15.70	18.02	W	17.29	14.28	16.71	14.76	15.76
August	W	W	(a)	14.57	16.69	14.14	16.70	12.31	15.95	14.09	14.29
September	(e)	W	(a)	13.51	16.35	14.80	15.41	12.09	15.44	14.82	13.91
October	(e)	W	(a)	14.42	17.01	14.22	16.42	12.90	15.29	14.20	14.48
November	(e)	W	(a)	15.19	17.13	W	17.01	11.93	15.82	W	14.30
December	W	W	(a)	14.74	16.18	W	15.75	12.38	15.14	14.65	13.94
Average	**W**	**15.57**	**(e)**	**13.68**	**16.32**	**14.12**	**15.66**	**12.21**	**14.68**	**14.05**	**14.00**
1995 January	(e)	W	(e)	14.98	17.13	W	W	12.61	15.57	W	14.79
February	(e)	W	(e)	15.79	17.43	W	16.84	13.02	16.41	15.88	15.09
March	(e)	W	(e)	15.74	17.19	W	W	14.23	16.62	W	15.47
April	W	W	(e)	17.16	18.96	W	W	15.97	17.51	17.33	17.18
May	W	W	(e)	17.20	18.66	W	18.42	15.76	17.96	16.69	16.93
June	(e)	17.71	(e)	16.07	17.66	14.90	W	13.80	R16.63	14.84	15.47
July	(e)	W	(e)	R14.77	R15.97	W	W	R13.33	R15.55	W	14.43
August	W	W	(e)	14.55	16.58	W	16.24	13.82	15.70	15.13	14.82

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

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

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

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

[e] No data reported.

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

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

Sources: • **October 1973-September 1977:** Federal Energy Administration, Form FEA-F701-M-0, "Transfer Pricing Report." • **October 1977-December 1977:** Energy Information Administration (EIA), Form FEA-F701-M-0, "Transfer Pricing Report." • **1978 forward:** EIA, *Petroleum Marketing Monthly*, November 1995, Table 24.

Table 9.3 Landed Costs of Crude Oil Imports from Selected Countries

(Dollars per Barrel)

	Algeria	Canada	Indonesia	Iran[a]	Mexico	Nigeria	Saudi Arabia	United Kingdom	Venezuela	Other Countries	Arab OPEC[b]	Total OPEC[c]
1973 Average[d]	8.39	5.33	7.22	6.48	NA	9.08	5.37	NA	5.99	6.99	5.92	6.85
1974 Average	13.97	11.48	13.20	12.48	W	13.16	11.63	NA	11.25	12.93	12.39	12.49
1975 Average	12.86	12.84	13.83	12.51	12.61	12.70	12.50	NA	12.36	12.66	12.71	12.70
1976 Average	13.90	13.36	13.85	12.86	12.64	13.81	13.06	W	11.89	13.36	13.31	13.32
1977 Average	15.24	14.13	14.65	13.86	13.82	15.29	13.69	14.83	13.11	14.56	14.30	14.35
1978 Average	14.93	14.41	14.65	13.89	13.56	14.88	13.94	14.53	12.84	14.58	14.36	14.34
1979 Average	21.88	20.22	20.63	24.21	20.77	22.97	18.95	22.97	17.65	22.86	20.79	21.29
1980 Average	37.92	30.11	33.92	NA	31.77	37.15	29.80	35.68	25.92	36.15	32.97	33.56
1981 Average	40.46	32.32	37.31	(e)	33.70	39.66	34.20	37.29	29.91	38.54	36.22	36.60
1982 Average	35.35	27.15	36.70	32.46	28.63	36.16	34.99	34.25	24.93	34.03	35.15	34.81
1983 Average	31.26	25.63	31.57	29.81	25.78	30.85	29.27	30.87	22.94	29.68	29.87	29.84
1984 Average	29.06	26.56	30.87	28.70	26.85	30.36	29.20	29.45	25.19	29.21	29.10	29.06
1985 Average	27.51	25.71	28.67	25.79	25.63	28.96	24.72	28.36	24.43	27.33	25.90	26.86
1986 Average	14.82	13.43	14.63	12.38	12.17	15.29	12.84	14.63	11.52	14.25	13.14	13.46
1987 Average	17.87	17.04	18.49	18.28	16.69	19.32	16.81	18.78	15.76	18.30	17.32	17.64
1988 Average	W	13.50	15.15	W	12.58	15.88	13.37	15.82	13.66	14.45	13.60	14.18
1989 Average	19.13	16.81	18.35	(e)	16.35	19.19	17.34	18.74	16.78	18.08	17.41	17.78
1990 Average	W	20.48	22.50	(e)	19.64	23.33	21.82	22.65	20.31	20.52	20.64	21.23
1991 Average	W	17.16	20.20	17.54	15.89	21.39	17.22	21.37	15.92	19.73	17.45	18.08
1992 Average	W	17.04	18.76	(e)	15.60	20.78	17.48	20.63	15.13	19.25	17.63	17.81
1993 January	(e)	15.28	W	(e)	14.50	18.94	16.46	19.12	14.07	17.22	16.49	16.67
February	(e)	15.84	W	(e)	14.98	19.92	17.30	19.28	14.60	18.17	17.30	17.44
March	W	16.48	W	(e)	15.50	20.25	17.56	19.43	15.14	18.44	17.62	17.84
April	W	16.79	20.01	(e)	15.56	20.18	17.46	19.32	15.55	18.41	17.45	17.71
May	W	16.82	20.67	(e)	15.57	19.83	16.45	19.33	14.91	18.33	16.56	17.22
June	(e)	16.25	W	(e)	14.49	18.94	15.83	18.67	13.49	17.42	15.92	16.06
July	W	15.30	17.86	(e)	13.44	18.31	14.95	17.51	12.92	16.45	14.98	15.32
August	(e)	14.94	19.28	(e)	13.66	18.10	15.04	17.56	13.32	16.04	15.09	15.23
September	W	14.56	W	(e)	13.83	17.65	14.31	16.95	13.46	15.53	14.34	14.85
October	W	15.14	W	(e)	14.11	17.98	14.13	16.67	12.70	15.68	14.34	14.70
November	W	14.28	W	(e)	12.63	16.72	13.03	16.57	10.81	14.74	13.15	13.34
December	W	12.44	15.72	(e)	11.39	15.09	11.74	15.14	10.14	12.82	11.67	12.05
Average	17.34	15.27	18.55	(e)	14.11	18.73	15.40	17.92	13.39	16.44	15.28	15.68
1994 January	W	12.13	W	(e)	11.61	15.76	11.66	14.98	11.78	13.52	11.86	12.94
February	(e)	12.05	16.17	(a)	11.73	14.68	12.32	15.40	11.12	13.60	12.24	12.59
March	W	11.92	W	(a)	11.97	15.13	13.31	14.67	11.87	13.33	12.85	13.05
April	W	13.43	15.08	(a)	13.23	16.46	14.30	15.31	12.72	15.09	14.21	14.47
May	(e)	15.25	16.42	(a)	14.10	17.36	15.81	16.33	13.53	16.48	15.72	15.62
June	W	16.45	17.00	(a)	15.44	18.21	16.60	17.40	14.15	17.18	16.58	16.48
July	W	17.53	18.41	(a)	16.17	18.74	16.81	17.96	15.02	17.73	16.86	16.88
August	W	16.51	19.96	(a)	14.97	17.78	15.68	17.41	13.24	16.92	15.72	15.69
September	W	15.50	W	(a)	14.04	17.39	15.62	16.62	13.04	16.38	15.46	15.25
October	W	15.54	W	(a)	14.82	17.85	15.41	17.06	13.85	16.28	15.34	15.51
November	W	16.06	W	(a)	15.61	18.04	15.85	17.19	13.03	16.97	15.84	15.63
December	W	15.41	16.99	(a)	15.56	17.24	15.56	16.84	13.50	16.45	15.56	15.34
Average	W	14.83	16.91	(e)	14.09	17.21	15.11	16.64	13.12	15.95	15.02	15.08
1995 January	W	16.03	W	(e)	15.52	17.64	16.66	17.35	13.66	16.94	16.65	16.14
February	W	16.74	W	(e)	16.23	18.24	17.11	17.70	14.01	17.57	17.03	16.49
March	W	16.88	18.78	(e)	16.34	18.13	17.41	18.00	15.29	17.78	17.33	16.86
April	W	18.27	W	(e)	17.56	19.82	18.45	18.53	16.95	18.55	18.41	18.34
May	W	18.44	W	(e)	17.69	19.45	17.71	19.16	16.68	18.86	17.70	17.90
June	(e)	17.28	18.98	(e)	16.58	18.74	R16.39	18.71	14.85	R17.96	R16.41	R16.62
July	W	R16.33	17.27	(e)	R15.28	R17.29	R15.62	R17.44	R14.21	R16.75	R15.63	R15.64
August	W	16.36	W	(e)	15.09	17.45	16.22	17.32	14.77	16.67	16.19	16.02

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

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

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

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

[e] No data reported.

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

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

Sources: • **October 1973-September 1977:** Federal Energy Administration, Form FEA-F701-M-0, "Transfer Pricing Report." • **October 1977-December 1977:** Energy Information Administration (EIA), Form FEA-F701-M-0, "Transfer Pricing Report." • **1978 forward:** EIA, *Petroleum Marketing Monthly*, November 1995, Table 25.

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

(Cents per Gallon, Including Taxes)

	Leaded Regular	Unleaded Regular	Unleaded Premium	All Types[a]
1973 Average	38.8	NA	NA	NA
1974 Average	53.2	NA	NA	NA
1975 Average	56.7	NA	NA	NA
1976 Average	59.0	61.4	NA	NA
1977 Average	62.2	65.6	NA	NA
1978 Average	62.6	67.0	NA	65.2
1979 Average	85.7	90.3	NA	88.2
1980 Average	119.1	124.5	NA	122.1
1981 Average[b]	131.1	137.8	[c]147.0	135.3
1982 Average	122.2	129.6	141.5	128.1
1983 Average	115.7	124.1	138.3	122.5
1984 Average	112.9	121.2	136.6	119.8
1985 Average	111.5	120.2	134.0	119.6
1986 Average	85.7	92.7	108.5	93.1
1987 Average	89.7	94.8	109.3	95.7
1988 Average	89.9	94.6	110.7	96.3
1989 Average	99.8	102.1	119.7	106.0
1990 Average	114.9	116.4	134.9	121.7
1991 Average	NA	114.0	132.1	119.6
1992 Average	NA	112.7	131.6	119.0
1993 January	NA	111.7	131.3	118.2
February	NA	110.8	130.1	117.2
March	NA	109.8	129.4	116.3
April	NA	111.2	130.4	117.5
May	NA	112.9	131.9	119.3
June	NA	113.0	132.1	119.4
July	NA	110.9	130.5	117.4
August	NA	109.7	129.4	116.3
September	NA	108.5	128.2	115.1
October	NA	112.7	132.3	119.3
November	NA	111.3	130.5	117.8
December	NA	107.0	126.8	113.6
Average	NA	110.8	130.2	117.3
1994 January	NA	104.3	124.0	110.9
February	NA	105.1	124.5	111.4
March	NA	104.5	124.3	110.9
April	NA	106.4	126.0	112.8
May	NA	108.0	127.4	114.3
June	NA	110.6	130.0	116.7
July	NA	113.6	132.7	119.9
August	NA	118.2	136.7	124.3
September	NA	117.7	136.4	123.7
October	NA	115.2	134.5	121.2
November	NA	116.3	135.4	122.2
December	NA	114.3	133.7	120.3
Average	NA	111.2	130.5	117.4
1995 January	NA	112.9	132.4	119.0
February	NA	112.0	131.6	118.1
March	NA	111.5	130.6	117.3
April	NA	114.0	132.5	119.7
May	NA	120.0	138.3	125.6
June	NA	122.6	141.1	128.1
July	NA	119.5	138.4	125.2
August	NA	116.4	135.2	122.2
September	NA	114.8	133.2	120.6

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

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

[c] Based on September through December data only.

NA=Not available.

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

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

Table 9.5 Refiner Prices of Residual Fuel Oil

(Cents per Gallon, Excluding Taxes)

	Residual Fuel Oil Sulfur Content Less Than or Equal to 1 Percent		Residual Fuel Oil Sulfur Content Greater Than 1 Percent		Average	
	Sales for Resale	Sales to End Users	Sales for Resale	Sales to End Users	Sales for Resale	Sales to End Users
1978 Average	29.3	31.4	24.5	27.5	26.3	29.8
1979 Average	45.0	46.8	36.6	38.9	39.9	43.6
1980 Average	60.8	67.5	47.9	52.3	52.8	60.7
1981 Average	74.8	82.9	62.2	67.3	66.3	75.6
1982 Average	69.5	74.7	57.2	61.1	61.2	67.6
1983 Average	64.3	69.5	59.1	61.1	60.9	65.1
1984 Average	68.5	72.0	63.9	65.9	65.4	68.7
1985 Average	61.0	64.4	56.0	58.2	57.7	61.0
1986 Average	32.8	37.2	28.9	31.7	30.5	34.3
1987 Average	41.2	44.7	36.2	39.6	38.5	42.3
1988 Average	33.3	37.2	27.1	30.0	30.0	33.4
1989 Average	40.7	43.6	33.1	34.4	36.0	38.5
1990 Average	47.2	50.5	37.2	40.0	41.3	44.4
1991 Average	36.4	40.2	29.2	30.6	31.4	34.0
1992 Average	35.1	38.9	28.6	31.2	30.8	33.6
1993 January	36.8	40.7	27.3	32.3	31.5	35.2
February	35.5	40.8	26.7	31.0	30.9	34.5
March	39.1	42.6	27.5	31.6	32.9	35.6
April	38.4	43.6	29.0	32.4	33.3	36.5
May	34.8	41.9	27.8	34.1	31.1	36.8
June	33.7	40.6	26.7	31.5	30.2	34.7
July	32.7	40.2	24.6	28.5	27.5	33.1
August	31.6	36.4	23.7	28.7	27.2	32.0
September	31.9	37.0	24.1	28.6	27.1	31.5
October	32.1	38.3	25.7	29.6	28.7	32.2
November	30.7	38.1	22.5	27.5	26.2	30.5
December	27.5	35.1	21.8	25.8	24.8	29.2
Average	33.7	39.7	25.6	30.3	29.3	33.7
1994 January	33.6	39.1	22.8	27.8	28.3	32.5
February	39.3	44.8	25.7	31.3	33.8	36.8
March	30.0	39.9	24.3	29.5	27.4	32.9
April	29.4	35.2	25.8	29.5	27.5	31.1
May	31.7	35.9	27.5	31.1	29.5	32.6
June	35.8	38.6	31.1	34.2	33.5	35.6
July	37.8	41.2	34.5	37.2	36.2	38.4
August	37.1	43.0	32.7	38.2	35.2	39.6
September	32.6	41.1	27.8	32.2	30.1	34.4
October	32.6	38.7	30.6	33.0	31.6	34.5
November	35.6	40.0	32.9	35.7	34.2	36.9
December	36.9	42.2	32.0	36.9	34.1	38.3
Average	34.5	40.1	28.7	33.0	31.7	35.2
1995 January	38.4	46.0	33.3	37.7	35.9	40.0
February	37.1	43.7	33.3	38.2	35.4	39.8
March	38.3	43.4	35.2	39.6	37.0	40.5
April	36.8	42.6	36.1	39.6	36.5	40.3
May	40.4	43.6	37.3	41.7	38.8	42.2
June	39.9	45.1	36.9	41.3	38.7	42.1
July	36.8	42.9	R32.5	R36.5	R35.3	R38.2
August	35.2	39.1	30.2	33.7	33.1	35.2

R=Revised data.

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

Source: EIA, *Petroleum Marketing Monthly*, November 1995, Table 19.

Table 9.6 Refiner Prices of Petroleum Products for Resale

(Cents per Gallon, Excluding Taxes)

	Finished Motor Gasoline[a]	Finished Aviation Gasoline	Kerosene-Type Jet Fuel	Kerosene	No. 2 Fuel Oil	No. 2 Diesel Fuel	Propane (Consumer Grade)
1978 Average	**43.4**	**53.7**	**38.6**	**40.4**	**36.9**	**36.5**	**23.7**
1979 Average	**63.7**	**72.1**	**66.0**	**62.4**	**56.9**	**57.4**	**29.1**
1980 Average	**94.1**	**112.8**	**86.8**	**86.4**	**80.3**	**80.1**	**41.5**
1981 Average	**106.4**	**125.0**	**101.2**	**106.6**	**97.6**	**97.2**	**46.6**
1982 Average	**97.3**	**122.8**	**95.3**	**101.8**	**91.4**	**91.4**	**42.7**
1983 Average	**88.2**	**117.8**	**85.4**	**89.2**	**81.5**	**80.8**	**48.4**
1984 Average	**83.2**	**116.5**	**83.0**	**91.6**	**82.1**	**80.3**	**45.0**
1985 Average	**83.5**	**113.0**	**79.4**	**87.4**	**77.6**	**77.2**	**39.8**
1986 Average	**53.1**	**91.2**	**49.5**	**60.6**	**48.6**	**45.2**	**29.0**
1987 Average	**58.9**	**85.9**	**53.8**	**59.2**	**52.7**	**53.4**	**25.2**
1988 Average	**57.7**	**85.0**	**49.5**	**54.9**	**47.3**	**47.3**	**24.0**
1989 Average	**65.4**	**95.0**	**58.3**	**66.9**	**56.5**	**56.7**	**24.7**
1990 Average	**78.6**	**106.3**	**77.3**	**83.9**	**69.7**	**69.4**	**38.6**
1991 Average	**69.9**	**100.1**	**65.0**	**72.2**	**62.2**	**61.5**	**34.9**
1992 Average	**67.7**	**99.1**	**60.5**	**63.2**	**57.9**	**59.1**	**32.8**
1993 January	**63.8**	**96.9**	**57.7**	**61.4**	**54.4**	**54.9**	**40.2**
February	63.8	96.5	60.4	63.7	56.9	57.4	36.7
March	65.2	97.4	60.3	65.4	59.0	60.0	38.2
April	67.7	97.7	59.8	60.8	57.5	59.8	36.2
May	69.1	99.4	60.1	58.3	56.9	59.6	34.0
June	66.2	99.1	58.5	56.9	55.0	57.2	33.8
July	62.7	97.9	55.1	53.6	51.0	53.2	33.3
August	62.9	96.9	55.1	55.6	51.0	53.2	33.3
September	61.5	96.3	56.6	58.7	54.8	58.9	34.1
October	61.7	95.0	60.5	65.5	58.1	65.8	34.7
November	57.0	92.7	58.7	62.4	53.1	58.9	33.6
December	50.3	87.4	51.0	53.6	45.1	46.8	30.9
Average	**62.6**	**96.5**	**57.7**	**60.4**	**54.4**	**57.0**	**35.1**
1994 January	**52.2**	**87.1**	**52.9**	**65.7**	**50.7**	**49.1**	**32.3**
February	54.6	87.8	56.0	73.5	54.2	52.8	34.0
March	54.9	87.4	52.5	59.9	49.7	52.9	31.8
April	57.9	89.5	50.9	55.1	48.9	52.3	30.4
May	59.2	91.2	50.6	53.2	49.0	51.7	30.4
June	62.6	93.2	51.5	53.9	49.8	52.3	29.9
July	65.4	96.1	53.8	55.1	50.9	53.7	29.8
August	67.8	98.5	54.4	55.1	51.4	54.1	31.0
September	61.0	97.3	54.0	55.3	50.1	54.2	31.7
October	61.4	95.4	54.4	59.1	50.8	55.2	33.5
November	62.2	95.2	56.3	60.7	51.0	55.1	35.0
December	58.0	94.2	53.1	57.4	49.5	51.0	35.7
Average	**59.9**	**93.3**	**53.4**	**61.8**	**50.6**	**52.9**	**32.4**
1995 January	**60.1**	**92.9**	**52.3**	**56.7**	**49.4**	**50.1**	**35.6**
February	60.3	93.2	52.1	55.2	49.1	50.6	34.5
March	60.0	93.1	50.1	52.8	48.1	51.2	34.3
April	66.5	96.6	52.6	56.0	50.4	54.8	33.0
May	71.8	102.2	54.7	57.7	52.4	55.9	33.2
June	68.2	101.6	53.1	53.2	49.3	52.6	32.6
July	62.9	100.1	51.3	52.3	48.1	51.4	32.1
August	62.0	98.9	53.0	54.8	51.0	54.2	33.2

[a] See Note 5 at end of section.

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

Source: EIA, *Petroleum Marketing Monthly*, November 1995, Table 4.

Table 9.7 Refiner Prices of Petroleum Products to End Users

(Cents per Gallon, Excluding Taxes)

	Finished Motor Gasoline[a]	Finished Aviation Gasoline	Kerosene-Type Jet Fuel	Kerosene	No. 2 Fuel Oil	No. 2 Diesel Fuel	Propane (Consumer Grade)
1978 Average	**48.4**	**51.6**	**38.7**	**42.1**	**40.0**	**37.7**	**33.5**
1979 Average	**71.3**	**68.9**	**54.7**	**58.5**	**51.6**	**58.5**	**35.7**
1980 Average	**103.5**	**108.4**	**86.8**	**90.2**	**78.8**	**81.8**	**48.2**
1981 Average	**114.7**	**130.3**	**102.4**	**112.3**	**91.4**	**99.5**	**56.5**
1982 Average	**106.0**	**131.2**	**96.3**	**108.9**	**90.5**	**94.2**	**59.2**
1983 Average	**95.4**	**125.5**	**87.8**	**96.1**	**91.6**	**82.6**	**70.9**
1984 Average	**90.7**	**123.4**	**84.2**	**103.6**	**91.6**	**82.3**	**73.7**
1985 Average	**91.2**	**120.1**	**79.6**	**103.0**	**84.9**	**78.9**	**71.7**
1986 Average	**62.4**	**101.1**	**52.9**	**79.0**	**56.0**	**47.8**	**74.5**
1987 Average	**66.9**	**90.7**	**54.3**	**77.0**	**58.1**	**55.1**	**70.1**
1988 Average	**67.3**	**89.1**	**51.3**	**73.8**	**54.4**	**50.0**	**71.4**
1989 Average	**75.6**	**99.5**	**59.2**	**70.9**	**58.7**	**58.5**	**61.5**
1990 Average	**88.3**	**112.0**	**76.6**	**92.3**	**73.4**	**72.5**	**74.5**
1991 Average	**79.7**	**104.7**	**65.2**	**83.8**	**66.5**	**64.8**	**73.0**
1992 Average	**78.7**	**102.7**	**61.0**	**78.8**	**62.7**	**61.9**	**64.3**
1993 January	76.9	100.3	58.5	81.4	62.8	59.0	74.8
February	76.0	99.9	59.9	81.3	64.7	60.6	74.3
March	75.7	99.4	60.7	83.2	66.2	62.8	75.4
April	77.8	100.7	59.7	77.0	61.9	62.4	69.5
May	80.1	102.2	59.9	68.8	59.8	62.3	67.3
June	79.8	102.5	58.7	65.3	57.6	60.5	63.9
July	77.6	99.7	55.3	61.4	54.1	56.9	62.2
August	76.2	98.8	54.6	61.9	54.6	56.2	61.8
September	74.9	98.2	56.9	66.5	57.3	60.4	63.6
October	75.4	98.0	61.3	77.5	63.3	66.7	60.2
November	72.6	95.7	59.6	79.4	61.6	62.5	61.6
December	68.0	91.2	51.2	72.5	55.7	52.4	64.0
Average	**75.9**	**99.0**	**58.0**	**75.4**	**60.2**	**60.2**	**67.3**
1994 January	66.8	88.6	51.5	79.5	59.5	52.5	61.8
February	67.6	88.4	55.7	84.1	63.9	55.4	63.5
March	67.3	89.0	51.8	78.2	60.8	54.9	58.5
April	69.5	91.3	50.7	69.7	58.0	54.7	54.9
May	71.1	92.3	51.0	55.2	53.5	54.3	46.4
June	74.1	95.6	51.9	54.5	54.0	54.9	45.5
July	77.0	97.4	53.5	60.4	54.9	55.8	46.4
August	81.5	101.7	54.4	57.8	55.0	56.7	48.3
September	79.6	101.1	53.9	58.3	54.4	56.6	47.1
October	76.9	100.0	55.0	61.5	55.7	57.1	49.4
November	77.5	100.0	57.2	64.0	56.7	57.2	51.0
December	75.1	99.2	53.9	64.7	56.4	54.5	51.9
Average	**73.8**	**95.7**	**53.4**	**66.0**	**57.2**	**55.4**	**53.0**
1995 January	74.5	99.6	52.3	67.4	56.1	53.4	54.5
February	73.3	99.8	52.2	62.7	55.9	53.3	55.1
March	73.1	99.0	50.5	59.4	54.4	53.5	53.3
April	77.3	101.3	52.8	56.1	55.6	56.6	46.6
May	83.4	105.8	55.0	51.8	55.8	58.1	43.1
June	83.9	106.4	53.2	54.9	52.8	55.7	42.9
July	80.0	R101.8	51.9	51.3	51.5	54.0	R42.2
August	76.9	99.2	53.4	54.2	53.2	55.8	44.9

[a] See Note 5 at end of section.

R=Revised data.

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

Source: EIA, *Petroleum Marketing Monthly*, November 1995, Table 2.

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

(Cents per Gallon, Excluding Taxes)

	Maine	New Hampshire	Vermont	Massachusetts	Rhode Island	Connecticut	New York	New Jersey	Pennsylvania
1978 Average	**48.6**	**50.3**	**50.8**	**48.8**	**50.7**	**50.1**	**50.1**	**49.6**	**48.8**
1979 Average	**68.8**	**72.5**	**72.5**	**70.9**	**72.8**	**72.0**	**71.2**	**71.0**	**69.8**
1980 Average	**96.3**	**100.4**	**101.5**	**97.8**	**101.1**	**98.3**	**98.2**	**97.9**	**96.4**
1981 Average	**120.4**	**123.7**	**125.4**	**121.3**	**123.8**	**121.7**	**123.2**	**121.5**	**118.1**
1982 Average	**115.5**	**117.4**	**120.1**	**117.6**	**120.1**	**118.3**	**120.5**	**117.4**	**113.7**
1983 Average	**102.8**	**104.1**	**112.9**	**109.1**	**110.5**	**109.1**	**112.1**	**107.9**	**105.8**
1984 Average	**103.9**	**108.4**	**111.9**	**111.6**	**111.4**	**112.1**	**115.5**	**111.0**	**107.9**
1985 Average	**99.7**	**102.4**	**107.7**	**107.0**	**106.7**	**108.0**	**111.3**	**105.9**	**102.3**
1986 Average	**74.4**	**75.9**	**86.6**	**82.1**	**82.8**	**89.0**	**91.1**	**90.2**	**81.4**
1987 Average	**74.7**	**76.5**	**81.1**	**80.6**	**82.5**	**83.4**	**85.2**	**84.3**	**76.9**
1988 Average	**77.7**	**78.2**	**82.6**	**82.1**	**83.6**	**85.3**	**86.3**	**84.8**	**77.8**
1989 Average	**89.4**	**89.3**	**90.5**	**92.6**	**93.9**	**92.9**	**95.8**	**91.8**	**85.1**
1990 Average	**98.9**	**102.8**	**107.0**	**108.4**	**108.6**	**109.8**	**112.5**	**108.7**	**102.6**
1991 Average	**96.0**	**91.6**	**101.9**	**103.0**	**99.9**	**106.2**	**111.3**	**104.0**	**99.7**
1992 Average	**87.1**	**85.6**	**92.1**	**92.5**	**91.2**	**94.7**	**102.8**	**93.9**	**89.0**
1993 January	85.2	87.1	93.4	94.0	91.7	94.9	104.4	96.2	88.6
February	85.4	86.9	93.3	94.4	91.8	96.2	104.2	96.4	89.1
March	86.4	86.6	93.7	94.8	92.4	96.7	104.3	96.2	89.8
April	83.0	84.5	91.2	91.5	90.4	93.6	100.4	95.0	89.0
May	81.7	83.9	91.3	91.1	90.7	91.6	99.5	91.6	86.7
June	81.1	82.4	89.7	88.6	87.6	88.6	97.8	87.1	83.9
July	78.5	78.3	85.5	83.9	85.2	86.5	95.1	87.4	78.8
August	77.4	76.0	85.6	83.4	82.7	84.0	92.7	85.3	77.1
September	78.3	74.9	86.6	83.8	84.8	84.2	93.6	85.9	80.4
October	82.9	77.0	87.6	86.1	86.0	88.6	96.3	89.7	83.2
November	80.8	76.9	86.6	85.7	87.8	88.8	95.9	89.4	84.7
December	79.6	77.5	86.9	83.9	85.9	88.2	93.9	87.3	84.2
Average	**82.6**	**82.8**	**90.4**	**89.7**	**89.3**	**91.9**	**100.1**	**92.4**	**86.3**
1994 January	83.8	80.4	88.8	88.4	87.3	90.2	97.2	91.7	87.7
February	90.4	86.6	92.3	91.3	91.4	93.8	101.7	94.8	92.5
March	85.9	83.6	91.0	88.3	89.4	92.1	100.3	93.9	90.4
April	80.8	78.2	88.3	86.0	85.1	89.4	96.4	90.7	86.2
May	76.8	75.4	86.7	85.1	83.3	85.4	96.3	85.4	83.7
June	75.6	73.1	84.6	83.7	82.3	86.1	96.8	83.5	80.1
July	75.6	71.8	83.0	82.1	81.6	84.2	93.9	82.9	75.7
August	78.0	72.8	83.8	78.7	84.0	79.7	89.1	85.9	77.9
September	78.5	72.9	83.3	81.1	84.7	80.5	90.8	85.4	79.1
October	77.5	74.0	83.9	83.0	84.4	83.7	92.9	86.8	80.2
November	77.7	73.7	84.3	83.6	85.8	84.0	93.3	88.6	81.4
December	77.5	77.3	85.3	84.2	87.2	86.1	94.6	89.6	82.0
Average	**81.8**	**79.2**	**87.6**	**87.0**	**88.5**	**89.0**	**96.6**	**89.5**	**85.7**
1995 January	77.8	78.4	85.8	84.8	87.3	86.7	95.6	NA	83.1
February	77.4	78.5	85.9	84.9	87.3	87.8	97.0	NA	83.4
March	76.3	77.7	85.6	83.7	87.0	87.0	97.0	NA	82.3
April	76.7	76.6	84.8	83.3	86.5	85.2	94.8	NA	80.9
May	78.7	75.8	84.5	85.4	86.1	86.5	96.0	87.8	81.1
June	78.0	74.5	83.7	84.0	83.2	84.2	95.9	87.4	79.5
July	76.9	72.9	81.6	[R]80.6	[R]81.7	[R]79.4	[R]92.9	[R]85.3	75.8
August	76.6	73.1	81.6	80.6	85.4	77.5	90.3	82.6	75.5

R=Revised data. NA=Not available.

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

Source: EIA, *Petroleum Marketing Monthly*, November 1995, Table 18.

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

(Cents per Gallon, Excluding Taxes)

	Delaware	District of Columbia	Maryland	Virginia	West Virginia	Ohio	Michigan	Indiana	Illinois	Wisconsin	Minnesota
1978 Average	47.8	50.7	49.2	49.1	46.2	47.4	47.9	48.5	46.5	44.7	47.8
1979 Average	68.2	74.2	70.1	70.4	65.1	68.6	70.9	72.7	68.8	67.3	72.4
1980 Average	95.4	102.6	97.9	98.5	92.2	91.9	97.8	99.6	95.8	91.5	99.9
1981 Average	117.3	127.4	121.4	120.5	115.0	113.2	118.3	118.5	114.9	109.1	118.4
1982 Average	111.3	124.5	117.1	117.7	109.3	110.2	113.9	114.3	110.9	107.8	115.1
1983 Average	106.0	117.0	110.3	108.7	101.0	101.3	106.4	100.7	100.4	101.2	103.1
1984 Average	109.6	118.7	113.5	110.5	102.1	102.1	105.0	103.1	100.1	101.0	104.1
1985 Average	104.6	114.3	108.8	106.3	98.0	99.7	102.1	99.1	97.5	98.3	101.9
1986 Average	85.0	93.1	91.4	86.6	74.6	77.7	81.0	74.8	NA	75.6	79.2
1987 Average	79.3	91.8	86.6	79.5	76.4	74.7	77.5	75.4	79.8	75.1	74.6
1988 Average	80.1	91.6	87.0	80.5	74.2	74.7	77.5	75.4	77.6	73.9	73.5
1989 Average	88.2	98.6	93.8	87.0	83.0	81.6	85.3	83.2	80.9	81.1	82.4
1990 Average	105.8	107.8	111.9	110.6	99.1	98.1	100.9	99.3	96.1	94.2	101.4
1991 Average	99.7	112.2	108.4	101.1	93.4	91.0	94.2	91.8	92.7	89.5	91.1
1992 Average	92.3	105.7	100.0	92.8	86.4	83.6	87.2	81.2	87.7	81.6	82.6
1993 January	91.2	105.2	100.5	92.4	88.5	84.2	88.1	81.8	87.3	82.8	82.9
February	90.8	106.8	101.4	93.5	88.8	85.5	87.5	82.3	88.2	83.3	83.0
March	92.4	108.5	101.7	94.2	90.1	86.6	89.9	83.1	90.0	84.0	83.9
April	91.6	106.7	99.2	90.3	87.6	86.9	90.5	84.9	86.5	84.6	83.4
May	89.4	104.3	96.2	88.4	87.0	86.0	89.2	83.6	84.8	84.9	84.3
June	90.6	100.4	94.7	85.7	87.0	86.5	87.2	82.0	81.3	84.0	83.6
July	86.4	100.2	92.3	84.5	81.0	79.2	83.2	79.1	79.4	84.0	82.4
August	83.5	96.1	91.3	84.0	80.1	78.6	82.1	76.7	77.4	78.6	79.9
September	84.6	95.5	92.4	84.9	80.5	81.4	85.5	79.3	81.2	82.6	83.1
October	87.4	102.1	94.1	85.1	84.3	85.5	89.9	82.7	87.2	81.6	87.0
November	88.3	100.9	95.8	84.2	84.3	84.5	86.3	80.2	82.4	82.5	84.8
December	88.6	100.5	94.6	85.5	84.8	80.9	82.0	77.1	78.6	78.6	80.6
Average	**89.9**	**104.5**	**98.1**	**89.3**	**85.6**	**84.0**	**87.2**	**81.0**	**84.4**	**82.3**	**83.2**
1994 January	92.1	102.5	98.8	88.6	86.3	81.3	85.6	79.1	78.8	79.9	80.5
February	91.5	105.5	99.5	88.6	86.3	84.2	88.0	82.0	82.2	81.8	80.6
March	91.2	102.0	96.3	86.6	85.0	82.5	87.7	81.0	78.7	82.4	80.0
April	89.2	93.7	92.4	83.0	77.8	82.7	87.7	81.2	76.1	81.4	80.3
May	84.4	83.1	86.8	82.2	73.5	83.3	87.3	79.9	73.3	80.8	79.9
June	82.0	W	87.7	79.7	72.4	82.2	86.9	81.5	75.5	79.9	79.7
July	80.5	W	87.8	79.6	72.9	76.8	87.7	80.0	75.3	81.4	79.8
August	82.3	81.9	86.0	80.5	74.8	76.0	84.3	81.6	77.2	79.1	80.8
September	83.1	86.2	87.8	80.4	76.2	79.9	84.2	82.6	76.6	79.8	81.2
October	84.9	95.5	90.0	82.3	79.3	79.8	85.2	81.7	77.6	80.7	81.4
November	86.0	97.7	92.4	84.1	81.4	79.8	85.9	81.2	80.8	80.9	81.2
December	86.1	101.3	94.3	84.8	81.3	81.1	86.1	82.4	80.4	81.2	80.3
Average	**89.4**	**100.0**	**95.0**	**85.3**	**80.9**	**81.2**	**86.3**	**81.2**	**78.4**	**81.1**	**80.6**
1995 January	88.5	102.4	94.2	84.9	82.1	81.2	86.2	81.7	82.0	81.1	80.1
February	88.6	103.4	95.0	84.6	82.3	80.9	85.8	80.1	80.8	80.3	79.1
March	87.6	103.3	94.2	84.0	81.4	80.4	85.7	82.3	76.6	80.4	80.4
April	87.0	100.0	91.3	84.0	80.2	81.9	86.3	82.7	81.5	81.1	80.5
May	85.2	93.3	89.6	83.0	76.2	80.8	86.1	83.9	81.6	81.5	80.5
June	83.2	NA	86.7	82.3	77.3	78.8	83.5	83.7	77.0	81.3	77.3
July	R80.0	85.1	R83.2	R81.2	75.3	R76.6	R82.0	82.0	76.6	81.0	R76.5
August	82.2	W	82.7	80.8	74.2	72.9	82.5	80.6	72.9	79.1	77.3

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

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

Source: EIA, *Petroleum Marketing Monthly*, November 1995, Table 18.

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

(Cents per Gallon, Excluding Taxes)

	Idaho	Washington	Oregon	Alaska	U.S. Average
1978 Average	**43.6**	**48.6**	**45.8**	**53.2**	**49.0**
1979 Average	**62.1**	**69.7**	**68.0**	**68.2**	**70.4**
1980 Average	**91.6**	**100.8**	**97.3**	**97.8**	**97.4**
1981 Average	**110.4**	**116.5**	**111.4**	**118.0**	**119.4**
1982 Average	**110.4**	**117.6**	**111.6**	**117.4**	**116.0**
1983 Average	**101.8**	**109.0**	**103.6**	**108.8**	**107.8**
1984 Average	**98.5**	**102.6**	**99.3**	**106.9**	**109.1**
1985 Average	**97.2**	**101.1**	**97.1**	**108.3**	**105.3**
1986 Average	**73.8**	**77.5**	**70.4**	**94.9**	**83.6**
1987 Average	**68.8**	**79.5**	**72.5**	**86.5**	**80.3**
1988 Average	**68.8**	**78.5**	**70.9**	**86.9**	**81.3**
1989 Average	**77.8**	**87.4**	**80.2**	**96.4**	**90.0**
1990 Average	**97.4**	**102.9**	**97.0**	**110.1**	**106.3**
1991 Average	**95.1**	**101.6**	**93.3**	**105.0**	**101.9**
1992 Average	**85.7**	**94.0**	**87.6**	**94.1**	**93.4**
1993 January	85.0	100.5	91.7	95.1	94.3
February	84.1	101.6	89.9	95.1	94.6
March	87.8	99.0	90.7	96.9	95.4
April	84.6	100.5	92.1	96.1	92.6
May	83.2	99.1	91.3	96.8	91.1
June	82.8	95.1	90.3	98.1	88.9
July	80.0	91.3	86.1	98.0	85.6
August	77.0	89.3	83.5	99.7	84.1
September	85.3	97.1	92.0	95.2	85.5
October	94.7	105.4	100.2	98.6	88.7
November	97.4	103.7	97.4	95.0	88.5
December	81.1	96.6	87.8	91.7	86.6
Average	**86.2**	**99.9**	**91.8**	**96.1**	**91.1**
1994 January	73.2	92.8	86.0	88.8	89.6
February	73.7	96.3	88.3	88.6	92.9
March	77.4	97.1	88.4	89.2	91.4
April	76.2	97.5	88.1	88.6	88.2
May	76.9	96.2	87.6	90.0	86.1
June	72.8	93.1	85.1	87.7	85.2
July	74.6	NA	82.5	88.2	82.7
August	80.8	NA	NA	80.8	82.1
September	83.1	90.2	87.8	83.4	83.2
October	85.8	96.2	91.1	85.1	84.7
November	84.8	99.0	91.6	86.6	85.7
December	84.6	97.3	89.4	84.7	86.8
Average	**78.9**	**95.0**	**88.7**	**86.5**	**88.4**
1995 January	80.3	95.4	88.5	83.5	87.4
February	79.7	94.8	87.0	84.0	87.9
March	80.0	94.5	88.8	84.2	87.4
April	81.0	NA	90.4	82.8	86.2
May	83.2	NA	91.5	82.3	86.4
June	82.8	NA	89.9	82.7	84.7
July	R82.9	R94.0	NA	R81.7	R82.0
August	84.8	91.3	86.3	82.0	80.7

R=Revised data. NA=Not available.

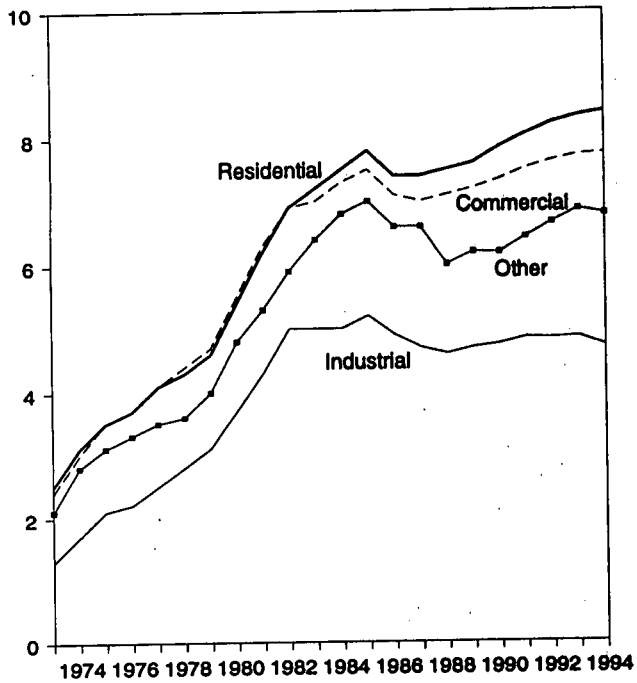
Notes: • States are grouped in Tables 9.8a, 9.8b, and 9.8c by geographic region of the country. • Values for the current month are preliminary. • Prices prior to 1983 are Energy Information Administration (EIA) estimates. See Note 6 at end of section.

Source: EIA, *Petroleum Marketing Monthly*, November 1995, Table 18.

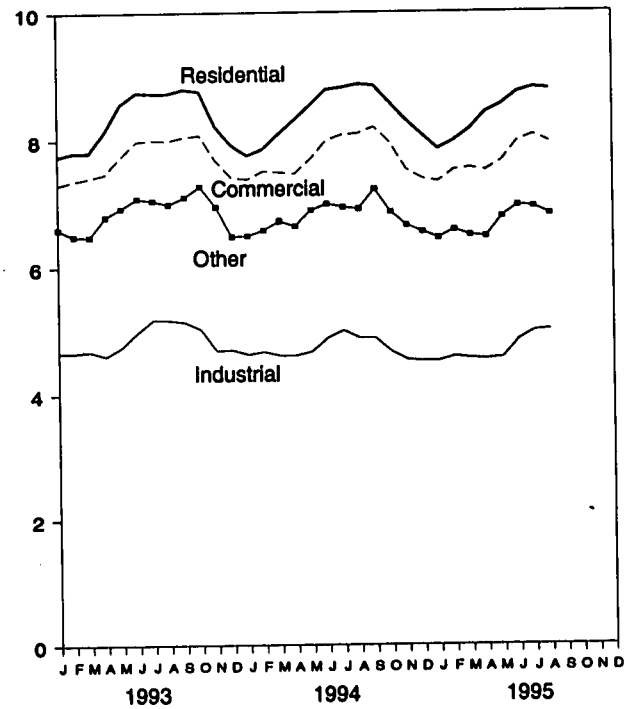
Figure 9.2 Retail Prices of Electricity Sold by Electric Utilities

(Cents per Kilowatthour)

By Sector, 1973-1994



By Sector, Monthly

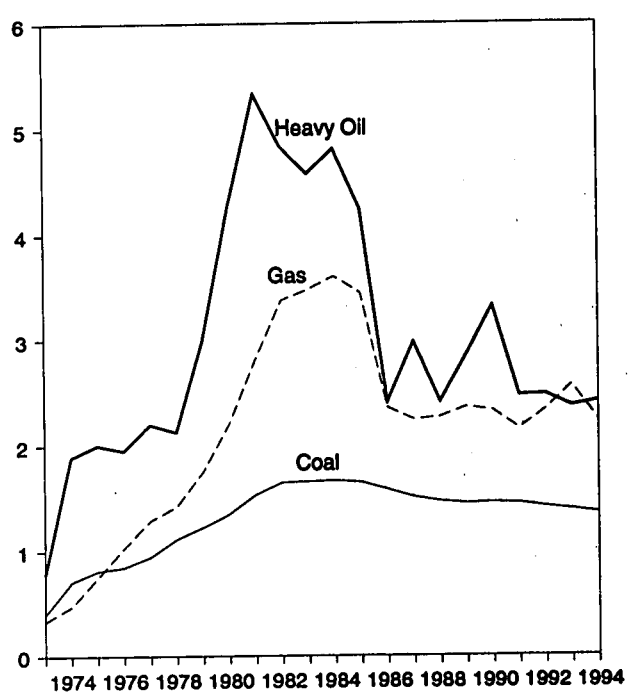


Source: Table 9.9, Monthly Series.

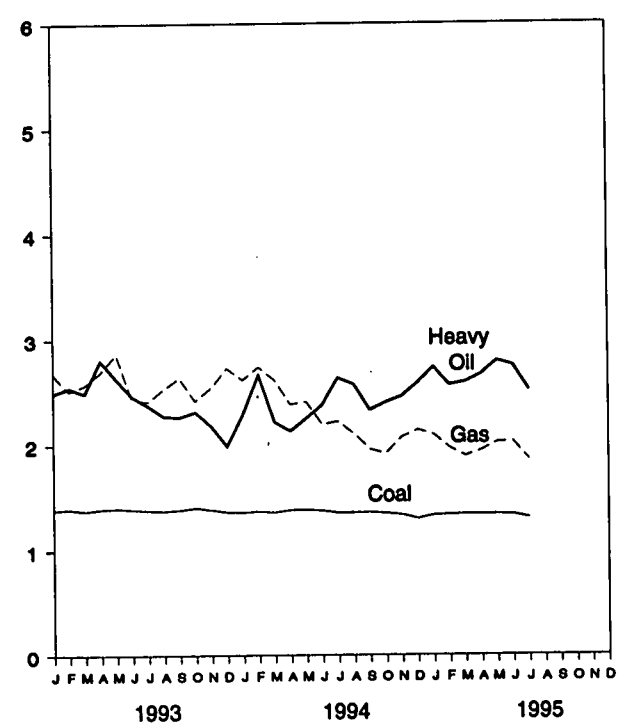
Figure 9.3 Cost of Fossil-Fuel Receipts at Steam-Electric Plants

(Dollars per Million Btu)

Costs, 1973-1994



Costs, Monthly



Source: Table 9.10.

Table 9.9 Retail Prices of Electricity Sold by Electric Utilities

(Cents per Kilowatthour)

	Residential		Commercial		Industrial		Other[a]		Total[b]	
	Monthly Series[c]	Annual Series	Monthly Series[c]	Annual Series	Monthly Series[c]	Annual Series	Monthly Series[c]	Annual Series	Monthly Series[c]	Annual Series
1973 Average	2.5	NA	2.4	NA	1.3	NA	2.1	NA	2.0	NA
1974 Average	3.1	NA	3.0	NA	1.7	NA	2.8	NA	2.5	NA
1975 Average	3.5	NA	3.5	NA	2.1	NA	3.1	NA	2.9	NA
1976 Average	3.7	NA	3.7	NA	2.2	NA	3.3	NA	3.1	NA
1977 Average	4.1	NA	4.1	NA	2.5	NA	3.5	NA	3.4	NA
1978 Average	4.3	NA	4.4	NA	2.8	NA	3.6	NA	3.7	NA
1979 Average	4.6	NA	4.7	NA	3.1	NA	4.0	NA	4.0	NA
1980 Average	5.4	NA	5.5	NA	3.7	NA	4.8	NA	4.7	NA
1981 Average	6.2	NA	6.3	NA	4.3	NA	5.3	NA	5.5	NA
1982 Average	6.9	NA	6.9	NA	5.0	NA	5.9	NA	6.1	NA
1983 Average	7.2	NA	7.0	NA	5.0	NA	6.4	NA	6.3	NA
1984 Average	7.5	7.15	7.3	7.13	5.0	4.83	6.8	5.90	6.5	6.25
1985 Average	7.8	7.39	7.5	7.27	5.2	4.97	7.0	6.09	6.7	6.44
1986 Average	7.4	7.42	7.1	7.20	4.9	4.93	6.6	6.11	6.4	6.44
1987 Average	7.4	7.45	7.0	7.08	4.7	4.77	6.6	6.21	6.3	6.37
1988 Average	7.5	7.48	7.1	7.04	4.6	4.70	6.0	6.20	6.3	6.35
1989 Average	7.6	7.65	7.2	7.20	4.7	4.72	6.2	6.25	6.4	6.45
1990 Average	7.85	7.83	7.34	7.34	4.75	4.74	6.19	6.40	6.57	6.57
1991 Average	8.05	8.04	7.51	7.53	4.85	4.83	6.43	6.51	6.75	6.75
1992 Average	8.23	8.21	7.63	7.66	4.84	4.83	6.66	6.74	6.83	6.82
1993 January	7.75	–	7.30	–	4.66	–	6.60	–	6.61	–
February	7.81	–	7.36	–	4.66	–	6.49	–	6.59	–
March	7.81	–	7.41	–	4.68	–	6.48	–	6.58	–
April	8.14	–	7.47	–	4.61	–	6.79	–	6.61	–
May	8.57	–	7.74	–	4.75	–	6.93	–	6.81	–
June	8.75	–	7.98	–	4.98	–	7.08	–	7.13	–
July	8.74	–	8.00	–	5.18	–	7.05	–	7.36	–
August	8.74	–	7.99	–	5.17	–	6.99	–	7.35	–
September	8.80	–	8.05	–	5.14	–	7.10	–	7.32	–
October	8.77	–	8.08	–	5.03	–	7.27	–	7.15	–
November	8.22	–	7.68	–	4.69	–	6.95	–	6.74	–
December	7.92	–	7.41	–	4.70	–	6.48	–	6.65	–
Average	8.34	8.32	7.72	7.74	4.86	4.85	6.86	6.88	6.92	6.93
1994 January	7.76	–	7.38	–	4.63	–	6.49	–	6.66	–
February	7.86	–	7.51	–	4.67	–	6.58	–	6.69	–
March	8.10	–	7.49	–	4.61	–	6.72	–	6.68	–
April	8.32	–	7.47	–	4.61	–	6.64	–	6.67	–
May	8.55	–	7.70	–	4.67	–	6.89	–	6.80	–
June	8.79	–	7.99	–	4.88	–	6.99	–	7.17	–
July	8.82	–	8.08	–	5.00	–	6.94	–	7.37	–
August	8.87	–	8.10	–	4.88	–	6.91	–	7.29	–
September	8.85	–	8.20	–	4.88	–	7.22	–	7.25	–
October	8.58	–	7.95	–	4.67	–	6.86	–	6.91	–
November	8.31	–	7.53	–	4.54	–	6.65	–	6.65	–
December	8.08	–	7.39	–	4.52	–	6.55	–	6.64	–
Average	8.41	NA	7.75	NA	4.72	NA	6.79	NA	6.92	NA
1995 January	7.85	–	7.34	–	4.52	–	6.45	–	6.60	–
February	7.98	–	7.52	–	4.59	–	6.58	–	6.68	–
March	8.16	–	7.55	–	4.56	–	6.49	–	6.67	–
April	8.43	–	7.51	–	4.55	–	6.47	–	6.67	–
May	8.55	–	7.66	–	4.57	–	6.78	–	6.76	–
June	8.74	–	7.97	–	4.85	–	6.96	–	7.12	–
July	8.81	–	8.07	–	4.99	–	6.94	–	7.36	–
August	8.79	–	7.96	–	5.01	–	6.82	–	7.36	–
8-Month Average	8.43	–	7.72	–	4.71	–	6.69	–	6.93	–
1994 8-Month Average	8.38	–	7.74	–	4.75	–	6.77	–	6.94	–
1993 8-Month Average	8.30	–	7.68	–	4.84	–	6.81	–	6.90	–

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

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

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

NA=Not available. – =Not applicable.

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

Sources: See end of section.

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

	Coal		Petroleum				Gas[a]		All Fossil Fuels[b]
			Heavy Oil[b]		Total[b,c]				
	Quantity (thousand short tons)	Cost (cents per million Btu)	Quantity (thousand barrels)	Cost (cents per million Btu)	Quantity (thousand barrels)	Cost (cents per million Btu)	Quantity (million cubic feet)	Cost (cents per million Btu)	Cost (cents per million Btu)
1973 Year	374,842	40.5	512,650	78.5	535,859	80.0	3,382,677	33.8	47.6
1974 Year	384,868	70.9	479,166	189.0	515,217	191.0	3,225,203	48.2	91.4
1975 Year	431,527	81.4	457,582	200.5	510,352	202.3	3,034,808	75.2	104.4
1976 Year	454,858	84.8	495,363	195.2	549,973	199.0	2,962,811	103.4	111.9
1977 Year	490,415	94.7	563,685	219.8	635,556	224.9	3,106,403	129.1	129.7
1978 Year	476,169	111.6	546,197	212.5	616,040	219.1	3,140,654	142.2	141.1
1979 Year	556,558	122.4	479,705	298.8	515,695	307.2	3,368,976	174.9	163.9
1980 Year	593,995	135.1	394,159	426.7	419,140	435.1	3,588,814	219.9	192.8
1981 Year	579,374	153.2	327,477	533.4	345,544	542.5	3,573,558	280.5	225.6
1982 Year	601,427	164.7	228,200	483.2	239,111	492.2	3,161,348	337.6	224.9
1983 Year	592,728	165.6	211,705	457.8	219,652	462.8	2,732,248	347.4	220.6
1984 Year	684,111	166.4	193,832	481.2	202,372	486.3	2,878,808	360.3	219.1
1985 Year	666,743	164.8	156,410	424.4	164,947	431.7	2,808,921	344.4	209.4
1986 Year	686,964	157.9	220,585	240.1	228,522	243.7	2,387,622	235.1	175.0
1987 Year	721,298	150.6	187,300	297.6	194,578	301.1	2,605,191	224.0	170.6
1988 Year	727,775	146.6	230,234	240.5	236,924	243.9	2,362,721	226.3	164.3
1989 Year	753,217	144.5	237,668	284.6	246,422	289.3	2,472,506	235.5	167.5
1990 Year	786,627	145.5	202,281	331.9	209,350	338.4	2,490,979	232.1	168.9
1991 Year	769,923	144.7	163,106	246.5	169,625	254.8	2,630,818	215.3	160.3
1992 Year	775,963	141.2	138,537	247.5	144,390	255.1	2,637,678	232.8	159.0
1993 January	65,219	138.5	8,437	248.7	9,027	259.1	159,320	267.3	156.2
February	59,225	139.3	7,002	254.1	7,421	263.8	153,537	250.7	155.6
March	63,957	137.5	8,548	248.6	9,022	258.8	185,876	256.7	156.4
April	63,814	139.3	10,074	280.0	10,534	286.5	169,838	268.9	159.9
May	62,568	140.0	10,378	262.7	10,803	269.3	163,917	286.3	161.7
June	63,702	139.0	10,638	245.8	11,149	254.2	244,015	243.2	159.9
July	59,853	138.0	15,424	237.3	16,045	243.3	313,392	240.9	164.5
August	65,843	137.4	15,099	227.0	15,624	232.2	340,505	252.6	165.1
September	65,357	138.5	15,324	226.1	15,766	231.0	250,296	263.6	162.8
October	67,123	140.5	13,596	231.0	14,005	236.6	226,238	241.3	159.1
November	65,938	138.4	10,868	218.0	11,420	227.3	201,903	254.0	156.9
December	66,552	136.2	16,331	198.8	17,085	205.5	165,685	272.4	154.9
Year	769,152	138.5	141,719	236.2	147,902	243.3	2,574,523	256.0	159.5
1994 January	62,611	135.9	16,700	228.6	17,781	238.0	160,361	261.5	156.7
February	64,409	136.8	16,554	266.2	17,543	274.4	142,783	273.5	159.0
March	72,960	135.9	12,796	221.6	13,318	227.7	179,910	261.5	153.1
April	67,380	138.1	9,904	213.1	10,400	220.9	199,349	238.2	153.6
May	71,130	138.3	13,291	224.8	13,892	231.3	211,907	240.6	155.2
June	70,066	137.4	13,461	237.3	14,333	246.1	302,900	219.2	156.4
July	67,619	135.3	14,215	263.2	14,771	267.9	347,984	221.9	158.9
August	75,308	135.4	11,135	256.9	11,562	262.1	360,874	210.3	153.8
September	69,922	135.8	8,495	232.5	8,966	240.2	283,747	195.7	148.8
October	69,323	134.8	4,689	239.8	5,187	253.9	252,845	191.6	145.6
November	68,846	133.3	6,313	245.2	6,852	256.9	221,118	206.8	146.3
December	72,354	129.7	7,630	258.1	8,336	268.6	200,126	213.9	143.8
Year	831,929	135.5	135,184	240.9	142,940	248.8	2,863,904	223.0	152.6
1995 January	69,981	132.9	5,565	273.1	6,114	282.7	188,389	209.2	145.2
February	65,789	133.4	6,150	256.2	6,535	263.1	163,598	197.0	143.6
March	69,027	133.8	5,040	259.0	5,451	267.6	233,406	189.0	144.3
April	66,167	133.7	2,849	266.2	3,222	280.4	222,405	194.5	144.1
May	68,501	133.7	5,864	279.2	6,212	286.0	247,211	201.9	147.3
June	64,483	133.3	8,476	274.8	9,083	282.4	281,754	202.6	150.3
July	67,734	130.3	8,367	251.3	8,838	257.7	376,164	185.6	146.0
7 Months	471,681	133.0	42,311	265.4	45,454	273.4	1,712,926	196.0	145.9
1994 7 Months	476,176	136.8	96,921	238.2	102,038	245.7	1,545,194	239.5	156.1
1993 7 Months	438,339	138.8	70,500	252.8	74,001	260.8	1,389,895	256.3	159.2

[a] Includes supplemental gaseous fuels.

[b] Heavy oil includes fuel oil nos. 4, 5, and 6, and topped crude oil. The weighted averages for petroleum and all fossil fuels include both heavy and light oil (fuel oil nos. 1 and 2, kerosene, and jet fuel) prices. Data do not include petroleum coke.

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

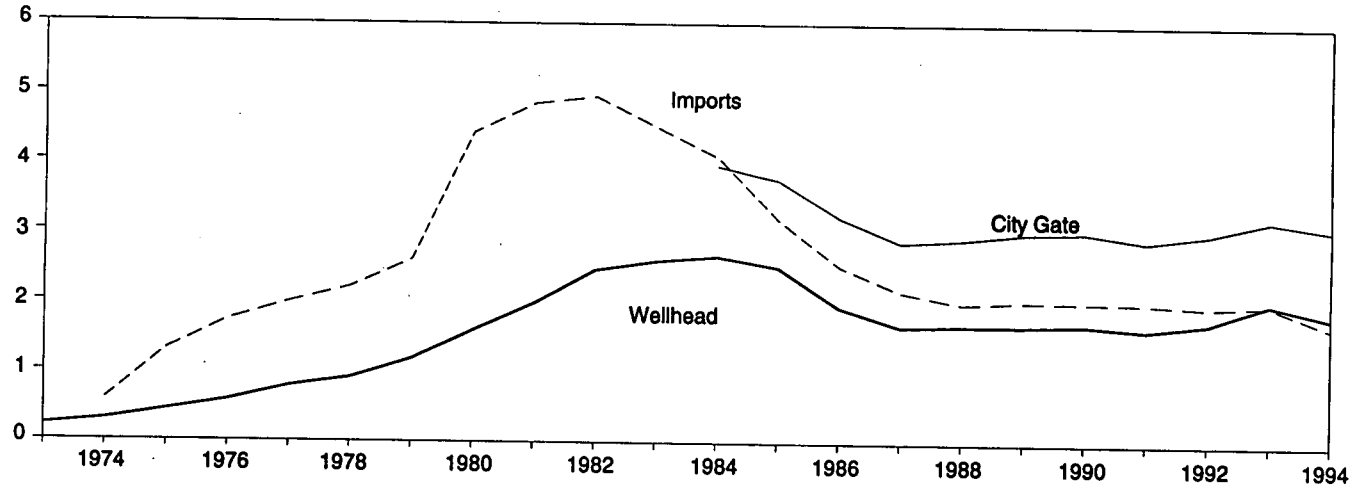
Notes: • See Note 8 at end of section. • Geographic coverage is the 50 States and the District of Columbia.

Sources: See end of section.

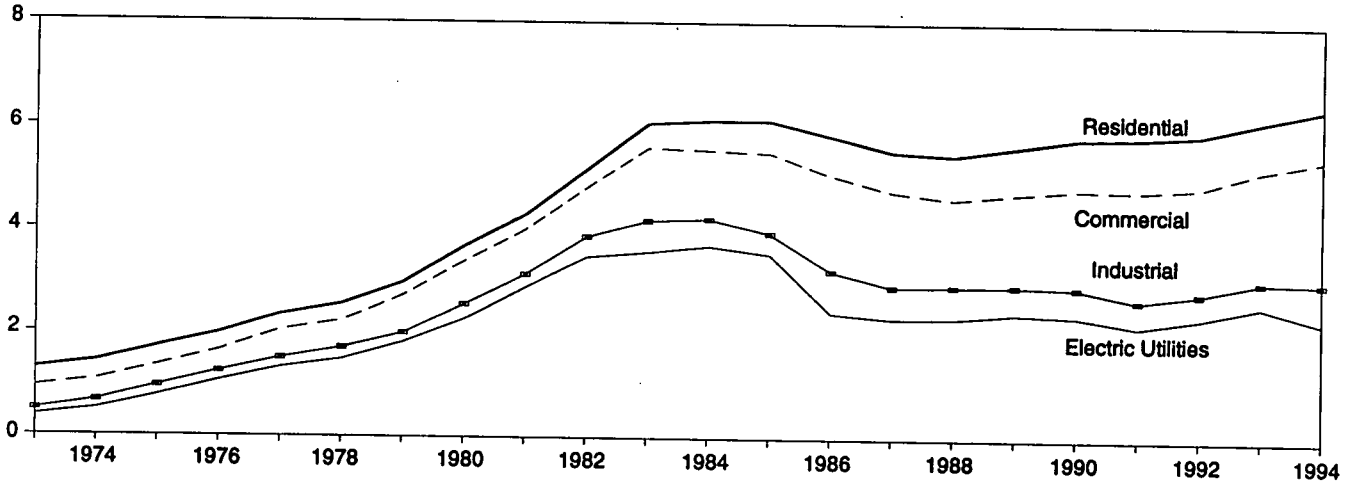
Figure 9.4 Natural Gas Prices

(Dollars per Thousand Cubic Feet)

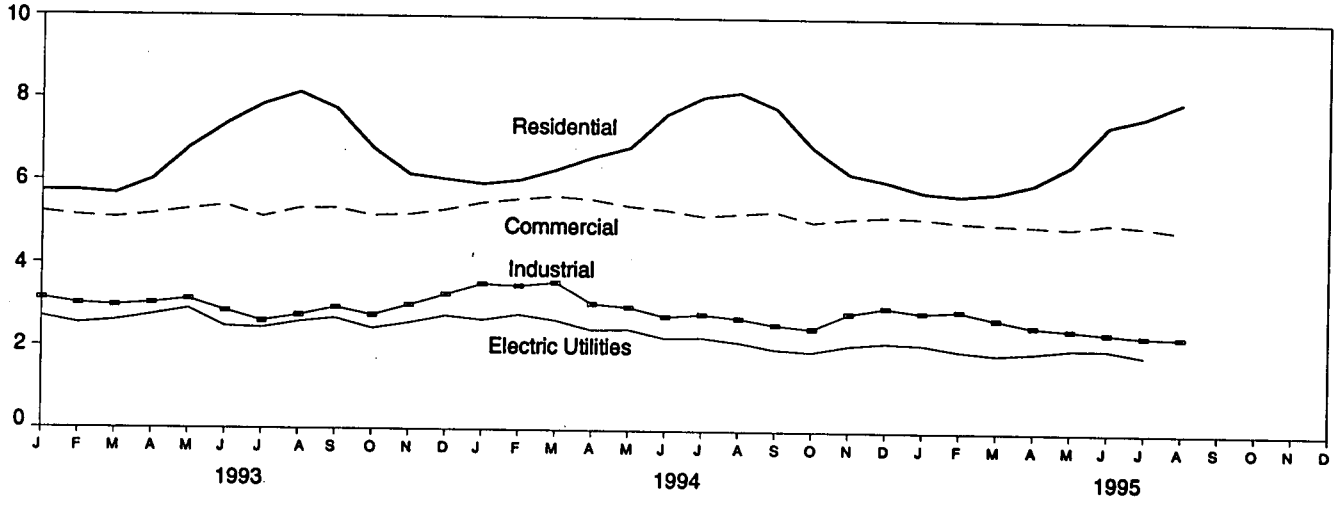
Selected Prices, 1973-1994



Delivered to Consumers, 1973-1994



Delivered to Consumers, Monthly



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

Table 9.11 Natural Gas Prices

(Prices: Dollars per Thousand Cubic Feet; Share of Volume Delivered: Percentage)

	Wellhead	City Gate	Delivered to Consumers[a,b]					
			Residential	Commercial		Industrial		Electric Utilities[c]
				Price	Share of Total Volume Delivered	Price	Share of Total Volume Delivered	
1973 Average	0.22	NA	1.29	0.94	NA	0.50	NA	0.38
1974 Average	.30	NA	1.43	1.07	NA	.67	NA	.51
1975 Average	.44	NA	1.71	1.35	NA	.96	NA	.77
1976 Average	.58	NA	1.98	1.64	NA	1.24	NA	1.06
1977 Average	.79	NA	2.35	2.04	NA	1.50	NA	1.32
1978 Average	.91	NA	2.56	2.23	NA	1.70	NA	1.48
1979 Average	1.18	NA	2.98	2.73	NA	1.99	NA	1.81
1980 Average	1.59	NA	3.68	3.39	NA	2.56	NA	2.27
1981 Average	1.98	NA	4.29	4.00	NA	3.14	NA	2.89
1982 Average	2.46	NA	5.17	4.82	NA	3.87	85.1	3.48
1983 Average	2.59	NA	6.06	5.59	NA	4.18	80.7	3.58
1984 Average	2.66	3.95	6.12	5.55	NA	4.22	74.7	3.70
1985 Average	2.51	3.75	6.12	5.50	NA	3.95	68.8	3.55
1986 Average	1.94	3.22	5.83	5.08	NA	3.23	59.8	2.43
1987 Average	1.67	2.87	5.54	4.77	93.1	2.94	47.4	2.32
1988 Average	1.69	2.92	5.47	4.63	90.8	2.95	42.6	2.33
1989 Average	1.69	3.01	5.64	4.74	89.1	2.96	36.9	2.43
1990 Average	1.71	3.03	5.80	4.83	86.6	2.93	35.2	2.38
1991 Average	1.64	2.90	5.82	4.81	85.1	2.69	32.7	2.18
1992 Average	1.74	3.01	5.89	4.88	83.2	2.84	30.3	2.36
1993 January	1.95	3.11	5.73	5.23	86.6	3.15	32.1	2.70
February	1.76	2.94	5.73	5.14	86.3	3.02	32.5	2.54
March	1.94	3.06	5.67	5.10	86.4	2.98	31.6	2.61
April	2.09	3.24	6.02	5.19	84.9	3.04	30.3	2.75
May	2.35	3.58	6.78	5.31	82.2	3.14	29.2	2.90
June	1.91	3.44	7.37	5.40	79.0	2.86	27.1	2.48
July	1.94	3.34	7.85	5.14	79.2	2.62	28.0	2.45
August	2.04	3.35	8.13	5.34	78.0	2.76	27.2	2.60
September	2.19	3.54	7.75	5.35	78.3	2.95	26.6	2.69
October	1.96	3.15	6.79	5.18	79.9	2.77	27.8	2.45
November	1.96	3.15	6.17	5.21	83.0	3.02	29.4	2.59
December	2.24	3.27	6.06	5.33	85.1	3.28	29.1	2.76
Average	2.03	3.21	6.16	5.22	83.9	3.07	29.3	2.61
1994 January	2.00	3.03	5.95	5.50	78.0	3.54	23.9	2.67
February	2.13	3.27	6.05	5.59	78.0	3.50	25.8	2.80
March	2.12	3.33	6.30	5.66	77.1	3.59	24.3	2.67
April	1.91	3.15	6.61	5.59	73.5	3.08	23.3	2.44
May	1.94	3.18	6.84	5.44	68.5	3.00	21.9	2.46
June	1.75	3.20	7.66	5.36	65.2	2.78	20.6	2.25
July	1.84	3.12	8.08	5.22	63.4	2.84	20.9	2.27
August	1.74	3.16	8.20	5.28	66.0	2.75	20.6	2.16
September	1.56	2.92	7.83	5.34	65.9	2.60	19.5	2.00
October	1.48	2.82	6.87	5.09	67.7	2.51	21.0	1.95
November	1.68	2.85	6.25	5.18	70.8	2.88	20.9	2.10
December	1.72	2.86	6.07	5.23	76.7	3.03	22.1	2.17
Average	1.83	3.08	6.41	5.43	73.4	3.05	22.1	2.28
1995 January	1.65	2.79	5.82	5.20	76.3	2.91	23.4	2.13
February	1.46	2.71	5.74	5.11	76.6	2.96	22.8	1.99
March	1.48	2.74	5.82	5.07	76.8	2.76	22.8	1.91
April	1.48	2.70	6.04	5.04	72.6	2.59	21.8	1.96
May	1.63	2.75	6.51	4.99	66.1	2.52	20.5	2.05
June	1.66	2.90	7.46	5.11	67.2	2.44	21.3	2.05
July	[R]1.45	2.88	7.68	5.04	62.2	2.37	19.5	[R]1.90
August	1.53	2.89	8.04	4.92	59.6	2.35	19.3	NA
8-Month Average	1.54	2.77	6.12	5.09	72.3	2.64	21.5	NA
1994 8-Month Average	1.93	3.18	6.41	5.52	74.1	3.18	22.8	2.40
1993 8-Month Average	2.00	3.19	6.07	5.20	84.5	2.96	29.8	2.60

[a] Includes supplemental gaseous fuels.
[b] See Note 9 at end of section.
[c] See Note 8 at end of section.
R=Revised data. NA=Not available. E=Estimate.
Notes: • Prices shown on this page are intended to include all taxes. See Note 9 at end of section. • Wellhead annual and year-to-date prices are simple averages of the monthly prices; all other annual and year-to-date prices are volume-weighted averages of the monthly prices. • Geographic coverage is the 50 States and the District of Columbia.
Sources: See end of section.

Energy Prices Notes

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

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

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

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

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

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

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

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

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

ever, sales to bulk consumers, such as utility, industrial, and commercial accounts previously included in the wholesale category are now counted as made to end users. The end-user category continues to include retail sales through company owned and operated outlets but also includes sales to the bulk consumers such as agriculture, industry, and electric utilities. Additional information may be found in "Estimated Historic Time Series for the EIA-782," a feature article reprinted from the December 1983 [3] *Petroleum Marketing Monthly,* published by EIA.

7. National average electricity prices are shown in two data series. The "Annual Series" is based on data from publicly and privately owned electric utilities that report on Form EIA-861, "Annual Electric Utility Report." The "Monthly Series" is based on data from over 250 utilities statistically chosen as a sample of the utilities that report on Form EIA-861. The selected utilities report monthly on Form EIA-826, "Monthly Electric Utility Sales and Revenue Report with State Distributions," formerly the "Electric Utility Company Monthly Statement." Annual values shown for the monthly series are the sum of the monthly revenue divided by the sum of the monthly sales. Prior to January 1986, only privately owned utilities were included in the monthly survey and the sample was chosen by using cut-off techniques; from January 1986 through 1992, the sample was chosen using stratification techniques.

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

9. Natural gas prices are intended to include all taxes. Instructions on the data collection forms specifically direct that all Federal, State, and local taxes, surcharges, and/or adjustments billed to consumers are to be included. However, sales and other taxes itemized on more than 3,000 consumers' bills are sometimes excluded by the reporting utilities. Delivered-to-consumers prices for 1987 forward represent natural gas delivered and sold to residential, commercial, industrial, and electric utility consumers. They do not include the price of natural gas delivered to industrial and commercial consumers on behalf of third parties. Volumes of natural gas delivered on behalf of third parties are included in the consumption data shown in Table 4.4. Additional information is available in the EIA *Natural Gas Monthly,* Appendix C.

Sources for Table 9.1

Domestic First Purchase Price

1973-1976: U.S. Department of the Interior (DOI), Bureau of Mines (BOM), *Minerals Yearbook,* "Crude Petroleum and Petroleum Products" chapter.
1977: Federal Energy Administration (FEA), based on Form FEA-P124, "Domestic Crude Oil Purchaser's Monthly Report."
1978 forward: Energy Information Administration (EIA), *Petroleum Marketing Monthly,* November 1995, Table 1.

F.O.B. and Landed Cost of Imports

October 1973-September 1977: Federal Energy Administration, Form FEA-F701-M-0, "Transfer Pricing Report."
October-December 1977: EIA, Form FEA-F701-M-0, "Transfer Pricing Report."
1978 forward: EIA, *Petroleum Marketing Monthly,* November 1995, Table 1.

Refiner Acquisition Cost

1973: EIA estimates. The domestic price was derived by adding estimated transportation costs to the reported domestic first purchase price. The imported price was derived by adding an estimated ocean transport cost to the average "Free Alongside Ship" value published by the U.S. Bureau of the Census.
1974-1976: DOI, BOM, *Minerals Yearbook,* "Crude Petroleum and Petroleum Products" chapter.
1977: January-September, FEA, based on Form FEA-P110-M-1, "Refiners' Monthly Cost Allocation Report." October-December, EIA, based on Form FEA-P110-M-1, "Refiners' Monthly Cost Allocation Report."
1978 forward: EIA, *Petroleum Marketing Monthly,* November 1995, Table 1.

Sources for Table 9.9

Monthly Series

1973-September 1977: Federal Power Commission, Form FPC-5, "Monthly Statement of Electric Operating Revenue and Income."
October 1977-February 1980: Federal Energy Regulatory Commission (FERC), Form FERC-5, "Electric Operating Revenue and Income."
March 1980-December 1980: FERC, Form FERC-5, "Electric Utility Company Monthly Statement."
1981: Energy Information Administration (EIA), *Electric Power Monthly,* March 1992, Table 59.

1982: EIA, *Electric Power Monthly,* March 1993,Table 59.
1983: EIA, *Electric Power Monthly,* March 1993,Table 59.
1984 (and 1993 monthly data): EIA, *Electric Power Monthly,* March 1995, Table 60.
1985 forward (except 1993 monthly data): EIA, *Electric Power Monthly,* November 1995, Table 60.

Annual Series

1973-1993: EIA, *Electric Power Monthly,* October 1995, Table 60.

Sources for Table 9.10

1973-1979: Annual data for quantity are simple sums of unrounded monthly values and for cost are averages of monthly values, weighted by quantities of Btu, from the following:
1973-May 1977: Federal Power Commission, Form FPC-423, "Monthly Report on Cost and Quality of Fuels for Electric Utility Plants."
June 1977-December 1977: Federal Energy Regulatory Commission, Form FERC-423, "Monthly Report on Cost and Quality of Fuels for Electric Utility Plants."
1978 and 1979: Energy Information Administration (EIA), Form FERC-423, "Monthly Report on Cost and Quality of Fuels for Electric Utility Plants."
1980: EIA, *Electric Power Monthly,* April 1991, Table 33.
1981: EIA, *Electric Power Monthly,* April 1992, Table 33.
1982: EIA, *Electric Power Monthly,* April 1993, Table 33.
1983: EIA, *Electric Power Monthly,* April 1994, Table 34.
1994 forward: EIA, *Electric Power Monthly,* November 1995, Table 34.

Sources for Table 9.11

1973-1986

Wellhead: Energy Information Administration (EIA), *Natural Gas Annual 1991,* Table 95.
City Gate, 1984-1986: EIA, *Natural Gas Monthly,* December 1989, Table 4.
Delivered to Consumers, 1973-1986: EIA, *Natural Gas Annual 1991,* Table 98.

1987 forward

EIA, *Natural Gas Monthly,* November 1995, Table 4.

Section 10. International Energy

Crude Oil Production. World crude oil production during August 1995 was 63 million barrels per day, up 0.2 million barrels per day from the level in the previous month.

Organization of Petroleum Exporting Countries (OPEC) production during August 1995 averaged 27 million barrels per day, up 0.3 million barrels per day from the level during the previous month. Production by the Arab members of OPEC in August 1995 averaged 16 million barrels per day, up slightly from the July 1995 level. During August 1995, production increased in both Kuwait and Saudi Arabia by 15 thousand barrels per day. Production remained unchanged in Algeria, Iraq, Libya, Qatar, and the United Arab Emirates. Among the non-Arab members of OPEC, production during August 1995 increased in Iran by 150 thousand barrels per day and in Nigeria by 55 thousand barrels per day. Production remained the same in Indonesia and Venezuela.

Among the non-OPEC nations, production during August 1995 increased in the United Kingdom by 55 thousand barrels per day, in the former U.S.S.R. by 40 thousand barrels per day, China by 20 thousand barrels per day, the United States by 13 thousand barrels per day, and Mexico by 5 thousand barrels per day. Production decreased in Canada by 5 thousand barrels per day and remained the same in Ecuador.

Petroleum Consumption. In June 1995, consumption in all Organization for Economic Cooperation and Development (OECD) countries was 39.7 million barrels per day, 1 percent higher than the June 1994 rate. The consumption rate was higher than it was 1 year ago in Italy (+11 percent)[9], France and the United States (both +2 percent), and Canada (slightly higher). The consumption rate was lower in the United Kingdom (-5 percent), Germany (-4 percent), and Japan (-3 percent), compared with the level 1 year earlier.

Petroleum Stocks. For all OECD countries, petroleum stocks at the end of June 1995 totaled 3.7 billion barrels, slightly higher than the ending stock level in June 1994. Stock levels were higher in Italy (+6 percent), Japan (+4 percent), France (+3 percent), and Canada (+2 percent). Stocks were lower in the United Kingdom (-9 percent), Germany (-2 percent), and the United States (-1 percent), compared with levels 1 year earlier.

Nuclear Electricity Generation. Based on *Nucleonics Week* information for August 1995, all reporting countries with nuclear capacity generated 193.9 gross terawatthours[10] of nuclear-generated electricity.

During the first 8 months of 1995, three nuclear units became operable: Kakrapar-2 in India during January; Sizewell-B in the United Kingdom during February; and Onagawa-2 in Japan during March. One unit was permanently shutdown: Wuergassen, in Germany during June.

As of August 31, 1995, there were 434 operable nuclear generating units in the world.

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

Table 10.1a World Crude Oil Production: Algeria Through Venezuela

(Thousand Barrels per Day)

	Algeria	Iraq	Kuwait[a]	Libya	Qatar	Saudi Arabia[a]	United Arab Emirates	Arab OPEC[b]	Indonesia	Iran	Nigeria	Venezuela
1973 Average	1,097	2,018	3,020	2,175	570	7,596	1,533	18,009	1,339	5,861	2,054	3,366
1974 Average	1,009	1,971	2,546	1,521	518	8,480	1,679	17,724	1,375	6,022	2,255	2,976
1975 Average	983	2,262	2,084	1,480	438	7,075	1,664	15,985	1,307	5,350	1,783	2,346
1976 Average	1,075	2,415	2,145	1,933	497	8,577	1,936	18,579	1,504	5,883	2,067	2,294
1977 Average	1,152	2,348	1,969	2,063	445	9,245	1,999	19,221	1,686	5,663	2,085	2,238
1978 Average	1,231	2,563	2,131	1,983	487	8,301	1,831	18,525	1,635	5,242	1,897	2,165
1979 Average	1,224	3,477	2,500	2,092	508	9,532	1,831	21,163	1,591	3,168	2,302	2,356
1980 Average	1,106	2,514	1,656	1,787	472	9,900	1,709	19,144	1,577	1,662	2,055	2,168
1981 Average	1,002	1,000	1,125	1,140	405	9,815	1,474	15,961	1,605	1,380	1,433	2,102
1982 Average	987	1,012	823	1,150	330	6,483	1,250	12,035	1,339	2,214	1,295	1,895
1983 Average	968	1,005	1,064	1,105	295	5,086	1,149	10,672	1,343	2,440	1,241	1,801
1984 Average	1,014	1,209	1,157	1,087	394	4,663	1,146	10,670	1,412	2,174	1,388	1,798
1985 Average	1,037	1,433	1,023	1,059	301	3,388	1,193	9,434	1,325	2,250	1,495	1,677
1986 Average	945	1,690	1,419	1,034	308	4,870	1,330	11,596	1,390	2,035	1,467	1,787
1987 Average	1,048	2,079	1,585	972	293	4,265	1,541	11,783	1,343	2,298	1,341	1,752
1988 Average	1,040	2,685	1,492	1,175	346	5,086	1,565	13,389	1,342	2,240	1,450	1,903
1989 Average	1,095	2,897	1,783	1,150	380	5,064	1,860	14,229	1,409	2,810	1,716	1,907
1990 Average	1,175	2,040	1,175	1,375	406	6,410	2,117	14,698	1,462	3,088	1,810	2,137
1991 Average	1,230	305	190	1,483	395	8,115	2,386	14,104	1,592	3,312	1,892	2,375
1992 Average	1,214	425	1,058	1,433	423	8,332	2,266	15,151	1,504	3,429	1,943	2,371
1993 January	1,210	500	1,675	1,480	456	8,500	2,244	16,065	1,572	3,650	2,125	2,484
February	1,210	500	1,865	1,425	436	8,440	2,254	16,130	1,552	3,750	2,105	2,464
March	1,200	500	1,650	1,350	406	8,300	2,219	15,625	1,521	3,700	2,075	2,412
April	1,200	500	1,645	1,350	406	8,000	2,219	15,320	1,501	3,500	2,025	2,412
May	1,200	500	1,712	1,350	426	8,000	2,180	15,369	1,531	3,650	2,025	2,412
June	1,200	500	1,775	1,350	406	8,150	2,180	15,561	1,531	3,650	1,995	2,412
July	1,180	500	1,940	1,350	416	8,240	2,161	15,786	1,531	3,800	1,975	2,464
August	1,180	500	2,045	1,370	416	8,345	2,161	16,016	1,531	3,500	2,025	2,464
September	1,180	530	2,020	1,370	416	8,270	2,170	15,956	1,531	3,650	2,045	2,453
October	1,180	530	2,045	1,390	416	8,145	2,170	15,876	1,501	3,700	2,005	2,474
November	1,170	540	2,045	1,370	416	7,995	2,170	15,706	1,501	3,550	2,025	2,474
December	1,170	540	2,050	1,370	416	8,000	2,170	15,716	1,531	3,700	2,175	2,474
Average	1,190	512	1,872	1,377	419	8,198	2,191	15,759	1,528	3,650	2,050	2,450
1994 January	1,170	545	1,995	1,370	445	8,095	2,250	15,870	1,510	3,635	2,200	2,490
February	1,170	545	1,998	1,370	430	8,088	2,275	15,875	1,510	3,585	2,200	2,490
March	1,170	545	2,005	1,370	445	8,095	2,250	15,880	1,510	3,685	2,150	2,490
April	1,170	555	2,020	1,370	445	8,110	2,250	15,920	1,510	3,535	2,070	2,480
May	1,170	555	2,050	1,370	445	8,090	2,260	15,940	1,510	3,585	2,100	2,500
June	1,170	555	2,050	1,370	455	8,090	2,280	15,970	1,510	3,685	2,090	2,500
July	1,170	555	2,050	1,380	475	8,100	2,280	16,010	1,510	3,585	1,990	2,520
August	1,170	555	2,050	1,390	435	8,120	2,280	16,000	1,530	3,635	1,630	2,540
September	1,170	555	2,050	1,370	445	8,180	2,280	16,050	1,510	3,685	2,010	2,540
October	1,170	555	2,045	1,390	385	8,245	2,240	16,030	1,520	3,635	2,080	2,540
November	1,170	555	2,045	1,390	455	8,245	2,240	16,100	1,520	3,735	1,980	2,540
December	1,170	555	2,050	1,390	465	8,300	2,270	16,200	1,520	3,635	1,965	2,530
Average	1,170	553	2,034	1,378	444	8,147	2,263	15,988	1,514	3,635	2,037	2,514
1995 January	1,180	555	2,070	1,390	455	8,120	2,280	16,050	1,520	3,585	2,000	2,600
February	1,180	555	2,070	1,390	475	8,220	2,280	16,170	1,500	3,685	1,980	2,600
March	1,180	555	2,060	1,390	485	8,110	2,280	16,060	1,510	3,485	1,890	2,600
April	1,180	555	2,070	1,390	485	8,220	2,280	16,180	1,510	3,635	2,050	2,670
May	1,180	555	2,050	1,390	485	8,400	2,280	16,340	1,510	3,835	2,080	2,790
June	1,180	555	2,050	1,390	485	8,100	2,280	16,040	1,510	3,585	1,960	2,790
July	1,210	555	2,060	1,390	485	8,410	2,280	16,390	1,510	3,535	1,980	2,790
August	1,210	555	2,075	1,390	485	8,425	2,280	16,420	1,510	3,685	2,035	2,790
8-Mo. Avg.	1,188	555	2,063	1,390	480	8,252	2,280	16,207	1,510	3,628	1,997	2,705
1994 8-Mo. Avg.	1,170	551	2,027	1,374	447	8,099	2,266	15,934	1,513	3,617	2,052	2,501
1993 8-Mo. Avg.	1,197	500	1,788	1,378	421	8,246	2,202	15,731	1,534	3,649	2,043	2,440

[a] Includes about one-half of the production in the Kuwait-Saudi Arabia Neutral Zone from 1973 through July 1990 and in June 1991. Kuwaiti Neutral Zone output was discontinued following Iraq's invasion of Kuwait on August 2, 1990, but was resumed in June 1991. In August 1995, Neutral Zone production by both Kuwait and Saudi Arabia totaled about 450 thousand barrels per day.

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

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

Sources: See end of section.

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

(Thousand Barrels per Day)

	Total OPEC[a]	Ecuador[a]	Persian Gulf Nations[b]	Canada	China	Mexico	United Kingdom	United States	Former U.S.S.R.	Other[c]	World
1973 Average	30,779	209	20,668	1,798	1,090	465	2	9,208	8,324	3,804	55,679
1974 Average	30,552	177	21,282	1,551	1,315	571	2	8,774	8,912	3,862	55,716
1975 Average	26,994	161	18,934	1,430	1,490	705	12	8,375	9,523	4,139	52,828
1976 Average	30,549	188	21,514	1,314	1,670	831	245	8,132	10,060	4,355	57,344
1977 Average	31,115	183	21,725	1,321	1,874	981	768	8,245	10,603	4,616	59,707
1978 Average	29,673	202	20,606	1,316	2,082	1,209	1,082	8,707	11,105	4,782	60,158
1979 Average	30,784	214	21,066	1,500	2,122	1,461	1,568	8,552	11,384	5,089	62,674
1980 Average	26,781	204	17,961	1,435	2,114	1,936	1,622	8,597	11,706	5,204	59,599
1981 Average	22,632	211	15,245	1,285	2,012	2,313	1,811	8,572	11,850	5,390	56,076
1982 Average	18,934	211	12,156	1,271	2,045	2,748	2,065	8,649	11,912	5,646	53,481
1983 Average	17,654	237	11,081	1,356	2,120	2,689	2,291	8,688	11,972	6,248	53,255
1984 Average	17,599	258	10,784	1,438	2,296	2,780	2,480	8,879	11,861	6,897	54,488
1985 Average	16,353	281	9,630	1,471	2,505	2,745	2,530	8,971	11,585	7,540	53,981
1986 Average	18,441	293	11,696	1,474	2,620	2,435	2,539	8,680	11,895	7,850	56,227
1987 Average	18,672	174	12,103	1,535	2,690	2,548	2,406	8,349	12,050	8,242	56,666
1988 Average	20,483	302	13,457	1,616	2,730	2,512	2,232	8,140	12,053	8,669	58,737
1989 Average	22,279	279	14,837	1,560	2,757	2,520	1,802	7,613	11,715	9,338	59,863
1990 Average	23,465	285	15,278	1,553	2,774	2,553	1,820	7,355	10,975	9,785	60,566
1991 Average	23,569	299	14,741	1,548	2,835	2,680	1,797	7,417	9,992	10,074	60,210
1992 Average	24,695	318	16,104	1,598	2,838	2,668	1,825	7,171	8,931	10,169	60,213
1993 January	26,213	330	17,066	1,572	2,885	2,605	1,821	6,961	8,249	10,478	61,113
February	26,317	330	17,285	1,612	2,875	2,610	1,931	6,943	8,233	10,618	61,468
March	25,650	330	16,816	1,637	2,885	2,635	1,715	6,974	8,127	10,782	60,736
April	25,075	330	16,311	1,607	2,900	2,674	1,701	6,881	8,106	10,750	60,024
May	25,304	345	16,509	1,662	2,925	2,673	1,751	6,847	7,926	10,781	60,213
June	25,466	350	16,702	1,727	2,960	2,675	1,680	6,795	7,826	10,460	59,939
July	25,863	350	17,097	1,712	2,930	2,650	1,936	6,688	7,530	10,874	60,533
August	25,843	350	17,007	1,772	2,855	2,650	1,946	6,758	7,429	10,748	60,351
September	25,942	350	17,097	1,742	2,895	2,700	1,951	6,712	7,313	10,764	60,368
October	25,863	360	17,047	1,727	2,975	2,700	2,067	6,839	7,308	10,987	60,824
November	25,563	360	16,757	1,677	2,945	2,730	2,202	6,912	7,313	11,179	60,879
December	25,903	360	16,917	1,712	2,898	2,745	2,277	6,858	7,281	11,237	61,270
Average	**25,748**	**346**	**16,883**	**1,680**	**2,911**	**2,671**	**1,915**	**6,847**	**7,717**	**10,806**	**60,640**
1994 January	25,995	360	17,000	1,669	2,900	2,745	2,280	6,817	6,985	11,114	60,864
February	25,950	360	16,955	1,722	2,920	2,710	2,280	6,770	6,715	11,270	60,697
March	26,025	360	17,060	1,706	2,920	2,685	2,315	6,746	6,660	11,190	60,608
April	25,845	365	16,950	1,671	2,940	2,700	2,340	6,612	6,485	11,200	60,158
May	25,975	365	17,020	1,706	2,940	2,690	2,345	6,688	6,635	11,250	60,594
June	26,095	375	17,150	1,729	2,950	2,675	2,340	6,611	6,650	11,488	60,912
July	25,955	385	17,080	1,801	2,940	2,675	2,275	6,501	6,540	11,445	60,517
August	25,675	385	17,110	1,790	2,950	2,675	2,315	6,544	6,520	11,535	60,389
September	26,135	400	17,230	1,817	2,910	2,680	2,475	6,609	6,480	11,515	61,021
October	26,145	395	17,140	1,735	2,950	2,685	2,435	6,658	6,560	11,950	61,514
November	26,215	395	17,310	1,778	2,970	2,675	2,485	6,628	6,580	11,960	61,686
December	26,190	395	17,310	1,793	2,980	2,675	2,605	6,760	6,520	12,094	62,011
Average	**26,017**	**378**	**17,110**	**1,743**	**2,939**	**2,689**	**2,375**	**6,662**	**6,611**	**11,503**	**60,916**
1995 January	26,090	400	17,100	1,792	2,950	2,680	2,520	E 6,596	6,445	12,088	61,561
February	26,270	400	17,320	1,774	3,000	2,645	2,610	E 6,703	6,655	12,013	62,071
March	25,880	400	17,010	1,739	3,000	2,670	2,565	E 6,606	6,445	12,124	61,429
April	26,380	400	17,280	1,811	3,000	2,670	2,570	E 6,561	6,550	12,223	62,165
May	26,890	400	17,640	R 1,754	2,980	2,680	2,305	E 6,572	6,655	11,912	R 62,148
June	26,220	R 390	17,090	R 1,840	2,980	2,700	1,855	E 6,540	6,650	R 12,119	R 61,294
July	26,540	R 390	17,360	R 1,820	R 2,980	R 2,705	2,350	E 6,449	6,670	R 12,516	R 62,420
August	26,790	390	17,540	1,815	3,000	2,710	2,405	E 6,462	6,710	12,315	62,597
8-Mo. Avg.	**26,385**	**396**	**17,293**	**1,793**	**2,986**	**2,683**	**2,396**	**E 6,560**	**6,597**	**12,166**	**61,961**
1994 8-Mo. Avg.	**25,939**	**369**	**17,042**	**1,724**	**2,933**	**2,694**	**2,311**	**6,660**	**6,649**	**11,312**	**60,592**
1993 8-Mo. Avg.	**25,713**	**339**	**16,846**	**1,663**	**2,902**	**2,647**	**1,810**	**E 6,855**	**7,924**	**10,688**	**60,540**

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

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

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

R=Revised data. E=Estimate.

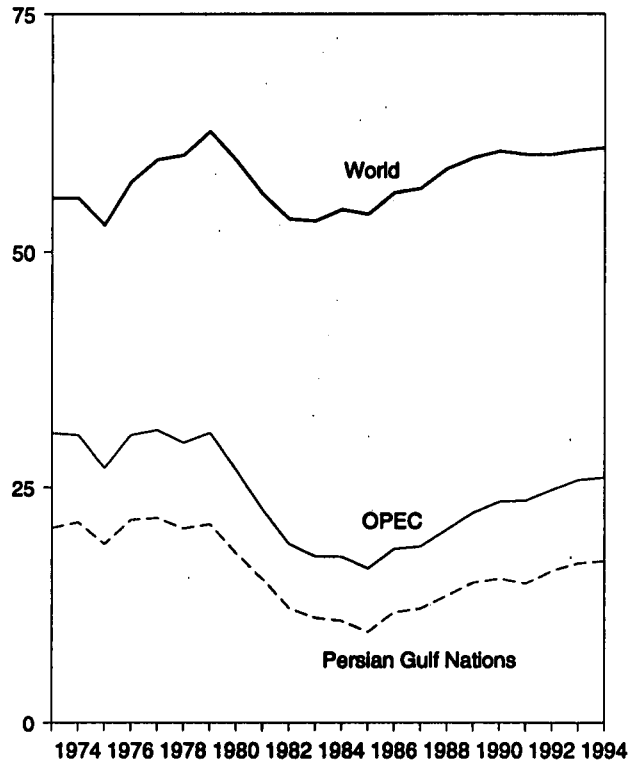
Notes: • Crude oil includes lease condensate but excludes natural gas plant liquids. • Monthly data are often preliminary figures and may not average to the annual totals because of rounding or because updates to the preliminary monthly data are not available. • Data for countries may not sum to World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

Sources: See end of section.

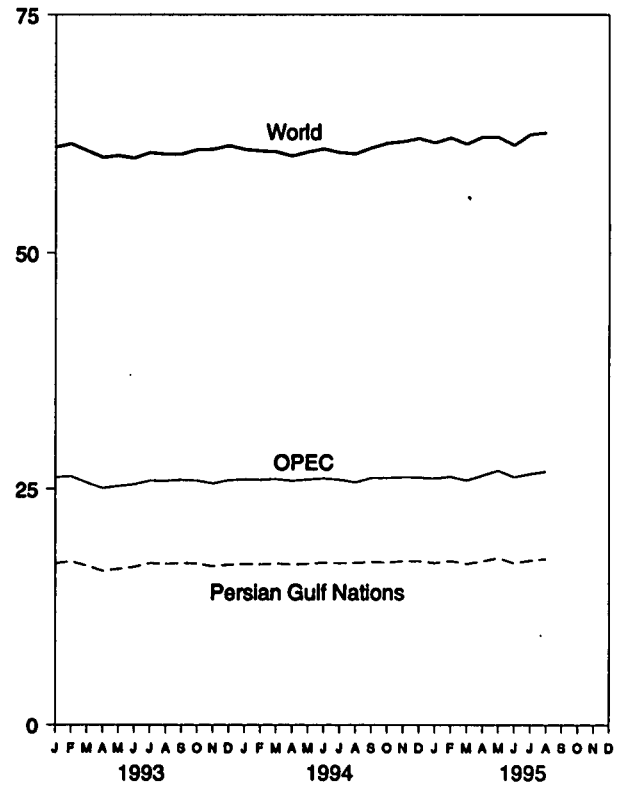
Figure 10.1 Crude Oil Production

(Million Barrels per Day)

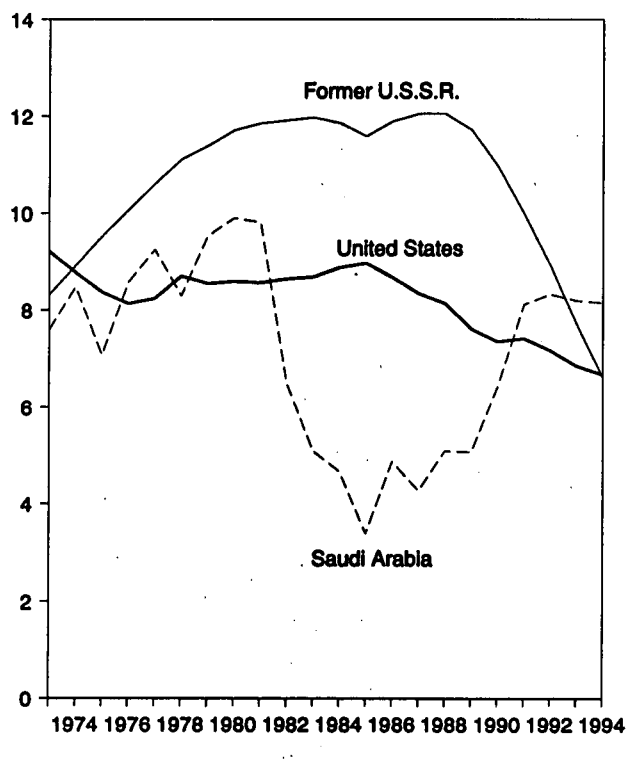
World Production, 1973-1994



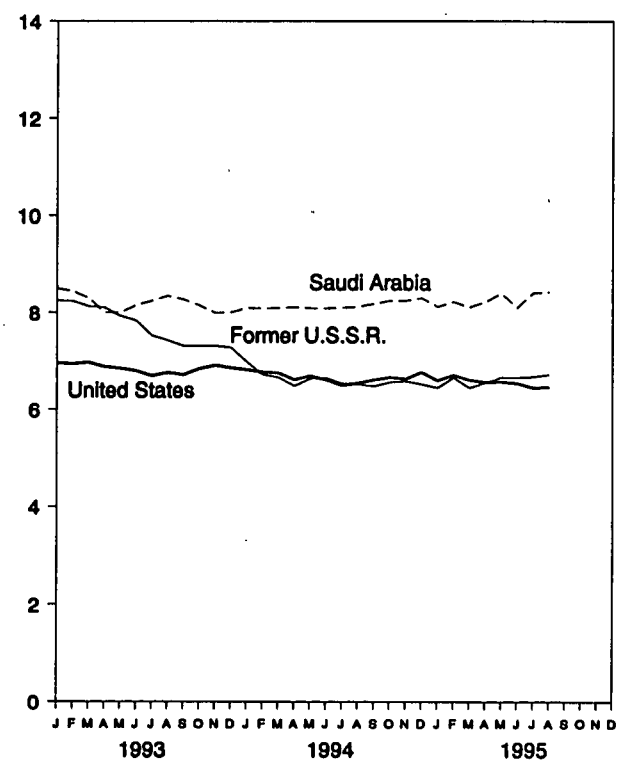
World Production, Monthly



Leading Producers, 1973-1994



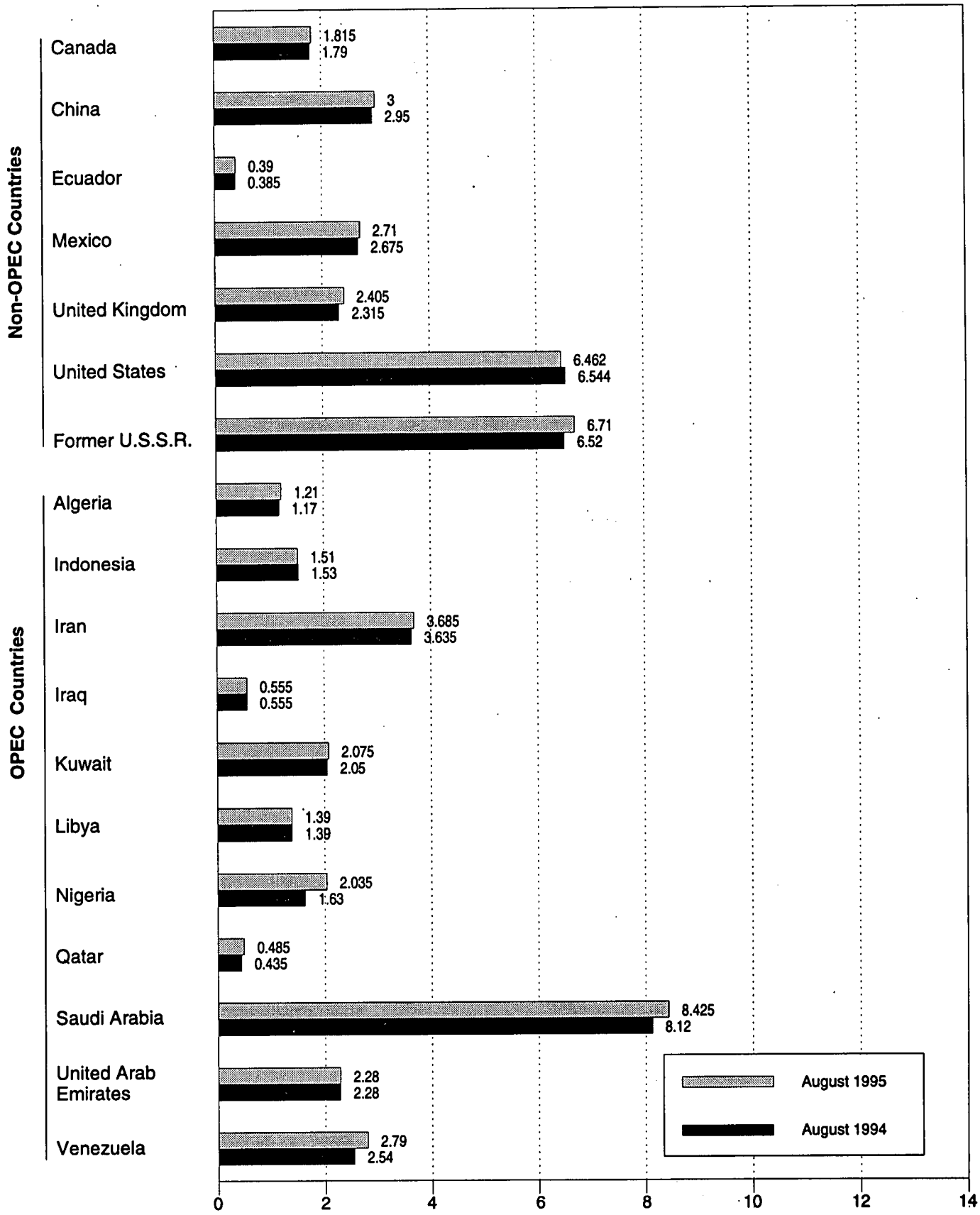
Leading Producers, Monthly



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

Figure 10.2 Crude Oil Production by Selected Country

(Million Barrels per Day)

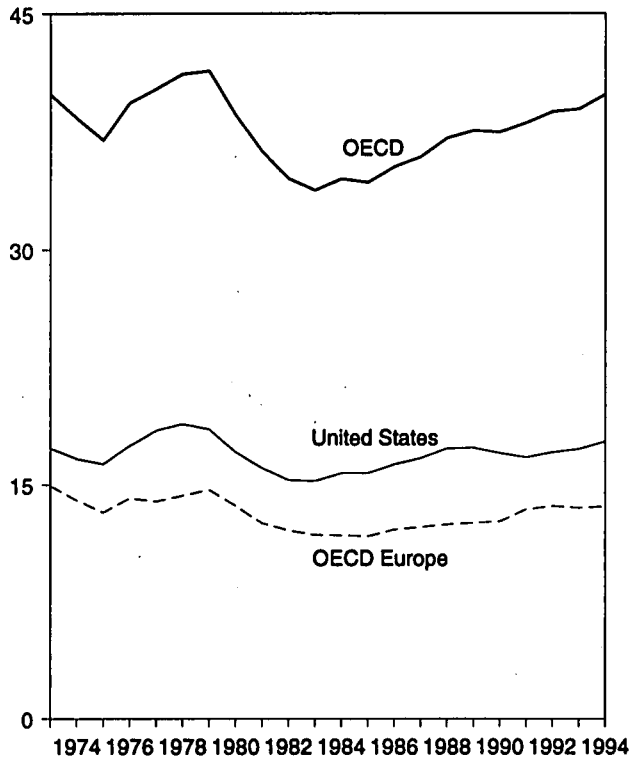


Note: OPEC is the Organization of Petroleum Exporting Countries.
Sources: Tables 10.1a and 10.1b.

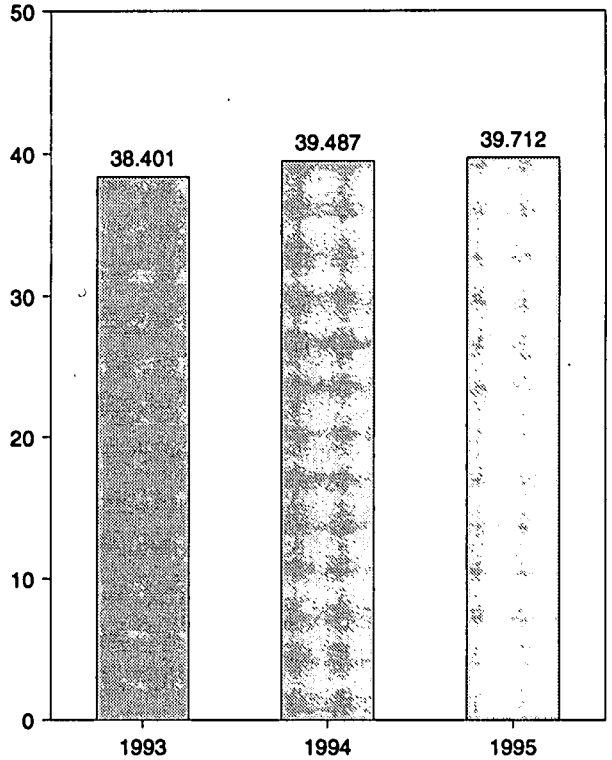
Figure 10.3 Petroleum Consumption in OECD Countries

(Million Barrels per Day)

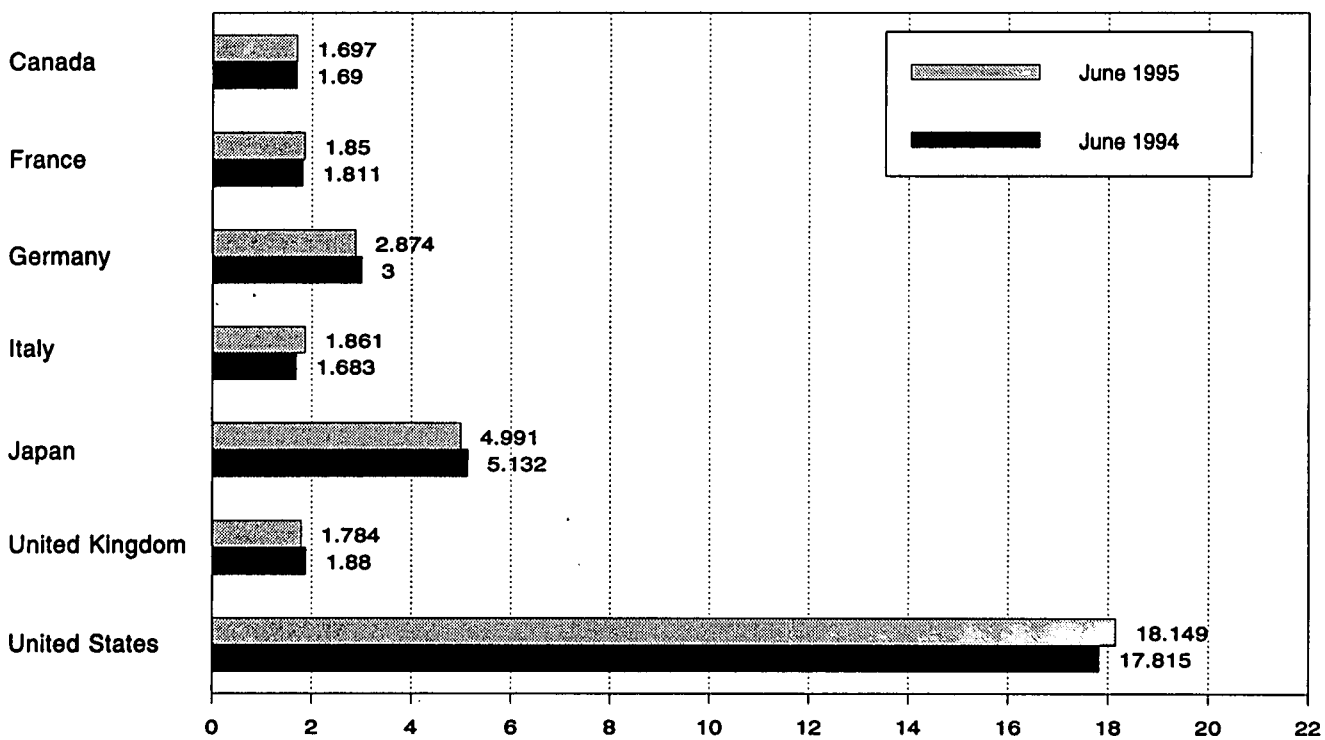
Overview, 1973-1994



OECD Total, June



By Selected OECD Country



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

Table 10.2 Petroleum Consumption in OECD Countries

(Thousand Barrels per Day)

	Canada	France	Germany[a]	Italy	Japan	United Kingdom	United States	OECD Europe[b]	Other OECD[c]	OECD[d]
1973 Average	1,729	2,601	3,055	2,068	4,949	2,341	17,308	14,925	988	39,900
1974 Average	1,779	2,447	2,748	2,004	4,864	2,210	16,653	13,988	1,095	38,379
1975 Average	1,779	2,252	2,650	1,855	4,621	1,911	16,322	13,217	1,041	36,980
1976 Average	1,818	2,420	2,877	1,971	4,837	1,892	17,461	14,124	1,119	39,358
1977 Average	1,850	2,294	2,865	1,897	4,880	1,905	18,431	13,916	1,160	40,237
1978 Average	1,902	2,408	2,927	1,952	4,945	1,938	18,847	14,290	1,204	41,187
1979 Average	1,971	2,463	3,003	2,039	5,050	1,971	18,513	14,667	1,178	41,379
1980 Average	1,873	2,256	2,707	1,934	4,960	1,725	17,056	13,634	1,072	38,595
1981 Average	1,768	2,023	2,449	1,874	4,848	1,590	16,058	12,515	1,080	36,269
1982 Average	1,578	1,880	2,372	1,781	4,582	1,590	15,296	12,053	1,008	34,517
1983 Average	1,448	1,835	2,324	1,750	4,395	1,531	15,231	11,765	954	33,793
1984 Average	1,472	1,754	2,322	1,646	4,576	1,849	15,726	11,736	989	34,500
1985 Average	1,504	1,775	2,338	1,717	4,384	1,634	15,726	11,681	976	34,271
1986 Average	1,506	1,772	2,498	1,738	4,439	1,649	16,281	12,102	951	35,279
1987 Average	1,548	1,789	2,424	1,855	4,484	1,603	16,665	12,255	959	35,911
1988 Average	1,693	1,797	2,422	1,836	4,752	1,697	17,283	12,427	939	37,093
1989 Average	1,733	1,857	2,280	1,930	4,983	1,738	17,325	12,531	998	37,570
1990 Average	1,690	1,818	2,382	1,872	5,140	1,752	16,988	12,629	1,027	37,475
1991 Average	1,622	1,935	2,828	1,863	5,284	1,801	16,714	13,391	1,056	38,067
1992 Average	1,643	1,926	2,843	1,937	5,446	1,803	17,033	13,605	1,041	38,768
1993 January	1,592	1,922	2,530	1,835	5,956	1,729	16,173	12,718	958	37,398
February	1,704	2,103	2,895	1,941	6,306	1,878	17,334	13,904	1,121	40,370
March	1,698	1,981	2,929	1,915	6,252	1,888	17,575	13,915	1,156	40,596
April	1,596	1,901	2,817	1,681	5,459	1,730	16,781	13,019	1,123	37,978
May	1,601	1,668	2,587	1,662	4,770	1,676	16,508	11,999	1,147	36,024
June	1,706	1,930	3,043	1,709	4,963	1,809	17,096	13,526	1,110	38,401
July	1,681	1,824	2,965	1,773	4,864	1,806	17,357	13,502	1,053	38,457
August	1,730	1,626	2,893	1,691	4,796	1,792	17,332	12,945	1,120	37,922
September	1,715	1,761	3,163	1,894	4,775	1,845	17,650	13,923	1,096	39,159
October	1,708	1,789	2,814	1,885	4,998	1,803	17,323	13,368	1,109	38,506
November	1,759	2,045	3,057	2,066	5,502	1,983	17,780	14,535	1,125	40,701
December	1,770	1,983	3,123	2,181	6,234	1,846	17,953	14,619	1,290	41,866
Average	**1,688**	**1,875**	**2,900**	**1,852**	**5,401**	**1,815**	**17,237**	**13,492**	**1,117**	**38,935**
1994 January	1,701	1,840	2,492	R1,774	R5,913	1,743	18,072	R12,771	1,031	R39,488
February	1,795	1,966	2,994	R1,907	R6,524	1,920	18,337	R14,223	R1,156	R42,036
March	1,701	1,825	3,062	R1,891	R6,269	1,954	17,313	R13,910	R1,209	R40,402
April	R1,590	1,850	2,900	R1,816	R5,294	1,809	17,489	R13,475	1,157	R39,005
May	R1,658	R1,675	R2,746	R1,674	R4,853	1,770	17,181	R12,665	R1,186	R37,543
June	R1,690	1,811	3,000	R1,683	R5,132	1,880	17,815	R13,621	1,228	R39,487
July	1,717	1,771	2,817	R1,702	R5,577	1,748	17,485	R12,980	1,183	R38,943
August	1,786	R1,736	2,905	R1,699	R5,595	1,747	18,117	R13,294	R1,137	R39,928
September	1,790	1,920	3,041	R1,945	R5,334	1,862	17,490	R14,199	R1,187	R40,001
October	1,731	1,844	R2,884	R1,873	R5,363	1,853	17,719	R13,648	R1,084	R39,545
November	R1,749	1,811	2,914	R2,070	R5,860	1,954	17,315	R14,162	1,268	R40,353
December	1,819	1,961	2,820	R2,070	R6,421	1,818	18,319	R14,161	R1,250	R41,970
Average	R1,727	**1,833**	**2,879**	R1,841	R5,674	**1,837**	**17,718**	R13,584	R1,173	R39,876
1995 January	R1,671	1,949	2,730	R1,920	R6,075	R1,755	17,167	R13,495	R1,090	R39,498
February	R1,857	1,895	2,802	R2,102	R6,787	R1,954	18,355	R13,852	R1,145	R41,996
March	R1,704	2,002	3,188	R1,970	R6,378	R1,972	17,403	R14,503	R1,221	R41,208
April	R1,602	1,843	R2,854	R1,814	R5,583	R1,789	17,102	R13,408	R1,142	R38,837
May	R1,732	R1,764	R2,940	R1,806	R5,037	R1,779	17,241	R13,326	R1,236	R38,572
June	1,697	1,850	2,874	1,861	4,991	1,784	18,149	13,684	1,191	39,712
6-Mo. Average	**1,709**	**1,884**	**2,900**	**1,910**	**5,798**	**1,837**	**17,556**	**13,711**	**1,171**	**39,945**
1994 6-Mo. Average	**1,688**	**1,826**	**2,862**	**1,789**	**5,655**	**1,845**	**17,691**	**13,430**	**1,161**	**39,625**
1993 6-Mo. Average	**1,649**	**1,914**	**2,797**	**1,789**	**5,611**	**1,784**	**16,904**	**13,167**	**1,102**	**38,433**

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

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

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

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

R=Revised data.

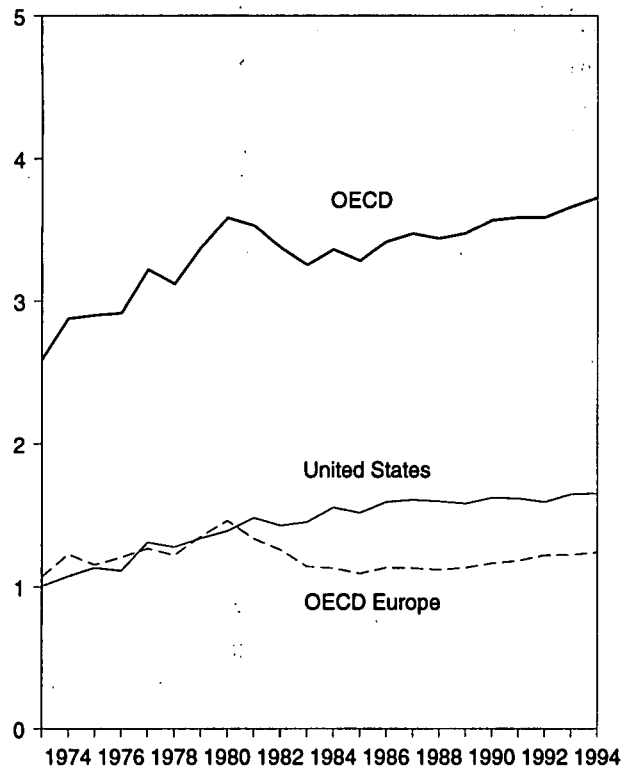
Notes: • Data through 1992 are final. Subsequent data are preliminary. • Totals may not equal sum of components due to independent rounding. • U.S. geographic coverage is the 50 States and the District of Columbia.

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

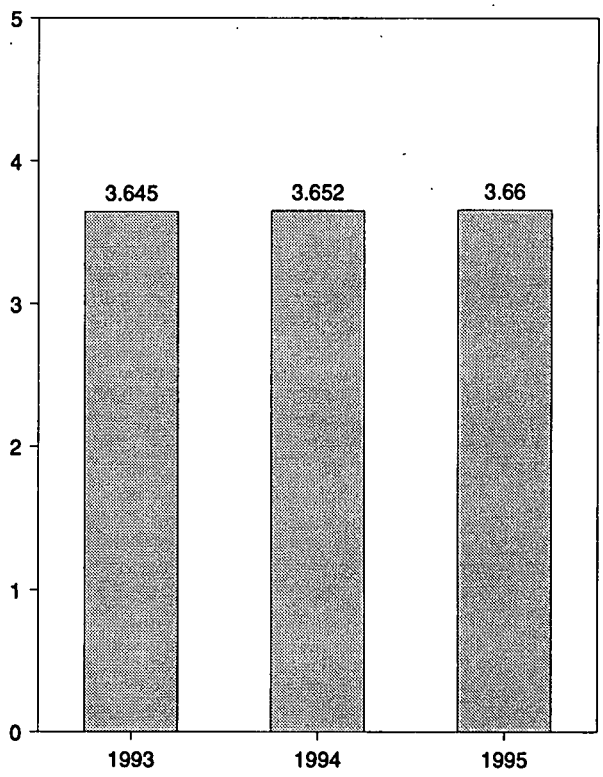
Figure 10.4 Petroleum Stocks in OECD Countries

(Billion Barrels)

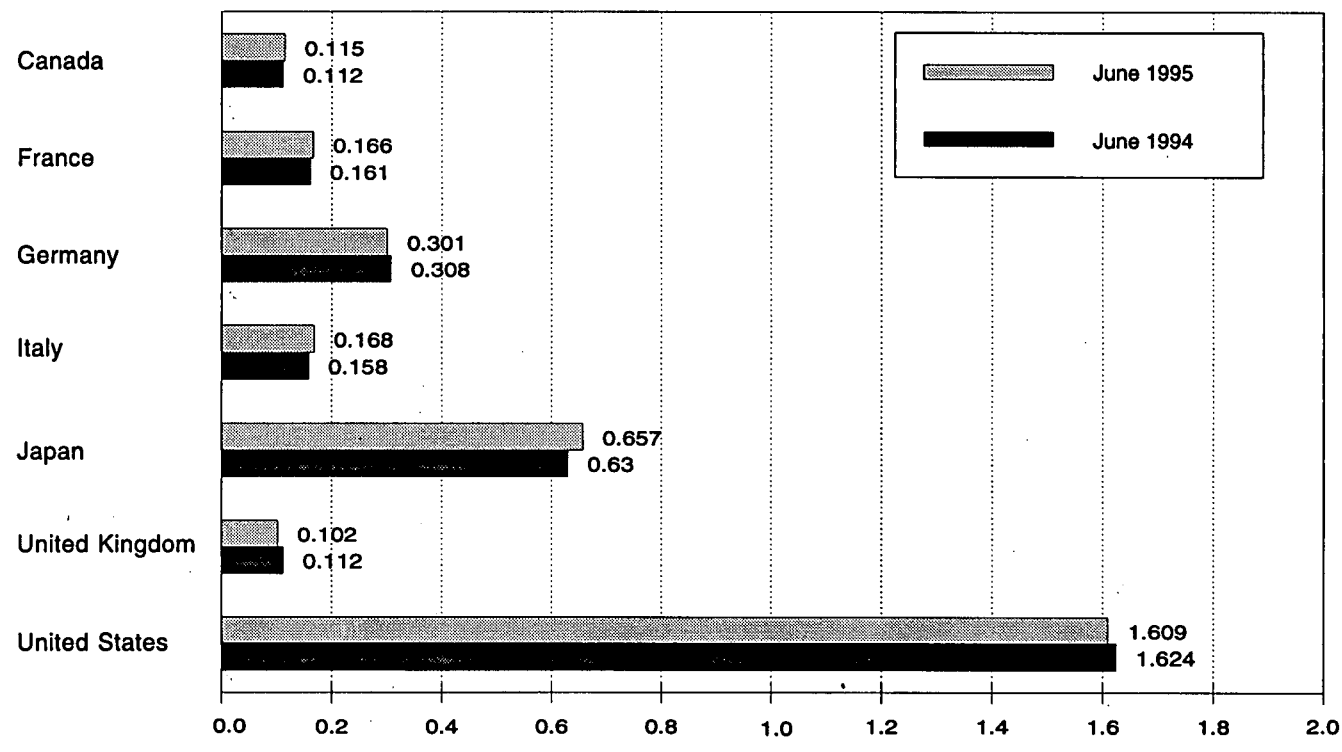
Overview, End of Year, 1973-1994



OECD Stocks, End of Month, June



By Selected Country, End of Month



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

Table 10.3 Petroleum Stocks in OECD Countries, End of Period

(Million Barrels)

	Canada	France	Germany[a]	Italy	Japan	United Kingdom	United States	OECD Europe[b]	Other OECD[c]	OECD[d]
1973 Year	140	201	181	152	303	156	1,008	1,070	67	2,588
1974 Year	145	249	213	167	370	191	1,074	1,227	64	2,880
1975 Year	174	225	187	143	375	165	1,133	1,154	67	2,903
1976 Year	153	234	208	143	380	165	1,112	1,205	68	2,918
1977 Year	167	239	225	161	409	148	1,312	1,268	68	3,224
1978 Year	144	201	238	154	413	157	1,278	1,219	68	3,122
1979 Year	150	226	272	163	460	169	1,341	1,353	75	3,379
1980 Year	164	243	319	170	495	168	1,392	1,464	72	3,587
1981 Year	161	214	297	167	482	143	1,484	1,337	67	3,531
1982 Year	136	193	272	179	484	125	1,430	1,258	68	3,376
1983 Year	121	153	249	149	470	118	1,454	1,142	68	3,255
1984 Year	128	152	239	159	479	112	1,556	1,130	69	3,362
1985 Year	113	139	233	157	494	123	1,519	1,092	68	3,284
1986 Year	111	127	252	155	509	124	1,593	1,133	72	3,418
1987 Year	126	127	259	169	540	121	1,607	1,130	71	3,474
1988 Year	116	140	266	155	538	112	1,597	1,118	71	3,440
1989 Year	114	138	271	164	577	118	1,581	1,133	71	3,476
1990 Year	121	140	265	172	590	112	1,621	1,163	73	3,568
1991 Year	119	153	288	160	606	119	1,617	1,181	65	3,588
1992 Year	107	146	310	174	603	113	1,592	1,219	67	3,588
1993 January	107	162	318	171	614	119	1,618	1,243	68	3,651
February	102	156	316	166	606	119	1,602	1,229	68	3,607
March	103	154	310	163	593	119	1,590	1,213	66	3,565
April	105	154	310	165	584	115	1,617	1,208	73	3,586
May	106	161	319	170	592	116	1,650	1,220	68	3,635
June	107	156	309	166	601	118	1,667	1,201	69	3,645
July	113	155	311	167	616	114	1,682	1,200	70	3,681
August	114	167	314	169	633	116	1,676	1,240	69	3,733
September	111	164	311	161	647	115	1,665	1,229	77	3,730
October	110	166	316	160	652	110	1,688	1,225	78	3,752
November	111	156	309	164	643	115	1,686	1,212	78	3,730
December	105	158	309	163	618	118	1,647	1,221	69	3,661
1994 January	104	165	322	166	616	118	1,622	1,248	70	3,660
February	97	159	315	157	610	111	1,586	1,206	68	3,567
March	103	152	306	154	602	109	1,584	1,181	72	3,542
April	108	151	309	158	611	108	1,591	1,185	73	3,567
May	R109	155	314	160	627	116	1,612	1,213	71	R3,632
June	112	161	308	158	630	112	1,624	1,216	70	3,652
July	120	159	313	157	623	114	1,654	1,227	75	3,700
August	115	164	310	162	632	116	1,659	1,243	74	3,724
September	118	159	305	160	646	114	1,684	1,227	73	3,747
October	119	163	307	160	655	111	1,673	1,229	74	3,749
November	118	168	309	162	656	112	1,687	1,229	72	3,762
December	119	158	312	164	645	115	1,653	R1,240	69	R3,726
1995 January	121	160	314	167	650	113	1,641	R1,242	69	R3,723
February	121	164	317	163	631	114	1,603	R1,246	64	R3,665
March	R124	152	305	159	R636	105	1,599	R1,194	R68	R3,621
April	R119	156	306	159	642	107	1,600	R1,198	71	R3,628
May	R116	153	304	161	652	112	1,611	R1,205	71	R3,654
June	115	166	301	168	657	102	1,609	1,209	71	3,660

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

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

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

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

R=Revised data.

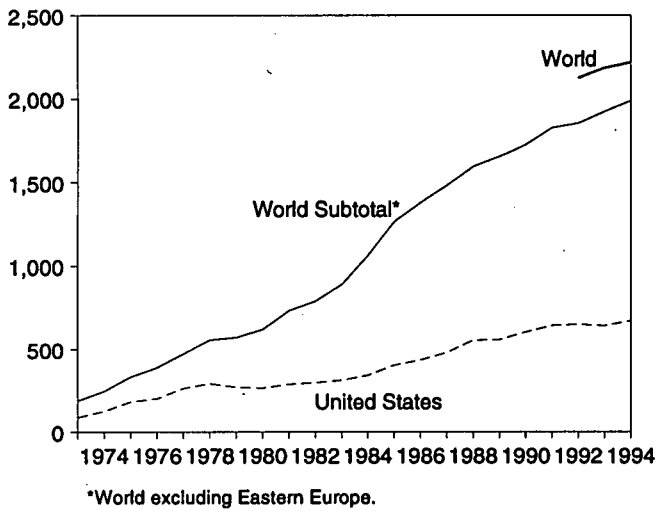
Notes: • Petroleum stocks include crude oil (including strategic reserves), unfinished oils, natural gas plant liquids, and refined products. Petroleum stocks include all nonmilitary petroleum held for storage, regardless of ownership, within each country in bulk terminals, refinery tanks, pipeline tankage, intercoastal tankers, tankers in port, and inland ship bunkers. Data exclude oil held in pipelines (except for those in the United States), rail and truck cars, sea-going ships' bunkers, service stations, retail stores, and tankers at sea. • In the United States in January 1975, 1981, and 1983, numerous respondents were added to bulk terminal and pipeline surveys, thereby affecting subsequent stocks reported. New-basis end-of-year U.S. stocks, in million barrels, would have been 1,121 in 1974, 1,425 in 1980, and 1,461 in 1982. • Data through 1992 are final. Subsequent data are preliminary. • Totals may not equal sum of components due to independent rounding. • U.S. geographic coverage is the 50 States and the District of Columbia.

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

Figure 10.5 Nuclear Electricity Gross Generation

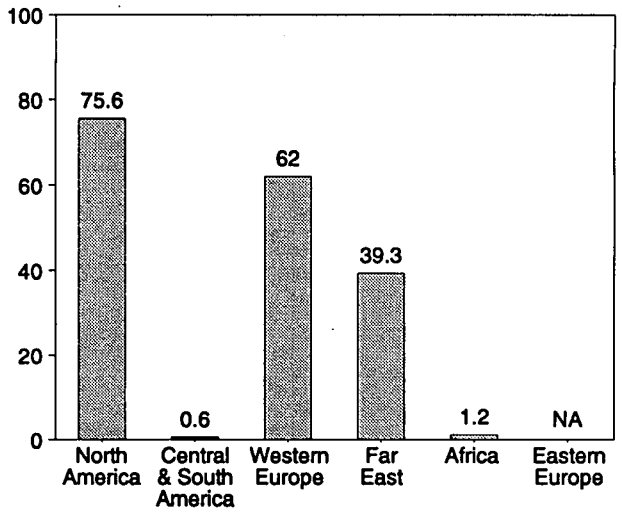
(Billion Kilowatthours)

U.S. and World, 1973-1994



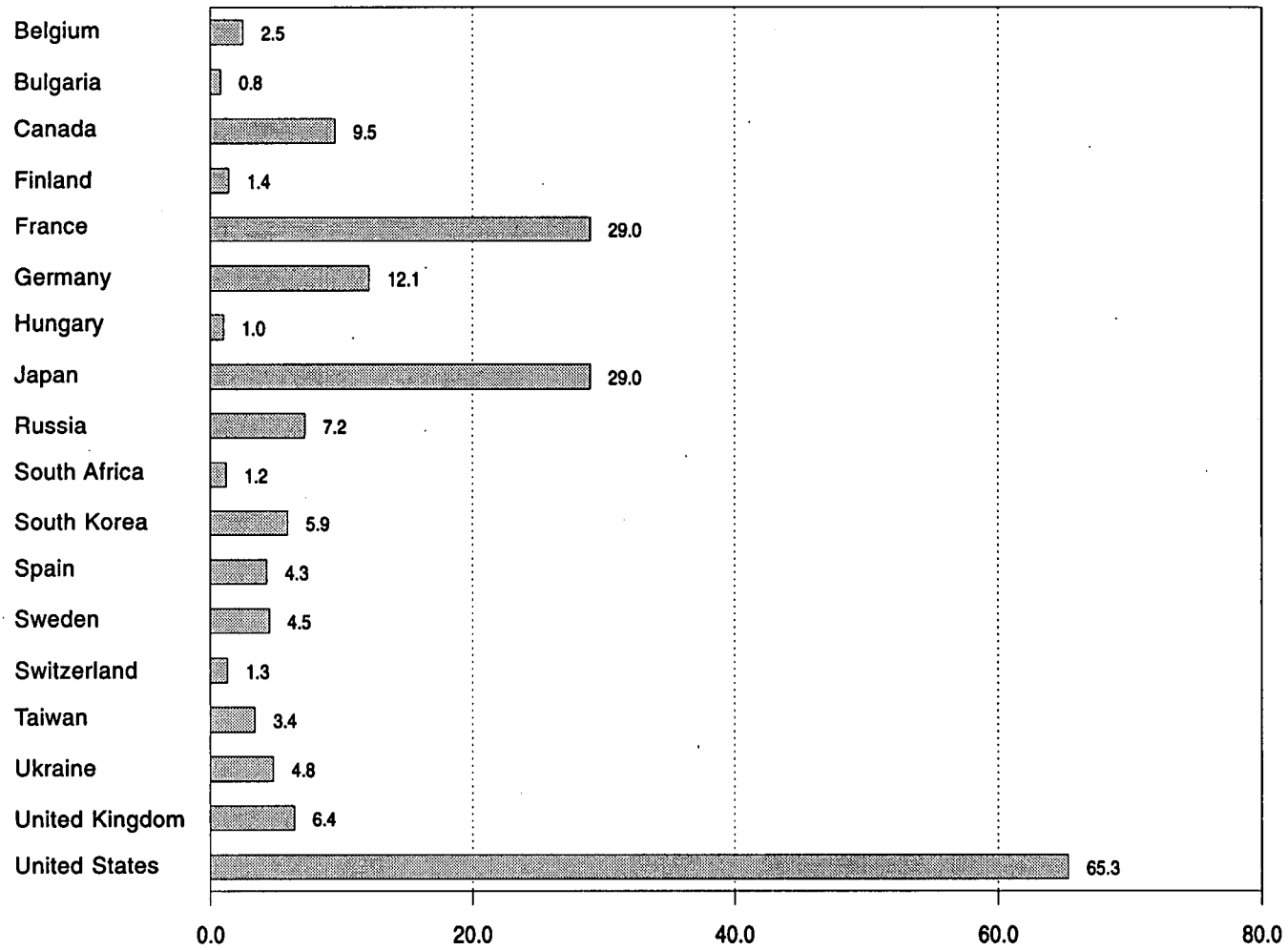
*World excluding Eastern Europe.

By Region, August 1995



NA = Not available.

By Selected Country, August 1995



Note: Because vertical scales differ, graphs should not be compared.
Sources: Tables 10.4a-10.4e.

Table 10.4a Nuclear Electricity Gross Generation: Regions and World

(Billion Kilowatthours)

	North America	Central and South America	Western Europe	Far East	Africa	Subtotal	Eastern Europe[a]	World
1973 Total	103.1	–	73.9	12.3	–	189.3	NA	NA
1974 Total	139.7	1.0	83.9	21.4	–	246.0	NA	NA
1975 Total	195.5	2.5	111.7	24.4	–	334.1	NA	NA
1976 Total	219.8	2.6	126.2	40.3	–	388.9	NA	NA
1977 Total	290.8	1.6	148.1	31.5	–	472.0	NA	NA
1978 Total	325.4	2.9	166.9	60.6	–	555.9	NA	NA
1979 Total	309.0	2.7	184.3	74.7	–	570.7	NA	NA
1980 Total	305.8	2.3	214.2	97.4	–	619.8	NA	NA
1981 Total	331.8	2.8	293.4	102.9	–	730.9	NA	NA
1982 Total	341.2	1.9	321.8	123.6	–	788.5	NA	NA
1983 Total	366.6	3.6	377.2	140.1	–	887.5	NA	NA
1984 Total	397.6	6.6	485.4	167.7	4.2	1,061.5	NA	NA
1985 Total	465.6	9.1	582.8	202.0	5.9	1,265.4	NA	NA
1986 Total	508.8	5.8	631.5	223.6	9.3	1,378.9	NA	NA
1987 Total	560.1	6.2	648.3	259.5	6.6	1,480.7	NA	NA
1988 Total	639.7	5.5	688.1	248.5	11.1	1,592.8	NA	NA
1989 Total	640.2	6.6	732.2	263.4	11.7	1,654.1	NA	NA
1990 Total	681.3	9.4	738.6	284.3	8.9	1,722.5	NA	NA
1991 Total	733.4	9.2	769.7	303.3	9.7	1,825.2	NA	NA
1992 Total	735.2	8.8	783.9	315.2	9.9	1,852.9	E 271.5	E 2,124.5
1993 January	70.5	.8	78.9	28.1	.6	178.9	NA	NA
February	61.5	.6	72.6	25.3	.6	160.6	NA	NA
March	57.7	.6	76.3	26.9	.5	162.1	NA	NA
April	53.2	.7	68.6	25.6	.6	148.7	NA	NA
May	60.0	.7	60.1	E 25.9	.8	E 147.5	NA	NA
June	63.0	.7	60.7	E 26.0	.5	E 151.0	NA	NA
July	68.6	.7	60.8	E 31.8	1.0	E 163.1	NA	NA
August	68.5	.7	57.9	E 33.3	.9	E 161.2	NA	NA
September	60.8	.7	63.9	E 28.5	.5	E 154.4	NA	NA
October	55.8	.4	65.7	E 28.5	.4	E 150.7	NA	NA
November	57.7	.6	70.6	E 27.9	.4	E 157.2	NA	NA
December	65.5	.7	81.0	E 30.0	.8	E 178.1	NA	NA
Total	744.6	8.1	817.0	E 345.2	7.7	E 1,922.7	E 263.0	E 2,185.6
1994 January	69.5	.7	76.3	E 28.6	.9	E 176.0	NA	NA
February	61.3	.7	67.5	E 25.0	.8	E 155.2	NA	NA
March	61.8	.7	70.3	E 27.0	.8	E 160.5	NA	NA
April	55.0	.7	66.8	E 28.3	1.0	E 151.8	NA	NA
May	60.3	.7	60.2	E 28.2	1.3	E 150.7	NA	NA
June	63.6	.7	59.9	E 28.0	1.1	E 153.3	NA	NA
July	72.1	.7	60.2	E 33.6	1.1	E 167.7	NA	NA
August	73.3	.7	62.6	E 36.2	.9	E 173.8	NA	NA
September	67.6	.5	66.9	E 29.6	.4	E 165.0	NA	NA
October	62.5	.7	70.0	E 28.6	.5	E 162.3	NA	NA
November	67.4	.7	72.6	E 28.5	.6	E 169.8	NA	NA
December	72.9	.7	82.4	E 30.9	.8	E 187.7	NA	NA
Total	787.3	8.2	815.5	E 366.7	10.3	E 1,988.0	E 232.4	E 2,220.4
1995 January	75.7	1.1	81.4	E 31.2	1.0	E 190.4	NA	NA
February	63.1	1.0	69.8	E 29.3	.7	E 163.9	NA	NA
March	64.5	1.0	73.9	E 32.1	.7	E 172.1	NA	NA
April	59.8	.9	69.3	E 30.8	.7	E 161.4	NA	NA
May	64.2	.9	62.9	E 31.5	.8	E 160.3	NA	NA
June	67.3	.9	61.1	E 30.2	1.1	E 160.7	NA	NA
July	R 75.1	1.0	RE 60.6	E 36.5	1.1	RE 174.3	NA	NA
August	E 75.6	.6	E 62.0	E 39.3	1.2	E 178.6	NA	NA
8-Month Total	E 545.3	7.4	E 541.0	E 260.9	7.3	E 1,361.8	NA	NA
1994 8-Month Total	516.8	5.7	523.7	E 234.9	7.9	E 1,289.0	NA	NA
1993 8-Month Total	503.0	5.7	535.8	E 222.9	5.6	E 1,273.0	NA	NA

[a] See Table 10.4e for country-specific estimated annual generation and available monthly generation for Eastern Europe.

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

Notes: • Net figures are generally less than gross figures by about 5 percent, the difference being the energy consumed by the generating plants themselves. • Monthly data may not sum to annual totals due to independent rounding and because precommercial generation is included in some annual totals but not in the monthly data. • Data for regions may not sum to totals due to independent rounding.

Source: McGraw-Hill Publishing Company, *Nucleonics Week*.

Table 10.4b Nuclear Electricity Gross Generation: North, Central, and South America

(Billion Kilowatthours)

	Canada	Mexico	United States	North America	Argentina	Brazil	Central and South America
1973 Total	**15.3**	**–**	**87.8**	**103.1**	**–**	**–**	**–**
1974 Total	**15.4**	**–**	**124.3**	**139.7**	**1.0**	**–**	**1.0**
1975 Total	**13.2**	**–**	**182.3**	**195.5**	**2.5**	**–**	**2.5**
1976 Total	**18.0**	**–**	**201.8**	**219.8**	**2.6**	**–**	**2.6**
1977 Total	**26.6**	**–**	**264.2**	**290.8**	**1.6**	**–**	**1.6**
1978 Total	**33.0**	**–**	**292.4**	**325.4**	**2.9**	**–**	**2.9**
1979 Total	**38.4**	**–**	**270.6**	**309.0**	**2.7**	**–**	**2.7**
1980 Total	**40.4**	**–**	**265.4**	**305.8**	**2.3**	**–**	**2.3**
1981 Total	**43.3**	**–**	**288.5**	**331.8**	**2.8**	**–**	**2.8**
1982 Total	**42.6**	**–**	**298.6**	**341.2**	**1.9**	**0.1**	**1.9**
1983 Total	**53.0**	**–**	**313.6**	**366.6**	**3.4**	**.2**	**3.6**
1984 Total	**53.8**	**–**	**343.8**	**397.6**	**4.5**	**2.1**	**6.6**
1985 Total	**62.9**	**–**	**402.7**	**465.6**	**5.8**	**3.4**	**9.1**
1986 Total	**74.6**	**–**	**434.1**	**508.8**	**5.7**	**.1**	**5.8**
1987 Total	**80.6**	**–**	**479.5**	**560.1**	**5.2**	**1.0**	**6.2**
1988 Total	**85.6**	**–**	**554.1**	**639.7**	**5.1**	**.3**	**5.5**
1989 Total	**83.2**	**–**	**557.0**	**640.2**	**5.0**	**1.6**	**6.6**
1990 Total	**75.8**	**2.1**	**603.4**	**681.3**	**7.4**	**2.0**	**9.4**
1991 Total	**86.1**	**4.2**	**643.0**	**733.4**	**7.7**	**1.4**	**9.2**
1992 Total	**81.3**	**3.9**	**650.0**	**735.2**	**7.1**	**1.8**	**8.8**
1993 January	8.2	.5	61.8	70.5	.6	.2	.8
February	7.4	.3	53.7	61.5	.4	.2	.6
March	7.8	.1	49.8	57.7	.6	(s)	.6
April	7.3	.5	45.4	53.2	.7	.0	.7
May	6.7	.5	52.8	60.0	.7	.0	.7
June	7.1	.5	55.4	63.0	.7	.0	.7
July	9.3	.5	58.9	68.6	.7	.0	.7
August	9.1	.5	58.9	68.5	.7	.0	.7
September	7.9	.5	52.5	60.8	.7	.0	.7
October	8.5	.4	46.9	55.8	.4	.0	.4
November	8.2	.4	49.1	57.7	.6	.0	.6
December	9.2	.4	55.9	65.5	.7	.0	.7
Total	**97.6**	**4.9**	**642.0**	**744.6**	**7.7**	**.4**	**8.1**
1994 January	9.7	.2	59.6	69.5	.7	.0	.7
February	9.1	.0	52.2	61.3	.7	.0	.7
March	10.5	(s)	51.3	61.8	.7	.0	.7
April	9.1	.4	45.4	55.0	.7	.0	.7
May	8.8	.4	51.1	60.3	.7	.0	.7
June	8.7	.5	54.5	63.6	.7	.0	.7
July	9.5	.5	62.2	72.1	.7	.0	.7
August	9.7	.4	63.1	73.3	.7	.0	.7
September	8.8	.4	58.3	67.6	.5	.0	.5
October	8.8	.5	53.2	62.5	.7	.0	.7
November	9.0	.4	58.0	67.4	.7	.0	.7
December	9.0	.4	63.5	72.9	.7	.0	.7
Total	**110.7**	**4.2**	**672.4**	**787.3**	**8.2**	**.0**	**8.2**
1995 January	9.0	.3	66.4	75.7	.7	.4	1.1
February	8.4	.4	54.3	63.1	.6	.3	1.0
March	9.5	.4	54.6	64.5	.7	.3	1.0
April	7.6	.6	51.7	59.8	.7	.2	.9
May	6.7	.5	57.1	64.2	.7	.2	.9
June	7.8	.5	59.0	67.3	.7	.2	.9
July	9.1	.9	R65.1	R75.1	.7	.2	1.0
August	E9.5	.8	E65.3	E75.6	.6	.1	.6
8-Month Total	**E67.4**	**4.5**	**E473.4**	**E545.3**	**5.6**	**1.8**	**7.4**
1994 8-Month Total	**75.1**	**2.4**	**439.3**	**516.8**	**5.7**	**.0**	**5.7**
1993 8-Month Total	**62.9**	**3.3**	**436.8**	**503.0**	**5.3**	**.4**	**5.7**

R=Revised data. – =Not applicable. E=Estimate. (s)=Less than 0.05 billion kilowatthours.

Notes: • Net figures are generally less than gross figures by about 5 percent, the difference being the energy consumed by the generating plants themselves. • Monthly data may not sum to annual totals due to independent rounding and because precommercial generation is included in some annual totals but not in the monthly data. • Data for countries may not sum to regional totals due to independent rounding. • U.S. geographic coverage is the 50 States and the District of Columbia.

Source: McGraw-Hill Publishing Company, *Nucleonics Week.*

Table 10.4c Nuclear Electricity Gross Generation: Western Europe

(Billion Kilowatthours)

	Belgium	Finland	France	Germany[a]	Italy[b]	Netherlands	Spain	Sweden	Switzerland	United Kingdom[c]	Western Europe
1973 Total	0.0	–	14.7	11.9	3.1	1.1	6.5	2.1	6.2	28.2	73.9
1974 Total	.1	–	14.7	12.0	3.4	3.3	7.2	2.3	7.0	33.8	83.9
1975 Total	6.8	–	18.3	21.7	3.8	3.3	7.5	12.0	7.7	30.5	111.7
1976 Total	10.0	–	15.8	24.5	3.8	3.9	7.6	16.0	7.9	36.8	126.2
1977 Total	11.9	2.7	17.9	36.0	3.4	3.7	6.5	19.9	8.1	38.1	148.1
1978 Total	12.5	3.3	30.6	35.7	4.5	4.1	7.6	23.8	8.3	36.6	166.9
1979 Total	11.4	6.7	39.9	42.2	2.6	3.5	6.7	21.0	11.8	38.5	184.3
1980 Total	12.5	7.0	61.2	43.7	2.2	4.2	5.2	26.7	14.3	37.2	214.2
1981 Total	12.8	14.5	105.2	53.4	2.7	3.7	9.4	37.7	15.2	38.9	293.4
1982 Total	15.6	16.5	108.9	63.4	6.8	3.9	8.8	38.8	15.0	44.1	321.8
1983 Total	24.1	17.4	144.2	65.8	5.8	3.6	10.7	40.4	15.5	49.6	377.2
1984 Total	27.7	18.5	191.2	92.6	6.9	3.8	23.1	51.3	16.3	54.1	485.4
1985 Total	34.5	18.8	224.0	125.8	7.0	3.9	28.0	58.6	22.4	59.7	582.8
1986 Total	38.6	18.8	254.3	118.9	8.7	4.2	37.5	69.9	22.5	58.2	631.5
1987 Total	41.9	19.4	265.5	130.2	.2	3.6	41.2	67.2	23.0	56.2	648.3
1988 Total	43.1	19.3	274.9	145.2	.0	3.7	50.4	69.4	22.7	59.4	688.1
1989 Total	41.2	18.8	302.5	149.6	.0	4.0	56.1	65.6	22.8	71.6	732.2
1990 Total	42.7	18.9	314.1	147.2	.0	3.4	54.3	68.2	23.6	66.1	738.6
1991 Total	42.9	19.2	331.4	147.3	.0	3.3	55.6	76.8	22.9	70.4	769.7
1992 Total	43.5	19.0	337.6	158.8	.0	3.8	55.8	63.5	23.4	78.5	783.9
1993 January	4.3	1.8	36.3	15.1	.0	.4	5.4	5.8	2.3	7.6	78.9
February	3.7	1.6	32.7	13.9	.0	.3	4.3	5.9	2.1	7.9	72.6
March	3.4	1.8	34.3	14.2	.0	.1	4.9	7.1	2.3	8.3	76.3
April	3.3	1.7	30.5	12.4	.0	.1	4.2	6.6	2.0	7.7	68.6
May	3.1	1.3	26.9	11.8	.0	.4	4.1	4.6	1.9	6.0	60.1
June	3.0	1.6	25.4	12.0	.0	.4	4.4	4.7	1.2	8.2	60.7
July	3.2	1.8	26.9	12.3	.0	.4	5.0	3.1	1.8	6.4	60.8
August	3.4	1.5	25.9	11.1	.0	.4	5.1	3.2	1.1	6.1	57.9
September	3.4	1.3	28.8	11.2	.0	.4	4.6	4.1	1.7	8.4	63.9
October	3.2	1.8	29.1	12.6	.0	.4	4.7	4.7	2.2	6.9	65.7
November	3.7	1.7	33.7	12.6	.0	.4	4.2	5.3	2.3	6.7	70.6
December	4.3	1.8	36.2	14.3	.0	.4	5.2	6.3	2.4	10.2	81.0
Total	41.9	19.6	366.7	153.5	.0	3.9	56.1	61.4	23.3	90.4	817.0
1994 January	4.3	1.8	34.1	13.8	.0	.4	5.1	6.9	2.4	7.6	76.3
February	3.5	1.6	30.8	12.1	.0	.1	4.1	6.7	2.1	6.6	67.5
March	3.6	1.8	30.5	12.7	.0	.1	4.1	7.2	2.3	7.9	70.3
April	3.3	1.7	28.6	12.0	.0	.4	4.3	6.9	2.3	7.3	66.8
May	2.8	1.1	25.3	11.2	.0	.4	4.7	5.6	2.0	7.2	60.2
June	2.4	1.6	25.5	11.8	.0	.4	4.1	4.3	1.4	8.5	59.9
July	2.6	1.5	28.0	10.6	.0	.4	4.8	4.4	1.5	6.5	60.2
August	3.3	1.4	28.1	11.5	.0	.4	5.3	4.5	1.2	7.0	62.6
September	3.2	1.4	28.7	12.3	.0	.3	5.1	5.5	2.1	8.3	66.9
October	3.5	1.8	30.8	13.7	.0	.4	4.1	6.7	2.4	6.5	70.0
November	4.0	1.7	31.7	14.1	.0	.4	4.2	7.1	2.3	7.1	72.6
December	4.3	1.8	37.1	15.2	.0	.4	5.3	7.0	2.4	8.8	82.4
Total	40.6	19.1	359.1	151.1	.0	4.0	55.1	72.8	24.2	89.5	815.5
1995 January	4.2	1.6	38.7	15.2	.0	.3	5.4	7.2	2.4	6.4	81.4
February	3.7	1.5	31.7	13.1	.0	(s)	4.6	6.2	2.2	6.8	69.8
March	3.6	1.8	34.4	12.4	.0	.1	4.6	6.6	2.4	8.0	73.9
April	4.0	1.7	30.6	12.2	.0	.4	4.3	6.5	2.0	7.5	69.3
May	3.4	1.3	28.3	10.2	.0	.4	5.0	5.6	2.1	6.5	62.9
June	3.1	1.6	27.1	11.3	.0	.4	4.7	3.5	1.6	7.9	61.1
July	2.5	1.7	28.2	11.2	.0	.4	4.3	4.0	1.6	RE 6.8	RE 60.6
August	2.5	1.4	29.0	12.1	.0	E .4	4.3	4.5	1.3	E 6.4	E 62.0
8-Month Total	27.0	12.7	247.9	97.9	.0	E 2.5	37.2	44.0	15.7	E 56.2	E 541.0
1994 8-Month Total	25.6	12.4	230.8	95.7	.0	2.5	36.5	46.4	15.1	58.7	523.7
1993 8-Month Total	27.4	13.0	238.9	102.8	.0	2.4	37.3	41.1	14.7	58.2	535.8

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

[b] In 1987, Italy's citizens voted for a nuclear power moratorium, which shut down their nuclear power plants indefinitely.

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

R=Revised data. – =Not applicable. E=Estimate. (s)=Less than 0.05 billion kilowatthours.

Notes: • Net figures are generally less than gross figures by about 5 percent, the difference being the energy consumed by the generating plants themselves. • Monthly data may not sum to annual totals due to independent rounding and because precommercial generation is included in some annual totals but not in the monthly data. • Data for countries may not sum to regional totals due to independent rounding.

Source: McGraw-Hill Publishing Company, *Nucleonics Week.*

Table 10.4d Nuclear Electricity Gross Generation: Far East and Africa

(Billion Kilowatthours)

	China[a]	India	Japan	Pakistan	South Korea	Taiwan	Far East	South Africa[b]
1973 Total	–	2.5	9.4	0.5	–	–	12.3	–
1974 Total	–	1.9	18.9	.6	–	–	21.4	–
1975 Total	–	2.5	21.3	.5	–	–	24.4	–
1976 Total	–	3.2	36.6	.5	–	–	40.3	–
1977 Total	–	2.8	28.2	.3	0.1	0.1	31.5	–
1978 Total	–	2.3	53.1	.2	2.3	2.7	60.6	–
1979 Total	–	3.2	62.0	(s)	3.2	6.3	74.7	–
1980 Total	–	2.9	82.8	.1	3.5	8.2	97.4	–
1981 Total	–	3.1	86.0	.2	2.9	10.7	102.9	–
1982 Total	–	2.2	104.5	.1	3.8	13.1	123.6	–
1983 Total	–	2.9	109.1	.2	9.0	18.9	140.1	–
1984 Total	–	4.1	127.2	.3	11.8	24.3	167.7	4.2
1985 Total	–	4.5	152.0	.3	16.5	28.7	202.0	5.9
1986 Total	–	5.1	164.8	.5	26.1	26.9	223.6	9.3
1987 Total	–	5.5	182.8	.3	37.8	33.1	259.5	6.6
1988 Total	–	6.1	173.6	.2	38.7	29.9	248.5	11.1
1989 Total	–	4.0	183.7	.1	47.2	28.3	263.4	11.7
1990 Total	–	6.3	191.9	.4	52.8	32.9	284.3	8.9
1991 Total	–	5.4	205.8	.4	56.3	35.3	303.3	9.7
1992 Total	–	6.3	218.0	.6	56.4	33.8	315.2	9.9
1993 January	–	.7	19.5	(s)	4.8	3.0	28.1	.6
February	–	.6	17.4	.1	4.5	2.7	25.3	.6
March	–	.6	18.9	.1	4.6	2.8	26.9	.5
April	–	.2	17.6	.1	4.8	2.8	25.6	.6
May	NA	.4	17.4	(s)	5.3	2.7	E25.9	.8
June	NA	.5	17.9	(s)	5.1	2.6	E26.0	.5
July	NA	.7	22.3	.1	5.5	3.4	E31.8	1.0
August	NA	.5	24.2	(s)	4.9	3.6	E33.3	.9
September	NA	.4	20.5	.1	4.6	2.9	E28.5	.5
October	NA	.5	20.6	(s)	4.6	2.8	E28.5	.4
November	NA	.5	20.9	.0	4.2	2.3	E27.9	.4
December	NA	.6	21.5	(s)	5.1	2.8	E30.0	.8
Total	E2.6	6.2	243.5	.4	58.1	34.3	E345.2	7.7
1994 January	NA	.4	20.5	.1	5.0	2.6	E28.6	.9
February	NA	.3	17.8	(s)	4.1	2.8	E25.0	.8
March	NA	.4	19.0	.1	4.6	2.9	E27.0	.8
April	NA	.4	20.2	(s)	4.9	2.7	E28.3	1.0
May	NA	.5	19.8	.1	4.9	2.9	E28.2	1.3
June	NA	.5	19.4	.1	5.0	2.9	E28.0	1.1
July	NA	.4	24.3	(s)	5.5	3.3	E33.6	1.1
August	NA	.5	26.9	(s)	5.3	3.5	E36.2	.9
September	NA	.3	21.7	(s)	4.8	2.9	E29.6	.4
October	NA	.3	20.5	.1	5.0	2.8	E28.6	.5
November	NA	.5	20.6	(s)	4.7	2.7	E28.5	.6
December	NA	.6	23.1	.1	4.3	2.9	E30.9	.8
Total	E14.2	5.0	253.8	.6	58.3	34.8	E366.7	10.3
1995 January	NA	.7	23.1	(s)	4.8	2.5	E31.2	1.0
February	NA	.5	21.5	(s)	4.9	2.3	E29.3	.7
March	NA	.6	23.6	(s)	5.1	2.7	E32.1	.7
April	NA	.6	22.6	(s)	4.9	2.7	E30.8	.7
May	NA	.7	22.1	(s)	5.4	3.2	E31.5	.8
June	NA	.7	20.6	.1	5.5	3.4	E30.2	1.1
July	NA	.8	26.3	.1	6.1	3.3	E36.5	1.1
August	NA	E.8	29.0	.1	5.9	3.4	E39.3	1.2
8-Month Total	NA	E5.5	188.8	.3	42.7	23.6	E260.9	7.3
1994 8-Month Total	NA	3.4	167.9	.4	39.6	23.6	E234.9	7.9
1993 8-Month Total	NA	4.3	155.3	.3	39.6	23.5	E222.9	5.6

[a] The total gross generation estimate for 1993 and 1994 for China is calculated as 5 percent more than the annual net nuclear generation reported by the International Atomic Energy Agency (IAEA) and is published in the Energy Information Administration annual report, *World Nuclear Outlook 1995*, October 1995, Table 1.

[b] South Africa comprises all of Africa's nuclear electricity generation.

NA=Not available. – =Not applicable. E=Estimate. (s)=Less than 0.05 billion kilowatthours.

Notes: • The Philippines has a nuclear generating unit under construction. Its earliest initial commercial operation is projected to be in 1996. • Net figures are generally less than gross figures by about 5 percent, the difference being the energy consumed by the generating plants themselves. • Monthly data may not sum to annual totals due to independent rounding and because precommercial generation is included in some annual totals but not in the monthly data. • Data for countries may not sum to regional totals due to independent rounding.

Source: McGraw-Hill Publishing Company, *Nucleonics Week*.

Table 10.4e Nuclear Electricity Gross Generation: Eastern Europe

(Billion Kilowatthours)

	Bulgaria	Czech Republic[a]	Hungary	Kazakhstan[a]	Lithuania[a]	Romania[b]	Russia	Slovakia[a]	Slovenia	Ukraine	Eastern Europe[c]
1973 Total	–	–	–	NA	–	–	NA	NA	–	–	NA
1974 Total	NA	–	–	NA	–	–	NA	NA	–	–	NA
1975 Total	NA	–	–	NA	–	–	NA	NA	–	–	NA
1976 Total	NA	–	–	NA	–	–	NA	NA	–	–	NA
1977 Total	NA	–	–	NA	–	–	NA	NA	–	–	NA
1978 Total	NA	–	–	NA	–	–	NA	NA	–	NA	NA
1979 Total	NA	–	–	NA	–	–	NA	NA	–	NA	NA
1980 Total	NA	–	–	NA	–	–	NA	NA	–	NA	NA
1981 Total	NA	–	–	NA	–	–	NA	NA	–	NA	NA
1982 Total	NA	–	–	NA	–	–	NA	NA	–	NA	NA
1983 Total	NA	–	NA	NA	–	–	NA	NA	NA	NA	NA
1984 Total	NA	–	NA	NA	–	–	NA	NA	NA	NA	NA
1985 Total	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
1986 Total	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
1987 Total	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
1988 Total	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
1989 Total	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
1990 Total	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
1991 Total	NA	NA	NA	NA	NA	–	NA	NA	NA	NA	NA
1992 Total	E 12.2	E 12.9	E 13.8	E .5	E 16.4	–	E 125.6	E 11.7	E 4.0	E 74.6	E 271.5
1993 January	E 1.5	NA	1.4	NA	NA	–	11.0	NA	.5	E 7.8	NA
February	E 1.5	NA	1.2	NA	NA	–	9.8	NA	.4	E 7.8	NA
March	E 1.5	NA	1.2	NA	NA	–	10.6	NA	.4	7.8	NA
April	E 1.5	NA	1.0	NA	NA	–	10.3	NA	.5	5.5	NA
May	1.2	NA	1.0	NA	NA	–	9.6	NA	.2	5.1	NA
June	.8	NA	1.0	NA	NA	–	10.1	NA	.0	5.0	NA
July	.9	NA	1.0	NA	NA	–	8.4	NA	(s)	5.6	NA
August	.9	NA	1.0	NA	NA	–	9.5	NA	.4	6.0	NA
September	1.1	.9	1.0	NA	NA	–	9.3	NA	.5	5.1	NA
October	.6	.9	1.2	NA	NA	–	9.7	NA	.5	5.3	NA
November	.9	1.0	1.3	NA	NA	–	10.4	NA	.4	5.3	NA
December	1.6	.9	1.4	NA	NA	–	11.9	NA	.3	6.3	NA
Total	**14.0**	E 13.2	**13.8**	E .4	E 12.9	–	**120.4**	E 11.6	**4.0**	E 72.7	E 263.0
1994 January	1.6	1.2	1.4	NA	NA	–	11.0	NA	.3	7.6	NA
February	1.4	1.2	1.2	NA	NA	–	10.0	NA	.4	6.7	NA
March	1.6	1.3	1.2	NA	NA	–	9.5	NA	.4	6.5	NA
April	1.1	1.3	1.0	NA	NA	–	8.0	NA	.5	5.8	NA
May	1.1	1.3	1.0	NA	NA	–	7.5	NA	.5	6.2	NA
June	.8	1.3	1.0	NA	NA	–	7.0	NA	.5	5.8	NA
July	.6	1.3	1.1	NA	NA	–	7.2	NA	.4	3.7	NA
August	.9	NA	1.0	NA	NA	–	6.0	NA	.3	2.9	NA
September	.8	NA	1.0	NA	NA	–	6.5	NA	(s)	3.6	NA
October	1.2	NA	1.3	NA	NA	–	7.5	NA	.4	5.4	NA
November	1.6	NA	1.3	NA	NA	–	8.4	NA	.5	6.7	NA
December	2.0	NA	1.4	NA	NA	–	9.2	NA	.5	7.4	NA
Total	**14.9**	E 12.7	**14.0**	E .4	E 7.0	–	**97.7**	E 12.7	**4.6**	**68.4**	E 232.4
1995 January	2.2	NA	1.4	NA	NA	–	10.7	NA	.5	8.5	NA
February	2.1	NA	1.1	NA	NA	–	8.9	NA	.4	7.5	NA
March	1.9	NA	1.3	NA	.9	–	9.0	NA	.5	7.3	NA
April	1.5	NA	1.1	NA	.7	–	7.8	NA	.3	6.5	NA
May	1.3	NA	1.1	NA	.8	–	7.2	NA	.0	4.8	NA
June	.9	NA	1.0	NA	.7	–	6.6	NA	.4	4.4	NA
July	1.0	NA	1.1	NA	.8	–	7.4	NA	.5	4.0	NA
August	.8	NA	1.0	NA	1.0	–	7.2	NA	.4	4.8	NA
8-Month Total	**11.7**	**NA**	**9.1**	**NA**	**NA**	–	**64.7**	**NA**	**2.9**	**47.8**	**NA**
1994 8-Month Total	**9.3**	**NA**	**9.0**	**NA**	**NA**	–	**66.1**	**NA**	**3.2**	**45.3**	**NA**
1993 8-Month Total	**9.9**	**NA**	**8.9**	**NA**	**NA**	–	**79.2**	**NA**	**2.3**	**50.7**	**NA**

[a] The total gross generation estimate for 1993 and 1994 for Czech Republic, Kazakhstan, Lithuania, and Slovakia is calculated as 5 percent more than the annual net nuclear generation reported by the International Atomic Energy Agency (IAEA) and is published in the Energy Information annual report, *World Nuclear Outlook 1995*, October 1995, Table 1.

[b] Romania has a nuclear generating unit under construction. Its earliest initial operation is projected to be in 1995.

[c] The total gross generation estimate for 1992 for Eastern European countries are calculated as 5 percent more than the annual net nuclear generation reported by the IAEA and published in the Energy Information Administration annual report, *World Nuclear Capacity and Fuel Cycle Requirements 1993*, November 1993, Table 10.

NA=Not available. – =Not applicable. E=Estimate. (s)=Less than 0.05 billion kilowatthours.

Notes: • Armenia has two nuclear generating units under construction. The earliest commercial operation for one unit is projected to be in 2000. • Net figures are generally less than gross figures by about 5 percent, the difference being the energy consumed by the generating plants themselves. • Monthly data may not sum to annual totals due to independent rounding and because precommercial generation is included in some annual totals but not in the monthly data. • Data for countries may not sum to regional totals due to independent rounding.

Source: McGraw-Hill Publishing Company, *Nucleonics Week*.

Sources for Tables 10.1a and 10.1b

United States

Table 3.1a.

Other Countries: Annual Data

1973-1979: Energy Information Administration (EIA), *International Energy Annual 1981*, Table 8.
1980: EIA, *International Energy Annual 1989*, Table 1.
1981: EIA, International Energy Annual 1990, Table 1.
1982: EIA, *International Energy Annual 1991*, Table 1.
1983-1992: EIA, *International Energy Annual 1992*, Table 1.
1993: EIA, *International Energy Annual 1993*, Table 2.2.
1994: Average of monthly data.

Other Countries: Monthly Data

1993-1995: *Petroleum Intelligence Weekly*, the *Oil and Gas Journal*, and other industry sources.

World: Annual Data

1973-1979: EIA, *International Energy Annual 1981*, Table 8.
1980: EIA, International Energy Annual *1989*, Table 1.
1981: EIA, *International Energy Annual 1990*, Table 1.
1982: EIA, *International Energy Annual 1991*, Table
1983-1992: EIA, *International Energy Annual 1992*, Table 1.
1993: EIA, *International Energy Annual 1993*, Table 2.2.
1994: Average of monthly data.

World: Monthly Data

1993-1995: EIA, *International Petroleum Statistics Report*, sum of all countries' monthly data.

Appendix A. Thermal Conversion Factors

The thermal conversion factors presented in the following eight tables can be used to estimate the heat content in British thermal units (Btu) of a given amount of energy measured in physical units, such as barrels or cubic feet. For example, 10 barrels of asphalt have a heat content of approximately 66.36 million Btu (10 barrels x 6.636 million Btu/barrel = 66.36 million Btu).

Thermal conversion factors for hydrocarbon mixes (Table A1) are weighted averages of the thermal conversion factors for each hydrocarbon included in the mix. For example, in calculating the thermal conversion factor for a 60-40 butane-propane mixture, the thermal conversion factor for butane is weighted 1.5 times more heavily than the thermal conversion factor for propane.

In general, the annual thermal conversion factors presented in Tables A1 through A8 are computed from final annual data. However, if the current year's final data are not available in time for publication, thermal conversion factors for the current year are computed from the best available data and are labeled "preliminary." The source of each factor is described in the section entitled "Thermal Conversion Factor Source Documentation," which follows Table A8 in this appendix.

Table A1. Approximate Heat Content of Petroleum Products

(Million Btu per Barrel)

Petroleum Product	Heat Content	Petroleum Product	Heat Content
Asphalt	6.636	Petrochemical Feedstocks	
Aviation Gasoline	5.048	Naphtha Less Than 401° F	5.248
Butane	4.326	Other Oils Equal to or Greater Than 401° F	5.825
Butane-Propane Mixture[a]	4.130	Still Gas	6.000
Distillate Fuel Oil	5.825	Petroleum Coke	6.024
Ethane	3.082	Plant Condensate	5.418
Ethane-Propane Mixture[b]	3.308	Propane	3.836
Isobutane	3.974	Residual Fuel Oil	6.287
Jet Fuel, Kerosene Type	5.670	Road Oil	6.636
Jet Fuel, Naphtha Type	5.355	Special Naphthas	5.248
Kerosene	5.670	Still Gas	6.000
Lubricants	6.065	Unfinished Oils	5.825
Motor Gasoline	5.253	Unfractionated Stream	5.418
Natural Gasoline and Isopentane	4.620	Waxes	5.537
Pentanes Plus	4.620	Miscellaneous	5.796

[a] 60 percent butane and 40 percent propane.
[b] 70 percent ethane and 30 percent propane.
Source: See "Thermal Conversion Factor Source Documentation," which follows Table A8.

Table A2. Approximate Heat Content of Crude Oil, Crude Oil and Products, and Natural Gas Plant Liquids

(Million Btu per Barrel)

	Crude Oil			Crude Oil and Products		Natural Gas Plant Liquids Production
	Production	Imports	Exports	Imports	Exports	
1973	5.800	5.817	5.800	5.897	5.752	4.049
1974	5.800	5.827	5.800	5.884	5.774	4.011
1975	5.800	5.821	5.800	5.858	5.748	3.984
1976	5.800	5.808	5.800	5.856	5.745	3.964
1977	5.800	5.810	5.800	5.834	5.797	3.941
1978	5.800	5.802	5.800	5.839	5.808	3.925
1979	5.800	5.810	5.800	5.810	5.832	3.955
1980	5.800	5.812	5.800	5.796	5.820	3.914
1981	5.800	5.818	5.800	5.775	5.821	3.930
1982	5.800	5.826	5.800	5.775	5.820	3.872
1983	5.800	5.825	5.800	5.774	5.800	3.839
1984	5.800	5.823	5.800	5.745	5.850	3.812
1985	5.800	5.832	5.800	5.736	5.814	3.815
1986	5.800	5.903	5.800	5.808	5.832	3.797
1987	5.800	5.901	5.800	5.820	5.858	3.804
1988	5.800	5.900	5.800	5.820	5.840	3.800
1989	5.800	5.906	5.800	5.833	5.857	3.826
1990	5.800	5.934	5.800	5.849	5.833	3.822
1991	5.800	5.948	5.800	5.873	5.823	3.807
1992	5.800	5.953	5.800	5.877	5.777	3.804
1993	5.800	5.954	5.800	5.883	5.779	3.801
1994[a]	5.800	5.951	5.800	5.862	5.781	3.794
1995[a]	5.800	5.951	5.800	5.862	5.781	3.794

[a] Preliminary.
Note: Crude oil includes lease condensate.
Source: See "Thermal Conversion Factor Source Documentation," which follows Table A8.

Table A3. Approximate Heat Content of Petroleum Products, Weighted Averages

(Million Btu per Barrel)

	Consumption							
	Residential and Commercial	Industrial	Transportation	Electric Utilities	Total	Imports	Exports	LPG Consumption
1973	5.387	5.568	5.395	6.245	5.515	5.983	5.752	3.746
1974	5.377	5.538	5.394	6.238	5.504	5.959	5.773	3.730
1975	5.358	5.528	5.392	6.250	5.494	5.935	5.747	3.715
1976	5.383	5.538	5.395	6.251	5.504	5.980	5.743	3.711
1977	5.389	5.555	5.400	6.249	5.518	5.908	5.796	3.677
1978	5.382	5.553	5.404	6.251	5.519	5.955	5.814	3.669
1979	5.471	5.418	5.428	6.258	5.494	5.811	5.864	3.680
1980	5.468	5.376	5.440	6.254	5.479	5.748	5.841	3.674
1981	5.409	5.313	5.432	6.258	5.448	5.659	5.837	3.643
1982	5.392	5.263	5.422	6.258	5.415	5.664	5.829	3.615
1983	5.286	5.273	5.415	6.255	5.406	5.677	5.800	3.614
1984	5.384	5.223	5.422	6.251	5.395	5.613	5.867	3.599
1985	5.326	5.221	5.423	6.247	5.387	5.572	5.819	3.603
1986	5.357	5.286	5.427	6.257	5.418	5.624	5.839	3.640
1987	5.316	5.253	5.430	6.249	5.403	5.599	5.860	3.659
1988	5.320	5.248	5.434	6.250	5.410	5.618	5.842	3.652
1989	5.257	5.233	5.440	6.241	5.410	5.641	5.869	3.683
1990	5.208	5.272	5.445	6.247	5.411	5.614	5.838	3.625
1991	5.163	5.192	5.442	6.248	5.384	5.636	5.827	3.614
1992	5.169	5.188	5.445	6.243	5.378	5.623	5.774	3.624
1993	5.148	5.200	5.438	6.241	5.379	5.620	5.777	3.606
1994[a]	5.122	5.181	5.441	6.231	5.371	5.538	5.779	3.635
1995[a]	5.122	5.181	5.441	6.231	5.371	5.538	5.779	3.635

[a] Preliminary.
Note: Weighted averages of the products included in each category are calculated by using heat content values shown in Table A1.
Source: See "Thermal Conversion Factor Source Documentation," which follows Table A8.

Table A4. Approximate Heat Content of Natural Gas

(Btu per Cubic Foot)

	Production		Consumption			Imports	Exports
	Dry	Marketed (Wet)	Sectors Other Than Electric Utilities	Electric Utilities	Total		
1973	1,021	1,093	1,020	1,024	1,021	1,026	1,023
1974	1,024	1,097	1,024	1,022	1,024	1,027	1,016
1975	1,021	1,095	1,020	1,026	1,021	1,026	1,014
1976	1,020	1,093	1,019	1,023	1,020	1,025	1,013
1977	1,021	1,093	1,019	1,029	1,021	1,026	1,013
1978	1,019	1,088	1,016	1,034	1,019	1,030	1,013
1979	1,021	1,092	1,018	1,035	1,021	1,037	1,013
1980	1,026	1,098	1,024	1,035	1,026	1,022	1,013
1981	1,027	1,103	1,025	1,035	1,027	1,014	1,011
1982	1,028	1,107	1,026	1,036	1,028	1,018	1,011
1983	1,031	1,115	1,031	1,030	1,031	1,024	1,010
1984	1,031	1,109	1,030	1,035	1,031	1,005	1,010
1985	1,032	1,112	1,031	1,038	1,032	1,002	1,011
1986	1,030	1,110	1,029	1,034	1,030	997	1,008
1987	1,031	1,112	1,031	1,032	1,031	999	1,011
1988	1,029	1,109	1,029	1,028	1,029	1,002	1,018
1989	1,031	1,107	1,031	1,030	1,031	1,004	1,019
1990	1,031	1,105	1,030	1,034	1,031	1,012	1,018
1991	1,030	1,108	1,031	1,024	1,030	1,014	1,022
1992	1,030	1,110	1,031	1,022	1,030	1,011	1,018
1993	1,027	1,106	1,028	1,022	1,027	1,020	1,016
1994[a]	1,027	1,106	1,028	1,022	1,027	1,020	1,016
1995[a]	1,027	1,106	1,028	1,022	1,027	1,020	1,016

[a] Preliminary.

Source: See "Thermal Conversion Factor Source Documentation," which follows Table A8.

Table A5. Approximate Heat Content of Coal

(Million Btu per Short Ton)

	Production	Consumption					Imports	Exports
		Residential and Commercial	Coke Plants	Other Industrial[a]	Electric Utilities[b]	Total		
1973	23.376	22.831	26.780	22.586	22.246	23.057	25.000	26.596
1974	23.072	22.479	26.778	22.419	21.781	22.677	25.000	26.700
1975	22.897	22.261	26.782	22.436	21.642	22.506	25.000	26.562
1976	22.855	22.774	26.781	22.530	21.679	22.498	25.000	26.601
1977	22.597	22.919	26.787	22.322	21.508	22.265	25.000	26.548
1978	22.248	22.466	26.789	22.207	21.275	22.017	25.000	26.478
1979	22.454	22.242	26.788	22.452	21.364	22.100	25.000	26.548
1980	22.415	22.543	26.790	22.690	21.295	21.947	25.000	26.384
1981	22.308	22.474	26.794	22.585	21.085	21.713	25.000	26.160
1982	22.239	22.695	26.797	22.712	21.194	21.674	25.000	26.223
1983	22.052	22.775	26.798	22.691	21.133	21.576	25.000	26.291
1984	22.010	22.844	26.799	22.543	21.101	21.573	25.000	26.402
1985	21.870	22.646	26.798	22.020	20.959	21.366	25.000	26.307
1986	21.913	22.947	26.798	22.198	21.084	21.462	25.000	26.292
1987	21.922	23.404	26.799	22.381	21.136	21.517	25.000	26.291
1988	21.823	23.571	26.799	22.360	20.900	21.328	25.000	26.299
1989	21.765	23.650	26.800	22.347	20.848	21.272	25.000	26.160
1990	21.822	23.137	26.799	22.457	20.929	21.331	25.000	26.202
1991	21.681	23.114	26.799	22.460	20.755	21.146	25.000	26.188
1992	21.646	23.105	26.799	22.250	20.787	21.143	25.000	26.161
1993	21.388	22.994	26.800	22.123	20.639	20.983	25.000	26.335
1994[c]	21.352	23.600	26.800	22.067	20.691	21.015	25.000	26.329
1995[c]	21.352	23.600	26.800	22.067	20.691	21.015	25.000	26.329

[a] Includes transportation.

[b] Data shown in this column are not the same as those shown in the *Electric Power Monthly* (EPM). The EPM data report coal receipts; the data shown here represent coal consumption.

[c] Preliminary.

Source: See "Thermal Conversion Factor Source Documentation," which follows Table A8.

Table A6. Approximate Heat Content of Bituminous Coal and Lignite

(Million Btu per Short Ton)

	Production	Consumption					Imports	Exports
		Residential and Commercial	Coke Plants	Other Industrial[a]	Electric Utilities	Total		
1973	23.391	22.887	26.800	22.585	22.262	23.073	25.000	26.612
1974	23.087	22.523	26.800	22.420	21.799	22.694	25.000	26.716
1975	22.910	22.258	26.800	22.439	21.659	22.522	25.000	26.573
1976	22.863	22.819	26.800	22.528	21.692	22.509	25.000	26.613
1977	22.597	22.594	26.800	22.290	21.521	22.266	25.000	26.561
1978	22.242	22.078	26.800	22.175	21.284	22.014	25.000	26.501
1979	22.449	21.884	26.800	22.436	21.372	22.100	25.000	26.570
1980	22.411	22.488	26.800	22.690	21.301	21.950	25.000	26.404
1981	22.301	22.010	26.800	22.572	21.091	21.710	25.000	26.176
1982	22.233	22.226	26.800	22.695	21.200	21.670	25.000	26.231
1983	22.048	22.438	26.800	22.680	21.141	21.576	25.000	26.300
1984	22.005	22.406	26.800	22.525	21.108	21.570	25.000	26.410
1985	21.867	22.568	26.800	22.013	20.965	21.368	25.000	26.320
1986	21.908	22.669	26.800	22.185	21.091	21.462	25.000	26.308
1987	21.918	22.800	26.800	22.360	21.143	21.514	25.000	26.304
1988	21.817	23.135	26.800	22.341	20.905	21.324	25.000	26.308
1989	21.759	22.917	26.800	22.324	20.854	21.268	25.000	26.166
1990	21.819	22.678	26.800	22.444	20.935	21.330	25.000	26.207
1991	21.678	22.635	26.800	22.448	20.761	21.146	25.000	26.192
1992	21.643	22.768	26.800	22.242	20.792	21.142	25.000	26.165
1993	21.383	22.749	26.800	22.111	20.644	20.983	25.000	26.341
1994[b]	21.348	23.004	26.800	22.036	20.699	21.012	25.000	26.335
1995[b]	21.348	23.004	26.800	22.036	20.699	21.012	25.000	26.335

[a] Includes transportation.
[b] Preliminary.
Source: See "Thermal Conversion Factor Source Documentation," which follows Table A8.

Table A7. Approximate Heat Content of Anthracite and Coal Coke

(Million Btu per Short Ton)

	Anthracite					Coal Coke Imports and Exports
	Production	Consumption			Imports and Exports	
		Sectors Other Than Electric Utilities	Electric Utilities	Total		
1973	22.132	22.674	17.920	21.464	25.400	24.800
1974	21.711	22.330	17.200	20.919	25.400	24.800
1975	21.582	22.272	17.064	20.762	25.400	24.800
1976	22.045	22.618	17.526	21.254	25.400	24.800
1977	22.661	24.101	17.244	22.066	25.400	24.800
1978	23.079	24.388	17.104	22.398	25.400	24.800
1979	23.170	24.272	17.454	22.069	25.400	24.800
1980	22.869	22.719	17.652	21.405	25.400	24.800
1981	23.291	23.749	18.168	22.080	25.400	24.800
1982	23.289	24.578	18.160	22.518	25.400	24.800
1983	22.734	24.536	16.516	21.583	25.400	24.800
1984	23.107	25.128	17.018	22.322	25.400	24.800
1985	22.428	23.031	16.784	20.817	25.400	24.800
1986	23.084	24.399	15.578	21.512	25.400	24.800
1987	23.108	26.293	15.962	22.435	25.400	24.800
1988	23.266	26.021	17.312	22.423	25.400	24.800
1989	23.385	27.196	16.310	22.623	25.400	24.800
1990	22.574	25.199	16.140	21.668	25.400	24.800
1991	22.573	25.268	15.858	21.410	25.400	24.800
1992	22.572	24.617	16.944	21.423	25.400	24.800
1993	22.573	24.096	16.534	21.262	25.400	24.800
1994[a]	22.574	26.280	14.878	21.711	25.400	24.800
1995[a]	22.574	26.280	14.878	21.711	25.400	24.800

[a] Preliminary.
Source: See "Thermal Conversion Factor Source Documentation," which follows Table A8.

Table A8. Approximate Heat Rates for Electricity

(Btu per Kilowatthour)

	Electricity Generation			
	Fossil-Fueled Steam-Electric Plants[a]	Nuclear Steam-Electric Plants	Geothermal Energy Plants	Electricity Consumption
1973	10,389	10,903	21,674	3,412
1974	10,442	11,161	21,674	3,412
1975	10,406	11,013	21,611	3,412
1976	10,373	11,047	21,611	3,412
1977	10,435	10,769	21,611	3,412
1978	10,361	10,941	21,611	3,412
1979	10,353	10,879	21,545	3,412
1980	10,388	10,908	21,639	3,412
1981	10,453	11,030	21,639	3,412
1982	10,454	11,073	21,629	3,412
1983	10,520	10,905	21,290	3,412
1984	10,440	10,843	21,303	3,412
1985	10,447	10,813	21,263	3,412
1986	10,446	10,799	21,263	3,412
1987	10,419	10,776	21,263	3,412
1988	10,324	10,743	21,096	3,412
1989	10,317	10,724	21,096	3,412
1990	10,335	10,680	21,096	3,412
1991	10,352	10,740	20,997	3,412
1992	10,302	10,678	20,914	3,412
1993	10,280	10,682	20,914	3,412
1994[b]	10,280	10,682	20,914	3,412
1995[b]	10,280	10,682	20,914	3,412

[a] This thermal conversion factor is used for hydroelectric power generation and for biomass fuels, wind, photovoltaic, and solar thermal energy consumed at electric utilities.

[b] Preliminary.

Source: See "Thermal Conversion Factor Source Documentation," which follows this table.

Thermal Conversion Factor Source Documentation

Approximate Heat Content of Petroleum and Natural Gas Plant Liquids

Asphalt. The Energy Information Administration (EIA) adopted the thermal conversion factor of 6.636 million British thermal units (Btu) per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956.*

Aviation Gasoline. EIA adopted the Bureau of Mines thermal conversion factor of 5.048 million Btu per barrel for "Gasoline, Aviation" as published by the Texas Eastern Transmission Corporation in Appendix V of *Competition and Growth in American Energy Markets 1947-1985,* a 1968 release of historical and projected statistics.

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

Butane-Propane Mixture. EIA adopted the Bureau of Mines calculation of 4.130 million Btu per barrel based on an assumed mixture of 60 percent butane and 40 percent propane. See **Butane** and **Propane.**

Crude Oil, Exports. Assumed by EIA to be 5.800 million Btu per barrel or equal to the thermal conversion factor for crude oil produced in the United States. See **Crude Oil and Lease Condensate, Production.**

Crude Oil, Imports. Calculated annually by EIA by weighting the thermal conversion factor of each type of crude oil imported by the quantity imported. Thermal conversion factors for each type were calculated on a foreign country basis, by determining the average American Petroleum Institute (API) gravity of crude imported from each foreign country from Form ERA-60 in 1977 and converting average API gravity to average Btu content by using National Bureau of Standards, Miscellaneous Publication No. 97, *Thermal Properties of Petroleum Products,* 1933.

Crude Oil and Lease Condensate, Production. EIA adopted the thermal conversion factor of 5.800 million Btu per barrel as reported in a Bureau of Mines internal memorandum, "Bureau of Mines Standard Average Heating Values of Various Fuels, Adopted January 3, 1950."

Crude Oil and Petroleum Products, Exports. Calculated annually by EIA as the average of the thermal conversion factors for each petroleum product

exported and crude oil exported weighted by the quantity of each petroleum product and crude oil exported. See **Crude Oil, Exports** and **Petroleum Products, Exports**.

Crude Oil and Petroleum Products, Imports. Calculated annually by EIA as the average of the thermal conversion factors for each petroleum product and each type of crude oil imported weighted by the quantity of each petroleum product and each type of crude oil imported. See **Crude Oil, Imports** and **Petroleum Products, Imports**.

Distillate Fuel Oil. EIA adopted the Bureau of Mines thermal conversion factor of 5.825 million Btu per barrel as reported in a Bureau of Mines internal memorandum, "Bureau of Mines Standard Average Heating Value of Various Fuels, Adopted January 3, 1950."

Ethane. EIA adopted the Bureau of Mines thermal conversion factor of 3.082 million Btu per barrel in the *California Oil World and Petroleum Industry*, First Issue, April 1942.

Ethane-Propane Mixture. EIA calculated 3.308 million Btu per barrel based on an assumed mixture of 70 percent ethane and 30 percent propane. See **Ethane** and **Propane**.

Isobutane. EIA adopted the Bureau of Mines thermal conversion factor of 3.974 million Btu per barrel in the *California Oil World and Petroleum Industry*, First Issue, April 1942.

Jet Fuel, Kerosene Type. EIA adopted the Bureau of Mines thermal conversion factor of 5.670 million Btu per barrel for "Jet Fuel, Commercial" as published by the Texas Eastern Transmission Corporation in Appendix V of *Competition and Growth in American Energy Markets 1947-1985*, a 1968 release of historical and projected statistics.

Jet Fuel, Naphtha Type. EIA adopted the Bureau of Mines thermal conversion factor of 5.355 million Btu per barrel for "Jet Fuel, Military" as published by the Texas Eastern Transmission Corporation in Appendix V of *Competition and Growth in American Energy Markets 1947-1985*, a 1968 release of historical and projected statistics.

Kerosene. EIA adopted the Bureau of Mines thermal conversion factor of 5.670 million Btu per barrel as reported in a Bureau of Mines internal memorandum, "Bureau of Mines Standard Average Heating Values of Various Fuels, Adopted January 3, 1950."

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

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

Miscellaneous Products. EIA adopted the thermal conversion factor of 5.796 million Btu per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956*.

Motor Gasoline. EIA adopted the Bureau of Mines thermal conversion factor of 5.253 million Btu per barrel for "Gasoline, Motor Fuel" by the Texas Eastern Transmission Corporation in Appendix V of *Competition and Growth in American Energy Markets 1947-1985*, a 1968 release of historical and projected statistics.

Natural Gas Plant Liquids, Production. Calculated annually by EIA as the average of the thermal conversion factors of each natural gas plant liquid produced weighted by the quantity of each natural gas plant liquid produced.

Natural Gasoline. EIA adopted the thermal conversion factor of 4.620 million Btu per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956*.

Pentanes Plus. EIA assumed the thermal conversion factor to be 4.620 million Btu per barrel or equal to that for natural gasoline. See **Natural Gasoline**.

Petrochemical Feedstocks, Naphtha Less Than 401 Degrees Fahrenheit. Assumed by EIA to be 5.248 million Btu per barrel, equal to the thermal conversion factor for special naphthas. See **Special Naphthas**.

Petrochemical Feedstocks, Oils Equal to or Greater Than 401 Degrees Fahrenheit. Assumed by EIA to be 5.825 million Btu per barrel, equal to the thermal conversion factor for distillate fuel oil. See **Distillate Fuel Oil**.

Petrochemical Feedstocks, Still Gas. Assumed by EIA to be 6.000 million Btu per barrel, equal to the thermal conversion factor for still gas. See **Still Gas**.

Petroleum Coke. EIA adopted the thermal conversion factor of 6.024 million Btu per barrel as reported in Btu per short ton in the Bureau of Mines internal memorandum, "Bureau of Mines Standard Average Heating Value of Various Fuels, Adopted January 3, 1950." The Bureau of Mines calculated this factor by dividing 30,120,000 Btu per short ton, as given in the referenced Bureau of Mines internal memorandum, by 5.0 barrels per short ton, as given in the Bureau of Mines Form 6-1300-M and successor EIA forms.

Petroleum Products, Total Consumption. Calculated annually by EIA as the average of the thermal conversion factors for all petroleum products

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

Petroleum Products, Consumption by Electric Utilities. Calculated annually by EIA as the average of the thermal conversion factors for all petroleum products consumed at electric utilities, weighted by the quantity of each petroleum product consumed at electric utilities. The quantity of petroleum consumed is estimated in the State Energy Data System as documented in the *State Energy Data Report.*

Petroleum Products, Consumption by Industrial Users. Calculated annually by EIA as the average of the thermal conversion factors for all petroleum products consumed in the industrial sector, weighted by the estimated quantity of each petroleum product consumed in the industrial sector. The quantity of petroleum products consumed is estimated in the State Energy Data System as documented in the *State Energy Data Report.*

Petroleum Products, Consumption by Residential and Commercial Users. Calculated annually by EIA as the average of the thermal conversion factors for all petroleum products consumed by the residential and commercial sector, weighted by the estimated quantity of each petroleum product consumed in the residential and commercial sector. The quantity of petroleum products consumed is estimated in the State Energy Data System as documented in the *State Energy Data Report.*

Petroleum Products, Consumption by Transportation Users. Calculated annually by EIA as the average of the thermal conversion factor for all petroleum products consumed in the transportation sector, weighted by the estimated quantity of each petroleum product consumed in the transportation sector. The quantity of petroleum products consumed is estimated in the State Energy Data System as documented in the *State Energy Data Report.*

Petroleum Products, Exports. Calculated annually by EIA as the average of the thermal conversion factors for each petroleum product, weighted by the quantity of each petroleum product exported.

Petroleum Products, Imports. Calculated annually by EIA as the average of the thermal conversion factors for each petroleum product imported, weighted by the quantity of each petroleum product imported.

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

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

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

Road Oil. EIA adopted the Bureau of Mines thermal conversion factor of 6.636 million Btu per barrel, which was assumed to be equal to that of asphalt (see **Asphalt**) and was first published by the Bureau of Mines in the *Petroleum Statement, Annual, 1970.*

Special Naphthas. EIA adopted the Bureau of Mines thermal conversion factor of 5.248 million Btu per barrel, which was assumed to be equal to that of total gasoline (aviation and motor) factor and was first published in the *Petroleum Statement, Annual, 1970.*

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

Unfinished Oil. EIA assumed the thermal conversion factor to be 5.825 million Btu per barrel or equal to that for distillate fuel oil (see **Distillate Fuel Oil**) and first published in the *Annual Report to Congress, Volume 3, 1977.*

Unfractionated Stream. EIA assumed the thermal conversion factor to be 5.418 million Btu per barrel or equal to that for plant condensate (see **Plant Condensate**) and first published in the *Annual Report to Congress, Volume 2, 1981.*

Waxes. EIA adopted the thermal conversion factor of 5.537 million Btu per barrel as estimated by the Bureau of Mines and first published in the *Petroleum Statement, Annual, 1956.*

Approximate Heat Content of Natural Gas

Natural Gas, Total Consumption. 1973-1979: EIA adopted the thermal conversion factor calculated annually by the American Gas Association (AGA) and published in *Gas Facts*, an AGA annual publication. 1980 forward: Calculated annually by EIA by dividing the total heat content of natural gas consumed by the total quantity of natural gas consumed. The heat content and quantity consumed are from Form EIA-176. Published sources are: 1980-1989: EIA, *Natural Gas Annual 1992, Volume 2,* Table 15. 1990-1992: EIA, *Natural Gas Annual 1992, Volume 2,* Table 16. 1993 forward: 1992 value used as an estimate.

Natural Gas, Consumption by Electric Utilities. Calculated annually by EIA by dividing the total heat content of natural gas received at electric utilities by the total quantity received at electric utilities. The

heat contents and receipts are from Form FERC-423 and predecessor forms.

Natural Gas, Consumption by Sectors Other Than Electric Utilities. Calculated annually by EIA by dividing the heat content of all natural gas consumed less the heat content of natural gas consumed at electric utilities by the quantity of all natural gas consumed less the quantity of natural gas consumed at electric utilities. Data are from Forms EIA-176, FERC-423, EIA-759, and predecessor forms.

Natural Gas, Exports. Calculated annually by EIA by dividing the heat content of exported natural gas by the quantity of natural gas exported, both reported on Form FPC-14.

Natural Gas, Imports. Calculated annually by EIA by dividing the heat content of imported natural gas by the quantity of natural gas imported, both reported on Form FPC-14.

Natural Gas Production, Dry. Assumed by EIA to be equal to the thermal conversion factor for the consumption of dry natural gas. See **Natural Gas Total Consumption.**

Natural Gas Production, Marketed (Wet). Calculated annually by EIA by adding the heat content of dry natural gas production and the total heat content of natural gas plant liquids production and dividing this sum by the total quantity of marketed (wet) natural gas production.

Approximate Heat Content of Coal and Coal Coke

Anthracite, Total Consumption. Calculated annually by EIA by dividing the sum of the heat content of anthracite consumed by electric utilities and all other sectors combined by the total quantity of anthracite consumed.

Anthracite, Consumption by Electric Utilities. Calculated annually by EIA by dividing the heat content of anthracite receipts at electric utilities by the quantity of anthracite received at electric utilities. Heat contents and receipts are from Form FERC-423 and predecessor forms.

Anthracite, Consumption by Sectors Other Than Electric Utilities. Calculated annually by EIA by dividing the heat content of anthracite production less the heat content of the anthracite consumed at electric utilities, net exports, and shipments to U.S. Armed Forces overseas by the quantity of anthracite consumed by sectors other than electric utilities less the quantity of anthracite stock changes, losses, and "unaccounted for."

Anthracite, Imports and Exports. EIA assumed the anthracite imports and exports to be freshly mined anthracite having an estimated heat content of 25.40 million Btu per short ton.

Anthracite, Production. Calculated annually by EIA by dividing the sum of the heat content of freshly mined anthracite (estimated to have an average heat content of 25.400 million Btu per short ton) and the heat content of anthracite recovered from culm banks and river dredging (estimated to have a heat content of 17.500 million Btu per short ton) by the total quantity of anthracite production.

Bituminous Coal and Lignite, Total Consumption. Calculated annually by EIA by dividing the sum of the heat content of bituminous coal and lignite consumed by electric utilities, coal coke plants, other industrial plants, the residential and commercial sector, and the transportation sector by the sum of their respective tonnages.

Bituminous Coal and Lignite, Consumption by Coke Plants. Estimated by EIA to be 26.800 million Btu per short ton on the basis of an input/output analysis of coal carbonization.

Bituminous Coal and Lignite, Consumption by Electric Utilities. Calculated annually by EIA by dividing the total heat content of bituminous coal and lignite received at electric utilities by the total quantity received at electric utilities. Heat contents and receipts are from Form FERC-423 and predecessor forms.

Bituminous Coal and Lignite, Consumption by Other Industrial and Transportation Users. 1973: Calculated by EIA through regression analysis measuring the difference between the average Btu value of coal consumed by other industrial users and that of coal consumed at electric utilities in the 1974-1982 period. 1974 forward: Calculated annually by EIA by assuming that the bituminous coal and lignite delivered to other industrial users from each coal-producing area (reported on Form EIA-6 and predecessor Bureau of Mines Form 6-1419-Q) contained a heat value equal to that of bituminous coal and lignite received at electric utilities from each of the same coal-producing areas (reported on Form FERC-423). The average Btu value of coal by coal-producing area was applied to the volume of deliveries to other industrial users from each coal-producing area, and the sum total of the heat content was divided by the total volume of deliveries. Coal-producing areas are the Bureau of Mines coal-producing districts for 1974 through 1989 and coal-producing States for 1990 forward.

Bituminous Coal and Lignite, Consumption by Residential and Commercial Users. 1973: Calculated by EIA through regression analysis measuring the difference between the average Btu value of coal consumed by residential and commercial users and that of coal consumed by electric utilities

in the 1974-1982 period. 1974 forward: Calculated annually by EIA by assuming that the bituminous coal and lignite delivered to residential and commercial users from each coal-producing area (reported on Form EIA-6 and predecessor Bureau of Mines Form 6-1419-Q) contained a heat value equal to that of bituminous coal and lignite received at electric utilities from each of the same coal-producing areas (reported on Form FERC-423). The average Btu value of coal by coal-producing area was applied to the volume of deliveries to residential and commercial users from each coal-producing area, and the total of the heat value was divided by the total volume of deliveries. Coal-producing areas are the Bureau of Mines coal-producing districts for 1974 through 1989 and coal-producing States for 1990 forward.

Bituminous Coal and Lignite, Exports. Calculated annually by EIA by dividing the sum of the heat content of exported metallurgical coal (estimated to average 27.000 million Btu per short ton) and the heat content of exported steam coal (estimated to have an average thermal content of 25.000 million Btu per short ton) by the total quantity of bituminous coal and lignite exported.

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

Bituminous Coal and Lignite, Production. Calculated annually by EIA by dividing the sum of the heat content of bituminous coal and lignite consumption, net exports, stock changes, and unaccounted for by the sum of their respective tonnages. Consumers' stock changes by sectors were assumed to have the same conversion factor as that of the consumption sector. Producers' stock changes and unaccounted for were assumed to have the same conversion factor as that for consumption by all users.

Coal, Consumption. Calculated annually by EIA by dividing the sum of the heat content of bituminous coal and lignite and anthracite consumption by the sum of their respective tonnages.

Coal, Consumption by Electric Utilities. Calculated annually by EIA by dividing the sum of the heat content of bituminous coal and lignite and anthracite received at electric utilities by the sum of their respective tonnages received.

Coal, Consumption by Sectors Other Than Electric Utilities. Calculated annually by EIA by dividing the sum of the heat content of bituminous coal and lignite and anthracite consumed by sectors other than electric utilities by the sum of their respective tonnages.

Coal, Exports. Calculated annually by EIA by dividing the sum of the heat content of bituminous coal and lignite and anthracite exported by the sum of their respective tonnages.

Coal, Imports. Calculated annually by EIA by dividing the sum of the heat content of bituminous coal and lignite and anthracite imported by the sum of their respective tonnages.

Coal, Production. Calculated annually by EIA by dividing the sum of the total heat content of bituminous coal and lignite and anthracite production by the sum of their respective tonnages.

Coal Coke, Imports and Exports. EIA adopted the Bureau of Mines estimate of 24.800 million Btu per short ton.

Approximate Heat Rates for Electricity

Fossil-Fueled Steam-Electric Plant Generation. There is no generally accepted practice for measuring the thermal conversion rates for power plants that generate electricity from hydroelectric, wood and waste, wind, photovoltaic, or solar thermal energy sources. Therefore, EIA uses data from Form EIA-767 to calculate a rate factor that is equal to the prevailing annual average heat rate factor for fossil-fueled steam-electric power plants in the United States. By using that factor, it is possible to evaluate fossil fuel requirements for replacing those sources during periods of interruption such as droughts. The heat content of a kilowatthour of electricity produced, regardless of the generation process, is 3,412 Btu per kilowatthour. 1973-1991: The weighted annual average heat rate for fossil-fueled steam-electric power plants in the United States, as published by EIA in *Electric Plant Cost and Power Production Expenses 1991*, Table 9. 1992 forward: Unpublished factors calculated on the basis of data from Form EIA-767.

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

Nuclear Steam-Electric Plant Generation. 1973-1991: Calculated annually by EIA by dividing the total heat content consumed in nuclear generating units by the total (net) electricity generated by nuclear generating units. The heat content and electricity generation are reported on Form FERC-1, Form EIA-412, and predecessor forms. The factors, beginning with 1982 data, are published in the following EIA reports—1982: *Historical Plant Cost and Annual Production Expenses for Selected Electric Plants 1982*, page 215. 1983-1991: *Electric Plant Cost and Power Production Expenses 1991*, Table 13. 1992 forward: Calculated annually by EIA by dividing the total heat content of the steam leaving the nuclear generating units to generate electricity by the total (net) electricity generated by nuclear generating units. The heat content and electricity generation data are reported in Nuclear Regulatory Commission, *Licensed Operating Reactors—Status Summary Report.*

Appendix B. Metric and Other Physical Conversion Factors

Data presented in the *Monthly Energy Review* and in other Energy Information Administration publications are expressed predominately in units that historically have been used in the United States, such as British thermal units, barrels, cubic feet, and short tons. However, because U.S. commerce involves other nations, most of which use metric units of measure, the U.S. Government is committed to the transition to the metric system, as stated in the Metric Conversion Act of 1975 (Public Law 94–168), amended by the Omnibus Trade and Competitiveness Act of 1988 (Public Law 100–418), and Executive Order 12770 of July 25, 1991.

The metric conversion factors presented in Table B1 can be used to calculate the metric-unit equivalents of values expressed in U.S. customary units. For example, 500 short tons are the equivalent of 453.6 metric tons (500 short tons x 0.9071847 metric tons/short ton = 453.6 metric tons).

In the metric system of weights and measures, the names of multiples and subdivisions of any unit may be derived by combining the name of the unit with prefixes, such as deka, hecto, and kilo, meaning, respectively, 10, 100, 1,000, and deci, centi, and milli, meaning, respectively, one-tenth, one-hundredth, and one-thousandth. Common metric prefixes can be found in Table B2.

The conversion factors presented in Table B3 can be used to calculate equivalents in various physical units commonly used in energy analyses. For example, 10 barrels are the equivalent of 420 U.S. gallons (10 barrels x 42 gallons/barrel = 420 gallons).

Table B1. Metric Conversion Factors

Type of Unit	U.S. Unit	*multiplied by*	Conversion Factor	*equals*	Metric Unit
Mass	short tons (2,000 lb)	x	0.907 184 7	=	metric tons (t)
	long tons	x	1.016 047	=	metric tons (t)
	pounds (lb)	x	0.453 592 37[a]	=	kilograms (kg)
	pounds uranium oxide (lb U_3O_8)	x	0.384 647[b]	=	kilograms uranium (kgU)
	ounces, avoirdupois (avdp oz)	x	28.349 52	=	grams (g)
Volume	barrels of oil (bbl)	x	0.158 987 3	=	cubic meters (m^3)
	cubic yards (yd^3)	x	0.764 555	=	cubic meters (m^3)
	cubic feet (ft^3)	x	0.028 316 85	=	cubic meters (m^3)
	U.S. gallons (gal)	x	3.785 412	=	liters (L)
	ounces, fluid (fl oz)	x	29.573 53	=	milliliters (mL)
	cubic inches (in^3)	x	16.387 06	=	milliliters (mL)
Length	miles (mi)	x	1.609 344[a]	=	kilometers (km)
	yards (yd)	x	0.914 4[a]	=	meters (m)
	feet (ft)	x	0.304 8[a]	=	meters (m)
	inches (in)	x	2.54[b]	=	centimeters (cm)
Area	acres	x	0.404 69	=	hectares (ha)
	square miles (mi^2)	x	2.589 988	=	square kilometers (km^2)
	square yards (yd^2)	x	0.836 127 4	=	square meters (m^2)
	square feet (ft^2)	x	0.092 903 04[a]	=	square meters (m^2)
	square inches (in^2)	x	6.451 6[b]	=	square centimeters (cm^2)
Temperature	degrees Fahrenheit (°F)	x	5/9 (after subtracting 32)[a,c]	=	degrees Celsius (°C)
Energy	British thermal units (Btu)	x	1, 055.055 852 62 [a,d]	=	joules (J)
	calories (cal)	x	4.186 8[a]	=	joules (J)
	kilowatthours (kWh)	x	3.6[a]	=	megajoules (MJ)

[a]Exact conversion.

[b]Calculated by the Energy Information Administration.

[c]To convert degrees Celsius (°C) to degrees Fahrenheit (°F) exactly, multiply by 9/5, then add 32.

[d]The Btu used in this table is the International Table Btu adopted by the Fifth International Conference on Properties of Steam, London, 1956.

Notes: • Spaces have been inserted after every third digit to the right of the decimal for ease of reading. • Most metric units belong to the International System of Units (SI), and the liter, hectare, and metric ton are accepted for use with the SI units. For more information about the SI units, contact Dr. Barry Taylor at Building 221, Room B610, National Institute of Standards and Technology, Gaithersburg, MD 20899, or on telephone number 301–975–4220.

Sources: • General Services Administration, Federal Standard 376B, *Preferred Metric Units for General Use by the Federal Government* (Washington, DC, January 27, 1993), pp. 9–11, 13, and 16. • National Institute of Standards and Technology, Special Publications 330, 811, and 814. • American National Standards Institute/Institute of Electrical and Electronic Engineers, ANSI/IEEE Std 268–1992, pp. 28 and 29.

Table B2. Metric Prefixes

Unit Multiple	Prefix	Symbol	Unit Subdivision	Prefix	Symbol
10^{1}	deka	da	10^{-1}	deci	d
10^{2}	hecto	h	10^{-2}	centi	c
10^{3}	kilo	k	10^{-3}	milli	m
10^{6}	mega	M	10^{-6}	micro	μ
10^{9}	giga	G	10^{-9}	nano	n
10^{12}	tera	T	10^{-12}	pico	p
10^{15}	peta	P	10^{-15}	femto	f
10^{18}	exa	E	10^{-18}	atto	a
10^{21}	zetta	Z	10^{-21}	zepto	z
10^{24}	yotta	Y	10^{-24}	yocto	y

Source: U.S. Department of Commerce, National Institute of Standards and Technology, *The International System of Units (SI)*, NIST Special Publication 330, 1991 Edition (Washington, DC, August 1991), p. 10.

Table B3. Other Physical Conversion Factors

Energy Source	Original Unit	*multiplied by*	Conversion Factor	*equals*	Final Unit
Petroleum	barrels (bbl)	x	42[a]	=	U.S. gallons (gal)
Coal	short tons	x	2,000[a]	=	pounds (lb)
	long tons	x	2,240[a]	=	pounds (lb)
	metric tons (t)	x	1,000[a]	=	kilograms (kg)
Wood	cords (cd)	x	1.25[b]	=	short tons
	cords (cd)	x	128[a]	=	cubic feet (ft^3)

[a]Exact conversion.
[b]Calculated by the Energy Information Administration.
Source: U.S. Department of Commerce, National Institute of Standards and Technology, *Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices*, NIST Handbook 44, 1994 Edition (Washington, DC, October 1993), pp. B–10, C–17 and C–21.

Appendix C. Carbon Dioxide Emission Factors for Coal

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

On the basis of these rank- and State-specific basic emission factors for coal, EIA has also developed emission factors by sector. These sectoral emission factors weight the coal consumed in a given sector by its rank and State of origin. Table C1 presents the U.S. average carbon dioxide emission factors for coal by sector. Emission factors differ among sectors and within a given sector over time for a number of reasons:

- A higher average emission factor in the residential and commercial sector can be attributed to the steady consumption of bituminous coal and anthracite (presumably for home heating).
- Virtually all of the coal consumed by coke plants comes from only a few States in the Appalachian Coal Basin (West Virginia, Virginia, and eastern Kentucky). Hence, the emission factors for this sector have remained fairly constant.
- Other industrial users of coal (not coke plants) increased consumption of low-rank, high-emission western coals, which has contributed to a rise in their average emission factor.
- Electric utilities, which account for most U.S. coal consumption, have shifted over time away from high-rank, low-emission bituminous coal to low-rank, high-emission subbituminous coal and lignite as reflected in a gradually rising weighted-average carbon dioxide emission factor.

Table C1. Average Carbon Dioxide Emission Factors for Coal by Coal-Consuming Sector

(Pounds of Carbon Dioxide per Million Btu)

Year	Residential and Commercial	Industrial		Electric Utilities	U.S. Average[b]
		Coke Plants[a]	Other Coal		
1980	210.6	205.8	205.9	206.7	206.5
1981	212.0	205.8	205.9	206.9	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

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

Appendix D. List of Features

The following is a complete list of features that have appeared in the *Monthly Energy Review* since the first issue was published in October 1974. There are five categories of features on the list. "Articles" cover a wide range of energy-related subjects in depth. "Highlights" summarize the most important information presented in the subject Energy Information Administration (EIA) report. "Energy Previews" provide brief overviews of EIA preliminary energy data on a given topic. "EIA Data News" items present information on recent changes in the scope, design, methodology, and findings of EIA's energy surveys and databases. "Energy Snapshots" use graphics to set off key data from EIA survey reports. Questions and comments about features may be directed to Barbara T. Fichman by telephone at 202-586-5737, by fax at 202-586-0018, or by Internet E-Mail at bfichman@eia.doe.gov.

Feature	Cover Date
1995	
Highlights: *Manufacturing Consumption of Energy 1991*	January 1995
Article: U.S. Wind Energy Potential: The Effect of the Proximity of Wind Resources to Transmission Lines	February 1995
EIA Data News: The Response Analysis Survey: Evaluating Manufacturing Energy Consumption Survey Methodology	March 1995
Energy Preview: Electric Utility Fleet Survey 1993, Preliminary Estimates: Assessing the Market for Alternative-Fuel Vehicles	April 1995
Highlights: *Commercial Buildings Energy Consumption and Expenditures 1992*	April 1995
Article: Measuring Dependence on Imported Oil	August 1995
Energy Preview: Household Energy Consumption and Expenditures 1993, Preliminary Estimates	August 1995
Energy Snapshot: Housing Characteristics 1993	September 1995
Highlights: *State Energy Data Report 1993, Consumption Estimates*	October 1995
1994	
Energy Preview: Commercial Buildings Energy Consumption Survey, Preliminary Estimates, 1992	January 1994
Highlights: *Household Vehicles Energy Consumption 1991*	February 1994
Highlights: *Energy Use and Carbon Emissions: Some International Comparisons*	April 1994
Highlights: *Commercial Buildings Characteristics 1992*	June 1994
Article: Demand, Supply, and Price Outlook for Reformulated Motor Gasoline 1995	July 1994
Article: Commercial Nuclear Electric Power in the United States: Problems and Prospects	August 1994
Highlights: *Reducing Home Heating and Cooling Costs*	August 1994
Energy Preview: Commercial Buildings Energy Consumption and Expenditures 1992, Preliminary Estimates	September 1994
Article: Carbon Dioxide Emission Factors for Coal: A Summary	September 1994
Article: The Impact of Flow Control and Tax Reform on Ownership and Growth in the U.S. Waste-to-Energy Industry	September 1994
EIA Data News: Data Collection on Alternative-Fuel Vehicles	October 1994
Highlights: *Energy End-Use Intensities in Commercial Buildings*	October 1994
Article: Change in Method for Estimating Fuel Economy for the Residential Transportation Energy Consumption Survey	October 1994
Article: Comparability of Supply- and Consumption-Derived Estimates of Manufacturing Energy Consumption	October 1994
Energy Preview: Housing Characteristics 1993, Selected Preliminary Estimates	November 1994
Energy Preview: Propane-Provider Fleet Survey 1993, Preliminary Estimates	November 1994
Energy Preview: Atlanta Private Fleet Survey 1994, Preliminary Estimates	December 1994

Feature	Cover Date
1993	
Energy Preview: Residential Transportation Energy Consumption Survey, Preliminary Estimates, 1991	January 1993
EIA Data News: Natural Gas Transported for the Account of Others	February 1993
Highlights: *Federal Energy Subsidies: Direct and Indirect Interventions in Energy Markets*	July 1993
Highlights: *Household Energy Consumption and Expenditures 1990*	August 1993
Article: Demand, Supply, and Price Outlook for Low-Sulfur Diesel Fuel	August 1993
Energy Preview: Manufacturing Energy Consumption Survey, Preliminary Estimates, 1991	September 1993
Highlights: *Natural Gas 1992: Issues and Trends*	September 1993
Highlights: *International Energy Outlook 1993*	October 1993
Highlights: *The Changing Structure of the U.S. Coal Industry: An Update*	November 1993
Highlights: *Emissions of Greenhouse Gases in the United States 1985-1990*	December 1993
Highlights: *Assessment of Energy Use in Multibuilding Facilities*	December 1993
1992	
Energy Preview: Residential Energy Consumption and Expenditures Preliminary Estimates, 1990	April 1992
EIA Data News: Oxygenate Data Collection Begins	May 1992
Highlights: *Lighting in Commercial Buildings*	June 1992
Article: Demand, Supply, and Price Outlook for Oxygenated Gasoline, Winter 1992-1993	August 1992
EIA Data News: EIA Statistics on Electric Utility Demand-Side Management	September 1992
EIA Data News: EIA Statistics on Nonutility Power Producers	October 1992
Highlights: *Derived Annual Estimates of Manufacturing Energy Consumption, 1974-1988*	November 1992
Article: Energy Efficiency in the Manufacturing Sector	December 1992
1991	
Highlights: *U.S. Energy Industry Financial Developments, 1990 Fourth Quarter*	March 1991
Article: U.S. Wholesale Electricity Transactions	April 1991
1990	
Article: Refining Results Highlight Energy Companies' First-Half Profit Performance	June 1990
Highlights: *U.S. Oil and Gas Reserves by Year of Field Discovery*	August 1990
1989	
Article: A Review of Valdez Oil Spill Market Impacts	March 1989
Article: Monthly U.S. Crude Oil Production Estimates	March 1989
Article: Superconductivity and Energy Production and Consumption	May 1989
Highlights: *Commercial Buildings Consumption and Expenditures 1986*	May 1989
Article: Higher Prices Yield Improved Energy Industry Financial Results in the First Half of 1989	June 1989
Article: The Future Structure of the U.S. Commercial Nuclear Power Equipment Manufacturing Industry	July 1989
Highlights: *Potential Costs of Restricting Chlorofluorocarbon Use*	*September 1989*
Highlights: Manufacturing Energy Consumption Survey: Changes in Energy Efficiency, 1980-1985	*October 1989*
Highlights: Household Energy Consumption and Expenditures 1987, Part 1: National Data	*November 1989*
Article: Improved Energy Profits Offset by Refining Results in 1989	*December 1989*
1988	
Article: Measures of Energy Consumption, Expenditures, and Prices	*May 1988*
Highlights: Characteristics of Commercial Buildings 1986	*June 1988*
Article: The U.S. Energy Industry's Financial Recovery Continued in the First Half of 1988	*June 1988*
Article: A U.S. Perspective on Condensate	*June 1988*
Article: State Energy Severance Taxes, 1972-1987	*July 1988*
Highlights: Manufacturing Energy Consumption Survey: Consumption of Energy, 1985	*September 1988*
Highlights: Profiles of Foreign Direct Investment in U.S. Energy 1987	*October 1988*
Highlights: Manufacturing Energy Consumption Survey: Fuel Switching, 1985	*November 1988*
Article: Increased Refining Income Led U.S. Energy Industry Financial Recovery in 1988	*December 1988*

Feature	Cover Date
1987	
Article: Manufacturing Sector Energy Consumption, 1985 Provisional Estimates	*January 1987*
Highlights: Consumption and Expenditures, April 1984 Through March 1985, Part 1: National Data	April 1987
Highlights: *Consumption and Expenditures, April 1984 Through March 1985, Part 2: Regional Data*	*May 1987*
Article: U.S. Energy Industry Financial Developments, 1987 Second Quarter	*June 1987*
Article: End-Use Consumption of Residential Energy	*July 1987*
Highlights: Uranium Industry Annual 1986	*September 1987*
Highlights: Potential Oil Production from ANWR	*October 1987*
Highlights: Profiles of Foreign Direct Investment in U.S. Energy 1986	*November 1987*
Article: The U.S. Energy Industry in 1987: A Slow Recovery	*December 1987*
1986	
Article: State Motor Gasoline Taxes, 1960-1985	*March 1986*
Article: The Impact of Low Oil Prices on Electric Utility Fuel Choice	*June 1986*
Article: U.S. Energy Industry Financial Developments, 1986 Second Quarter	*June 1986*
Highlights: International Energy Annual 1985	*September 1986*
Article: U.S. Energy Industry Financial Developments, 1986	*December 1986*
1985	
Highlights: Annual Energy Review 1984	January 1985
Highlights: *Performance Profiles of Major Energy Producers 1983*	*February 1985*
Article: Estimating Well Completions	*March 1985*
Highlights: State Energy Price and Expenditure Report 1970-1982	*March 1985*
Highlights: State Energy Data Report, Consumption Estimates, 1960-1983	*April 1985*
Highlights: Annual Outlook for U.S. Electric Power 1985	June 1985
Highlights: *Short-Term Energy Outlook, Volume 1, October 1985*	August 1985
Highlights: *Analysis of Growth in Electricity Demand, 1980-1984*	August 1985
Highlights: *Profiles of Foreign Direct Investment in U.S. Energy 1984*	*November 1985*
Highlights: Performance Profiles of Major Energy Producers 1984	*December 1985*
1984	
Highlights: Annual Energy Review 1983	*February 1984*
Highlights: Annual Energy Outlook 1983	*March 1984*
Highlights: State Energy Data Report, Consumption Estimates, 1960-1982	*March 1984*
Highlights: State Energy Price and Expenditure Report, 1970-1981	*May 1984*
Highlights: Solar Collector Manufacturing Activity 1983	June 1984
Highlights: *International Energy Annual 1983*	*September 1984*
Highlights: Estimates of U.S. Wood Energy Consumption, 1980-1983	*September 1984*
Highlights: Energy Conservation Indicators 1983 Annual Report	November 1984
Highlights: Annual Energy Outlook 1984	December 1984
1983	
Highlights: *Residential Energy Consumption Survey: Consumption and Expenditures*	January 1983
Highlights: *Residential Energy Consumption Survey: Housing Characteristics*	*February 1983*
Article: The Effect of Weather on Energy Use	*April 1983*
Article: Trends in U.S. Energy Since 1973	*May 1983*
Article: Data Series on Petroleum Use at Electric Utilities	*July 1983*
Highlights: Energy Price and Expenditure Data Report, 1970-1980	*July 1983*
Highlights: Railroad Deregulation: Impact on Coal	*August 1983*
Highlights: Port Deepening and User Fees: Impact on U.S. Coal Exports	*August 1983*
Highlights: U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves, 1982 Annual Report	*September 1983*
Article: Residential Energy Consumption, 1978 Through 1981	*September 1983*
Article: Exploring for Oil and Gas	*November 1983*
Article: The Influence of Federal Actions on Petroleum Exploration	*December 1983[2]*
Article: Aggregate Statistics: Accurate or Misleading?	*December 1983[3]*

Feature	Cover Date
1982	
Article: The Interstate and Intrastate Natural Gas Markets	January 1982
Article: Natural Gas Drilling and Production Under the Natural Gas Policy Act	February 1982
Highlights: U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves, 1981 Annual Report	September 1982
Article: Impacts of Financial Constraints on the Electric Utility Industry	October 1982
Highlights: Energy Company Development Patterns in the Postembargo Era	November 1982
1981	
Article: Changes in 1981 Petroleum Data Series	May 1981
Article: Information Services of the Energy Information Administration	September 1981
Article: An Overview of Natural Gas Markets	December 1981
1980	
Article: The Solar Collector Industry and Solar Energy	February 1980
Article: Trends in the Installation of Energy Using Equipment in New Residential Buildings	March 1980
Article: The Energy Information Administration's Oil and Gas Reserves Program—The First Year's Report	June 1980
Article: Energy From Urban Waste	August 1980
Article: Natural Gas Liquids: Revisions to 1979 Data	October 1980
Article: EIA Weekly Petroleum Data: Data Collection and Methods of Estimation	November 1980
Article: The Department of Energy Disclosure Policy for Individually Identifiable Information Maintained by the Energy Information Administration	December 1980
1979	
Article: The Energy Requirements of U.S. Agriculture	July 1979
Article: Three Mile Island—Possible Regulatory Responses and Their Impacts on the Nation's Short-Term Electric Utility Fuel Outlook	October 1979
Article: Reduction in Natural Gas Requirements Due to Fuel Switching	December 1979
1978	
Article: Short-Term Petroleum Supply and Demand	May 1978
1977	
Article: Crude Oil Entitlements Program	January 1977
Article: Motor Gasoline Supply and Demand	July 1977
1976	
Article: Curtailments of Natural Gas Service	January 1976
Article: Home Heating Conservation Alternatives and the Solar Collector Industry	March 1976
Article: Trends in United States Petroleum Imports	September 1976
1975	
Article: Energy Consumption	March 1975
Article: Nuclear Power	April 1975
Article: The Price of Crude Oil	June 1975
Article: U.S. Coal Resources and Reserves	July 1975
Article: Propane—A National Energy Resource	September 1975
Article: Short-Term Energy Supply and Demand Forecasting at FEA	October 1975

Glossary

Anthracite: A hard, black, lustrous coal containing a high percentage of fixed carbon and a low percentage of volatile matter. Often referred to as hard coal. It conforms to ASTM Specification D388-84 for anthracite, meta-anthracite, and semianthracite.

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

ASTM: The American Society for Testing and Materials.

Aviation Gasoline Blending Components: Naphthas that are used for blending or compounding into finished aviation gasoline (e.g., straight-run gasoline, alkylate, and reformate). Excludes oxygenates (alcohols and ethers), butane, and pentanes plus.

Aviation Gasoline, Finished: All special grades of gasoline for use in aviation reciprocating engines, as given in ASTM Specification D910 and Military Specification MIL-G-5572. Excludes blending components that will be used in blending or compounding into finished aviation gasoline.

Barrel (petroleum): A unit of volume equal to 42 U.S. gallons.

Base (Cushion) Gas: The volume of gas needed as a permanent inventory to maintain adequate underground storage reservoir pressures and deliverability rates throughout the withdrawal season. All native gas is included in the base gas volume.

Bituminous Coal: A dense black coal, often with well-defined bands of bright and dull material, with a moisture content usually less than 20 percent. Often referred to as soft coal. It is the most common coal and is used primarily for generating electricity, making coke, and space heating. It conforms to ASTM Specification D388-84 for bituminous coal. In this report, bituminous coal includes subbituminous coal.

British Thermal Unit (Btu): The quantity of heat needed to raise the temperature of 1 pound of water by 1° F at or near 39.2° F. See **Heat Content of a Quantity of Fuel, Gross** and **Heat Content of a Quantity of Fuel, Net.**

Butane: A normally gaseous straight-chain or branched-chain hydrocarbon (C_4H_{10}). It is extracted from natural gas or refinery gas streams. It includes isobutane and normal butane and is designated in ASTM Specification D1835 and Gas Processors Association Specifications for commercial butane.

- *Isobutane:* A normally gaseous branched-chain hydrocarbon. It is a colorless paraffinic gas that boils at a temperature of 10.9° F. It is extracted from natural gas or refinery gas streams.
- *Normal Butane*: A normally gaseous straight-chain hydrocarbon. It is a colorless paraffinic gas that boils at a temperature of 31.1° F. It is extracted from natural gas or refinery gas streams.

Butylene: An olefinic hydrocarbon (C_4H_8) recovered from refinery processes.

Capacity Factor: The ratio of the electrical energy produced by a generating unit for a given period of time to the electrical energy that could have been produced at continuous full-power operation during the same period.

CIF: See **Cost, Insurance, Freight.**

City Gate: A point or measuring station at which a distribution gas utility receives gas from a natural gas pipeline company or transmission system.

Coal: A black or brownish-black solid, combustible substance formed by the partial decomposition of vegetable matter without access to air. The rank of coal, which includes anthracite, bituminous coal, subbituminous coal, and lignite, is based on fixed carbon, volatile matter, and heating value. Coal rank indicates the progressive alteration, or coalification, from lignite to anthracite. Lignite contains approximately 9 to 17 million Btu per ton. The heat contents of subbituminous and bituminous coal range from 16 to 24 million Btu per ton, and from 19 to 30 million Btu per ton, respectively. Anthracite contains approximately 22 to 28 million Btu per ton.

Coal Coke: A hard, porous product made from baking bituminous coal in ovens at temperatures as high as 2,000° F. It is used both as a fuel and as a reducing agent in smelting iron ore in a blast furnace.

Commercial Sector: The commercial sector, as defined economically, consists of business establishments that are not engaged in transportation or in manufacturing or other types of industrial activity (agriculture, mining, or construction). Commercial establishments include hotels, motels, restaurants,

wholesale businesses, retail stores, laundries, and other service enterprises; religious and nonprofit organizations; health, social, and educational institutions; and Federal, State, and local governments. Street lights, pumps, bridges, and public services are also included if the establishment operating them is considered commercial.

Completion: The installation of permanent equipment for the production of oil or gas. If a well is equipped to produce only oil or gas from one zone or reservoir, the definition of a well (classified as an oil well or gas well) and the definition of a completion are identical. However, if a well is equipped to produce oil and/or gas separately from more than one reservoir, a well is not synonymous with a completion.

Conversion Factor: A number that translates units of one system into corresponding values of another system. Conversion factors can be used to translate physical units of measure for various fuels into Btu equivalents.

Cost, Insurance, Freight (CIF): A type of sale in which the buyer of the product agrees to pay a unit price that includes the f.o.b. value of the product at the point of origin plus all costs of insurance and transportation. This type of transaction differs from a "delivered" purchase in that the buyer accepts the quantity as determined at the loading port (as certified by the Bill of Loading and Quality Report) rather than pay on the basis of the quantity and quality ascertained at the unloading port. It is similar to the terms of an f.o.b. sale, except that the seller, as a service for which he is compensated, arranges for transportation and insurance.

Crude Oil f.o.b. Price: The crude oil price actually charged at the oil-producing country's port of loading. Includes deductions for any rebates and discounts or additions of premiums, where applicable. It is the actual price paid with no adjustment for credit terms.

Crude Oil (Including Lease Condensate): A mixture of hydrocarbons that exists in liquid phase in underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. Included are lease condensate and liquid hydrocarbons produced from tar sands, gilsonite, and oil shale. Drip gases are also included, but topped crude oil (residual oil) and other unfinished oils are excluded. Where identifiable, liquids produced at natural gas processing plants and mixed with crude oil are likewise excluded.

Crude Oil Landed Cost: The price of crude oil at the port of discharge, including charges associated with the purchase, transporting, and insuring of a cargo from the purchase point to the port of discharge. The cost does not include charges incurred at the discharge port (e.g., import tariffs or fees, wharfage charges, and demurrage).

Crude Oil Refinery Input: The total crude oil put into processing units at refineries.

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

Crude Oil Used Directly: Crude oil consumed as fuel by crude oil pipelines and on crude oil leases.

Cubic Foot (natural gas): A unit of volume equal to 1 cubic foot at a pressure base of 14.73 pounds standard per square inch absolute and a temperature base of 60° F.

Degree-Day Normals: Simple arithmetic averages of monthly or annual degree-days over a long period of time (usually the 30-year period 1961-1990). The averages may be simple degree-day normals or population-weighted degree-day normals.

Degree-Days, Cooling (CDD): The number of degrees per day that the daily average temperature is above 65° F. The daily average temperature is the mean of the maximum and minimum temperatures for a 24-hour period.

Degree-Days, Heating (HDD): The number of degrees per day that the daily average temperature is below 65° F. The daily average temperature is the mean of the maximum and minimum temperatures for a 24-hour period.

Degree-Days, Population-Weighted: Heating or cooling degree-days weighted by the population of the area in which the degree-days are recorded. To compute State population-weighted degree-days, each State is divided into from one to nine climatically homogeneous divisions, which are assigned weights based on the ratio of the population of the division to the total population of the State. Degree-day readings for each division are multiplied by the corresponding population weight for each division and those products are then summed to arrive at the State population-weighted degree-day figure. To compute national population-weighted degree-days, the Nation is divided into nine Census regions comprised of from three to eight States, which are assigned weights based on the ratio of the population of the region to the total population of the Nation. Degree-day readings for each region are multiplied by the corresponding population weight for each region and those products are then summed to arrive at the national population-weighted degree-day figure.

Design Electrical Rating, Net: The nominal net electrical output of a nuclear unit as specified by the electric utility for the purpose of plant design.

Development Well: A well drilled within the proved area of an oil or gas reservoir to the depth of a stratigraphic horizon known to be productive.

Distillate Fuel Oil: A general classification for one of the petroleum fractions produced in conventional distillation operations. Included are products known as No. 1, No. 2, and No. 4 fuel oils and No. 1, No. 2, and No. 4 diesel fuels. It is used primarily for space heating, on- and off-highway diesel engine fuel (including railroad engine fuel and fuel for agricultural machinery), and electric power generation.

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

Dry Natural Gas Production (as a decrement from gas reserves): The volume of natural gas withdrawn from reservoirs during the report year less (1) the volume returned to such reservoirs in cycling, repressuring of oil reservoirs, and conservation operations; (2) shrinkage resulting from the removal of lease condensate and plant liquids; and (3) nonhydrocarbon gases, where they occur in sufficient quantity to render the gas unmarketable. Volumes of gas withdrawn from gas storage reservoirs and native gas that has been transferred to the storage category are not considered production. This is not the same as marketed production, since the latter also excludes vented and flared gas but contains liquids.

Dry Natural Gas Production (as an increment to gas supply): Gross withdrawals from production reservoirs less gas used in reservoir repressuring, amounts vented and flared, nonhydrocarbons removed, and various natural gas constituents, such as ethane, propane, and butane, removed at natural gas processing plants. The parameters for measurement are 60° F and 14.73 pounds standard per square inch absolute.

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

Electricity Generation: The process of producing electric energy or transforming other forms of energy into electric energy. Also the amount of electric energy produced or expressed in watthours (Wh).

Electricity Generation, Gross: The total amount of electric energy produced by the generating station or stations, measured at the generator terminals.

Electricity Generation, Net: Gross generation less electricity consumed at the generating plant for station use. Electricity required for pumping at pumped-storage plants is regarded as plant use and is deducted from gross generation.

Electricity Production: Net electricity (gross electricity output measured at generator terminals minus power plant use) generated by publicly and privately owned electric utilities. Excludes industrial electricity generation (except autogeneration of hydroelectric power).

Electricity Sales: The amount of kilowatthours sold in a given period of time; usually grouped by classes of service, such as residential, commercial, industrial, and other. "Other" sales include sales for public street and highway lighting and other sales to public authorities, sales to railroads and railways, and interdepartmental sales.

Electric Power Plant: A station containing prime movers, electric generators, and auxiliary equipment for converting mechanical, chemical, and/or fission energy into electric energy.

Electric Utility: A corporation, person, agency, authority, or other legal entity or instrumentality that owns and/or operates facilities for the generation, transmission, distribution, or sale of electric energy, primarily for use by the public, and that files forms listed in the *Code of Federal Regulations*, Title 18, Part 141. Facilities that qualify as cogenerators or small power producers under the Public Utility Regulatory Policies Act are not considered electric utilities.

Electric Utility Sector: The electric utility sector consists of privately and publicly owned establishments that generate, transmit, distribute, or sell electricity primarily for use by the public and that meet the definition of an electric utility. Nonutility power producers are not included in the electric utility sector.

End-Use Sectors: The residential, commercial, industrial, and transportation sectors of the economy.

Energy: The capacity for doing work as measured by the capability of doing work (potential energy) or the conversion of this capability to motion (kinetic energy). Energy has several forms, some of which are easily convertible and can be changed to another form useful for work. Most of the world's convertible energy comes from fossil fuels that are burned to produce heat that is then used as a transfer medium to mechanical or other means in order to accomplish tasks. Electrical energy is usually measured in kilowatthours, while heat energy is usually measured in British thermal units.

Energy Consumption: The use of energy as a source of heat or power or as an input in the manufacturing process.

Energy Consumption, End-Use: *Primary end-use energy consumption* is the sum of fossil fuel consumption by the four end-use sectors (residential, commercial, industrial, and transportation) and generation of hydroelectric power by nonelectric utilities. *Net end-use energy consumption* includes

electric utility sales to those sectors but excludes electrical system energy losses. *Total end-use energy consumption* includes both electric utility sales to the four end-use sectors *and* electrical system energy losses.

Energy Consumption, Total: The sum of fossil fuel consumption by the five sectors (residential, commercial, industrial, transportation, and electric utility) plus hydroelectric power, nuclear electric power, net imports of coal coke, and electricity generated for distribution from wood, waste, geothermal, wind, photovoltaic, and solar thermal energy.

Energy Source: A substance, such as petroleum, natural gas, or coal, that supplies heat or power. In Energy Information Administration reports, electricity and renewable forms of energy, such as biomass, geothermal, wind, and solar, are considered to be energy sources.

Ethane: A normally gaseous straight-chain hydrocarbon (C_2H_6). It is a colorless, paraffinic gas that boils at a temperature of -127.48° F. It is extracted from natural gas and refinery gas streams.

Ethylene: An olefinic hydrocarbon (C_2H_4) recovered from refinery processes or petrochemical processes.

Exploratory Well: A well drilled to find and produce oil or gas in an unproved area, to find a new reservoir in a field previously found to be productive of oil or gas in another reservoir, or to extend the limit of a known oil or gas reservoir.

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

f.a.s.: See **Free Alongside Ship.**

Federal Energy Regulatory Commission (FERC): The Federal agency with jurisdiction over interstate electricity sales, wholesale electric rates, hydroelectric licensing, natural gas pricing, oil pipeline rates, and gas pipeline certification. FERC is an independent regulatory agency within the Department of Energy and is the successor to the Federal Power Commission.

Federal Power Commission (FPC): The predecessor agency of the Federal Energy Regulatory Commission. The Federal Power Commission was created by an Act of Congress under the Federal Water Power Act on June 10, 1920. It was charged originally with regulating the electric power and natural gas industries. It was abolished on September 30, 1977, when the Department of Energy was created. Its functions were divided between the Department of Energy and the Federal Energy Regulatory Commission, an independent regulatory agency.

First Purchase Price: The marketed first sales price of domestic crude oil, consistent with the removal price defined by the provisions of the Windfall Profits Tax on Domestic Crude Oil (Public Law 96-223, Sec. 4998 (c)).

Flared Natural Gas: Natural gas burned in flares on the base site or at gas processing plants.

f.o.b.: See **Free on Board.**

Footage Drilled: Total footage for wells in various categories, as reported for any specified period, includes (1) the deepest total depth (length of well bores) of all wells drilled from the surface, (2) the total of all bypassed footage drilled in connection with reported wells, and (3) all new footage drilled for directional sidetrack wells. Footage reported for directional sidetrack wells does not include footage in the common bore, which is reported as footage for the original well. In the case of old wells drilled deeper, the reported footage is that which was drilled below the total depth of the old well.

Former U.S.S.R.: See **U.S.S.R.**

Fossil Fuel: Any naturally occurring organic fuel, such as petroleum, coal, and natural gas.

Fossil Fuel Steam-Electric Power Plant: An electricity generation plant in which the prime mover is a turbine rotated by high-pressure steam produced in a boiler by heat from burning fossil fuels.

Free Alongside Ship (f.a.s.): The value of a commodity at the port of exportation, generally including the purchase price, plus all charges incurred in placing the commodity alongside the carrier at the port of exportation.

Free on Board (f.o.b.): A transaction whereby the seller makes the product available within an agreed-on period at a given port at a given price. It is the responsibility of the buyer to arrange for the transportation and insurance.

Fuel Ethanol: An anhydrous, denatured aliphatic alcohol (C_2H_5OH) intended for motor gasoline blending. See **Oxygenates.**

Full-Power Operation: Operation of a nuclear generating unit at 100 percent of its design capacity. Full-power operation precedes commercial operation.

Gasohol: A blend of finished motor gasoline (leaded or unleaded) and alcohol (generally ethanol but sometimes methanol) limited to 10 percent by volume

of alcohol. Gasohol is included in finished leaded and unleaded motor gasoline.

Gas-Turbine Electric Power Plant: A plant in which the prime mover is a gas turbine. A gas turbine typically consists of an axial-flow air compressor, one or more combustion chambers where liquid or gaseous fuel is burned and the hot gases expand to drive the generator and then are used to run the compressor.

Gas Well: A well completed for the production of natural gas from one or more gas zones or reservoirs. (Wells producing both crude oil and natural gas are classified as oil wells.)

Geothermal Energy: Energy from the internal heat of the Earth, which may be residual heat, friction heat, or a result of radioactive decay. The heat is found in rocks and fluids at various depths and can be extracted by drilling and/or pumping.

Geothermal Energy (as used at electric utilities): Hot water or steam extracted from geothermal reservoirs in the Earth's crust and supplied to steam turbines at electric utilities that drive generators to produce electricity.

Gross Domestic Product (GDP): The total value of goods and services produced by labor and property located in the United States. As long as the labor and property are located in the United States, the supplier (that is, the workers and, for property, the owners) may be either U.S. residents or residents of foreign countries.

Heat Content of a Quantity of Fuel, Gross: The total amount of heat released when a fuel is burned. Coal, crude oil, and natural gas all include chemical compounds of carbon and hydrogen. When those fuels are burned, the carbon and hydrogen combine with oxygen in the air to produce carbon dioxide and water. Some of the energy released in burning goes into transforming the water into steam and is usually lost. The amount of heat spent in transforming the water into steam is counted as part of gross heat content but is not counted as part of net heat content. Also referred to as the higher heating value. Btu conversion factors typically used in EIA represent gross heat content.

Heat Content of a Quantity of Fuel, Net: The amount of usable heat energy released when a fuel is burned under conditions similar to those in which it is normally used. Also referred to as the lower heating value. Btu conversion factors typically used in EIA represent gross heat content.

Heavy Oil: The fuel oils remaining after the lighter oils have been distilled off during the refining process. Except for start-up and flame stabilization, virtually all petroleum used in steam-electric power plants is heavy oil.

Hydrocarbon: An organic chemical compound of hydrogen and carbon in the gaseous, liquid, or solid phase. The molecular structure of hydrocarbon compounds varies from the simplest (methane, the primary constituent of natural gas) to the very heavy and very complex.

Hydroelectric Power: The production of electricity from the kinetic energy of falling water.

Hydroelectric Power Plant: A plant in which the turbine generators are driven by falling water.

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

Industrial Sector: The industrial sector comprises manufacturing industries, which make up the largest part of the sector, along with mining, construction, agriculture, fisheries, and forestry. Establishments in this sector range from steel mills, to small farms, to companies assembling electronic components.

Internal Combustion Electric Power Plant: A power plant in which the prime mover is an internal combustion engine. Diesel or gas-fired engines are the principal types used in electric power plants. The plant is usually operated during periods of high demand for electricity.

Jet Fuel: The term includes kerosene-type jet fuel and naphtha-type jet fuel. Kerosene-type jet fuel is a kerosene-quality product used primarily for commercial turbojet and turboprop aircraft engines. Naphtha-type jet fuel is a fuel in the heavy naphthas range used primarily for military turbojet and turboprop aircraft engines.

Kerosene: A petroleum distillate that has a maximum distillation temperature of 401° F at the 10-percent recovery point, a final boiling point of 572° F, and a minimum flash point of 100° F. Included are the two grades designated in ASTM D3699 (No. 1-K and No. 2-K) and all grades of kerosene called range or stove oil. Kerosene is used in space heaters, cook stoves, and water heaters; it is suitable for use as an illuminant when burned in wick lamps.

Lease and Plant Fuel: Natural gas used in well, field, and lease operations (such as gas used in drilling operations, heaters, dehydrators, and field compressors), and as fuel in natural gas processing plants.

Lease Condensate: A natural gas liquid recovered from gas well gas (associated and non-associated) in lease separators or natural gas field facilities. Lease condensate consists primarily of pentanes and heavier hydrocarbons.

Light Oil: Lighter fuel oils distilled off during the refining process. Virtually all petroleum used in internal combustion and gas-turbine engines is light oil.

Lignite: A brownish-black coal of low rank with a high content of moisture and volatile matter. Often referred to as brown coal. It is used almost exclusively for electric power generation. It conforms to ASTM Specification D388-84 for lignite.

Liquefied Natural Gas (LNG): Natural gas (primarily methane) that has been liquefied by reducing its temperature to -260° F at atmospheric pressure.

Liquefied Petroleum Gases (LPG): Ethane, ethylene, propane, propylene, normal butane, butylene, and isobutane produced at refineries or natural gas processing plants, including plants that fractionate new natural gas plant liquids.

Low-Power Testing: The period of time between a nuclear generating unit's initial fuel loading date and the issuance of its operating (full-power) license. The maximum level of operation during that period is 5 percent of the unit's design thermal rating.

Lubricants: Substances used to reduce friction between bearing surfaces or as process materials either incorporated into other materials used as processing aids in the manufacturing of other products or as carriers of other materials. Petroleum lubricants may be produced either from distillates or residues. Other substances may be added to impart or improve certain required properties. Excluded are byproducts of lubricating oil refining, such as aromatic extracts derived from solvent extraction or tars derived from deasphalting. Included are all grades of lubricating oils from spindle oil to cylinder oil and those used in greases. Lubricant categories are paraffinic and naphthenic.

Marketed Production: Gross withdrawals less gas used for repressuring, quantities vented and flared, and nonhydrocarbon gases removed in treating or processing operations. Includes all quantities of gas used in field and processing operations.

Methanol: A light, volatile alcohol (CH_3OH) eligible for motor gasoline blending. See **Oxygenates.**

Miscellaneous Petroleum Products: All finished petroleum products not classified elsewhere—for example, petrolatum, lube refining byproducts (aromatic extracts and tars), absorption oils, ram-jet fuel, petroleum rocket fuels, synthetic natural gas feedstocks, and specialty oils.

Motor Gasoline Blending Components: Naphthas that will be used for blending or compounding into finished motor gasoline (e.g., straight-run gasoline, alkylate, reformate, benzene, toluene, and zylene). Excluded are oxygenates (alcohols and ethers), butane, and pentanes plus.

Motor Gasoline, Finished: A complex mixture of relatively volatile hydrocarbons, with or without small quantities of additives, that has been blended to form a fuel suitable for use in spark-ignition engines. Motor gasoline, as given in ASTM Specification D439 or Federal Specification VV-G-1690B, includes a range in distillation temperatures from 122 to 158° F at the 10-percent recovery point and from 365 to 374° F at the 90-percent recovery point. Motor gasoline includes reformulated motor gasoline, oxygenated motor gasoline, and other finished motor gasoline. Blendstock is excluded until blending has been completed.

- *Reformulated Motor Gasoline*: Motor gasoline, formulated for use in motor vehicles, the composition and properties of which are certified as "reformulated motor gasoline" by the Environmental Protection Agency.
- *Oxygenated Motor Gasoline*: Motor gasoline, formulated for use in motor vehicles, that has an oxygen content of 1.8 percent or higher by weight.
- *Other Finished Motor Gasoline:* Motor gasoline that is not included in the reformulated or oxygenated categories.

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

Motor Gasoline, Finished Leaded: Motor gasoline that contains more than 0.05 gram of lead per gallon or more than 0.005 gram of phosphorus per gallon. Premium and regular grades are included, depending on the octane rating. Includes leaded gasohol. Blendstock is excluded until blending has been completed. Alcohol that is to be used in the blending of gasohol is also excluded.

Motor Gasoline, Finished Leaded Premium: Motor gasoline having an antiknock index, calculated as (R+M)/2, greater than 90 and containing more than 0.05 gram of lead per gallon or more than 0.005 gram of phosphorus per gallon.

Motor Gasoline, Finished Leaded Regular: Motor gasoline having an antiknock index, calculated as (R+M)/2, greater than or equal to 87 and less than or equal to 90 and containing more than 0.05 gram of lead or 0.005 gram of phosphorus per gallon.

Motor Gasoline, Finished Unleaded: Motor gasoline containing not more than 0.05 gram of lead per gallon and not more than 0.005 gram of phosphorus per gallon. Premium and regular grades are included, depending on the octane rating. Includes unleaded gasohol. Blendstock is excluded until blending has

been completed. Alcohol that is to be used in the blending of gasohol is also excluded.

Motor Gasoline, Finished Unleaded Midgrade: Motor gasoline having an antiknock index, calculated as (R+M)/2, greater than or equal to 88 and less than or equal to 90 and containing not more than 0.05 gram of phosphorus per gallon.

Motor Gasoline, Finished Unleaded Premium: Motor gasoline having an antiknock index, calculated as (R+M)/2, greater than 90 and containing not more than 0.05 gram of lead or 0.005 gram of phosphorus per gallon.

Motor Gasoline, Finished Unleaded Regular: Motor gasoline having an antiknock index, calculated as (R+M)/2, of 87 containing not more than 0.05 gram of lead per gallon and not more than 0.005 gram of phosphorus per gallon.

Motor Gasoline Retail Prices: Motor gasoline prices calculated each month by the Bureau of Labor Statistics (BLS) in conjunction with the construction of the Consumer Price Index (CPI). Those prices are collected in 85 urban areas selected to represent all urban consumers—about 80 percent of the total U.S. population. The service stations are selected initially, and on a replacement basis, in such a way that they represent the purchasing habits of the CPI population. Service stations in the current sample include those providing all types of service (i.e., full-, mini-, and self-service).

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

MTBE (Methyl Tertiary Butyl Ether): An ether, $(CH_3)_3COCH_3$, intended for motor gasoline blending. See **Oxygenates.**

Naphtha: A genetic term applied to a petroleum fraction with an approximate boiling range between 122 and 400° F.

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

Natural Gas, Dry: The marketable portion of natural gas production, which is obtained by subtracting extraction losses, including natural gas liquids removed at natural gas processing plants, from total production.

Natural Gas Marketed Production: Gross withdrawals of natural gas from production reservoirs, less gas used for reservoir repressuring; nonhydrocarbon gases removed in treating and processing operations; and quantities vented and flared.

Natural Gas Plant Liquids (NGPL): Natural gas liquids recovered from natural gas in processing plants and, in some situations, from natural gas field facilities, as well as those extracted by fractionators. Natural gas plant liquids are defined according to the published specifications of the Gas Processors Association and the American Society for Testing and Materials as follows: ethane, propane, normal butane, isobutane, pentanes plus, and other products from natural gas processing plants (i.e., products meeting the standards for finished petroleum products produced at natural gas processing plants, such as finished motor gasoline, finished aviation gasoline, special naphthas, kerosene, distillate fuel oil, and miscellaneous products).

Natural Gas Wellhead Price: The wellhead price of natural gas is calculated by dividing the total reported value at the wellhead by the total quantity produced as reported by the appropriate agencies of individual producing States and the U.S. Minerals Management Service. The price includes all costs prior to shipment from the lease, including gathering and compression costs, in addition to State production, severance, and similar charges.

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

Net Consumption: See **Energy Consumption, End-Use.**

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

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

Nuclear Electric Power Plant: A single-unit or multiunit facility in which heat produced in one or more reactors by the fissioning of nuclear fuel is used to drive one or more steam turbines.

Nuclear Reactor: An apparatus in which the nuclear fission chain can be initiated, maintained, and controlled so that energy is released at a specific rate. The reactor includes fissionable material (fuel), such as uranium or plutonium; fertile material; moderating material (unless it is a fast reactor); a heavy-walled pressure vessel; shielding to protect personnel; provision for heat removal; and control elements and instrumentation.

Offshore: That geographic area that lies seaward of the coastline. In general, the coastline is the line of ordinary low water along with that portion of the coast that is in direct contact with the open sea or the line marking the seaward limit of inland water.

Oil: See **Crude Oil (Including Lease Condensate).**

Oil Well: A well completed for the production of crude oil from one or more oil zones or reservoirs. Wells producing both crude oil and natural gas are classified as oil wells.

Operable (nuclear): A U.S. nuclear generating unit is considered operable after it completes low-power testing and is issued a full-power operating license by the Nuclear Regulatory Commission. A foreign nuclear generating unit is considered operable once it has generated electricity to the grid.

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

Organization of Petroleum Exporting Countries (OPEC): Countries that have organized for the purpose of negotiating with oil companies on matters of oil production, prices, and future concession rights. Current members are Algeria, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela.

Oxygenated Motor Gasoline: See **Motor Gasoline, Finished.**

Oxygenates: Any substance which, when added to motor gasoline, increases the amount of oxygen in that motor gasoline blend. Through a series of waivers and interpretive rules, the Environmental Protection Agency (EPA) has determined the allowable limits for oxygenates in unleaded gasoline. The "Substantially Similar" Interpretive Rules (56 FR [February 11, 1991]) allows blends of aliphatic alcohols other than methanol and aliphatic ethers, provided the oxygen content does not exceed 2.7 percent by weight. The "Substantially Similar" Interpretive Rules also provide for blends of methanol up to 0.3 percent by volume exclusive of other oxygenates, and butanol or alcohols of a higher molecular weight up to 2.75 percent by weight. Individual waivers pertaining to the use of oxygenates in unleaded motor gasoline have been issued by the EPA. They include:

- *Fuel Ethanol.* Blends of up to 10 percent by volume anhydrous ethanol (200 proof).
- *Methanol.* Blends of methanol and gasoline-grade tertiary butyl alcohol (GTBA) such that the total oxygen content does not exceed 3.5 percent by weight and the ratio of methanol to GTBA is less than or equal to 1. It is also specified that this blended fuel must meet ASTM volatility specifications.
  Blends of up to 5.0 percent by volume methanol with a minimum of 2.5 percent by volume co-solvent alcohols having carbon number of 4 or less (i.e., ethanol, propanol, butanol, and/or GTBA). The total oxygen must not exceed 3.7 percent by weight, and the blend must meet ASTM volatility specifications as well as phase separation and alcohol purity specifications.
- *MTBE (Methyl tertiary butyl ether).* Blends up to 15.0 percent by volume MTBE that must meet the ASTM D4814 specifications. Blenders must take precautions that the blends are not used as base gasolines for other oxygenated blends.

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

Petrochemical Feedstocks: Chemical feedstocks derived from petroleum principally for the manufacture of chemicals, synthetic rubber, and a variety of plastics.

Petroleum: A generic term applied to oil and oil products in all forms, such as crude oil, lease condensate, unfinished oils, petroleum products, natural gas plant liquids, and nonhydrocarbon compounds blended into finished petroleum products.

Petroleum Coke: A residue that is the final product of the condensation process in cracking. The product is either marketable petroleum coke or catalyst petroleum coke.

Petroleum Coke, Catalyst: The carbonaceous residue that is deposited on and deactivates the catalyst used in many catalytic operations (e.g., catalytic cracking). Carbon is deposited on the catalyst, thus deactivating the catalyst. The catalyst is reactivated by burning off the carbon, which is used as a fuel in the refining process. That carbon or coke is not recoverable in a concentrated form.

Petroleum Coke, Marketable: Those grades of coke produced in delayed or fluid cokers that may be recovered as relatively pure carbon. Marketable petroleum coke may be sold as is or further purified by calcining.

Petroleum Consumption: The sum of all refined petroleum products supplied. For each refined petroleum product, the amount supplied is calculated by adding production and imports, then subtracting changes in primary stocks (net withdrawals are a plus

quantity and net additions are a minus quantity) and exports.

Petroleum Imports: Imports of petroleum into the 50 States and the District of Columbia from foreign countries and from Puerto Rico, the Virgin Islands, and other U.S. territories and possessions. Included are imports for the Strategic Petroleum Reserve and withdrawals from bonded warehouses for onshore consumption, offshore bunker use, and military use. Excluded are receipts of foreign petroleum into bonded warehouses and into U.S. territories and U.S. Foreign Trade Zones.

Petroleum Products: Products obtained from the processing of crude oil (including lease condensate), natural gas, and other hydrocarbon compounds. Petroleum products include unfinished oils, liquefied petroleum gases, pentanes plus, aviation gasoline, motor gasoline, naphtha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, petrochemical feedstocks, special naphthas, lubricants, waxes, petroleum coke, asphalt, road oil, still gas, and miscellaneous products.

Petroleum Products Supplied: See **Petroleum Consumption.**

Petroleum Stocks, Primary: For individual products, quantities that are held at refineries, in pipelines, and at bulk terminals that have a capacity of 50,000 barrels or more, or that are in transit thereto. Stocks held by product retailers and resellers, as well as tertiary stocks held at the point of consumption, are excluded. Stocks of individual products held at gas processing plants are excluded from individual product estimates but are included in other oils estimates and total.

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

Pipeline Fuel: Gas consumed in the operation of pipelines, primarily in compressors.

Primary Consumption: See **Energy Consumption, End-Use.**

Propane: A normally gaseous straight-chain hydrocarbon (C_3H_8). It is a colorless paraffinic gas that boils at a temperature of -43.67° F. It is extracted from natural gas or refinery gas streams. It includes all products designated in ASTM Specification D1835 and Gas Processors Association Specifications for commercial propane and HD-5 propane.

Propylene: An olefinic hydrocarbon (C_3H_6) recovered from refinery or petrochemical processes.

Refiner Acquisition Cost of Crude Oil: The cost of crude oil to the refiner, including transportation and fees. The composite cost is the weighted average of domestic and imported crude oil costs.

Refinery (petroleum): An installation that manufactures finished petroleum products from crude oil, unfinished oils, natural gas liquids, other hydrocarbons, and alcohol.

Renewable Energy: Energy obtained from sources that are essentially inexhaustible (unlike, for example, the fossil fuels, of which there is a finite supply). Renewable sources of energy include wood, waste, photovoltaic, and solar thermal energy.

Repressuring: The injection of a pressurized fluid (such as air, gas, or water) into oil and gas reservoir formations to effect greater ultimate recovery.

Residential Sector: The residential sector is considered to consist of all private residences, whether occupied or vacant, owned or rented, including single-family homes, multifamily housing units, and mobile homes. Secondary homes, such as summer homes, are also included. Institutional housing, such as school dormitories, hospitals, and military barracks, generally are not included in the residential sector; they are included in the commercial sector.

Residual Fuel Oil: The heavier oils that remain after the distillate fuel oils and lighter hydrocarbons are distilled away in refinery operations and that conform to ASTM Specifications D396 and 975. Included are No. 5, a residual fuel oil of medium viscosity; Navy Special, for use in steam-powered vessels in government service and in shore power plants; and No. 6, which includes Bunker C fuel oil and is used for commercial and industrial heating, electricity generation, and to power ships. Imports of residual fuel oil include imported crude oil burned as fuel.

Road Oil: Any heavy petroleum oil, including residual asphaltic oil used as a dust palliative and surface treatment on roads and highways. It is generally produced in six grades, from 0, the most liquid, to 5, the most viscous.

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

Short Ton (coal): A unit of weight equal to 2,000 pounds.

SIC: See **Standard Industrial Classification.**

Solar Energy: The radiant energy of the sun, which can be converted into other forms of energy, such as heat or electricity.

Standard Industrial Classification (SIC): A set of codes developed by the Office of Management and Budget which categorizes industries into groups with similar economic activities.

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

Steam-Electric Power Plant: A plant in which the prime mover is a steam turbine. The steam used to drive the turbine is produced in a boiler where fossil fuels are burned.

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

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

Synthetic Natural Gas (SNG): A manufactured product chemically similar in most respects to natural gas, resulting from the conversion or reforming of petroleum hydrocarbons. It may easily be substituted for, or interchanged with, pipeline quality natural gas. Also referred to as substitute natural gas.

Total Consumption: See **Energy Consumption, End-Use.**

Transportation Sector: The transportation sector consists of private and public vehicles that move people and commodities. Included are automobiles, trucks, buses, motorcycles, railroads and railways (including streetcars), aircraft, ships, barges, and natural gas pipelines.

Unaccounted-for Crude Oil: Arithmetic difference between the calculated supply and the calculated disposition of crude oil. The calculated supply is the sum of crude oil production and imports, less changes in crude oil stocks. The calculated disposition of crude oil is the sum of crude oil input to refineries, crude oil exports, crude oil burned as fuel, and crude oil losses.

Underground Storage: The storage of natural gas in underground reservoirs at a different location from which it was produced.

United States: Unless otherwise noted, "United States" in this publication means the 50 States and the District of Columbia. U.S. exports include shipments to U.S. territories, and imports include receipts from U.S. territories.

U.S.S.R.: The Union of Soviet Socialist Republics consisted of 15 constituent republics: Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan. As a political entity, the U.S.S.R. ceased to exist as of December 31, 1991.

Vented Natural Gas: Gas released into the air on the base site or at processing plants.

Wellhead Price: The value of crude oil or natural gas at the mouth of the well.

Well Servicing Unit: Truck-mounted equipment generally used for downhole services after a well is drilled. Services include well completions and recompletions, maintenance, repairs, workovers, and well plugging and abandonments. Jobs range from minor operations, such as pulling the rods and rod pumps out of an oil well, replacing the pump and rerunning the assemblage into the well, to major workovers, such as milling out and repairing collapsed casing. Well depth and characteristics determine the type of equipment used.

Wind Energy (as used at electric utilities): The kinetic energy of wind converted at electric utilities into mechanical energy by wind turbines (i.e., blades rotating from a hub) that drive generators to produce electricity for distribution.

Wood and Waste (as used at electric utilities): Wood energy, garbage, bagasse, sewerage gas, and other industrial, agricultural, and urban refuse used to generate electricity for distribution.

Wood Energy: Wood and wood products used as fuel, including round wood (cord wood), limb wood, wood chips, bark, sawdust, forest residues, charcoal, pulp waste, and spent pulping liquor.

Working Gas: The gas in a reservoir that is in addition to the base (cushion) gas. It may or may not be completely withdrawn during any particular withdrawal season. Conditions permitting, the total working capacity could be used more than once during any given season.

Order Processing Code:

5641

Publication Order Form

Annual Energy Review 1994

Published: July 1995
Energy Information Administration
GPO Stock No. 061–003–00919–1
Price per copy: $25.00

Company or Personal Name: _____

Street Address: _____

Additional Address or Attention Line: _____

City, State, Zip Code: _____

Daytime Phone Number (area code first): _____

Purchase Order No: _____

May we make your name and address available to other mailers? ☐ **yes** ☐ **no**

*Readers familiar with the data in the **Monthly Energy Review (MER)** will find many of the same data in the **Annual Energy Review 1994**, where most data are provided annually for 1949 through 1994. The 391-page report also includes annual data for several series not found in the MER. For example, energy company financial statistics and international data on natural gas, coal, and hydroelectricity are provided.*

Please include payment with this order form. Allow a minimum of 4 weeks for domestic delivery and an additional 6 weeks for international delivery.

Quantity _____ x $25.00 = $ _____ (total due). (International customers add 25%.)

☐ Check payable to Superintendent of Documents

☐ GPO Deposit Account No. ☐☐☐☐☐☐☐☐ – ☐

☐ VISA or MasterCard Account ☐☐☐☐ – ☐☐☐☐ – ☐☐☐☐ – ☐☐☐☐

Authorizing Signature _____ Credit Card Expiration Date ☐☐ – ☐☐

Note: *Price includes regular domestic postage and handling. It is subject to change.*

Mail order form to: *U.S. Government Printing Office*
P.O. Box 371954
Pittsburgh, PA 15250–7954

Or fax order form to: *202–512–2250*

Thank you for your order!

9/95

Reprint Order Form

"Environmental Externalities in Electric Power Markets: Acid Rain, Urban Ozone, and Climate Change"

Published: November 1995
Energy Information Administration
Single Copies Available Free of Charge

Abstract: *Electric power plants that burn fossil fuels emit several pollutants linked to the environmental problems of acid rain, urban ozone, and the possibility of global climate change. Damages caused by those emissions are viewed by many economists as "externalities" and are an inefficiency of the market when electric power rates do not reflect, nor ratepayers directly pay, the associated social costs. Until recently, efforts to control power plant emissions have focused on the command-and-control approach of setting standards. More recent efforts, including the Clean Air Act Amendments of 1990, have involved incentive-based measures, such as emissions fees and systems of marketable emissions permits. A few State regulatory bodies are experimenting with methodologies to "price" environmental externalities and incorporate that cost information in deliberations about least-cost ways to meet projected demand for electric power. The spread of these methodologies could be affected by increased competition in the electricity industry, which would allow electric power customers direct access to a variety of electric power providers.*

Personal Name or Attention Line: _____

Company Name, if applicable: _____

Street Address: _____

City, State, Zip Code: _____

Daytime Phone Number (area code first): _____

Mail order form to:
National Energy Information Center, EI–231
Energy Information Administration
Forrestal Building, Room 1F–048
Washington, DC 20585

For more information, call:
National Energy Information Center
202–586–8800
Internet E-Mail: infoctr@eia.doe.gov
TTY: For people who are deaf or hard of hearing: 202–586–1181
9 a.m. to 5 p.m., eastern time, M–F

Thank you for your order!

11/95

Statement of Ownership, Management and Circulation

(Required by 39 U.S.C. 3685)

1A. Title of Publication	1B. PUBLICATION NO.	2. Date of Filing
MONTHLY ENERGY REVIEW	0 9 5 - 7 3 5 6	9-21-95
3. Frequency of Issue	**3A. No. of Issues Published Annually**	**3B. Annual Subscription Price**
MONTHLY	12	Domestic $ 80.00 Foreign $100.00

4. Complete Mailing Address of Known Office of Publication *(Street, City, County, State and ZIP+4 Code) (Not printers)*

U. S. Department of Energy
Energy Information Administration
1000 Independence Avenue, SW
Washington, DC 20585

5. Complete Mailing Address of the Headquarters of General Business Offices of the Publisher *(Not printer)*

U. S. Department of Energy
Energy Information Administration
1000 Independence Avenue, SW
Washington, DC 20585

6. Full Names and Complete Mailing Address of Publisher, Editor, and Managing Editor ***(This item MUST NOT be blank)***

Publisher *(Name and Complete Mailing Address)*

U. S. Department of Energy
Energy Information Administration
1000 Independence Avenue, SW
Washington, DC 20585

Editor *(Name and Complete Mailing Address)*

Mary Ellen Golby
U. S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Managing Editor *(Name and Complete Mailing Address)*

Nancy Nicoletti
U. S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

7. Owner *(If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given. If the publication is published by a nonprofit organization, its name and address must be stated.) (Item must be completed.)*

Full Name	Complete Mailing Address
N/A	N/A

8. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages or Other Securities *(If there are none, so state)*

Full Name	Complete Mailing Address
N/A	N/A

9. For Completion by Nonprofit Organizations Authorized To Mail at Special Rates *(DMM Section 424.12 only)*
The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes *(Check one)*

(1) [X] Has Not Changed During Preceding 12 Months
(2) [ ] Has Changed During Preceding 12 Months
(If changed, publisher must submit explanation of change with this statement.)

10. Extent and Nature of Circulation *(See instructions on reverse side)*	Average No. Copies Each Issue During Preceding 12 Months	Actual No. Copies of Single Issue Published Nearest to Filing Date
A. Total No. Copies *(Net Press Run)*	4046	4530
B. Paid and/or Requested Circulation 1. Sales through dealers and carriers, street vendors and counter sales	1401	467
2. Mail Subscription *(Paid and/or requested)*	2431	3815
C. Total Paid and/or Requested Circulation *(Sum of 10B1 and 10B2)*	3832	4282
D. Free Distribution by Mail, Carrier or Other Means Samples, Complimentary, and Other Free Copies	167	240
E. Total Distribution *(Sum of C and D)*	3999	4522
F. Copies Not Distributed 1. Office use, left over, unaccounted, spoiled after printing	47	8
2. Return from News Agents	0	0
G. TOTAL *(Sum of E, F1 and 2—should equal net press run shown in A)*	4046	4530

11. I certify that the statements made by me above are correct and complete ✓

Signature and Title of Editor, Publisher, Business Manager, or Owner
Inez E. Allen
Management Analyst
Inez E. Allen

Energy Information Administration
U.S. Department of Energy
Forrestal Building, EI-231
Washington, DC 20585

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, $300

SECOND-CLASS MAIL
POSTAGE & FEES PAID
U.S. DEPARTMENT OF ENERGY
ISSN 0095-7356