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Preface

The Energy Information Administration (EIA) prepares quarterly, short-term energy supply, demand, and price projections for publication in February, May, August, and November in the *Short-Term Energy Outlook* (*Outlook*). An annual supplement analyzes the performance of previous forecasts, compares recent cases with those of other forecasting services, and discusses current topics related to the short-term energy markets. (See *Short-Term Energy Outlook Annual Supplement*, DOE/EIA-0202.)

The forecast period for this issue of the *Outlook* extends from the fourth quarter of 1993 through the fourth quarter of 1994. Values for the third quarter of 1993, however, are preliminary EIA estimates (for example, some monthly values for petroleum supply and disposition are derived in part from weekly data reported in the *Weekly Petroleum Status Report*) or are calculated from model simulations using the latest exogenous information available (for example, electricity sales and generation are simulated using actual weather data). The historical energy data are EIA data published in the *Monthly Energy Review*, *Petroleum Supply Monthly*, and other EIA publications. Minor discrepancies between the data in these publications and the historical data in this *Outlook* are due to independent rounding.

The cases are produced using the Short-Term Integrated Forecasting System (STIFS). The STIFS model is driven principally by three sets of assumptions or inputs: estimates of key macroeconomic variables, world oil price assumptions, and assumptions about the severity of weather. Macroeconomic estimates are produced by DRI/McGraw-Hill but are adjusted by EIA to reflect EIA assumptions about the world price of crude oil, energy product prices, and other assumptions which may affect the macroeconomic outlook. The EIA model is available on computer tape from the National Technical Information Service.

Treatment of Petroleum Supply Monthly Reporting Change

The Energy Information Administration began reporting the series "Motor Gasoline Product Supplied" (equated in this report with gasoline demand) on a new basis for monthly data for January 1993 forward. These new-basis data are included in this issue of the *Outlook*. The reporting changes reflect data relating to fuel ethanol blended into gasoline as well as certain changes in product classification affecting reported motor gasoline quantities. Beginning with this edition of the *Outlook*, any references to data series affected by these changes are, for periods prior to 1993, strictly in terms of the new-basis definition. Thus, history for motor gasoline and miscellaneous product demands are restated so as to make comparisons as consistent as possible. Appendix B from the Third Quarter 1993 *Outlook* provides details on the significance of the data restatement.

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Highlights

Weak Demand and Overproduction Depress World Oil Prices

Weak world oil demand and overproduction by the Organization for Petroleum Exporting Countries (OPEC) depressed world oil prices throughout the first 3 quarters of 1993. Worldwide oil inventories heading into the fourth quarter are 160 million barrels higher than a year ago. World oil demand in 1993 has increased little relative to 1992 levels as growth in the developing countries was offset by declines in the former Soviet Union. In the mid-price case, the average price of imported oil should remain at $17 per barrel throughout the winter months, about $3 less than was projected a year ago.

Winter Fuel Supply Appears Adequate

Heating fuel inventories are adequate for even severe weather conditions. Domestic demand for petroleum is now expected to rise by less than 400,000 barrels per day above last winter's rate, and much of this growth is related to transportation and minor industrial fuels demand. Severe weather could produce a surge in some months. However, even an additional 200,000 barrels per day on average for the winter could be supported from inventory drawdown and increased current production.

Gasoline Prices Remain Below Year-Ago Levels

Despite the addition of a new 4.3 cents per gallon Federal motor fuels tax on October 1, low crude oil prices are expected to cause gasoline prices in October to be well below what they were at this time last year. For diesel fuel users the tax comes on top of increased fuel costs due to new low-sulfur requirements for diesel used for transportation. These new rules are estimated to result in an additional 4 cents per gallon in increased supply costs for on-highway diesel fuel. Depending on how robust the commercial transportation market turns out to be this year, not all of these increased taxes and costs may be passed on to consumers.

Petroleum Products Imports Stable Despite Growing Demand

While declining domestic oil production and growing demand have resulted in a rise in total petroleum net imports of 9.6 percent for the first half of 1993, U.S. suppliers have been able to avoid increases in dependence on foreign sources of finished products. In addition, U.S. suppliers have established valuable export markets for distillate fuel and motor gasoline. The recent Federal environmental regulation requiring significant amounts of Methyl Tertiary Butyl Ether (MTBE) and other oxygenates in gasoline has also contributed to lower foreign fuel import dependence.

Natural Gas Supply Picture Brightens

Drilling for natural gas in 1993 has picked up considerably and progress toward reversing the slide in domestic productive capacity is being made. Despite the arrival of "normal" winter weather conditions early this year, natural gas demand growth in 1993 has so far been relatively weak. Industrial and electric utility demand for natural gas slipped during the second quarter. Inventory for peak winter demand is normal, up from unusually low levels reached in the Spring of 1993.

Note: The data referenced may be found in Table 1 or in the tables located in the back of this report.

Table 1. U.S. Energy Supply and Demand Summary

	Price Case[a]	Year				Annual Percentage Change		
		1991	1992	1993	1994	1991-1992	1992-1993	1993-1994
Real Gross Domestic Product (GDP)								
(billion 1987 dollars)	Mid	4821	4923	5044	5207	2.1	2.5	3.2
Imported Crude Oil Price	Low			16.50	15.00		-9.3	-9.1
(nominal dollars per barrel)	Mid	18.70	18.20	17.13	17.18	-2.7	-5.9	0.3
	High			17.50	19.51		-3.8	11.5
Petroleum Supply								
Crude Oil Production[b]	Low			6.78	6.46		-5.4	-4.7
(million barrels per day)	Mid	7.42	7.17	6.83	6.68	-3.4	-4.7	-2.2
	High			6.86	6.85		-4.3	-0.1
Total Petroleum Net Imports (including SPR)	Low			7.55	8.22		8.8	8.9
(million barrels per day)	Mid	6.58	6.94	7.49	7.91	5.5	7.9	5.6
	High			7.45	7.65		7.3	2.7
Energy Demand								
Petroleum	Low			17.23	17.63		0.8	2.3
(million barrels per day)	Mid	16.77	17.10	17.22	17.54	2.0	0.7	1.9
	High			17.21	17.45		0.6	1.4
Natural Gas	Low			19.81	20.40		0.9	3.0
(trillion cubic feet)	Mid	19.03	19.63	19.80	20.53	3.2	0.9	3.7
	High			19.87	20.70		1.2	4.2
Coal								
(million short tons)	Mid	888	892	916	933	0.5	2.7	1.9
Electricity[c]								
(billion kilowatthours)	Mid	2762	2757	2858	2920	-0.2	3.7	2.2
Gross Energy[d]								
(quadrillion Btu)	Mid	81.1	82.3	83.8	85.6	1.5	1.8	2.1
Gross Energy Demand per Dollar of GDP								
(thousand Btu per 1987 dollar)	Mid	16.82	16.72	16.61	16.44	-0.6	-0.7	-1.0

[a]Refers to the cost of imported crude oil to U.S. refiners assumed for the scenario depicted. In all cases on this table, the mid macroeconomic case and normal weather are used.

[b]Includes lease condensate.

[c]Total annual electricity sales for historical periods are derived from the sum of monthly sales figures based on submissions by electric utilities of Form EIA-826, "Monthly Electric Utility Sales and Revenue Report with State Distributions." These historical values differ from annual sales totals based on Form EIA-861, reported in several EIA publications, but match alternate annual totals reported in EIA's *Electric Power Monthly*, DOE/EIA-0226.

[d]The conversion from physical units to Btu is calculated using a subset of *Monthly Energy Review* (MER) conversion factors. Consequently, the historical data may not precisely match that published in the MER.

SPR: Strategic Petroleum Reserve.

Notes: Minor discrepancies with other published EIA historical data are due to independent rounding. Historical data are printed in bold, forecasts are in italic. The forecasts were generated by the following simulations of the Short-Term Integrated Forecasting System: for the mid oil price case, for the low oil price case, and for the high oil price case.

Sources: Historical data: Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(93/09); *Petroleum Supply Monthly*, DOE/EIA-0190(93/09); *Petroleum Supply Annual 1992*, DOE/EIA-0340(92/1); *Natural Gas Monthly*, DOE/EIA-0130(93/09); *Electric Power Monthly*, DOE/EIA-0226(93/09); and *Quarterly Coal Report*, DOE/EIA-0121(93/2Q), and preliminary estimates from the Energy Markets and Contingency Information Division. Macroeconomic projections are based on DRI/McGraw-Hill Forecast CONTROL0993.

Note: All U.S. Historical and Projected Petroleum Demands are Adjusted to Reflect 1993 Reporting Requirements.

Outlook Assumptions

Energy markets are influenced by world oil prices, macroeconomic growth, and weather. This report focuses on the likely near term behavior of oil prices, weather, and the economy, and the influence of these factors on energy supply, demand, and prices in the United States and other major energy-consuming countries. Current assumptions regarding world oil prices, economic growth and weather are described below.

World Oil Prices

So far in 1993, the world oil price, defined as the average price of imported crude oil paid by U.S. refiners (the refiner acquisition cost), has been nearly $3 dollars per barrel lower than projected a year ago.[1] This has been largely due to: (1) the Organization of Petroleum Exporting Countries (OPEC) producing an average of nearly one million barrels per day more than their agreed upon ceilings in the first 9 months of this year, and (2) the slower than anticipated economic growth in the world. In 1993, sustained economic recovery was achieved in the United States. However, European and Japanese economic activity continued to slow. The overproduction by OPEC has added over 250 million barrels of oil into the market. A large share of this "extra" oil has gone into inventories, creating a substantial stock "overhang" as we enter the fourth quarter of 1993. This additional supply, along with weak world oil demand due to lackluster economic growth, has kept prices down throughout the first 3 quarters of 1993.

World oil prices are expected to increase by over $1 in the fourth quarter of 1993 in the mid-price case (Figure 1 and Table 1). The agreement made by OPEC on September 29, 1993 to raise the production ceiling, should keep the world oil price around $17.50 per barrel. With OPEC setting a higher production ceiling of 24.5 million barrels per day, production restraint by OPEC should be easier to achieve. Earlier in the year, OPEC's production agreements were characterized by unrealistically low production quotas. This kind of agreement encouraged overproduction by individual members. With a more realistic production ceiling set

for the fourth quarter, OPEC production of crude oil is projected to be slightly below 25 million barrels per day, only slightly above the recently set production quota. The expected production restraint should keep prices above $17 per barrel (or a corresponding price of $19 per barrel for West Texas Intermediate) throughout the winter months, when an increase in demand due to cold weather could cause some tightness in the world oil market (Figure 1).

Prices could fall some in the second quarter of 1994 as OPEC production is expected to decline only marginally while the seasonal demand for OPEC production declines substantially. While 1994 prices are estimated to average the same as in 1993, in real terms (after accounting for inflation) prices in 1994 will be lower than in 1993.

Figure 1. U.S. Monthly Crude Oil Prices

Note: Import cost is defined as the cost of imported crude oil to U.S. refiners.
Sources: **History:** Energy Information Administration, *Monthly Energy Review* (September 1993); *Oil and Gas Journal/Energy Database.* **Cases:** Table 5.

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[1]The mid-price case in the fourth quarter 1992 *Outlook* assumed a $20 per barrel imported oil price for 1993 compared to the average of about $17 actually seen through the first nine months of this year (Table 5).

The low price scenario (world oil price of $15 per barrel) assumes that the OPEC agreement breaks down and countries return to producing as much over the ceiling as they have previously.

The high price scenario (world oil price increases to $20 per barrel in the second half 1994) assumes that OPEC members strictly abide by their agreement and economic growth is stronger than expected, or the weather is harsher than expected, leading to increased oil demand substantially above current expectations.

Macroeconomic Activity

In the current macroeconomic forecast, real Gross Domestic Product (GDP) in the U.S. grows by 2.5 percent in 1993 and 3.2 percent in 1994, as interest rate-sensitive sectors of the economy continue to expand in response to relatively low interest rates (Table 2). The main source of economic growth over the forecast period will be investment—primarily investment in producers' durable equipment and residential construction.

Trade will not be a likely source of economic growth near term. Export growth will remain below expected import growth, as Europe, Japan, and Latin America continue to experience slower growth. However, the trade balance will improve slightly in 1994, as our major trading partners post higher growth.

Employment grows steadily over the projection period, gaining by 1.5 percent in 1993 and 1.9 percent in 1994 (Table 3). Currently, hours worked and overtime in manufacturing are at high levels. To satisfy the expected increase in demand for goods and services, employment should rise in the forecast period. Factory orders for durable goods and final sales have shown recent increases. In 1993, manufacturing production increases 4.3 percent in response to increased demand for producers' durable equipment and residential construction materials. In 1994, nondurable manufacturing is expected to increase in relative importance and lead manufacturing industries to post a 4.1 percent growth in output.

Interest rates are flat for much of 1993. As output, investment, and consumer durable spending continue to expand in 1994, interest rates rise somewhat.

Consumer price inflation is expected to remain moderate over the next two years, increasing by 2.9 percent in 1993, and by 3.2 percent in 1994. As employment and consumption show gradual recovery, disposable income increases by 2.2 percent in 1993 and 1.8 percent in 1994.

Special Assumptions for Environmental, Tax, and Other Energy-Related Policies

This section summarizes the potential impacts of current legislative actions on the short-term energy forecasts for the United States and shows how these impacts are incorporated in this *Outlook*. The impacts are anticipated to directly affect energy prices, consumption, or production.

Effective Date	Description	Impact on Forecast
January 1993	Alternative Minimum Tax exemption for independent oil and natural gas producers.	Possible increase of 50,000 barrels per day in U.S. oil production.[1]
May 1993	Stage II Gasoline Vapor Recovery System implemented.	0.2 cents per gallon in nonattainment areas.[2]
Autumn 1993	FERC Order 636-A implemented.	Reliance on natural gas storage levels for peak demand likely to rise, but pricing expected to be more competitive.
October 1993	Removal of sulfur from diesel fuel for on-highway use.	Diesel fuel prices expected to rise by 3 to 4 cents per gallon from the last quarter of 1993 through the fourth quarter of 1994.[3]
October 1993	Motor Fuel Tax Increase	Federal excise tax increase of 4.3 cents per gallon for motor gasoline and diesel fuel, and 48.54 cents per thousand cubic feet for compressed natural gas used in motor vehicles.
November 1993	Second season for oxygenated gasoline required to be sold in carbon monoxide nonattainment areas during November through February of each year.	Motor gasoline prices expected to be 3 to 5 cents per gallon higher in the nonattainment areas, compared to other regions, raising national prices by an average of 1 to 2 cents per gallon from November through February.[4]
January 1994	Reduced tailpipe emissions of hydrocarbons, carbon monoxide, and nitrogen oxides.	Estimates not yet available.
January 1995	Phase I reformulated gasoline in 9 smoggiest cities (plus opt-in areas).	Approximately 5 cents per gallon higher cost in affected cities.[5]
January 1995	Phase I reduction in sulfur dioxide emissions from electric utility steam generation units fired by fossil fuels by a system of tradable allowances.	Coal prices will be about 1 to 2 cents per million Btu higher in the latter part of 1994.[6]

[1]Oil production impacts are estimates from the Energy Information Administration, Office of Oil and Gas, Reserves and Natural Gas Division.

[2]Environmental Protection Agency, *Technical Guidance: Stage II Vapor Recovery Systems for Control of Vehicle Refueling Emissions at Gasoline Dispensing Facilities*, EPA-450/391-022A, November 1991.

[3]Energy Information Administration, Office of Energy Markets and End Use, Energy Markets and Contingency Information Division.

[4]Energy Information Administration, "Demand, Supply, and Price Outlook for Oxygenated Gasoline, Winter 1992-1993", *Monthly Energy Review*, DOE/EIA-0035(92/08), (Washington, DC, August 1992), pp. 5 and 9.

[5]National Petroleum Council, *NPC Refining Study*, 1993.

[6]Based on internal EIA calculations. It was estimated that compliance with Phase I of the Clean Air Act requiring low-sulfur coal will cost about $5 per ton of coal or about a 17 percent price increase for the approximately 2.5 percent of coal burned at electric utilities that will be affected by Phase I. In order to meet the January 1, 1995, date of compliance, those utilities will be stockpiling coal by the second half of 1994.

Outlook for Petroleum

Demand

World petroleum demand is expected to remain steady between 1992 and 1993, as increases posted in developing countries are offset by a 1.2 million barrel per day decline in the former Soviet Union republics and sluggish economic growth in the Organization for Economic Cooperation and Development (OECD) (Table 4). However, in 1994, world oil demand is projected to increase by approximately 1.2 million barrels per day from 1993. Over half of this increase (640,000 barrels per day) is expected from the OECD, with half due to increased demand in the United States. Oil demand grows because economic growth is expected to resume in the OECD countries. An economic growth rate of 2.9 percent between 1993 and 1994 is anticipated (Table 2), led by the United States and Japan.

Oil demand expectations outside the OECD are mixed. For the former Soviet Union, demand is expected to decline by another 0.6 million barrels per day between 1993 and 1994 to a level of 5.1 million barrels per day. On the other hand, while the Pacific Rim countries, such as South Korea, are not growing at the astronomical rates seen in the past (10-20 percent annual oil demand growth rates for some of the countries), they are still projected to grow as a group by nearly 8 percent between 1993 and 1994.[2] Increases in developing countries' oil demand will outstrip the projected demand decline in the former Soviet Union by nearly 0.6 million barrels per day.

Despite earlier expectations of a reasonably solid recovery in 1993, U.S. petroleum demand has shown only weak net gains so far this year. Only 120,000 barrels per day additional oil demand (a 0.7 percent increase) is expected for 1993 as a whole, under base case assumptions. Sluggishness in the economic recovery and displacement of petroleum by other energy sources is partly responsible for the demand weakness. However, strong evidence from the third quarter that demand is picking up again bolsters the expectation that petroleum use will expand by 1.9 percent (320,000 barrels per day) in 1994, under base case assumptions.

Figure 2. Projected Annual Change in U.S. Petroleum Demand by Fuel

Projections

Million Barrels per Day

Legend: Other, Distillate, Residual, Gasoline, Jet

Note: Historical data (including preliminary estimates) through June 1993.
Source: Table 7.
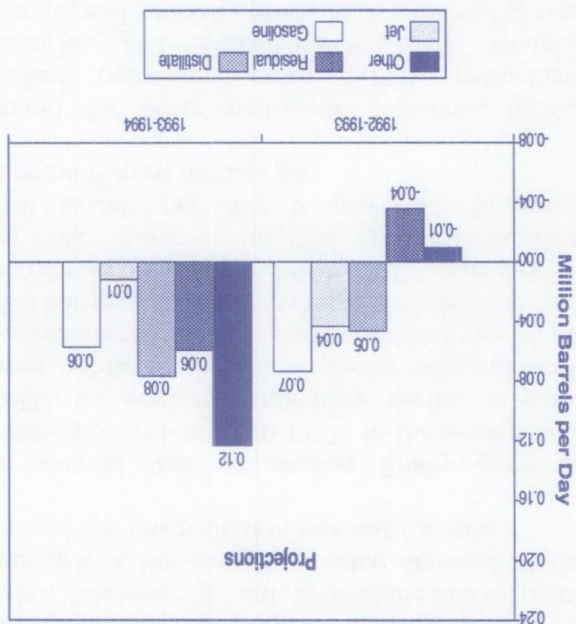
Transportation fuels have clearly followed an upward track in 1993, and a gradual acceleration in the economy next year promises more increases for 1994. On the other hand, growth in demand for fuel oil, feedstocks, and other industrial oils generally stalled in 1993. This slowdown was particularly evident in the second quarter of this year. A resurgence of hydroelectric and nuclear power availability and a comparatively warm spring explain some of the weakness.

An error in initial first and second quarter reporting for distillate fuel oil made heating oil demand appear to post solid gains.[3] However, it now appears that distillate fuel did little better than hold its own for the first half of 1993 relative to 1992. A return in the first quarter of 1993 to weather more typical of winter than

[2]See Energy Information Administration, International Energy Annual, DOE/EIA-0219(91), Table 8.

[3]See Energy Information Administration, Petroleum Supply Monthly, DOE/EIA-0109(93/07).

that experienced in recent years boosted heating fuel demand, but by a relatively modest amount. However, early spring mildness in the northeastern United States worked to offset early gains. The comparatively warm spring (compared to 1992) contributed to a downturn in distillate fuel oil and propane demand in the second quarter. Next year, growth in distillate fuel oil demand is anticipated, but overall expected demand levels for next year are lower than in our last forecast.
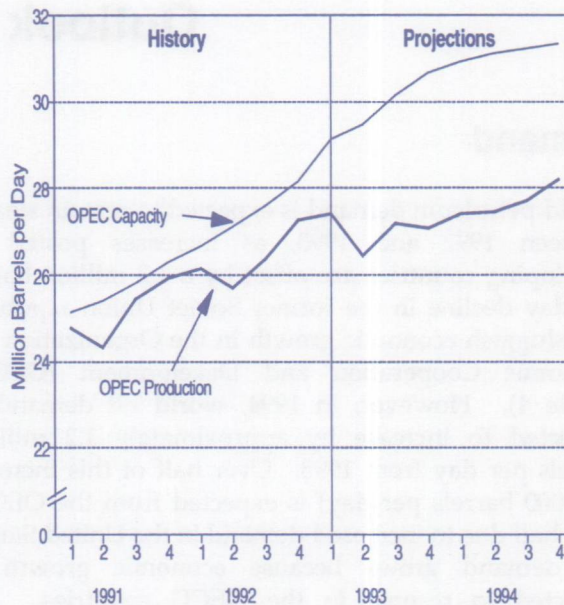
The residual fuel oil market finally gave some indication of bottoming in 1993. In the second quarter of 1993, the seemingly relentless decline in demand slowed, while in the third quarter demand actually exceeded demand in the same period last year by about 70,000 barrels per day. Average 1993 residual fuel oil demand is expected to decline by 30,000 barrels per day from 1992. However, for 1994, growth in demand of 60,000 barrels per day is projected, in spite of competition from natural gas.

Demand for other petroleum products, including liquefied petroleum gases (LPG), petrochemical feedstocks, and miscellaneous fuels, feedstocks, materials, and specialty products, is expected to remain flat in 1993 compared to 1992, then recover in 1994.

Supply

Although several new fields in the North Sea will begin production by the end of 1993, OPEC is expected to supply the lion's share of world oil production increases between 1993 and 1994. OPEC production is estimated to increase 0.7 million barrels per day, while Non-OPEC production is estimated to increase only 0.1 million barrels per day over the same period. Decreases in oil production from the United States and the former Soviet Union will nearly offset increases in oil production from the North Sea and Non-OPEC developing countries (Table 4). Meanwhile, OPEC capacity expansion of at least 1 million barrels per day by the end of 1994, primarily from Kuwait (400,000 barrels per day), Saudi Arabia (300,000 barrels per day), and Venezuela (200,000 barrels per day), should allow OPEC to increase production to levels not seen since 1980 (Figure 3).[4]

Figure 3. World Excess Oil Production Capacity

Note: Excludes any excess capacity from Iraq in 1991-1994.
Source: Energy Information Administration, Office of Energy Markets and End Use, Energy Markets and Contingency Information Division.

Growth in oil production was exhibited in the second and third quarters of 1993, while world oil demand remained relatively flat. This drove worldwide inventories in the fourth quarter of 1993 to reach 160 million barrels higher than a year ago. This "stock overhang," as evidenced by the number of days consumption that could be supplied by stocks alone, should keep prices from increasing dramatically in the near future, even if OPEC cuts production (Figure 4).

Domestic crude oil production is expected to decline by an annual average rate of 340,000 barrels per day in 1993 and by 150,000 barrels per day in 1994 in the mid-price case (Table 7). Declining oil production and rising demand in the United States means an increase in net imports of crude oil and products of almost 1 million barrels per day between 1992 and 1994, to 7.91 million barrels per day. Most of this increase is in the form of crude oil imports.

[4]OPEC production in 1980 was 27.6 million barrels per day. Energy Information Administration, *International Petroleum Statistics Report*, DOE/EIA-0520(93/09).

Oil production in the lower-48 States is expected to drop by 210,000 barrels per day between 1992 and 1993, and by 160,000 barrels per day between 1993 and 1994.

The Point Arguello field in the Pacific Federal Offshore Continental Shelf (OCS) started producing during the second quarter of 1991. Initially, the field produced at lower than expected levels because of problems in transporting the produced oil to the refinery. By the end of the second quarter 1993, the field was producing about 60,000 barrels per day. During the third quarter of 1993, some of the problems in oil transportation were resolved. Consequently, oil production is expected to increase to 85,000 barrels per day.[5] It is assumed that the Point Arguello field will maintain the increased level of production through the forecast period.

Oil production in Alaska is expected to decrease by 7.6 percent in 1993, but increase slightly in 1994. A substantial portion of the oil production from Alaska comes from the giant Prudhoe Bay field. Installation of additional gas handling facilities is expected during the forecast period in the Prudhoe Bay field, plus new production from the Point McIntyre field, contributing to the slight increase in oil production in 1994.

The rig count for December 1992 averaged 926 rigs compared to 710 in January 1992, according to Baker Hughes, Inc. The significant increase, which occurred mainly in the latter part of the year, was due primarily to an increase in rigs drilling for gas as operators tried to take advantage of the Section 29 provision (tax credits) before these credits expired at the end of 1992. Following the expiration of the tax credits, rig counts dropped significantly. The rig count for the first quarter of 1993 was down by 19 percent from the previous quarter to a level of 707 rigs. The rig count dropped again to 645 for the second quarter of 1993, but is expected to increase by 20 percent for the third quarter. With this recovery in drilling activity, the average rig count is expected to increase by 2 percent between 1992 and 1993, and by 9 percent between 1993 and 1994. Based on these levels of drilling activity, about 8,908 oil wells are expected to be drilled in 1993 and 9,074 in 1994.

The potential sensitivities of domestic oil production to price variations are presented in Tables 6 and 8. Domestic crude oil production may range from 220,000 barrels per day below the mid-price case to 170,000 barrels per day above the mid-price case in 1994. Table 10 provides a disaggregation of the range of oil production expected for the fourth quarter of 1994 between the high and low price cases. The two main factors affecting this range are price uncertainty and uncertainties relating to the timing of expected maintenance and development operations which affect underlying well productivity.

Figure 4. Days Supply of Market Economies Commercial Petroleum Stocks, by Quarter

Note: Represents usable stocks; excludes strategic stocks and minimum operating inventory.
Source: Energy Information Administration, Office of Energy Markets and End Use, Energy Markets and Contingency Information Division.

U.S. Petroleum Product Prices

Domestic petroleum product price variations are significantly affected by changes in crude oil costs (Table 5). Some price variation is attributable to differences in supply and demand conditions for particular product markets, as well as changes in excise tax regimes. In addition, projected price effects of changing environmental regulations are presented in accordance with the timing of their completion.

The low-price case assumes slightly lower rates of inflation and a more robust economy than does the high or mid-price cases. In this scenario, petroleum product prices generally follow the crude oil price path of $15 per barrel throughout the remainder of 1993 and all of 1994. Only retail motor gasoline and diesel fuel prices rise in 1994 in the low case, due to increased motor vehicle fuels taxes that were effective October 1, 1993 (See "Special Assumptions"). Natural gas wellhead prices and electric utility prices rise in 1993, but fall in 1994 in this scenario. Residual fuel oil prices follow the crude oil price path, remaining relatively flat in annual terms in 1993, but falling in 1994. Coal prices are expected to recover their earlier losses near the end of 1993, and will level off in 1994. This occurs because increased mine productivity lowers overall costs of production. However, the effects of Phase I of the Clean Air Act Amendments of 1990 will result in increasing coal prices towards the latter part of 1994. (See "Coal," page 16.)

The mid-price case assumes that in 1993 the average annual motor gasoline price will decrease by 1 cent per gallon from the 1992 average annual price, due to lower crude oil prices of about 2.5 cents per gallon, which offsets annual average increases in Federal, State and local taxes. In 1994, flat crude oil prices, a slightly lower days' supply (stocks divided by demand) of gasoline, additional State and local taxes, and the continuation of the 4.3 cents per gallon Federal tax increase should add 6 cents per gallon to the annual average price. Diesel fuel prices are expected to increase by 11 cents per gallon in 1994 due to the same Federal motor vehicle tax increase and the implementation of new low-sulfur content requirements.[6]

Assuming normal winter weather, residential heating oil prices are projected to increase 1 cent per gallon per year in 1993 and in 1994.

In 1993, residual fuel oil prices are projected to increase by about 67 cents per barrel even as crude oil prices fall. However, most of this increase results from the price difference between the first half of 1992 and the first half of 1993. An excess supply of residual fuel oil stemming from a warm winter in 1992 led to unusually low prices. In 1994, prices will more or less follow the crude oil price path. The price of residual fuel oil to electric utilities is expected to remain less than the comparable price of natural gas for both 1993 and 1994. This is the first time in at least 20 years that natural gas prices for deliveries to electric utilities (in dollars per million Btu) will average more than electric utility residual fuel oil prices on an annual basis. (In 1986 and 1988 when crude oil prices fell, there were several months when natural gas prices were higher than residual fuel oil prices.) The relatively low projected world crude oil prices combined with continued demand growth and diminished excess supply conditions in natural gas markets has led to relatively higher gas prices.

The high-price case assumes a slightly higher rate of inflation, a slightly weaker economy, and a longer coal strike, than the mid-price case. In this scenario, prices for petroleum products, electricity, natural gas, and coal are projected to gain through 1994.

U.S. Petroleum Demand

Motor Gasoline

Motor gasoline demand is expected to grow by 1.1 percent in 1993 despite a relatively slow start during the first quarter of the year. This growth is expected to continue near-term. Factors tending to increase discretionary travel, and with it gasoline demand, include real income growth and declining real fuel costs per mile (Table 2 and Figure 5). Gasoline consumption is expected to rise about 0.8 percent in 1994. Average total fleet miles per gallon (mpg) appears to be growing in the range of 1.5 percent, allowing for modest gasoline demand growth.

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[6]Published estimates of the cost of producing low-sulfur diesel fuel range from 2 to 7 cents per gallon. Environmental Protection Agency, *Federal Register*, Vol. 54, No. 163, August 24,1989, p.35278. Cambridge Energy Research Associates. *The U.S. Refining Industry: Facing the Challenges of the 1990's.* (January 1992). page 54.

One of the factors possibly limiting demand growth somewhat next year is the imposition of an additional 4.3 cents-per-gallon motor vehicle fuel tax, adopted under President Clinton's 1994 budget. The projected net effect of the fuel tax is to slow temporarily the annual decline in inflation-adjusted per-mile costs of gasoline to consumers.

Oxygenate inventories appear sufficient to meet demand during the upcoming winter oxygenated gasoline season. Although current MTBE inventory is about 6.1 million barrels less than last year, production capacity is significantly higher. August 1993 MTBE production averaged 142,000 barrels per day compared to 91,000 barrels per day during August 1992.[7] Ethanol inventories are about 0.2 million barrels above last year's level with production rates averaging slightly higher.

Figure 5. Gasoline Market Trends Indexed to 1982

Sources: **History:** Energy Information Administration, *Petroleum Supply Monthly* (September 1993); Federal Highway Administration, *Traffic Volume Trends.* **Projections:** Tables 3 and 7.

Jet Fuel

Jet fuel consumption declined in 1992, particularly in the first quarter of the year, partly as a result of the sluggish economy, which reduced travel, and pressure on airlines to rationalize operations. Consumption is projected to rise by 3.4 percent in 1993 led by increased air travel, which started to recover in the last half of 1992 (Table 3 and Figure 6).

Recovery in air travel activity gained momentum in early 1993. Bolstered by continuing strong growth in international travel, aircraft utilization grew by 7.2 percent during the first quarter compared to the same period in 1992. International traffic growth was slower in the second quarter.

The slowdown in travel activity is expected to extend throughout 1994, resulting in a slowdown in jet-fuel demand growth to 0.7 percent (Table 7). Available ton-miles are projected to rise by a moderate 2.7 percent for all of 1993 and by a further 2.9 percent in 1994. These growth rates are considerably less than those observed in 1992.

Figure 6. Annual Change in U.S. Jet Fuel Market Indicators
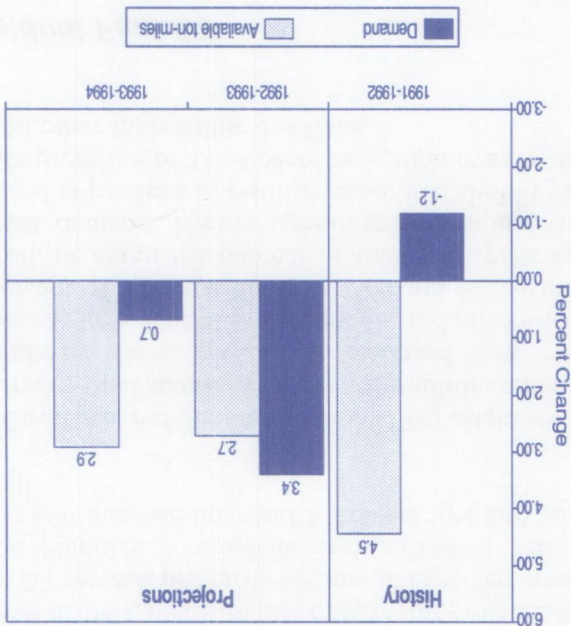
Sources: **History:** Federal Aviation Administration. **Projections:** Tables 3 and 7.

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[7]Energy Information Administration, *Weekly Petroleum Status Report,* DOE/EIA-0208(93-38), Tables B2 and B3.

In contrast to the earlier stages of recovery, domestic airline traffic is expected to grow somewhat faster than international traffic. While Pacific-Rim related travel is expected to continue to grow at a brisk pace, European traffic growth is expected to be slight.[8] Continued air-fare wars are expected to bolster domestic travel.

Distillate Fuel Oil

Demand for distillate fuel oil is expected to increase by only 1.7 percent in 1993, despite initial indications that demand was up significantly with the return of more typical winter weather early in the year. An error in the reported levels of distillate demand for the first 5 months of 1993 has been subsequently corrected,[9] with demand for the first half of 1993 now placed at 3.06 million barrels per day instead of the 3.22 million barrels per day estimated in the last *Outlook* (Table 7). Increased heating oil demand due to colder weather pushed distillate demand up in the first quarter of 1993, but relatively low heating requirements in the second quarter in the New England and Mid-Atlantic regions of the United States (the main heating oil areas in the country) offset the initial demand gains. With normal weather in 1994, distillate fuel oil growth is expected be about 2.3 percent, primarily because of expected growth in the Nation's commercial and industrial activity, which will increase the need for diesel fuel and No. 2 fuel oil.

The Clean Air Act Amendments of 1990 established a new, more strict standard to lower the sulfur content of on-highway diesel fuel. The standard took effect October 1, 1993. It applies nationwide and affects about 46 percent of the total domestic demand for distillate fuel oil, or about 8.2 percent of total U.S. petroleum product demand. Higher operating and capital costs required to produce low-sulfur diesel fuel should yield a price premium of 3 to 4 cents per gallon over heating oil and other high-sulfur distillates.[10]

Residual Fuel Oil

The steady decline in demand for residual fuel oil that began in the late 1970's began to moderate in the second quarter of 1993, showing a relatively small decline of 50,000 barrels per day compared to the same period last year (Table 7). Demand for residual fuel in the third quarter 1993 is expected to exceed demand in the same period last year by about 70 thousand barrels per day. Residual fuel oil demand in 1994 is expected to show moderate recovery, primarily on the strength of utility sector demand. The gain is due to increasing electricity demand, a leveling of hydroelectric and nuclear power, and fuel switching on the basis of price. Residual fuel is projected to continue to have a relative price advantage over natural gas as an electric utility fuel in 1994 (Table 5).

Other Petroleum Products

Demand for other oils during the first half of 1993 averaged about 36,000 barrels per day less than the same period in 1992 (Table 7). The weakness in demand appeared in the second quarter 1993, with declines in demand reported for petroleum coke, petrochemical feedstocks, and liquefied petroleum gases.[11] In the second half of 1993, demand for other petroleum products is expected to rise only slightly from that of the previous year. As a result, demand for other petroleum products is projected to decline by 10,000 barrels per day, or 0.2 percent, in 1993. Demand for other petroleum products in 1994 is projected to grow by 2.9 percent, driven by growth in petrochemicals and other industrial output.

Petroleum Demand and Production Sensitivities

The petroleum demand and supply outlook for the mid-price case is based on normal temperatures and a particular set of macroeconomic assumptions. In order to enhance the usefulness of the mid-case forecast, Tables 9 and 10 provide a range of possible outcomes for petroleum demand and supply when alternative macroeconomic, price, and weather assumptions are used.

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[8]Based on internal simulations of the Short-Term Integrated Forecasting System.

[9]See Energy Information Administration, *Petroleum Supply Monthly*, DOE/EIA-0109(93/07) for an explanation of the distillate fuel data corrections.

[10]Energy Information Administration, *Short-Term Energy Outlook*, Second Quarter 1993, DOE/EIA-0202(93/3Q) (Washington, DC, May 1993), pp 10-11.

[11]Based on comparisons derived from the fourth quarter 1993 Short-Term Integrated Forecasting System database.

The petroleum price sensitivity assumes that non-petroleum prices remain constant. The weather sensitivities assume deviations above and below normal that correspond to one-half of the largest quarterly deviations from normal in heating and cooling degree-days over the last 15 years. (See Appendix for more details.) Average petroleum sensitivity factors for this forecast are summarized below:[12]

- A 1-percent increase in real GDP raises petroleum demand by about 124,000 barrels per day.

- A $1-per-barrel increase in crude oil prices, assuming no price response from nonpetroleum energy sources, reduces demand by about 37,000 barrels per day.

- A $1-per-barrel increase in crude oil prices boosts domestic oil supply (crude oil and natural gas liquids production) by 87,000 barrels per day.

- A 1-percent increase in heating degree-days increases demand by about 30,000 barrels per day;

a 1-percent increase in cooling degree-days increases petroleum demand by about 14,000 barrels per day.

For 1993, projections of the rate of domestic crude oil production range from 6.78 million barrels per day in the low-price case to 6.86 million barrels per day in the high-price case (Tables 6 and 8). This range increases in 1994, with production rates of 6.46 million barrels per day in the low-price case and 6.85 million barrels per day in the high-price case. These estimates contain an element of uncertainty that goes beyond expected price impacts in the two cases. In the fourth quarter of 1994, for example, the difference between the low- and high-price case is 456,000 barrels per day.[13] About 35 percent of this range of production can be attributed to uncertainties in the preliminary estimates of current production levels and the timing of expected events. About 65 percent of this range is attributed to the impact of prices on drilling rates and well maintenance (Table 10).

[12]The oil demand sensitivity factors were derived from internal calculations of the Demand Models of the Short-Term Integrated Forecasting System. The oil supply sensitivity was derived implicitly from Tables 6 and 8 and includes uncertainty components not strictly related to price variation. The latter sensitivity is averaged over the last 2 quarters of 1993 and all 4 quarters of 1994.

[13]Of this total, the lower 48 States accounted for 356,000 barrels of oil per day. The uncertainty portion for the lower 48 States contains 87,000 barrels of oil per day that resulted from varying the low and high price case estimates (plus for the high price case and minus for the low case) by an amount equal to 1 percent of the 1993 third quarter oil rate and declining that amount starting with the fourth quarter of 1993 throughout the forecast period. The remaining 25,000 barrels of oil per day is included to account for additional oil that could be produced from the Gulf of Mexico Federal OCS if a new field is brought on stream as scheduled. The larger portion of the difference (barrels per day) is attributed to the price impact where more drilling is expected at the higher prices as well as more frequent well maintenance and reduction of well abandonments.

Outlook for Other Major Energy Sources

Natural Gas

Actual demand for natural gas in the second quarter 1993 turned out to be somewhat lower than estimated in the previous *Outlook*. This, combined with lower projected industrial growth has led to a downward revision in the forecast for 1993 and 1994 (Figure 7 and Table 11). Gas demand was down in the second quarter 1993 from the 1992 level because: (1) average gas wellhead price rose to $2.21 per thousand cubic feet (Table 5), (2) coal use by utilities increased at the expense of gas due to lower coal prices, (3) nuclear power generation by utilities rose (Table 13), (4) hydroelectric generation by utilities rose as rainfall increased dramatically.

This combination of factors caused gas consumption to fall by 4.3 percent in the second quarter of 1993 compared with the same quarter in 1992. However, total 1993 demand for natural gas is projected to grow by 0.9 percent relative to 1992. Natural gas demand in 1993 is forecast to total 19.80 trillion cubic feet, compared with 19.63 in 1992. In 1994, natural gas demand is projected to increase by 3.7 percent, to 20.53 trillion cubic feet.

Demand in the residential and commercial sectors has been rising in 1993, and is expected to be up by by 4.0 percent and by 3.6 percent, respectively, over the year. Although industrial gas demand moderated in the first half of 1993 in response to higher prices, reduced upward pressure on prices and continued industrial growth is expected to result in a gradual resumption of demand in the industrial sector in 1994. Utility gas demand was down from 1992 levels in the first half of 1993, as coal, nuclear, and hydroelectric power replaced natural gas. However, as electricity demand rises further, utility gas demand is projected to increase in the second half. In 1994, based on the assumption that weather will be normal, and that economic growth, and in particular manufacturing production, will continue to expand, natural gas demand is projected to grow across all sectors.

The unbundling of pipeline services under Federal Energy Regulatory Commission Order 636 has provided greater access to natural gas storage services. Additionally, pricing of individual services has provided market participants with new information on the price of storage relative to transportation service, no-notice service, and balancing penalties. The price information combined with improved access to storage has increased interest in the use of storage by marketers, local distribution companies, and large end users. This interest is evident in the 4 percent increase in the storage levels entering the 1993 heating season as compared to the same time in 1992. The increase occurred despite higher natural gas prices and higher demand for natural gas in the third quarter of 1993 relative to 1992.

The institutional changes brought about by Order 636 are not the only forces increasing the demand for storage service. Storage is also being used to maintain deliverability by offsetting the decline in natural gas wellhead productive capacity.
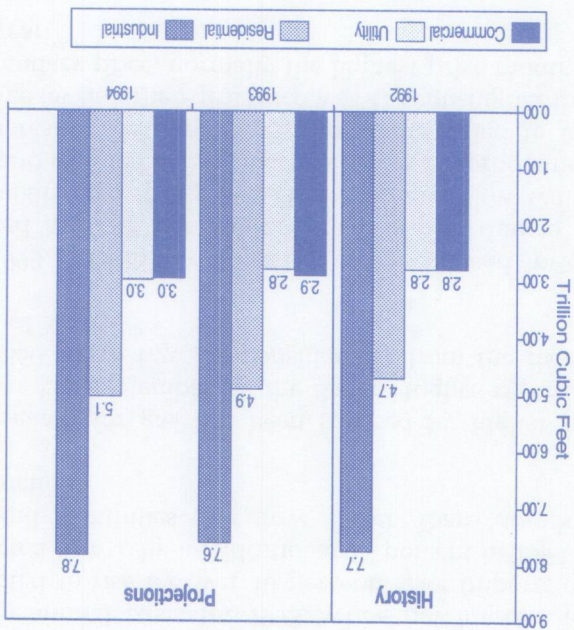
Figure 7. Natural Gas Demand by Sector

Sources: **History:** Energy Information Administration, *Natural Gas Monthly* (September 1993). **Projections:** Table 11.

Conservative estimates indicate that normal working gas storage capacity is scheduled to increase by at least 10 percent, or 300 billion cubic feet, over the next few years.[14]

Dry gas production is expected to grow by 1.6 percent on an annual basis for 1993, while net imports are expected to rise by over 10 percent. Net imports are expected to rise by an additional 17 percent in 1994 as demand continues to grow faster than domestic production.

The search for gas has been spurred by higher gas prices. On September 24, the Baker Hughes rig count was 866 active rigs, up considerably from the record lows of March.[15]

In 1993, monthly composite spot wellhead prices peaked at $2.18 per million Btu in April, due to an unusually cold spring (see Figure 8). Prior low winter demand resulted in first quarter cutbacks in production. As a result, the surge in spring demand led to low storage levels. The April price was 41 cents higher than the January price, normally the highest price month of the year.[16]

Assuming normal weather for the remainder of 1993, both spot and wellhead prices are expected to resume their normal seasonal patterns for the rest of the year. However, the average annual wellhead price in 1993 is expected to be about 36 cents higher than the average 1992 annual level. Assuming normal weather, 1994 wellhead prices are expected to increase by 11 cents per thousand cubic feet over 1993 prices. The effects of continued declines in natural gas productive capacity coupled with increased demand should put upward pressure on prices. However, in 1994, this is likely to be partially offset by flat world crude oil prices.

Coal

Growth in electricity demand and industrial output will spur growth in coal demand over the next 2 years. Electric utility coal consumption grew by 0.6 percent in 1992 despite weak demand for electricity.[17] In 1993, an increase of 2.8 percent is forecast for the utility sector. Utility coal demand is expected to increase by 2.1 percent in 1994, while nuclear-fired generation
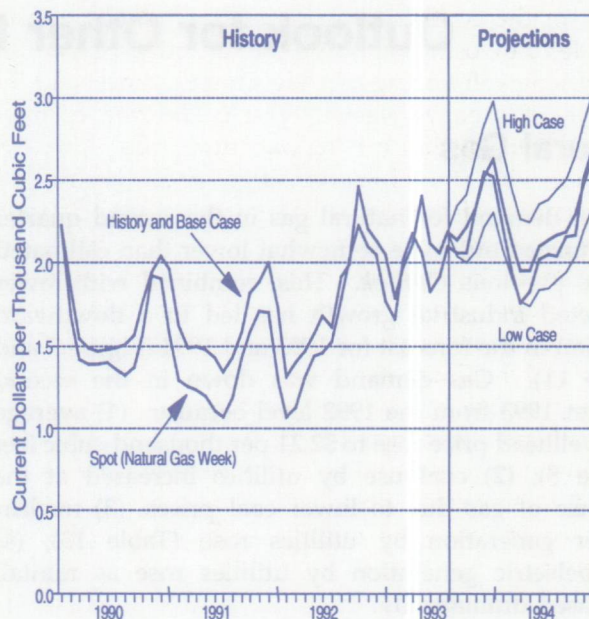
Figure 8. Natural Gas Wellhead Prices

Sources: **History:** Energy Information Administration, *Natural Gas Monthly* (September 1993), *Natural Gas Week* (September 6, 1993). **Projections:** Table 5 and Short-Term Integrated Forecasting System (STIFS) for spot prices.

shows little growth and hydroelectric generation declines slightly (Tables 12 and 13).

Increases in the domestic production of steel are expected to produce a slightly higher demand for coal at coke plants in 1994. Coal demand by the retail and industrial sectors is expected to grow steadily in 1993, and continue growing at a slower pace in 1994.

U.S. coal exports are expected to decline by nearly one-fifth in 1993 due to the continuing weakness of the European economy, and continuing subsidies for domestic European coal. Exports are projected to rebound with Europe's economy, and reach 94 million tons in 1994—still below their 1992 level. In the United States, several electric utilities are planning to use low-sulfur foreign coal to comply with the Clean Air Act. This new demand for coal imports will help to increase imports by 44.8 percent in 1993 and by 12.6 percent in 1994.

[14]*Gas Market Listener*, September 17, 1993.

[15]*Natural Gas Week*, September 27, 1993.

[16]*Natural Gas Week*, September 6, 1993, page 6.

[17]Total coal demand was 888 million tons in 1991 (Energy Information Administration,*Monthly Energy Review*,DOE/EIA-0035(92/12)) and 893 million tons in 1992 (Table 12).
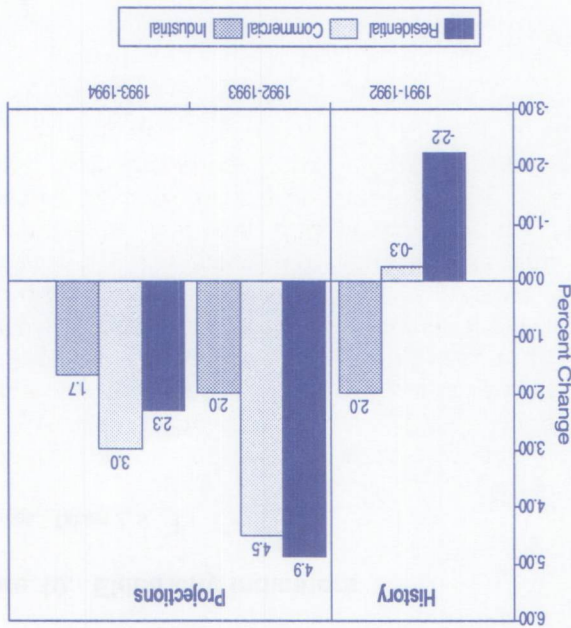
Coal prices have fallen since 1986. This is largely the result of the continuing gains in productivity, which includes the closing of non-productive mines, expanded use of longwall mining in underground mines, and the growth of cheaper western coal. The rate of price decline has slowed over the past few years. Nominal prices in 1993 should change little. A continuing coal strike could raise prices in the latter half of this year, offsetting lower prices earlier in 1993. Prices are expected to increase only slightly in 1994, as rising transportation, mining and operating costs offset continued gains in productivity. On January 1, 1995, Phase I of the Clean Air Act will require that 110 coal-burning electric utility plants reduce SO_2 emissions.[18] It is estimated that the effect of this Act will add about 1 to 2 cents per million Btu to the average price of coal in the latter part of 1994. For some affected utilities, coal acquisition costs might rise by as much as 17 percent.[19]

The strike by the United Mine Workers of America (UMWA) against member companies of the Bituminous Coal Operators Association (BCOA) has had a significant effect on coal production and stocks. Coal production is projected to decline by 3.8 percent in 1993. This loss of production is causing significant producer and consumer stock withdrawals. Assuming an end to the strike by the end of 1993, coal production is expected to grow by 9.0 percent in 1994 to meet increased demand and stock replenishment requirements.

As noted, the strike has impacted coal prices. Some spot prices in the East have increased by about $2 to $3 per ton.[20] The strike has resulted in a U.S. average price increase of 2 cents per million Btu since June. If the strike continues and lasts throughout the year and into 1994, U.S. average coal prices to electric utilities can be expected to increase by several cents per million Btu.

Electricity

Electricity demand is expected to rise by 3.7 percent in 1993, and by 2.2 percent in 1994 (Table 13). Demand growth is caused by the return to more normal weather and, to a lesser extent, rising economic growth. In 1992, cool summer weather caused air conditioning demand to decline. Assuming normal weather for the rest of the year, demand in the residential sector is expected to show the biggest gain in 1993, rising by 4.9 percent. Demand in the commercial sector is also expected to be up by 4.5 percent (Figure 9). Demand for air conditioning during this summer's heat wave has already given an added boost to electricity demand.

Real residential electricity prices are projected to decrease by an average of 2 percent annually from 1992 through 1994, as the declining cost of capital offsets expected increases in maintenance and fuel costs (Figure 10). Industrial demand growth in 1993 is expected to remain level with 1992 demand, slowing slightly in 1994 along with total manufacturing production.

Figure 9. Annual Change in U.S. Electricity Demand by Sector

Source: Table 13.

[18] Environmental Protection Agency, *Clean Air Act Amendments of 1990*, "Title IV Acid Deposition Program," pages 1-3. November 1990.

[19] Based on internal EIA calculations. It is estimated that compliance with Phase I of the Clean Air Act requiring low sulfur coal will cost about $5.00 per ton of coal or about a 17 percent price increase for the approximately 2.5 percent of the coal burned at electric utilities that will be affected by Phase I. In order to meet the January 1, 1995 date, those utilities will be stockpiling coal by the second half of 1994.

[20] *Coal Week*, May 3, and September 13, 1993, page 5.

Figure 10. Electricity Indicators

Sources: Tables 2, 5, 13.

Coal, hydroelectric and nuclear power generation are expected to meet the increased demand for electricity in 1993. Hydroelectric generation is rising fastest, with growth of 17.8 percent anticipated, due to record rainfall in some areas of the country. Coal generation is also expected to rise by 2.4 percent, due, in part, to lower coal prices in the first half of 1993. In 1995, Phase 1 of the Clean Air Act becomes effective, and costs incurred with compliance will weaken growth in coal generation in 1994. Nuclear power generation is expected to increase in 1993 by 2.7 percent due to new on-line capacity and improved performance. In 1994, oil and gas generation rise by 15.3 and 5.4 percent, respectively, to meet incremental demand, as hydroelectric and nuclear power generation remain at about 1993 levels.

U.S. utilities are expected to generate about 3.3 percent more electricity in 1993 and 2.1 percent in 1994. Non-utility supply of electricity is expected to rise even more rapidly, by 5.4 percent in 1993 and by 6.1 percent in 1994. Net imports from Canada have been falling in 1993 from 1992 levels, due to displacement by domestic hydroelectric power and coal generation, but are expected to resume their upward trend in 1994.

1993-1994 U.S. Winter Fuels Outlook

This article examines alternate fuel supply and demand outcomes for the 1993-1994 winter. In this analysis, winter is defined as the period from October 1 through March 31. The mid-price or base case provides a convenient point of reference for discussing plausible market outcomes. However, unexpected variations in winter severity can significantly alter projections. A special severe weather case is presented here in order to indicate possible impacts of extreme conditions on domestic heating fuel markets. The severe case, in order to reflect an actually experienced (if rather unlikely) scenario, replicates, for the 1993-1994 winter, the conditions (in terms of heating degree-days) that prevailed in the 1977-1978 winter season. That year, fourth quarter weather was about normal, but the first quarter of 1978 was the coldest during the 1975 to 1993 period, with average temperatures being well below normal for January, February, and March, (particularly February). (The estimated probability of the entire winter being (on average) as cold or colder than such a winter is 1 percent or less, and the probability of the first quarter 1994 being as cold or colder than the first quarter of 1978 is approximately 3 percent.)

Under the assumption of normal winter temperatures from October 1993 to March 1994, moderate increases in the demand for heating fuels are expected, as indicated in the summary table (opposite). For the first time since the 1988-1989 heating season, heating degree-days reached approximately normal levels last winter.[21] Therefore, increases in the 1993-1994 heating season are not expected to be as significant as last year. Distillate fuel oil demand is expected to increase by about 80,000 barrels per day this winter compared to an increase of about 100,000 barrels per day last winter. Most of the increase this year is expected to be related to demand growth for diesel fuel and industrial fuel (not related to heating needs) because of general economic growth. Winter demand for liquefied petroleum gases (LPG) (mostly propane) is expected to decline slightly compared to the 1992-1993 season, mostly because of unusually high demand in late 1992 related to crop drying. A slight demand drop is also expected for natural gas, the price of which has been rising significantly relative to other fuels since early 1992.

Electricity demand is expected to grow steadily this winter under base case assumptions (about 3 percent). Little of this growth is due to residential power use. Rather it reflects increased requirements in the expanding industrial and commercial sectors.

1993-1994 Winter Fuel Demand Summary[a]

	Base Case	Change From Year Ago	Severe Weather[b]	Change From Base
Petroleum (million barrels per day)				
Total	17.68	0.32	17.89	0.21
Distillate	3.29	0.08	3.40	0.11
Residual	1.22	0.10	1.26	0.04
LPG	1.94	-0.05	1.98	0.05
Natural Gas				
(billion cubic feet per day)	64.40	-0.16	67.20	2.80
Electricity				
(billion kilowatthours per day)	7.83	0.23	7.90	0.07
Coal (million tons per day)	2.52	0.02	2.54	0.02
Weather				
(mean heating degree-days)	22.36	0.29	24.57	2.21
(percent)		1.3		9.9

[a]Energy demand rates for October 1993 through March 1994.
[b]Assumes 1977-1978 winter temperatures.
Source: Short-Term Integrated Forecasting System (STIFS) Fourth Quarter, 1993.

In the case of a very cold winter, demand is likely to increase significantly. Assuming a replication of the 1977-1978 winter (in terms of heating degree-days), an additional 210,000 barrels per day of oil demand would be expected for the 6-month heating season. An additional 4.4 percent in natural gas demand would also result from the cold scenario, as residential gas needs surge.

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[21]The National Oceanographic and Atmospheric Administration reports that mean heating degree-days for the Nation was 22.14 heating degrees per day during the 1988-1989 heating season, but did not rise above 21 heating degrees per day until last year. Normal is 22.36.

However, it should be noted that the demand increases expected for various fuels are interdependent, and altering certain key assumptions about fuel availability could alter the composition of fuel demand in the context of a severe winter scenario. In particular, a surge in residential and commercial demand for natural gas could result in higher prices and lessened availability of interruptible service to users who may have elected no service guarantees, such as some electric utilities and industrial customers. Such a development could cause higher petroleum use for electric power generation or industrial applications. The working assumption for this analysis is that deliverability will be sufficient this winter to meet even a severe winter surge in residential gas demand without significantly altering gas use by industrial or electric utility customers relative to base case levels. (Deliverability is defined as the amount of gas that can be delivered to customers in a given period of time from all supply sources, including current production, winter gas storage, or imports.) A related assumption is that gas suppliers are willing and able to utilize gas storage aggressively to meet surge demands for gas. Such aggressive use of gas in storage characterized the

1992-1993 winter, and the severe winter case posited for 1993-1994 could be dealt with by bringing storage to levels not much lower than last year (Figure 11).

The higher natural gas prices seen today are the result of an ongoing reduction in excess gas productive capacity, which follows from the depletion of existing gas fields and low drilling rates for new gas exploration and development.[22] Figure 12 illustrates the trends in gas productive capacity through 1994. While noticeable declines are evident from 1991 to 1993, a flattening out and a gradual upturn is seen by the last quarter of 1994, with gas prices at or above base case levels. The market saw low prices for gas (partly due to relatively weak demand from consistently mild winter weather and recessionary economic conditions) and reacted by paring back drilling activity. Higher prices have now materialized, spurring drilling and the prospects for renewed gas capacity growth. Assuming that gas storage can be utilized once more as an efficient means of meeting any large demand surge this winter, the U.S. natural gas industry may well be successful in satisfying market requirements even in the event of a severe winter.
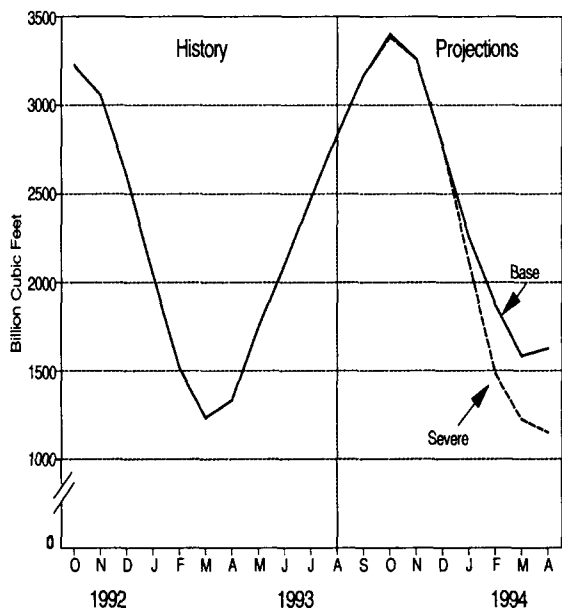
Figure 11. Natural Gas in Underground Storage

Source: Short-Term Integrated Forecasting System (STIFS) Fourth Quarter 1993.
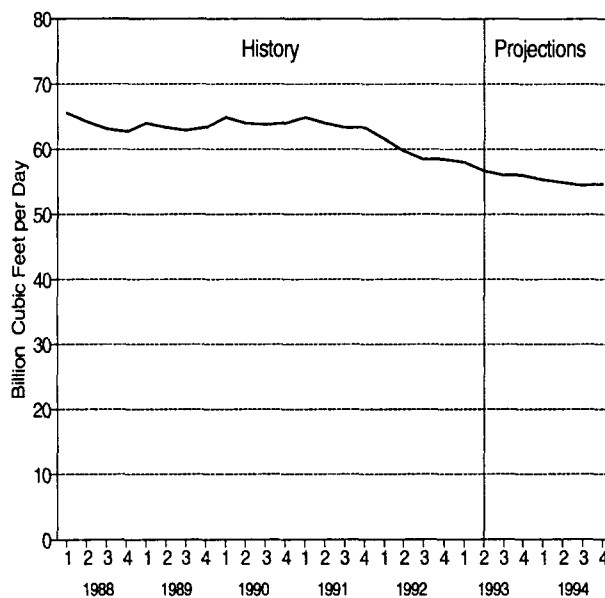
Figure 12. Natural Gas Productive Capacity

Source: Short-Term Integrated Forecasting System (STIFS) Fourth Quarter 1993.

[22]Energy Information Administration, Natural Gas Productive Capacity for the Lower 48 States, DOE/EIA-0542(93).

U.S. Motor Fuel Tax Analysis

On August 10, 1993, President Clinton signed the Omnibus Budget Reconciliation Act of 1993, which reduces the deficit and increases some taxes. Effective October 1, 1993, the Act increased motor vehicle fuel excise taxes by 4.3 cents per gallon for all transportation fuels currently subject to the Leaking Underground Storage Tank Trust Fund excise tax. The principal fuels are motor gasoline and diesel fuel. There is also a 48.54 cents per 1,000 cubic feet tax on compressed natural gas (CNG), used by highway motor vehicles and motorboats.

Under the provisions of this plan, neither diesel fuel nor gasoline is taxed for commercial off-road vehicles (such as tractors and bulldozers) or for other commercial applications including generators and compressors. Also exempted are State and local government use, military ships, fishing vessels, and international and domestic shipping. There are some additional exemptions for other smaller categories. Diesel fuel used in trains and in inland waterways transportation is taxable.

The Act raises the Federal tax to 18.4 cents per gallon for motor gasoline and 24.4 cents per gallon for diesel fuel. The Federal tax on motor gasoline had been 14.1 cents per gallon since December 1990, when it was increased from 9.1 cents per gallon. The diesel fuel tax had been 20.1 cents per gallon since December 1990, when it was increased from 15.1 cents per gallon. From 1990 through 1994, it is estimated that State and local taxes will have increased at an average rate of about 0.7 cents per gallon per year while the Federal tax will have averaged an annual increase of 2.25 cents per gallon (table below and Figure 13).

Average Annual Federal Motor Fuel Tax Revenue

Year	Previous Tax		New Tax		Revenue Increase (billion dollars)
	Tax Rate (cents per gallon)	Revenues[a] (billion dollars)	Tax Rate[b] (cents per gallon)	Revenue[a] (billion dollars)	
Gasoline					
1992	14.1	12.48	14.1	12.48	--
1993	14.1	12.72	15.2	13.73	0.96
1994	14.1	12.90	18.4	16.68	3.83
Diesel Fuel					
1992	20.1	3.34	20.1	3.34	--
1993	20.1	3.51	21.2	3.50	0.19
1994	20.1	3.59	24.4	4.27	0.77

[a]Revenues are less than notional collections (collections derived by multiplying statutory tax rates by reported or projected quantities) because of exclusions, exemptions, and other reductions, including nonreporting. The ratio of revenues to notional collections implied is based on actual 1992 revenues from the U.S. Treasury Department.
[b]The 1993 annual average Federal tax rate includes only 3 months of the added 4.3 cents per gallon, starting in October 1993.
Source: **History:** Energy Information Administration, Petroleum Marketing Monthly, DOE/EIA-0380, Table EN1 various issues. Omnibus Budget Reconciliation Act of 1993, Conference Report of the Committee on the Budget House of Representatives, August 4, 1993. **Projections:** Short-Term Integrated Forecasting System (STIFS) Fourth Quarter 1993.
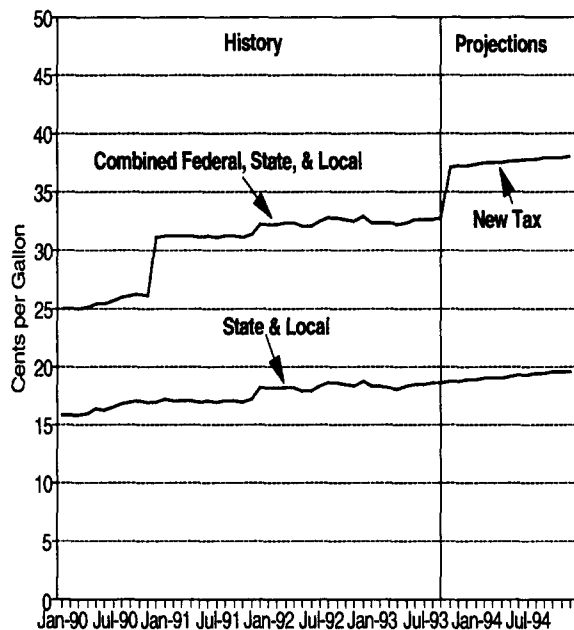
Figure 13. Federal, State, and Local Gasoline Taxes

Source: **History:** Energy Information Administration, *Petroleum Marketing Monthly*, DOE/EIA-0380. Table EN1 various issues *Oil and Gas Journal* Database. **Projections:** Short-Term Integrating Forecasting System (STIFS) Fourth Quarter 1993.

Figure 14. Motor Vehicle Tax Revenues from Gasoline and Diesel Fuel

Source: **History:** U.S. Department of Treasury, Office of Tax Legislative Counsel. **Projections:** Short-Term Integrated Forecasting (STIFS) Fourth Quarter 1993.

The net increase in Federal revenues resulting from this fuel tax hike, calculated by the Short-Term Integrating Forecasting System (STIFS) model based on the fourth quarter 1993 *Short-Term Energy Outlook (STEO)*, is estimated to be $960 million from gasoline and $185 million from diesel fuel in 1993 (Figure 14). In 1994, the increase in revenues is estimated to be about $3.8 billion from gasoline and nearly $770 million from diesel fuel.

The increased price of gasoline resulting from the additional taxes is projected to reduce motor gasoline demand in 1994 by about 44,000 barrels per day, about 0.6 percent. Diesel fuel demand is expected to be reduced by an even smaller percentage. This is because demand for diesel fuel in the domestic transportation sector (mostly freight transport in trucks) tends to be less sensitive to small price changes than gasoline demand.

Appendix

Computation of Petroleum
Demand Sensitivities

Table 9 summarizes the response of forecasts for U.S. total petroleum demand to changes in assumptions for economic growth, world crude oil prices, and weather. The values in this table are computed using the Short-Term Integrated Forecasting Model (STIFS). The STIFS model is documented in EIA's *Short-Term Integrated Forecasting System: 1993 Model Documentation Report* (DOE/EIA-M041, May 1993). The purpose of the model is to generate forecasts of U.S. energy supply, demand, and prices. Key inputs include assumptions for the imported price of crude oil, the rate of U.S. economic growth, and weather (cooling and heating degree-days). Forecasts are generated for production, imports, exports, demand, and prices for refined petroleum products, natural gas, coal, and electricity.

A key relationship shown in Table 9 is that between petroleum demand and economic activity. Gross domestic product (GDP) is varied from low to high for each of the 2 projection years, and the resulting change in petroleum demand is calculated. For each of the 2 years, the percentage difference in GDP is computed as the difference between the low and high case levels shown in Table 2, divided by the midpoint of this range. Thus, the percentage difference in GDP for 1993 (fourth quarter only) is as follows: (5117 - 5076) / ((5117 + 5076) / 2), or 0.8 percent. For each period, the petroleum demand difference (in million barrels per day) is divided by the percentage difference in GDP. For the last quarter of 1993, the average petroleum demand difference is 100,000 barrels per day; thus, a 1-percent change in GDP corresponds to a change in demand of (100,000/0.8), or 125,000 barrels per day.For 1994, a 3.4-percent change in GDP corresponds to a change in demand of 419,000 barrels per day; thus, a 1-percent change in GDP corresponds to a demand change of 123,000 barrels per day. The average of the 1993 and 1994 results (weighting the 1993 results by 91 days and 1994 by 365 days) is 124,000 barrels per day per 1 percent difference in GDP. Table 9 also shows the differences in petroleum demand due to changes in energy prices caused by varying the world crude oil price. The change in petroleum demand (in million barrels per day) is divided by the change in the crude oil price (in dollars per barrel), and the result is averaged over the 2 projection years to get an estimate of the change in petroleum demand per dollar of change in the crude oil price.

The influence of weather on petroleum demand is also calculated, using the mid-case values for economic activity and imported crude oil prices. The percentage changes in heating or cooling degree-days are computed and divided by the changes in petroleum demand, and the result is averaged over the 2 projection periods to get an estimate of the change in petroleum demand per 1-percent change in heating and cooling degree-days. The changes in demand due to changes in heating degree-days apply only to the heating season, roughly the first and fourth quarters of the year, while the changes in demand due to changes in cooling degree-days apply only to the cooling season, roughly the second and third quarters of the year.

Table 2. U.S. Macroeconomic and Weather Assumptions

	Price Case	1992 1st	2nd	3rd	4th	1993 1st	2nd	3rd	4th	1994 1st	2nd	3rd	4th	Year 1992	1993	1994
Macroeconomic[a]																
Real Gross Domestic Product (GDP)	High								*5117*	*5191*	*5267*	*5331*	*5389*		*5049*	*5295*
(billion 1987 dollars)	Mid	**4874**	**4892**	**4934**	**4991**	**5000**	**5020**	**5059**	*5097*	*5139*	*5184*	*5227*	*5279*	**4923**	*5044*	*5207*
	Low								*5076*	*5088*	*5101*	*5122*	*5168*		*5038*	*5120*
Percentage Change from Prior Year	High								*2.5*	*3.8*	*4.9*	*5.3*	*5.3*		*2.6*	*4.9*
	Mid	**1.6**	**1.6**	**2.1**	**3.2**	**2.6**	**2.6**	**2.5**	*2.1*	*2.8*	*3.3*	*3.3*	*3.6*	**2.1**	*2.5*	*3.2*
	Low								*1.7*	*1.8*	*1.6*	*1.3*	*1.8*		*2.3*	*1.6*
Annualized Percentage Change	High								*4.4*	*5.8*	*5.9*	*4.9*	*4.4*			
from Prior Quarter	Mid	**2.9**	**1.5**	**3.4**	**4.6**	**0.7**	**1.6**	**3.1**	*3.0*	*3.3*	*3.5*	*3.3*	*4.0*			
	Low								*1.5*	*0.9*	*1.0*	*1.6*	*3.6*			
GDP Implicit Price Deflator	High								*1.250*	*1.257*	*1.261*	*1.265*	*1.270*		*1.240*	*1.263*
(index, 1987=1.000)	Mid	**1.198**	**1.206**	**1.211**	**1.219**	**1.229**	**1.237**	**1.244**	*1.252*	*1.261*	*1.267*	*1.273*	*1.279*	**1.209**	*1.240*	*1.270*
	Low								*1.254*	*1.265*	*1.273*	*1.281*	*1.288*		*1.241*	*1.277*
Percentage Change from Prior Year	High								*2.5*	*2.3*	*1.9*	*1.7*	*1.6*		*2.6*	*1.9*
	Mid	**2.8**	**2.6**	**2.5**	**2.5**	**2.6**	**2.6**	**2.7**	*2.7*	*2.6*	*2.4*	*2.3*	*2.2*	**2.6**	*2.6*	*2.4*
	Low								*2.9*	*2.9*	*2.9*	*3.0*	*2.7*		*2.6*	*2.9*
Real Disposable Personal Income	High								*3702*	*3725*	*3772*	*3824*	*3861*		*3668*	*3796*
(billion 1987 dollars)	Mid	**3566**	**3576**	**3581**	**3618**	**3642**	**3654**	**3671**	*3687*	*3687*	*3710*	*3745*	*3777*	**3585**	*3663*	*3730*
	Low								*3671*	*3648*	*3647*	*3667*	*3694*		*3659*	*3664*
Percentage Change from Prior Year	High								*2.3*	*2.3*	*3.2*	*4.1*	*4.3*		*2.3*	*3.5*
	Mid	**2.2**	**2.0**	**2.0**	**2.5**	**2.1**	**2.2**	**2.5**	*1.9*	*1.2*	*1.5*	*2.0*	*2.4*	**2.2**	*2.2*	*1.8*
	Low								*1.5*	*0.2*	*-0.2*	*-0.1*	*0.6*		*2.1*	*0.1*
Manufacturing Production	High								*1.142*	*1.170*	*1.199*	*1.221*	*1.235*		*1.119*	*1.206*
(index, 1987=1.000)	Mid	**1.053**	**1.070**	**1.070**	**1.087**	**1.107**	**1.110**	**1.116**	*1.132*	*1.144*	*1.157*	*1.168*	*1.179*	**1.070**	*1.116*	*1.162*
	Low								*1.122*	*1.118*	*1.115*	*1.115*	*1.123*		*1.113*	*1.118*
Percentage Change from Prior Year	High								*5.1*	*5.7*	*8.0*	*9.3*	*8.1*		*4.6*	*7.8*
	Mid	**2.2**	**3.9**	**2.6**	**3.5**	**5.1**	**3.7**	**4.3**	*4.1*	*3.3*	*4.2*	*4.7*	*4.2*	**3.0**	*4.3*	*4.1*
	Low								*3.2*	*1.0*	*0.5*	*0.0*	*0.1*		*4.0*	*0.4*
OECD Economic Growth[b] (percent)															*1.7*	*2.1*	*2.9*
Weather[c]																
Heating Degree Days																
U.S.		**2162**	**565**	**127**	**1674**	**2342**	**527**	**90**	*1669*	*2401*	*536*	*88*	*1669*	**4528**	*4628*	*4694*
New England		**3167**	**1011**	**242**	**2277**	**3300**	**820**	**195**	*2223*	*3223*	*928*	*193*	*2223*	**6697**	*6538*	*6567*
Middle Atlantic		**2831**	**756**	**117**	**2039**	**2979**	**622**	**118**	*2018*	*2988*	*727*	*118*	*2018*	**5743**	*5737*	*5851*
U.S. Gas-Weighted		**2112**	**531**	**123**	**1692**	**2367**	**527**	**81**	*1686*	*2426*	*539*	*81*	*1686*	**4458**	*4661*	*4732*
Cooling Degree Days (U.S.)		**30**	**264**	**665**	**62**	**17**	**312**	**827**	*63*	*28*	*327*	*755*	*63*	**1021**	*1219*	*1172*

[a]Macroeconomic projections from DRI/McGraw-Hill model forecasts are seasonally adjusted at annual rates and modified as appropriate to the mid world oil price case. These mid-case macroeconomic projections are then modified by the low and high world oil price cases (as shown in Table 5) and by various explicit economic assumptions, with the low world oil price case applied to the high macroeconomic case, and the high world oil price case applied to the low macroeconomic case.

[b]OECD: Organization for Economic Cooperation and Development.

[c]Population-weighted degree days. A degree day indicates the temperature variation from 65 degrees Fahrenheit (calculated as the simple average of the daily minimum and maximum temperatures) weighted by 1980 population. Normal is used for the forecast period and is defined as the average number of degree days between 1951 and 1980 for a given period.

Note: Historical data are printed in bold, forecasts are in italic.

Sources: Historical data: Energy Information Administration, Monthly Energy Review, DOE/EIA-0035(93/09); U.S. Department of Commerce, Bureau of Economic Analysis, Survey of Current Business, September 1993; U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Monthly State, Regional, and National Heating/Cooling Degree Days Weighted by Population; Federal Reserve System, Statistical Release G.17(419), September 1993. Macroeconomic projections are based on DRI/McGraw-Hill Forecast CONTROL0993.

Table 3. U.S. Energy Indicators: Mid World Oil Price Case

	1992				1993				1994				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1992	1993	1994
Macroeconomic[a]															
Real Fixed Investment (billion 1987 dollars)	681	706	710	733	751	763	779	801	821	846	871	894	708	773	858
Real Exchange Rate (index, 1980-1982=1.000)	0.977	0.987	0.950	1.007	1.037	1.014	1.036	1.052	1.053	1.055	1.052	1.042	0.980	1.035	1.051
Business Inventory Change (billion 1987 dollars)	-8.7	-6.5	3.9	-14.5	1.8	1.0	1.3	4.0	9.6	15.8	18.7	21.0	-6.5	2.0	16.3
Wholesale Price Index (index, 1980-1984=1.000)	1.160	1.173	1.178	1.176	1.185	1.197	1.194	1.201	1.210	1.212	1.217	1.226	1.172	1.194	1.216
Consumer Price Index (index, 1980-1984=1.000)	1.390	1.400	1.410	1.420	1.433	1.440	1.448	1.464	1.477	1.486	1.496	1.508	1.405	1.446	1.492
Petroleum Product Price Index (index, 1980-1984=1.000)	0.589	0.660	0.681	0.659	0.626	0.639	0.576	0.583	0.646	0.649	0.608	0.602	0.647	0.606	0.626
Non-Farm Employment (millions)	108.09	108.42	108.63	108.93	109.45	109.99	110.28	110.77	111.29	111.87	112.52	113.22	108.52	110.12	112.23
Commercial Employment (millions)	70.74	71.07	71.30	71.66	72.13	72.76	73.10	73.56	74.05	74.59	75.17	75.79	71.19	72.89	74.90
Total Industrial Production (index, 1987=1.000)	1.053	1.063	1.067	1.083	1.097	1.100	1.110	1.121	1.132	1.143	1.153	1.163	1.067	1.107	1.148
Housing Stock (millions)	105.20	105.27	105.50	105.89	106.19	106.50	106.80	107.10	107.40	107.70	108.00	108.40	105.46	106.65	107.87
Miscellaneous															
Gas-Weighted Industrial Production (index, 1987=1.000)	1.066	1.076	1.069	1.087	1.096	1.102	1.104	1.120	1.133	1.145	1.154	1.163	1.074	1.106	1.149
Vehicle Miles Traveled (million miles per day)	5596	6381	6517	5950	5709	6556	6684	6113	5890	6670	6827	6266	6111	6266	6413
Vehicle Fuel Efficiency (miles per gallon)	18.84	20.43	20.47	19.14	19.17	20.70	20.77	19.43	19.47	20.98	21.08	19.81	19.72	20.02	20.33
Real Vehicle Fuel Cost (1987 cents per mile)	4.30	4.17	4.25	4.48	4.27	3.98	3.87	4.28	4.20	3.99	3.96	4.19	4.30	4.10	4.09
Air Travel Capacity (available ton-miles)	315.7	330.3	350.0	335.6	333.2	337.2	354.4	342.8	336.7	348.0	367.5	355.0	332.9	341.9	351.8
Aircraft Utilization (revenue ton-miles)	162.3	180.7	205.2	178.1	174.0	187.4	200.9	180.4	174.7	190.8	208.2	187.1	181.6	185.6	190.2
Aircraft Yield (cents per ton-mile)	14.46	12.55	10.97	13.20	14.47	13.64	12.13	13.07	13.48	12.73	11.69	12.64	12.80	13.33	12.63
Residential Natural Gas Customers (millions)	51.59	51.45	51.13	51.63	51.81	51.70	51.29	51.69	52.41	52.22	51.92	52.45	51.45	51.62	52.25
Commercial Natural Gas Customers (millions)	4.43	4.38	4.31	4.38	4.42	4.39	4.29	4.37	4.49	4.44	4.36	4.47	4.38	4.37	4.44
Raw Steel Production (millions)	23.23	23.43	22.32	22.63	23.62	24.14	24.19	25.04	23.81	24.88	25.24	26.17	91.60	96.98	100.10

[a]Macroeconomic projections from DRI/McGraw-Hill model forecasts are seasonally adjusted at annual rates and modified as appropriate to the mid world oil price case. These mid-case macroeconomic projections are then modified by the low and high world price cases (as shown in Table 5) and by various explicit economic assumptions, with low world oil price case applied to the high macroeconomic case, and high world oil price case applied to the low macroeconomic case.

Note: Historical data are printed in bold, forecasts are in italic.

Sources: Historical data: Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(93/09); U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, September 1993; U.S. Department of Commerce, National Oceanic and Atmospheric Administration, *Monthly State, Regional, and National Heating/Cooling Degree Days Weighted by Population*; Federal Reserve System, *Statistical Release G.17(419)*, September 1993. Macroeconomic projections are based on DRI/McGraw-Hill Forecast CONTROL0993.

Table 4. International Petroleum Supply and Demand: Mid World Oil Price Case
(Million Barrels per Day, Except Closing Stocks)

	1992				1993				1994				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1992	1993	1994
Demand[a]															
OECD															
U.S. (50 States)	16.97	16.80	17.04	17.58	17.13	16.68	*17.34*	*17.71*	*17.64*	*17.11*	*17.50*	*17.92*	17.10	*17.22*	*17.54*
U.S. Territories	0.23	0.22	0.20	0.21	0.24	0.22	*0.21*	*0.22*	*0.23*	*0.23*	*0.22*	*0.23*	0.21	*0.22*	*0.22*
Canada	1.62	1.59	1.66	1.70	1.67	1.62	*1.69*	*1.73*	*1.68*	*1.66*	*1.74*	*1.78*	1.64	*1.68*	*1.72*
Europe[b]	14.07	13.00	13.59	13.74	13.68	13.23	*13.20*	*13.85*	*13.84*	*13.38*	*13.36*	*14.01*	13.60	*13.49*	*13.65*
Japan	5.90	4.90	4.98	5.61	6.07	5.08	*5.05*	*5.72*	*6.13*	*5.15*	*5.15*	*5.87*	5.35	*5.48*	*5.57*
Australia and New Zealand	0.81	0.83	0.81	0.84	0.84	0.84	*0.83*	*0.85*	*0.84*	*0.86*	*0.85*	*0.87*	0.82	*0.84*	*0.85*
Total OECD	39.60	37.33	38.27	39.68	39.62	37.65	*38.33*	*40.08*	*40.34*	*38.39*	*38.83*	*40.68*	38.72	*38.92*	*39.56*
Non-OECD															
Former Soviet Union	7.98	6.96	6.26	6.22	6.33	5.69	*5.41*	*5.35*	*5.30*	*5.05*	*4.95*	*5.00*	6.85	*5.69*	*5.07*
China	2.58	2.58	2.68	2.68	2.72	2.73	*2.78*	*2.82*	*2.91*	*2.92*	*2.98*	*3.02*	2.63	*2.76*	*2.96*
Europe	1.24	1.13	1.05	1.05	1.17	1.10	*1.03*	*1.10*	*1.16*	*1.13*	*1.06*	*1.08*	1.11	*1.10*	*1.11*
Other Non-OECD	17.66	17.48	17.17	18.25	18.42	18.21	*18.13*	*19.07*	*19.41*	*19.18*	*19.09*	*20.10*	17.64	*18.46*	*19.44*
Total Non-OECD	29.46	28.15	27.15	28.20	28.64	27.72	*27.35*	*28.34*	*28.79*	*28.27*	*28.07*	*29.19*	28.24	*28.01*	*28.58*
Total World Demand	69.05	65.48	65.42	67.88	68.26	65.37	*65.68*	*68.42*	*69.13*	*66.67*	*66.90*	*69.87*	66.96	*66.93*	*68.14*
Supply[c]															
OECD															
U.S. (50 States)	9.96	9.84	9.68	9.86	9.86	9.53	*9.39*	*9.53*	*9.50*	*9.36*	*9.27*	*9.36*	9.84	*9.58*	*9.37*
Canada	2.10	2.01	2.12	2.10	2.08	2.11	*2.15*	*2.18*	*2.18*	*2.14*	*2.16*	*2.18*	2.08	*2.13*	*2.16*
North Sea[d]	4.38	4.11	4.24	4.59	4.35	4.41	*4.42*	*5.11*	*5.12*	*4.87*	*4.93*	*5.45*	4.33	*4.57*	*5.09*
Other OECD	1.48	1.49	1.48	1.46	1.42	1.42	*1.40*	*1.41*	*1.43*	*1.43*	*1.43*	*1.43*	1.47	*1.41*	*1.43*
Total OECD	17.92	17.44	17.53	18.01	17.71	17.47	*17.35*	*18.22*	*18.23*	*17.80*	*17.79*	*18.42*	17.72	*17.69*	*18.06*
Non-OECD															
OPEC	26.14	25.70	26.36	27.28	27.43	26.43	*27.18*	*27.09*	*27.41*	*27.47*	*27.69*	*28.21*	26.37	*27.03*	*27.70*
Former Soviet Union	9.37	9.16	8.69	8.44	8.28	8.14	*7.70*	*7.50*	*7.34*	*7.23*	*7.14*	*7.07*	8.91	*7.90*	*7.19*
China	2.84	2.84	2.83	2.84	2.88	2.90	*2.87*	*2.87*	*2.88*	*2.88*	*2.88*	*2.88*	2.84	*2.88*	*2.88*
Mexico	3.16	3.15	3.14	3.12	3.10	3.15	*3.13*	*3.12*	*3.14*	*3.14*	*3.14*	*3.14*	3.14	*3.12*	*3.14*
Other Non-OECD	7.99	8.05	8.16	8.14	8.22	8.16	*8.31*	*8.37*	*8.66*	*8.61*	*8.76*	*8.83*	8.08	*8.27*	*8.72*
Total Non-OECD	49.49	48.91	49.18	49.82	49.91	48.78	*49.18*	*48.95*	*49.43*	*49.33*	*49.61*	*50.12*	49.35	*49.20*	*49.62*
Total World Supply	67.41	66.35	66.70	67.82	67.62	66.25	*66.53*	*67.17*	*67.66*	*67.12*	*67.40*	*68.54*	67.07	*66.89*	*67.68*
Stock Changes and Statistical Discrepancy															
Net Stock Withdrawals or Additions (-)															
U.S. (50 States including SPR)	0.51	-0.36	-0.35	0.47	0.09	-0.84	*-0.13*	*0.27*	*0.46*	*-0.52*	*-0.25*	*0.25*	0.07	*-0.15*	*-0.01*
Other	1.08	-0.25	-1.54	-0.36	0.63	-0.51	*-1.04*	*0.55*	*0.55*	*-0.45*	*-0.79*	*0.56*	-0.27	*-0.09*	*-0.03*
Total Stock Withdrawals	1.58	-0.61	-1.90	0.11	0.73	-1.36	*-1.17*	*0.81*	*1.01*	*-0.97*	*-1.04*	*0.81*	-0.21	*-0.25*	*-0.05*
Statistical Discrepancy	0.06	-0.27	0.62	-0.05	-0.08	0.48	*0.31*	*0.43*	*0.46*	*0.51*	*0.54*	*0.52*	0.09	*0.29*	*0.51*
Closing Stocks (billion barrels)[e]	5.44	5.50	5.67	5.66	5.60	5.72	*5.83*	*5.75*	*5.66*	*5.75*	*5.84*	*5.77*	5.66	*5.75*	*5.77*
Non-OPEC Supply	41.27	40.65	40.34	40.54	40.19	39.83	*39.36*	*40.08*	*40.24*	*39.65*	*39.70*	*40.33*	40.70	*39.86*	*39.98*
Net Exports from Former Soviet Union	1.40	2.21	2.43	2.22	1.95	2.45	*2.29*	*2.15*	*2.04*	*2.18*	*2.19*	*2.07*	2.06	*2.21*	*2.12*

[a]Demand for petroleum by the OECD countries is synonymous with "petroleum product supplied" which is defined in the glossary of the EIA *Petroleum Supply Monthly*, DOE/EIA-0109. Demand for petroleum by the non-OECD countries is "apparent consumption" which includes internal consumption, refinery fuel and loss, and bunkering.

[b]OECD Europe includes eastern Germany.

[c]Includes production of crude oil (including lease condensates), natural gas plant liquids, other hydrogen and hydrocarbons for refinery feedstocks, refinery gains, alcohol, and liquids produced from coal and other sources.

[d]Includes offshore supply from Denmark, Germany, the Netherlands, Norway, and the United Kingdom.

[e]Excludes stocks held in the Former CPEs.

OECD: Organization for Economic Cooperation and Development

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

SPR: Strategic Petroleum Reserve

Former CPEs: Albania, Bulgaria, Cambodia, China, Cuba, Czech Republic, Hungary, Laos, Mongolia, North Korea, Poland, Romania, Slovak Republic, the Former Soviet Union, Vietnam, and Former Yugoslavia

Notes: Minor discrepancies with other published EIA historical data are due to rounding. Historical data are printed in bold, forecasts are in italic. The forecasts were generated by simulation of the Short-Term Integrated Forecasting System.

Sources: Energy Information Administration, *International Petroleum Statistics Report*, DOE/EIA-0520(93/09); and *International Energy Annual 1992*, DOE/EIA-0219(92); Organization for Economic Cooperation and Development, Annual and Monthly Oil Statistics Database through June 1993.

Note: All U.S. Historical and Projected Petroleum Demands are Adjusted to Reflect 1993 Reporting Requirements.

Table 5. U.S. Energy Prices
(Nominal Dollars)

	Price Case	1992 1st	2nd	3rd	4th	1993 1st	2nd	3rd	4th	1994 1st	2nd	3rd	4th	Year 1992	1993	1994
Imported Crude Oil[a]	Low								15.00	15.00	15.00	15.00	15.00		16.50	15.00
(dollars per barrel)	Mid	16.15	18.66	19.42	18.27	17.34	17.66	16.10	17.50	17.25	16.50	17.00	18.00	18.20	17.13	17.18
	High								19.00	19.00	19.00	20.00	20.00		17.50	19.51
Natural Gas Wellhead	Low								2.10	2.09	1.78	1.90	2.19		2.09	1.99
(dollars per thousand cubic feet)	Mid	1.49	1.57	1.84	2.26	1.94	2.21	2.13	2.35	2.36	2.02	2.15	2.49	1.79	2.15	2.26
	High								2.62	2.69	2.29	2.44	2.84		2.24	2.57
Petroleum Products																
Gasoline, Retail[b]	Low								1.18	1.16	1.21	1.20	1.19		1.18	1.19
(dollars per gallon)	Mid	1.12	1.19	1.23	1.21	1.17	1.19	1.17	1.21	1.21	1.24	1.25	1.25	1.19	1.18	1.24
	High								1.24	1.25	1.30	1.32	1.31		1.19	1.29
No. 2 Diesel Oil, Retail	Low								1.15	1.17	1.18	1.18	1.18		1.11	1.18
(dollars per gallon)	Mid	1.05	1.10	1.12	1.13	1.10	1.10	1.08	1.21	1.23	1.22	1.22	1.25	1.10	1.12	1.23
	High								1.24	1.27	1.28	1.29	1.30		1.13	1.28
No. 2 Heating Oil, Wholesale	Low								0.51	0.50	0.48	0.48	0.52		0.54	0.50
(dollars per gallon)	Mid	0.53	0.59	0.62	0.59	0.57	0.56	0.52	0.58	0.56	0.52	0.53	0.60	0.58	0.56	0.55
	High								0.62	0.60	0.58	0.61	0.65		0.57	0.61
No. 2 Heating Oil, Retail	Low								0.89	0.89	0.87	0.87	0.91		0.92	0.89
(dollars per gallon)	Mid	0.94	0.92	0.90	0.94	0.95	0.91	0.88	0.95	0.95	0.91	0.92	0.98	0.93	0.94	0.95
	High								0.99	0.99	0.97	0.99	1.03		0.95	1.00
No. 6 Residual Fuel Oil, Retail[c]	Low								13.90	14.17	12.89	12.76	13.62		14.34	13.40
(dollars per barrel)	Mid	11.90	13.63	15.82	16.05	14.72	15.10	13.86	15.73	15.82	13.98	14.22	15.80	14.19	14.86	15.01
	High								16.84	17.11	15.82	16.41	17.27		15.17	16.69
Electric Utility Fuels																
Coal	Low								1.36	1.37	1.39	1.39	1.39		1.38	1.38
(dollars per million Btu)	Mid	1.42	1.42	1.40	1.40	1.38	1.39	1.40	1.41	1.42	1.44	1.43	1.43	1.41	1.40	1.43
	High								1.41	1.44	1.47	1.47	1.47		1.40	1.46
Heavy Oil[d]	Low								2.50	2.40	2.20	2.23	2.45		2.49	2.32
(dollars per million Btu)	Mid	2.14	2.36	2.72	2.72	2.50	2.60	2.40	2.80	2.65	2.37	2.46	2.81	2.46	2.56	2.57
	High								2.98	2.86	2.66	2.81	3.05		2.61	2.84
Natural Gas	Low								2.61	2.62	2.26	2.37	2.71		2.57	2.47
(dollars per million Btu)	Mid	2.14	2.08	2.30	2.86	2.58	2.63	2.53	2.83	2.87	2.47	2.60	2.98	2.33	2.63	2.70
	High								3.06	3.16	2.72	2.86	3.29		2.70	2.98
Other Residential																
Natural Gas	Low								5.99	5.79	6.35	7.48	6.03		6.06	6.11
(dollars per thousand cubic feet)	Mid	5.52	6.00	7.24	5.88	5.70	6.43	7.57	6.04	5.88	6.46	7.61	6.13	5.86	6.08	6.21
	High								6.11	5.98	6.59	7.76	6.25		6.09	6.32
Electricity	Low								8.1	7.8	8.3	8.5	8.1		8.2	8.2
(cents per kilowatthour)	Mid	7.8	8.3	8.6	8.2	7.8	8.5	8.8	8.3	8.0	8.5	8.8	8.4	8.2	8.3	8.4
	High								8.5	8.4	9.0	9.2	8.8		8.4	8.8

[a]Cost of imported crude oil to U.S. refiners.
[b]Average for all grades and services.
[c]Average for all sulfur contents.
[d]Includes fuel oils No. 4, No. 5, and No. 6 and topped crude fuel oil prices.

Notes: Data are estimated for the third quarter of 1993. Prices exclude taxes, except prices for gasoline, residential natural gas, and diesel. Price cases are derived by simulating all energy product price models under the assumptions of the three world oil price cases using the mid macroeconomic case and normal weather assumptions for all simulations. Historical data are printed in bold, forecasts are in italic. The forecasts were generated by the following simulations of the Short-Term Integrated Forecasting System: for the mid oil price case, for the low oil price case, and for the high oil price case.

Sources: Historical data: Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(93/09); and *Petroleum Marketing Monthly*, DOE/EIA-0380(93/08).

Table 6. U.S. Petroleum Supply and Demand: Low World Oil Price Case
(Million Barrels per Day, Except Closing Stocks)

	1992 1st	1992 2nd	1992 3rd	1992 4th	1993 1st	1993 2nd	1993 3rd	1993 4th	1994 1st	1994 2nd	1994 3rd	1994 4th	Year 1992	Year 1993	Year 1994
Supply															
Crude Oil Supply															
Domestic Production[a]	7.37	7.21	7.03	7.09	6.98	6.83	6.71	6.61	6.62	6.48	6.37	6.39	7.17	6.78	6.46
Alaska	1.79	1.71	1.66	1.69	1.64	1.56	1.50	1.54	1.58	1.53	1.49	1.53	1.71	1.56	1.53
Lower 48	5.57	5.50	5.36	5.39	5.34	5.27	5.21	5.08	5.04	4.95	4.88	4.86	5.46	5.22	4.93
Net Imports (including SPR)[b]	5.38	6.04	6.41	6.14	6.18	6.69	6.91	6.70	6.50	7.05	7.43	7.11	5.99	6.62	7.03
Gross Imports (excluding SPR)	5.46	6.11	6.48	6.24	6.31	6.77	7.00	6.84	6.65	7.19	7.55	7.24	6.07	6.73	7.16
SPR Imports	0.00	0.01	0.01	0.02	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Exports	0.08	0.08	0.08	0.11	0.14	0.11	0.09	0.13	0.14	0.14	0.11	0.13	0.09	0.12	0.13
Other SPR Supply	0.00	0.00	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01
SPR Stock Withdrawn or Added (-)	0.00	-0.01	-0.02	-0.04	-0.03	-0.06	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	-0.03	-0.01
Other Stock Withdrawn or Added (-)	-0.15	0.15	0.03	0.04	-0.21	-0.16	0.13	0.05	-0.08	0.04	0.03	0.02	0.02	-0.05	0.01
Product Supplied and Losses	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Unaccounted-for Crude Oil	0.27	0.29	0.26	0.21	0.15	0.48	0.28	0.26	0.25	0.26	0.27	0.26	0.26	0.29	0.26
Total Crude Oil Supply	12.84	13.67	13.70	13.44	13.05	13.78	14.07	13.62	13.29	13.83	14.10	13.77	13.41	13.63	13.75
Other Supply															
NGL Production	1.69	1.70	1.66	1.74	1.76	1.75	1.67	1.66	1.66	1.64	1.61	1.66	1.70	1.71	1.64
Other Hydrocarbon and Alcohol Inputs	0.16	0.15	0.20	0.27	0.34	0.22	0.23	0.27	0.26	0.24	0.24	0.28	0.20	0.26	0.26
Crude Oil Product Supplied	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Processing Gain	0.74	0.78	0.80	0.77	0.78	0.74	0.77	0.79	0.76	0.80	0.82	0.80	0.77	0.77	0.79
Net Product Imports[c]	0.86	0.99	1.04	0.88	0.86	0.81	0.84	1.19	1.18	1.22	1.09	1.27	0.94	0.93	1.19
Gross Product Imports[c]	1.75	1.83	1.81	1.82	1.76	1.72	1.84	2.14	2.06	2.06	1.91	2.19	1.80	1.86	2.06
Product Exports	0.89	0.85	0.77	0.94	0.90	0.91	1.00	0.94	0.89	0.85	0.82	0.92	0.86	0.94	0.87
Product Stock Withdrawn or Added (-)[d]	0.66	-0.49	-0.36	0.47	0.34	-0.63	-0.24	0.22	0.55	-0.55	-0.27	0.24	0.07	-0.08	-0.01
Total Supply	16.97	16.80	17.04	17.58	17.13	16.68	17.34	17.77	17.71	17.18	17.59	18.03	17.10	17.23	17.63
Demand															
Motor Gasoline	7.07	7.44	7.58	7.41	7.09	7.54	7.66	7.52	7.23	7.60	7.75	7.57	7.37	7.46	7.54
Jet Fuel	1.41	1.40	1.49	1.52	1.48	1.44	1.53	1.53	1.49	1.45	1.54	1.56	1.45	1.50	1.51
Distillate Fuel Oil	3.22	2.82	2.77	3.10	3.33	2.80	2.82	3.16	3.45	2.93	2.84	3.24	2.98	3.03	3.11
Residual Fuel Oil	1.26	1.03	0.94	1.16	1.07	0.98	1.01	1.19	1.29	1.06	1.04	1.19	1.09	1.06	1.15
Other Oils[e]	4.02	4.12	4.26	4.40	4.16	3.91	4.32	4.36	4.25	4.14	4.42	4.47	4.20	4.19	4.32
Total Demand	16.97	16.80	17.04	17.58	17.13	16.68	17.34	17.77	17.71	17.18	17.59	18.03	17.10	17.23	17.63
Total Petroleum Net Imports	6.24	7.03	7.45	7.03	7.04	7.51	7.75	7.90	7.68	8.27	8.52	8.38	6.94	7.55	8.22
Closing Stocks (million barrels)															
Crude Oil (excluding SPR)[f]	339	325	322	318	337	352	340	335	342	338	335	333	318	335	333
Total Motor Gasoline	220	225	206	216	227	220	207	220	223	219	210	221	216	220	221
Finished Motor Gasoline	182	188	168	178	187	183	170	182	183	181	171	182	178	182	182
Blending Components	38	37	38	39	40	37	37	38	40	38	39	39	39	38	39
Jet Fuel	44	45	48	43	41	45	43	46	46	47	47	48	43	46	48
Distillate Fuel Oil	98	104	128	141	97	109	132	135	99	105	126	133	141	135	133
Residual Fuel Oil	41	41	47	43	41	46	44	47	42	44	45	48	43	47	48
Other Oils[g]	261	294	313	257	262	306	322	280	269	314	325	280	257	280	280
Total Stocks (excluding SPR)	1002	1034	1064	1017	1006	1078	1088	1063	1020	1066	1088	1063	1017	1063	1063
Crude Oil in SPR	569	570	571	575	578	583	585	586	587	588	589	590	575	586	590
Total Stocks (including SPR)	1571	1603	1636	1592	1584	1660	1673	1648	1607	1654	1677	1654	1592	1648	1654

[a]Includes lease condensate.

[b]Net imports equals gross imports plus SPR imports minus exports.

[c]Includes finished petroleum products, unfinished oils, gasoline blending components, and natural gas plant liquids for processing.

[d]Includes an estimate of minor product stock change based on monthly data.

[e]Includes crude oil product supplied, natural gas liquids, liquefied refinery gas, other liquids, and all finished petroleum products except motor gasoline, jet fuel, distillate, and residual fuel oil.

[f]Includes crude oil in transit to refineries.

[g]Includes stocks of all other oils such as aviation gasoline, kerosene, natural gas liquids (including ethane), aviation gasoline blending components, naphtha and other oils for petrochemical feedstock use, special naphthas, lube oils, wax, coke, asphalt, road oil, and miscellaneous oils.

SPR: Strategic Petroleum Reserve

NGL: Natural Gas Liquids

Notes: Minor discrepancies with other EIA published historical data are due to rounding. Historical data are printed in bold, forecasts are in italic. The forecasts were generated by simulation of the Short-Term Integrated Forecasting System.

Sources: Historical data: Energy Information Administration, Petroleum Supply Annual 1992, DOE/EIA-0340(92)/1; Petroleum Supply Monthly, DOE/EIA-0109(92/01-93/09); and Weekly Petroleum Status Report, DOE/EIA-0208(various issues).

Note: All U.S. Historical and Projected Petroleum Demands are Adjusted to Reflect 1993 Reporting Requirements.

Table 7. U.S. Petroleum Supply and Demand: Mid World Oil Price Case
(Million Barrels per Day, Except Closing Stocks)

	1992				1993				1994				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1992	1993	1994
Supply															
Crude Oil Supply															
Domestic Production[a]	7.37	7.21	7.03	7.09	6.98	6.83	6.71	6.81	6.82	6.69	6.60	6.63	7.17	6.83	6.68
Alaska	1.79	1.71	1.66	1.69	1.64	1.56	1.50	1.62	1.64	1.59	1.54	1.58	1.71	1.58	1.59
Lower 48	5.57	5.50	5.36	5.39	5.34	5.27	5.21	5.19	5.18	5.10	5.05	5.04	5.46	5.25	5.09
Net Imports (including SPR)[b]	5.38	6.04	6.41	6.14	6.18	6.69	6.91	6.49	6.25	6.80	7.21	6.79	5.99	6.57	6.77
Gross Imports (excluding SPR)	5.46	6.11	6.48	6.24	6.31	6.77	7.00	6.62	6.40	6.94	7.32	6.92	6.07	6.68	6.90
SPR Imports	0.00	0.01	0.01	0.02	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Exports	0.08	0.08	0.08	0.11	0.14	0.11	0.09	0.13	0.14	0.14	0.11	0.13	0.09	0.12	0.13
Other SPR Supply	0.00	0.00	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01
SPR Stock Withdrawn or Added (-)	0.00	-0.01	-0.02	-0.04	-0.03	-0.06	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	-0.03	-0.01
Other Stock Withdrawn or Added (-)	-0.15	0.15	0.03	0.04	-0.21	-0.16	0.13	0.05	-0.08	0.04	0.03	0.02	0.02	-0.05	0.01
Product Supplied and Losses	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Unaccounted-for Crude Oil	0.27	0.29	0.26	0.21	0.15	0.48	0.28	0.26	0.25	0.26	0.27	0.26	0.26	0.29	0.26
Total Crude Oil Supply	12.84	13.67	13.70	13.44	13.05	13.78	14.07	13.60	13.24	13.78	14.10	13.69	13.41	13.63	13.70
Other Supply															
NGL Production	1.69	1.70	1.66	1.74	1.76	1.75	1.67	1.67	1.66	1.64	1.62	1.66	1.70	1.71	1.65
Other Hydrocarbon and Alcohol Inputs	0.16	0.15	0.20	0.27	0.34	0.22	0.23	0.27	0.26	0.24	0.24	0.28	0.20	0.26	0.26
Crude Oil Product Supplied	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Processing Gain	0.74	0.78	0.80	0.77	0.78	0.74	0.77	0.79	0.76	0.80	0.82	0.80	0.77	0.77	0.79
Net Product Imports[c]	0.86	0.99	1.04	0.88	0.86	0.81	0.84	1.15	1.16	1.19	0.99	1.25	0.94	0.92	1.14
Gross Product Imports[c]	1.75	1.83	1.81	1.82	1.76	1.72	1.84	2.10	2.05	2.03	1.81	2.17	1.80	1.86	2.01
Product Exports	0.89	0.85	0.77	0.94	0.90	0.91	1.00	0.94	0.89	0.85	0.82	0.92	0.86	0.94	0.87
Product Stock Withdrawn or Added (-)[d]	0.66	-0.49	-0.36	0.47	0.34	-0.63	-0.24	0.22	0.55	-0.55	-0.27	0.24	0.07	-0.08	-0.01
Total Supply	16.97	16.80	17.04	17.58	17.13	16.68	17.34	17.71	17.64	17.11	17.50	17.92	17.10	17.22	17.54
Demand															
Motor Gasoline	7.07	7.44	7.58	7.41	7.09	7.54	7.66	7.49	7.20	7.57	7.71	7.53	7.37	7.45	7.51
Jet Fuel	1.41	1.40	1.49	1.52	1.48	1.44	1.53	1.53	1.49	1.44	1.54	1.56	1.45	1.50	1.51
Distillate Fuel Oil	3.22	2.82	2.77	3.10	3.33	2.80	2.82	3.15	3.44	2.93	2.83	3.22	2.98	3.03	3.10
Residual Fuel Oil	1.26	1.03	0.94	1.16	1.07	0.98	1.01	1.17	1.27	1.04	1.01	1.15	1.09	1.06	1.12
Other Oils[e]	4.02	4.12	4.26	4.40	4.16	3.91	4.32	4.36	4.24	4.13	4.41	4.45	4.20	4.19	4.31
Total Demand	16.97	16.80	17.04	17.58	17.13	16.68	17.34	17.71	17.64	17.11	17.50	17.92	17.10	17.22	17.54
Total Petroleum Net Imports	6.24	7.03	7.45	7.03	7.04	7.51	7.75	7.64	7.41	7.99	8.20	8.03	6.94	7.49	7.91
Closing Stocks (million barrels)															
Crude Oil (excluding SPR)[f]	339	325	322	318	337	352	340	335	342	338	335	333	318	335	333
Total Motor Gasoline	220	225	206	216	227	220	207	220	223	219	210	221	216	220	221
Finished Motor Gasoline	182	188	168	178	187	183	170	182	183	181	171	182	178	182	182
Blending Components	38	37	38	39	40	37	37	38	40	38	39	39	39	38	39
Jet Fuel	44	45	48	43	41	45	43	46	46	47	47	48	43	46	48
Distillate Fuel Oil	98	104	128	141	97	109	132	135	99	105	126	133	141	135	133
Residual Fuel Oil	41	41	47	43	41	46	44	47	42	44	45	48	43	47	48
Other Oils[g]	261	294	313	257	262	306	322	280	269	314	325	280	257	280	280
Total Stocks (excluding SPR)	1002	1034	1064	1017	1006	1078	1088	1063	1020	1066	1088	1063	1017	1063	1063
Crude Oil in SPR	569	570	571	575	578	583	585	586	587	588	589	590	575	586	590
Total Stocks (including SPR)	1571	1603	1636	1592	1584	1660	1673	1648	1607	1654	1677	1654	1592	1648	1654

[a]Includes lease condensate.

[b]Net imports equals gross imports plus SPR imports minus exports.

[c]Includes finished petroleum products, unfinished oils, gasoline blending components, and natural gas plant liquids for processing.

[d]Includes an estimate of minor product stock change based on monthly data.

[e]Includes crude oil product supplied, natural gas liquids, liquefied refinery gas, other liquids, and all finished petroleum products except motor gasoline, jet fuel, distillate, and residual fuel oil.

[f]Includes crude oil in transit to refineries.

[g]Includes stocks of all other oils such as aviation gasoline, kerosene, natural gas liquids (including ethane), aviation gasoline blending components, naphtha and other oils for petrochemical feedstock use, special naphthas, lube oils, wax, coke, asphalt, road oil, and miscellaneous oils.

SPR: Strategic Petroleum Reserve

NGL: Natural Gas Liquids

Notes: Minor discrepancies with other EIA published historical data are due to rounding. Historical data are printed in bold, forecasts are in italic. The forecasts were generated by simulation of the Short-Term Integrated Forecasting System.

Sources: Historical data: Energy Information Administration, *Petroleum Supply Annual 1992*, DOE/EIA-0340(92)/1; *Petroleum Supply Monthly*, DOE/EIA-0109(92/01-93/09); and *Weekly Petroleum Status Report*, DOE/EIA-0208(various issues).

Note: All U.S. Historical and Projected Petroleum Demands are Adjusted to Reflect 1993 Reporting Requirements.

Table 8. U.S. Petroleum Supply and Demand: High World Oil Price Case
(Million Barrels per Day, Except Closing Stocks)

	1992 1st	2nd	3rd	4th	1993 1st	2nd	3rd	4th	1994 1st	2nd	3rd	4th	Year 1992	1993	1994
Supply															
Crude Oil Supply															
Domestic Production[a]	7.37	7.21	7.03	7.09	6.98	6.83	6.71	6.92	6.95	6.84	6.78	6.84	7.17	6.86	6.85
Alaska	1.79	1.71	1.66	1.69	1.64	1.56	1.50	1.66	1.68	1.63	1.58	1.63	1.71	1.59	1.63
Lower 48	5.57	5.50	5.36	5.39	5.34	5.27	5.21	5.26	5.27	5.21	5.19	5.22	5.46	5.27	5.22
Net Imports (including SPR)[b]	5.38	6.04	6.41	6.14	6.18	6.69	6.91	6.36	6.08	6.59	6.99	6.48	5.99	6.54	6.54
Gross Imports (excluding SPR)	5.46	6.11	6.48	6.24	6.31	6.77	7.00	6.49	6.22	6.72	7.10	6.61	6.07	6.65	6.67
SPR Imports	0.00	0.01	0.01	0.02	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Exports	0.08	0.08	0.08	0.11	0.14	0.11	0.09	0.13	0.14	0.14	0.11	0.13	0.09	0.12	0.13
Other SPR Supply	0.00	0.00	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01
SPR Stock Withdrawn or Added (-)	0.00	-0.01	-0.02	-0.04	-0.03	-0.06	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	-0.03	-0.01
Other Stock Withdrawn or Added (-)	-0.15	0.15	0.03	0.04	-0.21	-0.16	0.13	0.05	-0.08	0.04	0.03	0.02	0.02	-0.05	0.01
Product Supplied and Losses	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Unaccounted-for Crude Oil	0.27	0.29	0.26	0.21	0.15	0.48	0.28	0.26	0.25	0.26	0.27	0.26	0.26	0.29	0.26
Total Crude Oil Supply	12.84	13.67	13.70	13.44	13.05	13.78	14.07	13.58	13.20	13.72	14.05	13.59	13.41	13.62	13.64
Other Supply															
NGL Production	1.69	1.70	1.66	1.74	1.76	1.75	1.67	1.67	1.67	1.64	1.61	1.66	1.70	1.71	1.65
Other Hydrocarbon and Alcohol Inputs	0.16	0.15	0.20	0.27	0.34	0.22	0.23	0.27	0.26	0.24	0.24	0.27	0.20	0.26	0.25
Crude Oil Product Supplied	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Processing Gain	0.74	0.78	0.80	0.77	0.78	0.74	0.77	0.79	0.76	0.79	0.81	0.79	0.77	0.77	0.79
Net Product Imports[c]	0.86	0.99	1.04	0.88	0.86	0.81	0.84	1.13	1.13	1.16	0.91	1.24	0.94	0.91	1.11
Gross Product Imports[c]	1.75	1.83	1.81	1.82	1.76	1.72	1.84	2.08	2.02	2.00	1.73	2.16	1.80	1.85	1.98
Product Exports	0.89	0.85	0.77	0.94	0.90	0.91	1.00	0.94	0.89	0.85	0.82	0.92	0.86	0.94	0.87
Product Stock Withdrawn or Added (-)[d]	0.66	-0.49	-0.36	0.47	0.34	-0.63	-0.24	0.22	0.55	-0.55	-0.27	0.24	0.07	-0.08	-0.01
Total Supply	16.97	16.80	17.04	17.58	17.13	16.68	17.34	17.67	17.58	17.01	17.38	17.82	17.10	17.21	17.45
Demand															
Motor Gasoline	7.07	7.44	7.58	7.41	7.09	7.54	7.66	7.47	7.17	7.53	7.66	7.49	7.37	7.44	7.47
Jet Fuel	1.41	1.40	1.49	1.52	1.48	1.44	1.53	1.53	1.49	1.44	1.54	1.56	1.45	1.50	1.51
Distillate Fuel Oil	3.22	2.82	2.77	3.10	3.33	2.80	2.82	3.15	3.43	2.91	2.81	3.21	2.98	3.02	3.09
Residual Fuel Oil	1.26	1.03	0.94	1.16	1.07	0.98	1.01	1.16	1.25	1.01	0.97	1.13	1.09	1.06	1.09
Other Oils[e]	4.02	4.12	4.26	4.40	4.16	3.91	4.32	4.35	4.23	4.12	4.40	4.43	4.20	4.19	4.30
Total Demand	16.97	16.80	17.04	17.58	17.13	16.68	17.34	17.67	17.58	17.01	17.38	17.82	17.10	17.21	17.45
Total Petroleum Net Imports	6.24	7.03	7.45	7.03	7.04	7.51	7.75	7.49	7.21	7.74	7.90	7.73	6.94	7.45	7.65
Closing Stocks (million barrels)															
Crude Oil (excluding SPR)[f]	339	325	322	318	337	352	340	335	342	338	335	333	318	335	333
Total Motor Gasoline	220	225	206	216	227	220	207	220	223	219	210	221	216	220	221
Finished Motor Gasoline	182	188	168	178	187	183	170	182	183	181	171	182	178	182	182
Blending Components	38	37	38	39	40	37	37	38	40	38	39	39	39	38	39
Jet Fuel	44	45	48	43	41	45	43	46	46	47	47	48	43	46	48
Distillate Fuel Oil	98	104	128	141	97	109	132	135	99	105	126	133	141	135	133
Residual Fuel Oil	41	41	47	43	41	46	44	47	42	44	45	48	43	47	48
Other Oils[g]	261	294	313	257	262	306	322	280	269	314	325	280	257	280	280
Total Stocks (excluding SPR)	1002	1034	1064	1017	1006	1078	1088	1063	1020	1066	1088	1063	1017	1063	1063
Crude Oil in SPR	569	570	571	575	578	583	585	586	587	588	589	590	575	586	590
Total Stocks (including SPR)	1571	1603	1636	1592	1584	1660	1673	1648	1607	1654	1677	1654	1592	1648	1654

[a]Includes lease condensate.

[b]Net imports equals gross imports plus SPR imports minus exports.

[c]Includes finished petroleum products, unfinished oils, gasoline blending components, and natural gas plant liquids for processing.

[d]Includes an estimate of minor product stock change based on monthly data.

[e]Includes crude oil product supplied, natural gas liquids, liquefied refinery gas, other liquids, and all finished petroleum products except motor gasoline, jet fuel, distillate, and residual fuel oil.

[f]Includes crude oil in transit to refineries.

[g]Includes stocks of all other oils such as aviation gasoline, kerosene, natural gas liquids (including ethane), aviation gasoline blending components, naphtha and other oils for petrochemical feedstock use, special naphthas, lube oils, wax, coke, asphalt, road oil, and miscellaneous oils.

SPR: Strategic Petroleum Reserve

NGL: Natural Gas Liquids

Notes: Minor discrepancies with other EIA published historical data are due to rounding. Historical data are printed in bold, forecasts are in italic. The forecasts were generated by simulation of the Short-Term Integrated Forecasting System.

Sources: Historical data: Energy Information Administration, *Petroleum Supply Annual 1992*, DOE/EIA-0340(92)/1; *Petroleum Supply Monthly*, DOE/EIA-0109(92/01-93/09); and *Weekly Petroleum Status Report*, DOE/EIA-0208(various issues).

Note: All U.S. Historical and Projected Petroleum Demands are Adjusted to Reflect 1993 Reporting Requirements.

Table 9.   U.S. Petroleum Demand Sensitivities

	1993	1994
	One Quarter[a]	Four Quarters[a]
Economic Activity		
Gross Domestic Product (billion 1987 dollars)	5,076 - 5,117	5,120 - 5,295
Resulting Change in Petroleum Demand (million barrels per day)[b]	0.10	0.42
Energy Prices		
Imported Crude Oil (nominal dollars per barrel)[c]	$15 - $19	$15 - $19.51
Resulting Change in Petroleum Demand (million barrels per day)[b]		
Due to Changes in the Crude Oil Price	-0.10	-0.18
Weather		
Heating Degree Days per Day	16.73 - 20.38	20.85 - 24.64
Resulting Change in Petroleum Demand (million barrels per day)	0.33	0.55
Cooling Degree Days per Day	--	5.51 - 6.53
Resulting Change in Petroleum Demand (million barrels per day)[b]	--	0.23

[a]In the weather case, calculations apply to certain quarters only, as follows: for heating degree days, the average of first and fourth quarters only are used; for cooling degree days, the average of second and third quarters only are used.
[b]Ranges of petroleum demand associated with varying each determinant (or determinants), holding other things equal.
[c]Cost of imported crude oil to U.S. refiners.

Table 10.   Forecast Components for U.S. Crude Oil Production
(Million Barrels per Day)

	High Price Case	Low Price Case	Difference		
			Total	Uncertainty	Price Impact
United States	6.84	6.39	0.46	0.16	0.30
Lower 48 States	5.22	4.86	0.36	0.11	0.25
Alaska	1.63	1.53	0.10	0.05	0.05

Note: Components provided are for the fourth quarter 1994 from Tables 6 and 8. Totals may not add to sum of components due to independent rounding.
Source: Energy Information Administration, Office of Oil and Gas, Reserves and Natural Gas Division.

Table 11. U.S. Natural Gas Supply and Demand: Mid World Oil Price Case
(Trillion Cubic Feet)

	1992				1993				1994				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1992	1993	1994
Supply															
Total Dry Gas Production[a]	4.46	4.37	4.35	4.64	4.60	4.57	4.42	4.50	4.67	4.60	4.40	4.71	17.82	18.10	18.37
Net Imports	0.47	0.46	0.46	0.54	0.53	0.49	0.50	0.60	0.64	0.59	0.55	0.70	1.92	2.12	2.49
Supplemental Gaseous Fuels	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.02	0.03	0.12	0.12	0.11
Total New Supply	4.96	4.86	4.83	5.22	5.16	5.08	4.95	5.14	5.34	5.21	4.98	5.44	19.86	20.34	20.97
Underground Working Gas Storage															
Opening	2.82	1.54	2.15	3.04	2.60	1.24	2.10	3.16	2.76	1.58	2.25	3.13	2.82	2.60	2.76
Closing	1.54	2.15	3.04	2.60	1.24	2.10	3.16	2.76	1.58	2.25	3.13	2.78	2.60	2.76	2.78
Net Withdrawals[b]	1.23	-0.63	-0.92	0.48	1.41	-0.90	-1.05	0.40	1.18	-0.67	-0.88	0.35	0.17	-0.14	-0.02
Total Supply[a]	6.19	4.22	3.92	5.70	6.58	4.18	3.90	5.54	6.52	4.55	4.09	5.79	20.03	20.20	20.95
Balancing Item[c]	0.03	0.17	-0.07	-0.53	0.00	0.02	0.04	-0.46	0.12	0.10	-0.11	-0.54	-0.40	-0.39	-0.43
Total Primary Supply[a]	6.22	4.39	3.85	5.17	6.58	4.20	3.95	5.07	6.65	4.65	3.98	5.26	19.63	19.80	20.53
Demand															
Lease and Plant Fuel	0.26	0.26	0.26	0.27	0.27	0.27	0.27	0.28	0.29	0.27	0.27	0.28	1.05	1.09	1.11
Pipeline Use	0.19	0.13	0.12	0.15	0.20	0.13	0.09	0.13	0.17	0.14	0.13	0.16	0.59	0.55	0.60
Residential	2.06	0.84	0.39	1.40	2.30	0.84	0.42	1.33	2.29	0.97	0.44	1.35	4.70	4.89	5.05
Commercial	1.09	0.54	0.36	0.80	1.21	0.54	0.37	0.76	1.21	0.59	0.37	0.78	2.79	2.89	2.96
Industrial	2.08	1.89	1.81	1.97	2.08	1.83	1.76	1.93	2.13	1.89	1.80	2.01	7.74	7.60	7.83
Electric Utilities	0.55	0.73	0.91	0.58	0.52	0.60	1.03	0.64	0.55	0.78	0.97	0.68	2.77	2.79	2.97
Total Demand	6.22	4.39	3.85	5.17	6.58	4.20	3.95	5.07	6.65	4.65	3.98	5.26	19.63	19.80	20.53

[a]Excludes nonhydrocarbon gases removed.

[b]Net withdrawals may vary from the difference between opening and closing stocks of gas in working gas storage due to book transfers between base and working gas categories, and other storage operator revisions of working gas inventories.

[c]The balancing item represents the difference between the sum of the components of natural gas supply and the sum of components of natural gas demand.

Notes: Minor discrepancies with other EIA published historical data are due to rounding. Historical data are printed in bold, forecasts are in italic. The forecasts were generated by simulation of the Short-Term Integrated Forecasting System.

Sources: Historical data: Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(93/09); *Natural Gas Monthly*, DOE/EIA-0130(93/09); and *Electric Power Monthly*, DOE/EIA-0226(93/09), and preliminary estimates from the Energy Markets and Contingency Information Division.

Table 12. U.S. Coal Supply and Demand: Mid World Oil Price Case
(Million Short Tons)

	1992				1993				1994				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1992	1993	1994
Supply															
Production	256.0	242.7	249.1	249.8	242.5	234.9	235.8	246.8	260.4	262.5	261.7	262.1	997.5	960.0	1046.8
Primary Stock Levels*															
Opening	33.0	39.8	40.5	35.2	34.0	38.3	34.8	29.0	27.0	30.0	33.0	32.0	33.0	34.0	27.0
Closing	39.8	40.5	35.2	34.0	38.3	34.8	29.0	27.0	30.0	33.0	32.0	30.0	34.0	27.0	30.0
Net Withdrawals	-6.8	-0.7	5.3	1.2	-4.3	3.5	5.8	2.0	-3.0	-3.0	1.0	2.0	-1.0	7.0	-3.0
Imports	0.7	1.0	0.9	1.2	1.2	1.1	1.6	1.6	1.4	1.5	1.6	1.7	3.8	5.5	6.2
Exports	24.7	27.0	26.5	24.3	18.9	19.9	21.2	22.8	21.4	23.7	24.8	24.0	102.5	82.9	94.0
Total Net Domestic Supply	225.1	216.1	228.8	227.9	220.5	219.5	222.0	227.6	237.4	237.3	239.5	241.8	897.8	889.6	956.0
Secondary Stock Levels^b															
Opening	167.7	168.6	173.2	161.8	163.3	152.7	154.5	135.7	133.8	142.6	154.3	151.0	167.7	163.3	133.8
Closing	168.6	173.2	161.8	163.3	152.7	154.5	135.7	133.8	142.6	154.3	151.0	156.5	163.3	133.8	156.5
Net Withdrawals	-0.9	-4.6	11.4	-1.5	10.6	-1.9	18.9	1.8	-8.8	-11.8	3.3	-5.5	4.5	29.4	-22.6
Total Supply	224.1	211.5	240.2	226.4	231.1	217.7	240.9	229.5	228.7	225.5	242.9	236.3	902.3	919.1	933.4
Demand															
Coke Plants	8.3	8.1	8.2	7.7	7.8	7.9	7.9	8.0	7.8	8.0	8.3	8.3	32.4	31.6	32.4
Electric Utilities	191.2	183.5	210.4	194.8	200.8	187.8	213.7	199.6	199.1	198.2	215.2	205.7	779.9	801.8	818.3
Retail and General Industry^c	21.0	18.4	19.0	21.5	21.1	20.1	19.3	21.9	21.8	19.3	19.3	22.3	80.0	82.5	82.7
Total Demand	220.5	210.1	237.7	224.0	229.7	215.8	240.9	229.5	228.7	225.5	242.9	236.3	892.3	915.8	933.4
Discrepancy^d	3.6	1.5	2.5	2.4	1.4	1.9	0.0	0.0	0.0	0.0	0.0	0.0	10.0	3.2	0.0

[a]Primary stocks are held at the mines, preparation plants, and distribution points.
[b]Secondary stocks are held by users. Most of the secondary stocks are held by electric utilities.
[c]Synfuels plant demand in 1992 was 1.7 million tons per quarter, and is assumed to remain at that level in 1993 and 1994.
[d]Historical period discrepancy reflects an unaccounted-for shipper and receiver reporting difference.

Notes: Rows and columns may not add due to independent rounding. Zeros indicate amounts of less than 500,000 tons. Historical data are printed in bold, forecasts are in italic. The forecasts were generated by simulation of the Short-Term Integrated Forecasting System.

Sources: Historical data: Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(93/09); and *Quarterly Coal Report*, DOE/EIA-0221(93/2Q).

Table 13. U.S. Electricity Supply and Demand: Mid World Oil Price Case
(Billion Kilowatthours)

	1992				1993				1994				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1992	1993	1994
Supply															
Net Utility Generation															
Coal	386.7	373.3	424.2	391.7	404.7	378.7	428.7	401.5	400.9	401.7	431.1	414.2	1575.9	1613.6	1647.9
Petroleum	27.3	18.7	22.3	20.2	22.7	18.3	25.7	20.3	25.6	24.2	27.7	22.8	88.5	87.0	100.3
Natural Gas	52.2	69.6	86.8	55.2	50.3	56.8	96.1	59.6	51.0	72.5	90.6	63.1	263.9	262.9	277.2
Nuclear	156.5	139.1	165.6	157.6	157.0	146.2	172.4	159.8	161.4	141.8	173.2	159.9	618.8	635.4	636.3
Hydroelectric	61.0	64.4	54.6	59.5	67.8	81.1	67.2	66.2	74.9	78.1	64.3	62.4	239.6	282.3	279.6
Geothermal and Other[a]	2.6	2.5	2.6	2.6	2.5	2.2	2.3	2.3	2.2	2.1	2.2	2.1	10.2	9.3	8.6
Total Net Generation	686.4	668.0	756.1	686.7	705.1	683.3	792.3	709.7	715.9	720.4	789.0	724.5	2797.2	2890.4	2949.9
Net Imports	4.9	5.8	9.2	8.4	6.2	3.7	7.8	7.2	7.9	7.5	9.0	7.9	28.3	24.8	32.2
Utility Purchases from Nonutilities [b]	40.5	38.5	42.8	40.3	42.5	40.7	45.2	42.6	45.1	43.1	48.0	45.2	162.1	170.9	181.3
Total Supply	731.8	712.4	808.1	735.4	753.8	727.6	845.3	759.4	768.9	771.0	846.0	777.6	2987.7	3086.1	3163.4
Losses and Unaccounted [c]	48.3	60.5	63.2	57.3	48.3	58.7	63.7	57.7	46.2	72.9	65.3	59.1	229.3	228.4	243.6
Demand															
Residential	247.0	203.7	256.2	227.2	260.2	210.1	274.5	234.7	261.8	228.9	271.0	240.3	934.0	979.5	1002.0
Commercial	181.9	183.8	210.7	187.2	186.7	189.0	226.6	195.7	195.3	197.1	225.7	203.6	763.7	798.0	821.7
Industrial	231.8	240.7	252.4	240.5	234.6	246.5	255.6	247.8	242.0	249.0	259.1	250.9	965.4	984.4	1001.0
Other	22.8	23.1	25.2	23.0	24.0	23.3	24.9	23.5	23.5	23.1	24.8	23.7	94.0	95.7	95.1
Total Demand	683.4	651.4	744.4	677.8	705.5	668.9	781.6	701.7	722.7	698.1	780.6	718.5	2757.1	2857.7	2919.8

[a]Other includes generation from wind, wood, waste, and solar sources.
[b]Electricity received from nonutility sources, including cogenerators and small power producers.
[c]Balancing item, mainly transmission and distribution losses.

Notes: Data for utility purchases from nonutilities, net utility imports, and losses and unaccounted are estimated for 1992. Minor discrepancies with other EIA published historical data are due to rounding. Historical data are printed in bold, forecasts are in italic. The forecasts were generated by simulation of the Short-Term Integrated Forecasting System.

Sources: Historical data: Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(93/09); and *Electric Power Monthly*, DOE/EIA-0226(93/09).

Table 14. U.S. Petroleum Supply and Demand: Severe Weather Case
(Million Barrels per Day, Except Closing Stocks)

	1992				1993				1994				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1992	1993	1994
Supply															
Crude Oil Supply															
Domestic Production[a]	7.37	7.21	7.03	7.09	6.98	6.83	6.71	6.81	6.82	6.69	6.60	6.63	7.17	6.83	6.68
Alaska	1.79	1.71	1.66	1.69	1.64	1.56	1.50	1.62	1.64	1.59	1.54	1.58	1.71	1.58	1.59
Lower 48	5.57	5.50	5.36	5.39	5.34	5.27	5.21	5.19	5.18	5.10	5.05	5.04	5.46	5.25	5.09
Net Imports (including SPR)[b]	5.38	6.04	6.41	6.14	6.18	6.69	6.91	6.50	6.45	6.91	7.21	6.84	5.99	6.57	6.85
Gross Imports (excluding SPR)	5.46	6.11	6.48	6.24	6.31	6.77	7.00	6.64	6.60	7.04	7.32	6.97	6.07	6.68	6.99
SPR Imports	0.00	0.01	0.01	0.02	0.01	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Exports	0.08	0.08	0.08	0.11	0.14	0.11	0.09	0.13	0.14	0.14	0.11	0.13	0.09	0.12	0.13
Other SPR Supply	0.00	0.00	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01
SPR Stock Withdrawn or Added (-)	0.00	-0.01	-0.02	-0.04	-0.03	-0.06	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.02	-0.03	-0.01
Other Stock Withdrawn or Added (-)	-0.15	0.15	0.03	0.04	-0.21	-0.16	0.13	0.05	-0.08	0.04	0.03	0.02	0.02	-0.05	0.01
Product Supplied and Losses	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Unaccounted-for Crude Oil	0.27	0.29	0.26	0.21	0.15	0.48	0.28	0.26	0.26	0.26	0.27	0.26	0.26	0.29	0.26
Total Crude Oil Supply	12.84	13.67	13.70	13.44	13.05	13.78	14.07	13.61	13.44	13.89	14.10	13.74	13.41	13.63	13.79
Other Supply															
NGL Production	1.69	1.70	1.66	1.74	1.76	1.75	1.67	1.67	1.66	1.64	1.62	1.66	1.70	1.71	1.64
Other Hydrocarbon and Alcohol Inputs	0.16	0.15	0.20	0.27	0.34	0.22	0.23	0.27	0.26	0.24	0.24	0.28	0.20	0.26	0.26
Crude Oil Product Supplied	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Processing Gain	0.74	0.78	0.80	0.77	0.78	0.74	0.77	0.79	0.77	0.80	0.82	0.80	0.77	0.77	0.80
Net Product Imports[c]	0.86	0.99	1.04	0.88	0.86	0.81	0.84	1.16	1.23	1.27	1.17	1.35	0.94	0.92	1.26
Gross Product Imports[c]	1.75	1.83	1.81	1.82	1.76	1.72	1.84	2.11	2.12	2.12	1.99	2.27	1.80	1.86	2.13
Product Exports	0.89	0.85	0.77	0.94	0.90	0.91	1.00	0.94	0.89	0.85	0.82	0.92	0.86	0.94	0.87
Product Stock Withdrawn or Added (-)[d]	0.66	-0.49	-0.36	0.47	0.34	-0.63	-0.24	0.23	0.67	-0.51	-0.33	0.14	0.07	-0.08	-0.01
Total Supply	16.97	16.80	17.04	17.58	17.13	16.68	17.35	17.74	18.04	17.34	17.62	17.98	17.10	17.23	17.74
Demand															
Motor Gasoline	7.07	7.44	7.58	7.41	7.09	7.54	7.66	7.50	7.23	7.57	7.69	7.52	7.37	7.45	7.50
Jet Fuel	1.41	1.40	1.49	1.52	1.48	1.44	1.53	1.53	1.49	1.44	1.54	1.56	1.45	1.50	1.51
Distillate Fuel Oil	3.22	2.82	2.77	3.10	3.33	2.80	2.82	3.17	3.64	3.05	2.87	3.24	2.98	3.03	3.20
Residual Fuel Oil	1.26	1.03	0.94	1.16	1.07	0.98	1.01	1.18	1.34	1.11	1.11	1.20	1.09	1.06	1.19
Other Oils[e]	4.02	4.12	4.26	4.40	4.16	3.91	4.32	4.36	4.34	4.16	4.41	4.45	4.20	4.19	4.34
Total Demand	16.97	16.80	17.04	17.58	17.13	16.68	17.35	17.74	18.04	17.34	17.62	17.98	17.10	17.22	17.74
Total Petroleum Net Imports	6.24	7.03	7.45	7.03	7.04	7.51	7.75	7.67	7.68	8.18	8.38	8.19	6.94	7.49	8.11
Closing Stocks (million barrels)															
Crude Oil (excluding SPR)[f]	339	325	322	318	337	352	340	335	342	338	335	333	318	335	333
Total Motor Gasoline	220	225	206	216	227	220	207	220	227	220	211	223	216	220	223
Finished Motor Gasoline	182	188	168	178	187	183	170	182	187	183	172	184	178	182	184
Blending Components	38	37	38	39	40	37	37	38	40	38	39	39	39	38	39
Jet Fuel	44	45	48	43	41	45	43	46	46	47	47	48	43	46	48
Distillate Fuel Oil	98	104	128	141	97	109	132	135	92	98	124	133	141	135	133
Residual Fuel Oil	41	41	47	43	41	46	44	47	39	39	40	48	43	47	48
Other Oils[g]	261	294	313	257	262	306	322	280	263	309	322	280	257	280	280
Total Stocks (excluding SPR)	1002	1034	1064	1017	1006	1078	1088	1062	1009	1052	1079	1064	1017	1062	1064
Crude Oil in SPR	569	570	571	575	578	583	585	586	587	588	589	590	575	586	590
Total Stocks (including SPR)	1571	1603	1636	1592	1584	1660	1673	1648	1596	1640	1669	1655	1592	1648	1655

[a]Includes lease condensate.

[b]Net imports equals gross imports plus SPR imports minus exports.

[c]Includes finished petroleum products, unfinished oils, gasoline blending components, and natural gas plant liquids for processing.

[d]Includes an estimate of minor product stock change based on monthly data.

[e]Includes crude oil product supplied, natural gas liquids, liquefied refinery gas, other liquids, and all finished petroleum products except motor gasoline, jet fuel, distillate, and residual fuel oil.

[f]Includes crude oil in transit to refineries.

[g]Includes stocks of all other oils such as aviation gasoline, kerosene, natural gas liquids (including ethane), aviation gasoline blending components, naphtha and other oils for petrochemical feedstock use, special naphthas, lube oils, wax, coke, asphalt, road oil, and miscellaneous oils.

SPR: Strategic Petroleum Reserve

NGL: Natural Gas Liquids

Notes: Minor discrepancies with other EIA published historical data are due to rounding. Historical data are printed in bold, forecasts are in italic. The forecasts were generated by simulation of the Short-Term Integrated Forecasting System.

Sources: Historical data: Energy Information Administration, *Petroleum Supply Annual 1992*, DOE/EIA-0340(92)/1; *Petroleum Supply Monthly*, DOE/EIA-0109(92/01-93/09); and *Weekly Petroleum Status Report*, DOE/EIA-0208(various issues).

Note: All U.S. Historical and Projected Petroleum Demands are Adjusted to Reflect 1993 Reporting Requirements.

Table 15. U.S. Natural Gas Supply and Demand: Severe Weather Case
(Trillion Cubic Feet)

	1992				1993				1994				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1992	1993	1994
Supply															
Total Dry Gas Production*	4.46	4.37	4.35	4.64	4.60	4.57	4.42	4.52	4.80	4.63	4.45	4.75	17.82	18.11	18.62
Net Imports	0.47	0.46	0.46	0.54	0.53	0.49	0.50	0.60	0.66	0.59	0.55	0.70	1.92	2.12	2.50
Supplemental Gaseous Fuels	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.02	0.03	0.12	0.12	0.11
Total New Supply	4.96	4.86	4.83	5.22	5.16	5.08	4.95	5.15	5.49	5.24	5.02	5.49	19.86	20.35	21.24
Underground Working Gas Storage															
Opening	2.82	1.54	2.15	3.04	2.60	1.24	2.10	3.16	2.78	1.22	1.95	2.97	2.82	2.60	2.78
Closing	1.54	2.15	3.04	2.60	1.24	2.10	3.16	2.78	1.22	1.95	2.97	2.73	2.60	2.78	2.73
Net Withdrawals[b]	1.23	-0.63	-0.92	0.48	1.41	-0.90	-1.05	0.39	1.55	-0.73	-1.02	0.24	0.17	-0.15	0.04
Total Supply*	6.19	4.22	3.92	5.70	6.58	4.18	3.90	5.54	7.04	4.51	4.00	5.73	20.03	20.20	21.28
Balancing Item[c]	0.03	0.17	-0.07	-0.53	0.00	0.02	0.04	-0.46	0.12	0.10	-0.11	-0.54	-0.40	-0.39	-0.43
Total Primary Supply*	6.22	4.39	3.85	5.17	6.58	4.20	3.95	5.07	7.16	4.62	3.88	5.19	19.63	19.80	20.85
Demand															
Lease and Plant Fuel	0.26	0.26	0.26	0.27	0.27	0.27	0.27	0.28	0.29	0.27	0.27	0.28	1.05	1.09	1.11
Pipeline Use	0.19	0.13	0.12	0.15	0.20	0.13	0.09	0.13	0.19	0.14	0.13	0.16	0.59	0.55	0.61
Residential	2.06	0.84	0.39	1.40	2.30	0.84	0.42	1.33	2.59	1.01	0.44	1.35	4.70	4.89	5.39
Commercial	1.09	0.54	0.36	0.80	1.21	0.54	0.37	0.76	1.35	0.61	0.37	0.78	2.79	2.89	3.11
Industrial	2.08	1.89	1.81	1.97	2.08	1.83	1.76	1.93	2.15	1.84	1.77	1.98	7.74	7.60	7.75
Electric Utilities	0.55	0.73	0.91	0.58	0.52	0.60	1.03	0.64	0.58	0.76	0.91	0.65	2.77	2.79	2.90
Total Demand	6.22	4.39	3.85	5.17	6.58	4.20	3.95	5.07	7.16	4.62	3.88	5.19	19.63	19.80	20.85

*Excludes nonhydrocarbon gases removed.

[b]Net withdrawals may vary from the difference between opening and closing stocks of gas in working gas storage due to book transfers between base and working gas categories, and other storage operator revisions of working gas inventories.

[c]The balancing item represents the difference between the sum of the components of natural gas supply and the sum of components of natural gas demand.

Notes: Minor discrepancies with other EIA published historical data are due to rounding. Historical data are printed in bold, forecasts are in italic. The forecasts were generated by simulation of the Short-Term Integrated Forecasting System.

Sources: Historical data: Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(93/09); *Natural Gas Monthly*, DOE/EIA-0130(93/09); and *Electric Power Monthly*, DOE/EIA-0226(93/09), and preliminary estimates from the Energy Markets and Contingency Information Division.

Table 16. U.S. Coal Supply and Demand: Severe Weather Case
(Million Short Tons)

	1992				1993				1994				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1992	1993	1994
Supply															
Production	256.0	242.7	249.1	249.8	242.5	234.9	235.8	246.8	260.4	262.5	261.7	262.1	997.5	960.0	1046.8
Primary Stock Levels[a]															
Opening	33.0	39.8	40.5	35.2	34.0	38.3	34.8	29.0	27.0	30.0	33.0	32.0	33.0	34.0	27.0
Closing	39.8	40.5	35.2	34.0	38.3	34.8	29.0	27.0	30.0	33.0	32.0	30.0	34.0	27.0	30.0
Net Withdrawals	-6.8	-0.7	5.3	1.2	-4.3	3.5	5.8	2.0	-3.0	-3.0	1.0	2.0	-1.0	7.0	-3.0
Imports	0.7	1.0	0.9	1.2	1.2	1.1	1.6	1.6	1.4	1.5	1.6	1.7	3.8	5.5	6.2
Exports	24.7	27.0	26.5	24.3	18.9	19.9	21.2	22.8	21.4	23.7	24.8	24.0	102.5	82.9	94.0
Total Net Domestic Supply	225.1	216.1	228.8	227.9	220.5	219.5	222.0	227.6	237.4	237.3	239.5	241.8	897.8	889.6	956.0
Secondary Stock Levels[b]															
Opening	167.7	168.6	173.2	161.8	163.3	152.7	154.5	129.9	128.0	132.6	143.8	140.5	167.7	163.3	128.0
Closing	168.6	173.2	161.8	163.3	152.7	154.5	129.9	128.0	132.6	143.8	140.5	146.0	163.3	128.0	146.0
Net Withdrawals	-0.9	-4.6	11.4	-1.5	10.6	-1.9	24.7	1.8	-4.5	-11.3	3.3	-5.5	4.5	35.2	-18.0
Total Supply	224.1	211.5	240.2	226.4	231.1	217.7	246.7	229.5	232.9	226.0	242.9	236.3	902.3	924.9	938.1
Demand															
Coke Plants	8.3	8.1	8.2	7.7	7.8	7.9	7.9	8.0	7.8	8.0	8.3	8.3	32.4	31.6	32.4
Electric Utilities	191.2	183.5	210.4	194.8	200.8	187.8	213.7	199.6	203.1	198.7	215.2	205.7	779.9	801.8	822.8
Retail and General Industry[c]	21.0	18.4	19.0	21.5	21.1	20.1	19.3	21.9	21.9	19.3	19.3	22.3	80.0	82.5	82.9
Total Demand	220.5	210.1	237.7	224.0	229.7	215.8	240.9	229.5	232.9	226.0	242.9	236.3	892.3	915.9	938.1
Discrepancy[d]	3.6	1.5	2.5	2.4	1.4	1.9	5.8	0.0	0.0	0.0	0.0	0.0	10.0	9.0	0.0

[a]Primary stocks are held at the mines, preparation plants, and distribution points.

[b]Secondary stocks are held by users. Most of the secondary stocks are held by electric utilities.

[c]Synfuels plant demand in 1992 was 1.7 million tons per quarter, and is assumed to remain at that level in 1993 and 1994.

[d]Historical period discrepancy reflects an unaccounted-for shipper and receiver reporting difference.

Notes: Rows and columns may not add due to independent rounding. Zeros indicate amounts of less than 500,000 tons. Historical data are printed in bold, forecasts are in italic. The forecasts were generated by simulation of the Short-Term Integrated Forecasting System.

Sources: Historical data: Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(93/09); and *Quarterly Coal Report*, DOE/EIA-0221(93/2Q).

Table 17. U.S. Electricity Supply and Demand: Severe Weather Case
(Billion Kilowatthours)

	1992				1993				1994				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1992	1993	1994
Supply															
Net Utility Generation															
Coal	386.7	373.3	424.2	391.7	404.7	378.7	428.7	401.5	409.8	402.7	431.1	414.2	1575.9	1613.6	1657.9
Petroleum	27.3	18.7	22.3	20.2	22.7	18.3	25.7	20.3	27.2	26.8	33.1	25.4	88.5	87.0	112.5
Natural Gas	52.2	69.6	86.8	55.2	50.3	56.8	96.1	59.7	54.1	70.4	85.2	60.5	263.9	262.9	270.2
Nuclear	156.5	139.1	165.6	157.6	157.0	146.2	172.4	159.8	161.4	141.8	173.2	159.9	618.8	635.4	636.3
Hydroelectric	61.0	64.4	54.6	59.5	67.8	81.1	67.2	66.2	74.9	78.1	64.3	62.4	239.6	282.3	279.6
Geothermal and Other[a]	2.6	2.5	2.6	2.6	2.5	2.2	2.3	2.3	2.2	2.1	2.2	2.1	10.2	9.3	8.6
Total Net Generation	686.4	668.0	756.1	686.7	705.1	683.3	792.3	709.7	729.7	722.0	789.0	724.5	2797.2	2890.4	2965.2
Net Imports	4.9	5.8	9.2	8.4	6.2	3.7	7.8	7.2	7.9	7.5	9.0	7.9	28.3	24.8	32.2
Utility Purchases from Nonutilities [b]	40.5	38.5	42.8	40.3	42.5	40.7	45.2	42.6	45.1	43.1	48.0	45.2	162.1	170.9	181.3
Total Supply	731.8	712.4	808.1	735.4	753.8	727.6	845.3	759.4	782.7	772.6	846.0	777.6	2987.7	3086.1	3178.8
Losses and Unaccounted [c]	48.3	60.5	63.2	57.3	48.3	58.7	63.7	57.6	47.0	73.1	65.3	59.1	229.3	228.4	244.4
Demand															
Residential	247.0	203.7	256.2	227.2	260.2	210.1	274.5	234.7	273.3	230.1	271.0	240.3	934.0	979.6	1014.8
Commercial	181.9	183.8	210.7	187.2	186.7	189.0	226.6	195.7	196.9	197.3	225.7	203.6	763.7	798.0	823.4
Industrial	231.8	240.7	252.4	240.5	234.6	246.5	255.6	247.8	242.0	249.0	259.1	250.9	965.4	984.4	1001.0
Other	22.8	23.1	25.2	23.0	24.0	23.3	24.9	23.5	23.5	23.1	24.8	23.7	94.0	95.7	95.1
Total Demand	683.4	651.4	744.4	677.8	705.5	668.9	781.6	701.8	735.7	699.5	780.6	718.5	2757.1	2857.8	2934.3

[a]Other includes generation from wind, wood, waste, and solar sources.
[b]Electricity received from nonutility sources, including cogenerators and small power producers.
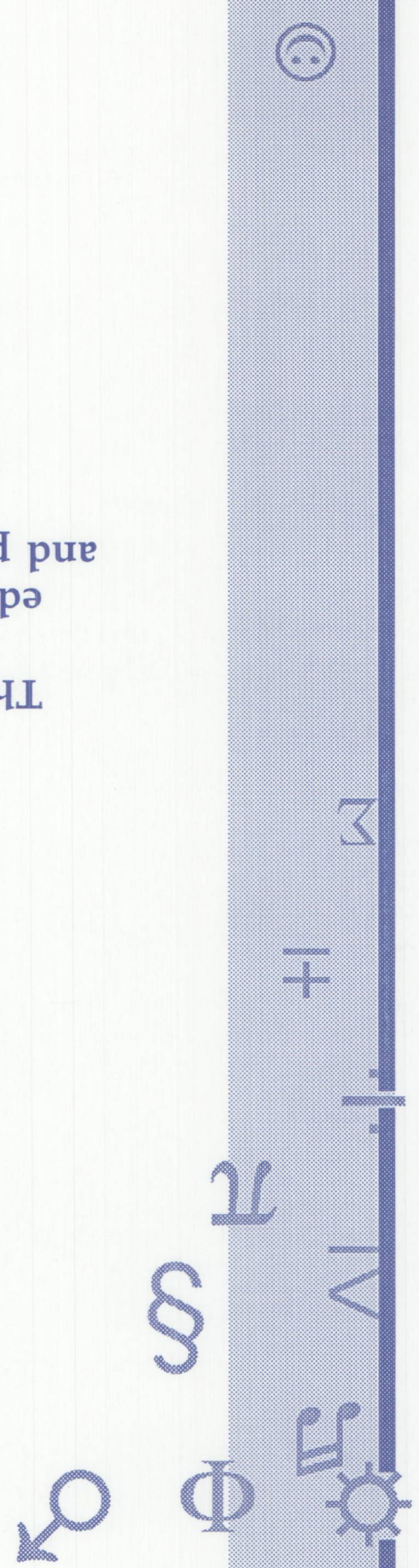[c]Balancing item, mainly transmission and distribution losses.

Notes: Data for utility purchases from nonutilities, net utility imports, and losses and unaccounted are estimated for 1992. Minor discrepancies with other EIA published historical data are due to rounding. Historical data are printed in bold, forecasts are in italic. The forecasts were generated by simulation of the Short-Term Integrated Forecasting System.

Sources: Historical data: Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(93/09); and *Electric Power Monthly*, DOE/EIA-0226(93/09).

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