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QUARTERLY PROJECTIONS

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ENERGY
OUTLOOK

QUARTER

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1993

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First Quarter 1993

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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 first quarter of 1993 through the fourth quarter of 1994. Values for the fourth quarter of 1992, 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.

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Highlights

World Oil Demand Heading Up, but Excess Production Term
Capacity Gains in the Short

World oil demand is expected to increase by about 800,000 barrels per day in 1993 and by another 1.5 million barrels per day in 1994, in the mid-price case. Production capacity is expected to increase by much more than demand this year, causing excess capacity to increase by about 850,000 barrels per day in 1993. Only a clear dedication to some production restraint by OPEC producers will keep prices from weakening in the short term. In the mid-price case, this restraint is only sufficient to keep oil prices steady at about \$19 per barrel. With increased demand growth in 1994, prospects for slightly higher prices emerge, resulting in a \$20 per barrel price for 1994 in the mid-price case.

U.S. Petroleum Demand on Track to Reach 15-Year High in 1994

Domestic petroleum demand is expected to continue on a gradual upward trend through 1994, with expected increases of 320,000 barrels per day in 1993 and 210,000 barrels per day in 1994. The mid-price case demand of 17.5 million barrels per day in 1994 would be the highest annual demand level since 1979. Increases in transportation fuel demand add to the steady upward drift in petroleum consumption. An extra demand boost in 1993 would result from more normal weather conditions than have been seen in recent years. Industrial output growth of about 3.4 percent through 1994 is expected to gradually spur fuel oil, feedstocks, and other products demand.

Improvements in U.S. Crude Oil and Natural Gas Production Capacity Await Incentives for Drilling Revival

U.S. crude oil production is expected to continue its decline through 1994, due to the relative lack of drilling activity in recent years. Record low drilling rates seen in early 1992 were turned upward late in the year, although much of this improvement was associated with impending expiration of tax incentives for developing certain natural gas deposits. This modest improvement is not expected to stem a sharp decline in gas productive capacity over the near term (with a 5-percent decline expected for the mid-price case in 1993). Some moderation in the crude oil production decline rate is likely in 1994 because of expected improvements in throughput capability in Alaska, but this would be a temporary phenomenon.

Natural Gas Prices Set to Rise as Surplus Production Capacity Shrinks

Although a downward correction in natural gas prices from the somewhat inflated levels of late 1992 has been underway since November, wellhead prices are expected to average about 6 percent above 1992 levels in 1993. An additional 12-percent increase is anticipated for 1994. Rapidly shrinking natural gas production capacity is expected to provide a firm underpinning for gas prices over the next several years.

Electricity Demand Growth Trends Below GDP Growth Trends

Total demand for electricity is expected to increase by 2.9 percent in 1993 and by 2.7 percent in 1994 because of modest economic growth and normal weather assumptions. Temperatures during most of 1992 were milder than normal and resulted in slow growth in the residential and commercial sectors. If temperatures are held constant between years, electricity demand growth is expected to be below the rate of growth in gross domestic product in the 1992 to 1994 period.

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	4918	<i>5044</i>	<i>5200</i>	2.0	<i>2.6</i>	<i>3.1</i>
Imported Crude Oil Price								
(nominal dollars per barrel)	Low			<i>16.00</i>	<i>17.00</i>		<i>-13.0</i>	<i>6.3</i>
	Mid	18.70	18.39	<i>19.00</i>	<i>20.00</i>	-1.7	<i>3.3</i>	<i>5.3</i>
	High			<i>21.00</i>	<i>22.00</i>		<i>14.2</i>	<i>4.8</i>
Petroleum Supply								
Crude Oil Production^b								
(million barrels per day)	Low			<i>6.74</i>	<i>6.49</i>		<i>-5.7</i>	<i>-3.7</i>
	Mid	7.42	7.15	<i>6.93</i>	<i>6.78</i>	-3.6	<i>-3.1</i>	<i>-2.2</i>
	High			<i>7.04</i>	<i>6.94</i>		<i>-1.5</i>	<i>-1.4</i>
Total Petroleum Net Imports (including SPR)								
(million barrels per day)	Low			<i>7.80</i>	<i>8.25</i>		<i>11.7</i>	<i>5.8</i>
	Mid	6.62	6.98	<i>7.52</i>	<i>7.88</i>	5.4	<i>7.7</i>	<i>4.8</i>
	High			<i>7.35</i>	<i>7.67</i>		<i>5.3</i>	<i>4.4</i>
Energy Demand								
Petroleum								
(million barrels per day)	Low			<i>17.40</i>	<i>17.62</i>		<i>2.5</i>	<i>1.3</i>
	Mid	16.71	16.98	<i>17.30</i>	<i>17.51</i>	1.6	<i>1.9</i>	<i>1.2</i>
	High			<i>17.23</i>	<i>17.46</i>		<i>1.5</i>	<i>1.3</i>
Natural Gas								
(trillion cubic feet)	Low			<i>20.08</i>	<i>20.50</i>		<i>1.9</i>	<i>2.1</i>
	Mid	19.05	<i>19.71</i>	<i>20.38</i>	<i>20.78</i>	3.5	<i>3.4</i>	<i>2.0</i>
	High			<i>20.55</i>	<i>20.93</i>		<i>4.3</i>	<i>1.8</i>
Coal								
(million short tons)	Mid	887.7	<i>893.4</i>	<i>910.1</i>	<i>931.3</i>	0.6	<i>1.9</i>	<i>2.3</i>
Electricity^c								
(billion kilowatthours)	Mid	2759.3	<i>2755.4</i>	<i>2834.0</i>	<i>2909.3</i>	-0.1	<i>2.9</i>	<i>2.7</i>
Gross Energy^d								
(quadrillion Btu)	Mid	81.1	<i>82.1</i>	<i>84.1</i>	<i>85.7</i>	1.2	<i>2.4</i>	<i>1.9</i>
Gross Energy Demand per Dollar of GDP								
(thousand Btu per 1987 dollar)	Mid	16.82	<i>16.69</i>	<i>16.67</i>	<i>16.48</i>	-0.8	<i>-0.1</i>	<i>-1.1</i>

^aRefers to the imported cost of 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.

^bIncludes lease condensate.

^cTotal 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.

^dThe 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: C010893BBB13:59 for the mid oil price case, C011193PLB11:08 for the low oil price case, and C011193WHB11:32 for the high oil price case.

Sources: Historical data: Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(92/12); *Petroleum Supply Monthly*, DOE/EIA-0190(92/12); *Petroleum Supply Annual 1991*, DOE/EIA-0340(91/1); *Natural Gas Monthly*, DOE/EIA-0130(92/12); *Electric Power Monthly*, DOE/EIA-0226(92/12); and *Quarterly Coal Report*, DOE/EIA-0121(92/3Q). Macroeconomic projections are based on DRI/McGraw-Hill Forecast CONTROL1292.

Introduction

Energy markets are influenced by world oil prices, macroeconomic growth, and weather. This report focuses on the influence of these assumptions on energy supply, demand, and prices in the United States and other major energy-consuming countries. The following discussion reviews the key input assumptions.

World Oil Prices

The world oil price is defined as the refiner acquisition cost of imported crude oil, or the weighted average of the cost of crude oil imported into the United States by U.S. refiners. Three world oil price cases are used (Figure 1 and Table 1). Price assumptions for 1993 range from \$16 per barrel in the low-price case to \$21 per barrel in the high-price case. The mid-price case assumes an average of \$19, about 60 cents above the 1992 average. For 1994, average prices range from \$17 per barrel in the low-price case to \$22 per barrel in the high-price case, with a mid-price case assumption of \$20 per barrel.

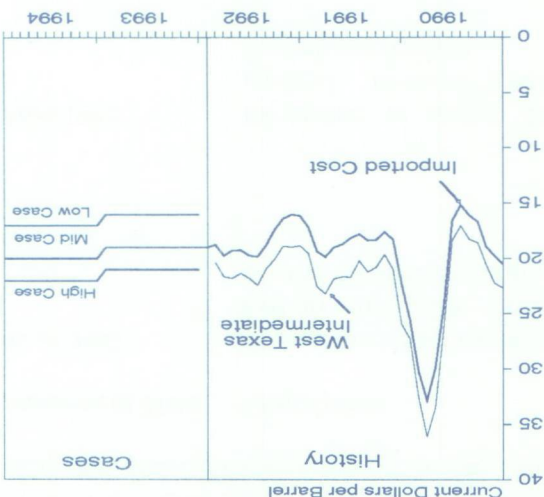
In 1993, economic growth in countries belonging to the Organization for Economic Cooperation and Development (OECD)¹ is expected to strengthen to achieve an annual rate of 2.0 percent in the mid-price case, reflecting a recovery in all OECD regions except Europe (Table 2). Growth in the OECD countries is expected to accelerate to 2.9 percent in 1994, as Europe joins the recovery. Growth in U.S. real gross domestic product (GDP) is expected to average 2.6 percent in 1993 and 3.1 percent in 1994 (Table 2). (Detailed economic assumptions are shown in Table 3.)

Given data through November 1992, U.S. heating degree-days for the fourth quarter of 1992 are 2.1 percent above normal² (Table 2). The year 1992 as a whole is estimated to be milder than normal in terms of both heating and cooling degree-days, although the fourth quarter was colder than normal. Thus, U.S. energy consumption is expected to get a boost in 1993

if weather patterns are normal, as increased heating and cooling demand combine with economic expansion.

Uncertainty in macroeconomic growth and weather can significantly amplify the uncertainty of energy forecasts. The mid-macroeconomic case and normal weather assumptions are used to generate the mid-price U.S. energy forecasts, but alternative macroeconomic and weather cases are also considered. The range of growth in the high and low macroeconomic cases is represented by a variation in growth in gross domestic product of roughly 1.6 percentage points above and below the mid-case rate over the forecast period. The weather cases are deviations above and below normal representing one-half of the greatest quarterly deviations over the last 15 years for heating and cooling degree-days. The section "Petroleum Demand and Production Sensitivities" summarizes the sensitivity of petroleum demand in the United States to the above variations in the economy and weather.

Figure 1. U.S. Crude Oil Prices



Note: Imported prices are defined as the cost of imported crude oil to U.S. refiners.
Sources: History: Energy Information Administration, *Monthly Energy Review* (December 1992); and *Oil and Gas Journal* Energy Database. Cases: Table 5.

¹The Organization for Economic Cooperation and Development includes the following countries: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States.
²Normal is defined as the average degree-days between 1951 and 1980 for a given period, as defined by the National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

Near-Term Impacts of Federal Energy and Environmental Legislation

This section is intended to summarize the estimated impacts of current legislative actions on the short-term energy forecasts for the United States. This legislation encompasses the Clean Air Act and Energy Policy Act. The impacts are anticipated direct effects on energy prices, consumption, or production.

Commencement Date	Description	Impact on Forecast
November 1992	Oxygenated gasoline required to be sold in carbon monoxide nonattainment areas during November through February.	Motor gasoline prices expected to rise 3 to 5 cents per gallon in the nonattainment areas, raising national prices by an average of 1 to 2 cents per gallon during the months of November through February. ³
December 1992	Expiration of section 29 tax credits for coalbed methane and tight sands formations drilling.	Small negative impact on natural gas drilling in 1993 due to last minute drilling increase in 1992 before expiration of section 29 credit. ⁴
January 1993	Alternative Minimum Tax exemption for independent oil and natural gas producers.	Up to an additional 7,000 oil and gas wells drilled in 1993; ⁵ possible increase of 50,000 barrels per day in U.S. oil production. ⁶
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. ⁷
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).	Estimates not yet available.
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. ⁸

³Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(92/08), "Demand, Supply, and Price Outlook for Oxygenated Gasoline, Winter 1992-1993" (Washington, DC, August 1992), pp. 5 and 9.

⁴Energy Information Administration, Office of Oil and Gas, Reserves and Natural Gas Division.

⁵Estimates of drilling impacts from the Independent Petroleum Association of America.

⁶Oil production impacts are estimates from the Energy Information Administration, Office of Oil and Gas, Reserves and Natural Gas Division.

⁷Energy Information Administration, Office of Energy Markets and End Use, Energy Markets and Contingency Information Division.

⁸Based on internal EIA calculations. It was estimated that compliance with Phase I of the Clean Air Act requiring low-sulfur coal will cost about \$5.00 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

Demand for petroleum, as discussed in this report, is synonymous with "petroleum product supplied," which is defined as the sum of petroleum product production (including refinery gain), imports minus exports, and changes in primary stocks.

Based on supply and demand patterns that reflect the mid-price case, world demand for petroleum products is expected to increase by about 800,000 barrels per day in 1993, to 67.7 million barrels per day. This is expected to be followed by a larger increase of almost 1.5 million barrels per day in 1994 (Table 4).

Petroleum demand is expected to increase in most regions of the world in 1993 and 1994. The former Soviet Union and the European countries outside the Organization for Economic Cooperation and Development (OECD) are the major exceptions, where declines in demand are expected due to declining economic activity as these nations struggle to make the transition from centrally planned economies to market economies. In 1993, OECD demand for petroleum is expected to average 39.1 million barrels per day, up by more than 550,000 barrels per day from the 1992 level. This estimate is based on the assumption that OECD economic growth will be 2.0 percent in 1993 (Table 2). Almost 60 percent of the growth in OECD demand in 1993 is expected to occur in the United States. In 1994, OECD demand is expected to increase by almost 700,000 barrels per day, if OECD economic growth increases to 2.9 percent.

Demand in non-OECD regions other than the former Soviet Union and Eastern Europe is expected to increase by more than 1.1 million barrels per day in 1993 and by almost 1.3 million barrels per day in 1994, with the largest increases occurring in Asia, China, and the Middle East. Petroleum demand (in million barrels per day) for other non-OECD regions is as follows:

Region	1992	1993	1994
China	2.63	2.82	3.01
Latin America	5.35	5.46	5.62
Asia	6.34	6.90	7.57
Middle East	3.69	3.87	4.02
Africa	2.25	2.35	2.45
Total	20.26	21.40	22.67

Non-OECD demand is expected to increase by about 200,000 barrels per day in 1993, to 28.6 million barrels per day, and then increase by almost 800,000 barrels per day in 1994.

Domestic petroleum demand is expected to continue on a gradual upward trend (which emerged after the Persian Gulf War) through 1994. Increases of 320,000 barrels per day in 1993 and 210,000 barrels per day in 1994 are expected (Table 7). The year 1991 was a recent low point in domestic consumption, with very mild weather, a decline in the nation's GDP, and lingering supply-side impacts from the War combining to turn petroleum demand down by 280,000 barrels per day compared to 1990.⁹ Since then, winter and fall temperatures, while still at or below normal, have been generally colder, boosting heating demand and heating oil consumption. (The mid-case assumptions for this report imply a continuation of this effect in 1993 but not in 1994.)

Gasoline demand has been rising slowly but steadily along with the economy (Figure 2), helped along by lower-than-average increases in vehicle fuel efficiency (a factor which is likely to remain an element of gasoline demand growth for the next few years). Residual fuel oil has been nudged out of the boiler fuel market by plentiful natural gas, although that situation may be turned around in 1993. The airline industry, though plagued by sagging profits due to low average ticket prices, has enjoyed steadily increasing ridership. In 1992, the increased air travel appears to have been met mostly by increased utilization of aircraft rather than expanded flight schedules. This has pushed capacity utilization up and deflected any tendency toward higher fuel consumption. Over the next 2 years, expanded flight scheduling patterns should increase jet fuel demand somewhat. Other petroleum products have exhibited sporadic growth lately, but general increases in the demand for feedstocks, refinery fuels, and miscellaneous products are expected as industrial output expands.

Supply

World oil production is expected to increase by about 400,000 barrels per day in 1993 to 67.2 million barrels

⁹Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(92/12) (Washington, DC, 1992).

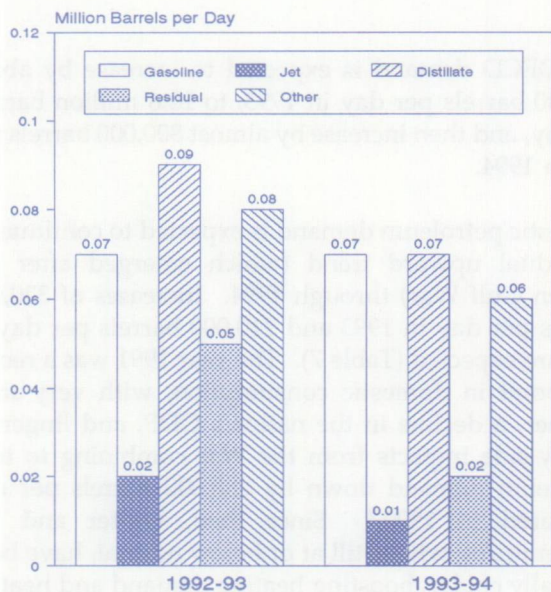


Figure 2. Annual Change in U.S. Petroleum Demand by Fuel

Note: Historical data through 1992.
Source: Table 7.

per day (Table 4). Another large production decline in the former Soviet Union (about 1.2 million barrels per day) is expected to be more than offset by a significant production increase in OPEC and increases in other non-OECD regions. Oil supply from the OECD countries is expected to decline by about 100,000 barrels per day in 1993, as a production increase from the North Sea fails to offset production declines from the United States and other OECD regions.

Increases in oil production by OPEC lead the way for significant global gains in supply in 1994. World production is expected to increase by more than 1.4 million barrels per day next year. Non-OPEC production is expected to fall by only 0.2 million barrels per day. A decline of 0.8 million barrels per day in production from the former Soviet Union will more than offset increases in production from other non-OECD countries. Unlike 1993, however, a production increase from the North Sea will more than offset production declines from the United States and other OECD regions, resulting in an increase of almost 200,000 barrels per day in OECD oil supply.

Domestic oil production is generally expected to decline by an annual average rate of 220,000 barrels per day in 1993 and by 150,000 barrels per day in 1994 under the mid-price case (Table 7), with imported crude oil prices at about \$19 per barrel in 1993 and \$20 per barrel in 1994. Drilling activity, which was at record low levels in early 1992, surged late in the year with coalbed and tight sands gas well drilling. The active drilling rig count was substantially higher at the end of 1992 than at the end of 1991. Although the average rig count should improve gradually in 1993 and 1994, total wells drilled are not expected to reach 1991 levels during the forecast period.

The potential sensitivities of domestic oil production to price variations are depicted in Tables 6 and 8. Domestic crude oil production may range from 110,000 barrels per day above to 190,000 barrels per day below the mid-price case in 1993. 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.

U.S. total petroleum net imports are expected to increase between 1992 and 1993, the inevitable consequence of increasing demand combined with U.S. oil production declines. For the mid-price case, total net imports are projected to increase by 7.7 percent (540,000 barrels per day) in 1993, and by a further 4.8 percent in 1994. On the other hand, total net imports may be restrained somewhat since winter (oxygenated) gasoline is expected to use a higher proportion of indigenous production (because of domestic oxygenate production capability) than in the past. The most important factor affecting the variability of oil imports in the short run is weather. Demand for petroleum could swing by several hundred thousand barrels per day during the coldest winter months depending on the severity of the weather.

World Oil Prices

World oil prices are affected by supply, demand, and other factors such as expectations of market participants. Each of these factors is subject to substantial uncertainty. The uncertainties concerning oil supply, for example, are centered on oil exports from the former Soviet Union and oil production from OPEC.

¹⁰Based on assumptions from the Energy Markets and Contingency Information Division.
¹¹Based on assumptions from the Energy Markets and Contingency Information Division.

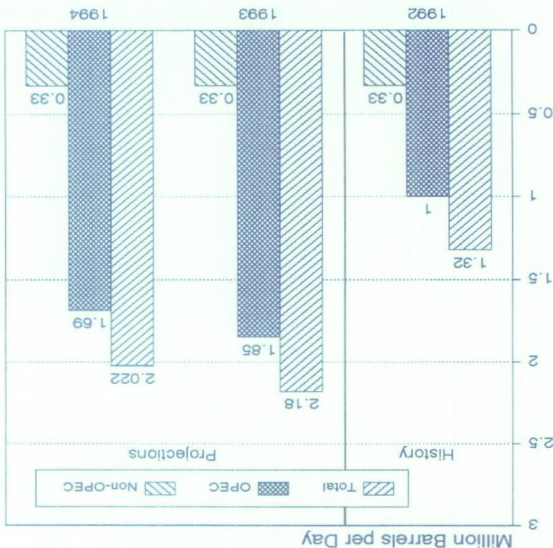
Because future price developments remain uncertain, three world oil price cases are developed (Figure 1 and Table 5) for analysis. These cases are used to derive a mid-price case projection and alternative projections for domestic petroleum supply and demand. The three world oil price cases are meant to represent the range over which prices could vary during the forecast period. In the low-price case, the world oil price is \$16 per barrel in 1993 and \$17 per barrel in 1994. In the

The key uncertainties affecting oil demand over the forecast period are the magnitude of economic growth, especially in the United States, Japan, and Western Europe, and the severity of winter weather. Steady economic recovery is expected for the OECD countries as a whole, but European economic growth will not recover until 1994. In the short term, variations in weather could have a greater effect on energy demand than variations in economic activity.

excess oil production capacity and readily available stocks will continue to influence world oil prices in 1993, as well as in 1994.

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

Figure 3. World Excess Oil Production Capacity



A combination of a higher level of world excess production capacity (outside of Iraq) and a level of readily available stocks similar to those in 1992 is possible for 1993. The interaction between the trends in

that must be maintained for normal operations of million barrels and the minimum inventory levels excludes strategic government stocks of about 870 represents usable commercial stocks only, and stocks available at the same time in 1991. This demand levels, equal to the number of days of for about 29 days (Figure 4), based on anticipated stocks readily available to meet petroleum demand the market economies are expected to have enough.

At the end of the fourth quarter of 1992, but Iraqi capacity is assumed to continue to be 2.5 million barrels per day by the end of 1994.¹⁰ expected to have the capacity to produce almost (including its share of the Neutral Zone) is short of OPEC production increases. Kuwait In 1994, total OPEC capacity increase may fall offset increases in actual OPEC production in 1993. Saudi Arabia and Iran are expected to more than restoration in Kuwait and capacity additions in barrels per day in 1994 (Figure 3). Capacity day in 1993, and then decline by about 150,000 expected to increase by about 850,000 barrels per

Excess production capacity. Excess capacity is uncertainties could influence oil prices:

Two other factors affect the extent to which these and if Iraq is allowed to resume exports. necessary, as production from Kuwait increases OPEC members to restrain their production, if production depends on the willingness of other exports remains in effect. Aggregate OPEC long as the United Nations embargo against restored. Iraqi production will be constrained as to increase production and exports as capacity is process of restoring their pre-war production capacity and export facilities. Kuwait is expected

Two OPEC countries, Kuwait and Iraq, are in the consumption. In the former Soviet Union, the production and relative decline rates of production and consumption of oil are expected to continue to decline. Export volumes will be determined by the

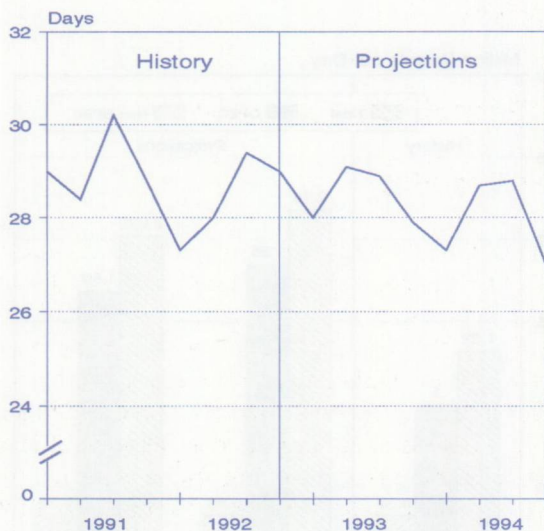


Figure 4. Days Supply of Market Economies Commercial Petroleum Stocks

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.

mid-price case, the price is \$19 per barrel in 1993 and \$20 per barrel in 1994. In the high-price case, the world oil price increases to \$21 per barrel in 1993 and to \$22 per barrel in 1994.

The mid-price case is based on the following assumptions:

- Net oil exports from the former Soviet Union will decrease by an average of 300,000 barrels per day in 1993, to 1.7 million barrels per day, and by another 300,000 barrels per day in 1994, as production declines continue to exceed reductions in oil consumption (Table 4).
- Iraqi production will be limited to domestic requirements plus a small volume of exports to Jordan. This assumes that the United Nations embargo against Iraq continues and Iraq does not accept United Nations terms that would allow limited exports for humanitarian purposes.
- Kuwait oil production (including its share of the Neutral Zone) will increase by about 900,000

barrels per day in 1993 to 1.9 million barrels per day and by another 400,000 barrels per day in 1994, if Kuwait continues to utilize production capacity as soon as it is restored.¹²

- Other OPEC member countries will adjust their production, as necessary, to achieve the aggregate OPEC production rates projected.

The low-price case assumes that Iraq is allowed immediately to resume totally unrestricted exports and that other OPEC members do not restrain their production to accommodate these exports. Other supply factors adding to the downward pressure on prices include higher production from Kuwait and higher exports from the former Soviet Union than in the mid-price case. Demand could be lower due to slower economic growth in the OECD countries and milder weather than assumed in the mid-price case.

The high-price case assumes that oil production from Kuwait and oil exports from the former Soviet Union are lower than in the mid-price case. Production from other OPEC countries is assumed to be restrained in order to push oil prices higher. In addition, abnormally cold winter weather and stronger economic growth than in the mid-price case are assumed.

U.S. Petroleum Product Prices

Domestic petroleum product price variations reflect primarily a pass-through of differences in crude oil costs (Table 5). To a lesser extent, there is also price variation in differences in supply and demand conditions for particular product markets.

Retail motor gasoline prices are expected to drop in the first quarter of 1993 due to normal seasonal driving patterns, despite some increases in production costs. These costs are associated with manufacturing, storing, and transporting gasoline designed to meet Federal requirements for oxygenate content last November. The EIA has estimated that price increases caused by implementation of these rules would average about 3 to 5 cents per gallon in the affected regions, raising national prices an average of 1 to 2 cents per gallon during the months of November through February.¹³ Some recent survey data appear to confirm these estimates (see "Update on Oxygenated Gasoline Markets" on page 16).

¹²Based on assumptions from the Energy Markets and Contingency Information Division.

¹³Energy Information Administration, *Short-Term Energy Outlook Annual Supplement, 1992*, DOE/EIA-2020(92), "Demand Supply, and Price Outlook for Oxygenated Gasoline" (Washington, DC, 1992), p. 3. *Oxy Fuel News* (Washington, DC, July 20, 1992).

mid-price case. In this scenario, prices for petroleum products, natural gas, and coal are projected to increase through 1994.

U.S. Petroleum Demand

Motor Gasoline

Motor gasoline demand, up by an estimated 1.1 percent in 1992,¹⁶ is expected to grow slowly but steadily over the next 2 years (about 1 percent per year). Travel demand increases of about 2.5 percent per year through 1994 result from stable or declining real gasoline prices and steadily growing real personal income and business activity. Fuel demand should rise because efficiency growth appears to be weakening and is expected to lag growth in vehicle miles traveled through 1994 (Tables 3 and 7 and Figure 5).

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 \$16 per barrel throughout 1993 and \$17 per barrel in 1994 (Table 5). Natural gas prices at the wellhead and delivered to electric utilities fall in 1993 under this scenario but rebound in 1994. Residual fuel oil prices follow the crude oil price path. Coal prices are expected to continue a downward trend, with increasing productivity continuing to offset small increases in operating costs.

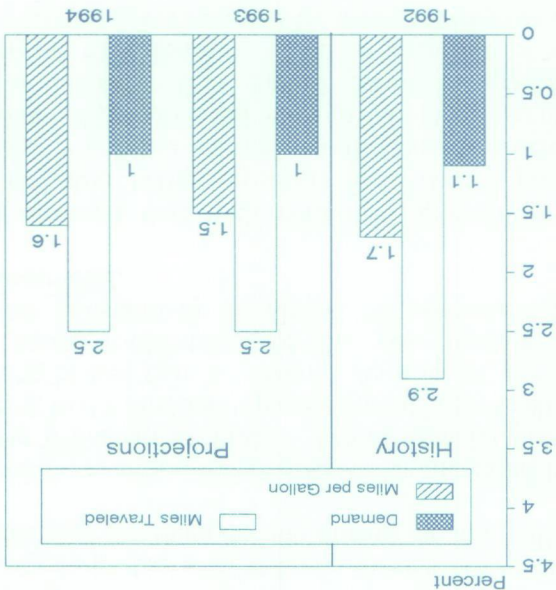
In the mid-price case, retail motor gasoline prices are expected to gain an average of 4 cents per gallon per year from 1992 through 1994. Higher crude oil prices, rising demand, State and local tax increases, and costs associated with compliance with the Clean Air Act are the reasons for this expected growth in the pump price. Diesel fuel prices should more or less follow motor gasoline prices, except that an additional 4 cents per gallon is expected from the last quarter of 1993, through the remainder of the forecast (in all three cases), due to new low-sulfur content requirements.¹⁴

Residential heating oil prices are projected to rise by 2 cents per gallon in 1993, assuming normal winter weather and because of slightly higher crude oil costs. Even this slight increase may be in doubt, given the marked weakening in spot distillate prices evident from October to mid-December and excess distillate inventories appearing at the outset of 1993.¹⁵ The 1994 price increase of 4 cents per gallon is based on slightly higher oil prices, a slightly lower average day's supply of distillate fuel oil, and an increase of about 1 cent per gallon due to the effects of general inflation on manufacturing and distribution costs.

In 1993, a more robust economy and higher average natural gas and crude oil prices, assuming normal weather in both the summer and winter, should cause residual fuel oil prices to rise by about \$1.30 per barrel. In 1994, higher crude oil costs, continued increases in consumption at electric utilities, and rising natural gas prices should cause residual fuel oil prices to continue to rise.

The high-price case assumes a slightly higher rate of inflation and a slightly weaker economy than does the

Figure 5. Annual Change in U.S. Motor Gasoline Market Indicators



Sources: History: Energy Information Administration, *Petroleum Supply Monthly* (December 1992); Federal Highway Administration, *Traffic Volume Trends, Projections: Tables 3 and 7.*

¹⁴Published estimates of the low of producing low-sulfur diesel 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), p. 54.
¹⁵Energy Information Administration, *Weekly Petroleum Status Report*, DOE/EIA-0208(92-50) (Washington, DC, December 1992).
¹⁶Motor gasoline demand was 7.19 million barrels per day in 1991 (Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(92/12)) and 7.27 million barrels per day in 1992 (Table 7).

Fuel efficiency growth is expected to average 1.6 percent in 1993 and 1994, similar to that of 1992. That projection contrasts sharply with the 2.9-percent average during the 1986-1991 period. The slowdown in fuel economy growth reflects both the lack of improvement in new-car fuel economy during the past 3 years and the dwindling opportunities to remove older, less fuel-efficient vehicles from the fleet. The implementation of new oxygenate regulations starting in late 1992 is also expected to contribute to the moderation in fuel economy growth during the next 2 years.

Jet Fuel

Economic uncertainty in 1992 was reflected in jet fuel markets. Demand for jet fuel declined by an estimated 0.7 percent for the year (Figure 6). Part of that decline, however, stems from the strong demand during the first quarter of 1991 resulting from Persian Gulf-related activity. Despite air-fare promotions during the second half of the year and signs that the economy was beginning to recover from its recession, the resultant recovery in jet fuel demand was insufficient to offset the effects of the steep decline during the first half.

Nevertheless, airline revenue ton-miles increased by a healthy 6 percent in 1992.¹⁷ Actual capacity growth (relating to the number of planes flown) lagged behind, growing at less than 4 percent. As a result, average load factor (utilization) for the year managed to increase substantially to almost 55 percent, a pre-recession level.

It is assumed that with continued growth in the economy and better prospects for industry profits, airlines will have enough confidence to increase scheduled flights to bring average load factors to more normal levels. This should result in gradually increasing fuel demand. Due to deferrals of new aircraft deliveries announced by several carriers as well as the moderate pace of the recovery compared to previous recoveries, however, capacity (available ton-miles) growth is expected to average only 3.5 percent per year during the forecast (Table 3). As a result, fuel demand growth is expected to average only about 1.0 percent per year for the 1992 to 1994 period (Table 7). Sluggish economies in Europe and slowing economic growth in the Far East are expected to contribute to a moderation in total passenger growth. Fuel efficiency increases associated with the retirement of older fleet and the acquisition of newer aircraft is expected to

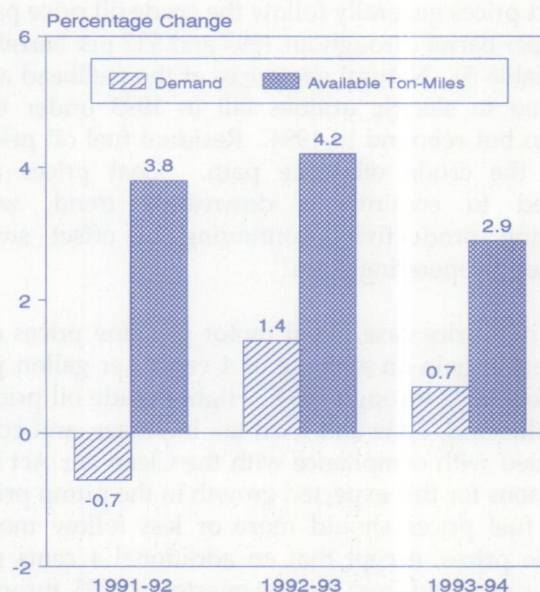


Figure 6. Annual Change in U.S. Jet Fuel Market Indicators

Note: Historical data through 1992.

Sources: Federal Aviation Administration and Tables 3 and 7.

continue to increase at approximately 2.4 percent per year.

Distillate Fuel Oil

U.S. demand for distillate fuel oil enjoyed solid growth in 1992, and is expected to benefit from weather and positive economic factors in 1993. Continued increases in fuel demand are expected to maintain growth in distillate markets through 1994. For all of 1992, distillate fuel demand was up an estimated 110,000 barrels per day (3.8 percent) to 3.03 million barrels per day (Table 7). Growth in heating degree-days, particularly in the Northeast during the fourth quarter, boosted heating oil demand. This demand growth did not prevent excess accumulation of primary distillate inventories by year end, as refiners pushed distillate production to unusually high levels.¹⁸ Normal weather assumptions imply greater heating oil demand in the first quarter of 1993 compared to year-earlier levels. Meanwhile, higher levels of industrial and commercial activity continue to push diesel fuel demand higher.

¹⁷Table 3 and Federal Aviation Administration, Form 41.

¹⁸Energy Information Administration, *Weekly Petroleum Status Report*, DOE/EIA-0208(92-50) (Washington, DC, December 1992).

Update on Oxygenated Gasoline Markets

of weekly retail price data for unleaded regular gasoline in both nonattainment and attainment areas, begun October 5, 1992 with the expansion of the EIA-878, "Motor Gasoline Telephone Survey." At the national level, the spread between the two retail price series increased an estimated 5.2 cents per gallon from October 5, 1992, to January 4, 1993. Most of that increase occurred between October 5, 1992 and November 2, 1992, before the oxygenated gasoline program officially began. While attainment-area prices dropped by 0.4 cents per gallon, prices in nonattainment areas increased by 3.2 cents, in anticipation of the upcoming program and because some distributors began making oxygenated fuel available prior to the official start date.

From November 2, 1992, the difference between prices in nonattainment and attainment areas drifted upward an additional 2.2 cents per gallon by December 21, 1992, before receding to 0.6 cents per gallon by January 4, 1993. After peaking in early November, nonattainment area prices trailed the decline in attainment area prices which began much earlier.

The observed price spread between gasoline sold in attainment and nonattainment areas is within the range of an earlier Energy Information Administration estimate. A recent article in the *EIA Monthly Energy Review* (August 1992) derived a premium of 3 to 5 cents per gallon for oxygenated gasoline over conventional unleaded gasoline.²⁰ More data need to be analyzed to more firmly establish these preliminary findings.

To further examine these and other questions concerning the supply, demand, and price of oxygenated gasoline, the EIA's Office of Oil and Gas is conducting an analysis pending the availability of more complete price and volume data, and will publish its findings at that time.

In anticipation of the first winter season under new federal oxygenated gasoline rules, analysts debated issues such as the likely demand for oxygenates (primarily Methyl Tertiary Butyl Ether (MTBE)), cost and price impacts of the program, and the adequacy of supply in regions where oxygenated gasoline would be required. With some limited information from the oxygenate market for the 1992-1993 winter season in hand, it appears that demand for oxygenates has been lower than originally anticipated, supplies have proven to be adequate, and price impacts of the program have been moderate and consistent with early estimates provided by the Energy Information Administration.

One of the most uncertain elements of the discussion on how much oxygenated gasoline was likely to be delivered this winter has been the question of "spillover." This refers to sales of oxygenates intended for use in carbon monoxide (CO) nonattainment areas but used in CO attainment areas because gasoline marketing and distribution patterns overlap the census boundaries which define nonattainment areas. Estimates for the additional winter oxygenate supply required because of spillover ranged from 10 to more than 20 percent of baseline levels. However, there is now evidence of lower-than-projected spillover volumes. Given the incentive to avoid absorbing the additional cost of oxygenated fuel in attainment areas, suppliers have apparently taken extra measures to minimize spillover. This includes efficiently coordinating terminal facilities and rerouting transports to target oxygenated gasoline deliveries solely to stations in nonattainment areas. A revised assumption of a spillover rate of less than 5 percent rather than the higher initial estimates reduces estimated oxygenate demand by more than 50,000 barrels per day.¹⁹

Information on price impacts of the oxygenated gasoline program has been facilitated by the collection

¹⁹Details on the oxygenate supply situation for oxygenates blended into motor gasoline for November 1992 may be found in the Energy Information Administration, *Weekly Petroleum Status Report*, DOE/EIA-0208(93-01), Appendix B "Monthly Oxygenate Report." ²⁰Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(92/08), "Demand, Supply, and Price Outlook for Oxygenated Gasoline, Winter 1992-1993" (Washington, DC, August 1992), pp. 5 and 9.

Residual Fuel Oil

Residual fuel oil demand may have reached its nadir in 1992, with the current annual estimate at 1.08 million barrels per day (Table 7). Although normal weather patterns and rising gas prices may spur an improvement in 1993, demand for heavy fuel oil through 1994 will probably still languish below the 1.2 million barrel-per-day mark, a level first seen in the recession of 1991.

The mid-price case calls for residual fuel oil demand of 1.12 million barrels per day in 1993 and a slightly higher rate in 1994. Ongoing declines in the commercial and industrial use of heavy oil since 1986, along with steady reductions in electric utility use of residual fuel oil since 1989, have reduced the overall importance of residual fuel oil in the domestic energy sector significantly.²¹ (Heavy oil use in vessel bunkering has increased over the years, making transportation the only growth area for that fuel.) On the other hand, because excess availability of natural gas has been drastically reduced in recent quarters, the weakness in the residual fuel oil market may be reversed sharply in the near term if the weather turns very cold.

Analysis of a very cold first-quarter scenario showed that residual fuel oil use could be as much as 13 percent higher during the first 3 months of 1993 if average temperatures are low enough to result in heating degree-days registering 20 percent above normal.²² The boost to residual fuel oil demand could be greater if less-than-optimal operating conditions for the gas supply system hold during a severe winter. If the projected decline in U.S. gas productive capacity is on target over the next few quarters, a more interesting winter season for fuel oil may develop next year, when even tighter natural gas supply and demand balances are likely to develop.

Other Petroleum Products

Demand for other petroleum products increased by an estimated 4.0 percent in 1992 to 4.14 million barrels per day (Table 7). This robust growth reflects both higher-than-expected demand for certain miscellaneous products and colder-than-normal weather during the

fourth quarter. The next 2 years are expected to witness continued growth in other petroleum products demand. The assumption of normal weather compared to a mild first quarter in 1992 as well as a recovery in manufacturing and petrochemical activity are expected to boost demand by 1.9 percent in 1993. Continued economic growth is expected to result in a 1.4-percent increase in other petroleum products demand in 1994 under assumptions of normal weather.

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.

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:²³

- A 1-percent increase in real GDP raises petroleum demand by about 141,000 barrels per day.
- A \$1-per-barrel increase in crude oil prices, assuming no price response from nonpetroleum energy sources, reduces demand by about 36,000 barrels per day.
- A \$1-per-barrel increase in crude oil prices boosts domestic oil supply (crude oil and natural gas liquids production) by 78,000 barrels per day.
- A 1-percent increase in heating degree-days increases demand by about 37,000 barrels per day; a 1-percent increase in cooling degree-days increases petroleum demand by about 10,000 barrels per day.

²¹Energy Information Administration, *Fuel Oil and Kerosene Sales*, DOE/EIA-0535(90,91) (Washington, DC, 1990, 1991).

²²Energy Information Administration, *Short-Term Energy Outlook*, DOE/EIA-0202(92/4Q), "1992-1993 U.S. Winter Fuels Assessment" (Washington, DC, November 1992).

²³The 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 four quarters of 1993 and 1994.

For 1993, projections of the rate of domestic crude oil production range from 6.74 million barrels per day in the low-price case to 7.04 million barrels per day in the high-price case (Tables 6 and 8). This range increases in 1994, with production rates of 6.49 million barrels per day in the low-price case and 6.94 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 490,000 barrels per day.²⁴ About 27 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 73 percent of this range is attributed to the impact of prices on drilling rates and well maintenance (Table 10).

²⁴Of this total, the lower 48 States accounted for 410,000 barrels of oil per day. The uncertainty of 90,000 barrels per day for the lower 48 States contains 70,000 barrels of oil per day that results from varying the low- and high-price case estimates by an amount equal to 1 percent of the 1992 third quarter oil rate and reducing that amount starting with the fourth quarter of 1992 through the end of 1994. The remaining 20,000 barrels per day is additional oil production expected from the Point Arguello field in the Pacific Federal Outer Continental Shelf. The larger portion of the difference (320,000 barrels per day) is attributable to the price impact where more drilling is expected at higher prices, as well as more frequent well maintenance and reduction of well abandonments.

Outlook for Other Major Energy Sources

Natural Gas

Total demand for natural gas in 1992 rose by 3.5 percent to 19.71 trillion cubic feet,²⁵ led by the industrial and utility sectors (Table 11). Additional gas demand growth of 3.4 percent, to 20.38 trillion cubic feet, is projected for 1993 as a result of rising economic growth, the continued penetration of natural gas-fired equipment, and increased residential and commercial sector demand related to assumptions of normal weather. Aside from the sharp boost in residential gas demand in early 1993 due to the assumption of normal temperatures, the industrial and utility sectors are expected to continue to set the pace. In 1994, total gas demand is forecast at 20.78 trillion cubic feet, an increase of 2.0 percent over 1993 levels.

Natural gas demand in the industrial sector is projected to rise by 3.1 percent in 1993 and by 4.3 percent in 1994, as the nation's economy continues to strengthen (Figure 7). Industrial natural gas demand growth was estimated at 4.1 percent for 1992. Nonutility generators are expected to increase their share of industrial gas demand, in line with the trend evident since 1989. In 1991, nonutility generators' demand for gas was 22 percent of total industrial gas demand, up from 20 percent in 1990 and 17 percent in 1989. Natural gas demand at electric utilities is expected to remain essentially flat through 1994. Expected improvement in hydroelectric power availability in 1993 and 1994, as well as some displacement by an added nuclear power plant in Texas in December 1993, are expected to limit utility natural gas growth in the short term.

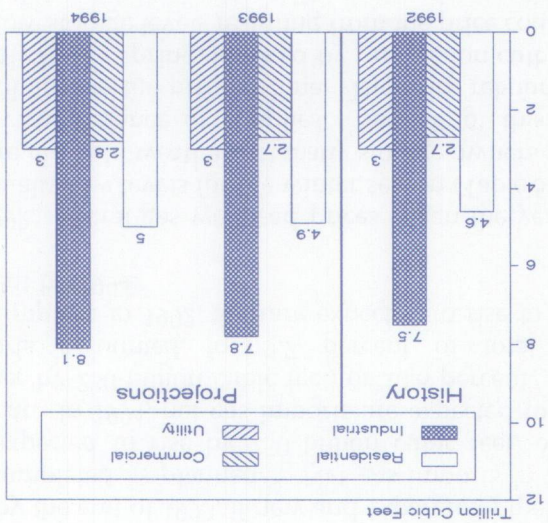
Higher gas demand and increasing wellhead prices are expected to boost U.S. dry gas production levels by 400 billion cubic feet in 1993, an increase of 2.2 percent over 1992 (Table 11). Although underground working gas storage levels were lower in the first 3 quarters of 1992 than in previous years, they recovered in the fourth quarter, despite October's cold weather.²⁶ Gas storage is expected to grow as a result of Order 636 (as more storage comes under the control of shippers and end-users) and as a result of falling surplus production

Surplus gas production capacity, the difference between production capacity and production rate, has been declining since 1986 as gas demand rose and drilling Section 29 tax credit for nonconventional gas production was not renewed for 1993. However, wells completed by December 31, 1992, will be eligible to receive the subsidy until 2002. The credit was a key factor in the rebound in the U.S. active rig count in the second half of 1992. The Baker Hughes rig count totaled 922 the last week of December, of which 527 were drilling for gas.²⁸ Increases in gas prices and the shrinking surplus productive capacity are expected to spur gas-well drilling in 1993 and 1994.

²⁵Natural gas demand was 19.05 trillion cubic feet in 1991 (Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(92/12)).

²⁶*Natural Gas Week* (November 23, 1992), p. 6.
²⁷Energy Information Administration, *Natural Gas Productive Capacity for the Lower 48 States, 1982-1993*, DOE/EIA-UC-98 (Washington, DC).
²⁸*Oil Daily* (December 14, 1992).

Figure 7. Natural Gas Consumption by Sector



Sources: History: Energy Information Administration, *Natural Gas Monthly* (December 1992). Projections: Table 11.

capacity. U.S. gas production is projected to rise by 170 billion cubic feet in 1994, a 0.7-percent increase from the 1993 level.

Net imports of natural gas are estimated to have grown by about 17 percent in 1992 to 1.92 trillion cubic feet, or 5.3 billion cubic feet per day (Table 11).²⁹ The rise in gas imports is the result of competitive prices for Canadian gas, as well as improved access to U.S. transportation systems. Canadian gas import capacity is expected to grow by another 1.8 billion cubic feet per day by the end of 1993, if new and expanded pipelines are completed as planned.³⁰ Net gas imports in 1993 are expected to rise by 250 billion cubic feet, or 13 percent. In 1994, net gas imports are expected to rise further by 230 billion cubic feet, or 10.6 percent. Net imports accounted for 9.7 percent of total gas consumption in 1992, and are expected to rise to 10.6 percent by 1994.

In 1992, natural gas wellhead prices began the year at unusually low levels for the winter season (Table 5 and Figure 8). Mild weather left many storage owners with an overabundance of supplies. Sell off of this gas contributed to the price decline. The price rebounded sharply in the spring, induced by production cutbacks and low storage levels resulting from the price collapse from the previous quarter. This price rise continued throughout the summer and fall. Spot and futures prices at Henry Hub, Louisiana, rose dramatically, immediately following Hurricane Andrew in August, as concern that underground storage target levels might not be reached for the upcoming winter of 1992-1993. The average spot price peaked at \$2.30 per thousand cubic feet in October.³¹ However, by November, prices began to ease as storage levels were reported on target for the winter.

In 1993, large growth in natural gas demand will be accompanied by increases in both domestic production and net imports; however, production levels are not expected to keep up with demand growth. The difference will have to be made up by increases of Canadian gas and net withdrawals from storage. Storage levels at the end of the year are expected to be about 3 percent above 1992 levels, but net withdrawals are also expected to be greater. Thus, assuming normal winter temperatures, stable world oil prices, and a strengthening of the economy, wellhead prices are

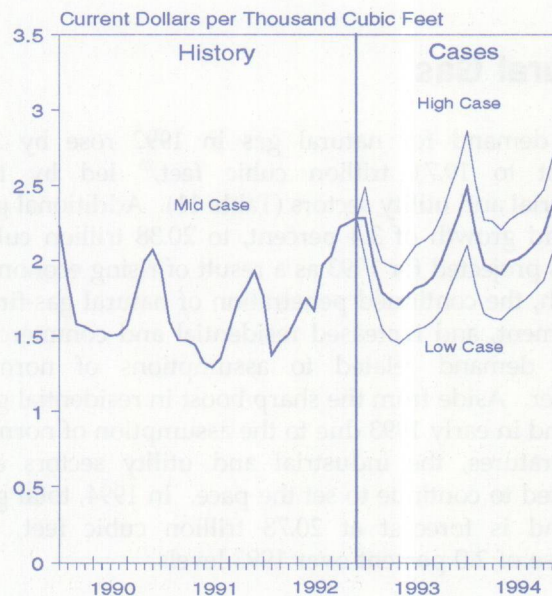


Figure 8. Natural Gas Wellhead Prices

Sources: History: Energy Information Administration, *Natural Gas Monthly* (December 1992). Projections: Table 5.

projected to rise by 11 cents per thousand cubic feet (about 6 percent). First quarter 1993 prices, while considerably higher than those in the first quarter of 1992, are expected to fall by 23 cents per thousand cubic feet from the fourth quarter 1992 since storage levels currently are adequate and remaining hurricane-related platform damage is minimal. If the remainder of the winter is unusually severe, however, wellhead prices could remain at elevated levels or even rise temporarily in early 1993.

In 1994, average wellhead prices are projected to increase by 12 percent over 1993 prices (Table 5). Somewhat higher oil prices and continued economic growth will put upward pressure on natural gas prices. Wellhead prices are also expected to increase because of projected declines in wellhead productive capacity.³²

²⁹Net imports of natural gas were 1.64 trillion cubic feet in 1991 (Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(92/12)).

³⁰Energy Information Administration, *Capacity and Service on the Interstate Natural Gas Pipeline System, 1990* (Washington, DC, June 22, 1992).

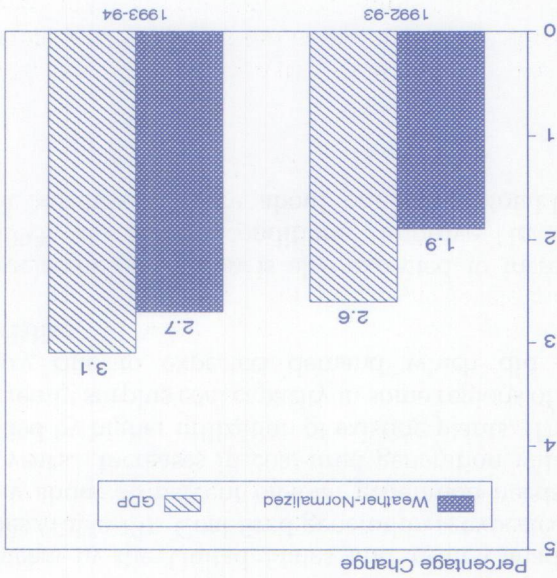
³¹*Natural Gas Week* (December 7, 1992), p. 10.

³²Energy Information Administration, *Natural Gas Productive Capacity for the Lower 48 States, 1982-1993*, DOE/EIA-UC-98 (Washington, DC).

Total demand for electricity is expected to increase by 2.9 percent in 1993 and by 2.7 percent in 1994 (Table 13). The ongoing economic recovery is expected to support modest growth in all consuming sectors. The assumption of normal weather conditions in the forecast gives an added boost to residential electricity growth in 1993. Temperatures during most of 1992 were milder than normal and resulted in slow growth in the residential and commercial sectors. If temperatures are held constant between years, electricity demand growth is expected to be under the rate of growth in gross domestic product in both years (Figure 9).

Electricity

Figure 9. Weather-Normalized Electricity Demand Growth Versus GDP Growth



Note: Historical data through 1992. Source: Tables 2 and 13.

Coal

Increases in electricity demand, steel output, and other industrial activity will spur growth in coal production and demand over the next 2 years. Demand for coal at electric utilities grew 0.9 percent in 1992 despite low electricity demand due to mild winter and summer temperatures.³³ In 1993 and 1994, utility coal demand is expected to increase by 1.8 percent and 2.5 percent, respectively, as electricity demand grows (Table 12). Increases in the domestic production of steel are expected to produce a growing demand for coal at coke plants. Coal demand by the retail and industrial sectors is expected to remain flat in 1993 and 1994.

Consumer stocks are estimated to have increased in late 1992 in anticipation of contract renegotiations between the United Mine Workers of America and the Bituminous Coal Operators' Association. While the forecast does not assume a strike, changes in production and stock patterns may occur during the winter.

Between 1991 and 1992, coal prices to electric utilities fell.³⁴ This was largely the result of weak demand and the continuing gains in productivity, which included the closing of nonproductive mines, expanded use of longwall mining in underground mines, and the growth of cheaper western coal production. In addition, costs were eased by slight decreases in prices for diesel fuel (used for mining operations and rail transportation to electric utilities.) Coal prices are expected to increase only slightly through 1994, as rising transportation, mining, and operating costs are largely offset by continued productivity increases. On January 1, 1995, Phase I of the Clean Air Act will require that 110 coal-fired, electric utility plants reduce SO₂ emissions.³⁵ It is estimated that the effect of this act will add about 1 to 2 cents per million Btu to the national average price of coal in the latter part of 1994 because of increased use of low-sulfur coal.³⁶

³³Total 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).
³⁴Coal prices delivered to electric utilities averaged \$1.45 per million Btu in 1991 (Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(92/12)) and \$1.41 million Btu in 1992 (Table 5).
³⁵Environmental Protection Agency, *Clean Air Act Amendments of 1990*, "Title IV Acid Deposition Program" (November 1990), pp. 1-3. 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 \$5.00 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.

In 1993, electricity demand in the commercial sector is expected to show signs of recovery from the weak 1992 performance, partly because of normal weather assumptions but mostly because of improved prospects for employment and output expansion. Electricity demand in the industrial sector is expected to be boosted by a recovery in manufacturing production of 3.4 percent (Table 2). Residential sector demand is expected to be stimulated by an increase in the housing stock of 1.1 percent (Table 3), although most of the residential sector growth expected for 1993 is weather-related. Continued growth in total electricity demand is expected in 1994, although the pace may be somewhat attenuated due to the assumed absence of weather effects.

U.S. utilities are expected to supply about 2.8 percent more electricity in 1993 and 2.2 percent in 1994 and buy larger amounts of power from nonutility power producers in the United States and from Canadian utilities (Table 13). Coal-fired generation is expected to supply about 56 percent of total generation needs in both years. Increases in coal-fired generation will be supplied by higher utilization of existing plants. There is currently surplus coal capacity in some regions of the country due to expected demand which did not materialize.

Hydroelectric generation is also expected to increase in 1993 as water conditions improve in the Pacific Northwest, where about one-half of total U.S.

hydroelectric capacity is located. Watersheds have below normal levels over the past few years. The hydroelectric projection for 1994 of 293 billion kilowatthours is based on the assumption of normal precipitation for 1993 and 1994.

Nuclear power is expected to increase by less than 1 percent in 1993 and 1994. The average capacity factor is expected to be 70 percent in 1993 and remain at that level in 1994.³⁷ Units that were down for refueling and maintenance should provide additional generation. Furthermore, the newly completed Comanche Peak 2 nuclear unit in Texas is anticipated to come on line in December of 1993.

Oil-based utility generation is expected to increase in 1993 along with overall generation needs because the expected tightening of gas markets next year is likely to preclude the low utilization of oil units currently estimated for late 1992. Conversely, negative growth is expected for gas-fired generation next year, particularly as gas demand approaches peak levels in late 1993 and early 1994. However, relatively large weather-related increases in electricity demand will require increased output from oil- and gas-fired generation from the third through the fourth quarters of 1993. Electricity demand growth in 1994 will be met largely by coal; natural gas use is expected to decline, particularly if hydroelectric availability returns to normal on the West Coast and the Comanche Peak 2 nuclear unit in Texas reduces the need for increased fossil fuel generation.

Figure 1: Weather-Related Electricity Demand Growth versus GDP Growth

³⁷Energy Information Administration, Office of Coal, Nuclear, Electric and Alternate Fuels, Analysis and Systems Division, Supply Analysis Branch.

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: 1990 Model Documentation Report* (DOE/EIA-M009, June 1990). 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 is as follows: $(5108 - 4980) / ((5108 + 4980) / 2)$, or 2.5 percent. For each period, the petroleum demand difference (in million barrels per day) is divided by the percentage difference in GDP. For 1993, the petroleum demand difference is 340,000 barrels per day; thus, a 1-percent change in GDP corresponds to a change in demand of $(340,000/2.5)$, or 136,000 barrels per day.

For 1994, a 4.2-percent change in GDP corresponds to a change in demand of 610,000 barrels per day; thus, a 1-percent change in GDP corresponds to a demand change of 145,000 barrels per day. The results for 1993 and 1994 are averaged to calculate the average demand change corresponding to a 1-percent change in GDP (141,000 barrels per day in this case).

Table 9 also shows the differences in petroleum demand due to changes in energy prices caused by varying the world crude oil price. There are two values for the change in petroleum demand in each year, one value for the case in which coal and natural gas prices are allowed to change in response to the change in petroleum prices, and a second value for the case in which coal and natural gas prices are held constant. The industrial and electric utilities sectors have some freedom to switch between use of petroleum, coal, and natural gas. If the price of petroleum decreases while the prices of coal and natural gas remain constant, some industrial and utility users will switch from coal or natural gas to petroleum, and petroleum demand will increase. If coal and natural gas prices are reduced to meet the competition from petroleum, then there will be a smaller increase in petroleum demand. In either case, 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. If annual changes are calculated, then the magnitude of the changes (in barrels per day) will be only one-half as large.

Table 2. U.S. Macroeconomic and Weather Assumptions

	Price Case	1992				1993				1994				Year		
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1992	1993	1994
Macroeconomic^a																
Real Gross Domestic Product (GDP) (billion 1987 dollars)	High					<i>5016</i>	<i>5076</i>	<i>5133</i>	<i>5205</i>	<i>5248</i>	<i>5289</i>	<i>5329</i>	<i>5369</i>	<i>5108</i>	<i>5309</i>	
	Mid	4874	4892	4939	4967	<i>4996</i>	<i>5026</i>	<i>5053</i>	<i>5100</i>	<i>5140</i>	<i>5181</i>	<i>5219</i>	<i>5258</i>	4918	<i>5044</i>	<i>5200</i>
	Low					<i>4976</i>	<i>4976</i>	<i>4973</i>	<i>4994</i>	<i>5032</i>	<i>5072</i>	<i>5110</i>	<i>5148</i>	<i>4980</i>	<i>5090</i>	
Percentage Change from Prior Year	High					<i>2.9</i>	<i>3.8</i>	<i>3.9</i>	<i>4.8</i>	<i>4.6</i>	<i>4.2</i>	<i>3.8</i>	<i>3.2</i>	<i>3.9</i>	<i>3.9</i>	
	Mid	1.6	1.6	2.2	2.7	<i>2.5</i>	<i>2.7</i>	<i>2.3</i>	<i>2.7</i>	<i>2.9</i>	<i>3.1</i>	<i>3.3</i>	<i>3.1</i>	2.0	<i>2.6</i>	<i>3.1</i>
	Low					<i>2.1</i>	<i>1.7</i>	<i>0.7</i>	<i>0.5</i>	<i>1.1</i>	<i>1.9</i>	<i>2.8</i>	<i>3.1</i>	<i>1.3</i>	<i>2.2</i>	
Annualized Percentage Change from Prior Quarter	High					<i>3.9</i>	<i>4.8</i>	<i>4.5</i>	<i>5.6</i>	<i>3.3</i>	<i>3.1</i>	<i>3.0</i>	<i>3.0</i>			
	Mid	2.9	1.5	3.8	2.3	<i>2.3</i>	<i>2.4</i>	<i>2.1</i>	<i>3.7</i>	<i>3.1</i>	<i>3.2</i>	<i>2.9</i>	<i>3.0</i>			
	Low					<i>0.7</i>	<i>0.0</i>	<i>-0.2</i>	<i>1.7</i>	<i>3.0</i>	<i>3.2</i>	<i>3.0</i>	<i>3.0</i>			
GDP Implicit Price Deflator (index, 1987=1.000)	High					<i>1.226</i>	<i>1.230</i>	<i>1.235</i>	<i>1.242</i>	<i>1.251</i>	<i>1.258</i>	<i>1.265</i>	<i>1.272</i>	<i>1.233</i>	<i>1.262</i>	
	Mid	1.198	1.206	1.211	1.218	<i>1.228</i>	<i>1.234</i>	<i>1.241</i>	<i>1.250</i>	<i>1.259</i>	<i>1.266</i>	<i>1.274</i>	<i>1.281</i>	1.208	<i>1.238</i>	<i>1.270</i>
	Low					<i>1.229</i>	<i>1.238</i>	<i>1.248</i>	<i>1.258</i>	<i>1.267</i>	<i>1.274</i>	<i>1.282</i>	<i>1.290</i>	<i>1.243</i>	<i>1.278</i>	
Percentage Change from Prior Year	High					<i>2.3</i>	<i>2.0</i>	<i>2.0</i>	<i>2.0</i>	<i>2.0</i>	<i>2.3</i>	<i>2.4</i>	<i>2.4</i>	<i>2.1</i>	<i>2.4</i>	
	Mid	2.8	2.6	2.5	2.4	<i>2.5</i>	<i>2.3</i>	<i>2.5</i>	<i>2.6</i>	<i>2.5</i>	<i>2.6</i>	<i>2.7</i>	<i>2.5</i>	2.6	<i>2.5</i>	<i>2.6</i>
	Low					<i>2.6</i>	<i>2.7</i>	<i>3.1</i>	<i>3.3</i>	<i>3.1</i>	<i>2.9</i>	<i>2.7</i>	<i>2.5</i>	<i>2.9</i>	<i>2.8</i>	
Real Disposable Personal Income (billion 1987 dollars)	High					<i>3637</i>	<i>3682</i>	<i>3718</i>	<i>3775</i>	<i>3800</i>	<i>3824</i>	<i>3847</i>	<i>3873</i>	<i>3703</i>	<i>3836</i>	
	Mid	3566	3576	3579	3597	<i>3622</i>	<i>3643</i>	<i>3658</i>	<i>3694</i>	<i>3718</i>	<i>3742</i>	<i>3764</i>	<i>3789</i>	3580	<i>3654</i>	<i>3753</i>
	Low					<i>3607</i>	<i>3605</i>	<i>3597</i>	<i>3614</i>	<i>3635</i>	<i>3659</i>	<i>3681</i>	<i>3706</i>	<i>3606</i>	<i>3670</i>	
Percentage Change from Prior Year	High					<i>2.0</i>	<i>3.0</i>	<i>3.9</i>	<i>4.9</i>	<i>4.5</i>	<i>3.9</i>	<i>3.5</i>	<i>2.6</i>	<i>3.4</i>	<i>3.6</i>	
	Mid	2.2	2.0	1.9	1.9	<i>1.6</i>	<i>1.9</i>	<i>2.2</i>	<i>2.7</i>	<i>2.7</i>	<i>2.7</i>	<i>2.9</i>	<i>2.6</i>	2.0	<i>2.1</i>	<i>2.7</i>
	Low					<i>1.1</i>	<i>0.8</i>	<i>0.5</i>	<i>0.5</i>	<i>0.8</i>	<i>1.5</i>	<i>2.3</i>	<i>2.5</i>	<i>0.7</i>	<i>1.8</i>	
Manufacturing Production (index, 1987=1.000)	High					<i>1.124</i>	<i>1.152</i>	<i>1.178</i>	<i>1.199</i>	<i>1.211</i>	<i>1.221</i>	<i>1.230</i>	<i>1.240</i>	<i>1.163</i>	<i>1.226</i>	
	Mid	1.080	1.095	1.099	1.101	<i>1.114</i>	<i>1.127</i>	<i>1.137</i>	<i>1.146</i>	<i>1.156</i>	<i>1.166</i>	<i>1.175</i>	<i>1.184</i>	1.094	<i>1.131</i>	<i>1.170</i>
	Low					<i>1.104</i>	<i>1.102</i>	<i>1.096</i>	<i>1.093</i>	<i>1.101</i>	<i>1.111</i>	<i>1.120</i>	<i>1.128</i>	<i>1.099</i>	<i>1.115</i>	
Percentage Change from Prior Year	High					<i>4.1</i>	<i>5.2</i>	<i>7.2</i>	<i>8.9</i>	<i>7.7</i>	<i>6.0</i>	<i>4.4</i>	<i>3.4</i>	<i>6.3</i>	<i>5.4</i>	
	Mid	1.8	2.7	1.3	1.4	<i>3.1</i>	<i>2.9</i>	<i>3.5</i>	<i>4.1</i>	<i>3.8</i>	<i>3.5</i>	<i>3.3</i>	<i>3.3</i>	1.8	<i>3.4</i>	<i>3.4</i>
	Low					<i>2.2</i>	<i>0.6</i>	<i>-0.3</i>	<i>-0.7</i>	<i>-0.3</i>	<i>0.8</i>	<i>2.2</i>	<i>3.2</i>	<i>0.5</i>	<i>1.5</i>	
OECD Economic Growth ^b (percent)														1.6	2.0	2.9
Weather^c																
Heating Degree Days																
U.S.		2162	565	127	1704	<i>2401</i>	<i>536</i>	<i>88</i>	<i>1669</i>	<i>2401</i>	<i>536</i>	<i>88</i>	<i>1669</i>	4558	<i>4694</i>	<i>4694</i>
New England		3167	1011	242	2334	<i>3223</i>	<i>928</i>	<i>193</i>	<i>2223</i>	<i>3223</i>	<i>928</i>	<i>193</i>	<i>2223</i>	6754	<i>6567</i>	<i>6567</i>
Middle Atlantic		2831	756	117	2104	<i>2988</i>	<i>727</i>	<i>118</i>	<i>2018</i>	<i>2988</i>	<i>727</i>	<i>118</i>	<i>2018</i>	5808	<i>5851</i>	<i>5851</i>
U.S. Gas-Weighted		2112	531	123	1719	<i>2426</i>	<i>539</i>	<i>81</i>	<i>1686</i>	<i>2426</i>	<i>539</i>	<i>81</i>	<i>1686</i>	4485	<i>4732</i>	<i>4732</i>
Cooling Degree Days (U.S.)		30	264	665	62	<i>28</i>	<i>327</i>	<i>755</i>	<i>63</i>	<i>28</i>	<i>327</i>	<i>755</i>	<i>63</i>	1021	<i>1172</i>	<i>1172</i>

^aMacroeconomic 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.

^bOECD: Organization for Economic Cooperation and Development.

^cPopulation-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(92/12); U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, October 1992; 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)*, October 1992. Macroeconomic projections are based on DRI/McGraw-Hill Forecast CONTROL1292.

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	709	727	<i>740</i>	<i>758</i>	<i>774</i>	<i>792</i>	<i>813</i>	<i>834</i>	<i>853</i>	<i>872</i>	706	<i>766</i>	<i>843</i>
Real Exchange Rate (index)	0.977	0.985	0.947	1.016	<i>1.039</i>	<i>1.038</i>	<i>1.040</i>	<i>1.046</i>	<i>1.045</i>	<i>1.044</i>	<i>1.043</i>	<i>1.037</i>	0.981	<i>1.041</i>	<i>1.042</i>
Business Inventory Change (billion 1987 dollars)	-8.7	-6.5	4.5	3.0	<i>3.5</i>	<i>3.9</i>	<i>5.1</i>	<i>7.6</i>	<i>8.7</i>	<i>10.4</i>	<i>12.0</i>	<i>12.3</i>	-1.9	<i>5.0</i>	<i>10.8</i>
Wholesale Price Index (index, 1980-1984=1.000)	1.159	1.174	1.178	1.179	<i>1.186</i>	<i>1.190</i>	<i>1.193</i>	<i>1.199</i>	<i>1.211</i>	<i>1.218</i>	<i>1.222</i>	<i>1.227</i>	1.172	<i>1.192</i>	<i>1.220</i>
Consumer Price Index (index, 1980-1984=1.000)	1.388	1.400	1.409	1.420	<i>1.430</i>	<i>1.440</i>	<i>1.450</i>	<i>1.461</i>	<i>1.473</i>	<i>1.484</i>	<i>1.495</i>	<i>1.506</i>	1.404	<i>1.445</i>	<i>1.489</i>
Petroleum Product Price Index (index, 1980-1984=1.000)	0.589	0.660	0.680	0.668	<i>0.658</i>	<i>0.657</i>	<i>0.661</i>	<i>0.674</i>	<i>0.694</i>	<i>0.692</i>	<i>0.695</i>	<i>0.702</i>	0.649	<i>0.663</i>	<i>0.696</i>
Non-Farm Employment (millions)	108.15	108.43	108.50	108.57	<i>108.75</i>	<i>109.10</i>	<i>109.51</i>	<i>110.05</i>	<i>110.67</i>	<i>111.34</i>	<i>112.04</i>	<i>112.71</i>	108.41	<i>109.35</i>	<i>111.69</i>
Commercial Employment (millions)	70.74	70.99	71.07	71.31	<i>71.56</i>	<i>71.87</i>	<i>72.23</i>	<i>72.72</i>	<i>73.27</i>	<i>73.86</i>	<i>74.48</i>	<i>75.11</i>	71.03	<i>72.10</i>	<i>74.18</i>
Total Industrial Production (index, 1987=1.000)	1.071	1.085	1.090	1.093	<i>1.105</i>	<i>1.116</i>	<i>1.125</i>	<i>1.133</i>	<i>1.142</i>	<i>1.151</i>	<i>1.159</i>	<i>1.166</i>	1.085	<i>1.120</i>	<i>1.154</i>
Housing Stock (millions)	105.12	105.39	105.62	105.90	<i>106.20</i>	<i>106.50</i>	<i>106.80</i>	<i>107.10</i>	<i>107.40</i>	<i>107.73</i>	<i>108.10</i>	<i>108.40</i>	105.51	<i>106.65</i>	<i>107.91</i>
Miscellaneous^b															
Gas-Weighted Industrial Production (index, 1987=1.000)	1.080	1.096	1.101	1.107	<i>1.113</i>	<i>1.121</i>	<i>1.127</i>	<i>1.136</i>	<i>1.143</i>	<i>1.151</i>	<i>1.157</i>	<i>1.163</i>	1.096	<i>1.124</i>	<i>1.154</i>
Vehicle Miles Traveled (million miles per day)	5596	6381	6524	5974	<i>5785</i>	<i>6527</i>	<i>6663</i>	<i>6120</i>	<i>5923</i>	<i>6690</i>	<i>6838</i>	<i>6276</i>	6119	<i>6274</i>	<i>6432</i>
Vehicle Fuel Efficiency (index)	18.99	20.72	20.84	19.54	<i>19.31</i>	<i>21.03</i>	<i>21.15</i>	<i>19.84</i>	<i>19.64</i>	<i>21.36</i>	<i>21.48</i>	<i>20.15</i>	20.02	<i>20.33</i>	<i>20.66</i>
Real Vehicle Fuel Cost (index)	4.27	4.11	4.18	4.41	<i>4.20</i>	<i>3.93</i>	<i>4.03</i>	<i>4.38</i>	<i>4.20</i>	<i>3.93</i>	<i>4.01</i>	<i>4.35</i>	4.24	<i>4.14</i>	<i>4.12</i>
Air Travel Capacity (available ton-miles)	315.7	329.6	345.3	332.7	<i>333.4</i>	<i>341.5</i>	<i>358.9</i>	<i>345.1</i>	<i>340.8</i>	<i>350.9</i>	<i>370.0</i>	<i>356.5</i>	330.8	<i>344.7</i>	<i>354.6</i>
Aircraft Utilization (revenue ton-miles)	162.3	180.3	202.6	180.0	<i>173.8</i>	<i>187.5</i>	<i>202.6</i>	<i>183.3</i>	<i>177.7</i>	<i>192.5</i>	<i>208.7</i>	<i>189.0</i>	181.3	<i>186.8</i>	<i>192.0</i>
Aircraft Yield (cents per ton-mile)	14.46	12.55	10.97	11.89	<i>12.48</i>	<i>12.31</i>	<i>11.50</i>	<i>12.38</i>	<i>12.86</i>	<i>12.58</i>	<i>11.69</i>	<i>12.53</i>	12.47	<i>12.17</i>	<i>12.41</i>
Residential Natural Gas Customers (millions)	51.08	50.79	50.48	50.84	<i>51.53</i>	<i>51.41</i>	<i>51.05</i>	<i>51.49</i>	<i>52.21</i>	<i>52.02</i>	<i>51.79</i>	<i>52.28</i>	50.80	<i>51.37</i>	<i>52.07</i>
Commercial Natural Gas Customers (millions)	4.32	4.26	4.18	4.23	<i>4.34</i>	<i>4.30</i>	<i>4.21</i>	<i>4.29</i>	<i>4.41</i>	<i>4.37</i>	<i>4.31</i>	<i>4.40</i>	4.25	<i>4.29</i>	<i>4.37</i>
Raw Steel Production (millions)	23.23	23.43	22.32	22.56	<i>22.22</i>	<i>23.00</i>	<i>23.23</i>	<i>23.83</i>	<i>22.86</i>	<i>23.73</i>	<i>24.09</i>	<i>24.67</i>	91.53	<i>92.28</i>	<i>95.35</i>

^aMacroeconomic 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.

^bForecasts for miscellaneous variables were generated by simulation C010893BBB13:59 of the Short-Term Integrated Forecasting System.

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

Sources: Historical data: Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(92/12); U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, October 1992; 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)*, October 1992. Macroeconomic projections are based on DRI/McGraw-Hill Forecast CONTROL1292.

**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)	16.89	16.70	16.95	17.36	17.47	16.84	17.10	17.77	17.76	17.05	17.32	17.93	16.98	17.30	17.51
U.S. Territories	0.23	0.22	0.20	0.24	0.22	0.23	0.22	0.23	0.23	0.23	0.23	0.23	0.22	0.23	0.23
Canada	1.63	1.58	1.67	1.65	1.63	1.62	1.68	1.77	1.68	1.66	1.73	1.82	1.63	1.67	1.73
Europe ^b	13.96	12.89	13.46	13.67	13.87	13.06	13.34	14.15	14.14	13.32	13.61	14.43	13.50	13.61	13.88
Japan	5.89	4.90	4.96	5.68	6.04	4.87	5.01	5.85	6.16	4.97	5.11	5.97	5.36	5.44	5.55
Australia and New Zealand	0.79	0.81	0.80	0.83	0.79	0.83	0.82	0.84	0.80	0.84	0.83	0.85	0.81	0.82	0.83
Total OECD	39.39	37.10	38.03	39.42	40.03	37.44	38.18	40.61	40.77	38.07	38.83	41.23	38.49	39.06	39.73
Non-OECD															
Former Soviet Union	7.97	7.06	6.38	6.36	6.40	6.04	5.90	6.00	5.90	5.57	5.44	5.53	6.94	6.08	5.61
China	2.63	2.65	2.65	2.61	2.81	2.83	2.83	2.79	3.01	3.03	3.03	2.99	2.63	2.82	3.01
Europe	1.20	1.18	1.12	1.17	1.15	1.13	1.07	1.12	1.14	1.12	1.06	1.11	1.17	1.12	1.11
Other Non-OECD	17.63	17.21	17.38	18.29	18.49	18.25	18.42	19.18	19.56	19.29	19.47	20.30	17.63	18.58	19.66
Total Non-OECD	29.43	28.10	27.52	28.42	28.85	28.25	28.22	29.09	29.61	29.01	29.01	29.93	28.37	28.60	29.39
Total World Demand	68.82	65.20	65.56	67.85	68.88	65.68	66.40	69.70	70.38	67.08	67.84	71.17	66.85	67.66	69.12
Supply^c															
OECD															
U.S. (50 States)	9.89	9.75	9.59	9.56	9.59	9.38	9.38	9.50	9.44	9.24	9.23	9.35	9.70	9.46	9.32
Canada	2.10	2.01	2.11	2.14	2.07	2.01	2.03	2.07	2.07	2.01	2.03	2.07	2.09	2.04	2.04
North Sea ^d	4.38	4.11	4.24	4.57	4.56	4.34	4.37	4.83	4.94	4.63	4.81	5.10	4.33	4.52	4.87
Other OECD	1.47	1.47	1.47	1.49	1.46	1.46	1.46	1.46	1.45	1.45	1.45	1.45	1.45	1.46	1.45
Total OECD	17.83	17.34	17.42	17.76	17.67	17.19	17.24	17.86	17.89	17.34	17.52	17.96	17.59	17.49	17.67
Non-OECD															
OPEC	26.39	25.94	26.64	27.47	27.29	27.25	27.73	29.26	29.23	29.09	29.49	30.37	26.61	27.89	29.54
Former Soviet Union	9.37	9.16	8.69	8.36	8.10	7.85	7.61	7.38	7.21	7.04	6.88	6.72	8.89	7.73	6.96
China	2.84	2.84	2.83	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.85	2.84	2.85	2.85
Mexico	3.16	3.15	3.14	3.13	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.14	3.15	3.15
Other Non-OECD	7.68	7.73	7.81	7.79	7.89	7.99	8.19	8.29	8.32	8.42	8.52	8.62	7.75	8.10	8.47
Total Non-OECD	49.44	48.82	49.11	49.59	49.28	49.09	49.53	50.93	50.75	50.54	50.88	51.70	49.24	49.71	50.97
Total World Supply	67.28	66.16	66.53	67.36	66.94	66.28	66.77	68.78	68.63	67.87	68.40	69.66	66.83	67.20	68.64
Stock Changes and Statistical Discrepancy															
Net Stock Withdrawals or Additions (-)															
U.S. (50 States including SPR)	0.52	-0.36	-0.36	0.02	0.58	-0.41	-0.39	0.15	0.55	-0.41	-0.38	0.16	-0.05	-0.02	-0.02
Other	1.15	-0.53	-1.24	-0.06	0.86	-0.61	-0.49	0.32	0.73	-0.82	-0.69	0.88	-0.17	0.02	0.02
Total Stock Withdrawals	1.67	-0.89	-1.60	-0.04	1.44	-1.02	-0.88	0.47	1.28	-1.23	-1.08	1.04	-0.22	0.00	0.00
Statistical Discrepancy	-0.13	-0.07	0.63	0.54	0.49	0.42	0.50	0.45	0.46	0.44	0.52	0.47	0.24	0.47	0.47
Closing Stocks (billion barrels)^e	5.42	5.50	5.65	5.66	5.53	5.62	5.70	5.66	5.54	5.65	5.75	5.66	5.66	5.66	5.66
Non-OPEC Supply	40.89	40.22	39.89	39.88	39.66	39.03	39.04	39.52	39.41	38.79	38.91	39.29	40.22	39.31	39.10
Net Exports from Former Soviet Union	1.40	2.10	2.30	2.00	1.70	1.81	1.71	1.39	1.31	1.47	1.44	1.19	1.95	1.65	1.35

^aDemand 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.

^bOECD Europe includes eastern Germany.

^cIncludes 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.

^dIncludes offshore supply from Denmark, Germany, the Netherlands, Norway, and the United Kingdom.

^eExcludes stocks held in the Former CPEs.

OECD: Organization for Economic Cooperation and Development

OPEC: Organization of Petroleum Exporting Countries

SPR: Strategic Petroleum Reserve

Former CPEs: Albania, Bulgaria, Cambodia, China, Cuba, the Czech and Slovak Federal Republic, Hungary, Laos, Mongolia, North Korea, Poland, Romania, 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 C010893BBB13:59 of the Short-Term Integrated Forecasting System.

Sources: Energy Information Administration, *International Petroleum Statistics Report*, DOE/EIA-0520(92/12); and *International Energy Annual 1991*, DOE/EIA-0219(91); Organization for Economic Cooperation and Development, Annual and Monthly Oil Statistics Database through September 1992.

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

	Price Case	1992				1993				1994				Year		
		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1992	1993	1994
Imported Crude Oil^a (dollars per barrel)	Low					16.00	16.00	16.00	16.00	17.00	17.00	17.00	17.00	16.00	17.00	
	Mid	16.16	18.65	19.43	19.00	19.00	19.00	19.00	19.00	20.00	20.00	20.00	20.00	18.39	19.00	20.00
	High					21.00	21.00	21.00	21.00	22.00	22.00	22.00	22.00	21.00	22.00	
Natural Gas Wellhead (dollars per thousand cubic feet)	Low					1.78	1.49	1.57	1.82	1.87	1.67	1.74	1.99	1.67	1.82	
	Mid	1.54	1.63	1.89	2.25	2.02	1.75	1.86	2.16	2.22	2.00	2.10	2.38	1.84	1.95	2.18
	High					2.22	1.98	2.14	2.48	2.55	2.31	2.46	2.77	2.21	2.53	
Petroleum Products																
Gasoline, Retail ^b (dollars per gallon)	Low					1.11	1.13	1.17	1.21	1.15	1.18	1.23	1.25	1.16	1.20	
	Mid	1.12	1.19	1.23	1.22	1.16	1.19	1.24	1.27	1.21	1.24	1.29	1.32	1.19	1.21	1.27
	High					1.19	1.23	1.28	1.31	1.25	1.28	1.33	1.36	1.25	1.31	
No. 2 Diesel Oil, Retail (dollars per gallon)	Low					1.06	1.03	1.06	1.15	1.16	1.12	1.14	1.19	1.07	1.15	
	Mid	1.08	1.13	1.13	1.12	1.12	1.10	1.12	1.21	1.22	1.18	1.20	1.25	1.11	1.14	1.21
	High					1.17	1.14	1.16	1.25	1.26	1.22	1.24	1.29	1.18	1.25	
No. 2 Heating Oil, Wholesale (dollars per gallon)	Low					0.52	0.48	0.53	0.58	0.56	0.50	0.55	0.61	0.53	0.56	
	Mid	0.53	0.59	0.61	0.62	0.59	0.54	0.59	0.66	0.63	0.57	0.62	0.68	0.59	0.60	0.63
	High					0.64	0.58	0.64	0.70	0.67	0.61	0.66	0.73	0.64	0.67	
No. 2 Heating Oil, Retail (dollars per gallon)	Low					0.93	0.84	0.84	0.94	0.97	0.88	0.87	0.98	0.90	0.93	
	Mid	0.94	0.92	0.90	0.97	0.99	0.91	0.90	1.01	1.03	0.94	0.93	1.04	0.94	0.96	1.00
	High					1.03	0.95	0.94	1.06	1.08	0.98	0.97	1.09	1.00	1.04	
No. 6 Residual Fuel Oil, Retail ^c (dollars per barrel)	Low					14.29	13.02	12.71	14.28	15.51	14.17	13.74	15.22	13.66	14.75	
	Mid	11.90	13.63	15.85	17.05	16.49	15.19	14.87	16.38	17.60	16.24	15.86	17.27	14.50	15.81	16.82
	High					17.96	16.66	16.33	17.74	19.02	17.67	17.32	18.69	17.24	18.25	
Electric Utility Fuels																
Coal (dollars per million Btu)	Low					1.42	1.41	1.38	1.38	1.39	1.41	1.38	1.38	1.40	1.39	
	Mid	1.42	1.43	1.40	1.41	1.42	1.43	1.41	1.41	1.42	1.44	1.42	1.41	1.41	1.42	1.42
	High					1.45	1.47	1.44	1.44	1.47	1.49	1.47	1.48	1.45	1.48	
Heavy Oil ^d (dollars per million Btu)	Low					2.45	2.23	2.21	2.55	2.65	2.41	2.37	2.70	2.37	2.54	
	Mid	2.14	2.36	2.75	3.04	2.80	2.57	2.55	2.89	2.97	2.73	2.71	3.03	2.52	2.71	2.87
	High					3.03	2.80	2.78	3.11	3.20	2.96	2.94	3.26	2.93	3.09	
Natural Gas (dollars per million Btu)	Low					2.42	2.06	2.09	2.36	2.41	2.17	2.21	2.48	2.20	2.30	
	Mid	2.14	2.08	2.29	2.69	2.56	2.25	2.30	2.60	2.65	2.40	2.47	2.77	2.32	2.40	2.55
	High					2.67	2.40	2.49	2.82	2.87	2.61	2.70	3.03	2.58	2.78	
Other Residential																
Natural Gas (dollars per thousand cubic feet)	Low					5.76	6.17	7.23	5.86	5.72	6.26	7.40	6.00	5.99	6.04	
	Mid	5.52	6.00	7.26	5.99	5.79	6.26	7.38	5.99	5.85	6.41	7.60	6.16	5.89	6.07	6.19
	High					5.81	6.35	7.53	6.12	5.98	6.55	7.79	6.32	6.15	6.34	
Electricity (cents per kilowatthour)	Low					7.7	8.1	8.3	7.9	7.6	8.1	8.4	8.0	8.0	8.0	
	Mid	7.8	8.3	8.6	8.0	7.9	8.4	8.6	8.1	8.0	8.5	8.8	8.3	8.2	8.3	8.4
	High					8.1	8.6	8.8	8.3	8.1	8.7	9.0	8.5	8.5	8.6	

^aCost of imported crude oil to U.S. refiners.

^bAverage for all grades and services.

^cAverage for all sulfur contents.

^dIncludes fuel oils No. 4, No. 5, and No. 6 and topped crude fuel oil prices.

Notes: Data are estimated for the fourth quarter of 1992. 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 threeworld 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: C010893BBB13:59 for the mid oil price case, C011193BLB10:48 for the low oil price case, and C011193BHB10:24 for the high oil price case.

Sources: Historical data: Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(92/12); and *Petroleum Marketing Monthly*, DOE/EIA-0380(92/11).

Table 6. U.S. Petroleum Supply and Demand: Low 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	7.35	7.18	7.01	7.05	6.92	6.73	6.65	6.66	6.65	6.50	6.42	6.41	7.15	6.74	6.49
Alaska	1.79	1.71	1.66	1.70	1.61	1.53	1.53	1.57	1.60	1.52	1.50	1.52	1.72	1.56	1.54
Lower 48	5.56	5.47	5.35	5.36	5.31	5.20	5.13	5.09	5.05	4.97	4.92	4.89	5.43	5.18	4.96
Net Imports (including SPR) ^b	5.34	5.97	6.40	6.27	5.96	6.66	6.93	6.65	6.46	6.97	7.14	7.00	6.00	6.55	6.89
Gross Imports (excluding SPR)	5.42	6.04	6.48	6.37	6.08	6.76	7.02	6.76	6.58	7.08	7.23	7.10	6.08	6.66	7.00
SPR Imports	0.00	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Exports	0.08	0.08	0.08	0.12	0.12	0.10	0.09	0.10	0.12	0.10	0.09	0.10	0.09	0.10	0.10
Other SPR Supply	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.03	0.00	0.02	0.02
SPR Stock Withdrawn or Added (-)	0.00	-0.01	-0.02	-0.03	-0.02	-0.02	-0.02	-0.03	-0.02	-0.02	-0.02	-0.03	-0.02	-0.02	-0.02
Other Stock Withdrawn or Added (-)	-0.15	0.15	0.03	-0.14	-0.08	0.04	-0.02	0.00	-0.02	0.04	-0.02	0.00	-0.03	-0.01	0.00
Product Supplied and Losses	-0.02	-0.01	-0.01	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
Unaccounted-for Crude Oil	0.32	0.38	0.26	0.39	0.35	0.29	0.37	0.32	0.34	0.31	0.39	0.35	0.34	0.33	0.35
Total Crude Oil Supply	12.84	13.66	13.69	13.53	13.14	13.70	13.91	13.61	13.41	13.81	13.91	13.74	13.43	13.59	13.72
Other Supply															
NGL Production	1.69	1.70	1.65	1.62	1.66	1.63	1.62	1.66	1.66	1.63	1.62	1.66	1.67	1.64	1.64
Other Hydrocarbon and Alcohol Inputs	0.12	0.09	0.13	0.19	0.16	0.09	0.14	0.21	0.16	0.09	0.14	0.22	0.13	0.15	0.15
Crude Oil Product Supplied	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Processing Gain	0.73	0.78	0.79	0.69	0.70	0.73	0.75	0.74	0.72	0.74	0.75	0.74	0.75	0.73	0.74
Net Product Imports ^c	0.83	0.96	1.04	1.11	1.20	1.23	1.17	1.41	1.28	1.33	1.38	1.42	0.99	1.25	1.35
Gross Product Imports ^c	1.72	1.81	1.81	1.83	2.08	2.08	1.98	2.30	2.16	2.17	2.20	2.32	1.79	2.11	2.21
Product Exports	0.89	0.85	0.77	0.72	0.88	0.84	0.81	0.90	0.89	0.85	0.82	0.90	0.81	0.86	0.86
Product Stock Withdrawn or Added (-) ^d	0.68	-0.50	-0.37	0.19	0.67	-0.44	-0.35	0.17	0.59	-0.44	-0.34	0.19	0.00	0.01	0.00
Total Supply	16.90	16.70	16.94	17.36	17.55	16.97	17.25	17.82	17.83	17.18	17.48	17.99	16.98	17.40	17.62
Demand															
Motor Gasoline	7.01	7.33	7.45	7.28	7.17	7.43	7.55	7.39	7.22	7.50	7.62	7.46	7.27	7.38	7.45
Jet Fuel	1.41	1.39	1.48	1.55	1.49	1.42	1.50	1.53	1.49	1.42	1.52	1.54	1.46	1.48	1.49
Distillate Fuel Oil	3.21	2.84	2.78	3.27	3.47	2.95	2.82	3.27	3.55	3.02	2.89	3.33	3.03	3.13	3.19
Residual Fuel Oil	1.26	1.03	0.93	1.10	1.30	1.10	1.00	1.28	1.34	1.11	1.02	1.27	1.08	1.17	1.18
Other Oils ^e	3.99	4.12	4.30	4.16	4.12	4.07	4.37	4.35	4.23	4.12	4.43	4.39	4.14	4.23	4.29
Total Demand	16.89	16.70	16.95	17.36	17.55	16.97	17.25	17.82	17.83	17.18	17.48	17.99	16.98	17.40	17.62
Total Petroleum Net Imports	6.16	6.93	7.44	7.38	7.16	7.89	8.09	8.06	7.74	8.30	8.52	8.42	6.98	7.80	8.25
Closing Stocks (million barrels)															
Crude Oil (excluding SPR) ^f	339	325	322	335	342	338	340	340	342	338	340	340	335	340	340
Total Motor Gasoline	220	225	207	220	217	211	212	220	219	213	214	221	220	220	221
Finished Motor Gasoline	181	188	168	181	177	173	173	181	179	175	175	182	181	181	182
Blending Components	39	37	39	39	40	38	39	39	40	38	39	39	39	39	39
Jet Fuel	44	45	48	49	46	47	47	48	46	47	47	48	49	48	48
Distillate Fuel Oil	98	104	127	137	98	105	129	133	101	108	130	134	137	133	134
Residual Fuel Oil	40	40	47	47	42	44	44	48	42	45	44	48	47	48	48
Other Oils ^g	260	294	313	273	260	296	304	271	259	295	303	271	273	271	271
Total Stocks (excluding SPR)	1001	1033	1063	1059	1005	1041	1075	1059	1008	1045	1078	1061	1059	1059	1061
Crude Oil in SPR	569	570	571	574	576	577	579	581	583	584	586	588	574	581	588
Total Stocks (including SPR)	1569	1602	1635	1633	1581	1618	1654	1641	1591	1629	1664	1649	1633	1641	1649

^aIncludes lease condensate.

^bNet imports equals gross imports plus SPR imports minus exports.

^cIncludes finished petroleum products, unfinished oils, gasoline blending components, and natural gas plant liquids for processing.

^dIncludes an estimate of minor product stock change based on monthly data.

^eIncludes 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.

^fIncludes crude oil in transit to refineries.

^gIncludes 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 C011193PLB11:08 of the Short-Term Integrated Forecasting System.

Sources: Historical data: Energy Information Administration, *Petroleum Supply Annual 1991*, DOE/EIA-0340(91)/1; *Petroleum Supply Monthly*, DOE/EIA-0109(91/01-92/12); and *Weekly Petroleum Status Report*, DOE/EIA-0208(various issues).

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	7.35	7.18	7.01	7.05	<i>7.06</i>	<i>6.92</i>	<i>6.86</i>	<i>6.89</i>	<i>6.91</i>	<i>6.77</i>	<i>6.71</i>	<i>6.72</i>	7.15	<i>6.93</i>	<i>6.78</i>
Alaska	1.79	1.71	1.66	1.70	<i>1.67</i>	<i>1.59</i>	<i>1.58</i>	<i>1.63</i>	<i>1.65</i>	<i>1.58</i>	<i>1.56</i>	<i>1.57</i>	1.72	<i>1.62</i>	<i>1.59</i>
Lower 48	5.56	5.47	5.35	5.36	<i>5.40</i>	<i>5.33</i>	<i>5.28</i>	<i>5.27</i>	<i>5.25</i>	<i>5.19</i>	<i>5.16</i>	<i>5.15</i>	5.43	<i>5.32</i>	<i>5.19</i>
Net Imports (including SPR) ^b	5.34	5.97	6.40	6.27	<i>5.80</i>	<i>6.44</i>	<i>6.70</i>	<i>6.36</i>	<i>6.18</i>	<i>6.70</i>	<i>6.87</i>	<i>6.63</i>	6.00	<i>6.33</i>	<i>6.60</i>
Gross Imports (excluding SPR)	5.42	6.04	6.48	6.37	<i>5.92</i>	<i>6.54</i>	<i>6.79</i>	<i>6.46</i>	<i>6.29</i>	<i>6.81</i>	<i>6.96</i>	<i>6.73</i>	6.08	<i>6.43</i>	<i>6.70</i>
SPR Imports	0.00	0.01	0.02	0.02	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	<i>0.00</i>	0.01	<i>0.00</i>	<i>0.00</i>
Exports	0.08	0.08	0.08	0.12	<i>0.12</i>	<i>0.10</i>	<i>0.09</i>	<i>0.10</i>	<i>0.12</i>	<i>0.10</i>	<i>0.09</i>	<i>0.10</i>	0.09	<i>0.10</i>	<i>0.10</i>
Other SPR Supply	0.00	0.00	0.00	0.01	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	<i>0.03</i>	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	<i>0.03</i>	0.00	<i>0.02</i>	<i>0.02</i>
SPR Stock Withdrawn or Added (-)	0.00	-0.01	-0.02	-0.03	<i>-0.02</i>	<i>-0.02</i>	<i>-0.02</i>	<i>-0.03</i>	<i>-0.02</i>	<i>-0.02</i>	<i>-0.02</i>	<i>-0.03</i>	-0.02	<i>-0.02</i>	<i>-0.02</i>
Other Stock Withdrawn or Added (-)	-0.15	0.15	0.03	-0.14	<i>-0.08</i>	<i>0.04</i>	<i>-0.02</i>	<i>0.00</i>	<i>-0.02</i>	<i>0.04</i>	<i>-0.02</i>	<i>0.00</i>	-0.03	<i>-0.01</i>	<i>0.00</i>
Product Supplied and Losses	-0.02	-0.01	-0.01	-0.02	<i>-0.02</i>	<i>-0.02</i>	<i>-0.02</i>	<i>-0.02</i>	<i>-0.02</i>	<i>-0.02</i>	<i>-0.02</i>	<i>-0.02</i>	-0.02	<i>-0.02</i>	<i>-0.02</i>
Unaccounted-for Crude Oil	0.32	0.38	0.26	0.39	<i>0.34</i>	<i>0.27</i>	<i>0.35</i>	<i>0.30</i>	<i>0.31</i>	<i>0.29</i>	<i>0.37</i>	<i>0.32</i>	0.34	<i>0.32</i>	<i>0.32</i>
Total Crude Oil Supply	12.84	13.66	13.69	13.53	<i>13.11</i>	<i>13.65</i>	<i>13.87</i>	<i>13.53</i>	<i>13.36</i>	<i>13.79</i>	<i>13.91</i>	<i>13.65</i>	13.43	<i>13.54</i>	<i>13.68</i>
Other Supply															
NGL Production	1.69	1.70	1.65	1.62	<i>1.66</i>	<i>1.64</i>	<i>1.63</i>	<i>1.66</i>	<i>1.67</i>	<i>1.64</i>	<i>1.63</i>	<i>1.67</i>	1.67	<i>1.65</i>	<i>1.65</i>
Other Hydrocarbon and Alcohol Inputs	0.12	0.09	0.13	0.19	<i>0.16</i>	<i>0.09</i>	<i>0.14</i>	<i>0.21</i>	<i>0.16</i>	<i>0.09</i>	<i>0.14</i>	<i>0.22</i>	0.13	<i>0.15</i>	<i>0.15</i>
Crude Oil Product Supplied	0.02	0.01	0.01	0.02	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	<i>0.02</i>	0.02	<i>0.02</i>	<i>0.02</i>
Processing Gain	0.73	0.78	0.79	0.69	<i>0.70</i>	<i>0.73</i>	<i>0.75</i>	<i>0.73</i>	<i>0.71</i>	<i>0.74</i>	<i>0.75</i>	<i>0.74</i>	0.75	<i>0.73</i>	<i>0.74</i>
Net Product Imports ^c	0.83	0.96	1.04	1.11	<i>1.15</i>	<i>1.15</i>	<i>1.04</i>	<i>1.44</i>	<i>1.26</i>	<i>1.21</i>	<i>1.22</i>	<i>1.45</i>	0.98	<i>1.19</i>	<i>1.28</i>
Gross Product Imports ^c	1.72	1.81	1.81	1.83	<i>2.03</i>	<i>1.99</i>	<i>1.85</i>	<i>2.33</i>	<i>2.15</i>	<i>2.06</i>	<i>2.03</i>	<i>2.35</i>	1.79	<i>2.05</i>	<i>2.15</i>
Product Exports	0.89	0.85	0.77	0.72	<i>0.88</i>	<i>0.84</i>	<i>0.81</i>	<i>0.90</i>	<i>0.89</i>	<i>0.85</i>	<i>0.82</i>	<i>0.90</i>	0.81	<i>0.86</i>	<i>0.86</i>
Product Stock Withdrawn or Added (-) ^d	0.68	-0.50	-0.37	0.19	<i>0.67</i>	<i>-0.44</i>	<i>-0.35</i>	<i>0.17</i>	<i>0.59</i>	<i>-0.44</i>	<i>-0.34</i>	<i>0.19</i>	0.00	<i>0.01</i>	<i>0.00</i>
Total Supply	16.90	16.70	16.94	17.36	<i>17.47</i>	<i>16.84</i>	<i>17.10</i>	<i>17.77</i>	<i>17.76</i>	<i>17.05</i>	<i>17.32</i>	<i>17.93</i>	16.98	<i>17.30</i>	<i>17.51</i>
Demand															
Motor Gasoline	7.01	7.33	7.45	7.28	<i>7.13</i>	<i>7.39</i>	<i>7.50</i>	<i>7.35</i>	<i>7.18</i>	<i>7.46</i>	<i>7.58</i>	<i>7.42</i>	7.27	<i>7.34</i>	<i>7.41</i>
Jet Fuel	1.41	1.39	1.48	1.55	<i>1.49</i>	<i>1.41</i>	<i>1.50</i>	<i>1.52</i>	<i>1.49</i>	<i>1.42</i>	<i>1.51</i>	<i>1.54</i>	1.46	<i>1.48</i>	<i>1.49</i>
Distillate Fuel Oil	3.21	2.84	2.78	3.27	<i>3.47</i>	<i>2.94</i>	<i>2.81</i>	<i>3.28</i>	<i>3.55</i>	<i>3.00</i>	<i>2.87</i>	<i>3.33</i>	3.03	<i>3.12</i>	<i>3.19</i>
Residual Fuel Oil	1.26	1.03	0.93	1.10	<i>1.27</i>	<i>1.05</i>	<i>0.94</i>	<i>1.27</i>	<i>1.32</i>	<i>1.07</i>	<i>0.96</i>	<i>1.25</i>	1.08	<i>1.13</i>	<i>1.15</i>
Other Oils ^e	3.99	4.12	4.30	4.16	<i>4.12</i>	<i>4.05</i>	<i>4.35</i>	<i>4.36</i>	<i>4.22</i>	<i>4.10</i>	<i>4.40</i>	<i>4.40</i>	4.14	<i>4.22</i>	<i>4.28</i>
Total Demand	16.89	16.70	16.95	17.36	<i>17.47</i>	<i>16.84</i>	<i>17.10</i>	<i>17.77</i>	<i>17.76</i>	<i>17.05</i>	<i>17.32</i>	<i>17.93</i>	16.98	<i>17.30</i>	<i>17.51</i>
Total Petroleum Net Imports	6.16	6.93	7.44	7.38	<i>6.95</i>	<i>7.59</i>	<i>7.74</i>	<i>7.80</i>	<i>7.44</i>	<i>7.92</i>	<i>8.09</i>	<i>8.07</i>	6.98	<i>7.52</i>	<i>7.88</i>
Closing Stocks (million barrels)															
Crude Oil (excluding SPR) ^f	339	325	322	335	<i>342</i>	<i>338</i>	<i>340</i>	<i>340</i>	<i>342</i>	<i>338</i>	<i>340</i>	<i>340</i>	335	<i>340</i>	<i>340</i>
Total Motor Gasoline	220	225	207	220	<i>217</i>	<i>211</i>	<i>212</i>	<i>220</i>	<i>219</i>	<i>213</i>	<i>214</i>	<i>221</i>	220	<i>220</i>	<i>221</i>
Finished Motor Gasoline	181	188	168	181	<i>177</i>	<i>173</i>	<i>173</i>	<i>181</i>	<i>179</i>	<i>175</i>	<i>175</i>	<i>182</i>	181	<i>181</i>	<i>182</i>
Blending Components	39	37	39	39	<i>40</i>	<i>38</i>	<i>39</i>	<i>39</i>	<i>40</i>	<i>38</i>	<i>39</i>	<i>39</i>	39	<i>39</i>	<i>39</i>
Jet Fuel	44	45	48	49	<i>46</i>	<i>47</i>	<i>47</i>	<i>48</i>	<i>46</i>	<i>47</i>	<i>47</i>	<i>48</i>	49	<i>48</i>	<i>48</i>
Distillate Fuel Oil	98	104	127	137	<i>98</i>	<i>105</i>	<i>129</i>	<i>133</i>	<i>101</i>	<i>108</i>	<i>130</i>	<i>134</i>	137	<i>133</i>	<i>134</i>
Residual Fuel Oil	40	40	47	47	<i>42</i>	<i>44</i>	<i>44</i>	<i>48</i>	<i>42</i>	<i>45</i>	<i>44</i>	<i>48</i>	47	<i>48</i>	<i>48</i>
Other Oils ^g	260	294	313	273	<i>260</i>	<i>296</i>	<i>304</i>	<i>271</i>	<i>259</i>	<i>295</i>	<i>303</i>	<i>271</i>	273	<i>271</i>	<i>271</i>
Total Stocks (excluding SPR)	1001	1033	1063	1059	<i>1005</i>	<i>1041</i>	<i>1075</i>	<i>1059</i>	<i>1008</i>	<i>1045</i>	<i>1078</i>	<i>1061</i>	1059	<i>1059</i>	<i>1061</i>
Crude Oil in SPR	569	570	571	574	<i>576</i>	<i>577</i>	<i>579</i>	<i>581</i>	<i>583</i>	<i>584</i>	<i>586</i>	<i>588</i>	574	<i>581</i>	<i>588</i>
Total Stocks (including SPR)	1569	1602	1635	1633	<i>1581</i>	<i>1618</i>	<i>1654</i>	<i>1641</i>	<i>1591</i>	<i>1629</i>	<i>1664</i>	<i>1649</i>	1633	<i>1641</i>	<i>1649</i>

^aIncludes lease condensate.

^bNet imports equals gross imports plus SPR imports minus exports.

^cIncludes finished petroleum products, unfinished oils, gasoline blending components, and natural gas plant liquids for processing.

^dIncludes an estimate of minor product stock change based on monthly data.

^eIncludes 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.

^fIncludes crude oil in transit to refineries.

^gIncludes 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 C010893BBB13:59 of the Short-Term Integrated Forecasting System.

Sources: Historical data: Energy Information Administration, *Petroleum Supply Annual 1991*, DOE/EIA-0340(91)/1; *Petroleum Supply Monthly*, DOE/EIA-0109(91/01-92/12); and *Weekly Petroleum Status Report*, DOE/EIA-0208(various issues).

Table 8. U.S. Petroleum Supply and Demand: High 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	7.35	7.18	7.01	7.05	7.16	7.02	6.98	7.02	7.05	6.93	6.88	6.90	7.15	7.04	6.94
Alaska	1.79	1.71	1.66	1.70	1.70	1.62	1.61	1.66	1.68	1.61	1.59	1.60	1.72	1.64	1.62
Lower 48	5.56	5.47	5.35	5.36	5.46	5.41	5.37	5.36	5.37	5.32	5.30	5.30	5.43	5.40	5.32
Net Imports (including SPR) ^b	5.34	5.97	6.40	6.27	5.70	6.31	6.53	6.19	6.01	6.54	6.72	6.41	6.00	6.19	6.42
Gross Imports (excluding SPR)	5.42	6.04	6.48	6.37	5.82	6.42	6.62	6.30	6.13	6.65	6.81	6.52	6.08	6.29	6.53
SPR Imports	0.00	0.01	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Exports	0.08	0.08	0.08	0.12	0.12	0.10	0.09	0.10	0.12	0.10	0.09	0.10	0.09	0.10	0.10
Other SPR Supply	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.03	0.00	0.02	0.02
SPR Stock Withdrawn or Added (-)	0.00	-0.01	-0.02	-0.03	-0.02	-0.02	-0.02	-0.03	-0.02	-0.02	-0.02	-0.02	-0.03	-0.02	-0.02
Other Stock Withdrawn or Added (-)	-0.15	0.15	0.03	-0.14	-0.08	0.04	-0.02	0.00	-0.02	0.04	-0.02	0.00	-0.03	-0.01	0.00
Product Supplied and Losses	-0.02	-0.01	-0.01	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02	-0.02
Unaccounted-for Crude Oil	0.32	0.38	0.26	0.39	0.33	0.26	0.34	0.28	0.30	0.28	0.35	0.30	0.34	0.30	0.31
Total Crude Oil Supply	12.84	13.66	13.69	13.53	13.09	13.62	13.81	13.48	13.32	13.77	13.91	13.59	13.43	13.50	13.65
Other Supply															
NGL Production	1.69	1.70	1.65	1.62	1.67	1.64	1.64	1.67	1.67	1.65	1.64	1.67	1.67	1.65	1.66
Other Hydrocarbon and Alcohol Inputs	0.12	0.09	0.13	0.19	0.16	0.09	0.14	0.21	0.16	0.09	0.14	0.22	0.13	0.15	0.15
Crude Oil Product Supplied	0.02	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Processing Gain	0.73	0.78	0.79	0.69	0.70	0.73	0.74	0.73	0.71	0.74	0.75	0.74	0.75	0.73	0.73
Net Product Imports ^c	0.83	0.96	1.04	1.11	1.12	1.09	1.01	1.45	1.26	1.15	1.12	1.46	0.98	1.17	1.25
Gross Product Imports ^c	1.72	1.81	1.81	1.83	2.00	1.94	1.82	2.35	2.15	2.00	1.93	2.36	1.79	2.03	2.11
Product Exports	0.89	0.85	0.77	0.72	0.88	0.84	0.81	0.90	0.89	0.85	0.82	0.90	0.81	0.86	0.86
Product Stock Withdrawn or Added (-) ^d	0.68	-0.50	-0.37	0.19	0.67	-0.44	-0.35	0.17	0.59	-0.44	-0.34	0.19	0.00	0.01	0.00
Total Supply	16.90	16.70	16.94	17.36	17.43	16.76	17.00	17.73	17.72	16.98	17.23	17.89	16.98	17.23	17.46
Demand															
Motor Gasoline	7.01	7.33	7.45	7.28	7.11	7.36	7.48	7.32	7.15	7.43	7.55	7.39	7.27	7.32	7.38
Jet Fuel	1.41	1.39	1.48	1.55	1.48	1.41	1.50	1.52	1.48	1.42	1.51	1.54	1.46	1.48	1.49
Distillate Fuel Oil	3.21	2.84	2.78	3.27	3.46	2.93	2.80	3.28	3.55	2.99	2.86	3.33	3.03	3.12	3.18
Residual Fuel Oil	1.26	1.03	0.93	1.10	1.25	1.01	0.90	1.25	1.31	1.05	0.92	1.23	1.08	1.10	1.13
Other Oils ^e	3.99	4.12	4.30	4.16	4.12	4.04	4.33	4.36	4.23	4.09	4.38	4.40	4.14	4.22	4.28
Total Demand	16.89	16.70	16.95	17.36	17.43	16.76	17.00	17.73	17.72	16.98	17.23	17.89	16.98	17.23	17.46
Total Petroleum Net Imports	6.16	6.93	7.44	7.38	6.81	7.41	7.54	7.64	7.27	7.70	7.84	7.87	6.98	7.35	7.67
Closing Stocks (million barrels)															
Crude Oil (excluding SPR) ^f	339	325	322	335	342	338	340	340	342	338	340	340	335	340	340
Total Motor Gasoline	220	225	207	220	217	211	212	220	219	213	214	221	220	220	221
Finished Motor Gasoline	181	188	168	181	177	173	173	181	179	175	175	182	181	181	182
Blending Components	39	37	39	39	40	38	39	39	40	38	39	39	39	39	39
Jet Fuel	44	45	48	49	46	47	47	48	46	47	47	48	49	48	48
Distillate Fuel Oil	98	104	127	137	98	105	129	133	101	108	130	134	137	133	134
Residual Fuel Oil	40	40	47	47	42	44	44	48	42	45	44	48	47	48	48
Other Oils ^g	260	294	313	273	260	296	304	271	259	295	303	271	273	271	271
Total Stocks (excluding SPR)	1001	1033	1063	1059	1005	1041	1075	1059	1008	1045	1078	1061	1059	1059	1061
Crude Oil in SPR	569	570	571	574	576	577	579	581	583	584	586	588	574	581	588
Total Stocks (including SPR)	1569	1602	1635	1633	1581	1618	1654	1641	1591	1629	1664	1649	1633	1641	1649

^aIncludes lease condensate.

^bNet imports equals gross imports plus SPR imports minus exports.

^cIncludes finished petroleum products, unfinished oils, gasoline blending components, and natural gas plant liquids for processing.

^dIncludes an estimate of minor product stock change based on monthly data.

^eIncludes 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.

^fIncludes crude oil in transit to refineries.

^gIncludes 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 C011193WHB11:32 of the Short-Term Integrated Forecasting System.

Sources: Historical data: Energy Information Administration, *Petroleum Supply Annual 1991*, DOE/EIA-0340(91)/1; *Petroleum Supply Monthly*, DOE/EIA-0109(91)/01-92/12; and *Weekly Petroleum Status Report*, DOE/EIA-0208(various issues).

Table 9. U.S. Petroleum Demand Sensitivities

	1993	1994
	Four Quarters ^a	Four Quarters ^a
Economic Activity		
Gross Domestic Product (billion 1987 dollars)	4,980 - 5,108	5,090 - 5,309
Resulting Change in Petroleum Demand (million barrels per day) ^b	0.34	0.61
Energy Prices		
Imported Crude Oil (nominal dollars per barrel) ^c	\$16 - \$21	\$17 - \$22
Resulting Change in Petroleum Demand (million barrels per day) ^b		
Due to Changes in All Energy Prices	0.12	0.13
Due to Changes in the Crude Oil Price	0.17	0.19
Weather		
Heating Degree Days ^d	3,758 - 4,450	3,758 - 4,450
Resulting Change in Petroleum Demand (million barrels per day)	0.54	0.72
Cooling Degree Days ^d	999 - 1,184	999 - 1,184
Resulting Change in Petroleum Demand (million barrels per day) ^b	0.14	0.21

^aIn 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.

^bRanges of petroleum product supplied associated with varying each determinant (or determinants), holding other things equal.

^cCost of imported crude oil to U.S. refiners.

^dHeating and cooling degree days are U.S. 1980 population-weighted.

Source: Energy Information Administration, Office of Energy Markets and End Use, Energy Markets and Contingency Information Division, Short-Term Integrated Forecasting System.

**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	6.90	6.41	0.49	0.13	0.36
Lower 48 States	5.30	4.89	0.41	0.09	0.32
Alaska	1.60	1.52	0.08	0.04	0.04

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	4.54	4.36	4.41	4.87	4.69	4.54	4.53	4.82	4.72	4.57	4.56	4.86	18.18	18.58	18.71
Net Imports	0.47	0.45	0.45	0.55	0.56	0.51	0.50	0.60	0.61	0.57	0.57	0.65	1.92	2.17	2.40
Supplemental Gaseous Fuels	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.03	0.03	0.02	0.02	0.03	0.12	0.11	0.11
Total New Supply	5.04	4.84	4.89	5.46	5.28	5.07	5.06	5.45	5.36	5.17	5.16	5.54	20.22	20.85	21.22
Underground Working Gas Storage															
Opening	2.82	1.54	2.15	3.05	2.89	1.62	2.22	3.11	2.99	1.65	2.32	3.23	2.82	2.89	2.99
Closing	1.54	2.15	3.05	2.89	1.62	2.22	3.11	2.99	1.65	2.32	3.23	3.05	2.89	2.99	3.05
Net Withdrawals ^b	1.20	-0.61	-0.88	0.15	1.28	-0.60	-0.89	0.12	1.34	-0.67	-0.91	0.18	-0.14	-0.10	-0.06
Total Supply ^a	6.24	4.23	4.00	5.61	6.55	4.46	4.17	5.57	6.70	4.49	4.25	5.72	20.08	20.75	21.16
Balancing Item ^c	-0.03	0.16	-0.14	-0.37	0.01	0.25	-0.17	-0.47	-0.08	0.31	-0.15	-0.46	-0.37	-0.38	-0.39
Total Primary Supply ^a	6.21	4.40	3.87	5.24	6.56	4.71	4.00	5.10	6.62	4.80	4.09	5.26	19.71	20.38	20.78
Demand															
Lease and Plant Fuel	0.30	0.28	0.29	0.30	0.31	0.29	0.29	0.30	0.32	0.30	0.29	0.30	1.17	1.20	1.21
Pipeline Use	0.22	0.16	0.14	0.17	0.21	0.17	0.15	0.18	0.21	0.17	0.16	0.19	0.68	0.71	0.73
Residential	2.06	0.85	0.41	1.32	2.23	0.95	0.43	1.31	2.26	0.96	0.44	1.33	4.64	4.92	4.99
Commercial	1.08	0.54	0.37	0.73	1.12	0.56	0.35	0.72	1.14	0.56	0.35	0.73	2.71	2.75	2.78
Industrial	2.00	1.84	1.76	1.92	2.08	1.91	1.82	1.94	2.14	2.01	1.90	2.03	7.52	7.75	8.08
Electric Utilities	0.55	0.73	0.91	0.80	0.61	0.83	0.96	0.65	0.55	0.80	0.96	0.67	2.99	3.04	2.98
Total Demand	6.21	4.40	3.87	5.24	6.56	4.71	4.00	5.10	6.62	4.80	4.09	5.26	19.71	20.38	20.78

^aExcludes nonhydrocarbon gases removed.

^bNet 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.

^cThe 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 C010893BBB13:59 of the Short-Term Integrated Forecasting System.

Sources: Historical data: Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(92/12); *Natural Gas Monthly*, DOE/EIA-0130(92/12); and *Electric Power Monthly*, DOE/EIA-0226(92/12).

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	256.7	243.4	249.6	<i>257.4</i>	<i>254.2</i>	<i>250.2</i>	<i>253.4</i>	<i>261.1</i>	<i>254.4</i>	<i>258.6</i>	<i>259.7</i>	<i>268.1</i>	<i>1007.1</i>	<i>1018.9</i>	<i>1040.8</i>
Primary Stock Levels ^d															
Opening	33.0	39.8	40.5	<i>35.2</i>	<i>32.6</i>	<i>36.5</i>	<i>36.0</i>	<i>33.0</i>	<i>34.0</i>	<i>35.0</i>	<i>36.0</i>	<i>33.0</i>	<i>33.0</i>	<i>32.6</i>	<i>34.0</i>
Closing	39.8	40.5	35.2	<i>32.6</i>	<i>36.5</i>	<i>36.0</i>	<i>33.0</i>	<i>34.0</i>	<i>35.0</i>	<i>36.0</i>	<i>33.0</i>	<i>33.0</i>	<i>32.6</i>	<i>34.0</i>	<i>33.0</i>
Net Withdrawals	-6.8	-0.7	5.3	<i>2.6</i>	<i>-3.9</i>	<i>0.5</i>	<i>3.0</i>	<i>-1.0</i>	<i>-1.0</i>	<i>-1.0</i>	<i>3.0</i>	<i>0.0</i>	<i>0.3</i>	<i>-1.4</i>	<i>1.0</i>
Imports	0.7	1.0	0.9	<i>0.8</i>	<i>0.7</i>	<i>0.7</i>	<i>0.8</i>	<i>0.8</i>	<i>0.7</i>	<i>0.7</i>	<i>0.8</i>	<i>0.8</i>	<i>3.4</i>	<i>2.9</i>	<i>2.9</i>
Exports	24.7	27.0	26.5	<i>27.7</i>	<i>24.4</i>	<i>27.5</i>	<i>27.1</i>	<i>27.6</i>	<i>24.4</i>	<i>29.0</i>	<i>28.1</i>	<i>29.0</i>	<i>105.9</i>	<i>106.7</i>	<i>110.6</i>
Total Net Domestic Supply	225.8	216.7	229.3	<i>233.0</i>	<i>226.6</i>	<i>223.8</i>	<i>230.0</i>	<i>233.2</i>	<i>229.7</i>	<i>229.2</i>	<i>235.3</i>	<i>239.8</i>	<i>904.9</i>	<i>913.7</i>	<i>934.1</i>
Secondary Stock Levels ^e															
Opening	167.9	168.6	173.1	<i>161.5</i>	<i>170.2</i>	<i>170.8</i>	<i>176.3</i>	<i>168.3</i>	<i>173.8</i>	<i>174.0</i>	<i>180.1</i>	<i>171.1</i>	<i>167.9</i>	<i>170.2</i>	<i>173.8</i>
Closing	168.6	173.1	161.5	<i>170.2</i>	<i>170.8</i>	<i>176.3</i>	<i>168.3</i>	<i>173.8</i>	<i>174.0</i>	<i>180.1</i>	<i>171.1</i>	<i>176.6</i>	<i>170.2</i>	<i>173.8</i>	<i>176.6</i>
Net Withdrawals	-0.7	-4.5	11.6	<i>-8.7</i>	<i>-0.6</i>	<i>-5.5</i>	<i>8.0</i>	<i>-5.5</i>	<i>-0.2</i>	<i>-6.2</i>	<i>9.0</i>	<i>-5.5</i>	<i>-2.4</i>	<i>-3.6</i>	<i>-2.8</i>
Total Supply	225.1	212.2	240.9	<i>224.3</i>	<i>226.1</i>	<i>218.3</i>	<i>238.0</i>	<i>227.7</i>	<i>229.5</i>	<i>223.1</i>	<i>244.4</i>	<i>234.3</i>	<i>902.5</i>	<i>910.1</i>	<i>931.3</i>
Demand															
Coke Plants	8.3	8.1	8.2	<i>8.3</i>	<i>8.3</i>	<i>8.5</i>	<i>8.7</i>	<i>8.8</i>	<i>8.5</i>	<i>8.8</i>	<i>9.0</i>	<i>9.1</i>	<i>33.0</i>	<i>34.3</i>	<i>35.4</i>
Electric Utilities	190.9	183.9	210.3	<i>193.7</i>	<i>195.7</i>	<i>190.3</i>	<i>210.1</i>	<i>196.9</i>	<i>198.9</i>	<i>194.8</i>	<i>216.0</i>	<i>203.0</i>	<i>778.8</i>	<i>793.0</i>	<i>812.8</i>
Retail and General Industry ^f	21.8	18.5	19.1	<i>22.2</i>	<i>22.0</i>	<i>19.5</i>	<i>19.3</i>	<i>22.0</i>	<i>22.1</i>	<i>19.4</i>	<i>19.4</i>	<i>22.1</i>	<i>81.6</i>	<i>82.9</i>	<i>83.0</i>
Total Demand	221.1	210.4	237.6	<i>224.3</i>	<i>226.1</i>	<i>218.3</i>	<i>238.0</i>	<i>227.7</i>	<i>229.5</i>	<i>223.1</i>	<i>244.4</i>	<i>234.3</i>	<i>893.4</i>	<i>910.1</i>	<i>931.3</i>
Discrepancy ^g	4.0	1.8	3.4	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>9.1</i>	<i>0</i>	<i>0</i>

^dPrimary stocks are held at the mines, preparation plants, and distribution points.

^eSecondary stocks are held by users. Most of the secondary stocks are held by electric utilities.

^fSynfuels plant demand in 1992 was 1.7 million tons per quarter, and is assumed to remain at that level in 1993 and 1994.

^gHistorical 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 C010893BBB13:59 of the Short-Term Integrated Forecasting System.

Sources: Historical data: Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(92/12); and *Quarterly Coal Report*, DOE/EIA-0221(92/3Q).

**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	386.6	373.4	423.8	<i>390.1</i>	<i>394.6</i>	<i>385.2</i>	<i>420.8</i>	<i>395.7</i>	<i>400.7</i>	<i>394.4</i>	<i>433.0</i>	<i>408.4</i>	<i>1573.9</i>	<i>1596.3</i>	<i>1636.5</i>
Petroleum	27.3	18.7	22.3	<i>17.4</i>	<i>26.4</i>	<i>25.0</i>	<i>23.7</i>	<i>27.7</i>	<i>29.5</i>	<i>27.4</i>	<i>25.7</i>	<i>27.9</i>	<i>85.7</i>	<i>102.7</i>	<i>110.6</i>
Natural Gas	52.2	69.5	86.8	<i>74.4</i>	<i>56.5</i>	<i>76.6</i>	<i>88.6</i>	<i>59.9</i>	<i>51.1</i>	<i>73.8</i>	<i>88.9</i>	<i>62.2</i>	<i>283.0</i>	<i>281.5</i>	<i>275.9</i>
Nuclear	156.5	139.1	165.6	<i>145.1</i>	<i>154.1</i>	<i>138.4</i>	<i>169.4</i>	<i>148.1</i>	<i>156.8</i>	<i>139.7</i>	<i>170.6</i>	<i>148.4</i>	<i>606.3</i>	<i>610.0</i>	<i>615.4</i>
Hydroelectric	61.0	64.4	54.6	<i>58.1</i>	<i>67.1</i>	<i>76.6</i>	<i>65.6</i>	<i>66.8</i>	<i>75.5</i>	<i>82.4</i>	<i>67.3</i>	<i>67.5</i>	<i>238.1</i>	<i>276.2</i>	<i>292.6</i>
Geothermal and Other ^a	2.6	2.5	2.6	<i>2.4</i>	<i>2.3</i>	<i>2.2</i>	<i>2.3</i>	<i>2.3</i>	<i>2.2</i>	<i>2.1</i>	<i>2.2</i>	<i>2.1</i>	<i>10.0</i>	<i>9.1</i>	<i>8.6</i>
Total Net Generation	686.3	667.6	755.6	<i>687.5</i>	<i>700.9</i>	<i>704.0</i>	<i>770.3</i>	<i>700.5</i>	<i>715.7</i>	<i>719.7</i>	<i>787.5</i>	<i>716.7</i>	<i>2797.0</i>	<i>2875.7</i>	<i>2939.6</i>
Net Imports	4.7	5.4	8.4	<i>6.8</i>	<i>5.6</i>	<i>6.5</i>	<i>9.1</i>	<i>7.1</i>	<i>6.6</i>	<i>7.6</i>	<i>10.5</i>	<i>8.3</i>	<i>25.3</i>	<i>28.3</i>	<i>33.0</i>
Utility Purchases from Nonutilities ^b	35.2	33.4	36.6	<i>42.1</i>	<i>38.8</i>	<i>36.8</i>	<i>40.3</i>	<i>46.4</i>	<i>41.9</i>	<i>39.7</i>	<i>43.5</i>	<i>50.1</i>	<i>147.3</i>	<i>162.2</i>	<i>175.1</i>
Total Supply	726.2	706.4	800.6	<i>736.4</i>	<i>745.3</i>	<i>747.3</i>	<i>819.6</i>	<i>754.0</i>	<i>764.1</i>	<i>767.0</i>	<i>841.5</i>	<i>775.0</i>	<i>2969.6</i>	<i>3066.3</i>	<i>3147.7</i>
Losses and Unaccounted ^c	43.7	56.3	58.3	<i>55.9</i>	<i>43.4</i>	<i>69.7</i>	<i>62.1</i>	<i>57.0</i>	<i>44.5</i>	<i>71.5</i>	<i>63.8</i>	<i>58.6</i>	<i>214.2</i>	<i>232.2</i>	<i>238.4</i>
Demand															
Residential	246.8	203.8	255.5	<i>229.9</i>	<i>255.6</i>	<i>223.2</i>	<i>264.7</i>	<i>234.3</i>	<i>261.3</i>	<i>228.6</i>	<i>270.8</i>	<i>240.0</i>	<i>936.0</i>	<i>977.9</i>	<i>1000.7</i>
Commercial	181.8	183.6	210.2	<i>187.2</i>	<i>186.6</i>	<i>187.7</i>	<i>214.4</i>	<i>193.0</i>	<i>193.2</i>	<i>195.0</i>	<i>223.2</i>	<i>201.5</i>	<i>762.8</i>	<i>781.8</i>	<i>812.9</i>
Industrial	231.2	239.7	251.6	<i>239.8</i>	<i>236.2</i>	<i>243.8</i>	<i>253.9</i>	<i>246.2</i>	<i>241.6</i>	<i>248.7</i>	<i>258.9</i>	<i>251.1</i>	<i>962.3</i>	<i>980.1</i>	<i>1000.3</i>
Other	22.8	23.0	25.0	<i>23.5</i>	<i>23.4</i>	<i>22.9</i>	<i>24.5</i>	<i>23.4</i>	<i>23.5</i>	<i>23.1</i>	<i>24.9</i>	<i>23.8</i>	<i>94.3</i>	<i>94.3</i>	<i>95.3</i>
Total Demand	682.5	650.1	742.3	<i>680.5</i>	<i>701.9</i>	<i>677.6</i>	<i>757.5</i>	<i>697.0</i>	<i>719.6</i>	<i>695.5</i>	<i>777.8</i>	<i>716.4</i>	<i>2755.4</i>	<i>2834.0</i>	<i>2909.3</i>

^aOther includes generation from wind, wood, waste, and solar sources.

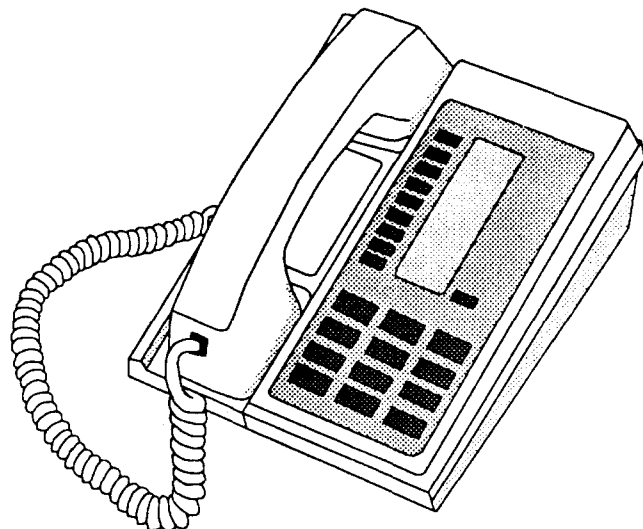
^bElectricity received from nonutility sources, including cogenerators and small power producers.

^cBalancing 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 C010893BBB13:59 of the Short-Term Integrated Forecasting System.

Sources: Historical data: Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035(92/12); and *Electric Power Monthly*, DOE/EIA-0226(92/12).

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3. Frequency of Issue QUARTERLY	3A. No. of Issues Published Annually 4	3B. Annual Subscription Price Domestic \$14.00 Foreign \$17.50
4. Complete Mailing Address of Known Office of Publication (Street, City, County, State and ZIP-4 Code) (Not printers) U. S. Department of Energy Energy Information Administration 1000 Independence Avenue, SW Washington, DC 20585		
5. Complete Mailing Address of the Headquarters of General Business Offices of the Publisher (Not printer) U. S. Department of Energy Energy Information Administration 1000 Independence Avenue, SW Washington, DC 20585		
6. Full Name and Complete Mailing Address of Publisher, Editor, and Managing Editor (This item MUST NOT be blank)		
Publisher (Name and Complete Mailing Address) U. S. Department of Energy Energy Information Administration 1000 Independence Avenue, SW Washington, DC 20585		
Editor (Name and Complete Mailing Address) Diane Good U. S. Department of Energy 1000 Independence Avenue, SW Washington, DC 20585		
Managing Editor (Name and Complete Mailing Address) Patricia JACOBUS U. S. Department of Energy 1000 Independence Avenue, SW Washington, DC 20585		
7. Owner (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given. If the publication is published by a nonprofit organization, its name and address must be stated.) (Item must be completed.)		

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N/A	

Full Name	Complete Mailing Address
N/A	

9. For Completion by Nonprofit Organizations Authorized To Mail at Special Rates (DMM Section 423.12 only)
 The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes (Check one)

(1) Has Not Changed During Preceding 12 Months (2) Has Changed During Preceding 12 Months
(If changed, publisher must submit explanation of change with this statement.)

10. Extent and Nature of Circulation <i>(See instructions on reverse side)</i>	Average No. Copies Each Issue During Preceding 12 Months	Actual No. Copies of Single Issue Published Nearest to Filing Date
A. Total No. Copies (Net Press Run)	3076	2946
B. Paid and/or Requested Circulation		
1. Sales through dealers and carriers, street vendors and counter sales	1851	1766
2. Mail Subscription <i>(Paid and/or requested)</i>	884	899
C. Total Paid and/or Requested Circulation <i>(Sum of 10B1 and 10B2)</i>	2735	2665
D. Free Distribution by Mail, Carrier or Other Means Samples, Complimentary, and Other Free Copies	131	136
E. Total Distribution (Sum of C and D)	2866	2801
F. Copies Not Distributed		
1. Office use, left over, unaccounted, spoiled after printing	210	145
2. Return from News Agents	0	0
G. TOTAL (Sum of E, F1 and 2--should equal net press run shown in A)	3076	2946

11. I certify that the statements made by me above are correct and complete

Signature and Title of Editor, Publisher, Business Manager, or Owner
 Inez E. Allen
 Management Analyst

NOTICE

18 U.S.C. 1722 Provides as follows:

Whoever knowingly submits to the Postal Service or to any officer or employee of the Postal Service, any false evidence relative to any publication for the purpose of securing the admission thereof at the Second-Class rate, for transportation in the mails, shall be fined not more than \$500.

INSTRUCTIONS TO PUBLISHERS

1. Complete and file one copy of this form with your postmaster on or before October 1. A copy of the completed form should be retained for your records.
2. Include in items 7 and 8, page 1, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting. Also, include in items 7 and 8 the names and addresses of individuals who are stockholders of the corporation which itself is a stockholder or holder of bonds, mortgages or other securities of the publishing corporation when the interests of such individuals are equivalent to 1 percent or more of the total amount of the stock or securities of the publishing corporation.
3. Be sure to furnish all information called for in item 10, page 1, regarding circulation. Show requested circulation in item 10.B. and C. for requestor (DMM section 422.6) publications ONLY. Free circulation of other second-class publications must be shown in item 10.D.
4. Item 11 must be signed.
5. If the publication has second-class entry under the provisions of DMM section 422.2 or 422.6, the Statement of Ownership, Management and Circulation must be published; it must be printed in the second issue nearest to the date Form 3526 is filed.

INSTRUCTIONS TO POSTMASTERS

1. Furnish each publisher not less than 10 days prior to October 1 at least 2 copies of Form 3526 for each of his publications having an original second-class entry at your office.
2. Examine each statement to see that it contains all of the information required by law.
3. Verify that the known office of publication is at address indicated in item 4, page 1 (DMM section 421.3).
4. Compare the information furnished in item 10B2 with information furnished on applicable Form 3541, Statement of Mailing-2nd-Class Pubs Except Requester Publications (DMM 482), or Form 3541-A, Statement of Mailing-Second-Class/Requester Publications (DMM 482), if publication has no additional entry offices. If the publication has additional entry offices, compare information in item 10B2 with the findings of your verification of the publisher's records (DMM section 447.4). Report discrepancies to the Rates and Classification Center (RCC) (See DMM 132).
5. Return incomplete or incorrect statements to the publishers and obtain from them complete and correct statements.
6. The completed form MUST be retained at your office.
7. Obtain a copy of the issue of each publication in which the required statement is published, and verify the correctness of the published statement. File the copy. DO NOT forward it to the RCC. Promptly report to the RCC any instance where a publisher fails to publish a statement, if required.
8. Indicate in blocks below information concerning the conditions of second-class entry shown on second-class authorization on file at your office.
9. Verify that a Form 3526 is filed for every second-class publication which has its office of original entry at your office.

1. The information shown by the publisher in item 1, 3 and 4 on page 1 agrees with the second-class authorization records of this office.

YES NO (If "NO," take appropriate action to reconcile discrepancies.)

2. Authorized Under Section (3) <input type="checkbox"/> DMM 422.2 (4) <input type="checkbox"/> DMM 422.3 (5) <input type="checkbox"/> DMM 422.4 (6) <input type="checkbox"/> DMM 422.5 (7) <input checked="" type="checkbox"/> DMM 422.6	3. Rates Applicable (1) <input type="checkbox"/> In Country DMM 411.32 (2) <input type="checkbox"/> Special DMM 411.33 (3) <input type="checkbox"/> Classroom DMM 411.34 (4) <input type="checkbox"/> Science of Agriculture DMM 411.35 (5) <input checked="" type="checkbox"/> Regular DMM 411.2	4. Advertising Authorized (1) <input type="checkbox"/> Publisher's Only (2) <input checked="" type="checkbox"/> General (3) <input type="checkbox"/> No Advertising	5. Ownership statement (1) <input type="checkbox"/> File Only (2) <input checked="" type="checkbox"/> File and Publish
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6. Post Office, State and ZIP Code	7. Date	8. Signature of Postmaster
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