Short-Term Energy Outlook

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Short-Term Energy Outlook

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Contents

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Preface

The Energy Information Administration (EIA) prepares quarterly short-term energy supply, demand, and price projections for printed publication in January, April, July, and October in the *Short-Term Energy Outlook*. The details of these projections, as well as monthly updates on or about the 6th of each interim month, are available on the internet at: www.eia.doe.gov/emeu/steo/pub/contents.html.

The forecast period for this issue of the *Outlook* extends from the third quarter of 1997 through the fourth quarter of 1998. Values for the second quarter of 1997, however, are preliminary EIA estimates (for example, some monthly values for petroleum supply and disposition are derived in part from weekly data reported in EIA's *Weekly Petroleum Status Report*) or are calculated from model simulations that use the latest exogenous information available (for example, electricity sales and generation are simulated by using actual weather data). The historical energy data, compiled in the third quarter 1997 version of the Short-Term Integrated Forecasting System (STIFS) database, are mostly EIA data regularly 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 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. By varying the assumptions, alternative cases are produced by using the Short-Term Integrated Forecasting System (STIFS).

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World Oil Prices Down from 1996 Levels to Average Between $19 and $20 Over the Forecast Years

World oil prices tumbled by more than $5.00 per barrel from January through April 1997 due to the unusually warm winter weather amidst increasing world supplies, including 600,000-700,000 barrels per day from Iraq. Prices may creep up over the next few months as demand for gasoline rises, but the average annual price is projected to be lower in 1997 and 1998 than in 1996 as gains in world oil production offset growth in world oil demand.

Petroleum Product Prices to Follow Crude Prices Below 1996 Levels

Retail petroleum product prices are generally expected to follow crude prices down. Average retail motor gasoline and diesel fuel oil prices in 1997 should fall below the 1996 averages for these fuels. In fact, lower crude oil prices this year and modest increases next year should keep gasoline (and other) prices at or below 1996 levels through 1998.

The Economy, Lower Prices, to Accelerate Gasoline Demand Growth

Gasoline demand is expected to increase by 1.9 percent in 1997, and by a similar percent this summer, buoyed by a 3.3 percent increase in highway travel, spurred by solid economic growth and lower gasoline prices. Continued growth in highway travel is expected to bring about a similarly strong increase in gasoline demand in 1998.

Natural Gas Markets: A Finely Balanced Act

Expected natural gas demand increases this summer could sop up the gains in underground storage over 1996 levels inherited from the mild winter of 1996-1997. Although strong natural gas prices are already expected next winter, additional demand pressure from either a particularly hot summer or early cold spell next fall could upset what is emerging as a rather delicate short-term balance for natural gas demand and supply.

Nuclear Power Generation to Fall in 1997; May Boost Summer Gas Demand

Nuclear power generation is expected to fall in 1997 due to the outages of a number of nuclear plants, particularly in the Northeast and Midwest. This situation, combined with a marginal reduction in hydroelectric availability this summer, is expected to result in more than 8 percent higher gas use at electric utilities in 1997.

Coal Production Continues to Rise

Coal production was a record 1,057 million short tons in 1996. Production is expected to grow by 2.6 percent in 1997 and by an additional 3.0 percent in 1998. Production in the Western region should continue to rise over the forecast period, while production in the Interior declines and Appalachian growth slows.

Table HL1. U.S. Energy Supply and Demand Summary

	Year				Annual Percntage Change		
	1995	1996	1997	1998	1995-1996	1996-1997	1997-1998
Real Gross Domestic Product (GDP)							
(billion chained 1992 dollars)	**6743**	**6907**	*7159*	*7290*	**2.4**	*3.6*	*1.8*
Imported Crude Oil Price [a]							
(nominal dollars per barrel)	**17.14**	**20.59**	*19.15*	*19.96*	**20.1**	*-7.0*	*4.2*
Petroleum Supply							
Crude Oil Production [b]	**6.56**	**6.47**	*6.37*	*6.19*	**-1.4**	*-1.5*	*-2.8*
Total Petroleum Net Imports (including SPR)							
(million barrels per day).......................................	**7.89**	**8.42**	*8.90*	*9.30*	**6.7**	*5.7*	*4.5*
Energy Demand							
World Petroleum							
(million barrels per day).......................................	**70.1**	**71.7**	*73.7*	*75.6*	**2.3**	*2.8*	*2.6*
Petroleum							
(million barrels per day).......................................	**17.72**	**18.23**	*18.48*	*18.78*	**2.9**	*1.4*	*1.6*
Natural Gas							
(trillion cubic feet)	**21.58**	**21.92**	*22.18*	*23.08*	**1.6**	*1.2*	*4.1*
Coal							
(million short tons)	**962**	**1007**	*1018*	*1055*	**4.7**	*1.1*	*3.6*
Electricity (billion kilowatthours)							
Utility Sales [c]	**3013**	**3085**	*3115*	*3200*	**2.4**	*1.0*	*2.7*
Nunutility Own Use [d]	**158**	**162**	*166*	*169*	**2.5**	*2.5*	*1.8*
Total	**3171**	**3246**	*3280*	*3370*	**2.4**	*1.0*	*2.7*
Adjusted Total Energy Demand [e]							
(quadrillion Btu)..	**90.6**	**93.4**	*94.3*	*96.6*	**3.6**	*0.7*	*2.2*
Adjusted Total Energy Demand per Dollar of GDP							
(thousand Btu per 1992 Dollar)............................	**13.44**	**13.52**	*13.17*	*13.26*	**1.2**	*-2.9*	*0.4*
Renewable Energy as Percent of Total..............................	**7.5**	**7.7**	*7.7*	*7.1*			

[a] Refers to the refiner acquisition cost (RAC) of imported crude oil.

[b] Includes lease condensate.

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

[d] Defined as the difference between total nonutility electricity generation and sales to electric utilities by nonutility generators, reported on Form EIA-867, "Annual Nonutility Power Producer Report." Data for 1996 are estimates.

[e] The conversion from physical units to Btu is calculated by using a subset of conversion factors used in the calculations performed for gross energy consumption in Energy Information Administration, *Monthly Energy Review* (*MER*). Consequently, the historical data may not precisely match those published in the *MER* or the *Annual Energy Review (AER)*.

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 italics. The forecasts were generated by simulation of the Short-Term Integrated Forecasting System.

Sources: Historical data: Latest data available from Bureau of Economic Analysis and Energy Information Administration; latest data available from EIA databases supporting the following reports: *Petroleum Supply Monthly*, DOE/EIA-0109; *Petroleum Supply Annual*, DOE/EIA-0340/2; *Natural Gas Monthly*, DOE/EIA-0130; *Electric Power Monthly*, DOE/EIA-0226; and *Quarterly Coal Report*, DOE/EIA-0121; *International Petroleum Statistics Report* DOE/EIA-0520; *Weekly Petroleum Status Report* DOE/EIA-0208. Macroeconomic projections are based on DRI/McGraw-Hill Forecast CONTROL0597.

PETROLEUM PRICES

Refiner acquisition cost of crude oil (RAC): The average monthly cost of crude oil to U.S. refiners, including transportation and fees. The composite cost is the weighted average of domestic and imported crude oil costs. Typically, the imported RAC is about $1.50 per barrel below the monthly average spot price of West Texas Intermediate (WTI) crude oil and is within about $0.20 per barrel of the average monthly spot price of Brent crude oil. Unless otherwise stated, the imported RAC is what is referred to in this report as the "world oil price" or "average crude oil price."

Retail motor gasoline prices: The average pump price of gasoline (all services, all grades) for the United States. Unless otherwise stated, the average gasoline retail price is based on the composite gasoline price average computed by the Bureau of Labor Statistics (BLS) in conjunction with the construction of the Consumer Price Index (CPI). Those prices are collected in 85 urban areas selected to represent all urban consumers--about 80 percent of the total U.S. population.

Wholesale motor gasoline price: The monthly average price to refiners of motor gasoline (all types) sold to resellers; it is reported monthly on Table 4 of EIA's *Petroleum Marketing Monthly.*

Retail heating oil price: The cost of Number 2 distillate fuel oil to residences (less taxes). The retail heating oil price referred to in this report is from Table 18 of EIA's *Petroleum Marketing Monthly.*

PETROLEUM DEMAND and SUPPLY

Petroleum Demand (consumption/petroleum products supplied): For each product (gasoline, distillate, etc.), the amount supplied is calculated by summing production, imports, and net withdrawals from primary stocks and subtracting exports. Thus, petroleum demand is represented by the "disappearance" of product from the primary supply system. This demand definition coincides exactly with the term "product supplied" as used in EIA's *Petroleum Supply Monthly.*

Petroleum Stocks, primary: Stocks of crude oil or petroleum products held in storage at (or in) leases, refineries, natural gas processing plants, pipelines, tank farms, and bulk terminals. Crude oil that is in transit from Alaska or that is stored on Federal leases or in the Strategic Petroleum Reserve is included. These are the only stocks included in this report when discussing petroleum inventories or inventory changes. Excluded are stocks of foreign origin that are held in bonded warehouse storage.

NATURAL GAS

Natural gas wellhead price: The wellhead price of natural gas is calculated by dividing the total reported value at the wellhead by the total quantity produced as reported by the appropriate agencies of individual producing states and the U.S. Minerals Management Service, Department of the Interior. The price includes all costs prior to shipment from the lease, including gathering and compression costs, in addition to state production, severance, and similar charges.

Natural gas spot price: A transition price for natural gas concluded "on the spot" that is on a one-time prompt (immediate) basis, as opposed to a longer-term contract price which obligates the seller to deliver the product at an agreed price over an extended period of time.

MACROECONOMIC

Gross Domestic Product (GDP): The total value of goods and services produced by labor and property located in the United States. As long as the labor and property are located in the United States, the supplier may be either U.S. residents or residents of foreign countries. Nominal GDP refers to current dollar value; real GDP refers to GDP corrected for inflation.

GDP Implicit Price Deflator: A byproduct of the price deflation of gross domestic product (GDP). It is derived as the ratio of current- to constant-dollar GDP. It is a weighted average of the detailed price indexes used in the deflation of GDP, but these indexes are combined using weights that reflect the composition of GDP in

Summary of Important Terms

each period. Thus, changes in the implicit price deflator reflect not only changes in prices but also changes in the composition of GDP. Corresponding current- and constant-dollar series are published by the U.S. Bureau of Economic Analysis, *National Income and Product Accounts.* The current base year for the deflator is 1992.

Manufacturing Production Index: A measure of nondurable and durable manufacturing production expressed as a percentage of output in a reference period (currently 1987). Data are published by the Federal reserve System in the *Federal Reserve Bulletin.*

Employment: Employment data refer to persons on establishment payrolls who received pay for any part of the pay period which includes the 12th of the month (or the last day of the calendar month for government employees). The data exclude proprietors, the self-employed, unpaid volunteer or family workers, farm workers, and domestic workers. Salaried officers of corporations are included. Employment statistics are published by the U.S. Bureau of Labor Statistics in the *Employment and Earnings* report.

Consumer Price Index: A measure of the average change in prices paid by urban consumers for a fixed market basket of goods and services. The consumer price index is based on the prices of food, clothing, shelter, fuel, drugs, transportation fares, doctors' and dentists' fees, and other goods and services that people buy for day-to-day living. All taxes directly associated with the purchase and use of items are included in the index. The consumer price index is published by the U.S. Bureau of Labor Statistics in the *Monthly Labor Review.*

Degree-days, cooling (CDD): For one day, the number of degrees that the average temperature for that day is above 65 degrees Fahrenheit. The daily average temperature is the mean of the maximum and minimum temperatures for a 24-hour period. As covered in this report, cooling degree-days in a period represent the sum of daily degree-day calculations over the period. Thus, national cooling-degree-days for a month represent the weighted-average of the daily cooling degree-days for the states, summed across all days in the

month. The weights used are population shares unless otherwise noted.

Degree-days, heating (HDD): For one day, the number of degrees that the average temperature is below 65 degrees Fahrenheit. The daily average temperature is the mean of the maximum and minimum temperatures for a 24-hour period. As covered in this report, heating degree-days in a period represent the sum of daily degree-day calculations over the period. Thus, national heating-degree-days for a month represent the weighted-average of the daily heating degree-days for the states, summed across all days in the month. The weights used are population shares unless otherwise noted.

British thermal unit (Btu): The quantity of heat required to raise the temperature of 1 pound of water by 1 degree Fahrenheit. In this report, Btu-equivalent energy values are calculated by multiplying estimated thermal content coefficients per physical unit for various products by the respective quantities. These are then aggregated across products to obtain, for example, total energy demand or supply variables.

TOTAL ENERGY

Total energy demand: The sum of fossil fuel consumed by the five sectors (residential, commercial, industrial, transportation, and electric utility), plus hydroelectric power, nuclear electric power, net imports of coal coke, and electricity generated for distribution from wood, waste, geothermal, wind, photovoltaic, and solar thermal energy.

Adjusted Total Energy Demand: Total Energy Demand (as defined above), plus estimated renewable energy use in the residential, commercial and industrial sectors not included in the definition of Total Energy Demand. This adjustment amounted to an estimated 3.4 quadrillion Btu (about 4 percent) over and above Total Energy Demand in 1995.

The Outlook

Outlook Assumptions

Figure 1. U.S. Monthly Crude Oil Prices
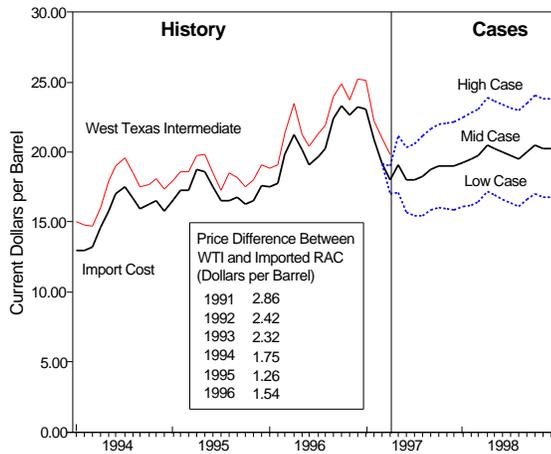
Sources: Third Quarter 1997 STIFS database and Energy Information Administration, Energy Markets and Contingency Information Division. Details provided in Figure References Section.

Figure 2. U.S. Macroeconomic Indicators
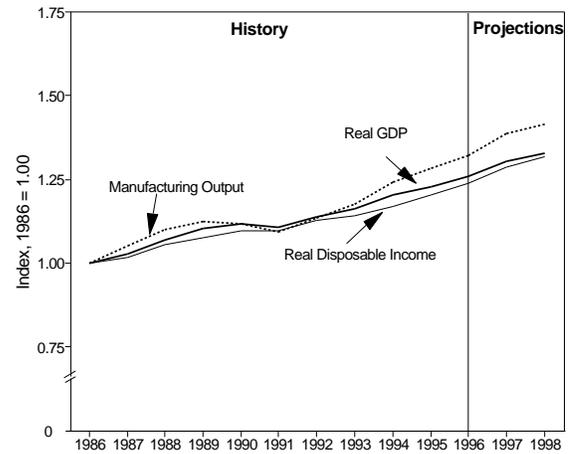
Sources: Third Quarter 1997 STIFS database, U.S. Commerce Department, and Federal Reserve Board. Details provided in Figure References Section.

World Oil Prices

- This forecast assumes the continuation of Iraqi humanitarian oil sales approved by the United Nations in December 1996. It is assumed that the United Nations Security Council will renew Resolution 986 every 6 months, allowing Iraq to continue exporting about 700,000 barrels per day.

- Our current mid-price projection calls for a settling down of world oil prices from the relatively high levels in late 1996, averaging about $19 per barrel in 1997 and about $20 per barrel in 1998 (Figure 1). This forecast assumes that supply increases, from both OPEC and non-OPEC sources, will more than offset strong increases in world oil demand.

- The high and low price cases illustrated in Figure 1 represent a typical uncertainty range around our base case forecast.

Economic Outlook

- U.S. Gross Domestic Product (GDP) growth is expected to average 3.7 percent in 1997 and 1.8 percent in 1998. Growth in disposable income should reach 3.8 percent in 1997 and 2.2 percent in 1998 (Figure 2 and Table 1).

- Inflation (GDP implicit price deflator, see Table 1) should remain moderate over the next few years. Commodity prices have increased, but only for agricultural products and oil. Consumer price inflation is expected to be 2.3 percent in both 1997 and 1998 (Table 1).

- Manufacturing production growth rises along with GDP, reaching 5.1 percent in 1997, as investment and export growth remain strong. In 1998, manufacturing production growth slows to 2.0 percent growth as investment growth decelerates. Total employment will increase slowly over the forecast period.

Weather Assumptions

- For the mid-case, heating and cooling degree-days are assumed to follow historical norms in the forecast period. This results in the coming winter (1997/98) being more than 4 percent colder than last winter (calculated from Table 1).

Figure 3. World Oil Demand
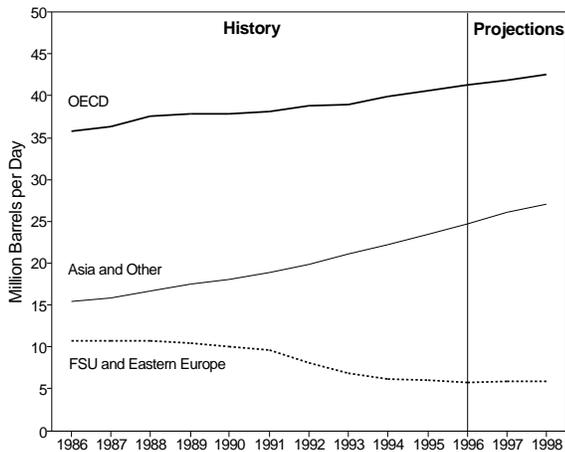
- World oil demand is expected to continue to increase during the next 2 years. By 1998, total world oil demand may average 75.6 million barrels per day (Table 3). All indicators (price, GDP growth, weather) point toward continued annual increments of 2.0 million barrels per day worldwide in 1997 and 1.9 million barrels per day in 1998. This means annual average growth of 2.7 percent in 1997 and 2.5 percent in 1998, compared with the 1.3 percent average growth seen between 1991 and 1995.

- Oil demand in countries of the Organization for Economic Cooperation and Development (OECD) is expected to increase by 600,000 barrels per day in 1997, an average annual rate of 1.5 percent; and 700,000 barrels per day in 1998, an average annual rate of 1.6 percent (Figure 3 and Table 3). The United States' oil demand growth represents about 40 percent of OECD oil demand growth in 1997 and over half of OECD oil demand growth in 1998.

Figure 4. World Oil Demand Changes by Region
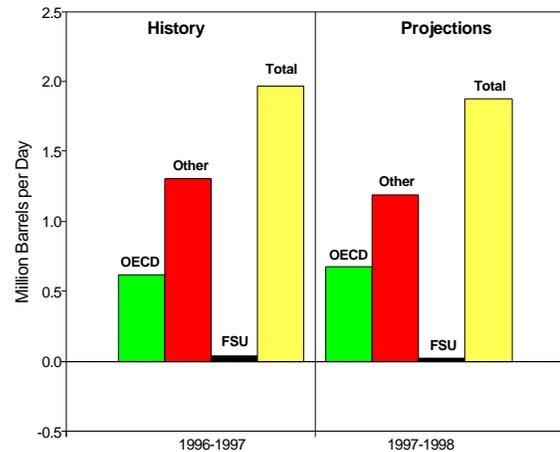
- The major story has been the strong growth in oil demand among non-OECD countries: China, average annual growth rate of over 6 percent in 1997 and 1998; Other Asia[1], 7 percent, and Latin America[2], 3.5 percent. These are all areas where oil demand growth is expected to exceed the world average growth rate of 2.6 percent. Significant growth is also expected in Eastern Europe, 3 percent, and Africa, 2.5 percent, as the economies in these regions begin to exhibit more substantial growth.[3]

- Oil demand in the former Soviet Union (FSU) is projected to stabilize in 1997 and 1998, following years of major declines (Figure 4). This increase reflects the expectation that growth in economic activity may be positive for the first time in many years. Demand stood at 8.9 million barrels per day in 1988, reached a low of 4.5 million barrels per day in 1996, and is forecast to remain at 4.5 million barrels per day in 1997 and 1998 (Figure 4 and Table 3).

International Oil Supply

Figure 5. World Oil Production
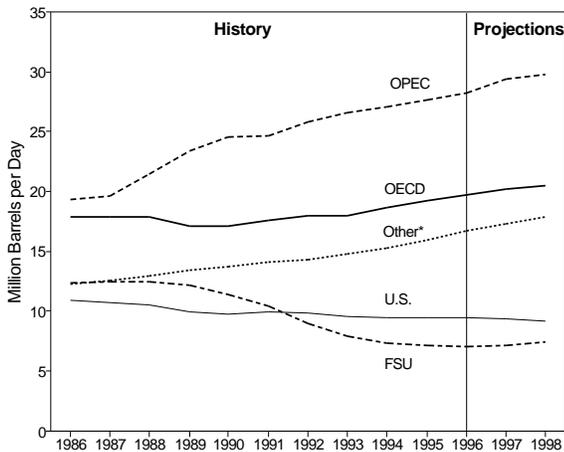
Figure 6. OPEC Oil Production and Capacity
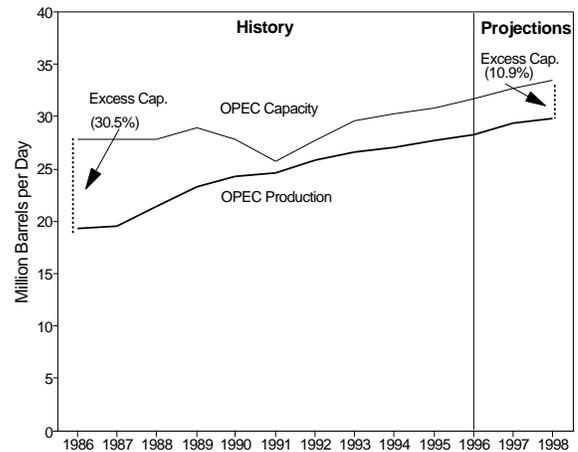
- On December 9, 1996, the United Nations approved additional Iraqi oil exports under U.N. Security Council Resolution 986. These oil sales have added about 700,000 barrels per day of oil to the world market. Resolution 986 was extended in June 1997 for another 6 months. However, by the end of June, Iraq had not exported any oil under the terms of the extension due to complaints about the United Nation's distribution of the humanitarian aid. However, Iraq has enough export capacity to still produce the full amount provided in Resolution 986 in a shorter time period. This forecast assumes that Iraq begins to export oil again in July 1997 and that Resolution 986 is continually extended every 6 months through the forecast period. Additional oil from the North Sea[4] and other non-OPEC countries should provide enough oil so that production from OPEC will increase by less than one-half million barrels per day in 1998 (Figure 5).

- With additional Iraqi oil exports, there will be little pressure for OPEC members to increase

production in 1997 if capacity expansion plans are realized (Figure 6). Without any major increases in capacity expected--just a continuation of the production creep of the past several years--the additional Iraqi oil will, along with increases in non-OPEC production, be sufficient to supply the market. However, OPEC countries, such as Venezuela and Nigeria, are expected to increase oil production throughout the forecast period, with Algeria adding significant production in 1998.[5]

- Even Saudi Arabia, although sticking relatively close to its crude oil production quota of 8 million barrels per day, is realizing increased production from non-crude natural gas liquids, which are excluded from their OPEC quota, and crude oil from the Neutral Zone shared with Kuwait.

- Sustained growth of non-OPEC supply is expected to continue for the foreseeable future, both inside and outside of the OECD. The major growth story within the OECD region is

Figure 7. Non-OPEC, Non-OECD Oil Production
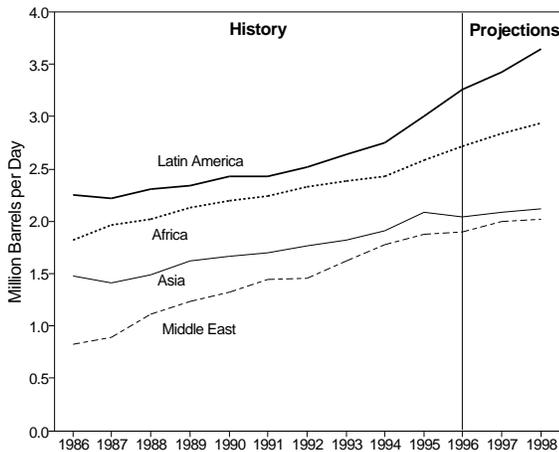

Sources: Energy Information Administration, Energy Markets and Contingency Information Division. Details provided in Figure References Section.

Figure 8. Annual Increases in OPEC Production and World Demand Changes, 1986-1998

Sources: Energy Information Administration, Energy Markets and Contingency Information Division. Details provided in Figure References Section.

North Sea production, which grew by 0.3 million barrels per day in 1996 and is expected to increase an additional 0.4 million barrels per day in 1997, and an additional 0.3 million barrels per day in 1998 (Table 3). Only 4 million barrels of oil per day were produced in the North Sea as recently as 1990; North Sea oil production is expected to average 6.6 million barrels per day in 1997 and 6.9 million barrels per day in 1998.[6] This tremendous growth has been critical in keeping prices stable, given the high rate of world demand growth (Table 3).

- Outside the OECD, the non-OPEC growth story is depicted by the "Other" group in Figure 7. Increments from this group are accelerating due to increases from Latin America, Africa, Other Asia, and some slight increases from the Middle East. Figure 7 shows growth from these regions since 1986, and particularly since 1990, following the Iraqi invasion of Kuwait. Privatization efforts are beginning to accelerate growth, particularly in Latin America. Together, the non-OECD, non-OPEC countries (excluding the Former Soviet Union republics (FSU)) are expected to increase production by 1.1 million barrels per day between 1996 and 1998 to 17.8 million barrels per day (Table 3), up nearly 5 million barrels per day since 1988.[7]

- Joint ventures in the FSU, although growing slowly due to legal problems and export pipeline constraints, are beginning to foster positive supply prospects. Significant near-term increases are most likely to come from Kazakstan, Russia, and Azerbaijan, rather than from any of the other former republics.

- Non-OPEC supply has become a significant source of oil production during the last few years. Since 1994, OPEC production has increased less than world oil demand every year (Figure 8).

World Oil Stocks, Capacity and Net Trade _____

Figure 9. OECD Commercial Oil Stocks
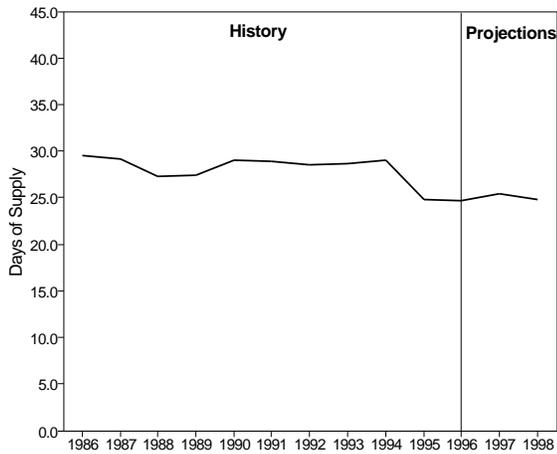
Sources: Energy Information Administration, Energy Markets and Contingency Information Division. Details provided in Figure References Section.

Figure 10. FSU Oil Output, Demand and Net Exports

Sources: Energy Information Administration, Energy Markets and Contingency Information Division. Details provided in Figure References Section.

- Commercial oil inventories in OECD countries are expected to increase slightly in 1997 before dropping some in 1998 (Figure 9). However, OECD commercial inventories at the end of 1998 are still expected to be above the historically low levels seen at the end of 1995 and 1996. This follows the sharp decline in 1995 brought about by uncertainty over the timing of Iraqi oil sales, colder than normal weather, and low profitability in the refining sector.

- Outside Iraq, about one-half million barrels of capacity expansions are expected in OPEC for both 1997 and 1998. Most of the expansion is expected in Venezuela and Nigeria, with Algeria adding significant growth in 1998. OPEC excess production capacity, including that of Iraq, is expected to remain at 3.4 million barrels per day in 1997 before increasing to 3.6 million barrels per day in 1998. Saudi Arabia controls most of the excess, with about 2 million barrels per day of excess production capacity.[8]

- Current exports of crude oil worldwide are averaging 33 million barrels per day. About 60 per cent comes from OPEC countries.[9] Saudi Arabia is by far the world's largest exporter, with over 7 million barrels per day of crude exports.

- Net exports from the FSU are expected to remain flat in 1997 before increasing by about 0.3 million barrels per day in 1998 (Figure 10 and Table 3). By 1998, oil production in some of the FSU republics, such as Kazakstan, Azerbaijan and Russia, should begin increasing at more substantial rates. Thus, exports are expected to rise from 2.6 million barrels per day in 1996 to 2.9 million barrels per day in 1998. Although FSU exports are much higher than they were immediately following the collapse of the FSU (2.1 million barrels per day in 1991 and 1992), they are still less than they were before the collapse.

- With the Iraqi oil exports allowed by the U.N., exports from the Persian Gulf region are expected to increase in 1997. Oil exports from the rest of the Persian Gulf countries are expected to increase only slightly over the next year as regional consumption increases largely offset production increases.

Figure 11. U.S. Petroleum Demand
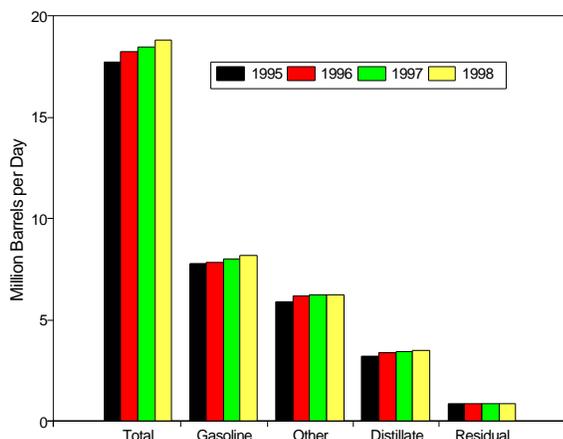
Sources: Third Quarter 1997 STIFS database. Details provided in Figure References Section.

Figure 12. Distillate Demand Growth

Sources: Third Quarter 1997 STIFS database. Details provided in Figure References Section.

- U.S. petroleum demand is projected to rise 240,000 barrels per day, or 1.3 percent, in 1997 (Figure 11 and Table 5). Weather patterns, however, helped dampen year-to-year growth in first-quarter demand.   In 1998, the assumption of normal weather, continued robust transportation growth despite a slowing economy, and stable prices are expected to bring about an increase of 300,000 barrels per day, or 1.6 percent, in petroleum demand.

- Gasoline demand in 1997 is expected to increase 1.9 percent. This growth rate is more than twice that of the previous year, which witnessed severe weather and price spikes. Third quarter growth is expected to be 2.3 percent, buoyed by a 3.2 percent increase in highway travel during the peak season. In 1998, continued growth in highway travel--combined with moderate growth in fuel efficiency--is expected to bring about a 2.0-percent growth in motor gasoline demand.

- Jet fuel demand growth during the forecast period is expected to average 2.3 percent, the highest of any of the major petroleum products.   This reflects the over 5-percent average growth in total capacity. Despite

increases in ticket prices brought about by re-imposition of the Federal excise tax earlier this year, air travel is projected to increase by almost 5 percent.

- Despite warmer-than-normal weather during the first quarter, distillate fuel oil demand in 1997 is projected to grow by 1.2 percent. Transportation demand, which accounts for two-thirds of total demand, is expected to climb 4.7 percent (Figure 12). In 1998, total demand is projected to rise by a further 3.0 percent.   The assumption of normal first-quarter weather is expected to offset some of the moderation in transportation demand resulting from a slower economy.

- Residual fuel oil demand is expected to rise steadily at 1.0 percent during the forecast years. Electric utilities' demand is expected to recover somewhat from the depressed levels of the last 2 years, but this reflects, in part, a loss of nuclear power availability.   Despite continued projected growth in industrial output, residual fuel oil demand is expected to continue to lose ground to other fuels in the industrial sector, at least in relative terms.

U.S. Oil Supply

Figure 13. U.S. Crude Oil Production

Sources: Third Quarter 1997 STIFS database and Energy Information Administration, Reserves and Natural Gas Division. Details provided in Figure References Section.

Figure 14. U.S. Net Petroleum Imports
(Percent of Total Demand)
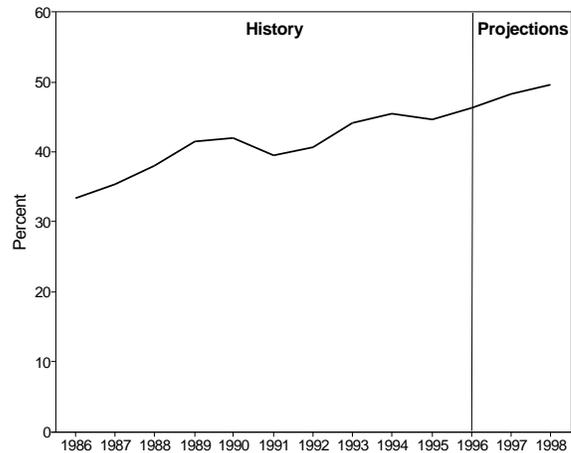
Sources: Third Quarter 1997 STIFS database. Details provided in Figure References Section.

- In 1996, the decline in U.S. oil production slowed due to a slight increase in lower-48 production.[10]   However, at mid-case prices, total U.S. domestic crude oil production in 1997 is expected to decline by 100,000 barrels per day, or 1.5 percent, and by an additional 180,000 barrels per day, or 2.8 percent, in 1998 (Table 5 and Figure 13).

- In 1996, declining U.S. crude oil production and higher demand contributed to an average 8.4 million barrels per day of total petroleum net imports, just below the record 8.6 million barrels per day set in 1977.[11]   In 1997, total net imports are projected to exceed 1977's record high, equaling 48.2 percent of total petroleum demand in the base case (Figure 14), and to continue to increase to 49.5 percent in 1998, assuming mid case oil prices.

- Oil production in the lower 48 States is expected to decline by 10,000 barrels per day in 1997 and by 90,000 barrels per day in 1998. Oil production from the Mars, Ram Powell, Auger, and Santa Ynez Federal Offshore fields

is expected to account for about 6.4 percent of lower-48 oil production by the end of 1998.Mars Field production started in August 1996 and is expected to peak at 100,000 barrels per day in early 1997. The Ram-Powell Field is expected to start in the last quarter of 1997 and peak later at a rate of 60,000 barrels per day.[12]

- Alaska will account for almost 21 percent of total U.S. oil production in 1997. Oil production in Alaska is expected to decline by between 6 and 7 percent in 1997 and 1998. Production from recent discoveries will partially offset the expected production decline from the giant Prudhoe Bay and other North Slope fields. A large-scale enhanced-oil recovery project was initiated in September 1996 in the Kuparuk River field, which should enable production to remain at 260,000 barrels per day over the forecast period.[13]

- The rig count for 1996 averaged 783, with projected increases to 956 in 1997 and to 1107 in 1998.[14]

Figure 15. U.S. Oil and Gas Prices
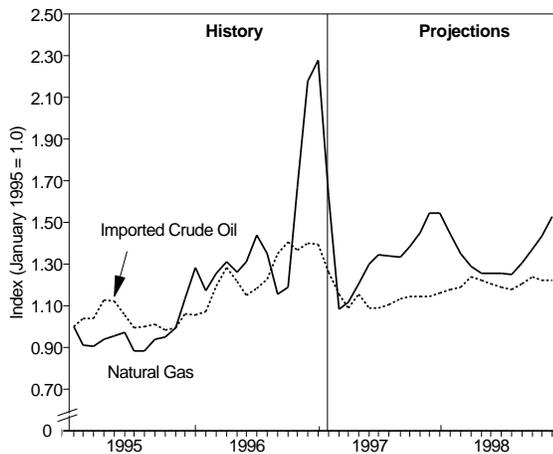
Figure 16. Petroleum Product Prices

- World oil prices tumbled by more than $5.00 per barrel from January through April due to the unusually warm weather. Prices climbed a dollar in May as demand for gasoline rose, but then settled back down to about $18 per barrel with the United Nations renewal of the Iraqi oil sales. These prices are projected to creep up as the heating season approaches. The annual price is projected to be lower in 1997 than in 1996 as gains in world production offset growth in world demand. Continued world-wide economic growth in 1998 will be nearly matched by increases in oil production, leading to prices that average about $0.70 per barrel more than the 1997 price. Crude oil prices peak in the spring (second quarter) driving season and in the fourth quarter heating season (Figure 15).

- Petroleum product prices all gained in 1996 as the $3.45 per barrel jump in crude oil prices was passed through to the end user. In 1997, crude prices are projected to decline by a modest amount, then inch back up in 1998 to average about $20.00 per barrel. Petroleum product prices will generally reflect the crude oil price changes. Motor gasoline and diesel

fuel oil prices, as well as residential heating oil prices, should deviate by only a few pennies per gallon annually through 1998 (Table 4 and Figure 16). Residual fuel prices will follow the crude oil price path with seasonal variations.

- Last year's spring price spike for motor gasoline was not repeated this year. Considerably lower crude oil prices in March and April of this year, combined with a stable inventory situation, acted as a ceiling to any large runups at the pump at the national level. In late May and early June, prices inched up a few cents per gallon as crude oil prices rose. At the regional level, motor gasoline prices have been more volatile. Pump prices on the West coast rose more than 20 cents per gallon from January to April as gasoline supplies were very tight (they have since declined by about 6-7 cents per gallon). Also, prices in the Midwest and Rocky Mountain region peaked in May and have since fallen by a similar amount. Recent spot price declines suggest that retail prices may fall more. In 1998, assuming slightly higher crude oil prices, more pump price seasonality than in 1997 is projected, and the annual average retail price

Figure 17. Natural Gas Prices by Sector
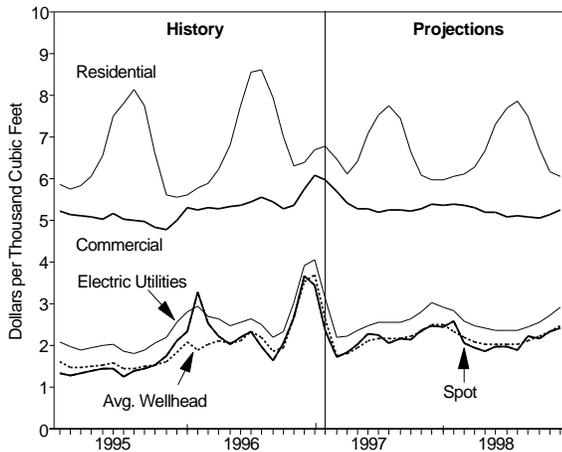
Sources: Third Quarter 1997 STIFS database. Details provided in Figure References Section.

Figure 18. Fossil Fuel Prices to Electric Utilities
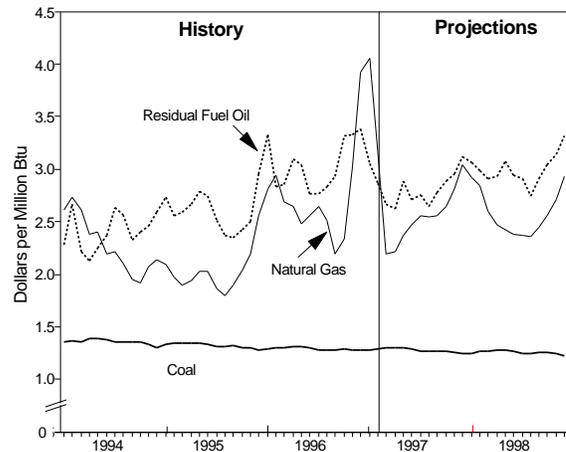
Sources: Third Quarter 1997 STIFS database. Details provided in Figure References Section.

is expected to gain about a penny per gallon over the 1997 price.

- Last winter, residential heating oil prices accelerated as the heating season started off with low supplies and high crude prices. These prices dropped by winter's end due to considerable distillate production, diminishing crude oil prices and atypically temperate weather in the Northeast, where the bulk of the nation's heating oil is burned. Next winter's prices are projected to be several cents per gallon lower than those of the past winter. This assessment assumes normal weather patterns, lower crude oil prices, and adequate distillate supplies. In 1998, a typical heating oil price pattern (higher prices in the winter) is projected, with the overall annual average price expected to drop by a few cents per gallon below the 1997 price. This price decline occurs even while the crude price increases because of the downward price shift in the heavily consumption-weighted first quarter prices.

- Spot prices for natural gas at the wellhead have been relatively calm, now that the

heating season has passed, compared to the frenzy exhibited this past winter. Low underground storage levels at the start of the heating season and erratic weather caused enormous upward price movements, resulting in average wellhead prices of about $3.50 per thousand cubic feet in December 1996 and January 1997.[15] By February, with the mild mid-winter, the price had fallen by 80 cents per thousand cubic feet.[16] The colder-than-usual weather in April and May has lifted spot prices by about 20 cents per thousand cubic feet from April to May.[17] Natural gas wellhead prices this year are projected to drift upward from the spring trough as the heating season approaches, although at a smoother pace than last year.

- The natural gas wellhead price in 1997 is projected to average about 2 percent higher than the 1996 level due to this year's very high first quarter price spike (Table 4 and Figure 18.) This assumes that the weather is normal, particularly in the late autumn, when inventories are still building. A cold snap during this time period could cause stock drawdowns leading to high wellhead prices

for the winter. The price should decline in 1998, again assuming normal weather and increases in domestic production and Canadian imports.

- Residential natural gas prices are expected to grow in 1997, due mostly to the high prices of the consumption-weighted first quarter (about half of all residential gas for the year is consumed in this quarter)(Table 8)--then dip in 1998, as the wellhead price declines.

- In 1996, natural gas prices to electric utilities were, on average, about 87 percent of the residual fuel oil price (Table 4). This percentage is somewhat higher than the recent historical ratio between the two fuels because natural gas prices surged that year. This ratio is projected to climb this year to 91 percent as the price of gas continues to gain. In the first quarter of this year, gas prices--usually the cheaper of the two fuels--were about 4 percent higher than residual fuel oil prices. However, most natural gas at electric utilities is consumed during second and third quarters when the residential demand for heating is at its lowest. In 1998, the ratio is expected to fall back to 83 percent as gas prices decline.

- Coal prices to electric utilities in 1996 were at their lowest level since 1979[18] and are expected to continue to drop through 1998 (Table 4). Continued gains in mining productivity have resulted in a downward trend for coal prices. Furthermore, there could soon be increased producer competition in the spot market for coal, a situation which would lead to lower prices. This is due in part to the emerging deregulation of the electric utility sector.

- Annual average residential electricity prices are projected to rise very slightly in 1997 due to the higher natural gas prices to electric utilities. In 1998, they are projected to fall modestly as a result of moderate costs for capital, labor capital, and fossil fuels. Also, generation from non-utility producers and increased conservation efforts have reduced the need to build expensive new power plants.

- Restructuring of the electric utility industry, which will commence in several states in 1998, should lead to competition between utilities and is likely to lower prices. Since this policy will be in its infancy in 1998, it remains to be seen how much effect it will have on residential rates. However, as the policy becomes more widespread over time, there could be noticeable downward pressure on prices.

U.S. Energy Demand and Supply Sensitivities _____

Figure 19. Energy Demand Sensitivities; Macro Cases
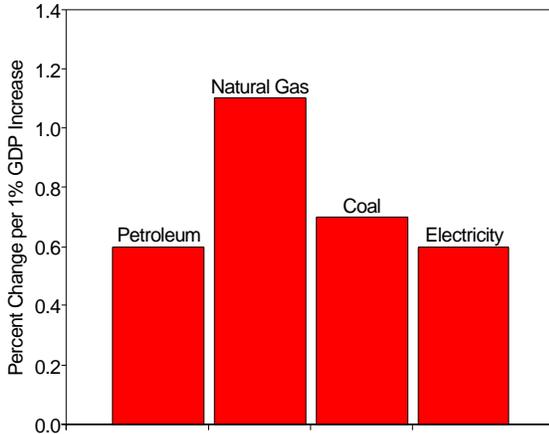
Sources: Third Quarter 1997 STIFS database. Details provided in Figure References Section.

Figure 20. Energy Demand Sensitivities; Weather Cases
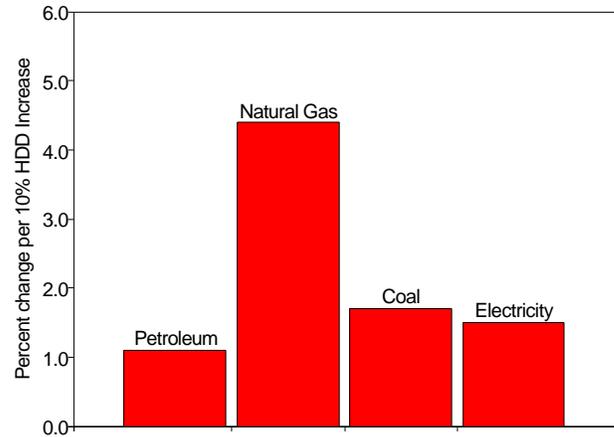
Sources: Third Quarter 1997 STIFS database. Details provided in Figure References Section.
HDD=Heating degree-days.

- The petroleum demand and supply outlook for the mid-price case is based on assumed normal temperatures and GDP growth of 3.7 percent per year in 1997 and 1.8 percent in 1998. To enhance the usefulness of the mid-case forecasts, sensitivities of energy demand and supply, using alternative macroeconomic, price, and weather assumptions, are also derived. Plausible macroeconomic and weather-related petroleum demand sensitivities are illustrated in Figures 19 and 20 and Table 6.

- A 1-percent increase in real GDP raises petroleum demand by about 0.6 percent, natural gas demand by 1.1 percent, coal demand by 0.7 percent, and electricity demand by 0.6 percent (Figure 19). The impact of shifts in economic growth varies, depending upon distribution of incremental growth across energy-intensive and non-energy-intensive sectors.

- A 10 percent increase in crude oil prices, assuming no price response from non-

petroleum energy sources, reduces petroleum demand by 0.3 percent. A 10 percent increase in gas prices at the wellhead, assuming no price response for other fuels, reduces natural gas demand by 0.4 percent.

- A 10 percent increase in heating degree-days increases winter petroleum demand by 1.2 percent, natural gas demand by 4.8 percent, coal demand by 1.5 percent, and electricity demand by 1.4 percent (Figure 20). The impact of heating degree-day deviations from normal may not be symmetrical. Extremely cold weather could result in indirect effects on fuel oil markets due to potential natural gas supply constraints.

- A 10-percent increase in cooling degree-days increases summer petroleum demand by about 0.1 percent, other fuels by 1.4 percent.

- A $1-per-barrel increase in crude oil prices boosts domestic oil supply (crude oil and natural gas liquids production) by about 95,000 barrels per day (Table 7).

Figure 21. U.S. Natural Gas Demand Trends
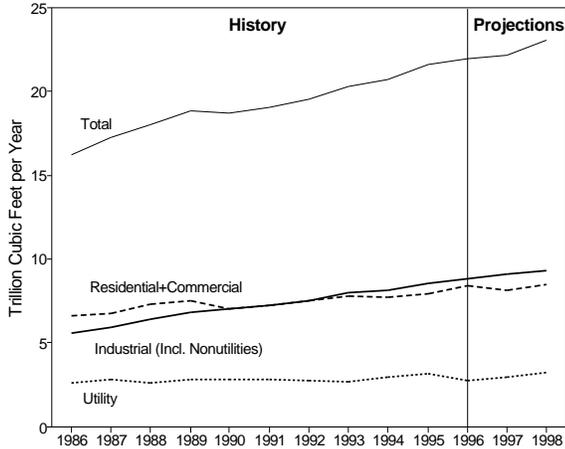
Sources: Third Quarter 1997 STIFS database. Details provided in Figure References Section.

Figure 22. Natural Gas Demand for Power Generation
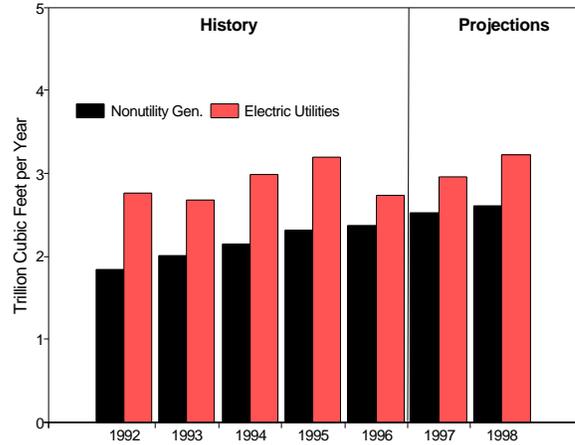
Sources: Third Quarter 1997 STIFS database. Details provided in Figure References Section.

- In 1997, natural gas demand is projected to grow by 1.2 percent. Growth is expected mostly in the industrial and utility sectors based on current economic and weather assumptions, i.e., normal weather and rising economic growth (Figure 21 and Table 8). In 1998, natural gas demand is expected to rise by 4.1 percent, due to moderating prices, normal weather and lower hydropower availability in the utility sector leading to increased gas use.

- In 1997, residential demand is expected to be down by 5.0 percent for the year compared with high 1996 levels. In 1998, residential demand is expected to increase by 3.3 percent, due mainly to the assumption of normal first quarter weather relative to 1997's mild first quarter, as well as the continued addition of new gas-heated homes.

- Industrial gas demand in 1997 is expected to grow by 3.4 percent due to strong economic growth. In 1998, industrial gas demand is expected to grow at 2.9 percent, as economic growth slows somewhat from relatively higher 1997 levels.

- Increased gas consumption for utility power generation is expected in 1997 and 1998 (Figure 22), partially reversing the slowdown in 1996 caused by high hydropower generation. The 1997 increase is largely the result of decreased nuclear power capacity for electricity generation due to a number of nuclear power plants being shut down this summer, particularly in the Northeast and Midwest, amounting to about 13,000 megawatts of power. Hydropower generation, on the other hand, is now expected to be at close to 1996 levels. In 1998, an additional utility gas demand increase is projected, as hydropower availability is expected to decline with the return to normal precipitation and water levels in the Pacific Northwest (Tables 8 and 10).

- Commercial sector demand in 1997 is expected to decline somewhat from high 1996 levels due mainly to the mild first quarter. In 1998, commercial sector demand is expected to continue to rise along with the economy, assuming normal weather.

U.S. Natural Gas Supply

Figure 23. U.S. Dry Gas Production and Net Imports
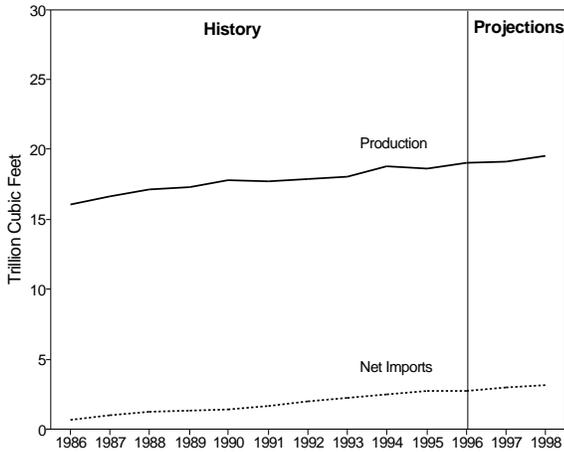
Figure 24. Total Gas in Underground Storage
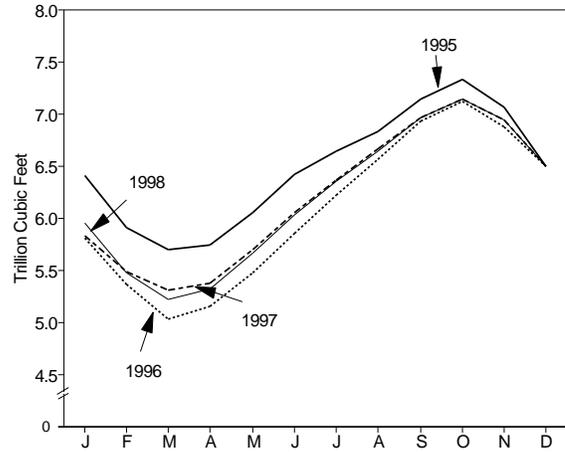
- In 1997, the increase in U.S. dry gas production is expected to be small, less than 1 percent from its 1996 level. This is mainly because 1996 production was the highest since 1981. Also, in the first quarter of 1997, gas production was estimated to be somewhat lower than it was in first quarter 1996 due to the mild winter. In 1998, growth in gas production is expected to be 2 percent (Figure 23 and Table 8).

- Underground gas storage levels ended the last winter season considerably higher than they were last year at the same time (Figure 24). This is because net withdrawals from storage in first quarter 1997 were much lower than expected due to the mild winter weather.

- The summer storage injection season, which runs from April 1 to October 31, started slowly due to the unseasonably cool temperatures in the Midwest and Northeast, which pushed spot prices above March levels. However, net injections picked up in May and June. Storage levels are projected to return to November 1, 1996 levels on that date this year. However, with higher summer demand and higher spot prices, a lessening of the year-to-year increase in storage is possible. And, if

additions to stocks fall behind, gas prices this winter could be much higher.

- The gas industry has been generally maintaining lower storage inventories at the beginning of the heating season in each of the past 3 years. These lower levels reflect changes in the way underground storage is managed, the impact of technological changes in storage facilities, and the development of a more integrated transportation network. The high demand of the winter months has been successfully met without the high inventory of previous years.[19]

- The Baker Hughes natural gas rig count for the month of June was 577 rigs, about 59 percent of all rigs actively drilling, a record high.[20]

- In 1997, net imports could increase by 8.7 percent due to strong U.S. demand and favorable price differentials. In 1998, net imports are expected to rise by another 7.0 percent. In 1997 and 1998, a total of about 1.1 billion cubic feet per day of increased Canadian pipeline export capacity is expected to be added.[21]

Figure 25. U.S. Coal Demand Trends
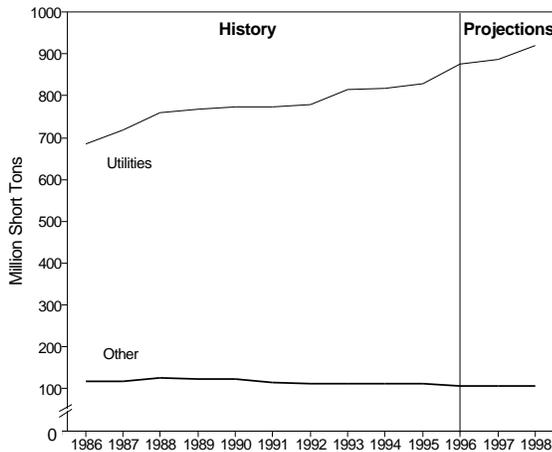
Sources: Third Quarter 1997 STIFS database. Details provided in Figure References Section.

Figure 26. U.S. Coal Production Trends by Region
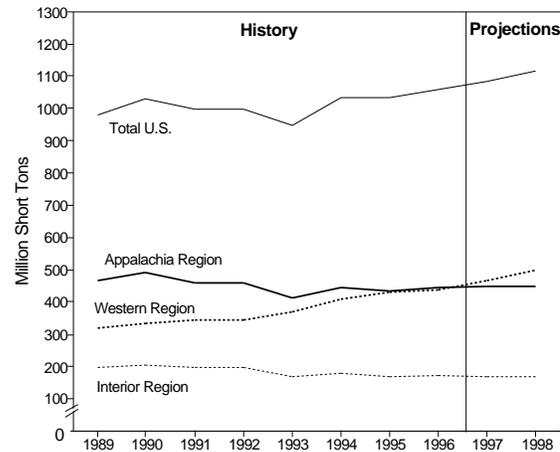
Sources: Third Quarter 1997 STIFS database and Energy Information Administration, Office of Coal, Nuclear, Electric, and Alternative Fuels. Details provided in Figure References Section.

- Total coal demand is expected to increase by 1.1 percent in 1997 and by 3.6 percent in 1998 (Table 9).

- Coal demand by utility and nonutility electricity generators grew by 5.7 percent to a record 898.7 million short tons in 1996 (Figure 25). High electricity demand, declines in gas-fired electricity generation, and little growth in nuclear generation led to the dramatic rise in coal consumed by the electricity sector. Slower growth in electricity demand (1.0 percent in 1997, compared to 2.4 percent in 1996), will lead to electricity sector coal demand growing by 1.3 percent in 1997 (Table 9) as growth in gas-fired generation is offset by declines in hydroelectric and nuclear electricity generation. In 1998, 2.7 percent growth in electricity demand will lead to 3.9 percent growth in coal demand by the electricity sector. Significant declines in hydroelectric generation by electric utilities in 1998 (12.5 percent) will spur the increase in coal consumption for electricity generation.

- Coal carbonized (consumed) by coke plants fell 4.0 percent in 1996 to 31.7 million short tons. Demand for coal at coke plants is expected to remain around 32 million short tons throughout the forecast period, primarily as a result of coking plant capacity constraints.

Another factor hampering the growth of coke plant coal consumption is the use of non-coke methods of steel production (steel recycling and electric arc furnaces) by the iron and steel industry. Electric-arc production grew by 7.1 percent in 1996, accounting for 41.9 percent of raw steel production. Coal-based raw steel production declined by 3.1 percent in 1996.[22]

- Demand for coal by the retail and general industry sectors is projected at 74.8 million short tons in 1997, a 2.1 percent decrease from 1996 demand. In 1998, demand is expected to be 76.0 million short tons.

- U.S. coal exports are expected to decline slightly in 1997 and rebound in 1998. Exports are projected to be 89.5 million short tons in 1997, a 1.0 percent decrease, and 91.3 million short tons in 1998 (Table 9).

- Coal production was a record 1,057 million short tons in 1996. Production is expected to grow by 2.6 percent in 1997, with annual output reaching 1,084 million short tons (Figure 26). Production will grow by an additional 3.0 percent in 1998. Production in the Western region should continue to rise significantly over the forecast period, while production in the Interior declines, and Appalachian production grows slowly.[23]

U.S. Electricity Demand and Supply _____

Figure 27. U.S. Electricity Demand
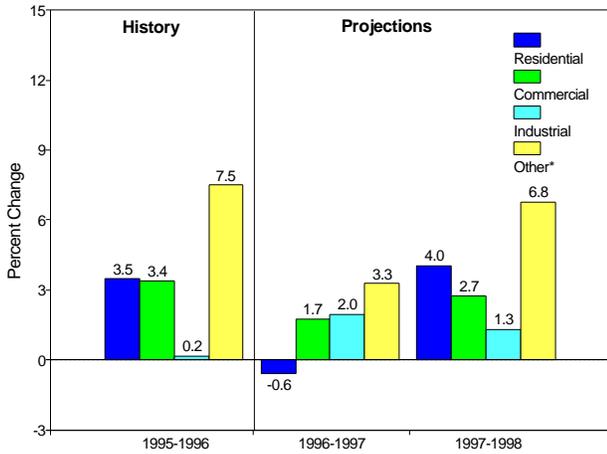
Figure 28. U.S. Electricity Production*
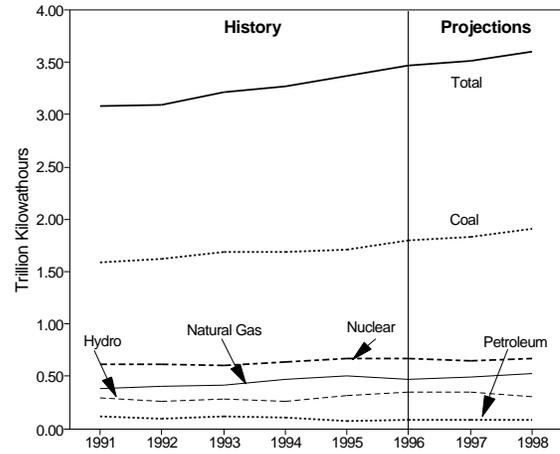
- In 1997, electricity demand is expected to grow more slowly, at 1.0 percent, than it did in 1996 (see Table HL1). This is due mainly to the mild winter weather offsetting the effects of economic growth (Figure 27 and Table 10). In 1998, demand is expected to rise by 2.7 percent as weather is assumed to be normal and as the economy continues to grow.

- Residential demand growth for electricity in 1997 is projected to be negative, reflecting in large part the mild first quarter. Normal weather, particularly in first quarter 1998, together with housing additions, results in an additional residential demand increase of 4.0 percent in 1998.

- Commercial sector electricity demand is expected to rise by 1.7 percent in 1997 and by 2.7 percent in 1998, along with commercial employment (Figure 27 and Tables 10 and 2).

- Industrial demand is expected to grow by 2.0 percent in 1997, along with the economy. In 1998, industrial demand is projected to grow by 1.3 percent, as economic growth is expected to be somewhat slower than this year.

- U.S. utility generation is expected to grow by 0.5 percent in 1997, compared with 1996's 2.8

percent growth rate, due to relatively lower heating demands in the first quarter of 1997. Generation is expected to grow by 2.4 percent in 1998 as weather is assumed normal. Nonutility generation, which is impacted more by economic than weather factors, is expected to continue to increase at faster rates of 5.1 percent in 1997 and 3.4 percent in 1998, largely as a result of capacity additions.[24]

- Hydropower generation by electric utilities in 1998 is expected to decline from abnormally high 1996 and 1997 levels due to the assumption of a return to normal precipitation in the Pacific Northwest (Figure 28).

- Nuclear power generation is expected to fall in 1997 due mainly to the outages of 14 nuclear plants in the Northeast and Midwest. Close to 13,000 megawatts of nuclear electricity generating capacity could be shut down this summer. In the Northeast, there are currently 6,348 megawatts of power capacity shut down, and in the Midwest another 6,681 megawatts are expected to be shut down.[25] Increases in nuclear generation in 1998 are due to the return of now-downed plants and to the improvement in the performance efficiency of existing plants.

Figure 29. Renewable Energy Use for Electricity
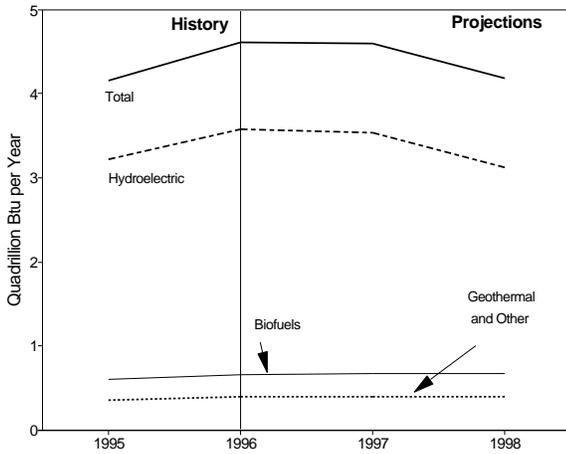
Sources: Third Quarter 1997 STIFS database. Details provided in Figure References Section.

Figure 30. Renewable Energy Use by Sector
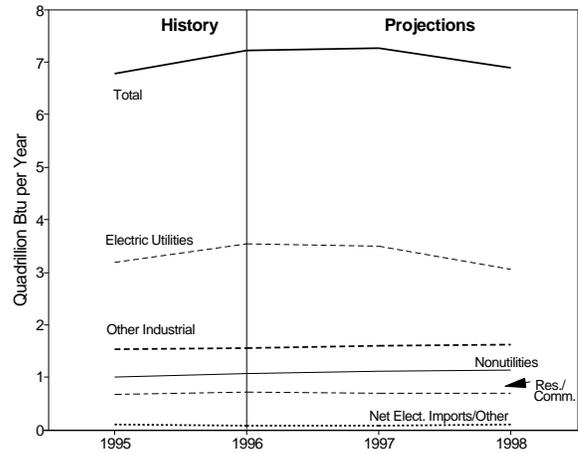
Sources: Third Quarter 1997 STIFS database and Energy Information Administration, Office of Coal, Nuclear, Electric and Alternate Fuels. Details provided in Figure References Section.

• Renewable energy use (includes primarily marketed renewables) in the United States amounted to about 7.2 quadrillion Btu (quads), or about 7.7 percent, of total domestic gross energy demand in 1996 (Tables HL1 and 11). In 1996, use of renewables increased by 6.8 percent due to an increase in hydroelectric generation resulting from heavy rainfall. In 1997, renewables use is expected to remain at close to 1996 levels, as hydropower generation is projected to be slightly below 1996 levels in the major hydro-generating areas. Renewables use in 1998 falls by 5.1 percent due to lower hydropower availability with the return to normal precipitation and water levels.

• More than half of all renewable energy use measured by EIA is associated with the production of electricity. While the largest component of electricity producers' use of renewables is hydroelectric power generated by electric utilities (Figure 29), a significant and growing portion of renewables use occurs at nonutility generating facilities.

• Hydropower generation by electric utilities is expected to decrease slightly in 1997 from high 1996 levels.

• Most of the nonutility use of renewables involves biofuels, principally wood, wood by-products, and waste. However, all of the major forms of renewables used at nonutilities (including hydropower) are projected to grow.

• Most of the utility use of renewables involves hydropower. Hydropower availability in 1997 is expected to be at close to the high 1996 levels due to heavy snowfall and rain this winter. In 1998, hydroelectric availability is expected to return to normal due to the assumption of a return to normal precipitation.

• Currently, aside from power generation, the most significant area of renewables use is in the industrial sector, accounting for 21 percent of the total in 1996 (Figure 30). This component is principally biofuels.

• Renewables use in the combined residential and commercial sector, at about 0.71 quad in 1996, generally accounts for almost 10 percent of total domestic renewables demand (Table 11). Most of this energy is wood used for home heating, with only a very small amount having to do with solar hot water heating.[26]

Table 1. U.S. Macroeconomic and Weather Assumptions

	1996				1997				1998				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1996	1997	1998
Macroeconomic[a]															
Real Gross Domestic Product (billion chained 1992 dollars - SAAR)..............	6814	6892	6928	6993	7089	*7142*	*7185*	*7221*	*7249*	*7273*	*7299*	*7340*	6907	*7159*	*7290*
Percentage Change from Prior Year................	1.7	2.7	2.2	3.1	4.0	*3.6*	*3.7*	*3.3*	*2.2*	*1.8*	*1.6*	*1.6*	2.4	*3.7*	*1.8*
Annualized Percent Change from Prior Quarter..	2.0	4.6	2.1	3.8	5.5	*3.0*	*2.4*	*2.0*	*1.5*	*1.3*	*1.4*	*2.2*			
GDP Implicit Price Deflator (Index, 1992=1.000)..	1.090	1.096	1.102	1.107	1.115	*1.120*	*1.128*	*1.134*	*1.141*	*1.147*	*1.154*	*1.160*	1.099	*1.124*	*1.151*
Percentage Change from Prior Year................	2.2	2.1	2.1	2.1	2.3	*2.2*	*2.4*	*2.4*	*2.4*	*2.4*	*2.3*	*2.3*	2.1	*2.3*	*2.3*
Real Disposable Personal Income (billion chained 1992 Dollars - SAAR)..............	5034	5052	5112	5146	5227	*5249*	*5305*	*5338*	*5368*	*5380*	*5406*	*5434*	5086	*5280*	*5397*
Percentage Change from Prior Year................	2.7	3.0	3.1	2.7	3.8	*3.9*	*3.8*	*3.7*	*2.7*	*2.5*	*1.9*	*1.8*	2.9	*3.8*	*2.2*
Manufacturing Production (Index, 1987=1.000)..	1.229	1.248	1.263	1.276	1.297	*1.311*	*1.328*	*1.334*	*1.338*	*1.342*	*1.344*	*1.351*	1.254	*1.318*	*1.344*
Percentage Change from Prior Year................	0.8	2.7	3.3	4.1	5.6	*5.1*	*5.1*	*4.5*	*3.2*	*2.4*	*1.3*	*1.2*	2.7	*5.1*	*2.0*
OECD Economic Growth(percent) [b]													2.5	*2.7*	*2.5*
Weather [c]															
Heating Degree-Days															
U.S.	2406	552	89	1666	2143	*650*	*89*	*1636*	*2327*	*524*	*89*	*1636*	4713	*4517*	*4576*
New England...	3361	933	151	2234	3119	*1029*	*171*	*2269*	*3267*	*915*	*171*	*2269*	6679	*6588*	*6621*
Middle Atlantic..	3120	750	87	2029	2814	*850*	*105*	*2026*	*2993*	*716*	*105*	*2026*	5986	*5796*	*5839*
U.S. Gas-Weighted......................................	2501	636	135	1768	2275	*687*	*81*	*1686*	*2426*	*539*	*81*	*1686*	5040	*4729*	*4732*
Cooling Degree-Days (U.S.)..........................	21	368	725	66	29	*291*	*758*	*72*	*30*	*334*	*758*	*72*	1180	*1150*	*1193*

[a]Macroeconomic projections from DRI/McGraw-Hill model forecasts are seasonally adjusted at annual rates and modified as appropriate to the mid world oil price case.

[b]OECD: Organization for Economic Cooperation and Development: 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. Mexico is also a member but is not yet included in OECD data.

[c]Population-weighted degree days. A degree day indicates the temperature variation from 65 degrees Fahrenheit (calculated as the simple average of the daily minimum and maximum temperatures) weighted by 1990 population. Normal is used for the forecast period and is defined as the average number of degree days between 1961 and 1990 for a given period.

SAAR: Seasonally-adjusted annualized rate.

Note: Historical data are printed in bold; forecasts are in italics.

Sources: Historical data: latest data available from: U.S. Department of Commerce, Bureau of Economic Analysis; U.S. Department of Commerce, National Oceanic and Atmospheric Administration; Federal Reserve System, *Statistical Release G.17(419)*. Projections of OECD growth are based on WEFA Group, "World Economic Outlook," Volume 1. Macroeconomic projections are based on DRI/McGraw-Hill Forecast CONTROL0597.

Table 2. U.S. Energy Indicators: Mid World Oil Price Case

	1996				1997				1998				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1996	1997	1998
Macroeconomic[a]															
Real Fixed Investment															
(billion chained 1992 dollars-SAAR)..............	1013	1031	1057	1067	1093	1108	1127	1144	1161	1174	1180	1184	1042	1118	1175
Real Exchange Rate															
(index)	0.997	1.013	1.017	1.030	1.086	1.117	1.117	1.113	1.102	1.086	1.070	1.054	1.014	1.108	1.078
Business Inventory Change															
(billion chained 1992 dollars-SAAR)..............	12.0	-3.9	11.9	4.2	14.5	18.6	17.2	14.1	11.2	8.3	5.5	3.4	6.0	16.1	7.1
Producer Price Index															
(index, 1980-1984=1.000)............................	1.263	1.275	1.282	1.287	1.287	1.277	1.280	1.286	1.291	1.297	1.302	1.307	1.277	1.282	1.299
Consumer Price Index															
(index, 1980-1984=1.000)............................	1.551	1.564	1.575	1.588	1.597	1.602	1.613	1.626	1.637	1.649	1.661	1.674	1.570	1.610	1.655
Petroleum Product Price Index															
(index, 1980-1984=1.000)............................	0.632	0.727	0.702	0.744	0.721	0.663	0.647	0.662	0.685	0.678	0.673	0.690	0.701	0.673	0.681
Non-Farm Employment															
(millions)	118.5	119.3	120.0	120.5	121.2	121.8	122.7	123.4	124.0	124.6	124.9	125.3	119.5	122.3	124.7
Commercial Employment															
(millions)	80.2	81.0	81.6	82.2	82.8	83.3	84.1	84.7	85.3	85.7	86.1	86.4	81.2	83.7	85.9
Total Industrial Production															
(index, 1987=1.000)	1.215	1.233	1.243	1.257	1.274	1.288	1.303	1.311	1.316	1.321	1.324	1.330	1.237	1.294	1.323
Housing Stock															
(millions)	110.6	111.0	111.4	111.8	112.1	112.5	112.9	113.3	113.6	114.0	114.4	114.7	111.2	112.7	114.2
Miscellaneous															
Gas Weighted Industrial Production															
(index, 1987=1.000)	1.161	1.172	1.189	1.208	1.216	1.228	1.237	1.242	1.245	1.249	1.255	1.260	1.182	1.231	1.252
Vehicle Miles Traveled[b]															
(million miles/day)............................	6181	7014	7134	6625	6425	7181	7365	6868	6662	7392	7551	7048	6739	6962	7165
Vehicle Fuel Efficiency															
(index, 1995=1.000)............................	0.965	1.031	1.047	0.985	0.993	1.041	1.057	0.994	1.003	1.051	1.066	1.003	1.007	1.021	1.031
Real Vehicle Fuel Cost															
(cents per mile)...............................	3.94	4.11	3.91	4.12	4.07	3.80	3.65	3.81	3.78	3.74	3.62	3.77	4.02	3.83	3.73
Air Travel Capacity															
(mill. available ton-miles/day)........................	382.0	400.1	413.6	402.5	405.8	424.8	442.2	432.9	427.7	444.6	461.6	450.0	399.6	426.5	446.1
Aircraft Utilization															
(mill. revenue ton-miles/day)..........................	213.0	233.4	244.7	232.0	226.8	242.4	259.1	242.5	238.4	253.7	268.3	251.7	230.8	242.8	253.1
Aircraft Yield															
(cents per ton-mile)........................	14.10	13.98	12.56	13.57	14.60	14.06	13.19	14.01	14.86	14.50	13.66	14.46	13.55	13.96	14.37
Raw Steel Production															
(millions tons)	26.55	26.05	25.62	25.67	26.18	26.81	26.07	27.79	28.01	28.01	27.33	27.97	103.89	106.84	111.32

[a]Macroeconomic projections from DRI/McGraw-Hill model forecasts are seasonally adjusted at annual rates and modified as appropriate to the mid world oil price case.
[b]Includes all highway travel.
SAAR: Seasonally-adjusted annualized rate.
Note: Historical data are printed in bold; forecasts are in italics.
Sources: Historical data: latest data available from: U.S. Department of Commerce, Bureau of Economic Analysis; U.S. Department of Commerce, National Oceanic and Atmospheric Administration; Federal Reserve System, *Statistical Release* G.17(419); U.S. Department of Transportation; American Iron and Steel Institute. Macroeconomic projections are based on DRI/McGraw-Hill Forecast CONTROL0597.

Table 3. International Petroleum Supply and Demand: Mid World Oil Price Case
(Million Barrels per Day, Except Closing Stocks)

	1996 1st	1996 2nd	1996 3rd	1996 4th	1997 1st	1997 2nd	1997 3rd	1997 4th	1998 1st	1998 2nd	1998 3rd	1998 4th	Year 1996	Year 1997	Year 1998
Demand[a]															
OECD															
U.S. (50 States)............................	18.3	17.9	18.1	18.6	18.2	18.2	18.6	18.9	18.8	18.6	18.8	19.1	18.2	18.5	18.8
U.S. Territories.............................	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Canada..	1.8	1.7	1.8	1.8	1.8	1.7	1.8	1.8	1.8	1.7	1.9	1.8	1.8	1.8	1.8
Europe..	14.6	13.7	14.4	14.6	14.8	13.9	14.6	14.9	15.0	14.1	14.8	15.0	14.3	14.5	14.7
Japan	6.4	5.2	5.4	6.0	6.5	5.3	5.4	6.1	6.7	5.4	5.6	6.2	5.7	5.8	6.0
Australia and New Zealand............	1.0	1.0	0.9	1.0	1.0	1.0	0.9	1.0	1.0	1.0	0.9	1.0	0.9	1.0	1.0
Total OECD...............................	42.2	39.7	40.7	42.2	42.6	40.3	41.6	42.9	43.5	40.9	42.1	43.4	41.2	41.8	42.5
Non-OECD															
Former Soviet Union.....................	4.8	4.3	4.3	4.7	4.8	4.3	4.3	4.7	4.7	4.4	4.4	4.7	4.5	4.5	4.5
Europe..	1.4	1.3	1.3	1.4	1.5	1.3	1.3	1.4	1.5	1.3	1.3	1.4	1.3	1.4	1.4
China..	3.5	3.6	3.6	3.7	3.7	3.8	3.8	3.9	3.9	4.0	4.0	4.1	3.6	3.8	4.0
Other Asia...................................	8.6	8.3	7.9	9.1	9.2	8.9	8.5	9.7	9.8	9.5	9.1	10.4	8.5	9.1	9.7
Other Non-OECD..........................	12.5	12.8	12.5	12.8	12.9	13.3	13.0	13.2	13.2	13.6	13.3	13.5	12.7	13.1	13.4
Total Non-OECD.........................	30.7	30.3	29.6	31.5	32.1	31.6	30.9	32.9	33.2	32.8	32.1	34.2	30.5	31.9	33.1
Total World Demand	73.0	69.9	70.3	73.7	74.7	71.8	72.5	75.8	76.7	73.8	74.2	77.6	71.7	73.7	75.6
Supply[b]															
OECD															
U.S. (50 States)............................	9.4	9.4	9.4	9.6	9.4	9.4	9.3	9.4	9.3	9.2	9.2	9.2	9.4	9.4	9.2
Canada..	2.4	2.4	2.5	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.8	2.5	2.6	2.7
North Sea [c]	6.2	6.1	6.1	6.5	6.5	6.4	6.7	6.9	6.9	6.7	7.0	7.2	6.2	6.6	6.9
Other OECD.................................	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.6	1.6	1.6
Total OECD...............................	19.5	19.6	19.6	20.2	20.1	19.9	20.3	20.5	20.5	20.2	20.5	20.8	19.7	20.2	20.5
Non-OECD															
OPEC..	28.1	28.1	28.3	28.7	29.5	29.3	29.3	29.5	29.5	29.7	29.8	30.1	28.3	29.4	29.8
Former Soviet Union.....................	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.2	7.3	7.4	7.5	7.6	7.1	7.1	7.5
China..	3.1	3.1	3.1	3.2	3.2	3.2	3.2	3.3	3.3	3.3	3.3	3.4	3.1	3.2	3.3
Mexico..	3.3	3.4	3.3	3.3	3.4	3.4	3.4	3.5	3.5	3.5	3.5	3.5	3.3	3.4	3.5
Other Non-OECD..........................	10.1	10.2	10.2	10.4	10.5	10.6	10.7	10.8	10.9	11.0	11.1	11.2	10.2	10.7	11.1
Total Non-OECD.........................	51.7	51.8	52.0	52.6	53.8	53.5	53.7	54.2	54.4	54.9	55.2	55.7	52.0	53.8	55.1
Total World Supply	71.2	71.4	71.6	72.8	73.8	73.4	74.0	74.7	74.9	75.1	75.7	76.5	71.8	74.0	75.6
Stock Changes															
Net Stock Withdrawals or Additions (-)															
U.S. (50 States including SPR)....................	0.9	-0.7	-0.1	0.5	-0.0	-0.5	-0.4	0.5	0.4	-0.7	-0.4	0.5	0.1	-0.1	-0.0
Other	0.9	-0.8	-1.2	0.4	0.9	-1.1	-1.2	0.6	1.4	-0.7	-1.1	0.6	-0.2	-0.2	0.0
Total Stock Withdrawals.............	1.8	-1.5	-1.3	0.9	0.8	-1.6	-1.5	1.1	1.8	-1.4	-1.5	1.1	-0.0	-0.3	0.0
Closing Stocks, OECD only (billion barrels).....	2.6	2.6	2.7	2.7	2.6	2.7	2.8	2.7	2.6	2.7	2.8	2.7	2.7	2.7	2.7
Non-OPEC Supply...........................	43.1	43.3	43.3	44.1	44.3	44.1	44.6	45.2	45.4	45.4	45.9	46.4	43.5	44.6	45.8
Net Exports from Former Soviet Union.............	2.4	2.8	2.8	2.4	2.3	2.7	2.8	2.5	2.6	3.0	3.1	2.9	2.6	2.6	2.9

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

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

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

OECD: Organization for Economic Cooperation and Development: 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. Mexico is also a member, but is not yet included in OECD data.

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

SPR: Strategic Petroleum Reserve

Former Soviet Union: Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

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

Sources: Energy Information Administration: latest data available from EIA databases supporting the following reports: *International Petroleum Statistics Report*, DOE/EIA-0520; Organization for Economic Cooperation and Development, Annual and Monthly Oil Statistics Database.

Table 4. U. S. Energy Prices
(Nominal Dollars)

	1996				1997				1998				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1996	1997	1998
Imported Crude Oil[a]															
(dollars per barrel)	18.38	20.11	20.70	23.06	21.03	18.36	18.33	19.00	19.50	20.25	19.75	20.33	20.59	19.15	19.96
Natural Gas Wellhead															
(dollars per thousand cubic feet)	2.01	2.10	2.13	2.74	2.69	1.95	2.17	2.36	2.34	2.05	2.06	2.34	2.25	2.29	2.20
Petroleum Products															
Gasoline Retail [b]															
(dollars per gallon)	1.20	1.35	1.31	1.30	1.31	1.29	1.26	1.25	1.26	1.31	1.30	1.28	1.29	1.28	1.29
No. 2 Diesel Oil, Retail															
(dollars per gallon)	1.16	1.23	1.21	1.30	1.25	1.16	1.13	1.19	1.20	1.20	1.18	1.24	1.23	1.18	1.20
No. 2 Heating Oil, Wholesale															
(dollars per gallon)	0.59	0.61	0.63	0.72	0.64	0.58	0.53	0.59	0.60	0.56	0.55	0.61	0.64	0.59	0.58
No. 2 Heating Oil, Retail															
(dollars per gallon)	0.96	0.98	0.91	1.06	1.05	0.97	0.87	0.95	1.00	0.95	0.89	0.98	0.99	1.00	0.98
No. 6 Residual Fuel Oil, Retail [c]															
(dollars per barrel)	19.28	18.12	17.65	20.72	18.86	16.95	16.93	18.06	18.77	18.48	17.74	19.20	18.96	17.74	18.57
Electric Utility Fuels															
Coal															
(dollars per million Btu)...............	1.30	1.30	1.28	1.28	1.29	1.30	1.27	1.25	1.26	1.27	1.25	1.24	1.29	1.28	1.25
Heavy Fuel Oil [d]															
(dollars per million Btu)...............	3.01	2.93	2.83	3.35	2.91	2.73	2.72	3.00	2.99	2.98	2.85	3.19	3.01	2.83	2.99
Natural Gas															
(dollars per million Btu)...............	2.81	2.55	2.46	2.96	3.03	2.37	2.55	2.81	2.78	2.42	2.39	2.71	2.64	2.64	2.53
Other Residential															
Natural Gas															
(dollars per thousand cubic feet)	5.74	6.67	8.35	6.45	6.65	6.37	7.56	6.11	6.04	6.57	7.67	6.19	6.29	6.52	6.29
Electricity															
(cents per kilowatthour)	7.90	8.52	8.83	8.31	8.04	8.49	8.79	8.33	7.91	8.50	8.79	8.31	8.39	8.42	8.38

[a]Refiner acquisition cost (RAC) of imported crude oil.
[b]Average for all grades and services.
[c]Average for all sulfur contents.
[d]Includes fuel oils No. 4, No. 5, and No. 6 and topped crude fuel oil prices.
   Notes: Data are estimated for the second quarter of 1997. Prices exclude taxes, except prices for gasoline, residential natural gas, and diesel. The forecasts were generated by simulation of the Short-Term Integrated Forecasting System.
   Sources: Historical data: Energy Information Administration: latest data available from EIA databases supporting the following reports: *Petroleum Marketing Monthly*, DOE/EIA-0380; *Natural Gas Monthly*, DOE/EIA-0130; *Monthly Energy Review*, DOE/EIA-0035; *Electric Power Monthly*, DOE/EIA-0226.

Table 5. U.S. Petroleum Supply and Demand: Mid World Oil Price Case
(Million Barrels per Day, Except Closing Stocks)

	1996				1997				1998				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1996	1997	1998
Supply															
Crude Oil Supply															
Domestic Production [a]	6.52	6.47	6.42	6.47	6.45	6.43	6.31	6.31	6.29	6.21	6.14	6.13	6.47	6.37	6.19
Alaska	1.46	1.38	1.35	1.40	1.36	1.32	1.26	1.29	1.28	1.22	1.18	1.19	1.40	1.31	1.22
Lower 48	5.06	5.10	5.08	5.07	5.09	5.11	5.05	5.02	5.01	4.99	4.96	4.94	5.08	5.07	4.98
Net Imports (including SPR) [b]	6.90	7.67	7.60	7.32	7.32	7.97	7.84	7.62	7.54	8.29	8.23	7.94	7.37	7.69	8.00
Other SPR Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SPR Stock Withdrawn or Added (-)	0.03	0.05	0.12	0.09	0.03	-0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.01	0.00
Other Stock Withdrawn or Added (-)	0.04	-0.16	0.11	0.21	-0.33	-0.10	0.08	0.01	-0.07	-0.01	0.06	0.02	0.05	-0.08	0.00
Product Supplied and Losses	-0.01	-0.01	-0.01	-0.01	-0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
Unaccounted-for Crude Oil	0.20	0.38	0.16	0.17	0.24	0.48	0.28	0.27	0.27	0.28	0.28	0.27	0.23	0.32	0.27
Total Crude Oil Supply	13.67	14.40	14.41	14.25	13.71	14.76	14.49	14.21	14.02	14.76	14.70	14.36	14.18	14.29	14.46
Other Supply															
NGL Production	1.74	1.83	1.86	1.90	1.87	1.85	1.86	1.92	1.88	1.88	1.89	1.90	1.83	1.88	1.89
Other Hydrocarbon and Alcohol Inputs	0.32	0.29	0.30	0.33	0.31	0.30	0.29	0.30	0.31	0.29	0.29	0.31	0.31	0.30	0.30
Crude Oil Product Supplied	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Processing Gain	0.78	0.84	0.85	0.87	0.78	0.83	0.86	0.85	0.82	0.87	0.87	0.85	0.83	0.83	0.86
Net Product Imports [c]	0.96	1.15	0.99	1.09	1.30	1.10	1.18	1.26	1.32	1.32	1.31	1.23	1.05	1.21	1.29
Product Stock Withdrawn or Added (-) [d]	0.82	-0.59	-0.31	0.18	0.27	-0.53	-0.29	0.40	0.48	-0.62	-0.44	0.45	0.02	-0.04	-0.03
Total Supply	18.29	17.91	18.09	18.63	18.24	18.31	18.39	18.94	18.84	18.52	18.62	19.12	18.23	18.48	18.78
Demand															
Motor Gasoline	7.51	7.99	8.00	7.90	7.59	8.10	8.18	8.12	7.80	8.25	8.31	8.25	7.85	8.00	8.16
Jet Fuel	1.60	1.52	1.59	1.60	1.57	1.57	1.63	1.68	1.64	1.60	1.66	1.69	1.58	1.62	1.65
Distillate Fuel Oil	3.62	3.23	3.14	3.49	3.58	3.35	3.14	3.57	3.84	3.42	3.19	3.60	3.37	3.41	3.51
Residual Fuel Oil	0.96	0.77	0.83	0.81	0.90	0.79	0.81	0.91	0.98	0.81	0.78	0.86	0.84	0.85	0.86
Other Oils [e]	4.60	4.41	4.54	4.84	4.61	4.51	4.63	4.66	4.58	4.44	4.68	4.72	4.60	4.60	4.60
Total Demand	18.29	17.91	18.09	18.63	18.24	18.31	18.39	18.94	18.84	18.52	18.62	19.12	18.23	18.48	18.78
Total Petroleum Net Imports	7.86	8.81	8.59	8.41	8.62	9.07	9.01	8.88	8.86	9.61	9.54	9.18	8.42	8.90	9.30
Closing Stocks (million barrels)															
Crude Oil (excluding SPR)	300	314	304	285	314	323	316	315	321	322	316	314	285	315	314
Total Motor Gasoline	203	205	200	196	200	207	201	201	207	204	205	201	196	201	201
Finished Motor Gasoline	159	165	161	157	154	163	159	160	165	165	164	160	157	160	160
Blending Components	44	40	39	38	46	44	42	41	42	40	41	41	38	41	41
Jet Fuel	34	39	43	40	39	42	43	41	40	41	42	42	40	41	42
Distillate Fuel Oil	90	102	115	127	102	117	132	133	96	105	127	131	127	133	131
Residual Fuel Oil	32	35	38	46	41	38	39	41	35	39	40	43	46	41	43
Other Oils [e]	235	267	280	251	253	280	297	256	253	298	313	268	251	256	268
Total Stocks (excluding SPR)	893	961	980	944	949	1007	1026	988	951	1008	1043	1000	944	988	1000
Crude Oil in SPR	589	584	574	566	563	564	564	564	564	564	564	564	566	564	564
Total Stocks (including SPR)	1482	1546	1554	1510	1512	1570	1590	1552	1515	1571	1607	1563	1510	1552	1563

[a] Includes lease condensate.

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

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

[d] Includes 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.

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

SPR: Strategic Petroleum Reserve

NGL: Natural Gas Liquids

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

Sources: Historical data: Energy Information Administration: latest data available from EIA databases supporting the following reports: *Petroleum Supply Monthly*, DOE/EIA-0109, and *Weekly Petroleum Status Report*, DOE/EIA-0208.

Table 6. Approximate Energy Demand Sensitivities[a] for the STIFS[b] Model
(Percent Deviation Base Case)

Demand Sector	+1% GDP	+ 10% Prices		+ 10% Weather[e]	
		Crude Oil[c]	N.Gas Wellhead[d]	Fall/Winter[f]	Spring/Summer[f]
Petroleum					
Total	0.6%	-0.3%	0.1%	1.1%	0.1%
Motor Gasoline..................	0.1%	-0.3%	0.0%	0.0%	0.0%
Distillate Fuel....................	0.8%	-0.2%	0.0%	2.7%	0.1%
Residual Fuel	1.6%	-3.4%	2.6%	2.0%	2.7%
Natural Gas					
Total	1.1%	0.3%	-0.4%	4.4%	1.0%
Residential........................	0.1%	0.0%	0.0%	8.2%	0.0%
Commercial.......................	0.9%	0.0%	0.0%	7.3%	0.0%
Industrial...........................	1.7%	0.2%	-0.5%	1.3%	0.0%
Electric Utility...................	1.8%	1.6%	-1.5%	1.0%	4.0%
Coal					
Total	0.7%	0.0%	0.0%	1.7%	1.7%
Electric Utility...................	0.6%	0.0%	0.0%	1.9%	1.9%
Electricity					
Total	0.6%	0.0%	0.0%	1.5%	1.7%
Residential........................	0.1%	0.0%	0.0%	3.2%	3.6%
Commercial.......................	0.9%	0.0%	0.0%	1.0%	1.4%
Industrial...........................	0.8%	0.0%	0.0%	0.3%	0.2%

[a]Percent change in demand quantity resulting from specified percent changes in model inputs.
[b]Short-Term Integrated Forecasting System.
[c]Refiner acquisitions cost of imported crude oil.
[d]Average unit value of marketed natural gas production reported by states.
[e]Refers to percent changes in degree-days.
[f]Response during fall/winter period(first and fourth calendar quarters) refers to change in heating degree-days.
Response during the spring/summer period refers to change in cooling degree-days.

Table 7. 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	6.43	5.83	0.60	0.10	0.50
Lower 48 States	5.22	4.66	0.56	0.08	0.48
Alaska	1.21	1.17	0.04	0.02	0.02

Note: Components provided are for the fourth quarter 1998. 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 8. U.S. Natural Gas Supply and Demand: Mid world Oil Price Case
(Trillion cubic Feet)

	1996				1997				1998				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1996	1997	1998
Supply															
Total Dry Gas Production	4.74	4.70	4.73	4.85	4.71	4.74	4.77	4.93	4.85	4.83	4.86	4.99	19.02	19.14	19.53
Net Imports...	0.66	0.65	0.67	0.74	0.75	0.71	0.72	0.78	0.79	0.77	0.78	0.84	2.73	2.96	3.17
Supplemental Gaseous Fuels	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.13	0.13	0.13
Total New Supply.....................................	5.44	5.39	5.42	5.62	5.49	5.48	5.51	5.75	5.67	5.63	5.66	5.86	21.87	22.23	22.83
Total Underground Storage															
Opening...	6.50	5.04	5.86	6.93	6.51	5.32	6.06	6.97	6.50	5.22	6.03	6.97	6.50	6.51	6.50
Closing...	5.04	5.86	6.93	6.51	5.32	6.06	6.97	6.50	5.22	6.03	6.97	6.50	6.51	6.50	6.50
Net Withdrawals	1.46	-0.82	-1.07	0.42	1.19	-0.74	-0.91	0.46	1.28	-0.80	-0.94	0.46	-0.00	0.00	-0.00
Total Supply..	6.91	4.57	4.35	6.04	6.68	4.74	4.60	6.21	6.95	4.82	4.72	6.33	21.87	22.23	22.83
Balancing Item [a]	0.17	0.29	-0.05	-0.36	0.21	0.21	-0.11	-0.36	0.44	0.23	-0.06	-0.35	0.05	-0.05	0.26
Total Primary Supply.....................................	7.08	4.85	4.31	5.68	6.89	4.95	4.49	5.85	7.39	5.06	4.66	5.97	21.92	22.18	23.08
Demand															
Lease and Plant Fuel.................................	0.31	0.31	0.31	0.32	0.31	0.31	0.31	0.32	0.31	0.32	0.32	0.33	1.25	1.25	1.27
Pipeline Use..	0.23	0.16	0.14	0.18	0.22	0.16	0.14	0.19	0.24	0.16	0.15	0.19	0.71	0.71	0.75
Residential	2.46	0.91	0.38	1.48	2.28	0.91	0.37	1.41	2.46	0.87	0.38	1.43	5.23	4.97	5.13
Commercial..	1.32	0.61	0.39	0.89	1.26	0.63	0.41	0.89	1.39	0.63	0.42	0.91	3.20	3.19	3.35
Industrial (Incl. Cogenerators)	2.25	2.09	2.04	2.22	2.29	2.16	2.10	2.35	2.40	2.20	2.15	2.40	8.60	8.90	9.15
Cogenerators [b]	0.56	0.51	0.52	0.60	0.56	0.54	0.57	0.65	0.58	0.56	0.59	0.68	2.20	2.32	2.41
Electricity Production															
Electric Utilities	0.46	0.73	1.01	0.53	0.47	0.75	1.11	0.63	0.54	0.84	1.19	0.65	2.73	2.96	3.22
Nonutilities (Excl. Cogen.)	0.05	0.04	0.05	0.05	0.05	0.05	0.05	0.06	0.05	0.05	0.05	0.06	0.19	0.20	0.21
Total Demand	7.08	4.85	4.31	5.68	6.89	4.95	4.49	5.85	7.39	5.06	4.66	5.97	21.92	22.18	23.08

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

[b] Quarterly estimates and projections for gas consumption by nonutility generators are based on estimates for quarterly gas-fired generation at nonutilities, supplied by the Office of Coal, Nuclear, Electric and Alternate Fuels (CNEAF), Energy Information Administration (EIA), based on annual data reported to EIA on Form EIA-867 (Annual Nonutility Power Producer Report). Annual projections for nonutility gas consumption, as well as the detail on independent power producers' share of gas consumption, are provided by CNEAF.

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

Sources: Historical data: Energy Information Administration: latest data available from EIA databases supporting the following reports: *Natural Gas Monthly*, DOE/EIA-0130; *Electric Power Monthly*, DOE/EIA-0226; Projections: Energy Information Administration, Short-Term Integrated Forecasting System database, and Office of Oil and Gas, Reserves and Natural Gas Division.

Table 9. U.S. Coal Supply and Demand: Mid World Oil Price Case
(Million Short Tons)

	1996				1997				1998				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1996	1997	1998
Supply															
Production	258.1	261.6	270.3	266.8	270.5	262.9	272.8	277.6	283.0	273.2	278.9	280.7	1056.7	1083.8	1115.8
Appalachia...................................	109.8	112.2	109.6	113.4	112.5	110.5	108.1	115.6	115.0	112.5	107.8	114.6	445.1	446.7	449.9
Interior	43.8	42.5	43.8	42.1	44.6	41.2	42.2	41.7	45.2	41.1	41.1	40.1	172.2	169.7	167.6
Western	104.4	106.8	116.9	111.3	113.4	111.2	122.6	120.2	122.7	119.6	130.1	125.9	439.5	467.4	498.3
Primary Stock Levels[a]															
Opening	34.4	36.9	37.3	33.8	31.1	35.0	35.0	32.0	31.0	34.0	34.0	32.0	34.4	31.1	31.0
Closing	36.9	37.3	33.8	31.1	35.0	35.0	32.0	31.0	34.0	34.0	32.0	30.0	31.1	31.0	30.0
Net Withdrawals	-2.4	-0.5	3.6	2.7	-3.9	(S)	3.0	1.0	-3.0	(S)	2.0	2.0	3.4	0.1	1.0
Imports...	1.7	1.6	2.1	1.8	1.3	1.9	1.9	1.9	1.8	1.8	1.8	1.8	7.1	7.0	7.3
Exports...	20.5	23.0	23.5	23.4	20.0	23.0	23.3	23.2	22.3	22.9	23.1	23.0	90.5	89.5	91.3
Total Net Domestic Supply.....................	236.8	239.6	252.4	247.9	247.9	241.8	254.4	257.3	259.5	252.2	259.7	261.5	976.8	1001.3	1032.8
Secondary Stock Levels[b]															
Opening	134.6	124.8	134.3	127.6	123.0	119.1	126.7	112.8	114.4	114.2	122.7	109.3	134.6	123.0	114.4
Closing	124.8	134.3	127.6	123.0	119.1	126.7	112.8	114.4	114.2	122.7	109.3	110.8	123.0	114.4	110.8
Net Withdrawals	9.8	-9.5	6.7	4.6	3.8	-7.6	13.9	-1.6	0.2	-8.5	13.4	-1.6	11.7	8.6	3.6
Total Supply................................	246.7	230.1	259.2	252.5	251.7	234.2	268.3	255.7	259.8	243.6	273.1	259.9	988.4	1009.9	1036.4
Demand															
Coke Plants................................	8.0	8.0	8.0	7.8	7.9	7.9	7.8	8.4	7.9	7.9	8.0	8.4	31.7	32.0	32.1
Electricity Production															
Electric Utilities...........................	214.9	203.2	233.6	223.0	218.2	203.5	238.9	224.2	228.8	215.4	245.1	229.2	874.7	884.8	918.5
Nonutilities (Excl. Cogen.)[c]	6.0	6.0	6.0	6.0	6.5	6.5	6.5	6.5	7.0	7.0	7.0	7.0	24.0	26.0	28.0
Retail and General Industry[d]	20.3	18.0	17.9	20.3	19.1	17.4	17.8	20.6	20.0	17.9	17.7	20.3	76.4	74.8	76.0
Total Demand................................	249.2	235.1	265.5	257.0	251.7	235.3	271.0	259.7	263.7	248.2	277.8	264.9	1006.9	1017.6	1054.7
Discrepancy[e]	-2.5	-5.0	-6.4	-4.5	(S)	-1.1	-2.7	-3.9	-4.0	-4.6	-4.8	-5.0	-18.4	-7.7	-18.3

[a]Primary stocks are held at the mines, preparation plants, and distribution points.
[b]Secondary stocks are held by users.
[c]Consumption of coal by Independent Power Producers (IPPs). In 1995, IPP consumption was estimated to be 5.290 million tons per quarter. Quarterly estimates and projections for coal consumption by nonutility generators are based on estimates for annual coal-fired generation at nonutilities, supplied by the Office of Coal, Nuclear, Electric and Alternate Fuels, Energy Information Administration (EIA), based on annual data reported to EIA on Form EIA-867 (Annual Nonutility Power Producer Report). Data for second quarter 1997 are estimates.
[d]Synfuels plant demand in 1993 was 1.7 million tons per quarter and is assumed to remain at that level in 1994, 1995, 1996, 1997 and 1998.
[e]Historical period discrepancy reflects an unaccounted-for shipper and receiver reporting difference. Estimated IPP consumption not included in production (waste coal) has been netted out of the discrepancy. The estimated annual consumption for 1995 is 8.496 million tons, 9.600 million tons in 1996, and the forecast for 1997 is 10.400 million tons, and 11.200 million tons in 1998.
(S) indicates amounts of less than 50,000 tons in absolute value.
Notes: Rows and columns may not add due to independent rounding. Historical data are printed in bold; forecasts are in italics. The forecasts were generated by simulation of the Short-Term Integrated Forecasting System.
Sources: Historical data: Energy Information Administration: latest data available from EIA databases supporting the following reports: *Quarterly Coal Report*, DOE/EIA-0121, and *Electric Power Monthly*, DOE/EIA-0226. Projections: Energy Information Administration, Short-Term Integrated Forecasting System database, and Office of Coal, Nuclear, Electric and Alternate Fuels.

Table 10. U.S. Electricity Supply and Demand: Mid World Oil Price Case
(Billion Kilowatthours)

	1996				1997				1998				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1996	1997	1998
Supply															
Net Utility Generation															
Coal...	428.2	405.7	462.7	441.0	434.0	406.2	477.0	448.9	459.6	432.7	489.7	458.8	1737.5	1766.2	1840.9
Petroleum...................................	22.3	12.8	19.0	14.1	17.6	13.9	20.0	14.4	20.3	15.2	18.8	13.1	68.2	65.9	67.3
Natural Gas................................	44.6	70.8	96.6	50.8	45.6	70.4	104.4	59.1	50.5	78.9	112.1	61.2	262.8	279.4	302.8
Nuclear.......................................	174.3	163.5	177.0	159.9	160.0	156.4	175.8	158.8	171.3	154.3	180.0	162.6	674.7	651.1	668.2
Hydroelectric.............................	91.1	92.4	73.1	72.1	94.3	90.5	71.8	67.4	77.5	78.2	63.7	64.0	328.7	324.0	283.4
Geothermal and Other [a]	1.5	1.5	2.2	2.1	1.6	1.7	1.8	1.7	1.7	1.6	1.7	1.7	7.2	6.9	6.6
Subtotal.................................	762.1	746.6	830.5	739.9	753.1	739.1	850.9	750.4	780.9	760.9	866.0	761.3	3079.1	3093.4	3169.1
Nonutility Generation [b]															
Coal...	16.1	14.7	15.1	17.4	15.9	15.5	16.3	18.7	16.4	16.0	16.8	19.3	63.3	66.4	68.5
Petroleum...................................	4.4	4.0	4.1	4.7	4.5	4.4	4.6	5.3	4.9	4.8	5.0	5.7	17.3	18.8	20.4
Natural Gas................................	52.3	47.9	49.1	56.5	52.3	50.8	53.3	61.2	54.2	52.7	55.3	63.6	205.8	217.6	225.9
Other Gaseous Fuels [c]	3.2	2.9	3.0	3.4	3.0	2.9	3.1	3.5	3.0	2.9	3.1	3.5	12.5	12.5	12.6
Hydroelectric.............................	3.9	3.6	3.7	4.2	4.0	3.8	4.0	4.6	4.1	4.0	4.2	4.9	15.3	16.4	17.3
Geothermal and Other [d]	20.5	18.7	19.2	22.1	19.9	19.4	20.3	23.4	20.2	19.7	20.6	23.7	80.5	83.0	84.3
Subtotal.................................	100.3	91.8	94.2	108.3	99.6	96.9	101.6	116.7	103.0	100.1	105.0	120.7	394.7	414.7	428.8
Total Generation	862.4	838.5	924.7	848.2	852.7	835.9	952.4	867.1	883.9	861.0	971.0	882.0	3473.8	3508.2	3597.9
Net Imports [e]	7.1	9.5	13.0	8.4	7.5	9.3	12.7	8.1	6.9	9.2	12.6	8.3	38.0	37.6	37.0
Total Supply.................................	869.5	848.0	937.7	856.6	860.2	845.2	965.1	875.3	890.8	870.2	983.6	890.3	3511.8	3545.8	3634.9
Losses and Unaccounted for [f]	55.2	78.5	59.5	72.2	57.6	72.2	67.2	68.3	52.7	74.4	68.5	69.4	265.4	265.4	265.0
Demand															
Electric Utility Sales															
Residential	290.7	239.2	302.1	246.5	276.8	235.1	306.2	254.3	297.0	244.2	313.5	260.8	1078.5	1072.3	1115.4
Commercial...............................	212.3	215.8	248.1	215.4	214.5	217.6	254.4	220.6	222.7	224.6	259.8	224.5	891.6	907.1	931.7
Industrial...................................	245.6	252.5	262.8	253.4	248.0	257.5	269.3	259.3	251.7	261.9	272.4	261.8	1014.3	1034.2	1047.7
Other	24.6	24.3	26.6	24.7	23.4	24.0	27.4	26.2	26.0	25.5	27.9	26.2	100.2	101.1	105.6
Subtotal.................................	773.2	731.9	839.6	740.0	762.8	734.3	857.4	760.4	797.4	756.2	873.6	773.3	3084.7	3114.8	3200.4
Nonutility Gener. for Own Use [b] ...	41.1	37.6	38.6	44.4	39.8	38.7	40.6	46.6	40.7	39.6	41.5	47.7	161.8	165.6	169.5
Total Demand	814.3	769.5	878.3	784.4	802.5	773.0	897.9	807.0	838.1	795.8	915.1	821.0	3246.4	3280.4	3369.9
Memo:															
Nonutility Sales to															
Electric Utilities [b]	59.2	54.2	55.6	63.9	57.4	58.2	61.0	70.1	62.3	60.6	63.5	73.0	232.9	246.6	259.3

[a] "Other" includes generation from wind, wood, waste, and solar sources.

[b] Electricity from nonutility sources, including cogenerators and small power producers. Quarterly estimates and projections for nonutility net sales, own use, and generation by fuel source supplied by the Office of Coal, Nuclear, Electric and Alternate Fuels, Energy Information Administration (EIA), based on annual data reported to EIA on Form EIA-867, "Annual Nonutility Power Producer Report."

[c] Includes refinery still gas and other process or waste gases, and liquefied petroleum gases.

[d] Includes geothermal, solar, wind, wood, waste, nuclear, hydrogen, sulfur, batteries, chemicals and spent sulfite liquor.

[e] Data for 1996 are estimates.

[f] Balancing item, mainly transmission and distribution losses.

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

Sources: Historical data: Energy Information Administration: latest data available from EIA databases supporting the following reports: *Electric Power Monthly*, DOE/EIA-0226. Projections: Energy Information Administration, Short-Term Integrated Forecasting System database, and Office of Coal, Nuclear, Electric and Alternate Fuels.

Table 11. U.S. Renewable Energy Use by Sector: Mid World Oil Price Case
(Quadrillion Btu)

	Year				Annual Percentage Change		
	1995	1996	1997	1998	1995-1996	1996-1997	1997-1998
Electric Utilities							
Hydroelectric Power [a]	**3.063**	**3.418**	*3.369*	*2.947*	**11.6**	*-1.4*	*-12.5*
Geothermal, Solar and Wind Energy [b]	**0.099**	**0.110**	*0.103*	*0.098*	**11.1**	*-6.4*	*-4.9*
Biofuels [c]	**0.017**	**0.020**	*0.020*	*0.019*	**17.6**	*0.0*	*-5.0*
Total	**3.179**	**3.548**	*3.492*	*3.065*	**11.6**	*-1.6*	*-12.2*
Nonutility Power Generators							
Hydroelectric Power [a]	**0.152**	**0.158**	*0.169*	*0.177*	**3.9**	*7.0*	*4.7*
Geothermal, Solar and Wind Energy [b]	**0.248**	**0.276**	*0.287*	*0.295*	**11.3**	*4.0*	*2.8*
Biofuels [c]	**0.585**	**0.628**	*0.645*	*0.653*	**7.4**	*2.7*	*1.2*
Total	**0.985**	**1.061**	*1.101*	*1.125*	**7.7**	*3.8*	*2.2*
Total Power Generation..............................	**4.165**	**4.609**	*4.594*	*4.190*	**10.7**	*-0.3*	*-8.8*
Other Sectors							
Residential and Commercial [d]	**0.677**	**0.713**	*0.695*	*0.697*	**5.3**	*-2.5*	*0.3*
Industrial [e]	**1.545**	**1.546**	*1.586*	*1.620*	**0.1**	*2.6*	*2.1*
Transportation [f]	**0.088**	**0.063**	*0.081*	*0.088*	**-28.4**	*28.6*	*8.6*
Total	**2.310**	**2.322**	*2.362*	*2.405*	**0.5**	*1.7*	*1.8*
Net Imported Electricity [g]	**0.300**	**0.307**	*0.304*	*0.299*	**2.3**	*-1.0*	*-1.6*
Total Renewable Energy Demand..............................	**6.774**	**7.238**	*7.260*	*6.893*	**6.8**	*0.3*	*-5.1*

[a] Conventional hydroelectric power only. Hydroelectricity generated by pumped storage is not included in renewable energy.

[b] Also includes photovoltaic and solar thermal energy.

[c] Biofuels are fuelwood, wood byproducts, waste wood, municipal solid waste, manufacturing process waste, and alcohol fuels.

[d] Includes biofuels and solar energy consumed in the residential and commercial sectors.

[e] Consists primarily of biofuels for use other than in electricity cogeneration.

[f] Ethanol blended into gasoline.

[g] Represents 78.6 percent of total electricity net imports, which is the proportion of total 1994 net imported electricity (0.459 quadrillion Btu) attributable to renewable sources (0.361 quadrillion Btu).

(S) Less than 500 billion Btu.

NM indicates percent change calculations are not meaningful or undefined at the precision level of this table.

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

Sources: Historical data: Estimates derived from Energy Information Administration, Short-Term Integrated Forecasting System database, and Office of Coal, Nuclear, Electric and Alternate Fuels Energy Information Administration, *Renewable Energy Annual, 1995*; Projections: Renewables growth in sectors other than electric utilities taken from Energy Information Administration, *Annual Energy Outlook* database and Office of Coal, Nuclear, Electric and Alternate Fuels Energy Information Administration.

Table A1. Annual U.S. Energy Supply and Demand

	Year														
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Real Gross Domestic Product (GDP) (billion chained 1992 dollars)	5138	5330	5490	5648	5863	6060	6139	6079	6244	6386	6609	6743	6907	7159	7290
Imported Crude Oil Price[a] (nominal dollars per barrel)	28.88	26.99	14.00	18.13	14.57	18.08	21.75	18.70	18.20	16.14	15.52	17.14	20.59	19.15	19.96
Petroleum Supply															
Crude Oil Production[b] (million barrels per day)	8.88	8.97	8.68	8.35	8.14	7.61	7.36	7.42	7.17	6.85	6.66	6.56	6.47	6.37	6.19
Total Petroleum Net Imports (including SPR) (million barrels per day)	4.72	4.29	5.44	5.91	6.59	7.20	7.16	6.63	6.94	7.62	8.05	7.89	8.42	8.90	9.30
Energy Demand															
World Petroleum (million barrels per day)	59.9	60.2	61.8	63.1	64.9	65.9	66.0	66.6	66.8	67.0	68.3	70.1	71.7	73.7	75.6
U.S. Petroleum (million barrels per day)	15.76	15.78	16.33	16.72	17.34	17.37	17.04	16.77	17.10	17.24	17.72	17.72	18.23	18.48	18.78
Natural Gas (trillion cubic feet)	17.95	17.28	16.22	17.21	18.03	18.80	18.72	19.03	19.54	20.28	20.71	21.58	21.92	22.18	23.08
Coal (million short tons)	791	818	804	837	884	891	897	894	907	944	951	962	1007	1018	1055
Electricity (billion kilowatthours) Utility Sales[c]	2286	2324	2369	2457	2578	2647	2713	2762	2763	2861	2935	3013	3085	3115	3200
Nonutility Own Use[d]	NA	NA	NA	NA	NA	108	113	122	132	138	150	158	162	166	169
Total	NA	NA	NA	NA	NA	2755	2826	2884	2895	3000	3085	3171	3246	3280	3370
Total Energy Demand[e] (quadrillion Btu)	74.1	74.0	74.3	76.9	80.2	81.3	81.3	81.1	82.1	83.9	85.6	87.2	89.9	90.8	93.1
Total Energy Demand per Dollar of GDP (thousand Btu per 1992 Dollar)	14.43	13.88	13.53	13.61	13.68	13.42	13.24	13.34	13.15	13.13	12.95	12.93	13.01	12.69	12.77
Adjusted Total Energy Demand[e] (quadrillion Btu)	NA	NA	NA	NA	NA	NA	84.2	84.1	85.3	87.0	88.9	90.6	93.4	94.3	96.6
Adjusted Total Energy Demand per Dollar of (thousand Btu per 1992 Dollar)	NA	NA	NA	NA	NA	NA	13.71	13.83	13.65	13.63	13.45	13.44	13.52	13.17	13.26

[a]Refers to the imported cost of crude oil to U.S. refiners.

[b]Includes lease condensate.

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

[d]Defined as the difference between total nonutility electricity generation and sales to electric utilities by nonutility generators, reported on Form EIA-867, "Annual Nonutility Power Producer Report." Data for 1996 are estimates.

[e]"Total Energy Demand" refers to the aggregate energy concept presented in Energy Information Administration, *Annual Energy Review*, 1995, DOE/EIA -0384(95), Table 1.1 for the period 1960 to 1989. Adjusted "Total Energy Demand" refers to the aggregate energy demand concept reported in the same table for 1990 and beyond. The former concept is extended here in order to provide a more consistent long-term energy demand series. The latter concept is more comprehensive and is intended as the primary energy demand aggregate for assessing energy intensity trends since 1990. The adjusted measure incorporates information on renewable energy consumption among households, commercial establishments, and electricity generating facilities other than electric utilities (including industrial cogenerators). The conversion from physical units to Btu is calculated using a subset of conversion factors used in the calculations performed for gross energy consumption in Energy Information Administration, *Monthly Energy Review* (*MER*). Consequently, the historical data may not precisely match those published in the *MER* or the *AER*.

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 italics. The forecasts were generated by simulation of the Short-Term Integrated Forecasting System.

Sources: Historical data: Latest data available from Bureau of Economic Analysis; Energy Information Administration; latest data available from EIA databases supporting the following reports: *Petroleum Supply Monthly*, DOE/EIA-0109; *Petroleum Supply Annual* DOE/EIA-0340/2; *Natural Gas Monthly*, DOE/EIA-0130; *Electric Power Monthly*, DOE/EIA -0226; and *Quarterly Coal Report*, DOE/EIA-0121; *International Petroleum Statistics Report* DOE/EIA-0520; *Weekly Petroleum Status Report* DOE/EIA-0208. Macroeconomic projections are based on DRI/ McGraw-Hill Forecast CONTROL0597.

Table A2. Annual U.S. Macroeconomic and Weather Indicators

	Year														
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Macroeconomic															
Real Gross Domestic Product															
(billion chained 1992 dollars)	5138	5330	5490	5648	5863	6060	6139	6079	6244	6386	6609	6743	6907	*7159*	*7290*
GDP Implicit Price Deflator															
(Index, 1992=1.000)...................................	0.759	0.786	0.806	0.831	0.861	0.897	0.936	0.973	1.000	1.026	1.050	1.076	1.099	*1.124*	*1.151*
Real Disposable Personal Income															
(billion chained 1992 Dollars)......................	3855	3972	4101	4168	4332	4417	4498	4500	4627	4682	4787	4943	5086	*5280*	*5397*
Manufacturing Production															
(Index, 1987=1.000)...................................	0.903	0.924	0.950	1.000	1.047	1.067	1.062	1.037	1.078	1.117	1.179	1.221	1.254	*1.318*	*1.344*
Real Fixed Investment															
(billion chained 1992 dollars)	762	799	805	799	818	832	806	741	783	836	921	976	1042	*1118*	*1175*
Real Exchange Rate															
(Index, 1990=1.000)...................................	NA	NA	NA	NA	NA	NA	1.000	1.006	1.012	1.056	1.033	0.960	1.014	*1.108*	*1.078*
Business Inventory Change															
(billion chained 1992 dollars)	28.9	-4.5	-4.2	5.1	9.5	19.2	6.6	-6.1	-9.2	5.5	8.3	11.8	6.0	*16.1*	*7.1*
Producer Price Index															
(index, 1980-1984=1.000)	1.037	1.032	1.002	1.028	1.069	1.122	1.163	1.165	1.172	1.189	1.205	1.248	1.277	*1.282*	*1.299*
Consumer Price Index															
(index, 1980-1984=1.000)	1.039	1.076	1.097	1.137	1.184	1.240	1.308	1.363	1.404	1.446	1.483	1.525	1.570	*1.610*	*1.655*
Petroleum Product Price Index															
(index, 1980-1984=1.000)	0.874	0.832	0.532	0.568	0.539	0.612	0.748	0.671	0.647	0.620	0.591	0.608	0.701	*0.673*	*0.681*
Non-Farm Employment															
(millions)..	94.4	97.4	99.3	102.0	105.2	107.9	109.4	108.3	108.6	110.7	114.2	117.2	119.5	*122.3*	*124.7*
Commercial Employment															
(millions)..	58.0	60.8	62.9	65.2	67.8	70.0	71.3	70.8	71.2	73.2	76.1	78.8	81.2	*83.7*	*85.9*
Total Industrial Production															
(index, 1987=1.000).................................	0.930	0.945	0.956	1.000	1.044	1.063	1.062	1.041	1.074	1.110	1.166	1.204	1.237	*1.294*	*1.323*
Housing Stock															
(millions)..	94.5	96.3	98.0	99.8	101.6	102.9	103.5	104.5	105.5	106.8	108.2	109.8	111.2	*112.7*	*114.2*
Weather[a]															
Heating Degree-Days															
U.S..	4514	4642	4295	4334	4653	4726	4016	4200	4441	4700	4483	4531	4713	*4517*	*4576*
New England	6442	6571	6517	6546	6715	6887	5848	5960	6844	6728	6672	6559	6679	*6588*	*6621*
Middle Atlantic	5777	5660	5665	5699	6088	6134	4998	5177	5964	5948	5934	5831	5986	*5796*	*5839*
U.S. Gas-Weighted	4704	4856	4442	4391	4779	4856	4139	4337	4458	4754	4659	4707	5040	*4729*	*4732*
Cooling Degree-Days (U.S.)	1214	1194	1249	1269	1283	1156	1260	1331	1040	1218	1220	1293	1180	*1150*	*1193*

[a]Population-weighted degree days. A degree day indicates the temperature variation from 65 degrees Fahrenheit (calculated as the simple average of the daily minimum and maximum temperatures) weighted by 1990 population. Normal is used for the forecast period and is defined as the average number of degree days between 1961 and 1990 for a given period.

Notes: Historical data are printed in bold; forecasts are in italics.

Sources: Historical data: latest data available from: U.S. Department of Commerce, Bureau of Economic Analysis; U.S. Department of Commerce, National Oceanic and Atmospheric Administration; Federal Reserve System, *Statistical Release* G.17(419); U.S. Department of Transportation; American Iron and Steel Institute. Macroeconomic projections are based on DRI/McGraw-Hill Forecast CONTROL0597.

Table A3. Annual International Petroleum Supply and Demand Balance
(Millions Barrels per Day, Except Closing Stocks)

							Year								
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Demand [a]															
OECD															
U.S. (50 States)	15.8	15.8	16.3	16.7	17.3	17.4	17.0	16.8	17.1	17.2	17.7	17.7	18.2	*18.5*	*18.8*
Europe [b]	12.1	12.0	12.5	12.6	12.7	12.8	12.9	13.4	13.6	13.5	13.6	14.1	14.3	*14.5*	*14.7*
Japan	4.6	4.4	4.4	4.5	4.8	5.0	5.1	5.3	5.4	5.4	5.7	5.7	5.7	*5.8*	*6.0*
Other OECD	2.5	2.5	2.5	2.5	2.6	2.7	2.7	2.7	2.7	2.8	2.9	3.0	2.9	*3.0*	*3.0*
Total OECD	34.9	34.7	35.7	36.3	37.5	37.9	37.8	38.1	38.8	39.0	39.9	40.5	41.2	*41.8*	*42.5*
Non-OECD															
Former Soviet Union	8.9	9.0	9.0	9.0	8.9	8.7	8.4	8.3	6.8	5.6	4.8	4.7	4.5	*4.5*	*4.5*
Europe	1.8	1.9	1.8	1.8	1.8	1.8	1.7	1.4	1.3	1.3	1.3	1.3	1.3	*1.4*	*1.4*
China	1.7	1.9	2.0	2.1	2.3	2.4	2.3	2.5	2.7	3.0	3.1	3.3	3.6	*3.8*	*4.0*
Other Asia	3.7	3.7	3.9	4.1	4.4	4.9	5.3	5.7	6.2	6.8	7.3	7.9	8.5	*9.1*	*9.7*
Other Non-OECD	8.9	9.1	9.5	9.7	10.0	10.3	10.5	10.6	11.0	11.4	11.8	12.3	12.7	*13.1*	*13.4*
Total Non-OECD	25.0	25.5	26.1	26.7	27.4	28.0	28.2	28.5	28.0	28.1	28.4	29.5	30.5	*31.9*	*33.1*
Total World Demand	59.9	60.2	61.8	63.1	64.9	66.0	66.0	66.6	66.8	67.0	68.3	70.1	71.7	*73.7*	*75.6*
Supply [c]															
OECD															
U.S. (50 States)	11.1	11.2	11.0	10.7	10.5	9.9	9.7	9.9	9.8	9.6	9.4	9.4	9.4	*9.4*	*9.2*
Canada	1.8	1.8	1.8	2.0	2.0	2.0	2.0	2.0	2.1	2.2	2.3	2.4	2.5	*2.6*	*2.7*
North Sea [d]	3.4	3.6	3.9	3.9	3.9	3.9	4.0	4.2	4.6	4.8	5.5	6.0	6.2	*6.6*	*6.9*
Other OECD	1.3	1.4	1.2	1.3	1.3	1.2	1.4	1.4	1.4	1.4	1.3	1.4	1.6	*1.6*	*1.6*
Total OECD	17.6	18.1	17.9	17.9	17.8	17.1	17.1	17.5	17.9	18.0	18.7	19.2	19.7	*20.2*	*20.5*
Non-OECD															
OPEC	18.4	17.2	19.3	19.6	21.5	23.3	24.5	24.6	25.8	26.6	27.0	27.7	28.3	*29.4*	*29.8*
Former Soviet Union	12.2	11.9	12.3	12.5	12.5	12.1	11.4	10.4	8.9	8.0	7.3	7.1	7.1	*7.1*	*7.5*
China	2.3	2.5	2.6	2.7	2.7	2.8	2.8	2.8	2.8	2.9	2.9	3.0	3.1	*3.2*	*3.3*
Mexico	3.1	3.0	2.8	2.9	2.9	2.9	3.0	3.2	3.2	3.2	3.2	3.1	3.3	*3.4*	*3.5*
Other Non-OECD	6.1	11.0	6.8	6.9	7.4	7.7	8.0	8.1	8.3	8.7	9.1	9.8	10.2	*10.7*	*11.1*
Total Non-OECD	42.0	41.2	43.9	44.6	47.0	48.9	49.7	49.1	49.1	49.3	49.6	50.7	52.0	*53.8*	*55.1*
Total World Supply	59.6	59.3	61.8	62.5	64.8	65.9	66.8	66.7	67.0	67.3	68.2	69.9	71.8	*74.0*	*75.6*
Total Stock Withdrawals	0.3	0.9	0.0	0.6	0.1	-0.0	-0.8	-0.1	-0.2	-0.3	0.1	0.2	-0.0	*-0.3*	*0.0*
Closing Stocks, OECD only (billion barrels)	2.7	2.6	2.7	2.7	2.6	2.6	2.7	2.7	2.7	2.8	2.8	2.7	2.7	*2.7*	*2.7*
Net Exports from Former Soviet Union	3.3	3.0	3.4	3.5	3.6	3.4	3.0	2.1	2.1	2.3	2.4	2.4	2.6	*2.6*	*2.9*

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

[b] OECD Europe includes the former East Germany.

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

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

OECD: Organization for Economic Cooperation and Development: 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. Mexico is also a member but OECD data do not yet include Mexico.

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

SPR: Strategic Petroleum Reserve

Former Soviet Union: Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.

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

Sources: Energy Information Administration: latest data available from EIA databases supporting the following reports: *International Petroleum Statistics Report*, DOE/EIA-0520, and Organization for Economic Cooperation and Development, Annual and Monthly Oil Statistics Database.

Table A4. Annual Average U.S. Energy Prices
(Nominal Dollars)

	Year														
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Imported Crude Oil[a]															
(dollars per barrel).....................................	28.88	26.99	14.00	18.13	14.57	18.08	21.75	18.70	18.20	16.14	15.52	17.14	20.59	*19.15*	*19.96*
Natural Gas Wellhead															
(dollars per thousand cubic feet)........................	2.65	2.51	1.94	1.66	1.69	1.69	1.71	1.64	1.74	2.04	1.85	1.55	2.25	*2.29*	*2.20*
Petroleum Products															
Gasoline Retail [b]															
(dollars per gallon).....................................	1.20	1.20	0.93	0.96	0.96	1.06	1.22	1.20	1.19	1.17	1.17	1.21	1.29	*1.28*	*1.29*
No. 2 Diesel Oil, Retail															
(dollars per gallon).....................................	1.16	1.16	0.88	0.93	0.91	0.99	1.16	1.12	1.10	1.11	1.11	1.10	1.23	*1.18*	*1.20*
No. 2 Heating Oil, Wholesale															
(dollars per gallon).....................................	0.82	0.78	0.49	0.53	0.47	0.56	0.70	0.62	0.58	0.54	0.51	0.51	0.64	*0.59*	*0.58*
No. 2 Heating Oil, Retail															
(dollars per gallon).....................................	1.09	1.05	0.84	0.80	0.81	0.90	1.06	1.02	0.93	0.91	0.89	0.87	0.99	*1.00*	*0.98*
No. 6 Residual Fuel Oil, Retail [c]															
(dollars per barrel)..	28.89	25.57	14.46	17.76	14.04	16.20	18.66	14.32	14.21	14.00	14.79	16.49	18.96	*17.74*	*18.57*
Electric Utility Fuels															
Coal															
(dollars per million Btu)	1.66	1.65	1.58	1.51	1.47	1.44	1.45	1.45	1.41	1.38	1.36	1.32	1.29	*1.28*	*1.25*
Heavy Fuel Oil [d]															
(dollars per million Btu)	4.81	4.26	2.40	2.98	2.41	2.85	3.22	2.49	2.46	2.36	2.40	2.60	3.01	*2.83*	*2.99*
Natural Gas															
(dollars per million Btu)	3.58	3.43	2.35	2.24	2.26	2.36	2.32	2.15	2.33	2.56	2.23	1.98	2.64	*2.64*	*2.53*
Other Residential															
Natural Gas															
(dollars per thousand cubic feet)........................	6.12	6.12	5.83	5.55	5.47	5.64	5.80	5.82	5.89	6.17	6.41	6.06	6.29	*6.52*	*6.29*
Electricity															
(cents per kilowatthour)	7.6	7.8	7.4	7.4	7.5	7.6	7.8	8.1	8.2	8.3	8.4	8.4	8.4	*8.4*	*8.4*

[a]Refiner acquisition cost (RAC) of imported crude oil.
[b]Average for all grades and services.
[c]Average for all sulfur contents.
[d]Includes fuel oils No. 4, No. 5, and No. 6 and topped crude fuel oil prices.
Notes: Prices exclude taxes, except prices for gasoline, residential natural gas, and diesel. The forecasts were generated by simulation of the Short-Term Integrated Forecasting System.
Sources: Historical data: Energy Information Administration: latest data available from EIA databases supporting the following reports: *Petroleum Marketing Monthly*, DOE/EIA-0380; *Natural Gas Monthly*, DOE/EIA-0130; *Monthly Energy Review*, DOE/EIA-0035; *Electric Power Monthly*, DOE/EIA-0226.

Table A5. Annual U.S. Petroleum Supply and Demand
(Million Barrels per Day, Except Closing Stocks)

	Year														
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Supply															
Crude Oil Supply															
Domestic Production [a]	8.88	8.97	8.68	8.35	8.14	7.61	7.36	7.42	7.17	6.85	6.66	6.56	6.47	*6.37*	*6.19*
Alaska	1.72	1.83	1.87	1.96	2.02	1.87	1.77	1.80	1.71	1.58	1.56	1.48	1.40	*1.31*	*1.22*
Lower 48	7.16	7.15	6.81	6.39	6.12	5.74	5.58	5.62	5.46	5.26	5.10	5.08	5.08	*5.07*	*4.98*
Net Imports (including SPR) [b]	3.25	3.00	4.02	4.52	4.95	5.70	5.79	5.67	5.99	6.69	6.96	7.14	7.37	*7.69*	*8.00*
Other SPR Supply	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*0.00*	*0.00*
Stock Draw (Including SPR)	-0.20	-0.05	-0.08	-0.12	-0.00	-0.09	0.02	-0.01	0.01	-0.06	-0.02	0.09	0.05	*-0.08*	*0.00*
Product Supplied and Losses	-0.07	-0.06	-0.05	-0.03	-0.04	-0.03	-0.02	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	*-0.01*	*-0.01*
Unaccounted-for Crude Oil	0.18	0.15	0.14	0.14	0.20	0.20	0.26	0.20	0.26	0.17	0.27	0.19	0.23	*0.32*	*0.27*
Total Crude Oil Supply	12.04	12.00	12.72	12.85	13.25	13.40	13.41	13.30	13.41	13.61	13.87	13.97	14.18	*14.29*	*14.46*
Other Supply															
NGL Production	1.63	1.61	1.55	1.59	1.62	1.55	1.56	1.66	1.70	1.74	1.73	1.76	1.83	*1.88*	*1.89*
Other Hydrocarbon and Alcohol Inputs	0.08	0.11	0.11	0.12	0.11	0.11	0.13	0.15	0.20	0.25	0.26	0.30	0.31	*0.30*	*0.30*
Crude Oil Product Supplied	0.06	0.06	0.05	0.03	0.04	0.03	0.02	0.02	0.01	0.01	0.01	0.01	0.01	*0.01*	*0.01*
Processing Gain	0.55	0.56	0.62	0.64	0.66	0.66	0.70	0.71	0.77	0.76	0.77	0.77	0.83	*0.83*	*0.86*
Net Product Imports [c]	1.47	1.29	1.41	1.39	1.63	1.50	1.38	0.96	0.94	0.93	1.09	0.75	1.05	*1.21*	*1.29*
Product Stock Withdrawn or Added (-)	0.00	0.15	-0.12	0.09	0.03	0.13	-0.14	-0.04	0.06	-0.05	0.00	0.15	0.02	*-0.04*	*-0.03*
Total Supply	15.84	15.78	16.33	16.72	17.33	17.37	17.05	16.76	17.10	17.25	17.72	17.72	18.23	*18.48*	*18.78*
Demand															
Motor Gasoline [d]	6.69	6.78	6.94	7.19	7.36	7.40	7.31	7.23	7.38	7.48	7.60	7.79	7.85	*8.00*	*8.16*
Jet Fuel	1.18	1.22	1.31	1.38	1.45	1.49	1.52	1.47	1.45	1.47	1.53	1.51	1.58	*1.62*	*1.65*
Distillate Fuel Oil	2.84	2.87	2.91	2.98	3.12	3.16	3.02	2.92	2.98	3.04	3.16	3.21	3.37	*3.41*	*3.51*
Residual Fuel Oil	1.37	1.20	1.42	1.26	1.38	1.37	1.23	1.16	1.09	1.08	1.02	0.85	0.84	*0.85*	*0.86*
Other Oils [e]	3.68	3.71	3.75	3.90	4.03	3.95	3.95	3.99	4.20	4.17	4.41	4.36	4.60	*4.60*	*4.60*
Total Demand	15.76	15.78	16.33	16.72	17.34	17.37	17.04	16.77	17.10	17.24	17.72	17.72	18.23	*18.48*	*18.78*
Total Petroleum Net Imports	4.72	4.29	5.44	5.91	6.59	7.20	7.16	6.63	6.94	7.62	8.05	7.89	8.42	*8.90*	*9.30*
Closing Stocks (million barrels)															
Crude Oil (excluding SPR)	345	321	331	349	330	341	323	325	318	335	337	303	285	*315*	*314*
Total Motor Gasoline	243	223	233	226	228	213	220	219	216	226	215	202	196	*201*	*201*
Jet Fuel	42	40	50	50	44	41	52	49	43	40	47	40	40	*41*	*42*
Distillate Fuel Oil	161	144	155	134	124	106	132	144	141	141	145	130	127	*133*	*131*
Residual Fuel Oil	53	50	47	47	45	44	49	50	43	44	42	37	46	*41*	*43*
Other Oils [f]	261	247	265	260	267	257	261	267	263	273	275	258	251	*256*	*268*

[a] Includes lease condensate.
[b] Net imports equals gross imports plus SPR imports minus exports.
[c] Includes finished petroleum products, unfinished oils, gasoline blending components, and natural gas plant liquids for processing.
[d] For years prior to 1993, motor gasoline includes an estimate of fuel ethanol blended into gasoline and certain product reclassifications, not reported elsewhere in EIA. See Appendix B in Energy Information Administration, *Short-Term Energy Outlook*, EIA/DOE-0202(93/3Q), for details on this adjustment.
[e] Includes crude oil product supplied, natural gas liquids, liquefied refinery gas, other liquids, and all finished petroleum products except motor gasoline, jet fuel, distillate, and residual fuel oil.
[f] Includes 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 italics. The forecasts were generated by simulation of the Short-Term Integrated Forecasting System.
Sources: Historical data: Energy Information Administration: latest data available from EIA databases supporting the following reports: *Petroleum Supply Monthly*, DOE/EIA-0109, and *Weekly Petroleum Status Report*, DOE/EIA-0208.

Table A6. Annual U.S. Natural Gas Supply and Demand
(Trillion Cubic Feet)

	Year														
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Supply															
Total Dry Gas Production..	17.47	16.45	16.06	16.62	17.10	17.31	17.81	17.70	17.84	18.10	18.82	18.60	19.02	*19.14*	*19.53*
Net Imports..	0.79	0.89	0.69	0.94	1.22	1.27	1.45	1.64	1.92	2.21	2.46	2.69	2.73	*2.96*	*3.17*
Supplemental Gaseous Fuels................................	0.11	0.13	0.11	0.10	0.10	0.11	0.12	0.11	0.12	0.12	0.11	0.11	0.13	*0.13*	*0.13*
Total New Supply................................	18.36	17.47	16.86	17.66	18.42	18.69	19.38	19.45	19.88	20.42	21.40	21.40	21.87	*22.23*	*22.83*
Total Underground Storage															
Opening	6.71	6.71	6.45	6.57	6.55	6.65	6.33	6.94	6.78	6.64	6.65	6.97	6.50	*6.51*	*6.50*
Closing...	6.71	6.45	6.57	6.55	6.65	6.33	6.94	6.78	6.64	6.65	6.97	6.50	6.51	*6.50*	*6.50*
Net Withdrawals	0.00	0.26	-0.12	0.02	-0.10	0.33	-0.61	0.16	0.14	-0.01	-0.32	0.46	-0.00	*0.00*	*-0.00*
Total Supply..	18.36	17.73	16.74	17.68	18.32	19.02	18.77	19.61	20.02	20.42	21.08	21.86	21.87	*22.23*	*22.83*
Balancing Item [a]	-0.41	-0.45	-0.52	-0.47	-0.29	-0.22	-0.05	-0.58	-0.47	-0.14	-0.37	-0.28	0.05	*-0.05*	*0.26*
Total Primary Supply..	17.95	17.28	16.22	17.21	18.03	18.80	18.72	19.03	19.54	20.28	20.71	21.58	21.92	*22.18*	*23.08*
Demand															
Lease and Plant Fuel..	1.08	0.97	0.92	1.15	1.10	1.07	1.24	1.13	1.17	1.17	1.12	1.22	1.25	*1.25*	*1.27*
Pipeline Use...	0.53	0.50	0.49	0.52	0.61	0.63	0.66	0.60	0.59	0.62	0.69	0.70	0.71	*0.71*	*0.75*
Residential...	4.56	4.43	4.31	4.31	4.63	4.78	4.39	4.56	4.69	4.96	4.85	4.85	5.23	*4.97*	*5.13*
Commercial	2.52	2.43	2.32	2.43	2.67	2.72	2.62	2.73	2.80	2.86	2.90	3.03	3.20	*3.19*	*3.35*
Industrial (Incl. Nonutilities)...................................	6.15	5.90	5.58	5.95	6.38	6.82	7.02	7.23	7.53	7.98	8.17	8.58	8.79	*9.10*	*9.36*
Cogenerators [b]	NA	NA	NA	NA	NA	1.12	1.30	1.41	1.67	1.80	1.98	2.18	2.20	*2.32*	*2.41*
Other Nonutil. Gen. [b]	NA	NA	NA	NA	NA	0.06	0.09	0.16	0.18	0.22	0.17	0.17	0.19	*0.20*	*0.21*
Electric Utilities...	3.11	3.04	2.60	2.84	2.64	2.79	2.79	2.79	2.77	2.68	2.99	3.20	2.73	*2.96*	*3.22*
Total Demand	17.95	17.28	16.22	17.21	18.03	18.80	18.72	19.03	19.54	20.28	20.71	21.58	21.92	*22.18*	*23.08*

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

[b]Annual projections for nonutility gas consumption, as well as the detail on independent power producers' share of gas consumption, are provided by the office of Coal, Nuclear, Electric and Alternative Fuels, Energy Information Administration.

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

Sources: Historical data: Energy Information Administration: latest data available from EIA databases supporting the following reports: *Natural Gas Monthly*, DOE/EIA-0130; *Electric Power Monthly*, DOE/EIA-0226; Projections: Energy Information Administration, Short-Term Integrated Forecasting System database, and Office of Oil and Gas, Reserves and Natural Gas Division.

Table A7. Annual U.S. Coal Supply and Demand
(Million Short Tons)

	Year														
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Supply															
Production	895.9	883.6	890.3	918.8	950.3	980.7	1029.1	996.0	997.5	945.4	1033.5	1033.0	1056.7	*1083.8*	*1115.8*
Appalachia...	NA	NA	NA	NA	NA	464.8	489.0	457.8	456.6	409.7	445.4	434.9	445.1	*446.7*	*449.9*
Interior...	NA	NA	NA	NA	NA	198.1	205.8	195.4	195.7	167.2	179.9	168.5	172.2	*169.7*	*167.6*
Western	NA	NA	NA	NA	NA	317.9	334.3	342.8	345.3	368.5	408.3	429.6	439.5	*467.4*	*498.3*
Primary Stock Levels[a]															
Opening..	34.1	34.1	33.1	32.1	28.3	30.4	29.0	33.4	33.0	34.0	25.3	33.2	34.4	*31.1*	*31.0*
Closing..	34.1	33.1	32.1	28.3	30.4	29.0	33.4	33.0	34.0	25.3	33.2	34.4	31.1	*31.0*	*30.0*
Net Withdrawals	S	1.0	1.0	3.8	-2.1	1.4	-4.4	0.4	-1.0	8.7	-7.9	-1.2	3.4	*0.1*	*1.0*
Imports..	1.3	2.0	2.2	1.7	2.1	2.9	2.7	3.4	3.8	7.3	7.6	7.2	7.1	*7.0*	*7.3*
Exports...	81.5	92.7	85.5	79.6	95.0	100.8	105.8	109.0	102.5	74.5	71.4	88.5	90.5	*89.5*	*91.3*
Total Net Domestic Supply........................	815.7	793.9	808.0	844.7	855.3	884.2	921.6	890.9	897.8	886.9	961.8	950.4	976.8	*1001.3*	*1032.8*
Secondary Stock Levels[b]															
Opening..	197.2	197.2	170.2	175.2	185.5	158.4	146.1	168.2	167.7	163.7	120.5	136.1	134.6	*123.0*	*114.4*
Closing..	197.2	170.2	175.2	185.5	158.4	146.1	168.2	167.7	163.7	120.5	136.1	134.6	123.0	*114.4*	*110.8*
Net Withdrawals		27.0	-5.0	-10.2	27.0	12.3	-22.1	0.5	4.0	43.2	-15.7	1.5	11.7	*8.6*	*3.6*
Total Supply	815.7	820.8	803.1	834.4	882.3	896.5	899.4	891.4	901.8	930.2	946.1	951.9	988.4	*1009.9*	*1036.4*
Demand															
Coke Plants	44.0	41.1	35.9	37.0	41.9	40.5	38.9	33.9	32.4	31.3	31.7	33.0	31.7	*32.0*	*32.1*
Electricity Production															
Electric Utilities..	664.4	693.8	685.1	717.9	758.4	766.9	773.5	772.3	779.9	813.5	817.3	829.0	874.7	*884.8*	*918.5*
Nonutilities (Excl. Cogen.)............................	NA	NA	NA	NA	NA	0.9	1.6	6.0	14.8	17.8	20.9	21.2	24.0	*26.0*	*28.0*
Retail and General Industry[c]	82.9	83.2	83.3	82.1	83.4	82.3	83.1	81.5	80.2	81.1	81.2	78.6	76.4	*74.8*	*76.0*
Total Demand[d]	791.3	818.0	804.2	836.9	883.6	890.6	897.1	893.6	907.3	943.7	951.1	961.8	1006.9	*1017.6*	*1054.7*
Discrepancy[e]	24.4	2.8	-1.2	-2.5	-1.3	5.9	2.4	-2.3	-5.4	-13.5	-4.9	-9.9	-18.4	*-7.7*	*-18.3*

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

[b]Secondary stocks are held by users.

[c]Synfuels plant demand in 1993 was 1.7 million tons per quarter and is assumed to remain at that level in 1994, 1995, 1996, 1997 and 1998.

[d]Total excludes any shipments to independent power producers (IPPs) not calculated in Retail and General Industry for years prior to 1993.

[e]Historical period discrepancy reflects an unaccounted-for shipper and receiver reporting difference. It also includes any shipment to IPPs not captured in Retail and General Industry, and consumption by IPPs not included in production (waste coal).

(S) indicates amounts of less than 50,000 tons.

Notes: Rows and columns may not add due to independent rounding. Historical data are printed in bold; forecasts are in italics. The forecasts were generated by simulation of the Short-Term Integrated Forecasting System.

Sources: Historical data: Energy Information Administration: latest data available from EIA databases supporting the following reports: *Quarterly Coal Report*, DOE/EIA-0121, and *Electric Power Monthly*, DOE/EIA-0226. Projections: Energy Information Administration, Short-Term Integrated Forecasting System database, and Office of Coal, Nuclear, Electric and Alternate Fuels.

Table A8. Annual U.S. Electricity Supply and Demand
(Billion Kilowatthours)

	Year														
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Supply															
Net Utility Generation															
Coal..	1341.7	1402.1	1385.8	1463.8	1540.7	1553.7	1559.6	1551.2	1575.9	1639.2	1635.5	1652.9	1737.5	1766.2	1840.9
Petroleum	119.8	100.2	136.6	118.5	148.9	158.3	117.0	111.5	88.9	99.5	91.0	60.8	68.2	65.9	67.3
Natural Gas....................................	297.4	291.9	248.5	272.6	252.8	266.6	264.1	264.2	263.9	258.9	291.1	307.3	262.8	279.4	302.8
Nuclear	327.6	383.7	414.0	455.3	527.0	529.4	576.9	612.6	618.8	610.3	640.4	673.4	674.7	651.1	668.2
Hydroelectric.................................	321.2	281.1	290.8	249.7	222.9	265.1	279.9	275.5	239.6	265.1	243.7	293.7	328.7	324.0	283.4
Geothermal and Other [a]	8.6	10.7	11.5	12.3	12.0	11.3	10.7	10.1	10.2	9.6	8.9	6.4	7.2	6.9	6.6
Subtotal.......................................	2416.3	2469.8	2487.3	2572.1	2704.3	2784.3	2808.2	2825.0	2797.2	2882.5	2910.7	2994.5	3079.1	3093.4	3169.1
Nonutility Generation [b]	NA	NA	NA	NA	NA	191.3	221.8	253.7	296.0	325.5	354.9	374.4	394.7	414.7	428.8
Total Generation...........................	NA	NA	NA	NA	NA	2975.6	3030.0	3078.7	3093.2	3208.1	3265.6	3369.0	3473.8	3508.2	3597.9
Net Imports	39.7	40.9	35.9	46.3	31.8	11.0	2.0	22.3	28.3	28.4	44.6	37.6	38.0	37.6	37.0
Total Supply	NA	NA	NA	NA	NA	2986.6	3032.0	3101.0	3121.6	3236.5	3310.3	3406.6	3511.8	3545.8	3634.9
Losses and Unaccounted for [c]	NA	NA	NA	NA	NA	231.4	206.1	217.1	226.6	236.9	225.5	235.4	265.4	265.4	265.0
Demand															
Electric Utility Sales															
Residential...................................	780.1	793.9	819.1	850.4	892.9	905.5	924.0	955.4	935.9	994.8	1008.5	1042.5	1078.5	1072.3	1115.4
Commercial	582.6	606.0	630.5	660.4	699.1	725.9	751.0	765.7	761.3	794.6	820.3	862.7	891.6	907.1	931.7
Industrial	837.8	836.8	830.5	858.2	896.5	925.7	945.5	946.6	972.7	977.2	1008.0	1012.7	1014.3	1034.2	1047.7
Other..	85.2	87.3	88.6	88.2	89.6	89.8	92.0	94.3	93.4	94.9	97.8	95.4	100.2	101.1	105.6
Subtotal.......................................	2285.8	2324.0	2368.8	2457.3	2578.1	2646.8	2712.6	2762.0	2763.4	2861.5	2934.6	3013.3	3084.7	3114.8	3200.4
Nonutility Own Use [b]	NA	NA	NA	NA	NA	108.4	113.4	121.9	131.6	138.1	150.2	157.9	161.8	165.6	169.5
Total Demand	NA	NA	NA	NA	NA	2755.2	2825.9	2883.9	2895.0	2999.6	3084.8	3171.2	3246.4	3280.4	3369.9
Memo:															
Nonutility Sales															
to Electric Utilities [d]	18.0	26.0	39.9	50.0	68.0	83.0	108.5	131.9	164.4	187.4	204.7	216.5	232.9	246.6	259.3

[a]Other includes generation from wind, wood, waste, and solar sources.

[b]For 1989 to 1991, estimates for nonutility generation are estimates made by the Energy Markets and Contingency Information Division, based on Form EIA-867 data. History and Projections for the same items are from the Office of Coal, Nuclear, Electric and Alternate Fuels, Energy Information Administration, based on Form EIA-867 (Annual Nonutility Power Producer Report).

[c]Balancing item, mainly transmission and distribution losses.

[d]Historical data for nonutility sales to electric utilities are from the Energy Information Administration, Annual Energy Review, DOE/EIA-0389, Table 8.1, for 1982 to 1988; from Form EIA-867 (Annual Nonutility Power Producer Report) for 1989 to 1995.

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

Sources: Historical data: Energy Information Administration: latest data available from EIA databases supporting the following reports: *Electric Power Monthly*, DOE/EIA-0226. Projections: Energy Information Administration, Short-Term Integrated Forecasting System database, and Office of Coal, Nuclear, Electric and Alternate Fuels.

Text References and Notes

International Oil Demand

[1]"Other Asia" includes: Afghanistan, American Samoa, Bangladesh, Bhutan, Brunei, Burma, Cambodia, Cook Islands, Fiji, French Polynesia, Hong Kong (prior to July 1, 1997), India, Indonesia, Kiribati, North Korea, South Korea, Laos, Macau, Malaysia, Maldives, Mongolia, Nauru, Nepal, New Caledonia, Niue, Pakistan, Papua New Guinea, Philippines, Singapore, Solomon Islands, Sri Lanka, Taiwan, Thailand, Tonga, U.S. Pacific Islands, Vanuatu, Vietnam, Wake Island, Western Samoa.

[2]Latin America is defined as including all of the countries of Central and South America, plus Mexico, but excluding Puerto Rico and the U.S. Virgin Islands.

[3]Energy Information Administration, Energy Markets and Contingency Information Division.

International Oil Supply

[4]Includes oil supply from Norway, United Kingdom, and Denmark.

[5]Energy Information Administration, Energy Markets and Contingency Information Division.

[6]Energy Information Administration, Energy Markets and Contingency Information Division.

[7]Energy Information Administration, Energy Markets and Contingency Information Division.

World Oil Stocks, Capacity and Net Trade

[8]Energy Information Administration, Energy Markets and Contingency Information Division.

[9]Energy Information Administration, Energy Markets and Contingency Information Division.

U.S. Oil Supply

[10]New Federal Offshore production in the Auger and Mars fields contributed to an increase in lower-48 production in 1996 over production in 1995.

[11]Energy Information Administration, *Historical Monthly Energy Review*, 1973-1992, August 1994, Table 3.1b, p. 83.

[12]Estimate provided by the Energy Information Administration, Reserves and Natural Gas Division.

[13]Estimate provided by the Energy Information Administration, Reserves and Natural Gas Division.

[14]Drilling rig projections provided by the Energy Information Administration, Reserves and Natural Gas Division.

U.S. Energy Prices

[15]Energy Information Administration, *Natural Gas Monthly*, DOE/EIA-0130(97/05), Table 4.

[16]Energy Information Administration, *Natural Gas Monthly*, DOE/EIA-0130(97/05), Table 4.

[17]*Natural Gas Week*, May 26, 1997, "Composite Spot Wellhead Prices,"p, 24.

[18]Energy Information Administration, *Monthly Energy Review*, DOE/EIA--0035(97/02), Table 9.10.

U.S. Natural Gas Supply

[19]Energy Information Administration, *Natural Gas Monthly*, April 1997, p. xxii.

[20]*Natural Gas Week*, June 30, 1997, p. 17.

[21]Sidney Sharpe, "Pipeline Fever Grips Energy Patch," *The Financial Post* (Calgary, Canada), November 8, 1996, p. 20.

U.S. Coal Demand and Supply

[22]Total raw steel production was 103.9 million short tons in 1996. Coal-based steel production was 60.4 million short tons and electric-arc production was 43.5 million short tons. Source: American Iron and Steel Institute.

[23]The States in the Appalachian region are: Alabama, Georgia, Eastern Kentucky, Maryland, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia. The Interior region is composed of: Arkansas, Illinois, Indiana, Iowa, Kansas, Western Kentucky, Louisiana, Missouri, Oklahoma, and Texas. The Western region States are: Alaska, Arizona, California, Colorado, Montana, New Mexico, North Dakota, Utah, Washington, and Wyoming.

U.S. Electricity Demand and Supply

[24]Energy Information Administration, Office of Coal, Nuclear, Electric and Alternate Fuels.
[25]UBS Securities, *Natural Gas Supply & Demand*, May 9, 1997, p.6.

U.S. Renewable Energy Demand

[26]In 1994, residential and commercial use of wood for heating amounted to an estimated 85 percent of all renewables used in the combined sector (Energy Information Administration, *Renewable Energy Annual*, DOE/EIA-0603(95), Table 2.

Figure References

The following is a list of references for the figures appearing in this issue of the *Short-Term Energy Outlook*. Except where noted, all data for figures are taken from data sets containing monthly values of each variable depicted, aggregated to quarterly or annual values as required and using appropriate weights. The data sets are created by particular runs of the Short-Term Integrated Forecasting System (STIFS) Model, depending on the scenario or set of scenarios depicted. Also, except when noted, all figures refer to the base or "BBB" case. Other cases referred to are: the high world oil price, "BHB"; low world oil price, "BLB"; severe weather, "BBL"; mild weather, "BBS"; strong economic growth, "HBB"; weak economic growth, "LBB"; weak economic growth with high world oil prices, "WHB"; and strong economic growth with low world oil prices, "PLB."

1. **History:** Import cost: Compiled from monthly data for the refiner acquisition cost of imported crude oil used in publication of Energy Information Administration, *Petroleum Marketing Annual*, DOE/EIA-0487, Table 1, for historical series; for recent values, *Petroleum Marketing Monthly*, DOE/EIA-0380, Table 1; *Weekly Petroleum Status Report*, DOE/EIA-0208, Table 13. **Projections:** Third quarter 1997 STIFS database, BBB, BLB, and BHB cases; and Energy Information Administration, Office of Energy Markets and End Use, Energy Markets and Contingency Information Division.

2. **History:** Manufacturing Production: Federal Reserve System, Statistical Release G 17; GDP: U.S. Department of Commerce, Bureau of Economic Analysis, *National Income and Product Accounts of the U.S.* **Projections:** DRI/McGraw-Hill Forecast CONTROL0597, modified by EIA's Office of Integrated Analysis and Forecasting with STIFS energy price forecasts.

3. **History:** Compiled from annual data used in publication of Energy Information Administration, *International Energy Annual*, DOE/EIA-0219, Table 8, for historical series; for recent values, *International Petroleum Statistics Report*, DOE/EIA-0520, Table 2.4; Energy Information Administration, Office of Energy Markets and End Use, Energy Markets and Contingency Information Division. **Projections:** Energy Information Administration, Office of Energy Markets and End Use, Energy Markets and Contingency Information Division.

4. **History:** Compiled from annual data used in publication of Energy Information Administration, *International Energy Annual*, DOE/EIA-0219, Table 8, for historical series; for recent values, *International Petroleum Statistics Report*, DOE/EIA-0520, Table 2.4; and Energy Information Administration, Office of Energy Markets and End Use, Energy Markets and Contingency Information Division. **Projections:** Energy Information Administration, Office of Energy Markets and End Use, Energy Markets and Contingency Information Division.

5. **History:** Compiled from annual data used in publication of Energy Information Administration, *International Petroleum Statistics Report*, DOE/EIA-0520, Table 4.1, for historical series and recent data; and Energy Information Administration, Office of Energy Markets and End Use, Energy Markets and Contingency Information Division. **Projections:** Energy Information Administration, Office of Energy Markets and End Use, Energy Markets and Contingency Information Division.

6. **History:** Compiled from annual data used in publication of Energy Information Administration, *International Petroleum Statistics Report*, DOE/EIA-0520, Table 4.2, for historical series and recent data; Energy Information Administration, Office of Energy Markets and End Use, Energy Markets and Contingency Information Division. **Projections:** Energy Information Administration, Office of Energy Markets and End Use, Energy Markets and Contingency Information Division.

7. **History:** Compiled from annual data used in publication of Energy Information Administration, *International Petroleum Statistics Report*, DOE/EIA-0520, Table 4.2, for historical series and recent data;

Energy Information Administration, Office of Energy Markets and End Use, Energy Markets and Contingency Information Division. **Projections:** Energy Information Administration, Office of Energy Markets and End Use, Energy Markets and Contingency Information Division.

8. **History:** Compiled from annual data used in publication of Energy Information Administration, *International Petroleum Statistics Report*, DOE/EIA-0520, Table 4.1, for historical series and recent data; and Energy Information Administration, Office of Energy Markets and End Use, Energy Markets and Contingency Information Division. **Projections:** Energy Information Administration, Office of Energy Markets and End Use, Energy Markets and Contingency Information Division.

9. **History:** Compiled from annual data used in publication of Energy Information Administration, *Monthly Energy Review*, DOE/EIA-0035, Table 10.3, for historical series and recent data. **Projections:** Energy Information Administration, Office of Energy Markets and End Use, Energy Markets and Contingency Information Division.

10. **History:** Compiled from annual data used in publication of Energy Information Administration, *International Energy Annual*, DOE/EIA-0219, Table 1; Energy Information Administration, Office of Energy Markets and End Use, Energy Markets and Contingency Information Division. **Projections:** Energy Information Administration, Office of Energy Markets and End Use, Energy Markets and Contingency Information Division.

11. **History:** Compiled from monthly data used in publication of Energy Information Administration, *Petroleum Supply Annual, Volume 1*, DOE/EIA-0340/1, Tables S4 through S10; *Petroleum Supply Monthly,* DOE/EIA-0109, Tables S4 through S10, adjusted in years prior to 1993 for new (1993) reporting basis for fuel ethanol blended into motor gasoline (See *Short-Term Energy Outlook*, DOE/EIA-0202(93/3Q), Appendix B). **Projections:** Third quarter 1997 STIFS database, case "BBB."

12. **History:** Energy Information Administration, *Fuel Oil and Kerosene Report*, DOE/EIA-0535, Table 13. **Projections** (including sectoral estimates for 1996): Third quarter 1997 STIFS database, case "BBB."

13. **History:** Compiled from monthly data used in publication of Energy Information Administration, *Petroleum Supply Annual, Volume 1*, DOE/EIA-0340/1, Table S1, for historical series; for recent values, *Petroleum Supply Monthly*, DOE/EIA-0109, Table S1. **Projections:** Third quarter 1997 STIFS database, cases "BBB," "WHB," and "PLB," and EIA's Reserves and Natural Gas Division.

14. **History:** Compiled from monthly data used in publication of Energy Information Administration, *Petroleum Supply Annual, Volume 1*, DOE/EIA-0340/1, Table S1, for historical series; for recent values, *Petroleum Supply Monthly*, DOE/EIA-0109, Table S1. **Projections:** Third quarter 1997 STIFS database, case "BBB."

15. **History:** Compiled from monthly data used in publication of Energy Information Administration, *Petroleum Marketing Annual*, DOE/EIA-0487, Table 1, and *Natural Gas Monthly*, DOE/EIA-0130, Table 4, for historical series; for recent values, *Petroleum Marketing Monthly*, DOE/EIA-0380, Table 1. **Projections:** Third quarter 1997 STIFS database.

16. **History:** Compiled from monthly data used in publication of Energy Information Administration, *Petroleum Marketing Annual*, DOE/EIA-0487, Tables 2, 4, and 15, for historical series; for recent values, *Petroleum Marketing Monthly*, DOE/EIA-0380, Tables 2, 4, and 15. **Projections:** Third quarter 1997 STIFS database.

Figure References

17. **History:** Compiled from monthly data used in publication of Energy Information Administration, *Natural Gas Monthly*, DOE/EIA-0130, Table 4, and *Natural Gas Week*, May 26, 1997. **Projections:** Third quarter 1997 STIFS database, case "BBB."

18. **History:** Compiled from monthly data used in publication of Energy Information Administration, *Electric Power Monthly*, DOE/EIA-0226, Table 60. **Projections:** Third quarter 1997 STIFS database, case "BBB."

19. Calculated by comparing STIFS model solution results for the base case to an alternative set of results assuming an additional 1 percent growth in real GDP.

20. Calculated by comparing STIFS model solution results for the base case to an alternative set of results assuming an additional 10 percent growth in heating degree days.

21. **History:** Compiled from monthly data used in publication of Energy Information Administration, *Natural Gas Annual, Volume 2*, DOE/EIA-0131, Table 3, for historical series; for recent values, Energy Information Administration, *Natural Gas Monthly*, DOE/EIA-0130, Table 3. **Projections:** Third quarter 1997 database, case "BBB."

22. **History:** Nonutility Generators, 1989-1993: Energy Information Administration, Form EIA-867 (1993); other volumes compiled from monthly data used in publication of Energy Information Administration, *Natural Gas Annual, Volume 2*, DOE/EIA-0131, Table 3, for historical series; for recent values, Energy Information Administration, *Natural Gas Monthly*, DOE/EIA-0130. **Projections:** Nonutility Generators: Office of Coal, Nuclear, Electric and Alternate Fuels, Energy Information Administration; other volumes: Third quarter 1997 STIFS database, case "BBB."

23. **History:** Production and net imports of natural gas compiled from monthly data used in publication of Energy Information Administration, *Natural Gas Annual, Volume 2*, DOE/EIA-0131/2, Table 2, for historical series; for recent production data, *Natural Gas Monthly*, DOE/EIA-0130, Tables 1 and 2. **Projections:** Third quarter 1997 STIFS database, case "BBB."

24. **History:** Compiled from monthly data used in publication of Energy Information Administration, *Natural Gas Annual, Volume 2*, DOE/EIA-0131, Table 3, for historical series; for recent values, Energy Information Administration, *Natural Gas Monthly*, DOE/EIA-0130. **Projections:** Third quarter 1997 STIFS database, case "BBB."

25. **History:** Compiled from quarterly data used in publication of Energy Information Administration, *Quarterly Coal Report,* DOE/EIA-0121, Table 45. **Projections:** Third quarter 1997 STIFS database, case "BBB." Note: Nonutility, coke plant, retail, and general industry demand for coal is included in "Other."

26. **History:** Compiled from quarterly data used in publication of Energy Information Administration, *Quarterly Coal Report,* DOE/EIA-0121, Table 4. **Projections:** Third quarter 1997 STIFS database, case "BBB"; and Energy Information Administration, Office of Coal, Nuclear, Electric and Alternate Fuels.

27. **History:** Compiled from monthly data used in publication of Energy Information Administration, *Electric Power Monthly,* DOE/EIA-0226, Table 51. **Projections:** Third quarter 1997 STIFS database, case "BBB."

28. **History:** Compiled from monthly data used in publication of Energy Information Administration, *Electric Power Monthly ,* DOE/EIA-0226, Table 3, and Form EIA-759. **Projections:** Third quarter 1997