Short-Term Energy Outlook

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Energy Information Administration

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Energy Information Administration
Office of Energy Markets and End Use
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Preface

The Energy Information Administration (EIA) prepares *The Short-Term Energy Outlook* (energy supply, demand, and price projections) monthly for distribution on the internet at: **www.eia.doe.gov/emeu/steo/pub/contents.html.**   In addition, printed versions of the report are available to subscribers in January, April, July and October

The forecast period for this issue of the *Outlook* extends from July 1998 through December 1999. Values for second quarter of 1998 data, 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 July 1998 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 STIFS model.

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Highlights

Buyers' Market in Oil

The cumulating excess of world petroleum supply over demand caused average monthly spot prices for crude oil to fall to 9-year lows this spring, inducing major world oil suppliers to pledge significant cuts for the second time in three months. Reasonably complete implementation of cuts pledged to date should keep prices above recent lows for the rest of the year. Nevertheless, we have lowered the expected track for oil prices through the next six quarters of the forecast from the oil prices in previous Outlooks, so that expected 1998 average prices fall close to $6 below 1997 levels of $18.57 per barrel. Asian oil demand continues to weaken and U.S. demand growth has been below expectations despite continued solid economic growth. Uncertainties exist about the economic situation in Japan and the former Soviet Union. Unless oil production cutbacks exceed expectations, world petroleum stock levels could remain high through the rest of 1998.

Summer Gasoline Prices Remain Well Below Year-Ago Levels

U.S. summer retail gasoline prices are likely to remain at an average of about $1.04 per gallon for regular unleaded fuel, which was slightly below the observed average for the first quarter. This means that driving season prices could be about 16 cents per gallon below last year's prices. This should be welcome news to consumers. The gasoline market is now poised to skip the typical seasonal rise in prices. However, in spite of a strong start to gasoline demand growth in the first quarter of 1998, growth in subsequent months has proven to be lackluster. In fact, despite much lower prices and still-strong economic growth this year, we expect that summer gasoline demand growth is going to average less than 2 percent above 1997 levels.

Demand Outlook Weakens for Natural Gas

While electric utilities are still seen as contributing positively to natural gas demand growth this year, the industrial sector continues to fall below expectations. The current estimate of first-quarter data shows a surprising 5.1 percent decline in industrial gas use compared to the same period in 1997, despite a 3.4 percent increase in industrial output by gas-intensive manufacturing industries and a sharp decline in year-over-year gas prices. Total gas demand is now expected to be down 1.6 percent in 1998, a fact which, along with very high current levels of gas in storage, suggests the potential for renewed downward pressure on gas prices, especially if summer cooling demand fizzles.

Table HL1. U. S. Energy Supply and Demand

	Year				Annual Percentage Change		
	1996	**1997**	**1998**	**1999**	**1996-1997**	**1997-1998**	**1998-1999**
Real Gross Domestic Product (GDP) (billion chained 1992 dollars)	**6928**	**7191**	*7426*	*7581*	**3.8**	*3.3*	*2.1*
Imported Crude Oil Price [a] (nominal dollars per barrel)............................	**20.61**	**18.57**	*12.78*	*13.59*	**-9.9**	*-31.2*	*6.3*
Petroleum Supply (million barrels per day) Crude Oil Production [b]	**6.46**	**6.45**	*6.42*	*6.33*	**-0.2**	*-0.5*	*-1.4*
Total Petroleum Net Imports (including SPR)..	**8.50**	**9.16**	*9.13*	*9.49*	**7.8**	*-0.3*	*3.9*
Energy Demand							
World Petroleum (million barrels per day)..................................	**71.5**	**73.2**	*74.4*	*76.3*	**2.4**	*1.6*	*2.6*
Petroleum (million barrels per day)..................................	**18.31**	**18.62**	*18.84*	*19.21*	**1.7**	*1.2*	*2.0*
Natural Gas (trillion cubic feet)	**21.96**	**21.99**	*21.65*	*22.81*	**0.1**	*-1.5*	*5.4*
Coal (million short tons)	**1006**	**1031**	*1045*	*1081*	**2.5**	*1.4*	*3.4*
Electricity (billion kilowatthours)							
Utility Sales [c]	**3098**	**3115**	*3175*	*3241*	**0.5**	*1.9*	*2.1*
Nonutility Own Use [d]	**164**	**169**	*173*	*178*	**3.0**	*2.4*	*2.9*
Total	**3262**	**3283**	*3349*	*3419*	**0.6**	*2.0*	*2.1*
Total Energy Demand [e] (quadrillion Btu)..	**93.9**	**94.4**	*94.7*	*97.3*	**0.6**	*0.3*	*2.7*
Total Energy Demand per Dollar of GDP (thousand Btu per 1992 Dollar)......................	**13.55**	**13.13**	*12.75*	*12.83*	**-3.1**	*-2.9*	*0.6*
Renewable Energy as Percent of Total	**7.8**	**7.6**	*7.2*	*6.9*			

[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, :Annual Electric Utility Report," 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 1997 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 CONTROL0698.

The Outlook

Outlook Assumptions

Figure 1. U.S. Monthly Crude Oil Prices
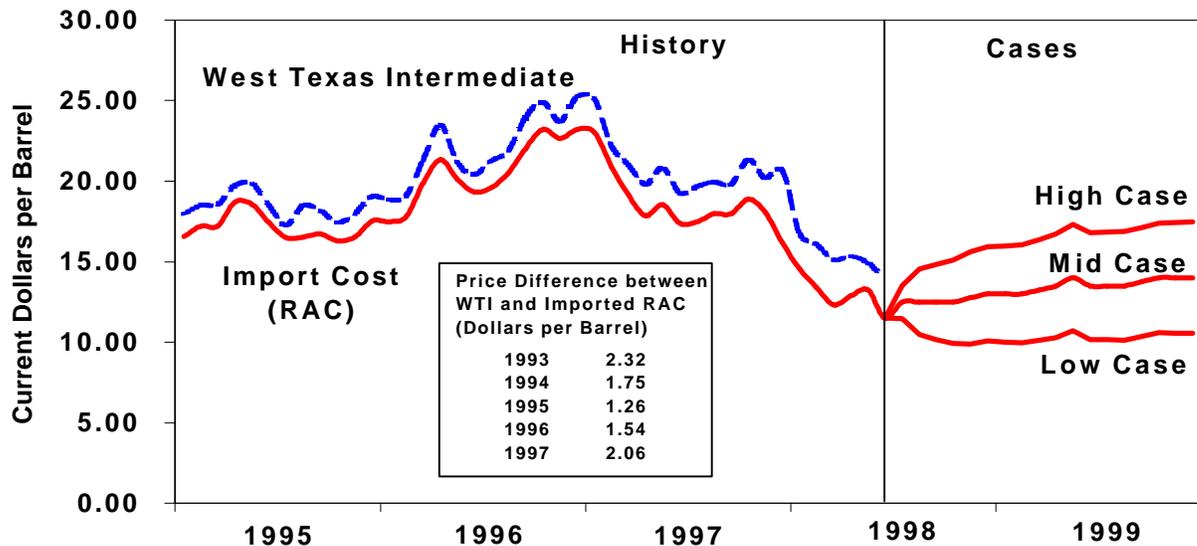
World Oil Prices

Crude oil prices, in terms of the average cost of imported oil to U.S. refiners, is assumed to stabilize at about $13 per barrel for the rest of this year, after falling to an estimated low of just under $12 in June. This represents a lowering of our oil price projections from last month=s *Outlook,* reflecting the increasingly evident magnitude of the world oil surplus that has developed since this time last year. Efforts by OPEC members to reduce current supply, including planned cuts announced on June 24, are seen as likely to stem the oil price free-fall but are not expected to return prices to anywhere near 1997 levels during our forecast period. Greater-than-expected success in holding down production levels or the occurrence of significant demand shocks could alter this result and move prices closer to the high range shown in Figure 1. Risks are probably equivalent on the down side, however, especially because of the fragility of the economic situation in Asia and the possibility that weather patterns could conceivably work against increased demand.

Economic Outlook

In 1998 and 1999, GDP is expected to continue to grow but at rates of 3.3 percent and 2.1 percent, respectively. The projection of 1998 GDP growth has been

revised upward from that in the last *Outlook* primarily because of higher investment and a large revision to inventories in the first two quarters, mainly coming from higher imports spurred by lower import prices. This growth in imports and decline in exports has been exacerbated by the financial crisis in Asia. In 1999, export growth is assumed to recover somewhat. Growth in disposable income is assumed to be 3.4 percent in 1998 and 2.6 percent in 1999 (Figure 2 and Table 1).

Inflation (consumer price index: see Table 2) should remain moderate over the next few years. Consumer price inflation is expected to be 1.6 percent in 1998 and 2.5 percent in 1999 (Table 1). Despite higher GDP projections, manufacturing production growth, while still 4.1 percent strong, has been revised downward slightly for this *Outlook*. In 1999, manufacturing production growth slows to 2.8 percent as investment growth decelerates. Total employment will increase slowly over the forecast period.

Weather Assumptions

Weather patterns (expressed as heating and cooling degree-days in Table 1) are assumed to follow historical norms in the remaining 6 quarters of the forecast period. However, in the second quarter of this year cooling degree-days were sharply higher (22 percent) compared with cooling degree days in second quarter 1997, and were 5.7 percent above normal. Winter heating degree-days in fourth quarter 1998 are expected to be slightly lower than heating degree days during the same period last year, adding marginally to the weakening in heating fuel demand this period.

Figure 2. U.S. Macroeconomic Indicators
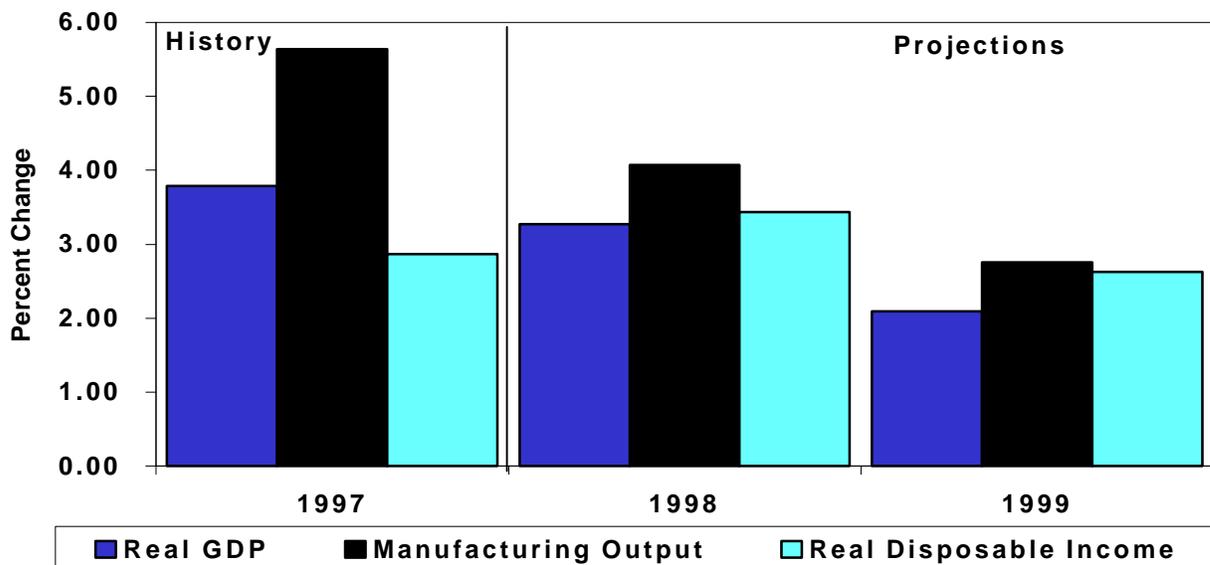
U.S. Energy Prices

Figure 3. Retail Motor Gasoline Prices (Average Regular Unleaded, Self-Serve Cash)
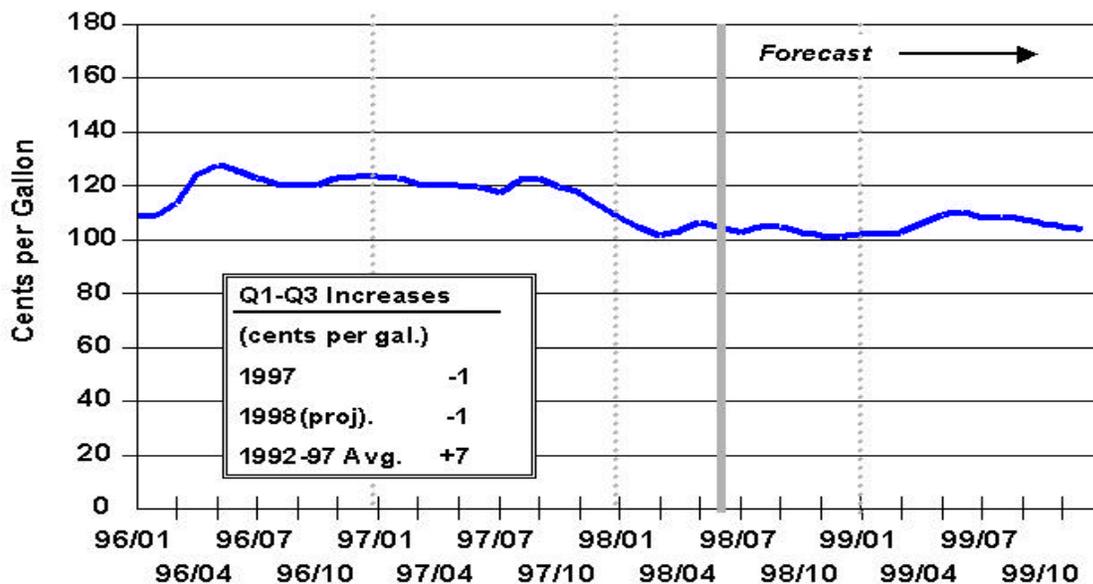
U.S. gasoline prices have failed to exhibit the kind of seasonal move upward that normally characterizes the transition from winter to spring and summer seasons, when highway travel and gasoline demand reach their annual peaks (Figure 3). Quarterly average prices remained about equal between the first and second quarter, according to our latest estimates through June (Table 4). Weak crude oil prices, high gasoline stocks, and less-than-spectacular demand growth suggest a more-or-less flat trajectory for pump prices for the rest of the year. On a monthly basis, the regular unleaded self-service price bottomed out at an average of $1.02 per gallon in March, but has risen only about a nickel since then. With world crude oil prices floating between $12.00 and $14.00 dollars per barrel and U.S. inventories brimming with crude oil and gasoline, U.S. average prices at the pump this summer are expected to be about 16 cents per gallon lower than last summer=s prices. This keeps alive and well the prospects for 1998 U.S. prices being the lowest ever in real (inflation-adjusted) terms.

In California (PADD 5), however, prices have been considerably higher than in the rest of the nation (Figure 4). This is the result of the requirement to use the unique State-mandated cleaner (and more expensive to refine) gasoline, which can also create its own set of refinery problems. Relatively few refineries in the U.S. are capable of making this fuel. The shutdown of some of these special

refineries that occurred in the spring severely strained supplies, which led to month-to-month spot price increases in Los Angeles of about 15 cents per gallon for reformulated gasoline, with pump prices responding within a few weeks. However, in recent weeks California pump prices have eased as supplies of gasoline have become more available. Summer pump prices for the rest of the country should stay fairly steady, assuming crude price stability (Figure 4).

Figure 4. Weekly Gasoline Prices
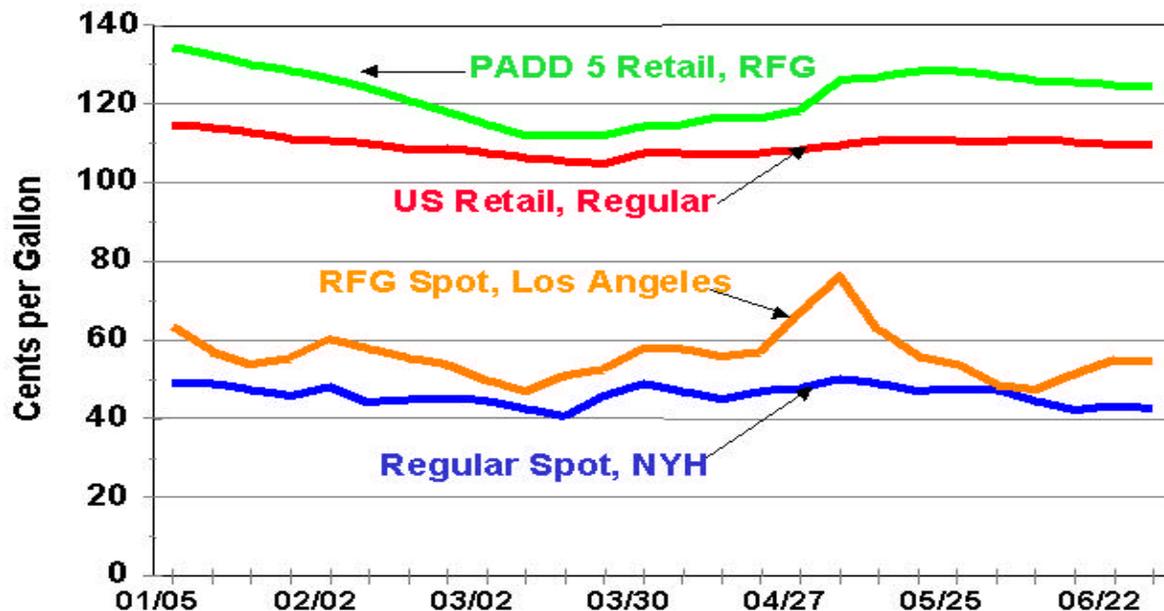
The biggest single variable affecting petroleum product prices over the next several months is crude oil prices. With plentiful supplies and a slowdown in much of the world economy, crude oil prices have been low, much to the concern of oil-exporting nations. The question remains whether the oil-exporting nations can maintain the discipline needed to raise prices from current desired levels. An attempt in the spring to cut production apparently was not enough to rally prices for more than about one month (See Outlook Assumptions for more analysis of this situation.)

Assuming the lower crude oil prices, all petroleum product prices are expected to decline significantly in 1998. With crude oil prices $5 to $6 per barrel lower in 1998, petroleum product prices are projected to average 12-16 cents per gallon less than in they were in 1997. In 1999, with slightly rising crude oil costs projected, petroleum product prices can be expected to creep upward about 2-4 cents per gallon over 1998 prices. Under these conditions, average retail heating oil prices should be about 10-11 cents per gallon lower in the fourth quarter of 1998 compared to prices in the previous year.

Natural gas spot wellhead prices turned downward in April to just over $2.00 per thousand cubic feet as the very mild winter weather left underground storage levels well above the levels of the previous year (Figure 5). Spot prices have started heading back up in mid-June as unseasonably hot weather has

Figure 5. Natural Gas Wellhead Prices: Composite and Spot
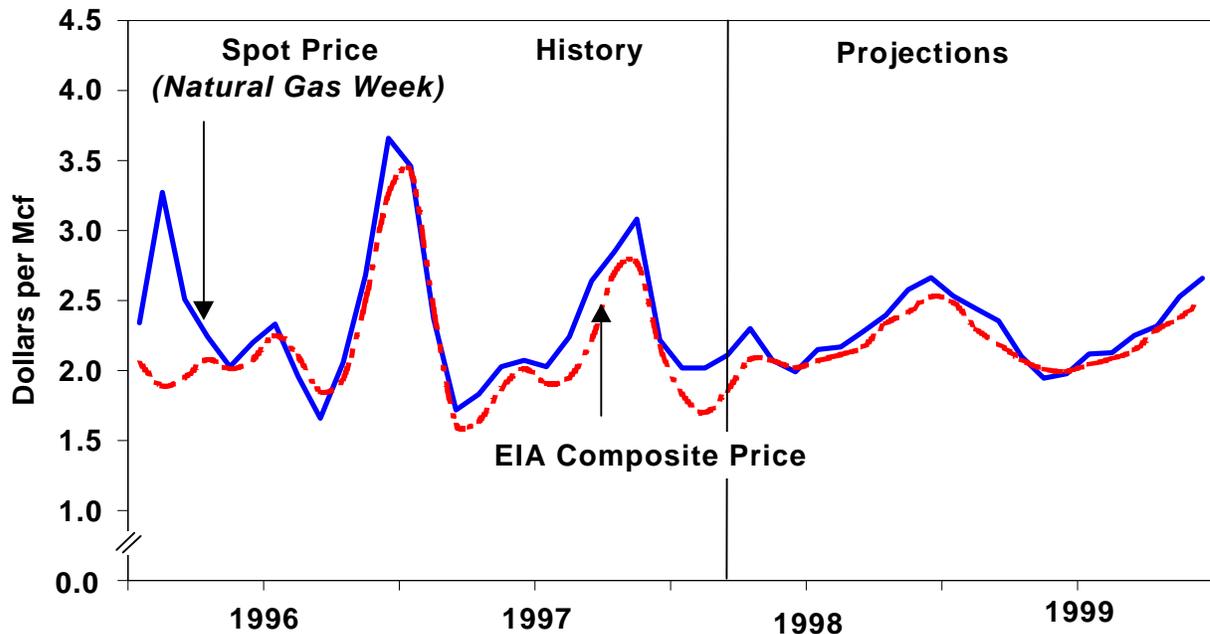
increased air conditioning demand for electricity in much of the nation. The weather has been particularly scorching in the Southwest, the region with the heaviest consumption of natural gas electricity generation. Prolonged hot weather may keep the spot price well over $2.00 per thousand cubic feet throughout the summer. In addition, the rail delivery problems of shipping coal to electric utilities in the Southwest continue, narrowing the fuel-burning options to natural gas for some generating plants. On the other hand, with the ample gas storage that currently exists, there could be some downward pressure on prices as well, especially if the hot weather spell breaks. There does not appear to be much gas demand strength outside of electric utilities this year, as industrial demand was down 5.1 percent in the first quarter. Nevertheless, natural gas prices are projected to resume their historical seasonal upward tick towards the end of the summer as the underground-storage injection season ends.

Where natural gas prices will be this winter will depend heavily on the weather this summer and fall. A heat wave in Texas in September or a cold October in the East could once again send spot and futures prices soaring, as they did last year. Assuming normal weather for the remainder of the year, the annual average

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wellhead price is projected to decline by about 6 percent in 1998, with the bulk of the decrease resulting from the low first quarter prices of this year.

In 1999, again assuming normal weather, a return to normal seasonal price patterns for natural gas at the wellhead is projected, with prices once again peaking in the winter quarters. The average annual price is projected to increase by about 5 percent with the assumption of normal weather in the 1998-1999 winter. That assumption yields an estimated growth in demand for the first quarter of 1999 of nearly 12 percent, certainly a bullish price indicator to say the least.

Price changes at the wellhead should be passed on to the end-users, resulting in lower residential gas prices in 1998 but slightly higher prices in 1999. The price of gas to electric utilities should decline by about 6 percent in 1998, then rise by about 4 percent next year. These projected natural gas prices will result in a huge price advantage for residual fuel oil burned at electric utilities, assuming that the steep drop in crude oil prices projected for 1998 (down 31 percent) holds. The annual average price of residual fuel oil to electric utilities is expected to be less than 80 percent of the price of natural gas in both 1998 and 1999 (Table 4 and Figure 6). As a result, those electric utilities with fuel switching capability may find it advantageous to switch to residual fuel oil. However, even with this projected price advantage there will not be that much switching since many electric utilities no longer burn heavy oil due to environmental regulations on air quality or to the substantial expenses entailed in replacing underground storage tanks. Coal remains by far the least expensive fossil fuels to electric utilities (Table 4 and Figure 6). Coal prices are expected to decline through 1999 even after costs associated with compliance with the Clean Air Act Amendments of 1990 are accounted for. Continued increases in mining productivity and the closing of costly marginal mines will more than offset increases in costs associated with rail transportation.

Figure 6. Fossil Fuel Prices to Electric Utilities
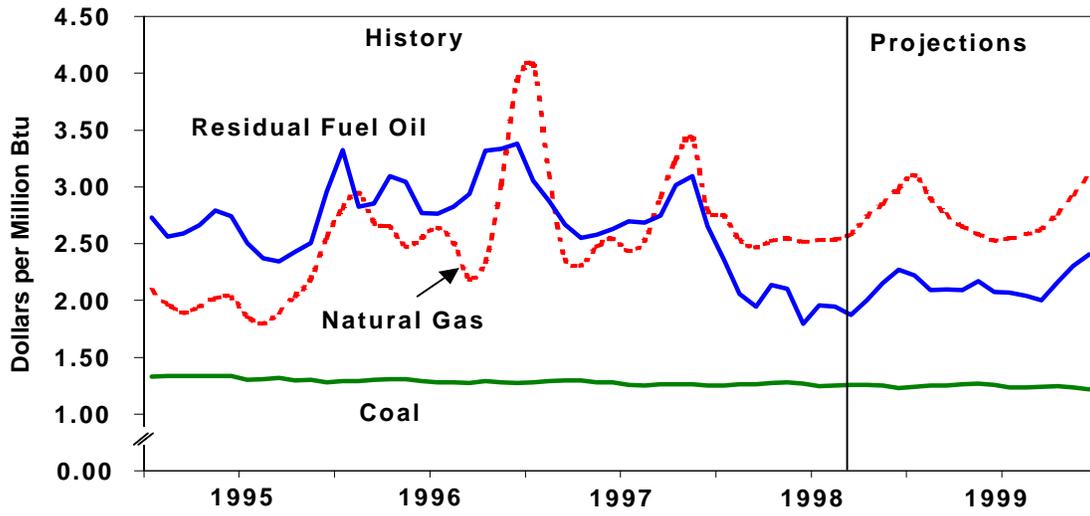
Oil Supply Cutback Agreements in 1998

On June 24, the Organization of Petroleum Exporting Countries (OPEC) held a full ministerial meeting to discuss further oil production cuts in light of the lowest oil prices seen since 1986. At this meeting OPEC agreed to cut, including cuts OPEC made in their March meeting, a combined 2.6 million barrels per day from February 1998 levels as determined by selected secondary sources (see table below). As were the case during the first set of cuts earlier in the year, several non-OPEC producing countries have coordinated cuts in their production, bringing the total pledged production cuts to 3.1 million barrels per day. The latest cutbacks, as were the first set of production cuts, are from agreed upon February 1998 production figures as estimated by several secondary sources outside OPEC (2nd column of numbers in the table). These production levels are fairly close to EIA's own estimates of February 1998 OPEC crude oil production (1st column of numbers in the table).

Crude Oil Production and Supply Cuts in 1998 (thousand barrels per day)

Country	Feb. 1998 Crude Oil Production (EIA)	Feb. 1998 Crude Oil Production (OPEC Base)	Cutbacks Effective April 1	Cutbacks Effective July 1	Total Oil Supply Cutbacks
Saudi Arabia	8,760	8,748	300	425	725
Venezuela	3,370	3,370	200	325	525
Iran	3,600	3,623	140	165	305
UAE	2,355	2,382	125	100	225
Kuwait	2,210	2,205	125	100	225
Nigeria	2,153	2,258	125	100	225
Libya	1,450	1,453	80	50	130
Indonesia	1,340	1,380	70	30	100
Algeria	860	868	50	30	80
Qatar	700	700	30	30	60
OPEC	**26,798**	**26,987**	**1,245**	**1,355**	**2,600**
Mexico	3,140	NA	100	100	200
Norway	3,230	NA	100	---	100
Russia	6,040	NA	---	100	100
Oman	910	NA	30	20	50
Yemen	380	NA	20	---	20
Egypt	860	NA	---	20	20
Non-OPEC	**14,560**	**NA**	**250**	**240**	**490**
Combined	**41,358**	**NA**	**1,495**	**1,595**	**3,090**

NA: Not Applicable
Note: Russia and China both announced cuts in production back in April, but EIA assumes that these cuts are unrelated to the agreements detailed in the table above. However, since Russia attended the June OPEC meeting as an observer, the cutback announced for Russia beginning in July has been included.

International Oil Supply

Figure 7. World Oil Supply (Changes from Previous Year)
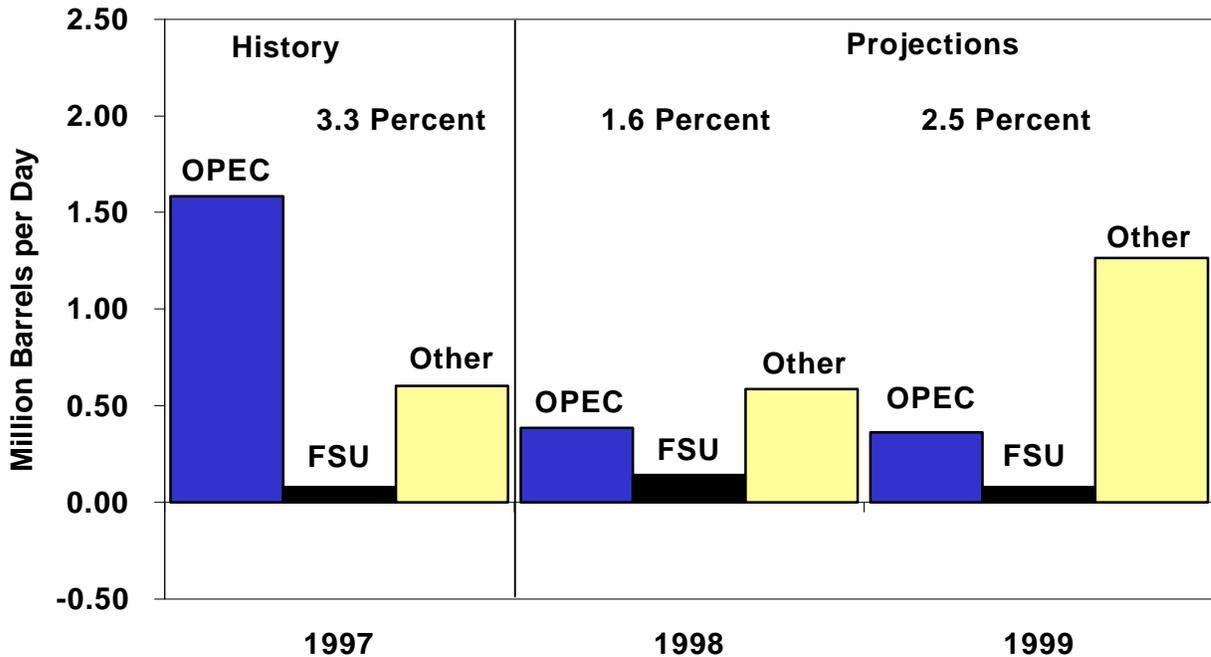
Following the June 24, 1998 meeting, OPEC announced further cuts in production of another 1.355 million barrels per day for the second half of 1998. This followed cuts in production made by OPEC at an emergency meeting that took place at the end of March 1998. By April 1, 14 countries (10 from OPEC and 4 outside OPEC) had announced cuts from actual production levels totaling 1.5 million barrels per day. OPEC decided to expand the production cuts when by June, prices had fallen back to levels not seen since 1986. In combination with pledged cutbacks from some non-OPEC countries, the latest agreement would theoretically reduce output by 3.1 million barrels per day from February 1998 levels (see table on page 8). However, even with these additional cuts, EIA expects a continuation of a build in world oil stockpiles in 1998 and 1999, although the increase in 1999 should be much closer to historical patterns.

Beginning in early June 1998, Iraq began exporting under the latest United Nations Security Council (UNSC) resolution limiting Iraqi oil exports. Under this agreement, Iraq will be allowed to export over $5.2 billion over the next 180 days, although limitations on Iraq's ability to produce and export oil will likely limit the total amount to something around $4 billion. On June 20, Iraq came to terms with the United Nations on allowing Iraq import $300 million worth of

spare parts in order to boost production and export levels. For the purposes of this forecast we have assumed Iraqi oil exports to average about 1.6 to 1.7 million barrels per day for the second half of 1998 and all of 1999. This is merely an assumption for this forecast and does not reflect any official U.S. government view on the future of Iraqi oil exports. Any increase in Iraqi oil beyond this will lessen the impact on prices from the oil supply cutback agreements in 1998.

For this forecast we have assumed that OPEC oil production will increase by about 100,000 barrels per day in both 1998 (Figures 7 and 8) and 1999, after increasing almost 1.6 million barrels per day in 1997. This is because some OPEC countries are cutting back oil production at the same time Iraq, a member of OPEC, is increasing oil production. This forecast of OPEC production represents a loss of $46 billion (31%) from OPEC's crude oil export revenue in 1998 relative to 1997, due mainly to projected world oil price drops in 1998. With many OPEC countries highly dependent on oil export revenues as their main source of government revenues, a decline of this magnitude is extremely significant.

Sustained growth of non-OPEC supply is expected to continue for the foreseeable future, both inside and outside of the OECD (Figure 7). The major

Figure 8. OPEC Oil Production and Capacity
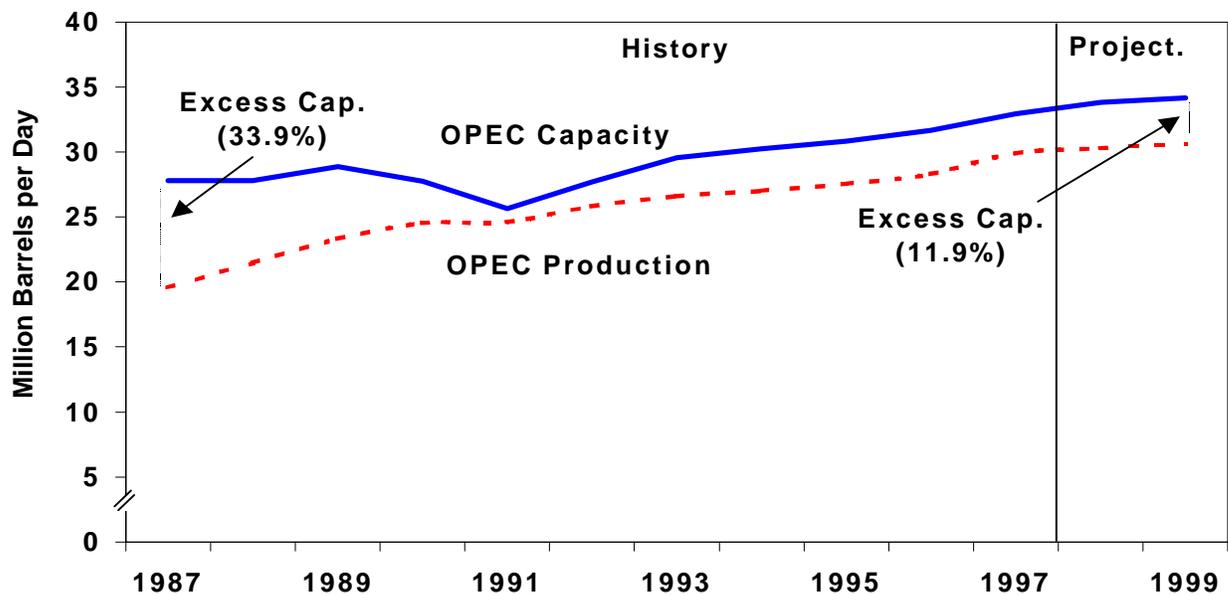
growth story within the Organization of Economic Cooperation and Development (OECD) region is North Sea production, which grew by about 2.2 million barrels per day between 1991 and 1996. North Sea production actually decreased in 1997, as several oil development projects were delayed. However, this forecast assumes a return to growth in North Sea oil production, with an

increase of about 200,000 barrels per day expected in 1998 and about 500,000 barrels per day 1999 (Table 3).

Outside the OECD, the non-OPEC growth story is depicted by the AOther≅ group (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.   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 900,000 barrels per day between 1997 and 1999 (Table 3).

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 Kazakhstan, Russia, and Azerbaijan, rather than from any of the other former republics. This forecast assumes oil supply from the Former Soviet Union will increase by about 100,000 barrels per day in both 1998 and 1999.

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 in every year, although in 1997 the increase in OPEC oil production nearly equaled the increase in world oil demand (Figure 9).

Figure 9. Annual Increases in OPEC Production and World Demand Changes, 1986-1998
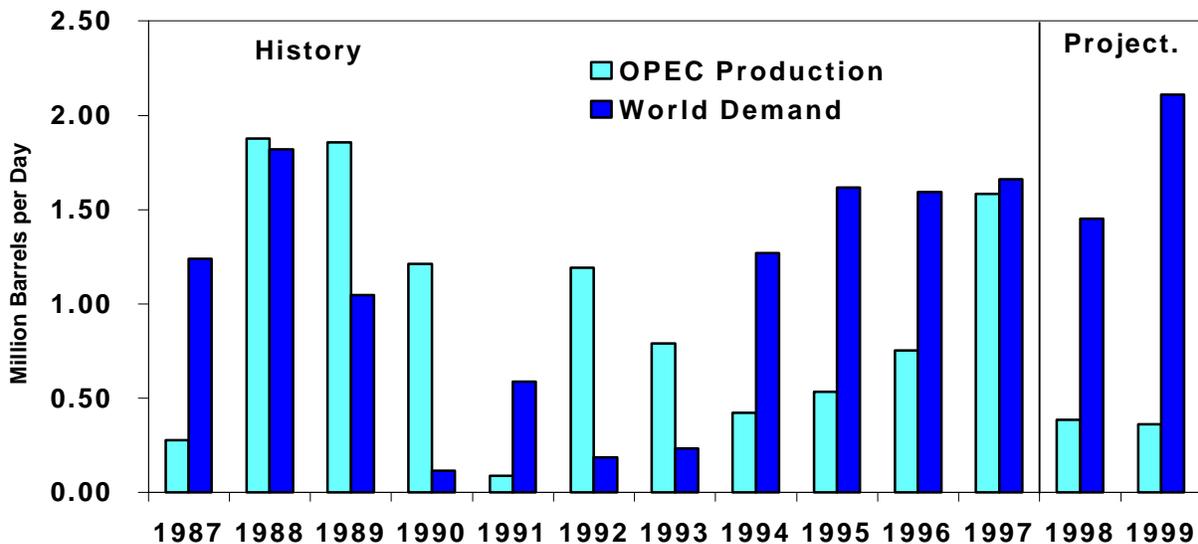
International Oil Demand

Figure 10. World Oil Demand (changes from Previous Year)
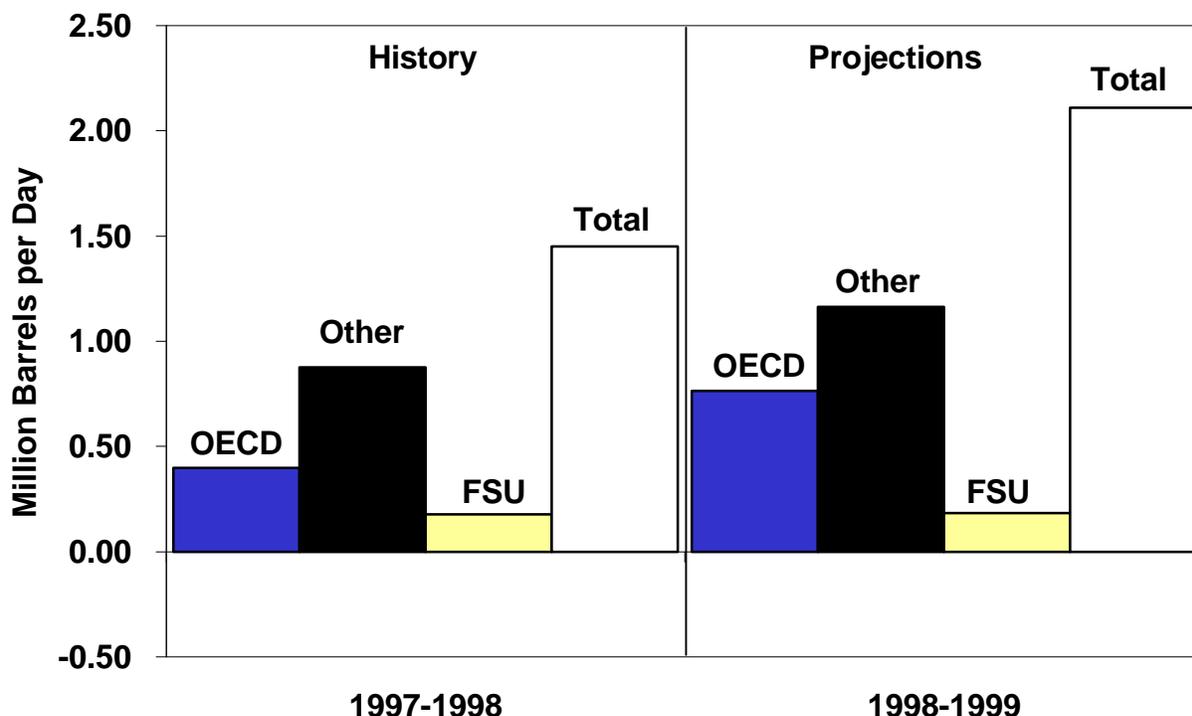
World oil demand is expected to continue to increase through 1999 (Figure 10), by which time total world oil demand may average 76.3 million barrels per day (Table 3). Problems in several Southeast Asian economies are expected to soften the increase in world oil demand, particularly in 1998. Following an annual world oil demand increment of 1.7 million barrels per day worldwide in 1997, world oil demand is expected to increase by only 1.2 million barrels per day in 1998, before rebounding with a 1.9 million barrels per day increase in 1999. Excluding the Former Soviet Union, oil demand in 1998 is expected to increase by less than 1 million barrels per day, the first time this will have happened since 1990. But, even with less demand in Southeast Asia than originally expected, world oil demand under these assumptions will be growing at an average annual rate of 2.1 percent between 1997-1999 after growing at an average annual rate of only 1.7 percent between 1992-1996.

Oil demand in countries of OECD is expected to increase by less than 400,000 barrels per day in 1998 and another 700,000 barrels per day in 1999, an average annual rate of 1.3 percent (Figure 10 and Table 3). This is less than previously forecast due in large part to our downward revision for Japan's oil demand. Japan's current recession is expected to be the main reason for a decline in

Japanese oil demand in 1998 while remaining relatively flat in 1999. Partly because of this, the United States' oil demand growth represents over half of OECD oil demand growth in 1998 and exactly half of OECD oil demand growth in 1999.

A major story of this forecast is the effect the economic problems in Southeast Asia are expected to have on oil demand growth in the region. Prior to this recent economic slowdown, non-OECD countries exhibited strong growth in oil demand (Figure 10). This was especially true in Asian countries. For example, oil demand in China and in Other Asia (see Summary of Important Terms for definition) grew by 7.6 percent per year between 1991-1997. However, due to the recent economic slowdown in several Asian countries, this forecast has an average annual oil demand growth rate of 6.4 percent for China and a barely noticeable growth of 0.6 percent for Other Asian oil demand between 1997 and 1999. At the same time, however, Latin American oil demand is expected to grow at an annual rate of 4.5 percent between 1997 and 1999. Continued strength in world oil demand is partly due to significant increases in U.S. and Latin American oil demand growth.

After showing some growth in oil demand in 1997 for the first time since the collapse of the Soviet Union, oil demand in the former Soviet Union (FSU) is projected to increase even further in 1998 and 1999. This increase reflects the expectation that growth in economic activity will continue to be positive over the forecast period. Oil demand in the FSU stood at 8.9 million barrels per day just 10 years ago, reached a low of 4.4 million barrels per day in 1996, and is forecast to increase to 4.8 million barrels per day by 1999 (Table 3).

World Oil Stocks, Capacity and Net Trade

Figure 11. OECD Commercial Oil Stocks
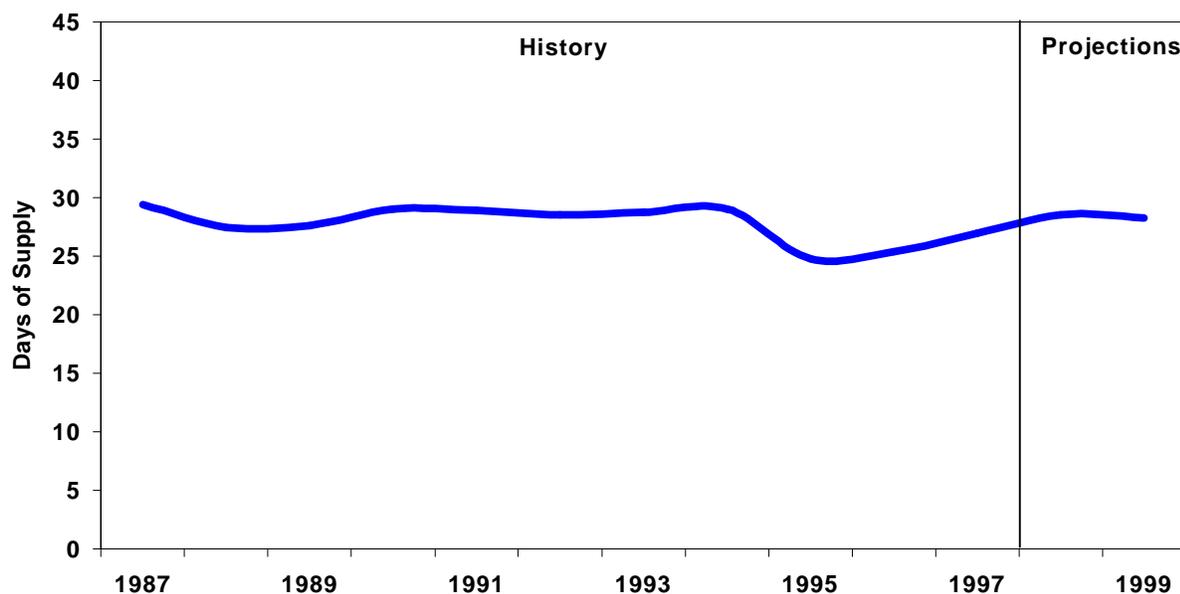
Commercial oil inventories (measured in days of supply) in OECD countries increased nearly 1.6 days worth of supply in 1997, the largest such increase since 1990. OECD commercial oil inventories are expected to increase even more in 1998 (1.7 days of supply) before declining in 1999 (Figure 11). The increase in 1997 and 1998 is in large part due to the currently oversupplied market, but by 1999 our forecast shows a more balanced world oil market in terms of supply and demand, thus reducing the days of supply level for OECD commercial oil inventories.

Outside Iraq, OPEC oil production capacity is expected to increase by nearly 800,000 barrels per day in 1998 and an additional 250,000 barrels per day in 1999. This is due to OPEC oil production increases lagging behind planned capacity increases, which is in large part due to the cutbacks in production announced in 1998. Overall, OPEC excess oil production capacity is expected to increase from about 3.1 million barrels per day in 1997 to about 4.1 million barrels per day in 1999, the most since 1989. Saudi Arabia is still expected to control over half of OPEC excess production capacity, and along with Kuwait and the United Arab Emirates controls the vast majority of excess world oil production capacity.

Current exports of crude oil worldwide are averaging 35 million barrels per day, with about 60 percent originating from OPEC countries. 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 decrease slightly during the forecast period, from 2.7 million barrels per day in 1997 to about 2.6 million barrels per day in 1999. This is because increases in oil demand are expected to be slightly more than anticipated increases in oil production (Figure 12 and Table 3). Most of the increase in oil production in FSU countries is still expected to come after 1999. However, FSU exports are still significantly higher than they were immediately following the collapse of the FSU (2.1 million barrels per day in 1991 and 1992) and are now close to levels seen just prior to the collapse of the FSU (3.0 million barrels per day.

Figure 12. FSU Oil Output, Demand and Net Exports
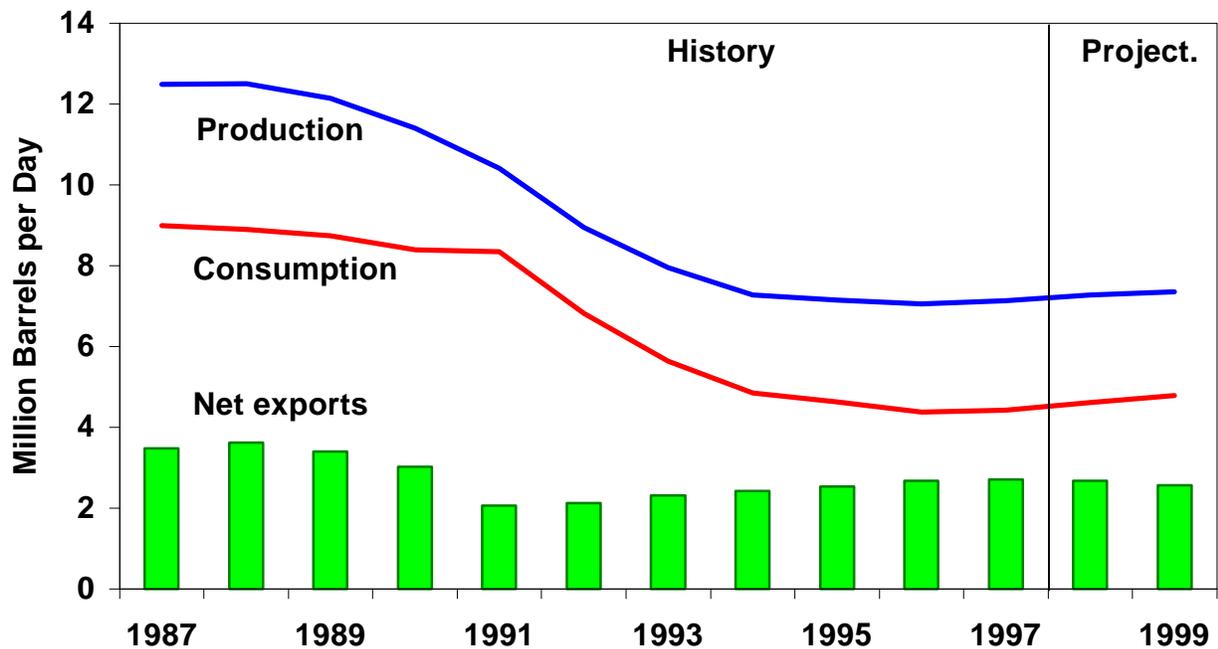
U.S. Oil Demand

Figure 13.   Petroleum Demand Growth Forecasts (Change from Year Ago)
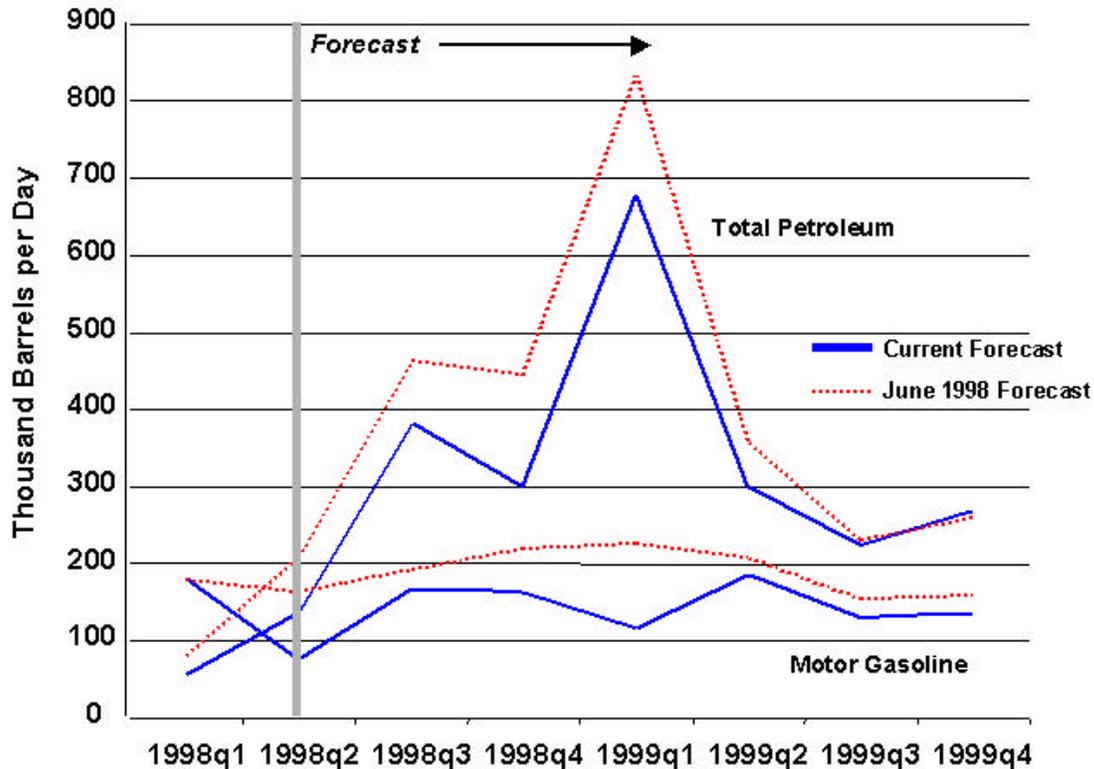
The overall prospects for strong petroleum demand growth in the United States this year have diminished somewhat in recent weeks, with fresh estimates of second quarter growth undercutting previous estimates by about 70,000 barrels per day (Figure 13). A significant portion of the reduction in expected growth is tied to the motor gasoline forecast. We have lowered the gasoline demand forecast because of lower-than-expected demand figures for the second quarter of this year and because we now have lower expected growth in consumer income, commercial activity, and industrial output for 1998 than was assumed in our last *Outlook*. Given the current estimates for gasoline demand for the April-to-June period, summer gasoline demand (average of Q2 and Q3) is likely to post a gain of less than 2 percent over summer 1997 levels.

Figure 14. Gasoline Market Indicators (Percent Change from Year Ago)
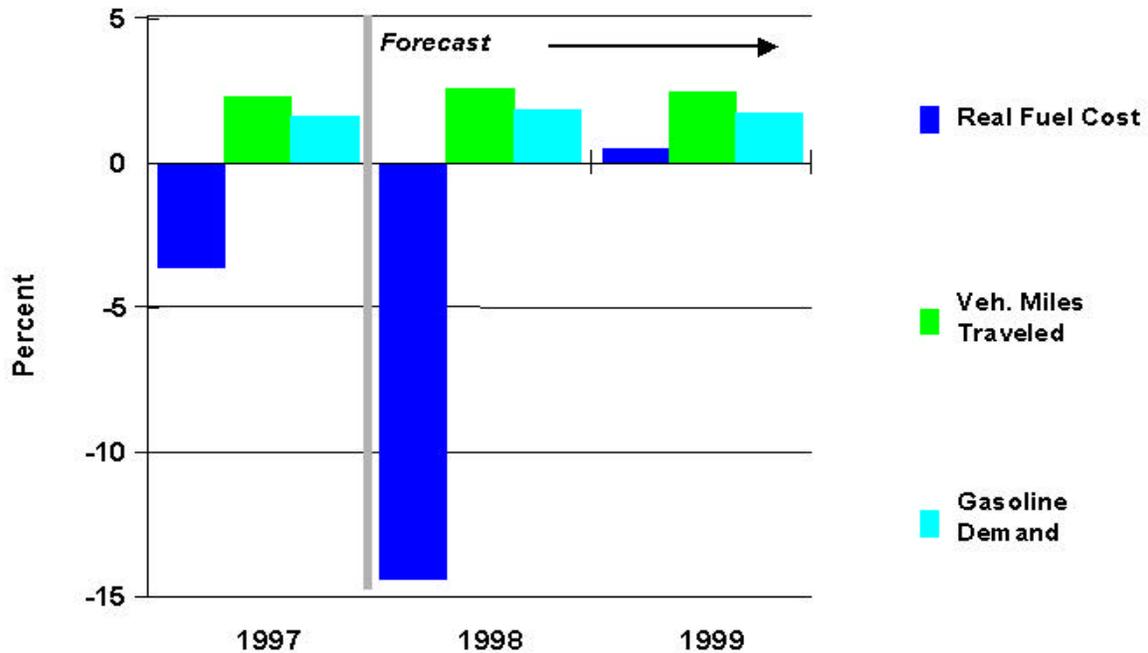
For the year as a whole, 1998 motor gasoline demand is projected to climb at a moderate 1.8 percent growth rate. This growth reflects a 2.5 percent growth in highway travel following expected growth in real disposable income of 3.4 percent and a 14.4 percent plunge in real fuel costs per mile (Figure 14). In 1999, demand and travel are expected to register similar growth rates to those projected for the current year despite slowdowns in income growth and a slight uptick in retail fuel prices. The growth is partly sustained by the lagged effects of current growth in income and low retail gasoline prices.

Figure 15.   Jet Fuel Market Indicators (Percent Change from Year Ago)
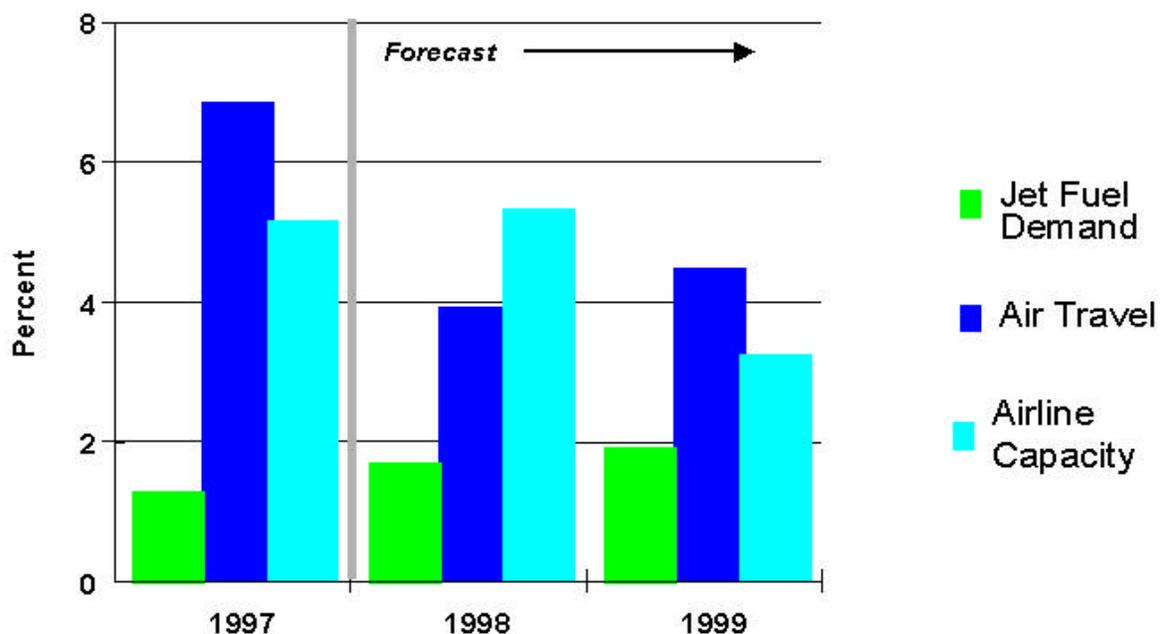
During the forecast interval, jet fuel demand increases are projected to average 1.8 percent per year (Figure 15). In the current year, growth in airline capacity (available passenger and cargo space in the air) is projected to increase 5.3 percent, slightly above last year's rate. Growth in air travel (utilization of the available capacity), however, is projected to be 3.9 percent, down from last year's 6.9 percent growth rate. Available data for 1998, in fact, point to a marked slowdown in both capacity and travel growth. Although Asia clearly accounts for part of that slowdown, domestic air travel growth has exhibited a similar trend. In an apparent attempt to enhance revenue and profitability, several airlines are more selective in offering discounts in discretionary travel markets. In 1999, capacity is projected to grow by only 3.2 percent in lagged response to the slowdown in air travel of the previous year as well as a slowing economy. Air travel, however, is projected to climb 4.5 percent, resulting in a recovery in average load factors from the previous year's depressed averages. These projections imply average fuel efficiency growth of about 2.5 percent, partly a result of the continued new deployment of new long-haul aircraft, especially on international routes.

The impact of warmer-than-normal weather in the first quarter and an expected decline in heating degree-days in the fourth quarter of this year from slightly above-normal levels last fall contribute to the projected slowdown in distillate demand growth for 1998 (Figure 16).

Figure 16. Distillate Fuel Demand and Weather (Percent Change from Year Ago)
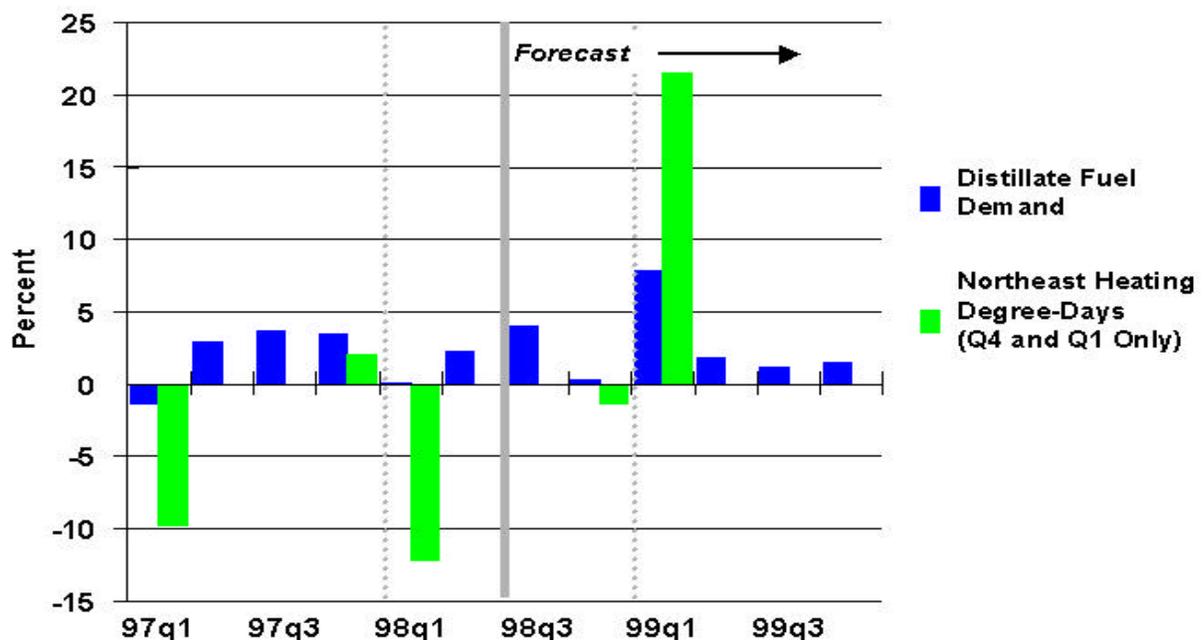
We now expect 1998 distillate demand growth to be relatively weak at 1.6 percent, compared to last year's 2.1 percent growth rate. The slowdown in distillate demand is also partly brought about by a moderation in manufacturing

output growth from last year's 5.6 percent to this year's projected 4.1 percent. The 3.1 percent growth in distillate demand projected for 1999 results largely from the return to normal weather patterns.

Recovering from all-time lows, residual fuel oil demand in 1998 is projected to rise 5.1 percent, boosted by declines in residual fuel prices of almost 30 percent in both the electric utility and industrial sectors. In 1999, continued low prices and the assumption of normal weather are expected to enable residual fuel demand to equal or exceed that of 1998.

U.S. Oil Supply

Figure 17. U.S. Crude Oil Production
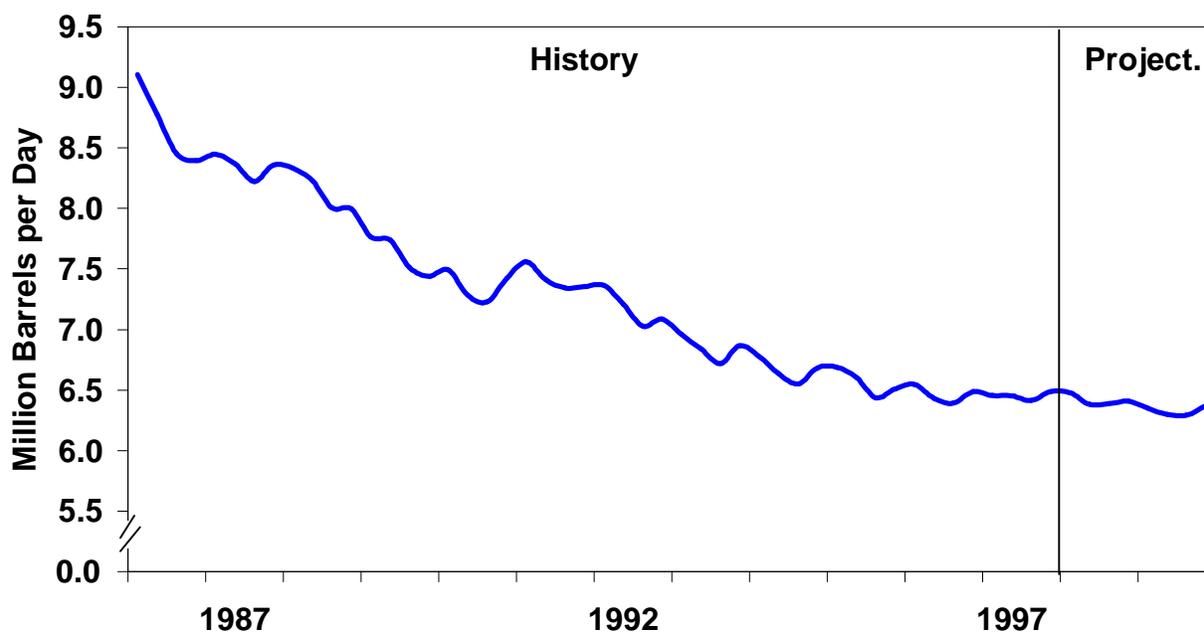
New production from Federal offshore oil slowed the steady decline of domestic crude oil supply in 1998. Average domestic oil production in 1998 is expected to decline by about 40,000 barrels per day from the 1997 level of 6.45 million barrels per day (Figure 17). Partly thanks to low oil prices, the downward trend gains back some momentum in 1999, with a 1.3-percent decline projected.

Lower-48 States oil production is actually expected to increase by about 60,000 barrels per day to about 5.23 million barrels per day in 1998. This is followed by an expected decrease of 80,000 barrels per day in 1999. Production from the Ram-Powell field began in third quarter 1997, with an accompanying increase of 60,000 barrels per day in early 1998. British Petroleum has purchased Marathon's

Troika sub-sea project and was producing as of November 1997. This production will add 80,000 barrels per day to offshore production in early 1998. Shell will start production in 1999 in their Ursa field, which will peak in production in the year 2000 at 150,000 barrels per day of condensate. Oil production from the Mars, Ram-Powell, Auger, Troika, Ursa, and Santa Ynez Federal Offshore fields is expected to account for about 10.8 per cent of the lower-48 oil production by the 4th quarter of 1999. Alaska is expected to account for about 18.8 percent of the total U.S. oil production in 1999. Production there is expected to decrease by 7.8 percent in 1998, followed by a slight decline of 0.3 percent in 1999.

U.S. Natural Gas Demand

Figure 18. Gas Demand Forecast Revisions (Current vs. June 1998 Forecast)
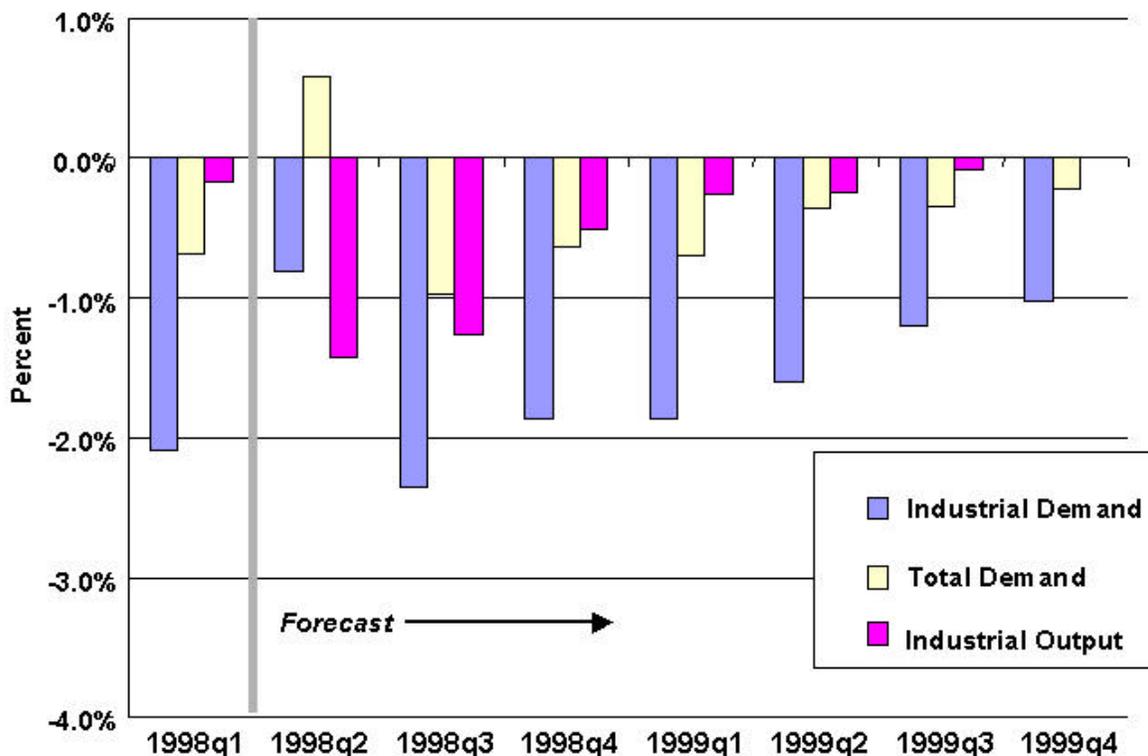
Demand growth for natural gas in 1998 has been revised downward from demand growth projected in last month's *Outlook* (Figure 18), reflecting new evidence of weak industrial sector demand for gas. Natural gas demand is now expected to be below the estimated 1997 level of 21.99 trillion cubic feet by 1.6 percent, down from last month's projection of -1.1 percent. While electric utilities are still seen as contributing positively to natural gas demand growth this year,

the industrial sector continues to fall below expectations. The current estimate of first-quarter data shows a surprising 5.1 percent decline in industrial gas use compared to the same period in 1997, despite a 3.4 percent increase in industrial output by gas-intensive manufacturing industries and a sharp decline in year-over-year gas prices. A somewhat weaker demand outlook for 1998, along with very high current levels of gas in storage, suggests the potential for renewed downward pressure on gas prices, especially if summer cooling demand fizzles.

In our last *Outlook*, the industrial sector was the primary positive area of natural gas demand growth, along with the utility sector, since both residential and commercial demand growth were both down for weather-related reasons. Our current view is that the only strength in gas demand this year will be due to growth in electricity generation.

Next year, a much broader growth profile is likely, particularly if a normal or colder-than-normal winter occurs. Gas demand is expected to grow across all sectors in 1999 under the assumptions of normal weather conditions and continued economic growth. Gas demand is projected to rise by 5.4 percent in 1999, led primarily by the residential sector (Figure 19).

Figure 19. Gas Demand Growth Summary
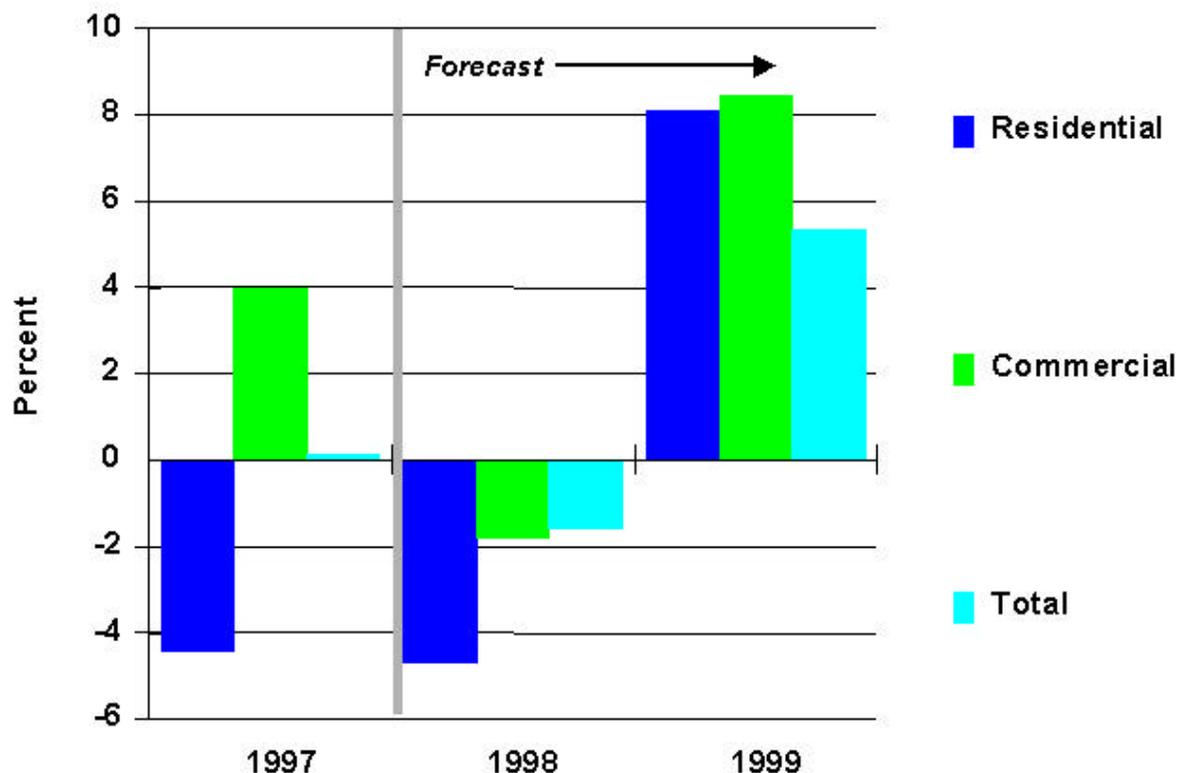
U.S. Natural Gas Supply

Figure 20. Changes in Total Gas Underground Storage (From Year Ago)
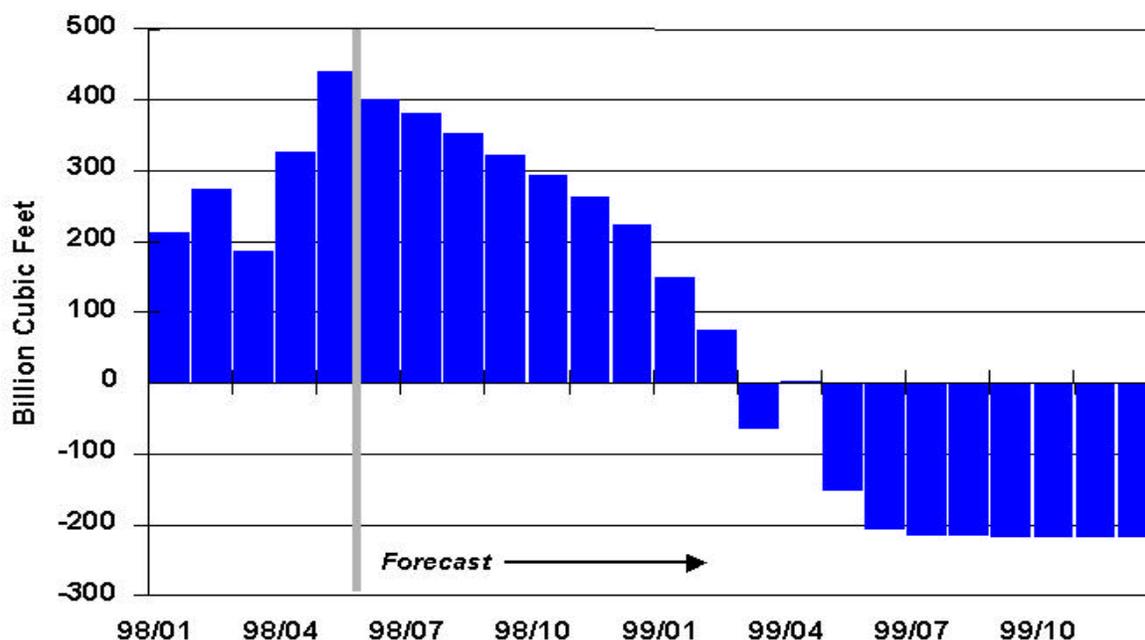
Total natural gas in underground storage ended the heating season well ahead of last year's level, and is expected to remain ahead through the end of 1998. Gas storage levels are estimated to have been over 400 billion cubic feet higher at the end of June than they were a year ago (Figure 20), with each of the three gas consuming and producing regions holding more gas in storage than they did a year ago.

Despite the large increase in drilling activity in 1997 to the highest levels since 1990 and relatively higher wellhead prices, U.S. gas production is expected to rise by about 1.2 percent in 1998 from 1997 levels, reflecting both the demand limitations, and the higher storage levels. High decline rates for some recent wells, particularly in the Outer Continental Shelf of the Gulf of Mexico, indicate a need for continued high levels of drilling to maintain current levels of production. On the other hand, given the current demand outlook and the high levels of gas in storage, little need for additional production is seen, at least for this year.   Dry gas production growth in 1999 is expected to remain at about the 1998 rate.

Net imports of natural gas are expected to increase by 4.2 percent in 1998 and by 6.5 percent in 1999, a significant reduction from previous *Outlooks*. The generally weaker demand outlook has forced a downward revision in expected import requirements.   A total of about 1.6 billion cubic feet per day of increased

Canadian export pipeline capacity is expected to be added in these years. Almost 1 billion cubic feet per day is expected to be added this November to Canadian gas export capacity when the 700 million cubic feet per day Northern Border Pipeline Co. to the U.S. Midwest and the 400 million cubic feet per day TransCanada Pipeline expansions come on-line. In 1999, another 450 million cubic feet per day of Canadian pipeline capacity to the U.S. Northeast is expected. Also, higher Algerian LNG exports to the U.S. are expected starting in 1998, as renovations of Algerian gas liquefaction plants were completed late last year.

U.S. Coal Demand and Supply

Figure 21. Annual Change in U.S. Coal Demand
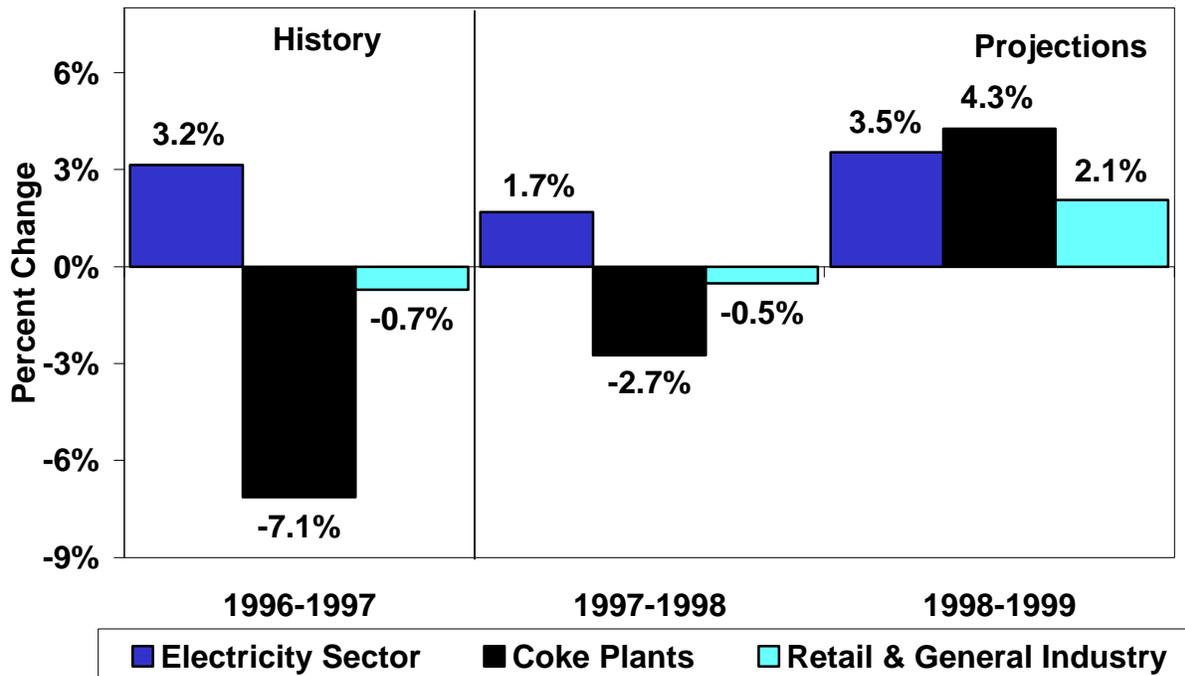
Total coal demand is expected to increase by 1.5 percent in 1998 and by 3.4 percent in 1999, compared to 2.4 percent growth in 1997 (Table 9 and Figure 21). Coal demand by the electricity sector (including independent power producers) grew by 3.2 percent to a record 925 million short tons in 1997, despite weak electricity demand growth of about 0.6 percent. Declines in nuclear generation (6.8 percent) were largely responsible for the rise in coal consumed for power generation in 1997. Growth in electricity demand (2.0 percent in 1998 and 2.1 percent in 1999), combined with assumed declines in hydroelectric generation, will spur the continued growth in coal demand by the electricity sector.   The

electric sector currently consumes nearly 90 percent (89.7 percent in 1997) of all coal used in the United States.

Coal carbonized (consumed) by coke plants fell 7.1 percent in 1997 to 29.4 million short tons. Demand for coal at coke plants is expected to remain below 30 million short tons throughout the forecast period, primarily as a result of coking plant capacity constraints. There are currently 26 coke plants operating in the United States, compared with 34 operating units at the end of 1990 and 65 at the end of 1970. The growth of coke plant coal consumption is also hindered by 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 4.6 percent in 1997, accounting for 43 percent of all raw steel produced in the United States. Coal-based raw steel production grew by 1.2 percent in 1997.

Demand for coal by the retail and general industry sectors is projected at 76.0 million short tons in 1998, a 0.5 percent increase from 1997 demand. In 1999, demand is expected to be 77.6 million short tons.

U.S. coal exports are expected to decline for a second straight year in 1998, but exports will rebound in 1999. Exports are projected to be 81.9 million short tons in 1998 (a 2.0 percent decrease) and 82.8 million short tons in 1999 (Table 9).

A record 1,088.6 million short tons of coal was produced in 1997. Production is expected to grow by 1.9 percent in 1998, with annual output exceeding 1,109 million short tons. Production is projected to grow an additional 3.0 percent in 1999. Production in the Western region should continue to rise significantly over the forecast period (6.0 percent in 1998 and 5.9 percent in 1999). The Western region is expected to become the nation's largest coal producer in 1998 supplanting the Appalachian region. Production in the Appalachian (in 1998) and Interior regions is projected to decline over the forecast period.

U.S. Electricity Demand and Supply

Figure 22. Electricity Demand Forecast Revisions (Current vs. June 1998 Forecast)
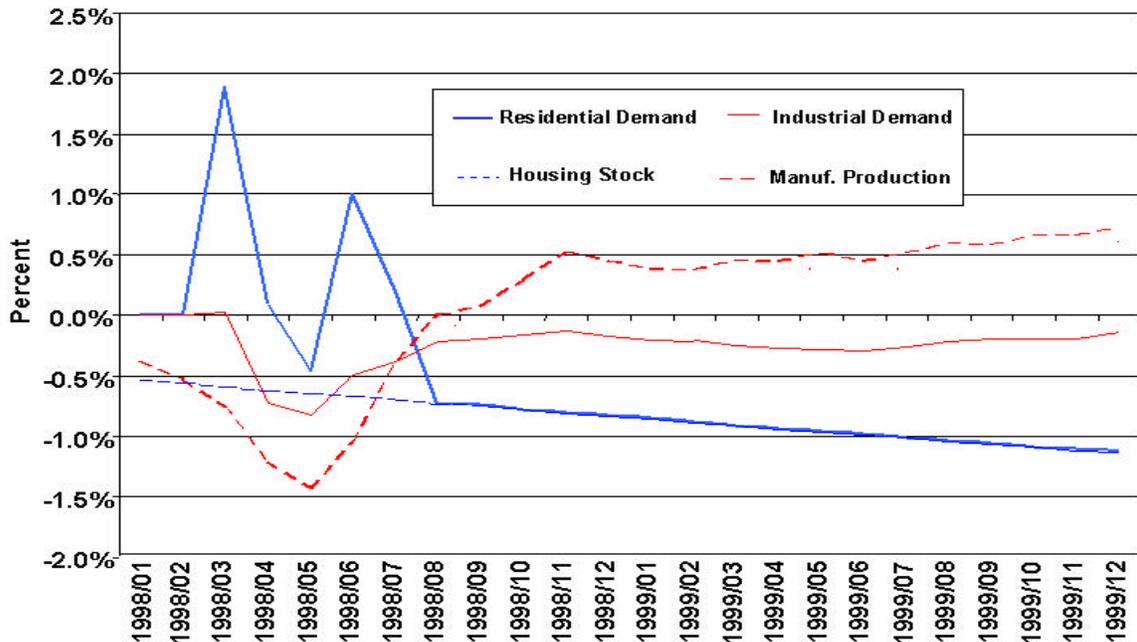
Total electricity demand growth for 1998 is now expected to be 2.0 percent, a slight downward revision from the 2.1 percent growth projected last month. This is due mainly to downward revisions to both residential and industrial demand for electricity (Figure 22 and Table 10). This decrease is due to the revised macroeconomic forecasts used in this *Outlook*. Industrial output growth is expected to be somewhat slower than previously predicted this year, although improvement in 1999 should make up for the slower growth in 1998. Increases in the housing stock have been reduced for 1998 and 1999, reducing expected overall residential electricity demand growth. Still, electricity sales growth is expected to increase in 1998 and 1999, led particularly by the residential and commercial sectors, compared to the weak annual growth rate of 0.6 percent seen in 1997 (Figure 23). This expectation is largely based on the presumption of normal weather throughout the rest of the forecast.

In 1998, nuclear generation is forecast to recover from its decline in 1997, as many of the downed nuclear plants go back on line. Other fuel sources, including coal, oil, and natural gas, are projected to rise significantly in 1998 and 1999, as hydroelectric generation returns to normal from the unusual peaks seen since 1996 (Figure 24). Problems with coal transport by train, which resulted in lower-than-usual coal stocks at utilities in Texas in 1997, have not been fully resolved to date. A continuation of the high levels of cooling demand that have characterized the late spring and early summer of this year, particularly across

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the southern United States, could test the adequacy of coal stocks at utilities and may be the one development that brings some strength to the gas market in 1998.

Figure 23. Electricity Sales Growth Summary (Percent Change from Previous year)
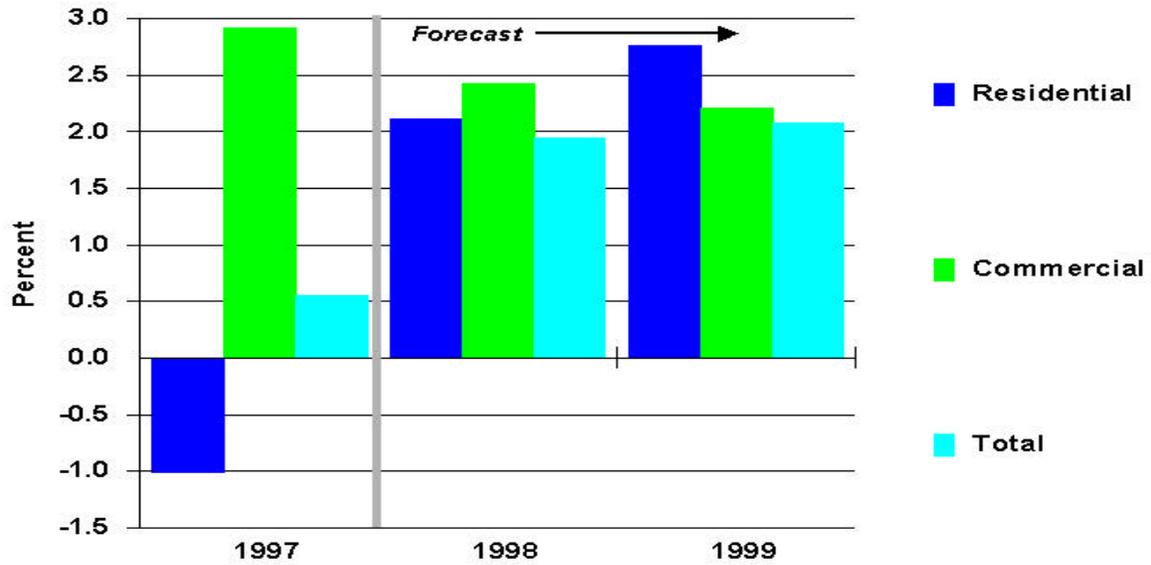
Figure 24. Electricity Generation Patterns (Percent Change from Previous year)
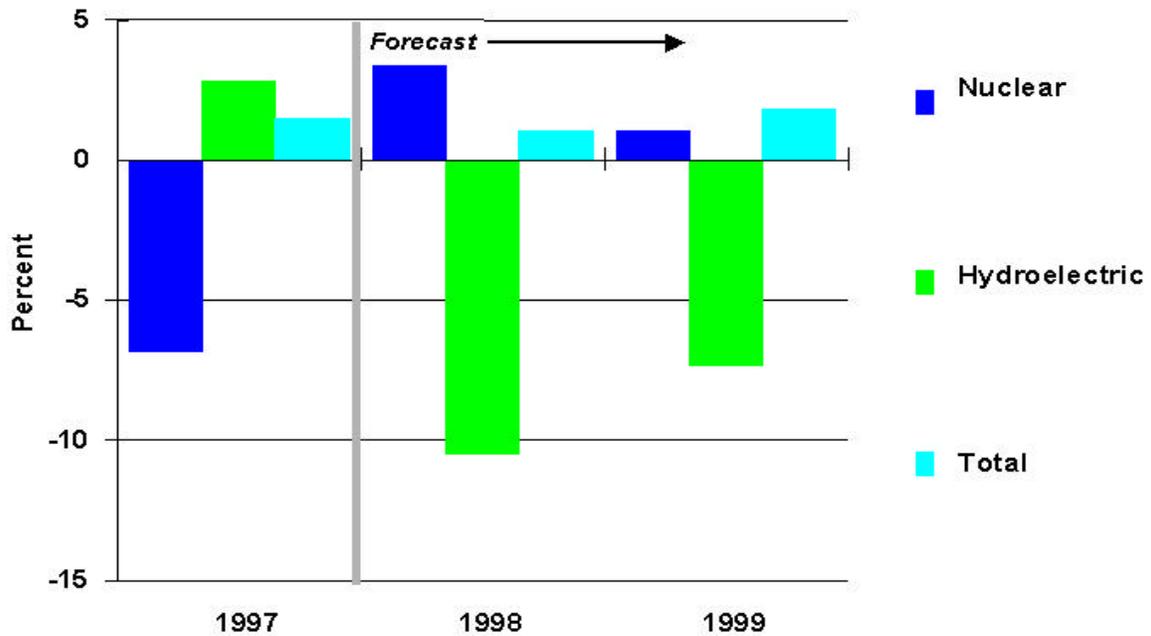
U.S. Renewable Energy Demand

Figure 25. Renewable Energy Use for Electricity
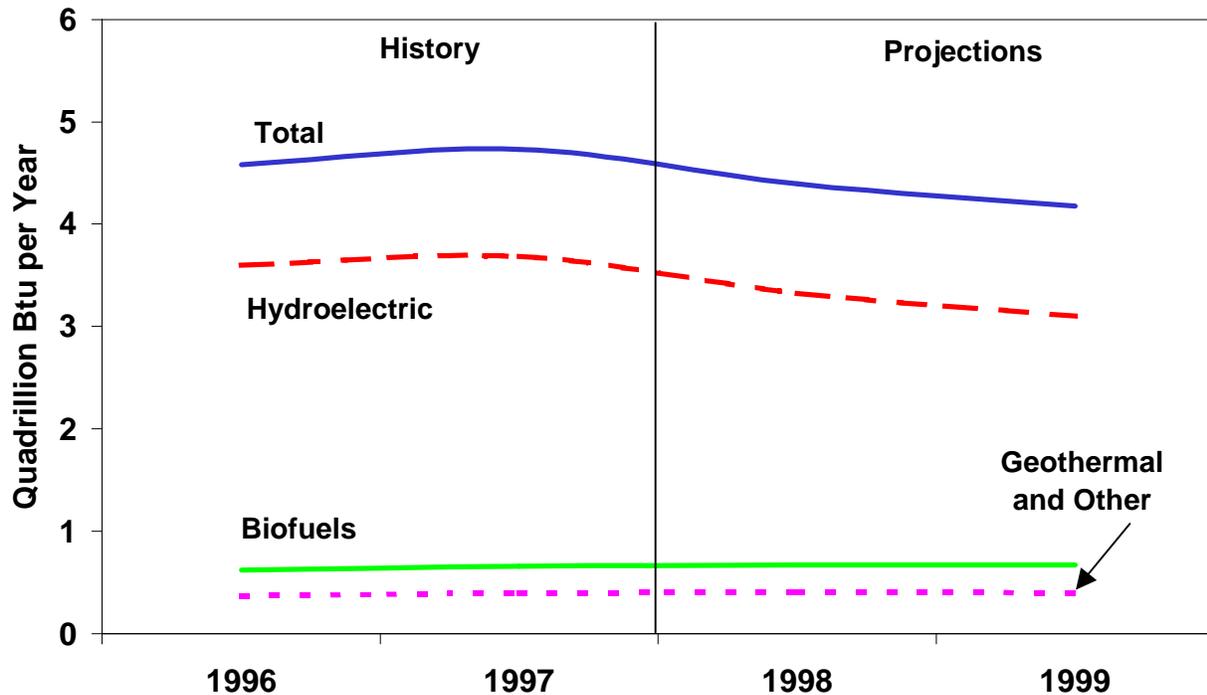
Renewable energy use in the United States amounted to about 7.2 quadrillion Btu (quads), or about 7.8 percent of total domestic gross energy demand, in 1997 (Tables HL1 and 11). In 1998, use of renewables is expected to decrease by about 4.4 percent due to a decline in hydroelectric generation. In 1999, renewables use is expected to decrease further by an annual average of 2.6 percent, as hydroelectric availability continues to decline to more normal levels due to the assumption of normal rain and snowfall for the remainder of the forecast period.

More than half of all renewable energy use measured by EIA is associated with the production of electricity. While the biggest component of electricity producers' use of renewables is hydroelectric power generated by electric utilities (Figure 25), a significant and growing portion of renewables use occurs at nonutility generating facilities.

Hydropower generation by electric utilities in 1998 and 1999 is expected to be lower than the abnormally high levels seen in 1996 and 1997 because of the assumption that weather will be normal. Less rain and snow fall leads to lower hydropower availability.

Most of the nonutility use of renewables involves biofuels, principally wood and wood by-products.

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 1997. This component is principally biofuels.

Figure 26. Renewable Energy Use by Sector
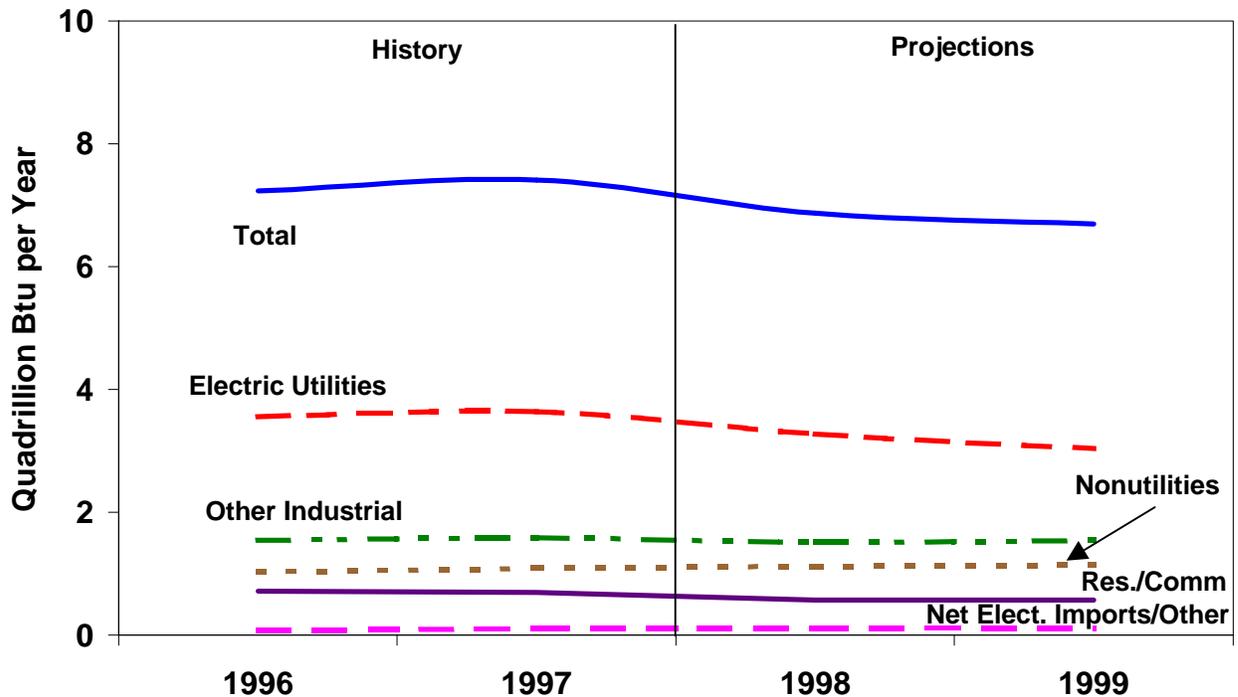
Renewables use in the combined residential and commercial sector, at about 0.6 quad in 1997 (Figure 26), generally accounts for about 8 percent of total domestic renewables demand (Table 11). Most of this energy is wood used for home heating, with only a very small amount having to do with solar hot water heating.

U.S. Energy Demand and Supply Sensitivities

Figure 27. Macro Sensitivities
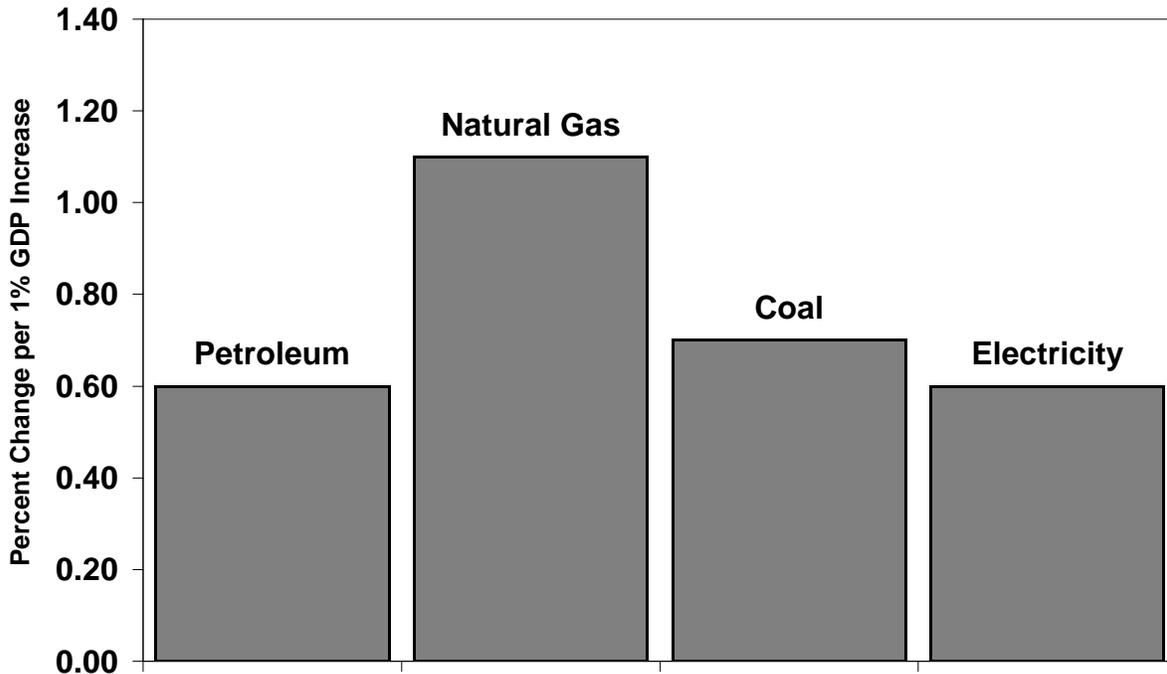
The petroleum demand and supply outlook for the mid-price case is based on assumed normal temperatures and GDP growth of 3.3 percent per year in 1998 and 2.1 percent in 1999. To enhance the usefulness of the mid-case forecasts, sensitivities of energy demand and supply are also derived, using alternative macroeconomic, price and weather assumptions. Plausible macroeconomic and weather-related petroleum demand sensitivities are illustrated in Figures 27 and 28 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 27). 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 28). 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.

Figure 28. Weather Sensitivities
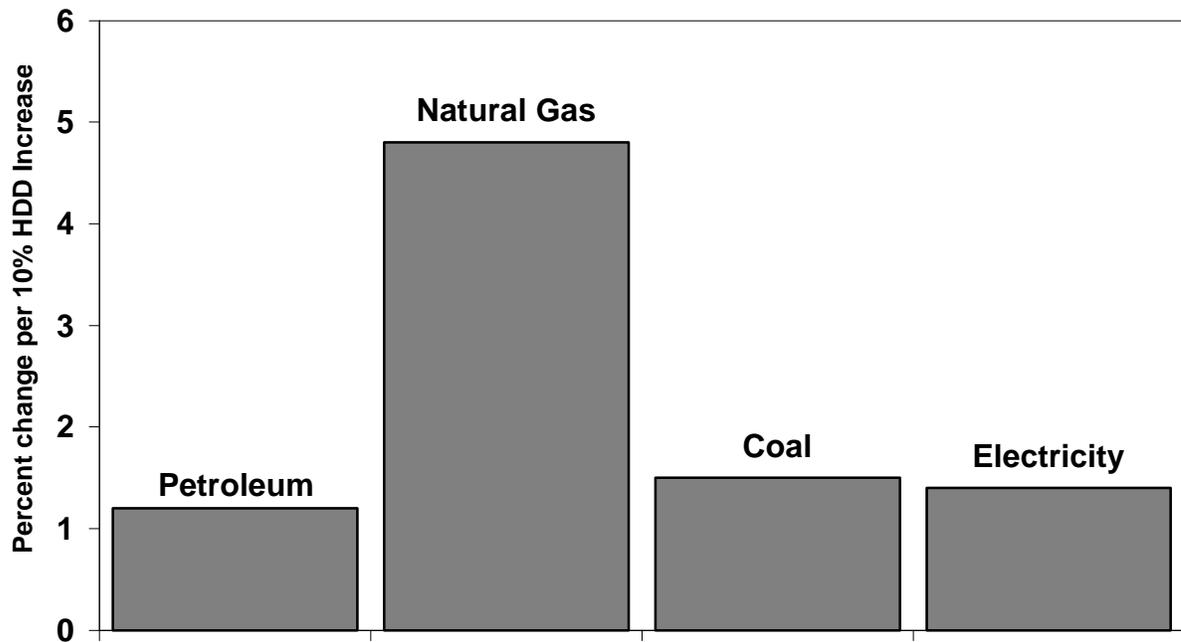
A 10 percent increase in cooling degree-days increases summer petroleum demand by about 0.1 percent, other fuels by 1.4 percent.

A $1-per-barrel increase in crude oil prices boosts domestic oil supply (crude oil and natural gas liquids production) by about 129,000 barrels per day.

Summary of Important Terms

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 prices for gasoline reported in the Short-term Energy outlook are derived from the Energy Information Administration (EIA) form EIA-878, "Motor Gasoline Price Survey." The two series are: 1) average retail price of regular unleaded motor gasoline, self-service; 2) average retail price for all grades of motor gasoline, self-service. Both price series are for cash transactions. The historical values for these prices are reported on Table 16 of EIA's *Weekly Petroleum Status Report.*

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 petroleum inventories or inventory changes are discussed. 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 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 1992). 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, doctor and dentist's 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. Includes estimates for renewable energy sources used in the residential, commercial and industrial sectors.

GEOGRAPHICAL

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.

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.

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.

Table 1. U.S. Macroeconomic and Weather Assumptions

	1997				1998				1999				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1997	1998	1
Macroeconomic [a]															
Real Gross Domestic Product (billion chained 1992 dollars - SAAR) ..	7102	7160	7218	7283	7366	7407	7445	7486	7513	7546	7597	7668	**7191**	*7426*	7
Percentage Change from Prior Year....	4.0	3.4	3.9	3.8	3.7	3.5	3.1	2.8	2.0	1.9	2.0	2.4	**3.8**	*3.3*	
Annualized Percent Change from Prior Quarter	4.8	3.3	3.2	3.6	4.5	2.2	2.1	2.2	1.5	1.8	2.7	3.7			
GDP Implicit Price Deflator (Index, 1992=1.000)..............................	1.118	1.123	1.127	1.131	1.133	1.138	1.144	1.149	1.155	1.160	1.165	1.170	**1.125**	*1.141*	
Percentage Change from Prior Year....	2.3	2.2	1.9	1.8	1.4	1.4	1.5	1.6	1.9	1.9	1.9	1.9	**2.0**	*1.5*	
Real Disposable Personal Income (billion chained 1992 Dollars - SAAR) .	5161	5201	5235	5292	5352	5383	5417	5453	5492	5529	5558	5594	**5222**	*5401*	
Percentage Change from Prior Year....	2.2	2.8	2.8	3.7	3.7	3.5	3.5	3.0	2.6	2.7	2.6	2.6	**2.9**	*3.4*	
Manufacturing Production (Index, 1992=1.000)..............................	1.243	1.257	1.276	1.301	1.308	1.310	1.328	1.339	1.342	1.350	1.361	1.377	**1.269**	*1.321*	
Percentage Change from Prior Year....	5.8	5.0	5.3	6.3	5.2	4.2	4.1	2.9	2.6	3.1	2.5	2.8	**5.6**	*4.1*	
OECD Economic Growth (percent) [b] ..													**3.1**	*2.7*	
Weather [c]															
Heating Degree-Days															
U.S...	2156	635	86	1674	1975	514	89	1636	2327	524	89	1636	**4551**	*4213*	
New England	3108	1047	172	2318	2779	859	171	2269	3267	915	171	2269	**6645**	*6078*	
Middle Atlantic.................................	2777	866	121	2052	2428	653	105	2026	2993	716	105	2026	**5816**	*5212*	
U.S. Gas-Weighted	2275	711	127	1773	2078	543	81	1686	2426	539	81	1686	**4886**	*4388*	
Cooling Degree-Days (U.S.)..............	50	289	754	62	24	367	758	72	30	334	758	72	**1155**	*1220*	

[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 CONTROL0698.

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

	1997				1998				1999				Year	
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1997	1998
Macroeconomic [a]														
Real Fixed Investment														
(billion chained 1992 dollars-SAAR).......	1079	1111	1148	1149	1200	*1224*	*1239*	*1253*	*1265*	*1277*	*1288*	*1305*	**1122**	*1229*
Real Exchange Rate														
(index)	1.085	1.096	1.106	1.117	1.138	*1.141*	*1.136*	*1.129*	*1.115*	*1.089*	*1.071*	*1.065*	**1.101**	*1.136*
Business Inventory Change														
(billion chained 1992 dollars-SAAR).......	20.9	29.0	16.9	22.3	38.3	*19.3*	*8.6*	*5.9*	*1.8*	*-2.5*	*-1.0*	*4.3*	**22.2**	*18.0*
Producer Price Index														
(index, 1982=1.000)	1.285	1.268	1.272	1.274	1.252	*1.250*	*1.255*	*1.261*	*1.265*	*1.268*	*1.270*	*1.274*	**1.275**	*1.255*
Consumer Price Index														
(index, 1982-1984=1.000)	1.597	1.601	1.609	1.618	1.619	*1.626*	*1.636*	*1.646*	*1.657*	*1.667*	*1.677*	*1.689*	**1.606**	*1.632*
Petroleum Product Price Index														
(index, 1982=1.000)	0.722	0.675	0.669	0.654	0.542	*0.512*	*0.517*	*0.522*	*0.536*	*0.544*	*0.548*	*0.550*	**0.680**	*0.523*
Non-Farm Employment														
(millions)	121.1	121.9	122.6	123.5	124.4	*125.0*	*125.7*	*126.3*	*126.7*	*127.1*	*127.5*	*128.2*	**122.3**	*125.3*
Commercial Employment														
(millions)	82.5	83.2	83.7	84.5	85.3	*85.9*	*86.6*	*87.2*	*87.6*	*88.0*	*88.4*	*89.0*	**83.5**	*86.3*
Total Industrial Production														
(index, 1992=1.000)	1.220	1.233	1.251	1.273	1.276	*1.279*	*1.295*	*1.305*	*1.308*	*1.316*	*1.326*	*1.341*	**1.244**	*1.289*
Housing Stock														
(millions)	112.1	112.5	112.9	113.3	113.0	*113.3*	*113.6*	*113.8*	*114.1*	*114.4*	*114.7*	*114.9*	**112.7**	*113.4*
Miscellaneous														
Gas Weighted Industrial Production														
(index, 1992=1.000)	1.140	1.152	1.155	1.169	1.179	*1.171*	*1.178*	*1.189*	*1.194*	*1.199*	*1.208*	*1.219*	**1.154**	*1.179*
Vehicle Miles Traveled [b]														
(million miles/day)...................................	6463	7138	7310	6824	6594	*7316*	*7516*	*7013*	*6743*	*7524*	*7691*	*7178*	**6936**	*7112*
Vehicle Fuel Efficiency														
(index, 1996=1.000)	1.038	0.997	0.993	1.002	1.034	*1.012*	*1.000*	*1.010*	*1.042*	*1.018*	*1.008*	*1.017*	**1.007**	*1.014*
Real Vehicle Fuel Cost														
(cents per mile)	3.94	3.73	3.70	3.72	3.35	*3.17*	*3.15*	*3.23*	*3.24*	*3.25*	*3.21*	*3.26*	**3.77**	*3.23*
Air Travel Capacity														
(mill. available ton-miles/day)	402.1	417.2	434.1	427.7	420.2	*439.8*	*462.7*	*447.8*	*430.3*	*456.2*	*476.3*	*465.2*	**420.4**	*442.8*
Aircraft Utilization														
(mill. revenue ton-miles/day)....................	230.5	248.0	260.7	247.2	235.6	*257.3*	*274.3*	*257.8*	*245.8*	*269.9*	*285.0*	*270.2*	**246.7**	*256.4*
Airline Ticket Price Index														
(index, 1982-1984=1.000)	1.975	2.016	1.985	1.993	2.058	*2.093*	*2.095*	*2.122*	*2.156*	*2.167*	*2.174*	*2.205*	**1.992**	*2.092*
Raw Steel Production														
(millions tons)..	26.47	26.59	26.52	27.31	28.44	*27.18*	*26.35*	*26.99*	*28.36*	*28.25*	*27.98*	*28.74*	**106.60**	*108.96*

[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
Atmospheric Administration; Federal Reserve System, *Statistical Release* G.17(419); U.S. Department of Transportation; American Iron and Steel Institute. Macroeconor
projections are based on DRI/McGraw-Hill Forecast CONTROL0698.

Table 3. International Petroleum Supply and Demand: Mid World Oil Price Case

(Million Barrels per Day, Except OECD Commercial Stocks)

	1997				1998				1999				Year	
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1997	1998
Demand [a]														
OECD														
U.S. (50 States)...	18.3	18.5	18.7	19.0	18.3	*18.6*	*19.1*	*19.3*	*19.0*	*18.9*	*19.4*	*19.5*	18.6	*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*
Canada..	1.8	1.8	1.9	1.9	1.8	*1.9*	*2.0*	*2.0*	*1.9*	*2.0*	*2.1*	*2.0*	1.9	*1.9*
Europe..	14.3	14.2	14.4	14.8	14.6	*14.3*	*14.6*	*14.9*	*14.8*	*14.6*	*14.8*	*15.2*	14.4	*14.6*
Japan..	6.4	5.2	5.4	5.9	6.2	*5.1*	*5.3*	*5.8*	*6.2*	*5.1*	*5.3*	*5.9*	5.7	*5.6*
Australia and New Zealand......................	0.9	0.9	0.9	1.0	0.9	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	0.9	*1.0*
Total OECD..	41.9	40.8	41.6	42.7	42.1	*41.1*	*42.2*	*43.1*	*43.1*	*41.7*	*42.8*	*43.8*	41.7	*42.1*
Non-OECD														
Former Soviet Union	4.7	4.2	4.2	4.6	4.9	*4.4*	*4.4*	*4.8*	*5.1*	*4.6*	*4.6*	*5.0*	4.4	*4.6*
Europe	1.5	1.3	1.3	1.4	1.6	*1.4*	*1.4*	*1.5*	*1.7*	*1.4*	*1.4*	*1.6*	1.4	*1.5*
China	3.8	3.9	3.9	4.0	4.0	*4.1*	*4.1*	*4.2*	*4.3*	*4.4*	*4.4*	*4.5*	3.9	*4.1*
Other Asia	8.8	8.6	8.3	9.5	8.6	*8.4*	*8.3*	*9.6*	*8.7*	*8.6*	*8.5*	*9.9*	8.8	*8.7*
Other Non-OECD	12.8	13.1	12.8	13.1	13.2	*13.6*	*13.2*	*13.5*	*13.6*	*14.0*	*13.7*	*13.9*	13.0	*13.4*
Total Non-OECD	31.6	31.1	30.6	32.6	32.3	*31.9*	*31.4*	*33.5*	*33.3*	*32.9*	*32.6*	*34.9*	31.4	*32.3*
Total World Demand......................................	73.5	71.8	72.2	75.3	74.3	*72.9*	*73.6*	*76.7*	*76.4*	*74.6*	*75.4*	*78.7*	73.2	*74.4*
Supply [b]														
OECD														
U.S. (50 States)...	9.4	9.5	9.5	9.5	9.5	*9.4*	*9.4*	*9.4*	*9.4*	*9.3*	*9.4*	*9.4*	9.5	*9.4*
Canada..	2.6	2.5	2.6	2.7	2.7	*2.7*	*2.7*	*2.7*	*2.7*	*2.7*	*2.8*	*2.8*	2.6	*2.7*
North Sea [c]	6.5	6.1	6.0	6.5	6.4	*6.3*	*6.3*	*6.6*	*6.8*	*6.6*	*6.9*	*7.2*	6.2	*6.4*
Other OECD..	1.6	1.6	1.6	1.6	1.6	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	*1.7*	1.6	*1.7*
Total OECD..	20.1	19.6	19.7	20.3	20.2	*20.0*	*20.1*	*20.4*	*20.6*	*20.4*	*20.8*	*21.1*	19.9	*20.2*
Non-OECD														
OPEC	29.5	29.7	30.1	30.3	30.8	*30.2*	*29.4*	*29.8*	*29.9*	*29.9*	*30.2*	*30.5*	29.9	*30.0*
Former Soviet Union	7.0	7.1	7.2	7.2	7.3	*7.3*	*7.3*	*7.3*	*7.3*	*7.4*	*7.4*	*7.4*	7.1	*7.3*
China	3.2	3.2	3.2	3.1	3.2	*3.2*	*3.2*	*3.2*	*3.3*	*3.3*	*3.3*	*3.3*	3.2	*3.2*
Mexico	3.4	3.4	3.5	3.5	3.6	*3.5*	*3.3*	*3.4*	*3.5*	*3.5*	*3.5*	*3.5*	3.4	*3.4*
Other Non-OECD	10.4	10.5	10.4	10.5	10.6	*10.7*	*10.8*	*11.0*	*11.1*	*11.3*	*11.4*	*11.6*	10.4	*10.8*
Total Non-OECD	53.5	53.9	54.3	54.7	55.4	*54.8*	*54.0*	*54.6*	*55.0*	*55.3*	*55.6*	*56.2*	54.1	*54.7*
Total World Supply..	73.6	73.5	74.0	75.0	75.6	*74.9*	*74.1*	*75.0*	*75.6*	*75.7*	*76.4*	*77.3*	74.0	*74.9*
Stock Changes														
Net Stock Withdrawals or Additions (-)														
U.S. (50 States including SPR)	0.0	-0.7	-0.2	0.4	-0.3	*-0.6*	*0.0*	*0.7*	*0.4*	*-0.5*	*-0.3*	*0.5*	-0.1	*-0.1*
Other..	-0.1	-1.0	-1.6	-0.1	-0.9	*-1.4*	*-0.5*	*1.0*	*0.4*	*-0.6*	*-0.8*	*0.8*	-0.7	*-0.4*
Total Stock Withdrawals	-0.1	-1.7	-1.8	0.3	-1.3	*-1.9*	*-0.5*	*1.7*	*0.8*	*-1.1*	*-1.1*	*1.4*	-0.8	*-0.5*
OECD Comm. Stocks, End (bill. bbls.)	2.7	2.7	2.8	2.7	2.8	*2.9*	*2.9*	*2.8*	*2.8*	*2.8*	*2.9*	*2.8*	2.7	*2.8*
Non-OPEC Supply...	44.1	43.9	43.9	44.6	44.8	*44.7*	*44.7*	*45.3*	*45.7*	*45.8*	*46.2*	*46.8*	44.1	*44.9*
Net Exports from Former Soviet Union	2.3	2.9	3.0	2.6	2.4	*2.9*	*2.9*	*2.5*	*2.2*	*2.8*	*2.8*	*2.4*	2.7	*2.7*

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[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 Month* DOE/EIA-0109. Demand for petroleum by the non-OECD countries is "apparent consumption," which includes internal consumption, refinery fuel and loss, and bunkeri

[b]Includes production of crude oil (including lease condensates), natural gas plant liquids, other hydrogen and hydrocarbons for refinery feedstocks, refinery gains, alc 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, Irela Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States. Mexico is a member, but is not yet included in OECD data.

  OPEC: Organization of Petroleum Exporting Countries: Algeria, 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, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russia, Tajikistan, Turkmenistan, Ukrain 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 w 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)

	1997 1st	2nd	3rd	4th	1998 1st	2nd	3rd	4th	1999 1st	2nd	3rd	4th	Year 1997	1998
Imported Crude Oil [a] (dollars per barrel)	21.04	17.93	17.81	17.78	13.43	12.51	12.50	12.74	13.08	13.67	13.58	14.00	**18.57**	12.78
Natural Gas Wellhead (dollars per thousand cubic feet)	2.49	1.84	2.02	2.54	1.80	2.06	2.12	2.43	2.33	2.03	2.09	2.39	**2.23**	2.10
Petroleum Products														
Gasoline Retail [b] (dollars per gallon)														
All Grades	1.27	1.24	1.25	1.21	1.10	1.09	1.10	1.08	1.09	1.15	1.15	1.13	**1.24**	1.09
Regular Unleaded	1.22	1.20	1.21	1.17	1.05	1.05	1.04	1.02	1.02	1.08	1.08	1.05	**1.20**	1.04
No. 2 Diesel Oil, Retail (dollars per gallon)	1.25	1.18	1.15	1.17	1.08	1.05	1.03	1.07	1.06	1.07	1.06	1.11	**1.19**	1.05
No. 2 Heating Oil, Wholesale (dollars per gallon)	0.65	0.57	0.54	0.57	0.47	0.42	0.42	0.47	0.50	0.48	0.49	0.52	**0.59**	0.45
No. 2 Heating Oil, Retail (dollars per gallon)	1.05	0.97	0.88	0.93	0.91	0.85	0.76	0.83	0.89	0.86	0.82	0.89	**0.99**	0.87
No. 6 Residual Fuel Oil, Retail [c] (dollars per barrel)	19.00	16.84	17.04	18.16	13.56	12.38	11.79	13.12	13.28	12.91	12.49	14.04	**17.80**	12.71
Electric Utility Fuels														
Coal (dollars per million Btu)	1.29	1.28	1.26	1.26	1.26	1.27	1.25	1.25	1.25	1.26	1.24	1.23	**1.27**	1.26
Heavy Fuel Oil [d] (dollars per million Btu)	2.91	2.59	2.71	2.92	2.10	1.98	1.93	2.15	2.14	2.11	2.04	2.30	**2.79**	2.03
Natural Gas (dollars per million Btu)	3.10	2.46	2.60	3.15	2.58	2.53	2.55	2.85	2.91	2.58	2.58	2.92	**2.76**	2.61
Other Residential														
Natural Gas (dollars per thousand cubic feet)	6.70	6.95	8.67	6.83	6.36	6.73	8.10	6.57	6.63	7.24	8.36	6.75	**6.93**	6.63
Electricity (cents per kilowatthour)	8.04	8.69	8.79	8.31	7.93	8.45	8.68	8.22	7.85	8.47	8.73	8.24	**8.46**	8.33

[a] Refiner acquisition cost (RAC) of imported crude oil.
[b] Average self-service cash prices.
[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 first quarter of 1998. 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)

	1997				1998				1999				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1997	1998	1999
Supply															
Crude Oil Supply															
Domestic Production [a]	6.45	6.45	6.41	6.49	6.48	6.40	6.39	6.41	6.35	6.30	6.29	6.37	6.45	6.42	6.33
Alaska	1.36	1.30	1.24	1.28	1.23	1.16	1.15	1.23	1.23	1.19	1.16	1.19	1.30	1.19	1.19
Lower 48	5.09	5.15	5.18	5.20	5.25	5.24	5.24	5.18	5.12	5.11	5.13	5.18	5.16	5.23	5.14
Net Imports (including SPR) [b]	7.40	8.41	8.44	8.21	7.81	8.60	8.34	8.00	7.78	8.56	8.80	8.33	8.12	8.19	8.37
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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
Other Stock Withdrawn or Added (-)	-0.33	-0.08	0.18	-0.01	-0.35	-0.08	0.12	0.07	-0.03	0.01	0.08	0.02	-0.06	-0.06	0.02
Product Supplied and Losses	0.00	0.00	0.00	0.00	0.00	0.00	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0.00	0.00	-0.00
Unaccounted-for Crude Oil	0.19	0.09	0.15	0.15	0.38	0.30	0.29	0.28	0.27	0.29	0.29	0.28	0.14	0.31	0.29
Total Crude Oil Supply	13.74	14.87	15.19	14.83	14.32	15.22	15.13	14.75	14.37	15.15	15.46	15.00	14.66	14.86	15.0
Other Supply															
NGL Production	1.84	1.82	1.83	1.77	1.85	1.85	1.84	1.82	1.86	1.85	1.84	1.83	1.82	1.84	1.84
Other Hydrocarbon and Alcohol Inputs	0.31	0.34	0.36	0.36	0.34	0.32	0.34	0.35	0.36	0.34	0.35	0.36	0.34	0.34	0.35
Crude Oil Product Supplied	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.01
Processing Gain	0.79	0.84	0.87	0.90	0.83	0.86	0.87	0.84	0.80	0.86	0.88	0.85	0.85	0.85	0.85
Net Product Imports [c]	1.33	1.23	0.86	0.75	0.93	0.86	1.07	0.91	1.15	1.19	1.15	0.98	1.04	0.94	1.12
Product Stock Withdrawn or Added (-) [d]	0.25	-0.62	-0.37	0.36	0.03	-0.49	-0.13	0.59	0.45	-0.48	-0.35	0.50	-0.09	0.00	0.03
Total Supply	18.27	18.49	18.75	18.97	18.30	18.63	19.13	19.27	19.00	18.92	19.35	19.54	18.62	18.84	19.2
Demand															
Motor Gasoline	7.59	8.16	8.25	8.06	7.77	8.24	8.42	8.22	7.88	8.43	8.55	8.36	8.02	8.16	8.31
Jet Fuel	1.57	1.56	1.64	1.62	1.55	1.58	1.68	1.69	1.60	1.62	1.70	1.72	1.60	1.63	1.66
Distillate Fuel Oil	3.58	3.33	3.24	3.60	3.58	3.40	3.37	3.61	3.86	3.46	3.41	3.67	3.44	3.49	3.60
Residual Fuel Oil	0.89	0.76	0.77	0.77	0.81	0.84	0.84	0.86	0.95	0.82	0.82	0.85	0.80	0.84	0.86
Other Oils [e]	4.64	4.67	4.85	4.93	4.62	4.56	4.82	4.89	4.71	4.60	4.87	4.95	4.77	4.72	4.78
Total Demand	18.27	18.49	18.75	18.97	18.32	18.62	19.13	19.27	19.00	18.92	19.35	19.54	18.62	18.84	19.2
Total Petroleum Net Imports	8.73	9.64	9.31	8.96	8.74	9.46	9.41	8.91	8.93	9.76	9.96	9.31	9.16	9.13	9.49
Closing Stocks (million barrels)															
Crude Oil (excluding SPR)	313	320	304	305	336	343	332	326	329	328	320	318	305	326	318
Total Motor Gasoline	200	204	198	210	215	222	210	206	210	204	202	200	210	206	200
Finished Motor Gasoline	154	164	158	166	166	175	163	161	165	162	161	159	166	161	159
Blending Components	46	41	41	43	49	47	46	44	45	42	42	41	43	44	41
Jet Fuel	39	43	46	44	43	43	42	41	44	44	46	45	44	41	45
Distillate Fuel Oil	101	118	139	138	124	132	142	138	100	112	129	132	138	138	132
Residual Fuel Oil	41	39	35	40	41	41	38	42	36	39	39	42	40	42	42
Other Oils [e]	253	286	308	259	265	295	313	265	261	296	310	261	259	265	261
Total Stocks (excluding SPR)	948	1011	1029	996	1025	1077	1077	1018	979	1022	1046	998	996	1018	998
Crude Oil in SPR	563	563	563	563	563	563	563	563	563	563	563	563	563	563	563
Total Stocks (including SPR)	1512	1575	1592	1560	1588	1640	1641	1581	1543	1585	1610	1561	1560	1581	156

[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

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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..	6.71	5.87	0.85	0.11	0.74
Lower 48 States...	5.49	4.71	0.79	0.08	0.71
Alaska..	1.22	1.16	0.06	0.03	0.03

Note: Components provided are for the fourth quarter 1999. 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)

	1997				1998				1999				Year	
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1997	1998
Supply														
Total Dry Gas Production..............	4.73	4.70	4.72	4.79	4.78	*4.75*	*4.78*	*4.85*	*4.84*	*4.81*	*4.84*	*4.91*	**18.93**	*19.16*
Net Imports....................................	0.74	0.68	0.68	0.73	0.75	*0.71*	*0.71*	*0.78*	*0.79*	*0.76*	*0.77*	*0.83*	**2.83**	*2.95*
Supplemental Gaseous Fuels	0.03	0.03	0.02	0.03	0.03	*0.03*	*0.03*	*0.03*	*0.04*	*0.03*	*0.03*	*0.03*	**0.12**	*0.12*
Total New Supply	5.50	5.40	5.43	5.55	5.57	*5.48*	*5.52*	*5.66*	*5.66*	*5.60*	*5.63*	*5.77*	**21.88**	*22.23*
Underground Working Gas Storage														
Opening..	6.51	5.34	6.09	7.03	6.52	*5.52*	*6.49*	*7.35*	*6.74*	*5.46*	*6.28*	*7.13*	**6.51**	*6.52*
Closing	5.34	6.09	7.03	6.52	5.52	*6.49*	*7.35*	*6.74*	*5.46*	*6.28*	*7.13*	*6.52*	**6.52**	*6.74*
Net Withdrawals........................	1.18	-0.75	-0.95	0.51	1.00	*-0.96*	*-0.87*	*0.61*	*1.28*	*-0.82*	*-0.85*	*0.61*	**-0.01**	*-0.22*
Total Supply	6.68	4.65	4.49	6.07	6.57	*4.52*	*4.65*	*6.27*	*6.95*	*4.78*	*4.78*	*6.39*	**21.88**	*22.01*
Balancing Item [a]	0.20	0.19	0.05	-0.33	-0.02	*0.34*	*-0.19*	*-0.49*	*0.37*	*0.20*	*-0.17*	*-0.48*	**0.11**	*-0.36*
Total Primary Supply	6.88	4.84	4.54	5.74	6.55	*4.86*	*4.46*	*5.78*	*7.32*	*4.97*	*4.61*	*5.91*	**21.99**	*21.65*
Demand														
Lease and Plant Fuel....................	0.31	0.31	0.31	0.31	0.31	*0.31*	*0.31*	*0.32*	*0.32*	*0.31*	*0.32*	*0.32*	**1.25**	*1.26*
Pipeline Use	0.22	0.16	0.15	0.19	0.21	*0.16*	*0.14*	*0.19*	*0.23*	*0.16*	*0.15*	*0.19*	**0.71**	*0.70*
Residential....................................	2.28	0.88	0.38	1.47	2.11	*0.87*	*0.38*	*1.42*	*2.47*	*0.87*	*0.39*	*1.43*	**5.01**	*4.77*
Commercial	1.27	0.64	0.45	0.92	1.22	*0.64*	*0.44*	*0.93*	*1.44*	*0.66*	*0.45*	*0.95*	**3.28**	*3.23*
Industrial (Incl. Cogenerators)	2.28	2.08	2.06	2.17	2.16	*2.04*	*2.02*	*2.27*	*2.32*	*2.10*	*2.09*	*2.35*	**8.59**	*8.49*
Cogenerators............................	0.53	0.57	0.57	0.64	0.58	*0.55*	*0.60*	*0.68*	*0.60*	*0.57*	*0.62*	*0.70*	**2.31**	*2.41*
Electricity Production														
Electric Utilities............................	*0.47*	*0.72*	*1.15*	*0.62*	0.50	*0.80*	*1.11*	*0.59*	*0.50*	*0.82*	*1.17*	*0.60*	**2.97**	*3.00*
Nonutilities (Excl. Cogen.)	0.04	0.04	0.05	0.05	0.05	*0.04*	*0.05*	*0.05*	*0.05*	*0.05*	*0.05*	*0.06*	**0.18**	*0.19*
Total Demand................................	6.88	4.84	4.54	5.74	6.55	*4.86*	*4.46*	*5.78*	*7.32*	*4.97*	*4.61*	*5.91*	**21.99**	*21.65*

[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 b 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 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 w 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/E 0130; *Electric Power Monthly*, DOE/EIA-0226; Projections: Energy Information Administration, Short-Term Integrated Forecasting System database, and Office of Oil ar Gas, Reserves and Natural Gas Division.

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

	1997				1998				1999				Year	
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1997	1998
Supply														
Production	273.9	269.7	271.3	273.7	279.2	269.3	279.4	281.8	294.2	277.4	281.7	289.7	1088.6	1109.7
Appalachia	119.0	117.8	112.0	115.9	119.1	113.8	112.9	117.5	123.6	115.1	111.5	118.8	464.7	463.3
Interior..	42.9	41.4	44.4	43.6	41.0	39.6	43.9	43.1	42.8	39.1	42.4	42.4	172.3	167.5
Western..	112.0	110.5	114.9	114.2	119.1	115.9	122.6	121.2	127.8	123.2	127.7	128.5	451.6	478.8
Primary Stock Levels [a]														
Opening......................................	28.6	37.5	42.5	39.1	32.9	37.5	37.2	34.2	32.9	39.9	40.3	34.1	28.6	32.9
Closing..	37.5	42.5	39.1	32.9	37.5	37.2	34.2	32.9	39.9	40.3	34.1	33.0	32.9	32.9
Net Withdrawals	-8.9	-5.0	3.4	6.2	-4.7	0.3	3.0	1.2	-6.9	-0.4	6.2	1.1	-4.2	-0.1
Imports..	1.3	1.7	2.2	2.2	1.8	2.0	1.8	1.8	1.8	1.8	1.8	1.8	7.5	7.5
Exports	20.0	20.6	22.4	20.6	18.3	20.6	21.6	21.5	20.1	20.7	21.0	20.9	83.5	81.9
Total Net Domestic Supply	246.4	245.8	254.6	261.6	258.1	251.1	262.7	263.3	269.0	258.1	268.7	271.7	1008.3	1035.1
Secondary Stock Levels [b]														
Opening......................................	123.0	120.6	128.8	110.8	106.8	114.1	119.0	105.4	106.9	107.3	113.1	99.5	123.0	106.8
Closing..	120.6	128.8	110.8	106.8	114.1	119.0	105.4	106.9	107.3	113.1	99.5	103.7	106.8	106.9
Net Withdrawals	2.5	-8.2	18.1	3.9	-7.3	-4.8	13.6	-1.5	-0.4	-5.9	13.6	-4.2	16.2	0.0
Waste Coal Supplied to IPPs [c]	2.3	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.6	9.4	10.0
Total Supply....................................	251.2	239.9	275.0	267.8	253.3	248.7	278.8	264.3	271.3	254.9	285.0	270.2	1033.9	1045.1
Demand														
Coke Plants	7.6	7.4	7.9	6.6	6.9	6.9	7.2	7.7	7.6	7.4	7.3	7.6	29.4	28.6
Electricity Production														
Electric Utilities	219.0	208.2	244.0	230.5	220.5	217.7	247.5	230.0	236.5	222.8	253.0	235.1	901.7	915.7
Nonutilities (Excl. Cogen.) [d]	5.9	5.9	5.9	5.9	6.3	6.2	6.3	6.3	6.6	6.6	6.6	6.6	23.5	25.0
Retail and General Industry [e]	20.0	18.2	17.9	20.2	19.9	17.9	17.8	20.4	20.6	18.1	18.1	20.8	76.4	76.0
Total Demand	252.5	239.6	275.7	263.2	253.6	248.7	278.8	264.3	271.3	254.9	285.0	270.2	1031.0	1045.4
Discrepancy [f]	-1.4	0.3	-0.7	4.7	-0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	-0.3

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

[b] Secondary stocks are held by users.

[c] Estimated independent power producers (IPPs) consumption of waste coal for 1994 is 7.9 million tons, 8.5 million tons in 1995, and 8.9 million tons in 1996.

[d] Consumption of coal by 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 first quarter 1998 are estimates.

[e] 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.

[f] The discrepancy reflects an unaccounted-for shipper and receiver reporting difference, assumed to be zero in the forecast period.

(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)

	1997				1998				1999				Year		
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1997	1998	1!
Supply															
Net Utility Generation															
Coal...	434.1	413.9	480.9	458.9	437.0	433.7	490.5	456.1	471.0	443.5	501.3	466.1	1787.8	1817.4	18
Petroleum..	17.0	15.1	24.5	21.1	20.9	24.0	26.4	19.0	25.0	20.4	25.3	18.3	77.8	90.3	8
Natural Gas.....................................	45.0	69.5	109.9	59.2	47.9	77.1	107.0	56.8	48.0	78.9	112.4	58.0	283.6	288.8	2!
Nuclear..	159.9	144.0	171.0	153.6	162.6	151.1	176.7	159.2	166.9	151.5	177.8	160.3	628.6	649.7	6:
Hydroelectric...................................	94.2	95.9	77.5	69.6	86.7	84.0	67.1	64.0	73.9	77.3	64.3	64.1	337.2	301.8	2
Geothermal and Other [a]	1.6	1.8	2.0	2.0	1.9	1.8	1.9	1.9	1.8	1.7	1.8	1.8	7.5	7.4	
Subtotal.......................................	751.9	740.2	865.8	764.5	757.0	771.7	869.7	757.0	786.6	773.3	883.0	768.6	3122.5	3155.3	32
Nonutility Generation [b]															
Coal...	15.3	16.3	16.4	18.4	16.6	15.9	17.3	19.3	17.0	16.3	17.7	19.8	66.4	69.1	7
Petroleum..	4.0	4.2	4.2	4.7	4.4	4.2	4.6	5.1	4.7	4.5	4.9	5.5	17.1	18.4	1
Natural Gas.....................................	49.2	52.5	52.8	59.1	53.7	51.4	55.9	62.6	55.2	52.9	57.6	64.5	213.7	223.7	2:
Other Gaseous Fuels [c]	2.9	3.1	3.1	3.5	3.0	2.9	3.1	3.5	3.0	2.9	3.1	3.5	12.5	12.5	1
Hydroelectric...................................	3.9	4.2	4.2	4.7	4.4	4.2	4.5	5.1	4.6	4.4	4.7	5.3	17.1	18.2	1
Geothermal and Other [d]	19.0	20.3	20.4	22.9	20.3	19.4	21.2	23.7	20.5	19.6	21.3	23.9	82.6	84.6	8
Subtotal.......................................	94.3	100.6	101.2	113.3	102.3	98.0	106.7	119.4	104.9	100.5	109.4	122.5	409.4	426.4	4:
Total Generation.....................................	846.3	840.8	967.0	877.7	859.3	869.7	976.3	876.4	891.6	873.9	992.5	891.1	3531.8	3581.7	36
Net Imports [e]	7.5	8.9	11.8	8.3	5.8	9.3	12.2	8.0	7.2	9.2	11.7	7.9	36.6	35.3	:
Total Supply...	853.7	849.8	978.8	886.1	865.1	879.0	988.5	884.4	898.7	883.1	1004.2	899.1	3568.4	3617.0	36
Losses and Unaccounted for [f]	52.7	82.7	76.3	73.3	54.6	77.6	68.5	67.9	52.4	75.4	69.5	68.9	284.9	268.5	2
Demand															
Electric Utility Sales															
Residential..	276.7	226.2	309.9	258.8	275.8	248.8	315.5	254.1	295.8	247.8	321.4	259.2	1071.6	1094.1	11
Commercial	214.5	217.6	256.0	225.3	217.4	228.1	262.5	227.5	228.6	230.2	266.5	230.8	913.3	935.4	9:
Industrial	247.6	258.7	268.9	257.4	252.1	261.0	272.3	261.7	254.3	264.3	275.2	265.0	1032.5	1047.2	10
Other	23.5	23.2	26.2	24.6	23.7	23.8	26.4	24.7	25.0	24.5	27.1	25.4	97.5	98.6	1(
Subtotal...	762.2	725.7	860.9	766.1	769.0	761.7	876.7	768.0	803.7	766.8	890.3	780.4	3114.9	3175.4	32
Nonutility Gener. for Own Use [b]	38.8	41.4	41.7	46.6	41.5	39.8	43.3	48.5	42.6	40.9	44.5	49.8	168.6	173.1	1
Total Demand	801.0	767.1	902.6	812.7	810.5	801.5	920.0	816.5	846.3	807.6	934.7	830.2	3283.5	3348.5	34
Memo:															
Nonutility Sales to															
Electric Utilities [b]	55.5	59.2	59.5	66.6	60.7	58.2	63.3	70.9	62.3	59.7	65.0	72.7	240.8	253.2	2!

[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 generati 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 I 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 1997 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		
	1996	1997	1998	1999	1996-1997	1997-1998	1998-19
Electric Utilities							
Hydroelectric Power [a]	3.428	3.507	3.139	2.909	2.3	-10.5	-7.3
Geothermal, Solar and Wind Energy [b]	0.110	0.114	0.112	0.106	3.6	-1.8	-5.4
Biofuels [c]	0.020	0.020	0.021	0.020	0.0	5.0	-4.8
Total	3.558	3.642	3.272	3.035	2.4	-10.2	-7.2
Nonutility Power Generators							
Hydroelectric Power [a]	0.170	0.175	0.187	0.195	2.9	6.9	4.3
Geothermal, Solar and Wind Energy [b]	0.257	0.280	0.288	0.293	8.9	2.9	1.7
Biofuels [c]	0.597	0.634	0.647	0.650	6.2	2.1	0.5
Total	1.024	1.089	1.122	1.138	6.3	3.0	1.4
Total Power Generation.................................	4.583	4.731	4.394	4.174	3.2	-7.1	-5.0
Other Sectors							
Residential and Commercial [d]	0.722	0.553	0.568	0.574	-23.4	2.7	1.1
Industrial [e]	1.603	1.498	1.515	1.542	-6.6	1.1	1.8
Transportation [f]	0.074	0.097	0.094	0.095	31.1	-3.1	1.1
Total	2.399	2.148	2.177	2.211	-10.5	1.4	1.6
Net Imported Electricity [g]	0.308	0.295	0.285	0.291	-4.2	-3.4	2.1
Total Renewable Energy Demand..................	7.289	7.175	6.856	6.675	-1.6	-4.4	-2.6

[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.

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

	Year														
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Real Gross Domestic Product (GDP)															
(billion chained 1992 dollars)................................	5324	5488	5649	5865	6062	6136	6079	6244	6390	6611	6742	6928	7191	*7426*	*7581*
Imported Crude Oil Price [a]															
(nominal dollars per barrel)................................	26.99	14.00	18.13	14.57	18.08	21.75	18.70	18.20	16.14	15.52	17.14	20.61	18.57	*12.78*	*13.59*
Petroleum Supply															
Crude Oil Production [b]															
(million barrels per day)	8.97	8.68	8.35	8.14	7.61	7.36	7.42	7.17	6.85	6.66	6.56	6.46	6.45	*6.42*	*6.33*
Total Petroleum Net Imports (including SPR)															
(million barrels per day)	4.29	5.44	5.91	6.59	7.20	7.16	6.63	6.94	7.62	8.05	7.89	8.50	9.16	*9.13*	*9.49*
Energy Demand															
World Petroleum															
(million barrels per day)	60.1	61.8	63.1	64.9	65.9	66.0	66.6	66.8	67.0	68.3	69.9	71.5	73.2	*74.4*	*76.3*
U.S. Petroleum															
(million barrels per day)	15.78	16.33	16.72	17.34	17.37	17.04	16.77	17.10	17.24	17.72	17.72	18.31	18.62	*18.84*	*19.21*
Natural Gas															
(trillion cubic feet)..	17.28	16.22	17.21	18.03	18.80	18.72	19.03	19.54	20.28	20.71	21.58	21.96	21.99	*21.65*	*22.81*
Coal															
(million short tons)	810	797	830	877	891	897	898	907	944	951	962	1006	1031	*1045*	*1081*
Electricity (billion kilowatthours)															
Utility Sales [c]	2324	2369	2457	2578	2647	2713	2762	2763	2861	2935	3013	3098	3115	*3175*	*3241*
Nonutility Own Use [d]	NA	NA	NA	NA	108	113	122	132	138	150	158	164	169	*173*	*178*
Total	2324	2369	2457	2578	2755	2826	2884	2895	3000	3085	3171	3262	3283	*3349*	*3419*
Total Energy Demand [e]															
(quadrillion Btu)	NA	NA	NA	NA	NA	84.1	84.0	85.6	87.4	89.3	90.9	93.9	94.4	*94.7*	*97.3*
Total Energy Demand per Dollar of GDP															
(thousand Btu per 1992 Dollar)............................	NA	NA	NA	NA	NA	13.71	13.82	13.70	13.67	13.50	13.48	13.55	13.13	*12.75*	*12.83*

[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 1997 are estimates.

[e] "Total Energy Demand" refers to the aggregate energy concept presented in Energy Information Administration, Annual Energy Review, 1997, DOE/EIA-0384(97) (AER), Table 1.1. Prior to 1990, some components of renewable energy consumption, particularly relating to consumption at nonutility electric generating facilities, were not available. For those years, a less compehensive measure of total energy demand can be found in EIA's AER. 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.

Notes: SPR: Strategic Petroleum Reserve. 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-520; Weekly Petroleum Status Report DOE/EIA-0208. Macroeconomic projections are based on DRI/McGraw-Hill Forecast CONTROL0398.

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

	Year														
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Macroeconomic															
Real Gross Domestic Product (billion chained 1992 dollars)	5324	5488	5649	5865	6062	6136	6079	6244	6390	6611	6742	6928	7191	*7426*	*7581*
GDP Implicit Price Deflator (Index, 1992=1.000)	0.786	0.806	0.831	0.861	0.897	0.936	0.973	1.000	1.026	1.051	1.078	1.102	1.125	*1.141*	*1.162*
Real Disposable Personal Income (billion chained 1992 Dollars).....................	3972	4101	4168	4332	4417	4498	4500	4627	4704	4805	4964	5077	5222	*5401*	*5543*
Manufacturing Production (Index, 1987=1.000)	0.857	0.881	0.928	0.971	0.990	0.985	0.962	1.000	1.038	1.100	1.160	1.202	1.269	*1.321*	*1.357*
Real Fixed Investment (billion chained 1992 dollars)	799	805	799	818	832	806	741	783	843	916	962	1042	1122	*1229*	*1284*
Real Exchange Rate (Index, 1990=1.000)	NA	NA	NA	NA	NA	1.000	1.006	1.012	1.056	1.033	0.960	1.015	1.101	*1.136*	*1.085*
Business Inventory Change (billion chained 1992 dollars)	-4.5	-4.2	5.1	9.5	19.2	6.6	-6.1	-9.2	6.1	11.1	7.8	9.9	22.2	*18.0*	*0.7*
Producer Price Index (index, 1982=1.000).................................	1.032	1.002	1.028	1.069	1.122	1.163	1.165	1.172	1.189	1.205	1.248	1.277	1.275	*1.255*	*1.269*
Consumer Price Index (index, 1982-1984=1.000)	1.076	1.097	1.137	1.184	1.240	1.308	1.363	1.404	1.446	1.483	1.525	1.570	1.606	*1.632*	*1.673*
Petroleum Product Price Index (index, 1982=1.000).................................	0.832	0.532	0.568	0.539	0.612	0.748	0.671	0.647	0.620	0.591	0.608	0.701	0.680	*0.523*	*0.544*
Non-Farm Employment (millions)	97.4	99.3	102.0	105.2	107.9	109.4	108.3	108.6	110.7	114.1	117.2	119.5	122.3	*125.3*	*127.4*
Commercial Employment (millions)	60.8	62.9	65.2	67.8	70.0	71.3	70.8	71.2	73.2	76.1	78.8	81.0	83.5	*86.3*	*88.3*
Total Industrial Production (index, 1987=1.000).................................	0.880	0.890	0.931	0.973	0.990	0.989	0.969	1.000	1.035	1.092	1.145	1.185	1.244	*1.289*	*1.323*
Housing Stock (millions)	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	*113.4*	*114.5*
Weather [a]															
Heating Degree-Days															
U.S.	4642	4295	4334	4653	4726	4016	4200	4441	4700	4483	4531	4713	4551	*4213*	*4576*
New England	6571	6517	6546	6715	6887	5848	5960	6844	6728	6672	6559	6679	6645	*6078*	*6621*
Middle Atlantic	5660	5665	5699	6088	6134	4998	5177	5964	5948	5934	5831	5986	5816	*5212*	*5839*
U.S. Gas-Weighted	4856	4442	4391	4779	4856	4139	4337	4458	4754	4659	4707	5040	4886	*4388*	*4732*
Cooling Degree-Days (U.S.)	1194	1249	1269	1283	1156	1260	1331	1040	1218	1220	1293	1180	1155	*1220*	*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 CONTROL0698.

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

	Year													
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Demand [a]															
OECD															
U.S. (50 States)	15.8	16.3	16.7	17.3	17.4	17.0	16.8	17.1	17.2	17.7	17.7	18.3	18.6	*18.8*	*19.2*
Europe [b]	11.7	12.1	12.3	12.4	12.5	12.6	13.4	13.6	13.5	13.6	14.1	14.3	14.4	*14.6*	*14.8*
Japan	4.4	4.4	4.5	4.8	5.0	5.1	5.3	5.4	5.4	5.7	5.7	5.9	5.7	*5.6*	*5.6*
Other OECD	2.5	2.5	2.5	2.6	2.7	2.7	2.7	2.7	2.8	2.9	3.0	3.0	3.0	*3.1*	*3.2*
Total OECD	34.3	35.3	36.0	37.1	37.6	37.5	38.1	38.8	39.0	39.9	40.6	41.4	41.7	*42.1*	*42.8*
Non-OECD															
Former Soviet Union	9.0	9.0	9.0	8.9	8.7	8.4	8.3	6.8	5.6	4.8	4.6	4.4	4.4	*4.6*	*4.8*
Europe	2.2	2.2	2.2	2.2	2.1	1.9	1.4	1.3	1.3	1.3	1.3	1.3	1.4	*1.5*	*1.5*
China	1.9	2.0	2.1	2.3	2.4	2.3	2.5	2.7	3.0	3.1	3.3	3.5	3.9	*4.1*	*4.4*
Other Asia	3.6	3.8	4.1	4.4	4.9	5.3	5.7	6.2	6.8	7.3	7.9	8.3	8.8	*8.7*	*8.9*
Other Non-OECD	9.1	9.5	9.7	10.0	10.3	10.5	10.6	11.0	11.4	11.8	12.2	12.5	13.0	*13.4*	*13.8*
Total Non-OECD	25.8	26.5	27.1	27.7	28.3	28.5	28.5	28.0	28.1	28.4	29.4	30.1	31.4	*32.3*	*33.4*
Total World Demand	60.1	61.8	63.1	64.9	66.0	66.0	66.6	66.8	67.0	68.3	69.9	71.5	73.2	*74.4*	*76.3*
Supply [c]															
OECD															
U.S. (50 States)	11.2	11.0	10.7	10.5	9.9	9.7	9.9	9.8	9.6	9.4	9.4	9.4	9.5	*9.4*	*9.4*
Canada	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*	*2.7*
North Sea [d]	3.6	3.8	3.8	3.8	3.7	3.9	4.1	4.5	4.8	5.5	5.9	6.3	6.2	*6.4*	*6.9*
Other OECD	1.4	1.4	1.4	1.5	1.4	1.5	1.5	1.4	1.4	1.5	1.5	1.5	1.6	*1.7*	*1.7*
Total OECD	18.1	17.9	17.9	17.8	17.1	17.1	17.5	17.9	18.0	18.7	19.2	19.7	19.9	*20.2*	*20.7*
Non-OECD															
OPEC	17.2	19.3	19.6	21.5	23.3	24.5	24.6	25.8	26.6	27.0	27.6	28.3	29.9	*30.0*	*30.1*
Former Soviet Union	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	*7.3*	*7.4*
China	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	*3.2*	*3.3*
Mexico	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	*3.4*	*3.5*
Other Non-OECD	6.6	11.0	6.9	7.3	7.7	8.0	8.1	8.4	8.7	9.2	9.9	10.2	10.4	*10.8*	*11.3*
Total Non-OECD	41.2	43.9	44.6	47.0	48.9	49.7	49.1	49.1	49.4	49.6	50.7	52.0	54.1	*54.7*	*55.5*
Total World Supply	59.3	61.8	62.5	64.8	65.9	66.8	66.7	67.0	67.4	68.3	69.9	71.8	74.0	*74.9*	*76.2*
Total Stock Withdrawals	0.8	0.0	0.6	0.1	0.0	-0.8	-0.1	-0.2	-0.3	0.1	0.1	-0.2	-0.8	*-0.5*	*0.0*
OECD Comm. Stocks, End (bill. bbls.)	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	*2.8*	*2.8*
Net Exports from Former Soviet Union	3.0	3.4	3.5	3.6	3.4	3.0	2.1	2.1	2.3	2.4	2.5	2.7	2.7	*2.7*	*2.6*

[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, 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, Kazakhstan, 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														
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Imported Crude Oil [a]															
(dollars per barrel)..........................	26.99	14.00	18.13	14.57	18.08	21.75	18.70	18.20	16.14	15.52	17.14	20.61	18.57	*12.78*	*13.59*
Natural Gas Wellhead															
(dollars per thousand cubic feet)	2.51	1.94	1.66	1.69	1.69	1.71	1.64	1.74	2.04	1.85	1.55	2.16	2.23	*2.10*	*2.21*
Petroleum Products															
Gasoline Retail [b] (dollars per gallon)															
All Grades.................................	1.15	0.88	0.91	0.92	1.02	1.17	1.15	1.14	1.13	1.13	1.16	1.25	1.24	*1.09*	*1.13*
Reguler Unleaded	1.17	0.88	0.91	0.91	0.99	1.13	1.10	1.09	1.07	1.08	1.11	1.20	1.20	*1.04*	*1.06*
No. 2 Diesel Oil, Retail															
(dollars per gallon)	1.16	0.88	0.93	0.91	0.99	1.16	1.12	1.10	1.11	1.11	1.11	1.23	1.19	*1.05*	*1.08*
No. 2 Heating Oil, Wholesale															
(dollars per gallon)	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	*0.45*	*0.50*
No. 2 Heating Oil, Retail															
(dollars per gallon)	1.05	0.84	0.80	0.81	0.90	1.06	1.02	0.93	0.91	0.89	0.87	0.99	0.99	*0.87*	*0.88*
No. 6 Residual Fuel Oil, Retail [c]															
(dollars per barrel)..........................	25.57	14.46	17.76	14.04	16.20	18.66	14.32	14.21	14.00	14.79	16.49	18.97	17.80	*12.71*	*13.19*
Electric Utility Fuels															
Coal															
(dollars per million Btu)	1.65	1.58	1.51	1.47	1.44	1.45	1.45	1.41	1.38	1.36	1.32	1.29	1.27	*1.26*	*1.25*
Heavy Fuel Oil [d]															
(dollars per million Btu)	4.26	2.40	2.98	2.41	2.85	3.22	2.49	2.46	2.36	2.40	2.60	3.01	2.79	*2.03*	*2.14*
Natural Gas															
(dollars per million Btu)	3.43	2.35	2.24	2.26	2.36	2.32	2.15	2.33	2.56	2.23	1.98	2.64	2.76	*2.61*	*2.70*
Other Residential															
Natural Gas															
(dollars per thousand cubic feet)	6.12	5.83	5.55	5.47	5.64	5.80	5.82	5.89	6.17	6.41	6.06	6.35	6.93	*6.63*	*6.90*
Electricity															
(cents per kilowatthour).............................	7.8	7.4	7.4	7.5	7.6	7.8	8.1	8.2	8.3	8.4	8.4	8.4	8.5	*8.3*	*8.3*

[a] Refiner acquisition cost (RAC) of imported crude oil.
[b] Average self-service cash prices.
[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)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Supply															
Crude Oil Supply															
Domestic Production [a]	8.97	8.68	8.35	8.14	7.61	7.36	7.42	7.17	6.85	6.66	6.56	6.46	6.45	*6.42*	*6.33*
Alaska	1.83	1.87	1.96	2.02	1.87	1.77	1.80	1.71	1.58	1.56	1.48	1.39	1.30	*1.19*	*1.19*
Lower 48	7.15	6.81	6.39	6.12	5.74	5.58	5.62	5.46	5.26	5.10	5.08	5.07	5.16	*5.23*	*5.14*
Net Imports (including SPR) [b]	3.00	4.02	4.52	4.95	5.70	5.79	5.67	5.99	6.69	6.96	7.14	7.40	8.12	*8.19*	*8.37*
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)	-0.05	-0.08	-0.12	0.00	-0.09	0.02	-0.01	0.01	-0.06	-0.02	0.09	0.05	-0.06	*-0.06*	*0.02*
Product Supplied and Losses	-0.06	-0.05	-0.03	-0.04	-0.03	-0.02	-0.02	-0.01	-0.01	-0.01	-0.01	-0.01	0.00	*0.00*	*-0.01*
Unaccounted-for Crude Oil	0.15	0.14	0.14	0.20	0.20	0.26	0.20	0.26	0.17	0.27	0.19	0.22	0.14	*0.31*	*0.29*
Total Crude Oil Supply	12.00	12.72	12.85	13.25	13.40	13.41	13.30	13.41	13.61	13.87	13.97	14.19	14.66	*14.86*	*15.00*
Other Supply															
NGL Production	1.61	1.55	1.59	1.62	1.55	1.56	1.66	1.70	1.74	1.73	1.76	1.83	1.82	*1.84*	*1.84*
Other Hydrocarbon and Alcohol Inputs	0.11	0.11	0.12	0.11	0.11	0.13	0.15	0.20	0.25	0.26	0.30	0.31	0.34	*0.34*	*0.35*
Crude Oil Product Supplied	0.06	0.05	0.03	0.04	0.03	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.00	*0.00*	*0.01*
Processing Gain	0.56	0.62	0.64	0.66	0.66	0.70	0.71	0.77	0.76	0.77	0.77	0.84	0.85	*0.85*	*0.85*
Net Product Imports [c]	1.29	1.41	1.39	1.63	1.50	1.38	0.96	0.94	0.93	1.09	0.75	1.10	1.04	*0.94*	*1.12*
Product Stock Withdrawn or Added (-)	-0.12	0.09	0.03	0.13	-0.14	-0.04	0.06	-0.05	0.00	0.15	0.03	-0.09	0.00	*0.03*	
Total Supply	15.78	16.33	16.72	17.33	17.37	17.05	16.76	17.10	17.25	17.72	17.72	18.31	18.62	*18.84*	*19.21*
Demand															
Motor Gasoline [d]	6.78	6.94	7.19	7.36	7.40	7.31	7.23	7.38	7.48	7.60	7.79	7.89	8.02	*8.16*	*8.31*
Jet Fuel	1.22	1.31	1.38	1.45	1.49	1.52	1.47	1.45	1.47	1.53	1.51	1.58	1.60	*1.63*	*1.66*
Distillate Fuel Oil	2.87	2.91	2.98	3.12	3.16	3.02	2.92	2.98	3.04	3.16	3.21	3.37	3.44	*3.49*	*3.60*
Residual Fuel Oil	1.20	1.42	1.26	1.38	1.37	1.23	1.16	1.09	1.08	1.02	0.85	0.85	0.80	*0.84*	*0.86*
Other Oils [e]	3.71	3.75	3.90	4.03	3.95	3.95	3.99	4.20	4.17	4.41	4.36	4.63	4.77	*4.72*	*4.78*
Total Demand	15.78	16.33	16.72	17.34	17.37	17.04	16.77	17.10	17.24	17.72	17.72	18.31	18.62	*18.84*	*19.21*
Total Petroleum Net Imports	4.29	5.44	5.91	6.59	7.20	7.16	6.63	6.94	7.62	8.05	7.89	8.50	9.16	*9.13*	*9.49*
Closing Stocks (million barrels)															
Crude Oil (excluding SPR)	321	331	349	330	341	323	325	318	335	337	303	284	305	*326*	*318*
Total Motor Gasoline	223	233	226	228	213	220	219	216	226	215	202	195	210	*206*	*200*
Jet Fuel	40	50	50	44	41	52	49	43	40	47	40	40	44	*41*	*45*
Distillate Fuel Oil	144	155	134	124	106	132	144	141	141	145	130	127	138	*138*	*132*
Residual Fuel Oil	50	47	47	45	44	49	50	43	44	42	37	46	40	*42*	*42*
Other Oils [f]	247	265	260	267	257	261	267	263	273	275	258	250	259	*265*	*261*

[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														
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Supply															
Total Dry Gas Production	16.45	16.06	16.62	17.10	17.31	17.81	17.70	17.84	18.10	18.82	18.60	18.79	18.93	*19.16*	*19.39*
Net Imports..	0.89	0.69	0.94	1.22	1.27	1.45	1.64	1.92	2.21	2.46	2.69	2.78	2.83	*2.95*	*3.14*
Supplemental Gaseous Fuels......................	0.13	0.11	0.10	0.10	0.11	0.12	0.11	0.12	0.12	0.11	0.11	0.11	0.12	*0.12*	*0.13*
Total New Supply.....................................	17.47	16.86	17.66	18.42	18.69	19.38	19.45	19.88	20.42	21.39	21.40	21.69	21.88	*22.23*	*22.66*
Total Underground Storage															
Opening...	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	*6.52*	*6.74*
Closing..	6.45	6.57	6.55	6.65	6.33	6.94	6.78	6.64	6.65	6.97	6.50	6.51	6.52	*6.74*	*6.52*
Net Withdrawals	0.26	-0.12	0.02	-0.10	0.33	-0.61	0.16	0.14	-0.01	-0.32	0.46	-0.01	-0.01	*-0.22*	*0.22*
Total Supply..	17.73	16.74	17.68	18.32	19.02	18.77	19.61	20.02	20.42	21.08	21.86	21.68	21.88	*22.01*	*22.89*
Balancing Item [a]	-0.45	-0.52	-0.47	-0.29	-0.22	-0.05	-0.58	-0.47	-0.14	-0.37	-0.28	0.29	0.11	*-0.36*	*-0.08*
Total Primary Supply.....................................	17.28	16.22	17.21	18.03	18.80	18.72	19.03	19.54	20.28	20.71	21.58	21.96	21.99	*21.65*	*22.81*
Demand															
Lease and Plant Fuel	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	*1.26*	*1.27*
Pipeline Use..	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	*0.70*	*0.72*
Residential	4.43	4.31	4.31	4.63	4.78	4.39	4.56	4.69	4.96	4.85	4.85	5.24	5.01	*4.77*	*5.16*
Commercial..	2.43	2.32	2.43	2.67	2.72	2.62	2.73	2.80	2.86	2.90	3.03	3.16	3.28	*3.23*	*3.50*
Industrial (Incl. Nonutilities)	5.90	5.58	5.95	6.38	6.82	7.02	7.23	7.53	7.98	8.17	8.58	8.87	8.77	*8.68*	*9.07*
Cogenerators [b]	NA	NA	NA	NA	1.12	1.30	1.41	1.67	1.80	1.98	2.18	2.27	2.31	*2.41*	*2.49*
Other Nonutil. Gen. [b]	NA	NA	NA	NA	0.06	0.09	0.16	0.18	0.22	0.17	0.17	0.16	0.18	*0.19*	*0.20*
Electric Utilities	3.04	2.60	2.84	2.64	2.79	2.79	2.79	2.77	2.68	2.99	3.20	2.73	2.97	*3.00*	*3.09*
Total Demand	17.28	16.22	17.21	18.03	18.80	18.72	19.03	19.54	20.28	20.71	21.58	21.96	21.99	*21.65*	*22.81*

[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														
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Supply															
Production..	883.6	890.3	918.8	950.3	980.7	1029.1	996.0	997.5	945.4	1033.5	1033.0	1063.9	1088.6	1109.7	1143.1
Appalachia	NA	NA	NA	NA	464.8	489.0	457.8	456.6	409.7	445.4	434.9	451.9	464.7	463.3	469.1
Interior	NA	NA	NA	NA	198.1	205.8	195.4	195.7	167.2	179.9	168.5	172.8	172.3	167.5	166.7
Western	NA	NA	NA	NA	317.9	334.3	342.8	345.3	368.5	408.3	429.6	439.1	451.6	478.8	507.2
Primary Stock Levels [a]															
Opening	34.1	33.1	32.1	28.3	30.4	29.0	33.4	33.0	34.0	25.3	33.2	34.4	28.6	32.9	32.9
Closing..	33.1	32.1	28.3	30.4	29.0	33.4	33.0	34.0	25.3	33.2	34.4	28.6	32.9	32.9	33.0
Net Withdrawals......................................	1.0	1.0	3.8	-2.1	1.4	-4.4	0.4	-1.0	8.7	-7.9	-1.2	5.8	-4.2	-0.1	S
Imports..	2.0	2.2	1.7	2.1	2.9	2.7	3.4	3.8	7.3	7.6	7.2	7.1	7.5	7.5	7.3
Exports..	92.7	85.5	79.6	95.0	100.8	105.8	109.0	102.5	74.5	71.4	88.5	90.5	83.5	81.9	82.8
Total Net Domestic Supply......................	793.9	808.0	844.7	855.3	884.2	921.6	890.9	897.8	886.9	961.8	950.4	986.3	1008.3	1035.1	1067.6
Secondary Stock Levels [b]															
Opening	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	106.8	106.9
Closing..	170.2	175.2	185.5	158.4	146.1	168.2	167.7	163.7	120.5	136.1	134.6	123.0	106.8	106.9	103.7
Net Withdrawals......................................	27.0	-5.0	-10.2	27.0	12.3	-22.1	0.5	4.0	43.2	-15.7	1.5	11.6	16.2	S	3.2
Waste Coal Supplied to IPPs[c]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.9	8.5	8.9	9.4	10.0	10.6
Total Supply	820.8	803.1	834.4	882.3	896.5	899.4	891.4	901.8	930.2	954.0	960.4	1006.8	1033.9	1045.1	1081.3
Demand															
Coke Plants..	41.1	35.9	37.0	41.9	40.5	38.9	33.9	32.4	31.3	31.7	33.0	31.7	29.4	28.6	29.9
Electricity Production															
Electric Utilities	693.8	685.1	717.9	758.4	766.9	773.5	772.3	779.9	813.5	817.3	829.0	874.7	901.7	915.7	947.4
Nonutilities (Excl. Cogen.) [d]	NA	NA	NA	NA	0.9	1.6	10.2	14.8	17.8	20.9	21.2	22.2	23.5	25.0	26.5
Retail and General Industry [e]	75.4	75.6	75.2	76.3	82.3	83.1	81.5	80.2	81.1	81.2	78.9	76.9	76.4	76.0	77.6
Total Demand	810.3	796.6	830.0	876.5	890.6	897.1	897.8	907.3	943.7	951.1	962.0	1005.6	1031.0	1045.4	1081.3
Discrepancy [f]	10.6	6.5	4.4	5.8	5.9	2.4	-6.4	-5.4	-13.5	2.9	-1.6	1.2	2.9	-0.2	0.0

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

[b]Secondary stocks are held by users.

[c]Estimated independent power producers (IPPs) consumption of waste coal for 1994 is 7.9 million tons, 8.5 million tons in 1995, and 8.9 million tons in 1996.

[d]Consumption of coal by 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 first quarter 1998 are estimates.

[e]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.

[f]The discrepancy reflects an unaccounted-for shipper and receiver reporting difference, assumed to be zero in the forecast period. Prior to 1994, discrepancy may include some waste coal supplied to IPPs that has not been specifically identified.

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

	Year														
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Supply															
Net Utility Generation															
Coal	1402.1	1385.8	1463.8	1540.7	1553.7	1559.6	1551.2	1575.9	1639.2	1635.5	1652.9	1737.5	1787.8	*1817.4*	*1881.9*
Petroleum	100.2	136.6	118.5	148.9	158.3	117.0	111.5	88.9	99.5	91.0	60.8	67.3	77.8	*90.3*	*89.0*
Natural Gas	291.9	248.5	272.6	252.8	266.6	264.1	264.2	263.9	258.9	291.1	307.3	262.7	283.6	*288.8*	*297.4*
Nuclear	383.7	414.0	455.3	527.0	529.4	576.9	612.6	618.8	610.3	640.4	673.4	674.7	628.6	*649.7*	*656.5*
Hydroelectric	281.1	290.8	249.7	222.9	265.1	279.9	275.5	239.6	265.1	243.7	293.7	328.0	337.2	*301.8*	*279.7*
Geothermal and Other [a]	10.7	11.5	12.3	12.0	11.3	10.7	10.1	10.2	9.6	8.9	6.4	7.2	7.5	*7.4*	*7.0*
Subtotal	2469.8	2487.3	2572.1	2704.3	2784.3	2808.2	2825.0	2797.2	2882.5	2910.7	2994.5	3077.4	3122.5	*3155.3*	*3211.7*
Nonutility Generation [b]	NA	NA	NA	NA	191.3	221.8	253.7	296.0	325.5	354.9	374.4	382.5	409.4	*426.4*	*437.4*
Total Generation	NA	NA	NA	NA	2975.6	3030.0	3078.7	3093.2	3208.1	3265.6	3369.0	3460.0	3531.8	*3581.7*	*3649.1*
Net Imports	40.9	35.9	46.3	31.8	11.0	2.0	22.3	28.3	28.4	44.6	37.6	38.0	36.6	*35.3*	*36.0*
Total Supply	NA	NA	NA	NA	2986.6	3032.0	3101.0	3121.6	3236.5	3310.3	3406.6	3498.0	3568.4	*3617.0*	*3685.1*
Losses and Unaccounted for [c]	NA	NA	NA	NA	231.4	206.1	217.1	226.6	236.9	225.5	235.4	236.2	284.9	*268.5*	*266.2*
Demand															
Electric Utility Sales															
Residential	793.9	819.1	850.4	892.9	905.5	924.0	955.4	935.9	994.8	1008.5	1042.5	1082.5	1071.6	*1094.1*	*1124.3*
Commercial	606.0	630.5	660.4	699.1	725.9	751.0	765.7	761.3	794.6	820.3	862.7	887.4	913.3	*935.4*	*956.1*
Industrial	836.8	830.5	858.2	896.5	925.7	945.5	946.6	972.7	977.2	1008.0	1012.7	1030.4	1032.5	*1047.2*	*1058.9*
Other	87.3	88.6	88.2	89.6	89.8	92.0	94.3	93.4	94.9	97.8	95.4	97.5	97.5	*98.6*	*101.9*
Subtotal	2324.0	2368.8	2457.3	2578.1	2646.8	2712.6	2762.0	2763.4	2861.5	2934.6	3013.3	3097.8	3114.9	*3175.4*	*3241.2*
Nonutility Own Use [b]	NA	NA	NA	NA	108.4	113.4	121.9	131.6	138.1	150.2	157.9	164.0	168.6	*173.1*	*177.7*
Total Demand	NA	NA	NA	NA	2755.2	2825.9	2883.9	2895.0	2999.6	3084.8	3171.2	3261.8	3283.5	*3348.5*	*3418.9*
Memo:															
Nonutility Sales															
to Electric Utilities [d]	26.0	39.9	50.0	68.0	83.0	108.5	131.9	164.4	187.4	204.7	216.5	218.5	240.8	*253.2*	*259.7*

[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. Historical data 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 1996.

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.