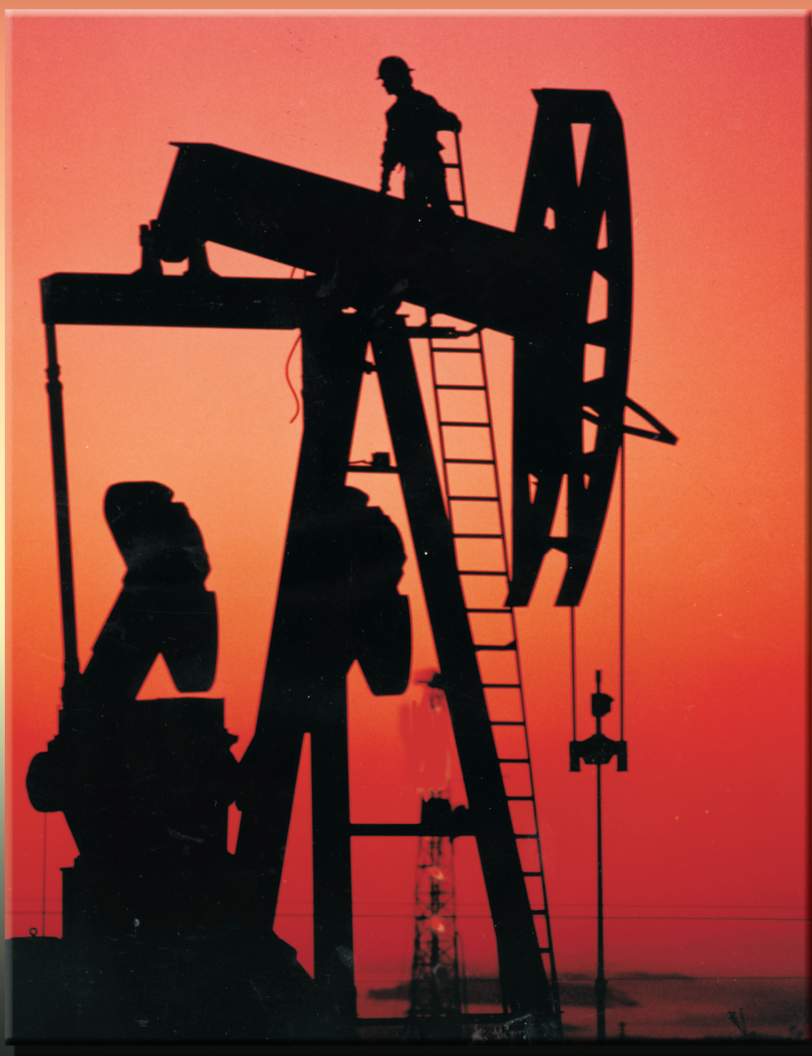


# Annual Energy Outlook Evaluation 2005



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**Energy Information Administration**

## Annual Energy Outlook Evaluation, 2005\*

Then Energy Information Administration (EIA) produces projections of energy supply and demand each year in the *Annual Energy Outlook (AEO)*. The projections in the *AEO* are not statements of what will happen but of what might happen, given the assumptions and methodologies used. The projections are business-as-usual trend projections, given known technology, technological and demographic trends, and current laws and regulations. Thus, they provide a policy-neutral reference case that can be used to analyze policy initiatives. EIA does not propose or advocate future legislative and regulatory changes. All laws are assumed to remain as currently enacted; however, the impacts of emerging regulatory changes, when defined, are reflected.

The analyses in the *AEO* focus primarily on a reference case, lower and higher economic growth cases, and lower and higher energy price cases. In addition, more than 30 alternative cases are generally included in an *AEO*. Readers are encouraged to review the full range of cases, which address many of the uncertainties inherent in long-term projections.

Each year since 1996, EIA's Office of Integrated Analysis and Forecasting has produced a comparison between realized energy outcomes and the projections included in previous editions of the *AEO*. Each year, the comparison adds the projections from the most recent *AEO* and updates the historical data to the most recently available. The comparison summarizes the relationship of the *AEO* reference case projections since 1982 to realized outcomes by calculating the average absolute percent differences for several of the major variables for *AEO82* through *AEO2005*.<sup>1</sup> The average absolute percent difference is the simple mean of the absolute values of the percentage difference between the Reference Case projection and the actual value. The historical data are typically taken from the *Annual Energy Review (AER)*.<sup>2</sup> The last column of Table 1 provides a summary of the most recent average absolute percent differences for 17 of the most important projection components. The detailed calculation of these differences is shown in Tables 2 through 18. These tables also provide the average absolute difference, which is the simple mean of the absolute value of the difference between the reference case projection and the actual value.

Beginning with last year's evaluation,<sup>3</sup> the basis of measure for comparing dollar denominated values, Gross Domestic Product (GDP), and energy prices was changed. The GDP series is now evaluated on a nominal dollar basis using the contemporaneous deflator series from each *AEO* rather than a current deflator series. Each *AEO* presents a "real" GDP measure and a matched price index. Prior to last year's evaluation, the calculation of nominal GDP was done by applying the latest official historical deflator series to the "real" GDP projection to generate a nominal series for the evaluation. This process has been revised to now use the values of the price index from each *AEO* document to inflate the "real" numbers to a nominal series. These revisions also change the energy intensity table, which is now presented as energy consumption divided by nominal dollar GDP. These changes improve the consistency of comparing across *AEOs* in ways discussed in detail below.

The growth in GDP is a good measure of the growth of the aggregate economy over time. However, GDP is but one measure. Other concepts like disposable income, industrial output, vehicle sales, expansion of commercial floorspace, to name a few, become the actual drivers to the energy projections. GDP is perhaps the single best summary metric to show how the aggregate economy grows; and the

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\* Contacts: GDP issues, [Ronald.Earley@eia.doe.gov](mailto:Ronald.Earley@eia.doe.gov); other issues, [Steven.Wade@eia.doe.gov](mailto:Steven.Wade@eia.doe.gov).

<sup>1</sup> Note the publication gap in the tables that follow, there was no publication of *AEO88*.

<sup>2</sup> GDP and the GDP price deflators come from the Bureau of Economic Analysis, while coal prices to electric generating plants are from the *Monthly Energy Review (MER)*.

<sup>3</sup> *Annual Energy Outlook Forecast Evaluation 2004*.

assessment of how projections of GDP compare to history is a good proxy for how projections of economic activity in general influence energy markets.

As indicated in Table 1, the reference case projections of energy consumption, energy production, and carbon dioxide emissions have been relatively close to realized outcomes, the projections of net energy imports have been moderately close to realized outcomes, and the reference case projections of energy prices have been the furthest from realized outcomes. Both Table 1 and the individual tables show marked improvement in the absolute average differences for energy prices and net energy imports over time. The calculated absolute average differences can change from one year's evaluation to the next as an additional year of data and projections are added to the evaluation series and also because of data revisions in the *AER* and the *Monthly Energy Review (MER)*.

The underlying reasons for deviations between the *AEO* projections and realized history have tended to be the same from one evaluation to the next. The most significant are:

- Over the last two decades, there have been changes in laws, policies, and regulations that were not assumed in the projections prior to their implementation because of EIA's statutory requirement to be policy neutral. Many of these actions have had significant impacts on energy supply, demand, and prices. For example, the Powerplant and Industrial Fuel Act (FUA) of 1978 restricted the use of natural gas in power plants and industrial boilers. After FUA was repealed in 1987, use of natural gas for electric generation and industrial processing increased sharply. Consequently, those *AEOs* completed prior to or immediately after repeal of the FUA, e.g., *AEO86*, *AEO87*, and *AEO89*, had considerably larger underestimation of natural gas consumption in 2000 than *AEO90* and all subsequent *AEOs*.
- *AEO85* through *AEO90* projections of GDP overestimated GDP growth in the 1990s, whereas later *AEOs* underestimated GDP growth over that period. The economic slowdown that began in 2001 has led to overestimates of GDP. Because GDP is a good indicator of the economic activity, which drives the energy consumption projections, those projections often have similar difference trends as the GDP projections (Table 17).
- The level of future electricity sales was underestimated for nearly all projection years for the *AEO 1991* through *AEO 1997* (Table 6). Since about 90 percent of the demand for coal results from electricity generation, the underestimation of electricity sales contributes to underestimation of coal consumption in those years (Table 5). The projection differences of electricity sales were particularly large in *AEO94* through *AEO96*, for these *AEOs* coal demand exhibits similar patterns of underestimates.
- Overestimation of world oil prices, particularly in publications prior to *AEO97* (Table 13), resulted in underestimation of petroleum consumption. For *AEO97* forward, prices tended to be underestimated and more neutral consumption projections occurred (Table 3).
- Natural gas generally has been the fuel with the largest differences between reference case projections and realized outcomes. As regulatory reforms that increased the role of competitive markets were implemented beginning in the mid-1980s, the behavior of natural gas in competitive markets was especially difficult to predict. In the earlier projections, EIA's technology improvement expectations proved conservative, as technological advances made petroleum and natural gas less costly to produce. After natural gas curtailments were eased in the mid-1980s, natural gas was an increasingly attractive fuel source, particularly for electricity generation and industrial uses. Historically, natural gas price instability was strongly influenced by natural gas resource estimates, which steadily rose, and by the world oil price, which was subject to its own projection difference. More recently, the *AEO* reference case has over-projected natural gas consumption (Table 4) due to natural gas wellhead price projections that proved to be significantly lower than what occurred (Table 14).

- Technological improvements in both the production and use of energy have had a significant impact on the price, supply, and consumption of energy. For the most part, earlier *AEOs* assumed much slower technology development than actually occurred, accounting for some of the deviation between the projections and history. This trend was recognized, in part, by this type of evaluation exercise. Beginning with the *Annual Energy Outlook 1994*, the projections in the *AEO* were produced using the National Energy Modeling System (NEMS). Because NEMS was designed with methodologies to represent technology in a more detailed fashion, there has been an improvement in the capability to represent technological change throughout energy markets. As NEMS has evolved, additional studies on technological improvement have led to more optimistic assumptions in the more recent projections, along with modeling innovations, such as learning-by-doing, in which experience gained with new generation technologies and advanced end-use technologies leads to cost reductions in the model.
- External factors such as severe weather, economic cycles, and other supply disruptions have also had an impact on energy markets; however, these events cannot be anticipated in the mid- to long-term period and are not captured in the models underlying the *AEO* projections.

### Summary of Differences between *AEO* Reference Cases and Realized Outcomes

	All AEOs		NEMS AEOs	
	Percent Over-Projected	Average Absolute Percent Difference	Percent Over-Projected	Average Absolute Percent Difference
Table 2. Total Energy Consumption, Actual vs. Reference Case	42%	2.2%	49%	2.2%
Table 3. Total Petroleum Consumption, Actual vs. Reference Case	31%	2.9%	42%	1.9%
Table 4. Total Natural Gas Consumption, Actual vs. Reference Case	32%	6.4%	53%	4.8%
Table 5. Total Coal Consumption, Actual vs. Reference Case	39%	3.9%	33%	4.8%
Table 6. Total Electricity Sales, Actual vs. Reference Case	33%	2.4%	24%	3.3%
Table 7. Total Carbon Dioxide Emissions, Actual vs. Reference Case	25%	3.0%	29%	3.0%
Table 8. Domestic Crude Oil Production, Actual vs. Reference Case	48%	4.7%	46%	4.8%
Table 9. Natural Gas Production, Actual vs. Reference Case	48%	4.9%	67%	4.7%
Table 10. Coal Production, Actual vs. Reference Case	72%	4.2%	60%	4.2%
Table 11. Petroleum Net Imports, Actual vs. Reference Case	53%	6.5%	58%	3.5%
Table 12. Natural Gas Net Imports, Actual vs. Reference Case	31%	14.9%	47%	8.5%
Table 13. World Oil Prices, Actual vs. Reference Case	72%	54.2%	41%	17.5%
Table 14. Natural Gas Wellhead Prices, Actual vs. Reference Case	66%	64.9%	26%	25.1%
Table 15. Coal Prices to Electric Generating Plants, Actual vs. Reference Case	91%	47.0%	78%	17.6%
Table 16. Average Electricity Prices, Actual vs. Reference Case	87%	19.5%	69%	9.5%
Table 17. Gross Domestic Product, Actual vs. Reference Case	33%	5.4%	15%	4.6%
Table 18. Energy Intensity, Actual vs. Reference Case	68%	5.7%	94%	4.8%

The table above provides a summary of the percentage of over-projections as well as the absolute projection differences for the entire *Annual Energy Outlook* series as well as for just the NEMS *AEOs*. Table-by-table, the absolute average differences are smaller in magnitude for the NEMS regime in all but 3 of the 17 tracked concepts. The percentage of over-projections during the NEMS regime has remained nearly the same as for the entire *AEO* series. Over-projections improved (i.e., moved closer to 50%) for only 8 of the 17 concepts tracked in Tables 2 through 18. As discussed in the box below, the Gross Domestic Product (GDP) concept has changed noticeably over time due to revisions and improvements by the Bureau of Economic Analysis. These changes distort comparisons of realized GDP outcomes and projections. Further, since the energy intensity measure has GDP in the denominator, comparisons of realized intensity outcomes and projections are also distorted to an unknown degree. Consequently, the comparisons for GDP and intensity projections do not track the realized outcomes as well as other concepts.

## Revisions to Gross Domestic Product and Implications for the Comparisons

The concept of GDP is a commonly used measure of economic activity. It can be expressed in nominal dollars or, with the use of a matched price index to remove inflation, in “real” terms. Movements in nominal GDP show how the value of goods and services produced by the United States changes over time, while real GDP is a measure of how the physical production of the economy has grown. While simple in concept, the projecting of nominal and real GDP and the interpretation of these projected measures relative to “history” is not simple or straightforward. The Bureau of Economic Analysis (BEA) within the U.S. Department of Commerce continually adjusts the National Income and Product Accounts data, with comprehensive revisions completed every 4 or 5 years. The last four major revisions (1985, 1991, 1995, and 1999) incorporated definitional and statistical changes, as well as emphasizing new ways of presenting the data. Also, prior to *AEO93* aggregate economic activity was measured and projected on the basis of Gross National Product (GNP) as opposed to Gross Domestic Product (GDP). For the period from 1984 through 2004, nominal GNP is on average approximately 0.45 percent above nominal GDP.

The changes are not restricted to the nominal series. Concept changes in the derivation of real GDP also change the perception of economic activity. Prior to 1995, BEA measured real GDP on a fixed-base-year-method. Price deflators for each component of GDP were used to deflate the value of nominal GDP to a base year. While this method allowed total real GDP to be computed by adding the component values (consumption, investment, government, net exports), this reliance on base-year-weighting caused problems. The perception of growth in real GDP using the fixed-weighted approach is dependent on the selection of the base year. In switching the base year from 1982 to 1987, all the growth rates for the respective “real” components changed. A solution is to convert to a chain-weighted measure that eliminates the problem of historical growth rates changing when the base year is updated.<sup>4</sup> If this approach is followed, however, the component pieces of GDP do not add to the total GDP.

Following the BEA, the *AEO* projections prior to *AEO97* used a fixed-weight base year GDP with several different base years. Beginning with the *AEO97* projection, the *AEO* projection has been completed using chain-weighted dollars. Any evaluation therefore must acknowledge that the projections were based on historical data, *as it appeared at the time the projections were prepared*. The problem is, there is only one set of historical values available now – the BEA series on nominal GDP and real GDP expressed in 2000 chain-weighted dollars. What should be the basis of comparison of projection differences – nominal or real?

Each *AEO* shows the price deflator (fixed-weighted or chained) and the real GDP series (also fixed-weighted or chained). A simple multiplication yields the nominal GDP series. While the transformation is simple, there is the difficulty associated with the gap in the data where BEA has included additional components in the calculation of nominal GDP to the history. Since the GDP projection cannot anticipate such changes, it will be incorrect from the start. On the real side, each *AEO* reports real GDP, but early *AEOs* are in fixed-weighted dollars with varying base years, and since 1997 (*AEO98*), GDP projections use a chain-weighting method. Again, there exists only one true history – the BEA chain-weighted 2000 dollar concept. Lack of available data from old *AEOs* precludes moving the old fixed-weighted real GDP into a chain-weighted concept. The alternative of viewing history from a fixed-weighted perspective is not viable because BEA does not maintain these series in that form. And even if the conversion issues did not exist, the real GDP measure would still contain the gap in the nominal series due to definitional changes in what GDP includes.

<sup>4</sup> “Chained-Dollar Indexes: issues, Tips on Their Use, and Upcoming Changes,” J. Steven Landefeld, Brent R. Moulton, and Cindy M. Vojtech, *Survey of Current Business*, Bureau of Economic Analysis, November 2003. <http://www.bea.gov/bea/ARTICLES/2003/11November/1103%20Chain-dollar.pdf>

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**Table 1. Comparison of Absolute Percent Difference Between AEO Reference Case Projections and Realized Outcomes**

Variable	Average Absolute Percent Difference					
	AEO82 to AEO2000	AEO82 to AEO2001	AEO82 to AEO2002	AEO82 to AEO2003	AEO82 to AEO2004	AEO82 to AEO2005
<b>Consumption and Emissions</b>						
Total Energy Consumption	2.0	2.1	2.1	2.1	2.2	2.2
Total Petroleum Consumption	3.0	3.1	3.1	3.0	2.9	2.9
Total Natural Gas Consumption	7.1	7.1	6.7	6.4	6.4	6.4
Total Coal Consumption	3.3	3.5	3.6	3.7	3.9	3.9
Total Electricity Sales	2.0	2.3	2.3	2.3	2.4	2.4
Total Carbon Dioxide Emissions	3.1	3.3	3.2	3.1	3.1	3.0
<b>Production</b>						
Crude Oil Production	4.5	4.5	4.5	4.6	4.6	4.7
Natural Gas Production	4.6	4.6	4.4	4.5	4.7	4.9
Coal Production	3.5	3.8	3.7	3.8	4.1	4.2
<b>Imports and Exports</b>						
Petroleum Net Imports	8.3	7.7	7.3	7.1	6.8	6.5
Natural Gas Net Imports	15.9	16.1	15.8	15.4	15.2	14.9
<b>Prices and Economic Variables</b>						
World Oil Prices	68.4	65.5	62.4	59.3	56.4	54.2
Natural Gas Wellhead Prices	82.4	78.6	74.3	70.4	67.5	64.9
Coal Prices to Electric Generating Plants*	46.5	49.8	49.1	48.4	47.7	47.0
Average Electricity Prices	18.6	20.1	19.8	19.6	19.6	19.5
Gross Domestic Product	5.7	5.9	5.8	5.6	5.5	5.4
Energy Intensity	5.8	6.1	6.0	5.8	5.7	5.7
<i>AEO - Annual Energy Outlook</i>						
<p>Source: Statistics in Table 1 are a summary of the calculations in Tables 2 through 18. The data in Tables 2 through 18 are based on the 1982 through 2004 <i>Annual Energy Outlook</i> projections. Historical data are taken from the <i>Annual Energy Review 2004</i>, DOE/EIA-0384(2004) (Washington, DC, September 2005) and the <i>Monthly Energy Review November 2005</i>, DOE/EIA-0035(2005/11) (Washington, DC, November 2005).</p> <p>Note: Projections of carbon dioxide emissions began in AEO93 and were first evaluated in 2000. Revisions to historical carbon emissions are reflected in this edition. Evaluation of energy intensity projections began in 2003.</p> <p>*Coal prices to electric generating plants are not published in the <i>Annual Energy Review</i>. Beginning in AEO2003, EIA electric generating projections incorporated combined heat and power (CHP) electricity generation in electricity generating plants. Prior to AEO2003, coal price projections reflected data collected, estimated, and reported to electric utilities and excluded CHP power generation.</p>						

**Table 2. Total Energy Consumption, Actual vs. Reference Case Projections**

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
(quadrillion Btu)																				
AEO 1982	79.1	79.6	79.9	80.8	82.0	83.3														
AEO 1983	78.0	79.5	81.0	82.4	83.8	84.6					89.5									
AEO 1984	78.5	79.4	81.2	83.1	85.0	86.4					93.5									
AEO 1985	77.6	78.5	79.8	81.2	82.6	83.3	84.2	85.2	85.9	86.7	87.7									
AEO 1986		77.0	78.8	79.8	80.6	81.5	82.9	84.0	84.8	85.7	86.5	87.9	88.4	87.8	88.7	89.6				
AEO 1987			78.9	80.0	81.9	82.8	83.9	85.3	86.4	87.5	88.4					91.9				
AEO 1989*				82.2	83.7	84.5	85.4	86.4	87.3	88.2	89.2	90.8	91.4	90.9	91.7	92.9				
AEO 1990					84.2	85.4					91.9					97.4				
AEO 1991						84.4	85.0	86.0	87.0	87.9	89.1	90.4	91.8	93.1	94.3	95.6	97.1	98.4	99.4	100.3
AEO 1992							84.7	87.0	88.0	89.2	90.5	91.4	92.4	93.4	94.5	95.6	96.9	98.0	99.0	100.0
AEO 1993								87.0	88.3	89.8	91.4	92.7	94.0	95.3	96.3	97.5	98.6	99.7	100.7	101.7
AEO 1994									88.0	89.5	90.7	91.7	92.7	93.6	94.6	95.7	96.7	97.7	98.9	100.0
AEO 1995										89.2	90.0	90.6	91.9	93.0	93.8	94.6	95.3	96.2	97.2	98.4
AEO 1996											90.6	91.3	92.5	93.5	94.3	95.1	95.9	96.9	98.0	99.2
AEO 1997												92.6	93.6	95.1	96.6	97.9	98.8	99.9	101.2	102.4
AEO 1998													94.7	96.7	98.6	99.8	101.3	102.4	103.4	104.5
AEO 1999														94.6	97.0	99.2	100.9	102.0	102.9	103.6
AEO 2000															96.4	98.2	99.4	100.9	102.4	103.8
AEO 2001																97.6	99.9	102.2	104.1	105.6
AEO 2002																	98.3	101.0	104.1	105.8
AEO 2003																		97.5	99.9	101.7
AEO 2004																			98.1	100.2
AEO 2005																				99.8
Actual	76.5	76.8	79.2	82.8	85.0	84.7	84.6	86.0	87.6	89.3	91.2	94.3	94.8	95.2	96.8	99.0	96.5	97.9	98.3	99.7
Average Absolute Difference (All AEOs)	1.8	2.0	1.0	1.6	2.0	1.2	0.7	0.9	1.0	1.3	1.8	3.2	2.4	2.1	2.4	3.2	2.1	2.1	2.6	2.3
(percent difference)																				
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
AEO 1982																				
AEO 1983	3.4	3.7	0.9	-2.5	-3.5	-1.7														
AEO 1984	2.0	3.5	2.2	-0.5	-1.4	-0.1					-1.9									
AEO 1985	2.6	3.4	2.5	0.3	0.1	2.0					2.5									
AEO 1986	1.4	2.2	0.7	-2.0	-2.8	-1.7	-0.5	-0.9	-2.0	-2.9	-3.9									
AEO 1987		0.3	-0.5	-3.7	-5.1	-3.8	-2.1	-2.3	-3.2	-4.0	-5.2	-6.7	-6.7	-7.8	-8.4	-9.5				
AEO 1989*			-0.4	-3.4	-3.6	-2.2	-0.9	-0.8	-1.4	-2.0	-3.1									
AEO 1990				-0.8	-1.5	-0.2	0.9	0.5	-0.4	-1.2	-2.2	-3.7	-3.6	-4.5	-5.3	-6.1				
AEO 1991					-0.9	0.8				0.7										
AEO 1992						-0.4	0.4	0.0	-0.7	-1.6	-2.4	-4.1	-3.1	-2.2	-2.7	-3.4	0.6	0.5	1.1	0.6
AEO 1993							0.1	1.2	0.4	-0.1	-0.8	-3.0	-2.5	-1.8	-2.4	-3.4	0.4	0.1	0.7	0.3
AEO 1994								1.2	0.8	0.6	0.1	-1.7	-0.8	0.1	-0.5	-1.5	2.2	1.9	2.4	2.0
AEO 1995									0.5	0.3	-0.6	-2.7	-2.2	-1.7	-2.4	-3.3	0.2	-0.2	0.6	0.3
AEO 1996										-0.1	-1.4	-3.9	-3.0	-2.3	-3.1	-4.4	-1.2	-1.7	-1.2	-1.4
AEO 1997											-0.7	-3.2	-2.4	-1.8	-2.7	-3.9	-0.6	-1.0	-0.3	-0.5
AEO 1998												-1.7	-1.3	-0.1	-0.3	-1.1	2.4	2.1	2.9	2.7
AEO 1999													-0.1	1.6	1.8	0.8	5.0	4.6	5.2	4.8
AEO 2000														-0.6	0.1	0.3	4.6	4.2	4.6	3.8
AEO 2001															-0.5	-0.8	3.0	3.0	4.2	4.1
AEO 2002																-1.4	3.6	4.4	5.9	5.9
AEO 2003																	1.9	3.2	5.8	6.1
AEO 2004																		-0.4	1.6	2.0
AEO 2005																			-0.2	0.5
Average Absolute Percent Difference (All AEOs)	2.4	2.6	1.2	1.9	2.3	1.4	0.8	1.0	1.2	1.4	2.0	3.4	2.6	2.2	2.5	3.2	2.1	2.1	2.6	2.3

\* There is no report titled *Annual Energy Outlook 1988* due to a change in the naming convention of the AEOs.

Sources: Projections: *Annual Energy Outlook*, Mid-Price or Reference Case Projections, Various Editions.

Historical Data: Energy Information Administration, *Annual Energy Review 2004*, DOE/EIA-0384(2004) (Washington, DC, August 2005), Table 1.3.

**Table 3. Total Petroleum Consumption, Actual vs. Reference Case Projections Projections**

(million barrels per day)	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
AEO 1982	18.00	17.89	17.55	17.24	16.98	16.99															
AEO 1983	15.82	16.13	16.37	16.50	16.56	16.63					17.37										
AEO 1984	15.77	15.76	16.01	16.27	16.48	16.74					18.00										
AEO 1985	15.72	15.74	15.97	16.01	16.06	16.08	16.18	16.23	16.32	16.36	16.53										
AEO 1986		16.07	16.29	16.05	16.07	16.15	16.31	16.37	16.42	16.44	16.46	16.50	16.64	16.80	17.21	17.38					
AEO 1987			16.52	16.66	16.96	17.06	17.29	17.56	17.73	17.76	17.72					18.30					
AEO 1989*				17.01	17.20	17.44	17.57	17.72	17.76	17.78	17.82	18.05	18.12	18.19	18.40	18.61					
AEO 1990					17.24	17.41					18.21					18.84					
AEO 1991						16.95	16.65	16.83	17.01	17.17	17.34	17.53	17.83	18.09	18.33	18.53	18.87	19.12	19.24	19.27	
AEO 1992							16.74	17.07	17.37	17.59	17.80	17.86	17.99	18.14	18.26	18.43	18.70	18.90	19.09	19.16	
AEO 1993								17.07	17.45	17.79	18.15	18.26	18.60	18.88	19.07	19.25	19.54	19.75	19.98	20.15	
AEO 1994									17.67	17.99	18.20	18.42	18.66	18.85	19.06	19.34	19.52	19.74	19.99	20.21	
AEO 1995										17.53	17.93	17.96	18.29	18.48	18.69	18.87	19.08	19.31	19.58	19.85	
AEO 1996											17.78	17.88	18.10	18.38	18.58	18.78	19.02	19.20	19.41	19.66	
AEO 1997												18.18	18.34	18.70	19.05	19.38	19.68	19.91	20.19	20.44	
AEO 1998													18.89	18.92	19.36	19.62	19.94	20.27	20.52	20.81	
AEO 1999														18.86	19.20	19.91	20.23	20.47	20.65	20.88	
AEO 2000															19.33	19.56	19.91	20.17	20.42	20.76	
AEO 2001																19.50	20.04	20.36	20.62	20.91	
AEO 2002																	19.69	20.84	20.55	21.68	
AEO 2003																		19.57	19.83	20.18	
AEO 2004																			19.89	20.16	
AEO 2005																				20.50	
Actual	15.73	16.28	16.67	17.33	17.33	16.99	16.71	17.08	17.24	17.72	17.72	18.36	18.62	18.92	19.52	19.76	19.65	19.76	20.03	20.57	
Average Absolute Difference (All AEOs)	0.60	0.61	0.51	0.80	0.63	0.37	0.41	0.42	0.47	0.44	0.41	0.52	0.54	0.53	0.81	0.82	0.40	0.48	0.43	0.56	
(percent difference)																					
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
AEO 1982	14.5	9.9	5.3	-0.5	-2.0	0.0															
AEO 1983	0.6	-0.9	-1.8	-4.8	-4.4	-2.1					-2.0										
AEO 1984	0.3	-3.2	-3.9	-6.1	-4.9	-1.5					1.6										
AEO 1985	0.0	-3.3	-4.2	-7.6	-7.3	-5.3	-3.2	-5.0	-5.3	-7.7	-6.7										
AEO 1986		-1.3	-2.3	-7.4	-7.2	-4.9	-2.4	-4.2	-4.7	-7.2	-7.1	-10.1	-10.6	-11.2	-11.8	-12.0					
AEO 1987			-0.9	-3.9	-2.1	0.4	3.4	2.8	2.9	0.2	0.0					-7.4					
AEO 1989*				-1.9	-0.7	2.7	5.1	3.7	3.0	0.3	0.5	-1.7	-2.7	-3.8	-5.7	-5.8					
AEO 1990					-0.5	2.5				2.7						-4.6					
AEO 1991						-0.2	-0.4	-1.5	-1.3	-3.1	-2.2	-4.5	-4.2	-4.4	-6.1	-6.2	-4.0	-3.2	-4.0	-6.3	
AEO 1992							0.2	-0.1	0.8	-0.7	0.4	-2.7	-3.4	-4.1	-6.5	-6.7	-4.8	-4.4	-4.7	-6.9	
AEO 1993								-0.1	1.2	0.4	2.4	-0.5	-0.1	-0.2	-2.3	-2.6	-0.6	-0.1	-0.3	-2.1	
AEO 1994									2.5	1.5	2.7	0.3	0.2	-0.4	-2.4	-2.1	-0.7	-0.1	-0.2	-1.8	
AEO 1995										-1.1	1.2	-2.2	-1.8	-2.3	-4.2	-4.5	-2.9	-2.3	-2.3	-3.5	
AEO 1996											0.3	-2.6	-2.8	-2.8	-4.8	-4.9	-3.2	-2.8	-3.1	-4.4	
AEO 1997												-1.0	-1.5	-1.1	-2.4	-1.9	0.2	0.8	0.8	-0.6	
AEO 1998														1.4	0.0	-0.8	1.5	2.6	2.4	1.1	
AEO 1999															-0.3	-1.6	0.8	3.0	3.6	3.1	1.5
AEO 2000																-1.0	1.3	2.1	1.9	0.9	
AEO 2001																	-1.3	2.0	3.0	2.9	1.7
AEO 2002																		0.2	5.4	2.6	5.4
AEO 2003																			-1.0	-1.0	-1.9
AEO 2004																				-0.7	-2.0
AEO 2005																					-0.3
Average Absolute Percent Difference (All AEOs)	3.8	3.7	3.1	4.6	3.6	2.2	2.5	2.5	2.7	2.5	2.3	2.9	2.9	2.8	4.1	4.2	2.0	2.4	2.1	2.7	

\* There is no report titled *Annual Energy Outlook 1988* due to a change in the naming convention of the AEOs.

Sources: Projections: *Annual Energy Outlook*, Mid-Price or Reference Case Projections, Various Editions.

Historical Data: Energy Information Administration, *Annual Energy Review 2004*, DOE/EIA-0384(2004) (Washington, DC, August 2005), Table 5.1.



**Table 4. Total Natural Gas Consumption, Actual vs. Reference Case Projections**

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
AEO 1982	15.93	15.72	15.72	16.08	16.59	17.08															
AEO 1983	17.75	17.63	17.57	17.75	17.76	17.77					16.95										
AEO 1984	18.22	18.07	18.33	18.61	18.73	18.76					18.75										
AEO 1985	17.79	17.80	17.89	18.30	18.58	18.71	18.79	18.88	18.82	18.81											
AEO 1986		16.52	16.83	17.35	17.27	17.50	17.77	17.77	17.90	18.01	18.04	18.03	18.26	18.34	18.04	17.92					
AEO 1987			16.85	16.93	17.24	17.27	17.34	17.43	17.66	18.02	18.31					19.65					
AEO 1989*				17.75	17.95	17.94	18.08	18.10	18.34	18.68	18.94	19.17	19.55	19.86	19.98	20.29					
AEO 1990					18.34	18.66					20.69					22.88					
AEO 1991						18.53	19.21	19.34	19.56	19.76	20.01	20.21	20.66	20.93	21.23	21.64	22.03	22.33	22.35	22.32	
AEO 1992							18.79	19.36	19.84	20.08	20.53	20.68	21.12	21.42	21.66	21.89	22.23	22.59	22.82	22.95	
AEO 1993								20.27	20.17	20.54	20.97	21.54	21.83	22.20	22.57	22.83	23.14	23.44	23.75	24.01	
AEO 1994									19.87	20.21	20.64	20.99	21.20	21.42	21.60	21.99	22.37	22.63	22.95	23.22	
AEO 1995										20.82	20.66	20.85	21.21	21.65	21.95	22.12	22.25	22.43	22.62	22.87	
AEO 1996											21.32	21.64	22.11	22.21	22.26	22.34	22.46	22.74	23.14	23.63	
AEO 1997												22.15	22.75	23.24	23.64	23.86	24.13	24.65	25.34	25.82	
AEO 1998													21.84	23.03	23.84	24.08	24.44	24.81	25.33	25.72	
AEO 1999														21.35	22.36	22.54	23.18	23.65	24.17	24.57	
AEO 2000															21.46	22.36	22.19	22.42	22.92	23.27	
AEO 2001																22.00	22.67	23.55	24.37	24.96	
AEO 2002																	22.22	23.89	24.73	25.20	
AEO 2003																		23.20	24.00	24.48	
AEO 2004																			22.09	23.17	
AEO 2005																				22.14	
Actual	17.28	16.22	17.21	18.03	19.12	19.17	19.56	20.23	20.79	21.25	22.21	22.61	22.74	22.25	22.41	23.33	22.24	23.01	22.38	22.32	
Average Absolute Difference (All AEOs)	0.8	1.1	0.7	0.7	1.3	1.1	1.2	1.5	1.8	1.8	2.6	2.0	1.7	1.1	1.2	1.6	0.6	0.7	1.3	1.6	
(percent difference)																					
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
AEO 1982	-7.8	-3.1	-8.7	-10.8	-13.2	-10.9															
AEO 1983	2.7	8.7	2.1	-1.6	-7.1	-7.3					-23.7										
AEO 1984	5.4	11.4	6.5	3.2	-2.0	-2.2					-15.6										
AEO 1985	2.9	9.7	3.9	1.5	-2.8	-2.4	-3.9	-6.7	-9.5	-11.4	-15.3										
AEO 1986		1.8	-2.2	-3.8	-9.7	-8.7	-9.2	-12.2	-13.9	-15.2	-18.8	-20.3	-19.7	-17.6	-19.5	-23.2					
AEO 1987			-2.1	-6.1	-9.8	-9.9	-11.4	-13.8	-15.1	-15.2	-17.5					-15.8					
AEO 1989*				-1.6	-6.1	-6.4	-7.6	-10.5	-11.8	-12.1	-14.7	-15.2	-14.0	-10.7	-10.8	-13.0					
AEO 1990					-4.1	-2.7					-6.8					-1.9					
AEO 1991						-3.4	-1.8	-4.4	-5.9	-7.0	-9.9	-10.6	-9.1	-5.9	-5.2	-7.3	-0.9	-2.9	-0.1	0.0	
AEO 1992							-3.9	-4.3	-4.6	-5.5	-7.6	-8.5	-7.1	-3.7	-3.3	-6.2	0.0	-1.8	2.0	2.8	
AEO 1993								0.2	-3.0	-3.3	-5.6	-4.7	-4.0	-0.2	0.7	-2.2	4.1	1.9	6.1	7.6	
AEO 1994									-4.4	-4.9	-7.1	-7.2	-6.8	-3.7	-3.6	-5.8	0.6	-1.6	2.6	4.0	
AEO 1995										-2.0	-7.0	-7.8	-6.7	-2.7	-2.0	-5.2	0.1	-2.5	1.1	2.5	
AEO 1996											-4.0	-4.3	-2.8	-0.2	-0.6	-4.3	1.0	-1.2	3.4	5.9	
AEO 1997												-2.0	0.1	4.5	5.5	2.3	8.5	7.1	13.3	15.7	
AEO 1998													-3.9	3.5	6.4	3.2	9.9	7.8	13.2	15.2	
AEO 1999														-4.0	-0.2	-3.4	4.2	2.8	8.0	10.1	
AEO 2000															-4.2	-0.2	-2.6	2.4	4.2	4.2	
AEO 2001																-5.7	1.9	2.4	8.9	11.8	
AEO 2002																	-0.1	3.8	10.5	12.9	
AEO 2003																		0.8	7.3	9.7	
AEO 2004																			-1.3	3.8	
AEO 2005																				-0.8	
Average Absolute Percent Difference (All AEOs)	4.7	6.9	4.3	4.1	6.9	6.0	6.3	7.4	8.5	8.5	11.8	9.0	7.4	5.2	5.2	6.9	2.6	3.0	5.7	7.1	

\* There is no report titled *Annual Energy Outlook 1988* due to a change in the naming convention of the AEOs.

Sources: Projections: *Annual Energy Outlook*, Mid-Price or Reference Case Projections, Various Editions.

Historical Data: Energy Information Administration, *Annual Energy Review 2004*, DOE/EIA-0384(2004) (Washington, DC, August 2005), Table 6.1.

**Table 5. Total Coal Consumption, Actual vs. Reference Case Projections**

(million short tons)	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
AEO 1982	805	825	843	868	896	936															
AEO 1983	807	831	848	870	899	928					1061										
AEO 1984	843	848	866	889	919	958					1110										
AEO 1985	818	833	842	853	867	891	918	943	970	989	1008										
AEO 1986		813	831	860	870	888	919	945	972	995	1021	1038	1051	1069	1083	1105					
AEO 1987			837	837	854	879	896	912	932	954	975					1059					
AEO 1989*				872	882	894	903	927	947	965	987	990	1006	1026	1045	1062					
AEO 1990					884	893					984					1049					
AEO 1991						893	902	918	932	943	948	962	973	984	991	1003	1003	1011	1030	1056	
AEO 1992							905	934	919	925	934	944	953	961	971	993	1003	1011	1020	1037	
AEO 1993								929	931	940	947	958	965	970	972	987	997	1004	1010	1018	
AEO 1994									920		928	933	938	943	948	953	958	962	967	978	990
AEO 1995										935	940	941	947	948	951	954	958	963	971	984	
AEO 1996											937	942	954	962	983	990	1004	1017	1027	1033	
AEO 1997												948	970	987	1003	1017	1020	1025	1034	1041	
AEO 1998													1009	1051	1044	1058	1087	1084	1090	1097	
AEO 1999														1040	1075	1092	1109	1113	1118	1120	
AEO 2000															1053	1086	1103	1124	1142	1164	
AEO 2001																1078	1112	1135	1153	1165	
AEO 2002																	1088	1092	1126	1147	
AEO 2003																		1040	1059	1082	
AEO 2004																			1100	1098	
AEO 2005																				1102	
Actual	818	804	837	884	895	904	899	908	944	951	962	1006	1030	1037	1039	1084	1060	1066	1095	1104	
Average Absolute Difference (All AEOs)	12.3	25.8	9.5	21.0	18.4	21.9	9.0	22.1	17.9	20.4	41.9	51.0	56.7	50.9	46.1	55.5	56.0	54.5	57.1	52.5	

(percent difference)	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
AEO 1982	-1.6	2.6	0.7	-1.8	0.1	3.5															
AEO 1983	-1.4	3.3	1.3	-1.5	0.4	2.6					10.3										
AEO 1984	3.1	5.4	3.5	0.6	2.7	5.9					15.4										
AEO 1985	0.0	3.6	0.6	-3.5	-3.1	-1.5	2.1	3.9	2.7	4.0	4.8										
AEO 1986		1.1	-0.7	-2.7	-2.8	-1.8	2.2	4.1	3.0	4.6	6.1	3.1	2.1	3.1	4.3	1.9					
AEO 1987			0.0	-5.3	-4.6	-2.8	-0.4	0.5	-1.3	0.3	1.3					-2.3					
AEO 1989*				-1.3	-1.5	-1.2	0.4	2.1	0.3	1.4	2.6	-1.6	-2.3	-1.1	0.6	-2.0					
AEO 1990					-1.2	-1.3					2.3					-3.2					
AEO 1991						-1.3	0.3	1.1	-1.3	-0.9	-1.5	-4.4	-5.5	-5.1	-4.6	-7.5	-5.4	-5.2	-5.9	-4.4	
AEO 1992							0.6	2.9	-2.7	-2.8	-2.9	-6.2	-7.4	-7.3	-6.5	-8.4	-5.4	-5.2	-6.8	-6.1	
AEO 1993								2.4	-1.4	-1.2	-1.6	-4.8	-6.3	-6.5	-6.4	-9.0	-6.0	-5.8	-7.8	-7.8	
AEO 1994									-2.6	-2.4	-3.0	-6.8	-8.4	-8.6	-8.2	-11.6	-9.3	-9.3	-10.7	-10.3	
AEO 1995										-1.7	-2.3	-6.5	-8.0	-8.6	-8.4	-12.0	-9.6	-9.7	-11.3	-10.9	
AEO 1996											-2.6	-6.4	-7.3	-7.2	-5.4	-8.7	-5.3	-4.6	-6.2	-6.5	
AEO 1997												-5.8	-5.8	-4.8	-3.4	-6.2	-3.8	-3.9	-5.6	-5.7	
AEO 1998													-2.0	1.3	0.5	-2.4	2.5	1.7	-0.4	-0.7	
AEO 1999															0.3	3.5	0.7	4.6	4.4	2.1	1.4
AEO 2000																1.4	0.2	4.0	5.4	4.3	5.4
AEO 2001																	-0.6	4.9	6.4	5.3	5.5
AEO 2002																		2.6	2.4	2.8	3.9
AEO 2003																			-2.5	-3.2	-2.0
AEO 2004																				0.4	-0.6
AEO 2005																					-0.2
Average Absolute Percent Difference (All AEOs)	1.5	3.2	1.1	2.4	2.1	2.4	1.0	2.4	1.9	2.1	4.4	5.1	5.5	4.9	4.4	5.1	5.3	5.1	5.2	4.8	

\* There is no report titled *Annual Energy Outlook 1988* due to a change in the naming convention of the AEOs.

Sources: Projections: *Annual Energy Outlook*, Mid-Price or Reference Case Projections, Various Editions.

Historical Data: Energy Information Administration, *Annual Energy Review 2004*, DOE/EIA-0384(2004) (Washington, DC, August 2005), Table 7.1.

**Table 6. Total Electricity Sales, Actual vs. Reference Case Projections**  
(billion kilowatt-hours)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
AEO 1982	2364	2454	2534	2626	2708	2811														
AEO 1983	2318	2395	2476	2565	2650	2739					3153									
AEO 1984	2321	2376	2461	2551	2637	2738					3182									
AEO 1985	2317	2360	2427	2491	2570	2651	2730	2808	2879	2949	3026									
AEO 1986		2363	2416	2479	2533	2608	2706	2798	2883	2966	3048	3116	3185	3255	3324	3397				
AEO 1987			2460	2494	2555	2622	2683	2748	2823	2902	2977					3363				
AEO 1989*				2556	2619	2689	2760	2835	2917	2994	3072	3156	3236	3313	3394	3473				
AEO 1990					2612	2689					3083					3488				
AEO 1991						2700	2762	2806	2855	2904	2959	3022	3088	3151	3214	3282	3355	3427	3496	3563
AEO 1992							2746	2845	2858	2913	2975	3030	3087	3146	3209	3276	3345	3415	3483	3552
AEO 1993								2803	2840	2893	2946	2998	3052	3104	3157	3214	3271	3327	3383	3438
AEO 1994									2843	2891	2928	2962	3004	3039	3071	3112	3148	3185	3228	3263
AEO 1995										2951	2967	2983	3026	3058	3085	3108	3134	3166	3204	3248
AEO 1996											2973	2998	3039	3074	3106	3137	3173	3215	3262	3317
AEO 1997												3075	3115	3168	3229	3290	3328	3379	3437	3497
AEO 1998													3106	3204	3255	3318	3388	3438	3488	3546
AEO 1999														3205	3262	3333	3402	3454	3492	3534
AEO 2000															3288	3360	3402	3461	3523	3585
AEO 2001																3364	3440	3530	3608	3681
AEO 2002																	3443	3502	3619	3711
AEO 2003																		3414	3527	3617
AEO 2004																			3495	3582
AEO 2005																				3547
Actual	2324	2369	2457	2578	2647	2713	2762	2763	2861	2935	3013	3101	3146	3264	3312	3421	3370	3463	3488	3551
Average Absolute Difference (All AEOs)	14.0	26.6	28.9	54.3	52.4	51.9	30.8	47.2	22.9	32.4	65.6	78.8	77.8	117.0	111.6	136.2	88.4	101.1	91.1	96.8
(percent difference)																				
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
AEO 1982	1.7	3.6	3.1	1.9	2.3	3.6														
AEO 1983	-0.3	1.1	0.8	-0.5	0.1	1.0					4.6									
AEO 1984	-0.1	0.3	0.2	-1.0	-0.4	0.9					5.6									
AEO 1985	-0.3	-0.4	-1.2	-3.4	-2.9	-2.3	-1.2	1.6	0.6	0.5	0.4									
AEO 1986		-0.2	-1.7	-3.8	-4.3	-3.9	-2.0	1.3	0.8	1.1	1.2	0.5	1.3	-0.3	0.4	-0.7				
AEO 1987			0.1	-3.3	-3.5	-3.3	-2.9	-0.6	-1.3	-1.1	-1.2					-1.7				
AEO 1989*				-0.9	-1.1	-0.9	-0.1	2.6	1.9	2.0	1.9	1.8	2.9	1.5	2.5	1.5				
AEO 1990					-1.3	-0.9					2.3					1.9				
AEO 1991						-0.5	0.0	1.5	-0.2	-1.0	-1.8	-2.6	-1.8	-3.5	-3.0	-4.1	-0.4	-1.0	0.2	0.4
AEO 1992							-0.6	3.0	-0.1	-0.7	-1.3	-2.3	-1.9	-3.6	-3.1	-4.3	-0.7	-1.4	-0.1	0.0
AEO 1993								1.4	-0.8	-1.4	-2.2	-3.3	-3.0	-4.9	-4.7	-6.1	-2.9	-3.9	-3.0	-3.2
AEO 1994									-0.6	-1.5	-2.8	-4.5	-4.5	-6.9	-7.3	-9.0	-6.6	-8.0	-7.5	-8.1
AEO 1995										0.6	-1.5	-3.8	-3.8	-6.3	-6.9	-9.2	-7.0	-8.6	-8.1	-8.5
AEO 1996											-1.3	-3.3	-3.4	-5.8	-6.2	-8.3	-5.8	-7.1	-6.5	-6.6
AEO 1997												-0.8	-1.0	-2.9	-2.5	-3.8	-1.2	-2.4	-1.5	-1.5
AEO 1998													-1.3	-1.8	-1.7	-3.0	0.5	-0.7	0.0	-0.1
AEO 1999														-1.8	-1.5	-2.6	1.0	-0.2	0.1	-0.5
AEO 2000															-0.7	-1.7	2.1	2.0	3.4	1.0
AEO 2001																	2.2	1.1	3.7	4.5
AEO 2002																		1.4	1.1	1.9
AEO 2003																			0.2	0.9
AEO 2004																				0.9
AEO 2005																				-0.1
Average Absolute Percent Difference (All AEOs)	0.6	1.1	1.2	2.1	2.0	1.9	1.1	1.7	0.8	1.1	2.2	2.5	2.5	3.6	3.4	4.0	2.6	2.9	2.6	2.7

\* There is no report titled *Annual Energy Outlook 1988* due to a change in the naming convention of the AEOs.

Sources: Projections: *Annual Energy Outlook*, Mid-Price or Reference Case Projections, Various Editions.

Historical Data: Energy Information Administration, *Annual Energy Review 2004*, DOE/EIA-0384(2004) (Washington, DC, August 2005), Table 8.1, Retail Sales.

**Table 7. Total Carbon Dioxide Emissions, Actual vs. Reference Case Projections**

(million metric tons)	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
AEO 1982																				
AEO 1983																				
AEO 1984																				
AEO 1985																				
AEO 1986																				
AEO 1987																				
AEO 1989*																				
AEO 1990																				
AEO 1991																				
AEO 1992																				
AEO 1993								5009	5053	5130	5207	5269	5335	5401	5449	5504	5562	5621	5672	5724
AEO 1994								5060	5130	5185	5240	5287	5335	5379	5438	5482	5529	5599	5658	
AEO 1995									5137	5174	5188	5262	5309	5361	5394	5441	5489	5551	5621	
AEO 1996										5182	5224	5295	5355	5417	5464	5525	5589	5660	5735	
AEO 1997											5295	5381	5491	5586	5658	5715	5781	5863	5934	
AEO 1998												5474	5621	5709	5782	5892	5958	6028	6098	
AEO 1999														5522	5689	5810	5913	5976	6036	6084
AEO 2000															5573	5692	5777	5865	5971	6078
AEO 2001																5630	5781	5909	6023	6114
AEO 2002																	5723	5808	5981	6095
AEO 2003																		5633	5749	5856
AEO 2004																			5743	5826
AEO 2005																				5905
Actual	4638	4643	4800	5013	5106	4990	4953	5067	5174	5256	5307	5496	5558	5591	5672	5845	5777	5825	5870	5896
Average Absolute Difference (All AEOs)								57.8	117.2	124.2	120.0	252.3	219.2	166.0	165.0	248.0	146.8	157.6	161.9	153.2
(percent difference)																				
AEO 1982																				
AEO 1983																				
AEO 1984																				
AEO 1985																				
AEO 1986																				
AEO 1987																				
AEO 1989*																				
AEO 1990																				
AEO 1991																				
AEO 1992																				
AEO 1993								-1.1	-2.3	-2.4	-1.9	-4.1	-4.0	-3.4	-3.9	-5.8	-3.7	-3.5	-3.4	-2.9
AEO 1994									-2.2	-2.4	-2.3	-4.7	-4.9	-4.6	-5.2	-7.0	-5.1	-5.1	-4.6	-4.0
AEO 1995										-2.3	-2.5	-5.6	-5.3	-5.0	-5.5	-7.7	-5.8	-5.8	-5.4	-4.7
AEO 1996											-2.4	-4.9	-4.7	-4.2	-4.5	-6.5	-4.4	-4.1	-3.6	-2.7
AEO 1997												-3.6	-3.2	-1.8	-1.5	-3.2	-1.1	-0.8	-0.1	0.6
AEO 1998													-1.5	0.5	0.7	-1.1	2.0	2.3	2.7	3.4
AEO 1999														-1.2	0.3	-0.6	2.3	2.6	2.8	3.2
AEO 2000															-1.7	-2.6	0.0	0.7	1.7	3.1
AEO 2001																-3.7	0.1	1.4	2.6	3.7
AEO 2002																	-0.9	-0.3	1.9	3.4
AEO 2003																		-3.3	-2.1	-0.7
AEO 2004																			-2.2	-1.2
AEO 2005																				0.2
Average Absolute Percent Difference (All AEOs)								1.1	2.3	2.4	2.3	4.6	3.9	3.0	2.9	4.2	2.5	2.7	2.8	2.6

\* There is no report titled *Annual Energy Outlook 1988* due to a change in the naming convention of the AEOs.

Sources: Projections: *Annual Energy Outlook*, Mid-Price or Reference Case Projections, Various Editions.

Historical Data: Energy Information Administration, November 2005 Monthly Energy Review, DOE/EIA-0035(2005/11) (Washington, DC, November 2005), Table 12.1, and 2004 estimate from <http://www.eia.doe.gov/oiaf/1605/flash/flash.html>.

**Table 8. Domestic Crude Oil Production, Actual vs. Reference Case Projections**

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
AEO 1982	8.79	8.85	8.84	8.80	8.66	8.21															
AEO 1983	8.67	8.71	8.66	8.72	8.80	8.63					8.11										
AEO 1984	8.86	8.70	8.59	8.45	8.28	8.25					7.19										
AEO 1985	8.92	8.96	9.01	8.78	8.38	8.05	7.64	7.27	6.89	6.68	6.53										
AEO 1986		8.80	8.63	8.30	7.90	7.43	6.95	6.60	6.36	6.20	5.99	5.80	5.66	5.54	5.45	5.43					
AEO 1987			8.31	8.18	8.00	7.63	7.34	7.09	6.86	6.64	6.54					6.03					
AEO 1989*				8.18	7.97	7.64	7.25	6.87	6.59	6.37	6.17	6.05	6.00	5.94	5.90	5.89					
AEO 1990					7.67	7.37					6.40					5.86					
AEO 1991						7.23	6.98	7.10	7.11	7.01	6.79	6.48	6.22	5.92	5.64	5.36	5.11	4.90	4.73	4.62	
AEO 1992							7.37	7.17	6.99	6.89	6.68	6.45	6.28	6.16	6.06	5.91	5.79	5.71	5.66	5.64	
AEO 1993								7.20	6.94	6.79	6.52	6.22	6.00	5.84	5.72	5.60	5.54	5.50	5.50	5.51	
AEO 1994									6.87	6.50	6.18	5.92	5.72	5.54	5.35	5.18	5.07	5.00	4.93	4.88	
AEO 1995										6.58	6.32	6.04	5.74	5.58	5.39	5.35	5.27	5.25	5.22	5.19	
AEO 1996											6.54	6.33	6.16	5.95	5.79	5.65	5.51	5.42	5.35	5.31	
AEO 1997												6.47	6.32	6.15	6.02	5.87	5.73	5.63	5.57	5.52	
AEO 1998													6.41	6.39	6.28	6.17	6.08	6.01	5.94	5.88	
AEO 1999														6.41	6.33	6.29	6.21	6.05	5.95	5.87	
AEO 2000															6.01	5.98	5.81	5.65	5.52	5.43	
AEO 2001																5.89	5.92	6.04	6.01	5.78	
AEO 2002																	5.84	5.85	5.68	5.50	
AEO 2003																		5.89	5.81	5.66	
AEO 2004																			5.69	5.80	
AEO 2005																				5.64	
Actual	8.97	8.68	8.35	8.16	7.61	7.36	7.42	7.19	6.85	6.66	6.56	6.48	6.45	6.25	5.88	5.84	5.80	5.75	5.68	5.45	
Average Absolute Difference (All AEOs)	0.2	0.1	0.3	0.3	0.6	0.5	0.2	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3

(percent difference)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
AEO 1982	-2.0	2.0	5.9	7.8	13.8	11.6															
AEO 1983	-3.4	0.3	3.7	6.8	15.6	17.3					23.6										
AEO 1984	-1.2	0.2	2.9	3.5	8.8	12.2					9.6										
AEO 1985	-0.6	3.2	7.9	7.6	10.1	9.4	3.0	1.1	0.6	0.3	-0.5										
AEO 1986		1.4	3.4	1.7	3.8	1.0	-6.3	-8.2	-7.1	-6.9	-8.7	-10.5	-12.3	-11.4	-7.3	-7.0					
AEO 1987			-0.5	0.2	5.1	3.7	-1.0	-1.4	0.2	-0.3	-0.3					3.3					
AEO 1989*				0.2	4.7	3.9	-2.2	-4.5	-3.7	-4.4	-5.9	-6.7	-7.0	-5.0	0.3	0.9					
AEO 1990					0.7	0.2					-2.4					0.4					
AEO 1991						-1.7	-5.9	-1.3	3.8	5.2	3.5	0.0	-3.6	-5.3	-4.1	-8.2	-11.9	-14.7	-16.7	-15.2	
AEO 1992							-0.6	-0.3	2.1	3.4	1.8	-0.5	-2.7	-1.5	3.0	1.2	-0.2	-0.6	-0.4	3.6	
AEO 1993								0.1	1.4	1.9	-0.6	-4.0	-7.0	-6.6	-2.7	-4.1	-4.5	-4.3	-3.2	1.2	
AEO 1994									0.3	-2.4	-5.8	-8.7	-11.3	-11.4	-9.0	-11.3	-12.6	-13.0	-13.2	-10.4	
AEO 1995										-1.2	-3.7	-6.8	-11.0	-10.7	-8.4	-8.4	-9.2	-8.6	-8.1	-4.7	
AEO 1996											-0.3	-3.7	-2.3	-4.5	-4.8	-1.6	-3.2	-5.0	-5.7	-5.8	-2.5
AEO 1997												-0.2	-2.0	-1.6	2.4	0.6	-1.2	-2.0	-1.9	1.4	
AEO 1998															2.2	6.8	5.7	4.8	4.6	4.6	8.0
AEO 1999															2.5	7.6	7.0	5.3	4.7	7.8	
AEO 2000																2.4	0.1	-1.7	-2.8	-0.3	
AEO 2001																1.0	2.1	5.1	5.8	6.2	
AEO 2002																	0.7	1.8	0.0	1.1	
AEO 2003																		2.5	2.3	3.9	
AEO 2004																			0.1	6.5	
AEO 2005																				3.6	
Average Absolute Percent Difference (All AEOs)	1.8	1.4	4.0	4.0	7.8	6.8	3.2	2.4	2.4	2.9	5.1	4.4	6.2	5.7	4.6	4.4	5.0	5.4	5.0	5.1	

\* There is no report titled *Annual Energy Outlook 1988* due to a change in the naming convention of the AEOs.

Sources: Projections: *Annual Energy Outlook*, Mid-Price or Reference Case Projections, Various Editions.

Historical Data: Energy Information Administration, *Annual Energy Review 2004*, DOE/EIA-0384(2004) (Washington, DC, August 2005), Table 5.1.

**Table 9. Natural Gas Production, Actual vs. Reference Case Projections**  
(trillion cubic feet)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
AEO 1982	14.74	14.26	14.33	14.89	15.39	15.88															
AEO 1983	16.48	16.27	16.20	16.31	16.27	16.29					14.89										
AEO 1984	17.48	17.10	17.44	17.58	17.52	17.32					16.39										
AEO 1985	16.95	17.08	17.11	17.29	17.40	17.33	17.32	17.27	17.05	16.80	16.50										
AEO 1986		16.30	16.27	17.15	16.68	16.90	16.97	16.87	16.93	16.86	16.62	16.40	16.33	16.57	16.23	16.12					
AEO 1987			16.21	16.09	16.38	16.32	16.30	16.30	16.44	16.62	16.81					17.39					
AEO 1989*				16.71	16.71	16.94	17.01	16.83	17.09	17.35	17.54	17.67	17.98	18.20	18.25	18.49					
AEO 1990					16.91	17.25					18.84					20.58					
AEO 1991						17.40	17.48	18.11	18.22	18.15	18.22	18.39	18.82	19.03	19.28	19.62	19.89	20.13	20.07	19.95	
AEO 1992							17.43	17.69	17.95	18.00	18.29	18.27	18.51	18.75	18.97	19.19	19.48	19.78	19.91	19.90	
AEO 1993								18.47	18.05	18.16	18.45	18.90	19.07	19.30	19.60	19.86	20.07	20.35	20.56	20.74	
AEO 1994									17.71	17.68	17.84	18.12	18.25	18.43	18.58	18.93	19.28	19.51	19.80	19.92	
AEO 1995										18.28	17.98	17.92	18.21	18.63	18.92	19.08	19.20	19.36	19.52	19.75	
AEO 1996											18.90	19.15	19.52	19.59	19.59	19.65	19.73	19.97	20.36	20.82	
AEO 1997												19.10	19.70	20.17	20.32	20.54	20.77	21.26	21.90	22.31	
AEO 1998													18.85	19.06	20.35	20.27	20.60	20.94	21.44	21.81	
AEO 1999														18.80	19.13	19.28	19.82	20.23	20.77	21.05	
AEO 2000															18.36	18.89	18.47	18.50	18.88	19.15	
AEO 2001																18.61	18.89	19.67	20.28	20.65	
AEO 2002																	19.28	19.54	20.20	20.52	
AEO 2003																		19.37	19.99	20.15	
AEO 2004																			19.57	19.51	
AEO 2005																				18.91	
Actual	16.45	16.06	16.62	17.10	17.31	17.81	17.70	17.84	18.10	18.82	18.60	18.85	18.90	19.02	18.83	19.18	19.62	18.93	19.04	18.78	
Average Absolute Difference (All AEOs)	0.8	0.9	0.8	0.7	0.7	1.0	0.6	0.7	0.7	1.3	1.2	0.8	0.7	0.6	0.8	0.8	0.5	1.0	1.2	1.6	

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
AEO 1982	-10.4	-11.2	-13.8	-12.9	-11.1	-10.8															
AEO 1983	0.2	1.3	-2.5	-4.6	-6.0	-8.5					-19.9										
AEO 1984	6.2	6.5	4.9	2.8	1.2	-2.7					-11.9										
AEO 1985	3.0	6.4	2.9	1.1	0.5	-2.7	-2.1	-3.2	-5.8	-10.7	-11.3										
AEO 1986		1.5	-2.1	0.3	-3.6	-5.1	-4.1	-5.4	-6.4	-10.4	-10.6	-13.0	-13.6	-12.9	-13.8	-16.0					
AEO 1987			-2.5	-5.9	-5.4	-8.4	-7.9	-8.6	-9.1	-11.7	-9.6					-9.3					
AEO 1989*				-2.3	-3.5	-4.9	-3.9	-5.7	-5.6	-7.8	-5.7	-6.3	-4.9	-4.3	-3.1	-3.6					
AEO 1990					-2.3	-3.1					1.3					7.3					
AEO 1991						-2.3	-1.2	1.5	0.7	-3.6	-2.0	-2.5	-0.4	0.0	2.4	2.3	1.4	6.4	5.4	6.3	
AEO 1992							-1.5	-0.8	-0.8	-4.4	-1.7	-3.1	-2.1	-1.4	0.7	0.0	-0.7	4.5	4.6	6.0	
AEO 1993								3.5	-0.3	-3.5	-0.8	0.2	0.9	1.5	4.1	3.5	2.3	7.5	8.0	10.5	
AEO 1994									-2.1	-6.1	-4.1	-3.9	-3.5	-3.1	-1.3	-1.3	-1.7	3.1	4.0	6.1	
AEO 1995									-2.9	-3.3	-5.0	-3.7	-2.1	0.5	-0.5	-2.1	2.3	2.5	5.2		
AEO 1996											1.6	1.6	3.3	3.0	4.0	2.4	0.6	5.5	7.0	10.9	
AEO 1997												1.3	4.2	6.0	7.9	7.1	5.9	12.3	15.0	18.8	
AEO 1998													-0.3	0.2	8.1	5.7	5.0	10.6	12.6	16.2	
AEO 1999														-1.2	1.6	0.5	1.0	6.9	9.1	12.1	
AEO 2000															-2.5	-1.5	-5.8	-2.3	-0.8	2.0	
AEO 2001																-3.0	-3.7	3.9	6.5	10.0	
AEO 2002																	-1.7	3.2	6.1	9.3	
AEO 2003																		2.3	5.0	7.3	
AEO 2004																			2.8	3.9	
AEO 2005																				0.7	
Average Absolute Percent Difference (All AEOs)	5.0	5.4	4.8	4.3	4.2	5.4	3.5	4.1	3.8	6.8	6.5	4.1	3.7	3.2	4.2	4.3	2.7	5.4	6.4	8.3	

\* There is no report titled *Annual Energy Outlook 1988* due to a change in the naming convention of the AEOs.  
 Sources: Projections: *Annual Energy Outlook*, Mid-Price or Reference Case Projections, Various Editions.  
 Historical Data: Energy Information Administration, *Annual Energy Review 2004*, DOE/EIA-0384(2004) (Washington, DC, August 2005), Table 6.1.

**Table 10. Coal Production, Actual vs. Reference Case Projections**

(million short tons)	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
AEO 1982	914	939	963	995	1031	1080														
AEO 1983	900	926	947	974	1010	1045					1191									
AEO 1984	899	921	948	974	1010	1057					1221									
AEO 1985	886	909	930	940	958	985	1015	1041	1072	1094	1116									
AEO 1986		890	920	954	962	983	1017	1044	1073	1097	1126	1142	1156	1176	1191	1217				
AEO 1987			917	914	932	962	978	996	1020	1043	1068					1149				
AEO 1989*				941	946	977	990	1018	1039	1058	1082	1084	1107	1130	1152	1171				
AEO 1990					973	987					1085					1178				
AEO 1991						1035	1002	1016	1031	1043	1054	1065	1079	1096	1111	1133	1142	1160	1193	1234
AEO 1992							1004	1040	1019	1034	1052	1064	1074	1087	1102	1133	1144	1156	1173	1201
AEO 1993								1039	1043	1054	1065	1076	1086	1094	1102	1125	1136	1148	1161	1178
AEO 1994									999	1021	1041	1051	1056	1066	1073	1081	1087	1098	1107	1122
AEO 1995										1006	1010	1011	1016	1017	1021	1027	1033	1040	1051	1066
AEO 1996											1037	1044	1041	1045	1061	1070	1086	1100	1112	1121
AEO 1997												1028	1052	1072	1088	1105	1110	1115	1123	1133
AEO 1998													1088	1122	1128	1145	1176	1176	1183	1191
AEO 1999														1125	1154	1168	1187	1193	1198	1199
AEO 2000															1120	1136	1153	1174	1190	1212
AEO 2001																1111	1136	1181	1198	1209
AEO 2002																	1168	1141	1162	1183
AEO 2003																		1085	1099	1102
AEO 2004																			1100	1121
AEO 2005																				1125
Actual	884	890	919	950	981	1029	996	998	945	1034	1033	1064	1090	1118	1100	1074	1128	1094	1072	1111
Average Absolute Difference (All AEOs)	16.1	26.8	19.3	21.7	30.2	39.1	13.0	30.6	91.6	25.4	58.9	25.9	31.1	39.0	34.6	63.0	34.6	51.4	77.7	55.7

(percent difference)	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
AEO 1982	3.4	5.5	4.8	4.7	5.1	4.9														
AEO 1983	1.9	4.0	3.1	2.5	3.0	1.5					15.3									
AEO 1984	1.7	3.4	3.2	2.5	3.0	2.7					18.2									
AEO 1985	0.3	2.1	1.2	-1.1	-2.3	-4.3	1.9	4.4	13.4	5.9	8.0									
AEO 1986		0.0	0.1	0.4	-1.9	-4.5	2.1	4.7	13.5	6.1	9.0	7.3	6.1	5.2	8.2	13.4				
AEO 1987			-0.2	-3.8	-5.0	-6.5	-1.8	-0.2	7.9	0.9	3.4					7.0				
AEO 1989*				-1.0	-3.5	-5.1	-0.6	2.1	9.9	2.4	4.7	1.9	1.6	1.1	4.7	9.1				
AEO 1990					-0.8	-4.1					5.0					9.7				
AEO 1991						0.6	0.6	1.9	9.1	0.9	2.0	0.1	-1.0	-1.9	1.0	5.5	1.3	6.0	11.3	11.0
AEO 1992							0.8	4.3	7.8	0.0	1.8	0.0	-1.5	-2.7	0.1	5.5	1.4	5.6	9.4	8.1
AEO 1993								4.2	10.3	2.0	3.1	1.1	-0.4	-2.1	0.1	4.8	0.7	4.9	8.3	6.0
AEO 1994									5.7		-1.2	0.8	-1.2	-3.1	-4.6	0.7	-3.6	0.3	3.3	0.9
AEO 1995										-2.7	-2.2	-5.0	-6.8	-9.0	-7.2	-4.3	-8.4	-5.0	-1.9	-4.1
AEO 1996											0.4	-1.9	-4.5	-6.5	-3.6	-0.3	-3.7	0.5	3.8	0.9
AEO 1997												-3.4	-3.5	-4.1	-1.1	2.9	-1.6	1.9	4.8	1.9
AEO 1998													0.4	2.5	6.6	4.3	7.5	10.4	7.2	
AEO 1999														0.7	4.9	8.8	5.3	9.0	11.8	7.9
AEO 2000															1.8	5.8	2.2	7.3	11.0	9.0
AEO 2001																3.4	0.7	7.9	11.8	8.8
AEO 2002																	3.6	4.3	8.5	6.5
AEO 2003																		-0.9	2.5	-0.8
AEO 2004																			2.6	0.8
AEO 2005																				1.2
Average Absolute Percent Difference (All AEOs)	1.8	3.0	2.1	2.3	3.1	3.8	1.3	3.1	9.7	2.5	5.7	2.4	2.8	3.5	3.1	5.9	3.1	4.7	7.2	5.0

\* There is no report titled *Annual Energy Outlook 1988* due to a change in the naming convention of the AEOs.  
 Sources: Projections: *Annual Energy Outlook*, Mid-Price or Reference Case Projections, Various Editions.  
 Historical Data: Energy Information Administration, *Annual Energy Review 2004*, DOE/EIA-0384(2004) (Washington, DC, August 2005), Table 7.1.

**Table 11. Petroleum Net Imports, Actual vs. Reference Case Projections**

(million barrels per day)	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
AEO 1982	7.58	7.45	7.12	6.82	6.66	7.09															
AEO 1983	5.15	5.44	5.73	5.79	5.72	5.95					6.96										
AEO 1984	4.85	5.11	5.53	5.95	6.31	6.59					8.65										
AEO 1985	4.17	4.38	4.73	4.93	5.36	5.72	6.23	6.66	7.14	7.39	7.74										
AEO 1986		5.15	5.38	5.46	5.92	6.46	7.09	7.50	7.78	7.96	8.20	8.47	8.74	9.04	9.57	9.76					
AEO 1987			5.81	6.04	6.81	7.28	7.82	8.34	8.71	8.94	8.98					10.01					
AEO 1989*				6.28	6.84	7.49	7.96	8.53	8.83	9.04	9.28	9.60	9.64	9.75	10.02	10.20					
AEO 1990					7.20	7.61					9.13					9.95					
AEO 1991					7.28		7.25	7.34	7.48	7.72	8.10	8.57	9.09	9.61	10.07	10.51	11.00	11.44	11.72	11.86	
AEO 1992							6.86	7.42	7.88	8.16	8.55	8.80	9.06	9.32	9.50	9.80	10.17	10.35	10.56	10.61	
AEO 1993								7.25	8.01	8.49	9.06	9.38	9.92	10.29	10.53	10.77	11.09	11.31	11.50	11.63	
AEO 1994									8.04	8.77	9.21	9.60	10.02	10.24	10.63	10.94	11.23	11.54	11.79	12.05	
AEO 1995										8.09	8.65	8.99	9.56	9.89	10.25	10.46	10.74	10.96	11.24	11.53	
AEO 1996											8.25	8.51	8.82	9.31	9.64	10.08	10.43	10.66	10.90	11.15	
AEO 1997												8.49	8.89	9.58	10.04	10.48	10.89	11.19	11.48	11.74	
AEO 1998													9.05	9.29	10.01	10.17	10.62	11.10	11.33	11.77	
AEO 1999														9.26	9.43	10.65	11.02	11.38	11.61	11.88	
AEO 2000															9.86	10.54	11.06	11.47	11.83	12.23	
AEO 2001																10.17	10.95	11.04	11.27	11.75	
AEO 2002																	10.55	10.94	11.48	12.04	
AEO 2003																		10.35	11.10	11.11	
AEO 2004																			10.99	11.41	
AEO 2005																				11.66	
Actual	4.29	5.44	5.91	6.60	7.20	7.16	6.63	6.96	7.62	8.05	7.89	8.52	9.16	9.76	9.91	10.45	10.90	10.55	11.24	11.88	
Average Absolute Difference (All AEOs)	1.2	0.7	0.6	0.8	0.8	0.6	0.7	0.7	0.5	0.5	0.8	0.4	0.4	0.4	0.3	0.3	0.2	0.6	0.3	0.3	
(percent difference)																					
AEO 1982	76.8	37.0	20.4	3.3	-7.5	-1.0															
AEO 1983	20.2	0.0	-3.1	-12.3	-20.6	-16.9					-11.7										
AEO 1984	13.2	-6.0	-6.5	-9.9	-12.4	-8.0					9.7										
AEO 1985	-2.7	-19.5	-20.0	-25.4	-25.6	-20.1	-6.0	-4.3	-6.3	-8.2	-1.8										
AEO 1986		-5.3	-9.0	-17.3	-17.8	-9.8	7.0	7.8	2.1	-1.2	4.0	-0.6	-4.6	-7.4	-3.5	-6.6					
AEO 1987			-1.8	-8.5	-5.4	1.7	18.0	19.9	14.3	11.0	13.9										
AEO 1989*				-4.9	-5.0	4.6	20.1	22.6	15.9	12.2	17.7	12.7	5.3	-0.1	1.1	-2.4					
AEO 1990					0.0	6.3					15.8					-4.8					
AEO 1991					1.7		9.4	5.5	-1.8	-4.1	2.7	0.6	-0.7	-1.6	1.6	0.6	0.9	8.5	4.3	-0.2	
AEO 1992							3.5	6.7	3.4	1.3	8.4	-3.3	-1.1	-4.5	-4.2	-6.2	-6.7	-1.9	-6.0	-10.7	
AEO 1993								4.2	5.1	5.4	14.9	10.1	8.3	5.4	6.2	3.1	1.7	7.2	2.3	-2.1	
AEO 1994									5.5	8.9	16.8	12.7	9.4	4.9	7.2	4.7	3.0	9.4	4.9	1.4	
AEO 1995										0.4	9.7	5.5	4.4	1.3	3.4	0.1	-1.5	3.9	0.0	-3.0	
AEO 1996											4.6	-0.1	-3.7	-4.6	-2.7	-3.5	-4.3	1.1	-3.0	-6.2	
AEO 1997												-0.4	-2.9	-1.9	1.3	0.3	-0.1	6.1	2.2	-1.2	
AEO 1998													-1.2	-4.9	1.0	-2.7	-2.6	5.2	0.8	-1.0	
AEO 1999														-5.2	-4.9	2.0	1.1	7.9	3.3	0.0	
AEO 2000															-0.5	0.9	1.5	8.8	5.3	2.9	
AEO 2001																-2.7	0.4	4.6	0.3	-1.1	
AEO 2002																	-3.2	3.7	2.2	1.3	
AEO 2003																		-1.9	-1.2	-6.5	
AEO 2004																			-2.2	-4.0	
AEO 2005																				-1.9	
Average Absolute Percent Difference (All AEOs)	28.2	13.6	10.1	11.7	11.8	7.8	10.7	10.1	6.8	5.9	10.1	5.1	4.2	3.8	3.1	3.0	2.3	5.4	2.7	2.9	

\* There is no report titled *Annual Energy Outlook 1988* due to a change in the naming convention of the AEOs.

Sources: Projections: *Annual Energy Outlook*, Mid-Price or Reference Case Projections, Various Editions. Net imports have been corrected to include product imports for all years for AEO 2002 through AEO 2004.

Historical Data: Energy Information Administration, *Annual Energy Review 2004*, DOE/EIA-0384(2004) (Washington, DC, August 2005), Table 5.1.



**Table 12. Natural Gas Net Imports, Actual vs. Reference Case Projections**

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
(trillion cubic feet)																				
AEO 1982	1.19	1.19	1.19	1.19	1.19	1.19														
AEO 1983	1.08	1.16	1.23	1.23	1.23	1.23					1.23									
AEO 1984	0.99	1.05	1.16	1.27	1.43	1.57					2.11									
AEO 1985	0.94	1.00	1.19	1.45	1.58	1.86	1.94	2.06	2.17	2.32	2.44									
AEO 1986		0.74	0.88	0.62	1.03	1.05	1.27	1.39	1.47	1.66	1.79	1.96	2.17	2.38	2.42	2.43				
AEO 1987			0.84	0.89	1.07	1.16	1.26	1.36	1.46	1.65	1.75					2.50				
AEO 1989*				1.15	1.32	1.44	1.52	1.61	1.70	1.79	1.87	1.98	2.06	2.15	2.23	2.31				
AEO 1990					1.26	1.43					2.07					2.68				
AEO 1991						1.36	1.53	1.70	1.82	2.11	2.30	2.33	2.36	2.42	2.49	2.56	2.70	2.75	2.83	2.90
AEO 1992							1.48	1.62	1.88	2.08	2.25	2.41	2.56	2.68	2.70	2.72	2.76	2.84	2.92	3.05
AEO 1993								1.79	2.08	2.35	2.49	2.61	2.74	2.89	2.95	3.00	3.05	3.10	3.17	3.29
AEO 1994									2.02	2.40	2.66	2.74	2.81	2.85	2.89	2.93	2.95	2.97	3.00	3.16
AEO 1995										2.46	2.54	2.80	2.87	2.87	2.89	2.90	2.90	2.92	2.95	2.97
AEO 1996											2.56	2.75	2.85	2.88	2.93	2.98	3.02	3.06	3.07	3.09
AEO 1997												2.82	2.96	3.16	3.43	3.46	3.50	3.53	3.58	3.64
AEO 1998													2.95	3.19	3.53	3.84	3.87	3.89	3.94	3.98
AEO 1999														2.92	3.16	3.29	3.41	3.44	3.47	3.59
AEO 2000															3.42	3.65	3.85	4.00	4.10	4.14
AEO 2001																3.51	3.76	3.88	4.07	4.33
AEO 2002																	3.68	3.74	4.04	4.31
AEO 2003																		3.17	3.32	3.67
AEO 2004																			3.51	3.60
AEO 2005																				3.28
Actual	0.89	0.69	0.94	1.22	1.27	1.45	1.64	1.92	2.21	2.46	2.69	2.78	2.84	2.99	3.42	3.54	3.60	3.50	3.30	3.40
Average Absolute Difference (All AEOs)	0.2	0.3	0.2	0.2	0.1	0.2	0.2	0.3	0.4	0.4	0.5	0.3	0.3	0.3	0.5	0.6	0.4	0.4	0.4	0.4
(percent difference)																				
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
AEO 1982	33.0	72.7	26.8	-2.5	-6.6	-17.7														
AEO 1983	20.7	68.3	31.1	0.8	-3.5	-15.0					-54.2									
AEO 1984	10.7	52.4	23.6	4.1	12.2	8.5					-21.5									
AEO 1985	5.1	45.1	26.8	18.8	24.0	28.6	18.0	7.2	-1.8	-5.8	-9.2									
AEO 1986		7.4	-6.2	-49.2	-19.2	-27.4	-22.8	-27.7	-33.5	-32.6	-33.4	-29.6	-23.5	-20.5	-29.3	-31.3				
AEO 1987			-10.5	-27.1	-16.1	-19.8	-23.4	-29.2	-33.9	-33.0	-34.9					-29.3				
AEO 1989*				-5.8	3.6	-0.5	-7.5	-16.2	-23.1	-27.3	-30.4	-28.9	-27.4	-28.2	-34.8	-34.7				
AEO 1990					-1.1	-1.2					-23.0					-24.2				
AEO 1991						-6.0	-6.9	-11.5	-17.6	-14.3	-14.4	-16.3	-16.8	-19.1	-27.2	-27.6	-25.1	-21.4	-14.4	-14.8
AEO 1992							-10.0	-15.7	-14.9	-15.5	-16.3	-13.4	-9.8	-10.5	-21.1	-23.1	-23.4	-18.8	-11.6	-10.4
AEO 1993								-6.8	-5.9	-4.6	-7.3	-6.3	-3.4	-3.4	-13.8	-15.2	-15.4	-11.4	-4.1	-3.4
AEO 1994									-8.6	-2.5	-1.0	-1.6	-1.0	-4.8	-15.5	-17.2	-18.1	-15.1	-9.2	-7.2
AEO 1995										-0.1	-5.5	0.6	1.2	-4.1	-15.5	-18.0	-19.5	-16.6	-10.7	-12.8
AEO 1996											-4.7	-1.2	0.5	-3.8	-14.4	-15.8	-16.2	-12.6	-7.1	-9.2
AEO 1997												1.3	4.3	5.6	0.2	-2.2	-2.9	0.9	8.3	6.9
AEO 1998													4.0	6.6	3.2	8.5	7.4	11.2	19.2	16.9
AEO 1999														-2.4	-7.7	-7.0	-5.4	-1.7	5.0	5.5
AEO 2000															-0.1	3.2	6.8	14.3	24.1	21.6
AEO 2001																-0.6	4.4	10.8	23.0	27.3
AEO 2002																	2.2	7.0	22.2	26.7
AEO 2003																		-9.3	0.4	7.9
AEO 2004																			6.2	5.8
AEO 2005																				-3.7
Average Absolute Percent Difference (All AEOs)	17.4	49.2	20.8	15.5	10.8	13.9	14.8	16.3	17.4	15.1	19.7	11.0	9.2	9.9	15.2	17.2	12.2	11.6	11.8	12.0

\* There is no report titled *Annual Energy Outlook 1988* due to a change in the naming convention of the AEOs.  
 Sources: Projections: *Annual Energy Outlook*, Mid-Price or Reference Case Projections, Various Editions.  
 Historical Data: Energy Information Administration, *Annual Energy Review 2004*, DOE/EIA-0384(2004) (Washington, DC, August 2005), Table 6.1.

**Table 13. World Oil Prices, Actual vs. Reference Case Projections**

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
AEO 1982	29.66	34.82	41.43	48.04	53.75	59.06														
AEO 1983	28.99	29.39	32.67	39.32	46.07	53.22					101.59									
AEO 1984	29.07	29.39	30.97	33.96	37.23	40.82					73.87									
AEO 1985	27.00	25.86	24.83	26.05	29.69	33.75	36.96	40.54	42.89	46.92	49.65									
AEO 1986		14.57	15.87	17.30	18.86	20.64	22.25	25.37	29.75	34.85	39.91	44.86	49.71	54.30	58.99	64.42				
AEO 1987			18.11	17.30	18.91	19.93	20.90	21.77	23.99	27.50	32.03									
AEO 1989*				14.70	14.93	16.33	17.75	19.15	21.68	25.21	28.91	33.29	37.81	42.47	46.36	49.98				
AEO 1990					17.70	17.49					26.58									
AEO 1991						22.00	24.77	25.59	26.45	27.34	28.37	29.44	30.54	32.03	34.28	36.89	39.84	43.34	47.08	50.99
AEO 1992							19.03	20.06	20.65	22.27	24.20	26.31	28.66	31.17	33.96	36.96	39.90	42.96	46.05	49.18
AEO 1993								18.86	20.25	21.24	22.45	23.68	25.02	26.71	28.64	31.02	33.48	36.27	38.90	41.21
AEO 1994									17.06	18.24	19.43	20.64	22.12	23.76	25.52	27.51	29.67	31.86	34.00	
AEO 1995										15.24	17.27	18.23	19.26	20.39	21.59	22.97	24.33	25.79	27.27	28.82
AEO 1996											17.16	17.74	18.59	19.72	20.97	22.34	23.81	25.26	26.72	28.22
AEO 1997												19.99	19.42	19.55	20.07	20.59	21.68	22.71	23.75	24.78
AEO 1998													18.54	18.79	19.87	20.95	21.79	22.53	23.46	24.34
AEO 1999														12.50	13.64	14.67	16.35	17.87	19.64	21.14
AEO 2000															17.35	21.80	20.99	21.52	22.05	22.62
AEO 2001																28.21	24.86	22.82	22.36	23.04
AEO 2002																	22.99	21.99	24.00	24.86
AEO 2003																		23.65	26.92	25.70
AEO 2004																			27.65	24.54
AEO 2005																				35.74
Actual	26.99	14.00	18.13	14.56	18.08	21.76	18.70	18.20	16.14	15.51	17.14	20.64	18.53	12.04	17.26	27.70	22.00	23.71	27.71	36.00
Average Absolute Difference (All AEOs)	1.7	12.8	9.9	13.5	12.4	12.5	5.2	6.3	9.2	11.0	19.8	6.8	8.3	15.2	11.6	11.7	5.7	5.7	6.2	9.8
(percent difference)																				
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
AEO 1982	9.9	148.7	128.5	229.9	197.3	171.4														
AEO 1983	7.4	110.0	80.2	170.0	154.8	144.6					492.7									
AEO 1984	7.7	110.0	70.8	133.2	105.9	87.6					331.0									
AEO 1985	0.0	84.7	36.9	78.9	64.2	55.1	97.7	122.7	165.8	202.5	189.6									
AEO 1986		4.1	-12.5	18.8	4.3	-5.2	19.0	39.4	84.3	124.7	132.9	117.3	168.3	351.0	241.7	132.5				
AEO 1987			-0.1	18.8	4.6	-8.4	11.8	19.6	48.7	77.3	86.9					108.4				
AEO 1989*				1.0	-17.4	-24.9	-5.1	5.2	34.3	62.5	68.7	61.3	104.1	252.7	168.6	80.4				
AEO 1990					-2.1	-19.6					55.1					66.7				
AEO 1991						1.1	32.4	40.6	63.9	76.3	65.5	42.6	64.8	166.0	98.6	33.2	81.1	82.8	69.9	41.6
AEO 1992							1.8	10.2	28.0	43.6	41.2	27.5	54.7	158.9	96.7	33.4	81.4	81.2	66.2	36.6
AEO 1993								3.6	25.5	36.9	31.0	14.7	35.0	121.8	65.9	12.0	52.2	53.0	40.4	14.5
AEO 1994									5.7	10.9	6.4	-5.9	11.4	83.7	37.7	-7.9	25.0	25.1	15.0	-5.6
AEO 1995										-1.8	0.8	-11.7	4.0	69.4	25.1	-17.1	10.6	8.8	-1.6	-19.9
AEO 1996											0.1	-14.0	0.3	63.8	21.5	-19.3	8.2	6.5	-3.6	-21.6
AEO 1997												-3.1	4.8	62.4	16.3	-25.7	-1.5	-4.2	-14.3	-31.2
AEO 1998													0.0	56.1	15.1	-24.4	-1.0	-5.0	-15.3	-32.4
AEO 1999															3.8	-21.0	-47.0	-25.7	-24.6	-29.1
AEO 2000																0.5	-21.3	-4.6	-9.2	-37.2
AEO 2001																	1.8	13.0	-3.7	-19.3
AEO 2002																		4.5	-7.3	-30.9
AEO 2003																			-0.3	-28.6
AEO 2004																				-0.2
AEO 2005																				-0.7
Average Absolute Percent Difference (All AEOs)	6.3	91.5	54.8	93.0	68.8	57.5	28.0	34.5	57.0	70.7	115.5	33.1	44.7	126.3	67.4	42.1	25.7	24.0	22.3	27.3

\* There is no report titled *Annual Energy Outlook 1988* due to a change in the naming convention of the AEOs.

Sources: Projections: *Annual Energy Outlook*, Mid-Price or Reference Case Projections, Various Editions.

Historical Data: Energy Information Administration, *Annual Energy Review 2004*, DOE/EIA-0384(2004) (Washington, DC, August 2005), Table 5.21.

**Table 14. Natural Gas Wellhead Prices, Actual vs. Reference Case Projections**

(current dollars per thousand cubic feet)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
AEO 1982	4.32	5.47	6.67	7.51	8.04	8.57															
AEO 1983	2.93	3.11	3.46	3.93	4.56	5.26					12.74										
AEO 1984	2.77	2.90	3.21	3.63	4.13	4.79					9.33										
AEO 1985	2.60	2.61	2.66	2.71	2.94	3.35	3.85	4.46	5.10	5.83	6.67										
AEO 1986		1.73	1.96	2.29	2.54	2.81	3.15	3.73	4.34	5.06	5.90	6.79	7.70	8.62	9.68	10.80					
AEO 1987			1.83	1.95	2.11	2.28	2.49	2.72	3.08	3.51	4.07										
AEO 1989*				1.62	1.70	1.91	2.13	2.58	3.04	3.48	3.93	4.76	5.23	5.80	6.43	6.98					
AEO 1990					1.78	1.88					2.93										
AEO 1991						1.77	1.90	2.11	2.30	2.42	2.51	2.60	2.74	2.91	3.29	3.75	4.31	5.07	5.77	6.45	
AEO 1992							1.69	1.85	2.03	2.15	2.35	2.51	2.74	3.01	3.40	3.81	4.24	4.74	5.25	5.78	
AEO 1993								1.85	1.94	2.09	2.30	2.44	2.60	2.85	3.12	3.47	3.84	4.31	4.81	5.28	
AEO 1994									1.98	2.12	2.27	2.41	2.59	2.73	2.85	2.98	3.14	3.35	3.59	3.85	
AEO 1995										1.89	2.00	1.95	2.06	2.15	2.40	2.57	2.90	3.16	3.56	3.87	
AEO 1996											1.63	1.74	1.86	1.99	2.10	2.19	2.29	2.38	2.48	2.59	
AEO 1997												2.03	1.82	1.90	1.99	2.06	2.13	2.21	2.32	2.43	
AEO 1998													2.30	2.20	2.26	2.31	2.38	2.44	2.52	2.60	
AEO 1999														1.98	2.15	2.20	2.32	2.43	2.53	2.63	
AEO 2000															2.15	2.23	2.27	2.32	2.40	2.51	
AEO 2001																3.39	3.48	2.97	2.74	2.70	
AEO 2002																	4.03	2.06	2.53	2.84	
AEO 2003																		2.79	3.26	3.13	
AEO 2004																			4.97	4.00	
AEO 2005																				5.38	
Actual	2.51	1.94	1.67	1.69	1.69	1.71	1.64	1.74	2.04	1.85	1.55	2.17	2.32	1.96	2.19	3.68	4.00	2.95	4.88	5.49	
Average Absolute Difference (All AEOs)	0.6	1.3	1.6	1.7	1.8	1.9	0.9	1.0	1.0	1.3	3.0	1.0	1.1	1.3	1.4	1.7	1.0	0.8	1.6	1.9	

(percent difference)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
AEO 1982	72.0	182.1	299.6	344.6	375.6	401.0															
AEO 1983	16.7	60.1	107.4	132.5	169.8	207.4					721.7										
AEO 1984	10.4	49.3	92.3	114.6	144.6	180.1					501.7										
AEO 1985	3.6	34.4	59.0	60.2	74.2	95.9	135.0	156.3	150.1	215.4	330.3										
AEO 1986		-10.8	17.1	35.4	50.5	64.4	91.9	114.2	112.9	173.4	280.3	213.0	231.9	339.9	341.8	193.4					
AEO 1987			9.6	15.2	24.6	33.5	51.5	56.6	51.0	89.7	162.9					105.0					
AEO 1989*				-4.1	0.6	11.4	29.9	48.1	49.1	88.1	153.5	119.5	125.3	195.8	193.7	89.7					
AEO 1990					5.3	10.2					89.1					45.8					
AEO 1991						3.5	15.8	21.3	12.8	30.6	61.7	19.9	17.9	48.5	50.2	1.8	7.8	71.9	18.2	17.4	
AEO 1992							2.8	6.2	-0.4	16.1	51.6	15.7	18.2	53.7	55.1	3.5	5.9	60.5	7.7	5.2	
AEO 1993								6.1	-5.1	13.0	48.5	12.4	12.0	45.2	42.7	-5.8	-3.9	45.9	-1.4	-3.9	
AEO 1994									-2.8	14.9	46.2	11.0	11.5	39.2	30.4	-19.0	-21.5	13.4	-26.4	-29.9	
AEO 1995										2.3	28.9	-10.0	-11.0	9.8	9.6	-30.2	-27.6	7.1	-27.1	-29.5	
AEO 1996											5.2	-19.8	-19.7	1.6	-3.9	-40.4	-42.8	-19.4	-49.3	-52.8	
AEO 1997												-6.3	-21.4	-2.8	-9.2	-43.9	-46.6	-25.0	-52.5	-55.8	
AEO 1998													-1.0	12.1	3.0	-37.2	-40.5	-17.1	-48.4	-52.7	
AEO 1999														0.9	-1.9	-40.1	-42.1	-17.8	-48.1	-52.1	
AEO 2000															-2.0	-39.3	-43.3	-21.4	-50.9	-54.3	
AEO 2001																-7.8	-12.9	0.8	-43.9	-50.8	
AEO 2002																	0.6	-30.1	-48.1	-48.2	
AEO 2003																		-5.6	-33.2	-43.1	
AEO 2004																			1.9	-27.2	
AEO 2005																				-1.9	
Average Absolute Percent Difference (All AEOs)	25.7	67.3	97.5	100.9	105.7	111.9	54.5	58.4	48.0	71.5	190.9	47.5	47.0	68.1	62.0	46.9	24.6	25.8	32.7	35.0	

\* There is no report titled *Annual Energy Outlook 1988* due to a change in the naming convention of the AEOs.

Sources: Projections: *Annual Energy Outlook*, Mid-Price or Reference Case Projections, Various Editions.

Historical Data: Energy Information Administration, *Annual Energy Review 2004*, DOE/EIA-0384(2004) (Washington, DC, August 2005), Table 6.7.

**Table 15. Coal Prices to Electric Generating Plants, Actual vs. Reference Case Projections**

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
AEO 1982	2.03	2.17	2.33	2.52	2.73	2.99														
AEO 1983	1.99	2.10	2.24	2.39	2.57	2.76					4.29									
AEO 1984	1.90	2.01	2.13	2.28	2.44	2.61					3.79									
AEO 1985	1.68	1.76	1.86	1.95	2.05	2.19	2.32	2.49	2.66	2.83	3.03									
AEO 1986		1.61	1.68	1.75	1.83	1.93	2.05	2.19	2.35	2.54	2.73	2.92	3.10	3.31	3.49	3.68				
AEO 1987			1.52	1.55	1.65	1.75	1.84	1.96	2.11	2.27	2.44					3.55				
AEO 1989*				1.50	1.51	1.68	1.77	1.88	2.00	2.13	2.26	2.40	2.55	2.70	2.86	3.00				
AEO 1990					1.46	1.53					2.07					2.76				
AEO 1991						1.51	1.58	1.66	1.77	1.88	1.96	2.06	2.16	2.28	2.41	2.57	2.70	2.85	3.04	3.26
AEO 1992							1.54	1.61	1.66	1.75	1.85	1.97	2.03	2.14	2.26	2.44	2.55	2.69	2.83	3.00
AEO 1993								1.92	1.54	1.61	1.70	1.77	1.87	1.96	2.07	2.22	2.35	2.46	2.60	2.74
AEO 1994									1.50	1.55	1.64	1.73	1.78	1.82	1.92	2.01	2.13	2.22	2.30	2.41
AEO 1995										1.42	1.46	1.49	1.55	1.59	1.62	1.67	1.76	1.80	1.89	1.97
AEO 1996											1.35	1.35	1.37	1.39	1.42	1.46	1.50	1.56	1.62	1.67
AEO 1997												1.36	1.38	1.40	1.44	1.46	1.51	1.54	1.55	1.58
AEO 1998													1.28	1.28	1.30	1.32	1.34	1.36	1.37	1.39
AEO 1999														1.24	1.25	1.25	1.27	1.29	1.31	1.32
AEO 2000															1.28	1.27	1.24	1.24	1.24	1.25
AEO 2001																1.22	1.24	1.25	1.26	1.28
AEO 2002																	1.22	1.21	1.23	1.27
AEO 2003																		1.23	1.27	1.30
AEO 2004																			1.26	1.27
AEO 2005																				1.31
Actual	1.65	1.58	1.51	1.47	1.45	1.46	1.45	1.41	1.39	1.36	1.32	1.29	1.27	1.25	1.22	1.20	1.23	1.25	1.28	1.36
Average Absolute Difference (All AEOs)	0.3	0.4	0.5	0.5	0.6	0.7	0.4	0.5	0.6	0.6	1.0	0.6	0.6	0.7	0.7	0.9	0.5	0.5	0.5	0.5
(percent difference)																				
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
AEO 1982	22.9	37.4	54.4	72.0	88.7	105.7														
AEO 1983	20.7	33.3	48.8	62.9	77.6	89.6					225.2									
AEO 1984	15.3	27.6	41.6	55.5	68.8	79.5					187.2									
AEO 1985	1.9	11.4	23.3	32.9	42.2	50.4	60.6	76.2	92.2	108.9	129.8									
AEO 1986		2.0	11.4	19.6	26.8	32.8	41.3	55.0	69.4	87.2	107.1	126.5	143.8	164.5	186.7	207.0				
AEO 1987			0.9	6.1	14.5	20.0	27.4	38.7	52.3	67.3	85.5					195.6				
AEO 1989*				2.3	4.8	15.3	22.6	33.1	44.6	57.5	71.5	85.9	100.4	115.3	135.0	149.9				
AEO 1990					1.0	5.2					57.2					129.8				
AEO 1991						3.8	9.1	17.8	28.1	38.7	48.8	59.9	69.9	81.8	98.1	114.1	118.8	127.8	137.5	139.5
AEO 1992							6.5	14.3	19.9	29.5	40.4	52.6	59.3	71.2	86.2	103.0	106.9	114.9	121.3	120.8
AEO 1993								35.9	11.3	18.8	29.3	37.6	47.2	56.2	70.2	85.1	90.4	97.0	103.0	101.6
AEO 1994									8.5	14.4	24.6	34.0	40.1	45.5	58.2	67.3	73.3	77.4	80.0	77.0
AEO 1995										4.9	11.0	15.5	21.4	26.7	33.2	39.1	42.7	44.3	47.7	44.8
AEO 1996											2.1	4.8	7.5	11.2	16.9	21.6	21.5	24.9	26.6	23.1
AEO 1997												5.4	8.4	12.1	18.6	21.9	22.7	22.9	21.0	16.2
AEO 1998													0.2	2.6	7.2	9.6	8.5	8.5	7.4	2.6
AEO 1999														-0.7	2.6	4.6	3.4	3.2	2.1	-3.1
AEO 2000															5.0	6.2	0.7	-0.9	-3.5	-8.4
AEO 2001																2.0	0.4	0.4	-1.2	-6.2
AEO 2002																	-0.8	-3.5	-3.7	-6.9
AEO 2003																		-1.3	-0.6	-4.5
AEO 2004																			-1.7	-6.6
AEO 2005																				-3.6
Average Absolute Percent Difference (All AEOs)	15.2	22.3	30.1	35.9	40.5	44.7	27.9	38.7	40.8	47.5	78.4	46.9	49.8	53.4	59.8	77.1	40.8	40.5	39.8	37.7

\* There is no report titled *Annual Energy Outlook 1988* due to a change in the naming convention of the AEOs.  
 Sources: Projections: *Annual Energy Outlook*, Mid-Price or Reference Case Projections, Various Editions.  
 Historical Data: Energy Information Administration, November 2005 Monthly Energy Review, DOE/EIA-0035(2005/11) (Washington, DC, November 2005), Table 9.10.

**Table 16. Average Electricity Prices, Actual vs. Reference Case Projections**

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
AEO 1982	6.38	6.96	7.63	8.23	8.83	9.49															
AEO 1983	6.85	7.28	7.74	8.22	8.68	9.18					13.12										
AEO 1984	6.67	7.05	7.48	7.89	8.25	8.65					11.53										
AEO 1985	6.62	6.94	7.32	7.63	7.89	8.15	8.46	8.85	9.20	9.61	10.04										
AEO 1986		6.67	6.88	7.05	7.18	7.35	7.52	7.65	7.87	8.31	8.83	9.41	10.01	10.61	11.33	12.02					
AEO 1987			6.63	6.65	6.92	7.12	7.38	7.62	7.94	8.36	8.86					11.99					
AEO 1989*				6.50	6.75	7.14	7.48	7.82	8.11	8.50	8.91	9.39	9.91	10.49	11.05	11.61					
AEO 1990					6.49	6.72					8.40					10.99					
AEO 1991						6.94	7.31	7.59	7.82	8.18	8.38	8.54	8.73	8.99	9.38	9.83	10.29	10.83	11.36	11.94	
AEO 1992							6.97	7.16	7.32	7.56	7.78	8.04	8.29	8.57	8.93	9.38	9.82	10.26	10.73	11.25	
AEO 1993								7.18	7.36	7.54	7.77	7.99	8.27	8.54	8.89	9.33	9.72	10.14	10.61	11.11	
AEO 1994									6.95	7.12	7.41	7.59	7.79	8.01	8.36	8.62	9.02	9.32	9.76	10.08	
AEO 1995										6.95	7.16	7.23	7.40	7.59	7.81	8.04	8.42	8.70	9.12	9.43	
AEO 1996											7.23	7.30	7.42	7.60	7.84	8.07	8.33	8.60	8.90	9.19	
AEO 1997												7.11	7.22	7.41	7.61	7.76	7.95	8.11	8.30	8.46	
AEO 1998													6.94	6.89	7.03	7.08	7.16	7.27	7.42	7.53	
AEO 1999														6.77	6.87	6.91	6.97	7.02	7.21	7.36	
AEO 2000																6.68	6.76	6.75	6.79	6.87	
AEO 2001																	6.95	7.05	6.94	7.00	7.09
AEO 2002																		7.21	6.99	6.99	7.15
AEO 2003																			6.99	6.90	7.01
AEO 2004																				7.24	7.16
AEO 2005																					7.57
Actual	6.44	6.44	6.37	6.35	6.45	6.57	6.75	6.82	6.93	6.91	6.89	6.86	6.85	6.74	6.64	6.81	7.32	7.21	7.42	7.57	
Average Absolute Difference (All AEOs)	0.2	0.5	0.9	1.1	1.2	1.3	0.8	0.9	0.9	1.1	2.0	1.2	1.3	1.6	1.8	2.2	1.1	1.3	1.4	1.4	
(percent difference)																					
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
AEO 1982	-0.9	8.0	19.7	29.6	37.0	44.4															
AEO 1983	6.4	13.0	21.5	29.4	34.6	39.7					90.4										
AEO 1984	3.5	9.5	17.4	24.3	27.8	31.6					67.4										
AEO 1985	2.8	7.7	14.8	20.1	22.3	24.1	25.3	29.7	32.8	39.0	45.8										
AEO 1986		3.5	8.0	11.1	11.3	11.9	11.4	12.2	13.6	20.2	28.2	37.2	46.2	57.5	70.6	76.5					
AEO 1987			4.1	4.8	7.3	8.4	9.3	11.7	14.5	21.0	28.6					76.1					
AEO 1989*				2.3	4.6	8.7	10.9	14.7	17.0	23.0	29.3	36.9	44.7	55.6	66.5	70.5					
AEO 1990					0.6	2.2					22.0					61.5					
AEO 1991						5.6	8.2	11.3	12.9	18.4	21.6	24.5	27.4	33.3	41.2	44.4	40.6	50.2	53.1	57.7	
AEO 1992							3.3	4.9	5.7	9.4	13.0	17.2	21.0	27.2	34.5	37.7	34.1	42.3	44.6	48.7	
AEO 1993								5.3	6.2	9.2	12.8	16.5	20.7	26.7	33.9	37.1	32.8	40.7	43.0	46.8	
AEO 1994									0.3	3.1	7.5	10.7	13.7	18.8	25.9	26.6	23.3	29.2	31.5	33.1	
AEO 1995										0.6	3.9	5.4	8.0	12.6	17.6	18.1	15.0	20.7	22.9	24.6	
AEO 1996											5.0	6.4	8.4	12.8	18.1	18.4	13.7	19.3	19.9	21.4	
AEO 1997												3.6	5.4	9.9	14.7	13.9	8.7	12.4	11.8	11.7	
AEO 1998													1.3	2.3	5.9	4.0	-2.2	0.8	0.1	-0.5	
AEO 1999														0.5	3.4	1.4	-4.8	-2.7	-2.9	-2.7	
AEO 2000															0.7	0.7	-0.8	-7.7	-6.7	-8.4	-9.2
AEO 2001																2.1	-3.7	-3.7	-5.7	-6.3	
AEO 2002																	-1.5	-3.0	-5.9	-5.5	
AEO 2003																		-3.0	-7.0	-7.4	
AEO 2004																			-2.5	-5.4	
AEO 2005																					0.0
Average Absolute Percent Difference (All AEOs)	3.4	8.4	14.3	17.4	18.2	19.6	11.4	12.8	12.9	16.0	28.9	17.6	19.7	23.4	27.7	32.6	15.7	18.0	18.5	18.7	

\* There is no report titled *Annual Energy Outlook 1988* due to a change in the naming convention of the AEOs.  
 Sources: Projections: *Annual Energy Outlook*, Mid-Price or Reference Case Projections, Various Editions.  
 Historical Data: Energy Information Administration, *Annual Energy Review 2004*, DOE/EIA-0384(2004) (Washington, DC, August 2005), Table 8.6.

**Table 17. Gross Domestic Product, Actual vs. Reference Case Projections**

(Nominal \$Billions)	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
AEO82	3,939	4,306	4,733	5,201	5,712	6,288														
AEO83	3,919	4,264	4,650	5,086	5,549	6,053					9,362									
AEO84	3,910	4,191	4,589	5,031	5,490	5,979					9,098									
AEO85	3,882	4,103	4,436	4,793	5,207	5,658	6,158	6,702	7,252	7,836	8,486									
AEO86		4,203	4,434	4,741	5,015	5,371	5,795	6,244	6,726	7,270	7,875	8,524	9,226	9,973	10,764	11,600				
AEO87			4,483	4,701	5,035	5,389	5,773	6,190	6,666	7,175	7,716					11,223				
AEO89*				4,857	5,182	5,575	6,013	6,483	6,987	7,525	8,106	8,756	9,400	10,103	10,863	11,632				
AEO90					5,236	5,550					7,882					11,329				
AEO91						5,457	5,695	6,078	6,399	6,738	7,145	7,607	8,099	8,629	9,197	9,828	10,527	11,255	12,005	12,774
AEO92							5,648	5,992	6,346	6,710	7,115	7,530	7,968	8,456	8,991	9,573	10,209	10,872	11,572	12,308
AEO93								5,941	6,339	6,714	7,117	7,542	7,995	8,509	9,027	9,591	10,224	10,881	11,573	12,316
AEO94									6,264	6,622	6,944	7,298	7,679	8,070	8,508	8,989	9,483	10,011	10,588	11,172
AEO95										6,761	7,090	7,418	7,837	8,244	8,676	9,134	9,613	10,152	10,744	11,382
AEO96											7,057	7,355	7,754	8,151	8,576	9,039	9,543	10,059	10,606	11,214
AEO97												7,585	7,883	8,268	8,708	9,181	9,646	10,120	10,661	11,234
AEO98													8,060	8,439	8,828	9,248	9,690	10,147	10,622	11,152
AEO99														8,478	8,771	9,178	9,592	10,035	10,494	10,960
AEO2000															8,950	9,265	9,662	10,070	10,536	11,034
AEO2001																9,975	10,578	11,159	11,752	12,355
AEO2002																	10,198	10,618	11,271	11,899
AEO2003																		10,473	10,613	11,178
AEO2004																			10,849	11,416
AEO 2005																				11,728
Nominal GDP	4,220	4,463	4,740	5,104	5,484	5,803	5,996	6,338	6,657	7,072	7,398	7,817	8,304	8,747	9,268	9,817	10,128	10,470	10,971	11,734
Average Absolute Difference (All AEOs)	308	250	185	216	256	303	209	250	285	370	666	448	518	551	629	789	397	395	438	489
(percent difference)																				
AEO82	-6.7	-3.5	-0.1	1.9	4.2	8.4														
AEO83	-7.1	-4.5	-1.9	-0.4	1.2	4.3					26.6									
AEO84	-7.3	-6.1	-3.2	-1.4	0.1	3.0					23.0									
AEO85	-8.0	-8.1	-6.4	-6.1	-5.1	-2.5	2.7	5.7	8.9	10.8	14.7									
AEO86		-5.8	-6.5	-7.1	-8.6	-7.4	-3.4	-1.5	1.0	2.8	6.4	9.0	11.1	14.0	16.1	18.2				
AEO87			-5.4	-7.9	-8.2	-7.1	-3.7	-2.3	0.1	1.5	4.3					14.3				
AEO89*				-4.8	-5.5	-3.9	0.3	2.3	5.0	6.4	9.6	12.0	13.2	15.5	17.2	18.5				
AEO90					-4.5	-4.4					6.6					15.4				
AEO91						-6.0	-5.0	-4.1	-3.9	-4.7	-3.4	-2.7	-2.5	-1.3	-0.8	0.1	3.9	7.5	9.4	8.9
AEO92							-5.8	-5.5	-4.7	-5.1	-3.8	-3.7	-4.0	-3.3	-3.0	-2.5	0.8	3.8	5.5	4.9
AEO93								-6.3	-4.8	-5.1	-3.8	-3.5	-3.7	-2.7	-2.6	-2.3	0.9	3.9	5.5	5.0
AEO94									-5.9	-6.4	-6.1	-6.6	-7.5	-7.7	-8.2	-8.4	-6.4	-4.4	-3.5	-4.8
AEO95										-4.4	-4.2	-5.1	-5.6	-5.8	-6.4	-7.0	-5.1	-3.0	-2.1	-3.0
AEO96											-4.6	-5.9	-6.6	-6.8	-7.5	-7.9	-5.8	-3.9	-3.3	-4.4
AEO97												-3.0	-5.1	-5.5	-6.0	-6.5	-4.8	-3.3	-2.8	-4.3
AEO98													-2.9	-3.5	-4.8	-5.8	-4.3	-3.1	-3.2	-5.0
AEO99														-3.1	-5.4	-6.5	-5.3	-4.2	-4.3	-6.6
AEO2000															-3.4	-5.6	-4.6	-3.8	-4.0	-6.0
AEO2001																1.6	4.4	6.6	7.1	5.3
AEO2002																	0.7	1.4	2.7	1.4
AEO2003																		0.0	1.3	0.4
AEO2004																			-1.1	-2.7
AEO 2005																				-0.1
Average Absolute Percent Difference (All AEOs)	7.3	5.6	3.9	4.2	4.7	5.2	3.5	4.0	4.3	5.2	9.0	5.7	6.2	6.3	6.8	8.0	3.9	3.8	4.0	4.2

\* There is no report titled *Annual Energy Outlook 1988* due to a change in the naming convention of the AEOs.

Sources: Projections: *Annual Energy Outlook*, Mid-Price or Reference Case Projections, Various Editions.

Historical Data: Energy Information Administration, *Annual Energy Review 2004*, DOE/EIA-0384(2004) (Washington, DC, August 2005), Table 1.3, and Bureau of Economic Analysis, US Dept. of Commerce, <http://www.bea.gov/bea/dn1.htm>, November 2005.

**Table 18. Energy Intensity, Actual vs. Reference Case Projections**

	(quadrillion Btu / \$Billion Nominal GDP)																			
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
AEO 1982	20.1	18.5	16.9	15.5	14.4	13.2														
AEO 1983	19.9	18.6	17.4	16.2	15.1	14.0					9.6									
AEO 1984	20.1	18.9	17.7	16.5	15.5	14.5					10.3									
AEO 1985	20.0	19.1	18.0	16.9	15.9	14.7	13.7	12.7	11.8	11.1	10.3									
AEO 1986		18.3	17.8	16.8	16.1	15.2	14.3	13.5	12.6	11.8	11.0	10.3	9.6	8.8	8.2	7.7				
AEO 1987			17.6	17.0	16.3	15.4	14.5	13.8	13.0	12.2	11.5					8.2				
AEO 1989*				16.9	16.2	15.2	14.2	13.3	12.5	11.7	11.0	10.4	9.7	9.0	8.4	8.0				
AEO 1990					16.1	15.4					11.7					8.6				
AEO 1991						15.5	14.9	14.2	13.6	13.0	12.5	11.9	11.3	10.8	10.3	9.7	9.2	8.7	8.3	7.9
AEO 1992							15.0	14.5	13.9	13.3	12.7	12.1	11.6	11.0	10.5	10.0	9.5	9.0	8.6	8.1
AEO 1993								14.7	13.9	13.4	12.8	12.3	11.8	11.2	10.7	10.2	9.6	9.2	8.7	8.3
AEO 1994									14.1	13.5	13.1	12.6	12.1	11.6	11.1	10.6	10.2	9.8	9.3	9.0
AEO 1995										13.2	12.7	12.2	11.7	11.3	10.8	10.4	9.9	9.5	9.0	8.6
AEO 1996											12.8	12.4	11.9	11.5	11.0	10.5	10.1	9.6	9.2	8.8
AEO 1997												12.2	11.9	11.5	11.1	10.7	10.2	9.9	9.5	9.1
AEO 1998													11.7	11.5	11.2	10.8	10.5	10.1	9.7	9.4
AEO 1999														11.2	11.1	10.8	10.5	10.2	9.8	9.4
AEO 2000															10.8	10.6	10.3	10.0	9.7	9.4
AEO 2001																9.8	9.4	9.2	8.9	8.5
AEO 2002																	9.6	9.5	9.2	8.9
AEO 2003																		9.3	9.0	8.6
AEO 2004																			9.0	8.8
AEO 2005																				8.5
Actual	18.1	17.2	16.7	16.2	15.5	14.6	14.1	13.6	13.2	12.6	12.3	12.1	11.4	10.9	10.4	10.1	9.5	9.3	9.0	8.5
Average Absolute Difference (All AEOs)	1.9	1.5	0.8	0.5	0.6	0.6	0.5	0.6	0.7	0.8	1.1	0.6	0.6	0.7	0.7	0.8	0.5	0.4	0.4	0.4

(percent difference)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
AEO 1982	10.8	7.4	1.0	-4.3	-7.3	-9.2														
AEO 1983	9.8	8.4	4.2	-0.2	-2.5	-4.3					-22.5									
AEO 1984	10.7	10.1	5.8	1.8	-0.1	-1.0					-16.7									
AEO 1985	10.3	11.2	7.6	4.4	2.4	0.9	-3.1	-6.3	-10.0	-12.4	-16.2									
AEO 1986		6.5	6.3	3.7	3.8	4.0	1.3	-0.8	-4.2	-6.6	-10.9	-14.5	-16.0	-19.1	-21.1	-23.4				
AEO 1987			5.3	4.8	5.0	5.3	2.9	1.6	-1.5	-3.4	-7.1					-18.8				
AEO 1989*				4.3	4.3	3.8	0.6	-1.8	-5.1	-7.2	-10.8	-14.0	-14.8	-17.3	-19.2	-20.8				
AEO 1990					3.8	5.4					-5.5					-14.7				
AEO 1991						5.9	5.7	4.3	3.3	3.3	1.0	-1.5	-0.7	-0.9	-1.9	-3.5	-3.2	-6.5	-7.6	-7.6
AEO 1992							6.3	7.1	5.3	5.2	3.1	0.7	1.6	1.5	0.6	-0.9	-0.4	-3.6	-4.5	-4.4
AEO 1993								8.0	5.8	6.0	4.1	1.9	3.0	2.9	2.2	0.8	1.3	-2.0	-2.9	-2.9
AEO 1994									6.8	7.1	5.9	4.2	5.8	6.6	6.4	5.6	7.0	4.4	4.2	5.3
AEO 1995										4.5	2.9	1.3	2.8	3.6	3.5	2.8	4.1	1.4	0.9	1.7
AEO 1996											4.1	2.9	4.6	5.4	5.2	4.3	5.6	3.1	3.1	4.1
AEO 1997												1.3	4.0	5.7	6.2	5.7	7.5	5.6	5.9	7.2
AEO 1998													2.9	5.3	6.9	7.1	9.8	7.9	8.6	10.2
AEO 1999														2.6	5.8	7.2	10.4	8.7	9.4	11.2
AEO 2000															3.1	5.1	8.0	7.1	8.5	10.7
AEO 2001																-2.9	-0.9	-2.1	-1.2	0.6
AEO 2002																	1.2	1.8	3.0	4.6
AEO 2003																		-0.4	0.3	1.6
AEO 2004																			0.9	3.3
AEO 2005																				0.1
Average Absolute Percent Difference (All AEOs)	10.4	8.7	5.0	3.3	3.6	4.4	3.3	4.3	5.2	6.2	8.5	4.7	5.6	6.4	6.8	8.2	4.9	4.2	4.4	5.0

\* There is no report titled *Annual Energy Outlook 1988* due to a change in the naming convention of the AEOs.

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