

# **Impacts of Modeled Provisions of H.R. 6 EH: The Energy Policy Act of 2005**

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## Preface

On May 2, 2005, Chairman Pete Domenici and Ranking Member Jeff Bingaman requested that the Energy Information Administration (EIA) perform an assessment of the energy supply, consumption, import, price, and macroeconomic impacts of H.R. 6 EH, the Energy Policy Act of 2005, as passed by the U.S. House of Representatives on April 21, 2005 (H.R. 6 EH). This report responds to that request by summarizing EIA's analysis of the H.R. 6 EH provisions that can be modeled using the National Energy Modeling System (NEMS) and have a significant potential to affect energy consumption, supply, prices, and imports. The impacts of the H.R. 6 EH provisions analyzed are estimated by comparing the results of cases with those provisions to an updated reference case based on the *Annual Energy Outlook 2005 (AEO2005)*.

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The projections in this report are not statements of what will happen but of what might happen, given the assumptions and methodologies used. The reference case projections are business-as-usual trend forecasts, given known technology, technological and demographic trends, and current laws and regulations. Thus, they provide a policy-neutral starting point that can be used to analyze policy initiatives. EIA does not propose, advocate, or speculate on future legislative and regulatory changes. All laws are assumed to remain as currently enacted; however, the impacts of scheduled regulatory changes, when defined, are reflected.



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# Executive Summary

This report responds to a May 2, 2005, letter from Chairman Pete Domenici and Ranking Member Jeff Bingaman requesting that the Energy Information Administration (EIA) perform an assessment of the energy supply, consumption, import, price, and macroeconomic impacts of H.R. 6, the Energy Policy Act of 2005, as passed by the U.S. House of Representatives on April 21, 2005 (H.R. 6 EH).

## Summary Results of the Modeled Provisions of H.R. 6 EH

The impacts of the H.R. 6 EH provisions analyzed are estimated by comparing the results of a simulation with all of the provisions that can be modeled with the National Energy Modeling System (NEMS) based on an updated reference case of the *Annual Energy Outlook 2005*<sup>1</sup> (AEO2005). Overall, the H.R. 6 EH provisions analyzed in this report have a modest impact on energy production, imports, oil prices, overall energy consumption, and economic growth.

The largest impacts come from opening the coastal plain of the Arctic National Wildlife Refuge (ANWR) for drilling. The maximum annual difference from the reference case level of energy production is an increase of 2.2 quadrillion British thermal units (Btu) (2.7 percent) in 2025. Starting in 2016, increased oil production from ANWR and from other fields in Alaska accounts for most of the increase in energy production in the H.R. 6 EH case. Alaska oil production is 940,000 barrels per day (154 percent) higher in the H.R. 6 EH case than in the reference case in 2025. Opening ANWR reduces oil import dependence by 4 percentage points in 2025, to 64 percent of petroleum product supplied. By 2025, world oil prices are expected to be 57 cents per barrel (1.9 percent) less than the reference case in constant 2003 dollars. (World oil prices are defined as the average refiner acquisition cost of crude oil imported into the United States.)

The following is a summary of the key impacts by provision:

- ***Onshore and Offshore Deep Royalty Relief.*** Royalty relief as specified for Sections 2005 and 2016 of H.R. 6 EH is projected to increase cumulative lower-48 offshore oil production between 2006 and 2025 by 0.5 percent. Cumulative lower-48 natural gas production is projected to be the same in the H.R. 6 EH case as in the reference case.
- ***Opening of the Arctic National Wildlife Refuge to Drilling.*** Opening ANWR to oil and natural gas development is projected to increase domestic oil production starting in 2015. In 2025, total oil production in Alaska is projected to be more than twice as high in the H.R. 6 EH case as in the reference case (1.55 million barrels per day in the H.R. 6 EH case, compared with 0.61 million barrels per day in the reference case). The increase in domestic oil production results in a reduction in the import share of petroleum products supplied, from 68 percent in the reference case to 64 percent in the H.R. 6 EH case.
- ***Renewable Fuels Standard, Methyl Tertiary Butyl Ether Ban, and Removal of Oxygenate Requirement.*** The renewable fuels standard (RFS) provision requires 3.1 billion gallons of renewable fuel use in the transportation sector in 2005, increasing to 5 billion gallons in

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<sup>1</sup>Energy Information Administration, *Annual Energy Outlook 2005*, DOE/EIA-0383(2005) (Washington, DC, February 2005), web site <http://www.eia.doe.gov/oiaf/aeo/>.

2012. In 2013 and beyond, the share of renewable fuel is to remain proportional to the 2012 share of gasoline sold in the Nation thereafter. The use of methyl tertiary butyl ether (MTBE) is prohibited by H.R. 6 EH nationwide starting in 2015 and the oxygen content requirements for reformulated gasoline (RFG) is eliminated starting in 2005. These provisions raise ethanol consumption by 1.6 billion gallons in both 2015 and 2025. Relative to the reference case, average gasoline prices differ by less than 1 cent per gallon throughout most of the forecast horizon in the H.R. 6 EH case. RFS provisions are projected to decrease net petroleum imports by more than 100,000 barrels per day by 2015. The impact of the RFS provisions is very dependent on the world oil price assumptions. In the reference case, ethanol production increases from about 2.8 billion gallons in 2003 to more than 5 billion gallons in 2012. However, in a case where crude oil prices average \$7.13 dollars higher between 2005 and 2012, the 5 billion gallon RFS target is reached by 2007 without the RFS requirement.

- ***MTBE Transition Assistance.*** Grants to convert merchant MTBE plants accelerate conversion of these plants to other uses, but do not significantly affect petroleum supply.
- ***Cellulose Conversion Assistance.*** Grants to cellulose ethanol producers are projected to allow construction and operation of two 52-million-gallon-per-year plants by 2010.
- ***Residential Initiatives, Including Weatherization.*** These provisions provide incentives for the purchase of renewable technologies, a new standard for torchiere lighting (limiting lighting to 190-watt bulbs), tax credits for energy-efficient existing homes, and increased funding for weatherization programs. The torchiere standard is projected to save 8 billion kilowatthours in 2015 and 9 billion kilowatthours in 2025 (3 percent of residential lighting and 0.5 percent of overall residential electricity use in both years). Increases in weatherization funding and tax credits for existing homes and renewable technologies are projected to save 34 trillion Btu of delivered energy in 2015 (0.3 percent) and 28 trillion Btu in 2025 (0.2 percent). The proposed increases in weatherization funding allow an additional 360,000 low-income homes to be weatherized in 2006 through 2008. Because of the provisions modeled in the H.R. 6 EH, energy consumption and expenditures are lower in the H.R. 6 EH case than the reference case.
- ***Commercial Initiatives, Including Energy Conservation Product Standards.*** These provisions set new appliance standards for illuminated exit signs, traffic signals, and distribution transformers, provide \$50 million per year over 5 years to commercialize photovoltaic generation, and provide a 20-percent business investment tax credit for fuel cells, up to \$500 per 0.5 kilowatt of capacity, for new capacity added between April 2005 through 2007. The commercial standards are projected to reduce electricity consumption by 4 billion kilowatthours (0.2 percent) in 2015 and maintain that savings through 2025. The photovoltaic program is projected to add 48 megawatts of photovoltaic capacity by 2010 (a 19-percent increase). This capacity is expected to generate about 101 million kilowatthours annually, about 4.8 percent of total commercial sector electricity use in 2025. Since fuel cell systems would have to be operational by 2007 to receive the credit and installed systems costs in the commercial sector are currently over \$5,000 per kilowatt, adoption of the fuel cell technology is limited largely to reference case levels.



## **H.R. 6 EH Provisions Not Analyzed**

Provisions of H.R. 6 EH that are not analyzed include: provisions that could not be analyzed using NEMS, including those addressing electric reliability; provisions that provide authorizations but do not provide actual funding; provisions that provide authority to set standards or targets at some future date but do not specify the standard or target; and provisions that are not expected to be significant to the market as a whole or are not quantifiable. Provisions that are not addressed for one or more of the above reasons could also have potentially significant impacts on U.S. energy markets. The results and findings in this report apply specifically to the provisions that were modeled.



# 1. Background and Scope of the Analysis

This report was prepared in response to a May 2, 2005, letter from Chairman Pete Domenici and Ranking Member Jeff Bingaman requesting that the Energy Information Administration (EIA) perform an assessment of the energy supply, consumption, import, price, and macroeconomic impacts of H.R. 6, the Energy Policy Act of 2005, as passed by the U.S. House of Representatives on April 21, 2005 (H.R. 6 EH).<sup>2</sup>

This report focuses on those provisions that can be modeled using EIA's National Energy Modeling System (NEMS),<sup>3</sup> and, in EIA's estimation, have the potential to affect energy supply, consumption, prices, and imports. The impacts of the H.R. 6 EH provisions analyzed are estimated by comparing the results of a simulation with all of the provisions that can be modeled with NEMS to an updated reference case based on the *Annual Energy Outlook 2005* (AEO2005).

## Major Provisions of H.R. 6 EH Included in the Analysis

The following provisions of H.R. 6 EH were included in the modeling analysis:

- Onshore and offshore deep royalty relief
- Opening of the Arctic National Wildlife Refuge to drilling
- Renewable fuels standard (RFS)
- Methyl tertiary butyl ether (MTBE) ban and transition assistance
- Removal of oxygenate requirement for reformulated gasoline (RFG)
- Cellulose ethanol conversion assistance
- Weatherization assistance
- Torchiere, exit sign, distribution transformer, and traffic signal standards
- Public building photovoltaics
- Tax credits for residential and business fuel cells and residential solar systems
- Tax credit for efficiency improvements to existing homes
- Rebates for renewable energy systems in homes and small businesses.

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<sup>2</sup>See Appendix A.

<sup>3</sup>Energy Information Administration, *The National Energy Modeling System: An Overview 2003*, DOE/EIA-0581(2003) (Washington, DC, March 2003), web site <http://www.eia.doe.gov/oiaf/aeo/overview/>.

## **H.R. 6 EH Provisions Not Included in the Analysis**

Provisions of H.R. 6 EH that are not analyzed in this report generally fall into one of four categories:

- Provisions that cannot be assessed using NEMS and/or those that can only be assessed using proprietary data. For example, NEMS does not explicitly represent electric system reliability, so it cannot be used to quantify the benefits, arguably substantial, of adopting mandatory reliability rules. Other provisions that fall into this category include: standard market design provisions, State and local programs, actions that increase natural gas market transparency, development of strategies in the Department of Housing and Urban Development, training, United States-Israel cooperation, centers for excellence in research, treatment of nuclear threats, and international technology collaboration.
- Provisions that provide authorizations, but do not provide funding. EIA is not able to project the level of future appropriations, and the extent to which such appropriations might be offset by reductions in funding provided under existing authorizations. The bill authorizes several research and development programs, grants, voluntary programs, demonstration projects, loan guarantees for development of Indian Tribal energy resources, and filling the Strategic Petroleum Reserve.
- Provisions that provide authority to set standards or establish specific targets at some future date. EIA has no basis for speculating on what levels will ultimately be set. Examples of these provisions include establishment of test procedures for several products such as standby power and ceiling fans, grants to States that allow for rebates towards the purchase of energy efficient products, advanced buildings testbeds, and “encouragement” of Department of Energy and Federal Energy Regulatory Commission actions.
- Provisions that either are not significant to the market as a whole or are not quantifiable. Examples include implementing executive orders, forthcoming recommendations of the Set America Free Act, assessment studies, Federal purchase requirements, reimbursements for analyses, project coordination, changes to Federal land permitting practices, expedited environmental and judicial reviews, pilot programs, and cooperative agreements.

Provisions that are not addressed for one or more of the above reasons could have potentially significant impacts on U.S. energy markets. The results and findings of this report apply specifically to those provisions that were modeled.

## **Uncertainties**

The analysis in this report is mainly based on results of NEMS. NEMS, like all models, is a simplified representation of reality. Projections are highly dependent on the data, methodologies, model structure, and assumptions used to develop them. Because many of the events that shape energy markets are random and cannot be anticipated (including severe weather, technological breakthroughs, and geo-political disruptions), energy market projections are subject to uncertainty. Furthermore, future developments in technologies, demographics, and resources cannot be foreseen with certainty. Nevertheless, well-formulated models are valuable tools to analyze complex policies because they ensure consistency in the accounting and represent key interrelationships to provide useful insights.

EIA's projections are not statements of what will happen but what might happen, given technology and demographic trends. Because EIA's reference case is based on current laws and regulations, it provides a policy-neutral starting point that can be used to analyze energy policy initiatives. EIA does not propose, advocate, or speculate on future legislative or regulatory changes within its reference case. Laws and regulations are assumed to remain as currently enacted or in force; however, the impacts of scheduled regulatory changes, when clearly defined, are reflected.

### **Changes to the *AEO2005* Reference Case**

Minor modifications were made to the *AEO2005* reference case for this analysis. These changes were made to add the capability to address provisions of H.R. 6 EH that could not be analyzed using the original *AEO2005* version of NEMS, or to update key assumptions relevant to this analysis. These changes are described below.

Two small modifications were made to the representation of unconventional natural gas recovery. First, the timing of historical unconventional natural gas production volumes at the play<sup>4</sup> level was corrected. (It was discovered that they were off by a year). Second, a correction was made to the estimation of success rates for some unconventional gas plays. These modifications slightly change the reference case from the published values for the *AEO2005*. Unconventional natural gas production in 2025 is about 30 billion cubic feet lower in the H.R. 6 EH reference case than in the *AEO2005* reference case.

The ethanol supply model was updated from the version used in *AEO2005*. The changes included updates to the costs of new plants, the costs of corn, transportation costs, and expanding the supply of ethanol available to meet the requirements of H.R. 6 EH. The capital cost for a corn-fed, 40-million-gallon-per-year dry mill was increased from \$40 million to \$60 million (2004 dollars), and the recovery period for owners was shortened from 20 years to 10 years. Nominal prices for corn from the *USDA Agricultural Baseline Projections to 2013* were converted to real prices for use in this analysis. A farm-to-ethanol plant transportation charge amounting to 5.5 cents per gallon of ethanol (2004 cents) was included. The corn supply curve was extended and refined to allow for the possibility of corn ethanol production of up to 10 billion gallons per year and refined, to estimate costs more accurately. Decisions regarding the operation of existing corn ethanol plants excluded consideration of capital costs.

Adjustments were also made to the assumptions for new cellulose-based ethanol plants. The capital cost for a 50-million-gallon-per-year cellulose ethanol plant was increased from \$225 million to \$294 million. The cellulose ethanol supply curves were restructured to allow incorporation of the proposed subsidies. H.R. 6 EH provides \$100 million in 2005, \$250 million in 2006, and \$400 million in 2007 (nominal dollars). It was assumed that these grants would completely fund construction of two cellulose ethanol plants and partially fund construction of a third.

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<sup>4</sup>A play is a set of known or postulated oil and/or gas accumulations sharing similar geologic, geographic, and temporal qualities, such as source rock, migration pathway, timing, trapping mechanism, and hydrocarbon type.

Two changes were also made to the representation of MTBE. In order to better represent transition assistance, MTBE and isooctane units were allowed to exist simultaneously. MTBE costs were raised by about \$7 to \$9 per barrel to better calibrate to actual industry costs.

Several updates were also made to the residential module to improve forecast accuracy. These changes include expanding the technology database to allow for regional variation in cost and efficiency of new technologies, improving the detailed stock-accounting averaging for the efficiency of new construction, and updates to the clothes washer data to better account for the 2007 Federal efficiency standard. The net effect of all these changes is a reduction in residential delivered energy of 0.3 percent (40 trillion Btu) in 2025.

## 2. Impacts of Modeled H.R. 6 EH Provisions

This analysis begins with a summary, followed by a discussion of each major provision. The impacts of provisions that affect oil and natural gas production are discussed first, followed by provisions that affect end-use markets.

The summary of impacts described in this chapter compare a modified *AEO2005* reference case to a case that contains those H.R. 6 EH provisions modeled in NEMS. Although Senators Domenici and Bingaman requested a comparison to the reference case, world oil prices are now substantially higher than those shown in the reference case.<sup>5</sup> The text box on page 12 gives a brief description of the effect of higher oil prices on the reference case projections for ethanol use.

### Comparison of Selected Energy Performance Indicators

The H.R. 6 EH provisions analyzed in this report have a modest impact on energy production, imports, oil prices, overall energy consumption, and the overall economy. The most significant impact comes from opening the coastal plain of the Arctic National Wildlife Refuge (ANWR) to drilling.

The maximum annual difference from the reference case level of energy production is 2.2 quadrillion British thermal units (Btu) in 2025 or 2.7 percent (Table 1). Until oil production from ANWR begins in 2015, the difference in total energy production between the H.R. 6 EH case and the reference case is less than 0.1 percent.

Starting in 2016, increased oil production from ANWR and other fields in Alaska accounts for most of the increase in energy production in the H.R. 6 EH case. Alaska oil production is 940,000 barrels per day (154 percent) higher in the H.R. 6 EH case than the reference case in 2025. Smaller increases are also seen in the production of natural gas (because of royalty relief) and ethanol (because of a renewable fuel standard).

Energy imports in the H.R. 6 EH case are less than in the reference case, primarily because of lower oil imports. Net petroleum imports in the H.R. 6 EH case are 1.0 million barrels per day less than in the reference case in 2025, with more than 90 percent of the difference coming from reduced imports of crude oil. Opening ANWR reduces import dependence by 4 percentage points, from 68 percent of petroleum product supplied in 2025 to 64 percent.

The difference in total energy consumption between the reference and H.R. 6 EH cases is less than 0.1 percent in all years. Residential and commercial initiatives in H.R. 6 EH reduce consumption by a small amount, while industrial production increases by a small amount, as drilling and production increase in Alaska.

The most significant impact on energy prices caused by H.R. 6 EH is the reduction in world oil prices from the opening of ANWR. In 2025, world oil prices are expected to be 57 cents per barrel (1.9 percent) less than in the reference case in constant 2003 dollars.

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<sup>5</sup>World oil prices are defined as the average refiner acquisition cost of crude oil imported into the United States.

**Table 1. Comparison of Selected Energy Measures, Reference and H.R. 6 EH Cases**

	2003	2010		2015		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Energy Production</b>							
<b>(quadrillion Btu) .....</b>	<b>71.4</b>	<b>77.9</b>	<b>77.9</b>	<b>77.6</b>	<b>77.8</b>	<b>82.6</b>	<b>84.9</b>
Crude Oil and Lease							
Condensate.....	12.0	12.7	12.7	11.6	11.8	10.1	12.2
Natural Gas.....	19.6	21.1	21.0	21.2	21.3	22.4	22.5
Other.....	0.9	1.0	1.0	0.8	0.8	0.8	0.9
<b>Net Imports (quadrillion Btu)</b>							
Petroleum.....	24.1	28.4	28.4	32.5	32.2	39.5	37.2
Natural Gas	3.3	4.9	4.9	7.2	7.2	8.9	9.0
<b>Energy Consumption</b>							
<b>(quadrillion Btu) .....</b>	<b>98.2</b>	<b>111.1</b>	<b>111.0</b>	<b>117.5</b>	<b>117.5</b>	<b>131.5</b>	<b>131.6</b>
Residential .....	21.3	23.4	23.4	24.5	24.4	26.5	26.4
Commercial.....	17.5	20.3	20.3	22.2	22.1	26.8	26.7
Industrial .....	32.2	35.5	35.5	36.6	36.6	39.4	39.6
Transportation.....	27.2	31.9	31.9	34.3	34.3	38.8	38.9
Electric Power .....	38.3	43.7	43.7	46.6	46.5	53.4	53.3
World Oil Price (2003 Dollars per Barrel).....	27.73	25.00	24.96	26.75	26.64	30.31	29.74
Average Wellhead Natural Gas Price (2003 dollars per thousand cubic feet) .....	4.98	3.66	3.64	4.18	4.16	4.79	4.82
Electricity Price (2003 cents per kilowatthour).....	7.4	6.6	6.6	7.0	6.9	7.3	7.3
Gross Domestic Product (billion 2000 chain-weighted dollars) .....	10,381	10,383	10,384	15,207	15,208	20,283	20,297

Note: Totals may not equal sum of components due to independent rounding.

Source: National Energy Modeling System, runs BASE.D071305I and HR6.D071305F.

Macroeconomic activity is not significantly affected by the modeled provision of H.R. 6 EH. Gross domestic product increases starting with the opening of ANWR in 2015 and is \$14 billion (less than 0.1 percent) higher than the reference case in constant 2000 dollars in 2025.

## Oil and Natural Gas Supply Provisions

### *Royalty Relief*

Sections 2005 and 2016 of H.R. 6 EH are intended to promote oil and natural gas development from resources in Federal waters and lands by providing royalty relief. In both these provisions, the Secretary of the Interior may place limitations on the suspension of royalty relief granted based on market prices, but the specifics are not provided.

Section 2005 provides royalty relief for oil and natural gas production in water depths greater than 400 meters in the Gulf of Mexico from any oil or gas lease sale occurring within 5 years after enactment. The minimum volume of production with suspended royalty payments is:

- 5,000,000 barrels of oil equivalent (BOE) for each lease in water depths of 400 to 800 meters



- 9,000,000 BOE for each lease in water depths of 800 to 1,600 meters
- 12,000,000 BOE for each lease in water depths of 1,600 to 2,000 meters
- 16,000,000 BOE for each lease in water depths greater than 2,000 meters.

Section 2016 provides royalty relief for natural gas produced from onshore deep wells drilled after enactment. The maximum suspension volume is 50 billion cubic feet per lease. The definition of “deep well” is not specified in the provision.

To analyze these royalty relief provisions, the following assumptions were used:

- The water depth categories in Section 2005 were adjusted to be consistent with the depth categories in the Offshore Oil and Gas Supply Submodule of NEMS. The suspension volumes are 5,000,000 BOE for leases in water depths 200 to 800 meters; 9,000,000 BOE for leases in water depths of 800 to 1,600 meters; 12,000,000 BOE for leases in water depth of 1,600 to 2,400 meters; and 16,000,000 for leases in water depths greater than 2,400 meters. Examination of the resources available at 200 to 400 and 2,000 to 2,400 meters showed that the differences between the depths used in NEMS and those specified in the bill would not materially affect the results.
- Onshore wells drilled to depths greater than 10,000 feet were considered deep. Wells drilled after 2005 received a suspension of royalties on 50 billion cubic feet per lease.
- Royalty relief was applied if the regional wellhead price was less than \$32 (in 2002 dollars) for oil and \$4 (in 2002 dollars) for natural gas.

Royalty relief as specified for Sections 2005 and 2016 of H.R. 6 EH is projected to increase cumulative lower-48 offshore oil production between 2006 and 2025 by 0.5 percent. Cumulative lower-48 natural gas production is projected to be the same in the H.R. 6 EH case as in the reference case.

### ***Arctic National Wildlife Refuge***

Sections 2201 through 2212 of H.R. 6 EH allow the opening of the coastal plain (Section 1002 Area) of ANWR to oil and natural gas exploration and development. This analysis includes production from Federal lands, native lands, and State offshore areas of the coastal plain. The U.S. Geological Survey (USGS) estimates that 74 percent of the oil resources in ANWR’s coastal plain are on Federal lands, with the remaining 26 percent on State and tribal lands. The link between development on Federal and tribal lands is legally driven—under terms of the Alaska National Interest Lands Conservation Act of 1980, development on native lands can only proceed after a Congressional decision to open the coastal plains of ANWR. The link between development in Federal lands and State areas is economic—without ANWR development the necessary infrastructure for offshore development would likely not be available. Since both the State and native corporations have expressed a strong interest in developing their respective oil resources, an approach that reflects the legal and economic linkages operating on the North Slope is appropriate in evaluating the potential production impact of a Congressional decision to allow development in ANWR.

The key assumptions used to project crude oil production from the coastal plain of ANWR are as follows:

- First production from ANWR occurs 10 years after the passage of the legislation (i.e. 2015), assuming that the first lease sale occurs 22 months after enactment.
- New fields in the coastal plain of ANWR are sequentially developed every 2 years after a prior field begins production.
- The total volume of technically recoverable crude oil resources is assumed to be 10.4 billion barrels (USGS mean estimate).<sup>6</sup> The largest field is 1.37 billion barrels of oil and is brought into production first. Subsequent fields that are developed through 2025 are smaller—two fields with 700 million barrels of oil and three fields with 360 million barrels of oil.
- Fields are assumed to take 3 to 4 years to reach peak production, maintain peak production for 3 to 4 years, and then decline until they are no longer profitable and are closed.

The opening of the coastal plain of Alaska to development is projected to increase domestic oil production starting in 2015. Between 2015 and 2025, cumulative oil production from Alaska is projected to be 2.4 billion barrels (40.1 percent) higher than in the reference case.

### ***Summary of Crude Oil and Natural Gas Market Impacts from H.R. 6 EH Provisions***

The H.R. 6 EH provisions for crude oil and natural gas supply are expected to increase domestic production over the projection period (Table 2). Cumulative oil production between 2006 and 2025 is projected to be 2.46 billion barrels (5.6 percent) higher in the H.R. 6 EH case than in the reference case. The majority (97 percent) of the increase in domestic crude oil supply comes from ANWR. The increase in domestic supply reduces oil import dependency in 2025 from 68 percent in the reference case to 64 percent in the H.R. 6 EH case and is projected to reduce the world oil price by 57 cents per barrel (1.9 percent) relative to the reference case in 2025.

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<sup>6</sup>U.S. Geological Survey, *USGS Fact Sheet FS-028-01* (April 2001), web site <http://pubs.usgs.gov/fs/fs-0028-01>.

**Table 2. Crude Oil and Natural Gas Supply and Prices, Reference and H.R. 6 EH Cases**

	2003	2010		2015		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Crude Oil</b>							
<b>U.S. Production</b>							
<b>(million barrels per day)</b> .....	<b>5.68</b>	<b>6.02</b>	<b>6.02</b>	<b>5.49</b>	<b>5.56</b>	<b>4.75</b>	<b>5.76</b>
Lower-48 Onshore.....	2.99	2.63	2.63	2.42	2.42	2.09	2.08
Lower-48 Offshore.....	1.72	2.58	2.58	2.19	2.20	2.05	2.13
Alaska.....	0.97	0.81	0.81	0.88	0.94	0.61	1.55
Lower-48 Average Wellhead Price (2003 dollars per barrel) .....	28.60	24.49	24.44	26.32	26.17	29.90	29.34
World Oil Price (2003 dollars per barrel) .....	27.73	25.00	24.96	26.75	26.64	30.31	29.74
Import Share of Product Supplied (percent) .....	0.56	0.58	0.58	0.62	0.61	0.68	0.64
<b>Natural Gas</b>							
<b>U.S. Dry Production</b>							
<b>(trillion cubic feet)</b> .....	<b>19.07</b>	<b>20.51</b>	<b>20.48</b>	<b>20.66</b>	<b>20.71</b>	<b>21.82</b>	<b>21.95</b>
Lower-48 Onshore.....	13.89	15.03	15.01	15.26	15.25	14.68	14.63
Lower-48 Offshore.....	4.73	5.22	5.22	5.13	5.19	4.91	5.00
Alaska.....	0.44	0.25	0.25	0.27	0.27	2.23	2.32
Lower-48 Average Wellhead Price (2003 dollars per thousand cubic feet) .....	4.98	3.66	3.64	4.18	4.16	4.79	4.82
Primary Natural Gas Consumption <sup>a</sup> (trillion cubic feet) .....	20.19	23.55	23.49	25.97	25.98	28.63	28.70
<b>Cumulative Production</b>							
Crude Oil (billion barrels).....	0.00	15.28	15.27	25.68	25.71	44.25	46.71
Lower-48 Dry Gas (trillion cubic feet) .....	0.00	135.31	135.20	238.93	238.84	435.21	435.21

<sup>a</sup>Does not include lease and plant fuel and pipeline fuel.

Source: National Energy Modeling System, runs BASE.D071305I and HR6.D071305F.

The net impact of the H.R. 6 EH oil and natural gas provisions on domestic natural gas production is small. Between 2006 and 2025, cumulative dry natural gas production is projected to be 0.61 trillion cubic feet (0.1 percent) higher in the H.R. 6 EH case than in the reference case. However, not all of this increase is marketed production. The opening of the coastal plain of ANWR to oil and natural gas development is expected to increase natural gas production for lease and plant fuel use, not for marketing to the lower-48 States. Cumulative lower-48 natural gas production is about the same between the two cases, and average wellhead prices are only slightly lower in the H.R. 6 EH case.

## Downstream Fuel Provisions

Section 1501 of H.R. 6 EH establishes a renewable fuels program (RFP) that requires 3.1 billion gallons of renewable fuels to be blended into transportation sector in 2005, increasing to 5 billion gallons by 2012. For 2013 and each year thereafter, the renewable fuels required

would be proportional to the total gasoline sold nationally.<sup>7</sup> Both ethanol and biodiesel are considered as renewable fuels, with a 1.5-gallon credit toward the RFP for every gallon of biomass ethanol produced. Cellulose ethanol produced from agricultural or wood residue is given a 2.5-gallon credit; however because NEMS generates only one biomass price, in this study all cellulose ethanol was assumed to get only 1.5-gallon credits.

Section 1504 of H.R. 6 EH prohibits the use of MTBE nationwide starting in 2015<sup>8</sup> yet allows States to seek a waiver from the U.S. Environmental Protection Agency to allow the continued use of MTBE. The H.R. 6 EH case assumes no States request or obtain such waivers. Section 1503 provides merchant MTBE producers with grant assistance of up to \$250 million per year between 2005 and 2012 to convert to iso-octane production. If economical, merchant MTBE producers are assumed to convert their units to iso-octane. Grants to convert merchant MTBE plants accelerate conversion of the plants to other uses but do not significantly affect petroleum supply. Section 1506 of H.R. 6 EH also eliminates the oxygen content requirement for reformulated gasoline starting in 2006.<sup>9</sup> This provision was incorporated into the H.R. 6 EH case.

The American Jobs Creation Act of 2004 extended the Federal tax credit of \$0.51 per gallon on ethanol blended into gasoline through 2010. Since the Federal tax credit for ethanol has been extended several times in the past, both the H.R. 6 EH and reference cases assume the tax credit will be extended indefinitely. The Jobs Creation Act also provides a tax credit of \$0.50 per gallon of biodiesel produced from recycled oil or \$1.00 per gallon of biodiesel produced from virgin oil or virgin animal fat and applies to biodiesel blended with petroleum diesel. This credit is effective from December 31, 2003, through December 31, 2006.

Section 1512 of H.R. 6 EH authorizes the Secretary of Energy to approve grants to potential producers of cellulose ethanol: \$100 million to be made available in fiscal year 2005, \$250 million in fiscal year 2006, and \$400 million in fiscal year 2007. A cellulose ethanol plant with capacity of 52 million gallons per year is estimated to cost \$250 million (2004 dollars) to construct. The H.R. 6 EH case assumes that cellulose ethanol will develop first on the West Coast, since there is an ample supply of biomass, substantial demand for ethanol, and very little conventional ethanol production. It is assumed that the grants will completely fund the construction of the first two plants, which will begin operation in 2008. The third plant will be constructed with the remainder of the grant money plus \$32 million (2004 dollars) of investor capital and will begin operation in 2009.

Table 3 summarizes the major impacts of the H.R. 6 EH on the downstream petroleum market.<sup>10</sup> The RFP requirements would increase the ethanol consumption by 0.39 billion gallons in 2010, 1.7 billion gallons in 2015, and 1.8 billion gallons in 2025. Relative to the

---

<sup>7</sup>Small refineries with a capacity not exceeding 75,000 barrels per calendar day are exempted from the renewable fuels program.

<sup>8</sup>The reference case includes MTBE bans in 20 States (mainly in RFG used in California, New York, Connecticut, Missouri, and Kentucky), which collectively accounted for more than one-half of the Nation's MTBE consumption before MTBE was banned in those States. Three more States banned MTBE in 2005. However, none of these has ever used it in the past.

<sup>9</sup>The oxygenate waiver would take effect 270 days after enactment of the H.R. 6 EH.

<sup>10</sup>The incremental production of corn requires energy inputs to till the land and fertilize, harvest, and transport the corn.

ethanol consumption of 2.8 billion gallons in 2003, this represents an increase in ethanol consumption of 59 percent by 2010, 103 percent by 2015, and 126 percent by 2025. Ethanol accounts for essentially all of the additional renewable transportation fuels consumption compared to the reference case. Neither the RFP nor the short-term tax incentives are expected to affect the biodiesel supply significantly.

**Table 3. Oil Production, Net Petroleum Imports, and Gasoline Prices, Reference and H.R. 6 EH Cases**

	2003	2010		2015		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
Ethanol Consumption (billion gallons per year) .....	2.82	4.10	4.49	4.01	5.73	4.59	6.38
Domestic Crude Oil Production (million barrels per day) .....	5.68	6.02	6.02	5.49	5.56	4.75	5.76
Net Petroleum Imports <sup>a</sup> (million barrels per day) .....	11.23	13.31	13.29	15.08	14.93	18.32	17.30
Average Gasoline Price Differential (2003 cents per gallon) .....	—	—	-0.5	—	0.2	—	-0.8

<sup>a</sup>Net petroleum imports include both net crude and net product imports.

Source: National Energy Modeling System, runs BASE.D071305I and HR6.D071305F.

The H.R. 6 EH case projects impacts of less than 1 cent per gallon on average gasoline prices throughout most of the forecast horizon, because other provisions of the bill increase the costs of using a more expensive blending component (ethanol). For example, the increases in domestic oil production are anticipated to reduce crude oil prices by 57 cents a barrel by 2025. Additionally the MTBE plant conversation assistance provides additional octane-boosting blending components that are less expensive than many petroleum-based alternatives.

**Summary of Impacts on Transportation Fuels from H.R. 6 EH Provisions**

The H.R. 6 EH provisions for transportation fuels include the implementation of an RFP that seeks to increase the quantity of renewable fuel (primarily ethanol) blended, from about 2.8 billion gallons in 2003 to 5 billion gallons by 2012. In 2013 and beyond, the share of renewable fuel is to remain proportional to the 2012 share of gasoline sold in the Nation thereafter. This increase is projected to cost no more than 1 cent per gallon of blended gasoline. The use of the oxygenate MTBE would be prohibited by H.R. 6 EH nationwide starting in 2015, and the oxygen content requirement for RFG would be eliminated starting in 2006.

### **Impact of World Oil Price Assumptions on Projected Ethanol Use**

Significant increases in ethanol production in the H.R. 6 EH case depend on the world oil price assumption that is used. The H.R. 6 EH case assumes a world oil price of \$25 per barrel in 2010. At this price ethanol is far less competitive as a gasoline blendstock than it is at today's prices. In a recent Service Report on RFS provisions, where the request did not specify the baseline case,<sup>a</sup> EIA used the October oil futures case from *AEO2005* as the starting point for its analysis.<sup>b</sup> If the world oil price assumptions in the October oil futures case<sup>a</sup> are used (an average of \$7.13 higher from 2005 through 2012), the 5-billion-gallon level is projected to be reached by 2007 without the legislation.

<sup>a</sup>Energy Information Administration, *Renewable Fuels Legislation Impact Analysis* (July 12, 2005), web site [www.eia.doe.gov/oiaf/servicrpt/jeffords/index.html](http://www.eia.doe.gov/oiaf/servicrpt/jeffords/index.html).

<sup>b</sup>For further information on the October oil futures case, see web site [www.eia.doe.gov/oiaf/aeo/special\\_topics.html](http://www.eia.doe.gov/oiaf/aeo/special_topics.html).

## **Residential and Commercial Provisions**

### **Residential Sector**

Appliance standards, tax credits, and subsidies are included in the suite of provisions aimed at reducing residential energy use. Section 133 of H.R. 6 EH includes a standard that limits the output of torchiere lights to 190 watts per bulb, effective January 1, 2006. Today, torchiere bulbs in the 250-watt range are common in the marketplace, allowing room for future energy savings. In 2015, the torchiere standard is projected to save 8 billion kilowatthours (3 percent of residential lighting demand and 0.5 percent of overall residential electricity use), increasing to 9 billion kilowatthours by 2025 (3 percent of lighting demand and 0.5 percent of overall residential electricity use).

Increases in funding for weatherization programs in Section 122 of H.R. 6 EH and tax credits for existing homes in Section 1317 of H.R. 6 EH are projected to reduce heating and cooling requirements by about 30 percent in the homes that are affected by either the subsidy or the tax credit. These measures are projected to save 34 trillion Btu of delivered energy in 2015 (0.3 percent) and 28 trillion Btu in 2025 (0.2 percent). For the increase in weatherization funding in Section 122, an additional 360,000 homes (0.3 percent of the 2004 stock) would be upgraded in 2006 through 2008. Some 1.1 million households could claim the existing home tax credit in 2006 and 2007, which represents less than 1 percent of the housing stock in 2004. The tax credits for purchases of renewable technologies included in Section 207 of H.R. 6 EH have a measurable impact on the purchase of ground-source heat pumps, nearly doubling the stock of this little-used technology by 2025. Even still, ground-source heat pumps only account for 0.7 percent of the heating equipment stock in 2025 in the H.R. 6 EH case. Table 4 summarizes projected reductions in energy consumption and expenditures in the H.R. 6 EH case, relative to the reference case.

**Table 4. Residential Sector Results, Reference and H.R. 6 EH Cases**

	2003	2010		2015		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
Delivered Energy Consumption (quadrillion Btu) .....	11.61	12.65	12.60	13.26	13.20	14.22	14.16
Average Energy Prices (2003 dollars per million Btu).....	15.81	14.35	14.34	15.00	14.99	16.10	16.10
Energy Expenditures (2003 dollars per household).....	1,582	1,442	1,435	1,495	1,487	1,564	1,557

Source: National Energy Modeling System, runs BASE.D071305I and HR6.D071305F.

## Commercial Sector

Section 133 of H.R. 6 EH provides specific conservation standards for illuminated exit signs, traffic signals, and low voltage dry-type transformers manufactured on or after January 1, 2006. The provision requires exit signs to meet Version 2.0 Energy Star performance requirements.<sup>11</sup> Power usage of 5 watts or less with size and luminance levels also specified. Low voltage dry-type transformers must meet the Class I Efficiency Levels specified by the National Electrical Manufacturers Association.<sup>12</sup> The provision also requires traffic signal modules to meet Energy Star performance requirements. To estimate the impacts of these standards, electricity use reductions relative to reference case assumptions were estimated and included in the H.R. 6 EH case. The standards are projected to reduce commercial delivered electricity demand in the “Other Uses” category by about 6 trillion Btu (2 billion kilowatthours or 0.1 percent) in 2010 and about 12 trillion Btu (4 billion kilowatthours or 0.2 percent) annually in 2015 through 2025 as the existing equipment stock is replaced and the effects of the standards are realized.

Section 205 of H.R. 6 EH establishes a photovoltaic energy commercialization program, including the installation of at least 150 megawatts of capacity in public buildings cumulatively from 2006 through 2010. The provision authorizes \$50 million per year for the 5-year program, about one-third of the funds needed to install the full 150 megawatts specified in the bill. To estimate the impact of the provision, extra “program-driven” commercial photovoltaic capacity was added over the 5-year program equal to about 48 megawatts, the capacity consistent with the authorized funding. The additional photovoltaic capacity installed for this provision is projected to generate about 101 million kilowatthours of electricity annually post-2009, about 4.8 percent of total commercial sector electricity use in 2025.

Section 1312 provides a 15-percent business investment tax credit for fuel cell systems up to a maximum of \$500 per 0.5 kilowatt of capacity. Qualifying equipment must have electrical

<sup>11</sup>Environmental Protection Agency, *Energy Star Program Requirements for Exit Signs*, (April 2001). The Environmental Protection Agency revised the Energy Star specifications for illuminated exit signs effective August 1, 2004. Input power requirements remain at 5 watts or less per sign. Version 3.0 performance requirements are available at [www.energystar.gov/ia/partners/product\\_specs/eligibility/exit\\_signs\\_elig.pdf](http://www.energystar.gov/ia/partners/product_specs/eligibility/exit_signs_elig.pdf).

<sup>12</sup>National Electrical Manufacturers Association, *Guide for Determining Energy Efficiency for Distribution Transformers*, NEMA TP 1-2002 (Rosslyn, VA, 2000), Table 4-2, p. 8.

capacity of at least 0.5 kilowatts and be placed in service from April 2005 through 2007. Fuel cell adoption is limited because current system costs are more than \$5,000 per kilowatt and the timeframe of the credit is short. Very few additional sales of fuel cells would be purchased as a result of the tax credit.

Supply-driven energy price effects for commercial consumers as a result of other provisions in H.R. 6 EH are minimal, allowing commercial projected energy savings to persist throughout the forecast. Composite energy prices are projected to be 0.1 percent lower and energy expenditures 0.2 percent lower in 2025 (Table 5).

**Table 5. Commercial Sector Results, Reference and H.R. 6 EH Cases**

	2003	2010		2015		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
Delivered Energy Consumption (quadrillion Btu).....	8.29	9.52	9.52	10.40	10.40	12.49	12.48
Average Energy Prices (2003 dollars per million Btu) .....	15.63	13.80	13.76	14.91	14.87	16.16	16.15
Energy Expenditures (2003 dollars per thousand square feet) .....	1,776	1,603	1,598	1,740	1,734	1,913	1,910

Source: National Energy Modeling System, runs BASE.D071305I and HR6.D071305F.



# Appendix A

## Letter from Chairman Domenici and Ranking Member Bingaman Requesting the Analysis

PETE V. DOMENICI, New Mexico, Chairman

GUY E. SPAID, Idaho	JEFF BINGAMAN, New Mexico
MARK THOMAS, Wyoming	DANIEL K. AKAKA, Hawaii
MARY ALEXANDER, Tennessee	BYRON L. DORGAN, North Dakota
DA MURKOWSKI, Alaska	RON WYDEN, Oregon
CHARO BURR, North Carolina	TIM JOHNSON, South Dakota
R. MARTINEZ, Florida	MARY L. LANDRIEU, Louisiana
WES H. TALENT, Missouri	DANNIS FERGUSON, California
DONALD SUTHERS, Montana	MARIA CANTWELL, Washington
GEORGE JELLEN, Virginia	JON S. COFFINE, New Jersey
CRISAN SMITH, Oregon	KEN SALAZAR, Colorado
N BURNETT, Kentucky	

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ROBERT M. SMOGL, DEMOCRATIC STAFF DIRECTOR  
SAMUEL FOWLER, DEMOCRATIC CHIEF COUNSEL

### United States Senate

COMMITTEE ON  
ENERGY AND NATURAL RESOURCES

WASHINGTON, DC 20510-6160

ENERGY.SENATE.GOV

May 2, 2005

The Honorable Guy F. Caruso  
Administrator  
Energy Information Administration  
U.S. Department of Energy  
1000 Independence Avenue, SW  
Washington, DC 20585

Dear Mr. Caruso:

We would like to better understand the implications of H.R. 6, the Energy Policy Act, passed by the House of Representatives on April 21, 2005.

Please provide a comprehensive analysis and estimates of the impacts of the Energy Policy Act compared to EIA's 2005 annual energy outlook (AEO) reference case released in February 2005. This should include supply estimates (by fuel), demand estimates (by sector), import estimates (by fuel type) and impacts on prices and the overall state of the economy.

We would appreciate your estimates as soon as possible. In the event that you conclude significant or useful portions of the analysis in the interim, we would like to request the ability to see those reports and request briefings. Please do not hesitate to call our offices if you have any questions.

Sincerely,



Pete Domenici  
Chairman



Jeff Bingaman  
Ranking Member



## Appendix B

### Crosswalk from Modeled Provisions of the Conference Energy Bill of 2003 (CEB2003) to Modeled Provisions of H.R. 6 EH

<b>Modeled CEB2003 Provisions Passed into Law in 2004 and Included in Reference Case</b>		
<b>CEB Section</b>	<b>Provision</b>	<b>Note</b>
315	Offshore royalty relief for deep wells in shallow water less than 200 meters	Final Rule effective in 2004, now in base case - 30 CFR part 203
1302	Extension and expansion of credit for electricity produced from certain renewable sources	Extension through 2005 under The American Jobs Creation Act of 2004, now in base case
Subtitle D sections and 1356	Alaska natural gas pipeline loan guarantee and high volume natural gas plant tax credit	Under H.R. 4837, The Military Construction Appropriations and Emergency Hurricane Supplemental Appropriations Act, 2005, now in base case

<b>Modeled CEB2003 Provisions Eliminated from H.R. 6 EH</b>		
<b>CEB Section</b>	<b>Provision</b>	<b>Note</b>
1305	Tax credit for energy efficient homes	
1306	Investment tax incentive for combined heat and power (CHP) generation	
1310	Production tax credit (PTC) for production from advanced nuclear power facilities	
1318	Tax credits for lean burn, hybrid, electric, and fuel cell vehicles	
1345	Section 29 tax credit for unconventional natural gas production	
1351	Credit for clean coal technology units	Investment tax credits for new coal-fired generating capacity. In our February 2004 report, these tax credits led to the early development of 3 GW of IGCC plants, resulting in an additional 22 GW of IGCC capacity builds relative to the reference case forecast

<b>Modeled Provisions in Both CEB2003 and H.R. 6 EH</b>		
<b>H.R. 6 EH Section</b>	<b>Provision</b>	<b>Notes</b>
122	Residential initiative, including weatherization	Same as CEB, shift in funding years to 2006-2008
133	Energy conservation standards for torchiere lamps, illuminated exit signs, distribution transformers, and traffic signal modules	Same as CEB, except effective dates moved to January 1, 2006. Torchieres modeled directly. Savings for exit signs, transformers and traffic signals estimated off-line and deducted from projected consumption.
205	Use of photovoltaic energy in public buildings	Effective dates changed to 2006-2010
1311	Tax credit for residential solar systems and fuel cells	
1312	Tax credit for business installation of fuel cells	
1317	Tax credit for energy efficiency improvements to existing homes	
1501	Five billion gallons renewable fuels standard by 2015	Assume 1.5-gallon renewable fuels credit for 1 gallon of cellulosic biomass ethanol. Actual provision is more complex which considers 2.5-gallon renewable fuels credit for cellulosic biomass ethanol derived from certain feedstock.
1503	Methyl tertiary butyl ether (MTBE) transition assistance	Active merchant MTBE plants to convert to iso-octane production starting in 2007
1504	MTBE ban in 2015	
1506	Eliminate oxygenate requirement in reformulated gasoline (RFG)	

<b>Modeled New Provisions in H.R. 6 EH</b>		
<b>H.R. 6 EH Section</b>	<b>Provision</b>	<b>Notes</b>
207	Rebates for renewable energy systems installed in homes or small businesses	Provides a 25 percent rebate, up to \$3,000, with authorizations for 2006 through 2010 (increased from 15 % tax credit, up to \$2,000)
1512	Cellulosic biomass ethanol conversion assistance	
2005	Royalty relief in deep water	Assume \$32 oil and \$4 gas for the price limits, updated from The Outer Continental Shelf Deep Water Royalty Relief Act of 1995. Also assume that the 200-400 meter water depth is the same as the 200-800 meter depth. There are only a small number of fields.
2016	Royalty relief for new onshore deep wells	Assume \$32 oil and \$4 gas for the price limits and define the depth as 10,000 feet.
2204-2212	Open Arctic National Wildlife Refuge (ANWR) for oil and gas exploration and production	Assume production to start in ANWR in 2015



**Appendix C**  
**Comparisons of Projections for the Reference Case**  
**and the H.R. 6 EH Case**

**Table C1. Total Energy Supply and Disposition Summary**  
(Quadrillion Btu per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Production</b>									
Crude Oil and Lease Condensate .....	12.03	12.75	12.75	11.63	11.77	11.02	12.41	10.05	12.20
Natural Gas Plant Liquids .....	2.34	2.67	2.67	2.66	2.66	2.78	2.78	2.80	2.81
Dry Natural Gas .....	19.58	21.06	21.03	21.22	21.27	22.37	22.46	22.41	22.54
Coal .....	22.66	25.10	25.12	25.54	25.58	27.04	26.92	29.72	29.54
Nuclear Power .....	7.97	8.49	8.49	8.62	8.62	8.67	8.67	8.67	8.67
Renewable Energy <sup>1</sup> .....	5.89	6.86	6.85	7.13	7.10	7.58	7.57	8.19	8.18
Other <sup>2</sup> .....	0.93	0.96	0.96	0.76	0.84	0.75	0.85	0.80	0.93
<b>Total</b> .....	<b>71.42</b>	<b>77.89</b>	<b>77.88</b>	<b>77.56</b>	<b>77.85</b>	<b>80.20</b>	<b>81.66</b>	<b>82.64</b>	<b>84.87</b>
<b>Imports</b>									
Crude Oil <sup>3</sup> .....	21.08	24.52	24.56	28.89	28.72	31.19	29.68	33.77	31.79
Petroleum Products <sup>4</sup> .....	5.16	6.07	6.01	5.80	5.66	6.76	6.77	7.98	7.71
Natural Gas .....	4.02	5.59	5.56	8.02	7.98	8.96	8.96	9.75	9.77
Other Imports <sup>5</sup> .....	0.69	0.92	0.92	1.07	1.07	1.15	1.15	1.23	1.23
<b>Total</b> .....	<b>30.95</b>	<b>37.09</b>	<b>37.04</b>	<b>43.78</b>	<b>43.43</b>	<b>48.06</b>	<b>46.56</b>	<b>52.73</b>	<b>50.50</b>
<b>Exports</b>									
Petroleum <sup>6</sup> .....	2.13	2.14	2.14	2.20	2.20	2.24	2.25	2.30	2.31
Natural Gas .....	0.70	0.65	0.65	0.80	0.81	0.86	0.86	0.82	0.82
Coal .....	1.12	1.06	1.06	0.88	0.88	0.89	0.89	0.65	0.67
<b>Total</b> .....	<b>3.95</b>	<b>3.85</b>	<b>3.85</b>	<b>3.88</b>	<b>3.88</b>	<b>3.99</b>	<b>4.00</b>	<b>3.77</b>	<b>3.80</b>
<b>Discrepancy<sup>7</sup></b> .....	<b>0.19</b>	<b>0.04</b>	<b>0.04</b>	<b>-0.08</b>	<b>-0.10</b>	<b>-0.05</b>	<b>-0.12</b>	<b>0.08</b>	<b>0.02</b>
<b>Consumption</b>									
Petroleum Products <sup>8</sup> .....	39.09	44.68	44.66	47.42	47.35	50.09	50.15	52.79	52.89
Natural Gas .....	22.54	26.08	26.02	28.60	28.62	30.65	30.74	31.52	31.68
Coal .....	22.71	24.95	24.97	25.69	25.73	27.27	27.16	30.31	30.10
Nuclear Power .....	7.97	8.49	8.49	8.62	8.62	8.67	8.67	8.67	8.67
Renewable Energy <sup>1</sup> .....	5.89	6.86	6.86	7.13	7.10	7.58	7.57	8.19	8.18
Other <sup>9</sup> .....	0.02	0.03	0.03	0.07	0.07	0.05	0.05	0.04	0.04
<b>Total</b> .....	<b>98.22</b>	<b>111.09</b>	<b>111.03</b>	<b>117.54</b>	<b>117.50</b>	<b>124.32</b>	<b>124.33</b>	<b>131.52</b>	<b>131.56</b>
<b>Net Imports - Petroleum</b> .....	<b>24.10</b>	<b>28.45</b>	<b>28.42</b>	<b>32.50</b>	<b>32.18</b>	<b>35.71</b>	<b>34.20</b>	<b>39.45</b>	<b>37.18</b>
<b>Prices (2003 dollars per unit)</b>									
World Oil Price (dollars per barrel) <sup>10</sup> .....	27.73	25.00	24.96	26.75	26.64	28.50	28.11	30.31	29.74
Natural Gas Wellhead Price (dollars per thousand cubic feet) <sup>11</sup> .....	4.98	3.66	3.64	4.18	4.16	4.53	4.53	4.79	4.82
Coal Minemouth Price (dollars per ton) .....	17.93	17.32	17.28	16.83	16.85	17.23	17.12	18.10	18.30
Average Electricity Price (cents per kilowatthour) ..	7.4	6.6	6.6	7.0	6.9	7.2	7.2	7.3	7.3

<sup>1</sup>Includes grid-connected electricity from conventional hydroelectric; wood and wood waste; landfill gas; municipal solid waste; other biomass; wind; photovoltaic and solar thermal sources; non-electric energy from renewable sources, such as active and passive solar systems, and wood; and both the ethanol and gasoline components of E85, but not the ethanol components of blends less than 85 percent. Excludes electricity imports using renewable sources and nonmarketed renewable energy. See Table C18 for selected nonmarketed residential and commercial renewable energy.

<sup>2</sup>Includes liquid hydrogen, methanol, supplemental natural gas, and some domestic inputs to refineries.

<sup>3</sup>Includes imports of crude oil for the Strategic Petroleum Reserve.

<sup>4</sup>Includes imports of finished petroleum products, unfinished oils, alcohols, ethers, and blending components.

<sup>5</sup>Includes coal, coal coke (net), and electricity (net).

<sup>6</sup>Includes crude oil and petroleum products.

<sup>7</sup>Balancing item. Includes unaccounted for supply, losses, gains, net storage withdrawals, heat loss when natural gas is converted to liquid fuel, and heat loss when coal is converted to liquid fuel.

<sup>8</sup>Includes natural gas plant liquids, crude oil consumed as a fuel, and nonpetroleum-based liquids for blending, such as ethanol.

<sup>9</sup>Includes net electricity imports, methanol, and liquid hydrogen.

<sup>10</sup>Average refiner acquisition cost for imported crude oil.

<sup>11</sup>Represents lower 48 onshore and offshore supplies.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

Sources: 2003 natural gas supply values and natural gas wellhead price: Energy Information Administration (EIA), *Natural Gas Monthly*, DOE/EIA-0130(2004/07) (Washington, DC, July 2004). 2003 petroleum supply values: EIA, *Petroleum Supply Annual 2003*, DOE/EIA-0340(2003)/1 (Washington, DC, July 2004). Other 2003 values: EIA, *Annual Energy Review 2003*, DOE/EIA-0384(2003) (Washington, DC, September 2004) and EIA, *Quarterly Coal Report, October-December 2003*, DOE/EIA-0121(2003/4Q) (Washington, DC, March 2004). Projections: EIA, AEO2005 National Energy Modeling System runs BASE.D0713051 and HR6.D071305F.



**Table C2. Energy Consumption by Sector and Source**  
(Quadrillion Btu per Year, Unless Otherwise Noted)

Sector and Source	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Energy Consumption</b>									
<b>Residential</b>									
Distillate Fuel .....	0.96	0.90	0.90	0.88	0.87	0.83	0.83	0.77	0.78
Kerosene .....	0.07	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Liquefied Petroleum Gas .....	0.54	0.57	0.57	0.61	0.61	0.64	0.64	0.67	0.67
Petroleum Subtotal .....	1.58	1.56	1.55	1.58	1.57	1.57	1.56	1.53	1.53
Natural Gas .....	5.25	5.67	5.64	5.89	5.86	6.05	6.01	6.17	6.13
Coal .....	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Renewable Energy <sup>1</sup> .....	0.40	0.40	0.39	0.39	0.39	0.39	0.39	0.38	0.38
Electricity .....	4.37	5.01	5.00	5.38	5.36	5.75	5.73	6.14	6.11
<b>Delivered Energy</b> .....	<b>11.61</b>	<b>12.65</b>	<b>12.60</b>	<b>13.26</b>	<b>13.20</b>	<b>13.77</b>	<b>13.70</b>	<b>14.22</b>	<b>14.16</b>
Electricity Related Losses .....	9.71	10.79	10.78	11.25	11.21	11.72	11.68	12.29	12.23
<b>Total</b> .....	<b>21.31</b>	<b>23.44</b>	<b>23.38</b>	<b>24.51</b>	<b>24.41</b>	<b>25.49</b>	<b>25.38</b>	<b>26.51</b>	<b>26.40</b>
<b>Commercial</b>									
Distillate Fuel .....	0.52	0.62	0.62	0.66	0.66	0.71	0.71	0.77	0.77
Residual Fuel .....	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08
Kerosene .....	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Liquefied Petroleum Gas .....	0.10	0.10	0.10	0.10	0.10	0.11	0.11	0.11	0.11
Motor Gasoline <sup>2</sup> .....	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Petroleum Subtotal .....	0.75	0.86	0.86	0.91	0.91	0.96	0.96	1.02	1.02
Natural Gas .....	3.22	3.48	3.49	3.68	3.69	3.91	3.91	4.17	4.16
Coal .....	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Renewable Energy <sup>3</sup> .....	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Electricity .....	4.13	5.00	4.99	5.63	5.62	6.33	6.32	7.13	7.11
<b>Delivered Energy</b> .....	<b>8.29</b>	<b>9.52</b>	<b>9.52</b>	<b>10.40</b>	<b>10.40</b>	<b>11.38</b>	<b>11.37</b>	<b>12.49</b>	<b>12.48</b>
Electricity Related Losses .....	9.18	10.76	10.75	11.77	11.74	12.89	12.86	14.27	14.23
<b>Total</b> .....	<b>17.46</b>	<b>20.29</b>	<b>20.28</b>	<b>22.17</b>	<b>22.14</b>	<b>24.27</b>	<b>24.23</b>	<b>26.76</b>	<b>26.71</b>
<b>Industrial<sup>4</sup></b>									
Distillate Fuel .....	1.02	1.04	1.04	1.08	1.08	1.14	1.14	1.19	1.21
Liquefied Petroleum Gas .....	2.09	2.30	2.30	2.44	2.44	2.59	2.59	2.74	2.74
Petrochemical Feedstock .....	1.32	1.48	1.48	1.52	1.52	1.55	1.55	1.57	1.57
Residual Fuel .....	0.28	0.33	0.32	0.38	0.34	0.38	0.34	0.38	0.39
Motor Gasoline <sup>2</sup> .....	0.31	0.31	0.31	0.33	0.33	0.35	0.35	0.37	0.37
Other Petroleum <sup>5</sup> .....	4.30	4.67	4.68	4.69	4.63	4.91	4.89	5.08	5.04
Petroleum Subtotal .....	9.31	10.15	10.14	10.43	10.34	10.91	10.87	11.33	11.32
Natural Gas .....	7.19	8.11	8.13	8.47	8.61	8.88	9.00	9.28	9.35
Lease and Plant Fuel <sup>6</sup> .....	1.15	1.21	1.20	1.22	1.23	1.32	1.38	1.30	1.40
Natural Gas Subtotal .....	8.34	9.31	9.33	9.70	9.84	10.20	10.38	10.58	10.75
Metallurgical Coal .....	0.67	0.55	0.55	0.48	0.48	0.42	0.42	0.37	0.37
Steam Coal .....	1.39	1.43	1.43	1.42	1.42	1.42	1.43	1.43	1.43
Net Coal Coke Imports .....	0.05	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05
Coal Subtotal .....	2.11	2.04	2.04	1.96	1.96	1.90	1.90	1.84	1.84
Renewable Energy <sup>7</sup> .....	1.79	2.07	2.07	2.19	2.19	2.34	2.34	2.49	2.49
Electricity .....	3.31	3.78	3.78	3.97	3.98	4.18	4.19	4.39	4.39
<b>Delivered Energy</b> .....	<b>24.86</b>	<b>27.34</b>	<b>27.35</b>	<b>28.24</b>	<b>28.31</b>	<b>29.53</b>	<b>29.68</b>	<b>30.63</b>	<b>30.79</b>
Electricity Related Losses .....	7.35	8.13	8.13	8.31	8.32	8.52	8.53	8.79	8.78
<b>Total</b> .....	<b>32.21</b>	<b>35.47</b>	<b>35.49</b>	<b>36.55</b>	<b>36.63</b>	<b>38.05</b>	<b>38.21</b>	<b>39.42</b>	<b>39.57</b>

**Table C2. Energy Consumption by Sector and Source (Continued)**  
(Quadrillion Btu per Year, Unless Otherwise Noted)

Sector and Source	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Transportation</b>									
Distillate Fuel <sup>8</sup>	5.54	6.95	6.95	7.66	7.67	8.35	8.36	9.05	9.07
Jet Fuel <sup>9</sup>	3.26	4.04	4.04	4.45	4.45	4.74	4.74	4.89	4.89
Motor Gasoline <sup>2</sup>	16.64	18.99	18.99	20.17	20.18	21.23	21.22	22.59	22.62
Residual Fuel	0.62	0.56	0.56	0.57	0.57	0.58	0.58	0.58	0.58
Liquefied Petroleum Gas	0.02	0.06	0.06	0.07	0.07	0.08	0.08	0.09	0.09
Other Petroleum <sup>10</sup>	0.24	0.26	0.26	0.27	0.27	0.29	0.29	0.31	0.31
Petroleum Subtotal	26.31	30.85	30.85	33.19	33.20	35.26	35.26	37.51	37.56
Pipeline Fuel Natural Gas	0.65	0.70	0.70	0.73	0.73	0.82	0.82	0.84	0.84
Compressed Natural Gas	0.02	0.06	0.06	0.08	0.08	0.10	0.10	0.11	0.11
Renewable Energy (E85) <sup>11</sup>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.08	0.09	0.09	0.10	0.10	0.11	0.11	0.12	0.12
<b>Delivered Energy</b>	<b>27.07</b>	<b>31.70</b>	<b>31.70</b>	<b>34.10</b>	<b>34.11</b>	<b>36.29</b>	<b>36.29</b>	<b>38.58</b>	<b>38.63</b>
Electricity Related Losses	0.17	0.19	0.19	0.21	0.21	0.22	0.22	0.24	0.24
<b>Total</b>	<b>27.24</b>	<b>31.89</b>	<b>31.89</b>	<b>34.30</b>	<b>34.32</b>	<b>36.51</b>	<b>36.51</b>	<b>38.82</b>	<b>38.87</b>
<b>Delivered Energy Consumption for All Sectors</b>									
Distillate Fuel	8.04	9.51	9.50	10.28	10.28	11.03	11.04	11.78	11.82
Kerosene	0.11	0.14	0.14	0.14	0.14	0.14	0.14	0.13	0.13
Jet Fuel <sup>9</sup>	3.26	4.04	4.04	4.45	4.45	4.74	4.74	4.89	4.89
Liquefied Petroleum Gas	2.75	3.03	3.03	3.22	3.22	3.42	3.42	3.60	3.61
Motor Gasoline <sup>2</sup>	16.98	19.34	19.34	20.53	20.55	21.61	21.61	23.00	23.03
Petrochemical Feedstock	1.32	1.48	1.48	1.52	1.52	1.55	1.55	1.57	1.57
Residual Fuel	0.97	0.97	0.95	1.02	0.99	1.03	1.00	1.04	1.05
Other Petroleum <sup>12</sup>	4.52	4.91	4.92	4.94	4.88	5.19	5.17	5.37	5.33
Petroleum Subtotal	37.96	43.41	43.40	46.11	46.03	48.70	48.66	51.38	51.43
Natural Gas	15.68	17.32	17.31	18.13	18.23	18.93	19.01	19.72	19.75
Lease and Plant Fuel Plant <sup>6</sup>	1.15	1.21	1.20	1.22	1.23	1.32	1.38	1.30	1.40
Pipeline Natural Gas	0.65	0.70	0.70	0.73	0.73	0.82	0.82	0.84	0.84
Natural Gas Subtotal	17.48	19.23	19.21	20.08	20.19	21.07	21.21	21.86	21.98
Metallurgical Coal	0.67	0.55	0.55	0.48	0.48	0.42	0.42	0.37	0.37
Steam Coal	1.50	1.54	1.54	1.53	1.53	1.53	1.53	1.53	1.53
Net Coal Coke Imports	0.05	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05
Coal Subtotal	2.22	2.15	2.15	2.06	2.07	2.00	2.00	1.95	1.95
Renewable Energy <sup>13</sup>	2.28	2.55	2.55	2.67	2.67	2.82	2.82	2.97	2.97
Liquid Hydrogen	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	11.88	13.88	13.87	15.09	15.06	16.38	16.35	17.77	17.74
<b>Delivered Energy</b>	<b>71.82</b>	<b>81.22</b>	<b>81.17</b>	<b>86.01</b>	<b>86.02</b>	<b>90.97</b>	<b>91.04</b>	<b>95.93</b>	<b>96.07</b>
Electricity Related Losses	26.41	29.87	29.86	31.53	31.48	33.35	33.29	35.58	35.49
<b>Total</b>	<b>98.22</b>	<b>111.09</b>	<b>111.03</b>	<b>117.54</b>	<b>117.50</b>	<b>124.32</b>	<b>124.33</b>	<b>131.52</b>	<b>131.56</b>
<b>Electric Power<sup>14</sup></b>									
Distillate Fuel	0.33	0.39	0.39	0.40	0.40	0.42	0.50	0.44	0.46
Residual Fuel	0.80	0.87	0.87	0.92	0.93	0.98	1.00	0.97	1.00
Petroleum Subtotal	1.13	1.27	1.26	1.32	1.32	1.40	1.49	1.41	1.45
Natural Gas	5.06	6.85	6.81	8.52	8.43	9.58	9.52	9.65	9.69
Steam Coal	20.49	22.81	22.83	23.62	23.67	25.27	25.15	28.36	28.15
Nuclear Power	7.97	8.49	8.49	8.62	8.62	8.67	8.67	8.67	8.67
Renewable Energy <sup>15</sup>	3.62	4.31	4.31	4.46	4.44	4.76	4.75	5.23	5.22
Electricity Imports	0.02	0.03	0.03	0.07	0.07	0.05	0.05	0.04	0.04
<b>Total</b>	<b>38.28</b>	<b>43.75</b>	<b>43.72</b>	<b>46.62</b>	<b>46.55</b>	<b>49.72</b>	<b>49.64</b>	<b>53.35</b>	<b>53.22</b>

**Table C2. Energy Consumption by Sector and Source (Continued)**  
(Quadrillion Btu per Year, Unless Otherwise Noted)

Sector and Source	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Total Energy Consumption</b>									
Distillate Fuel .....	8.37	9.90	9.90	10.68	10.68	11.44	11.54	12.22	12.28
Kerosene .....	0.11	0.14	0.14	0.14	0.14	0.14	0.14	0.13	0.13
Jet Fuel <sup>9</sup> .....	3.26	4.04	4.04	4.45	4.45	4.74	4.74	4.89	4.89
Liquefied Petroleum Gas .....	2.75	3.03	3.03	3.22	3.22	3.42	3.42	3.60	3.61
Motor Gasoline <sup>2</sup> .....	16.98	19.34	19.34	20.53	20.55	21.61	21.61	23.00	23.03
Petrochemical Feedstock .....	1.32	1.48	1.48	1.52	1.52	1.55	1.55	1.57	1.57
Residual Fuel .....	1.77	1.84	1.82	1.94	1.91	2.01	1.99	2.00	2.05
Other Petroleum <sup>12</sup> .....	4.52	4.91	4.92	4.94	4.88	5.19	5.17	5.37	5.33
Petroleum Subtotal .....	39.09	44.68	44.66	47.42	47.35	50.09	50.15	52.79	52.89
Natural Gas .....	20.73	24.17	24.11	26.65	26.66	28.51	28.54	29.38	29.45
Lease and Plant Fuel <sup>6</sup> .....	1.15	1.21	1.20	1.22	1.23	1.32	1.38	1.30	1.40
Pipeline Natural Gas .....	0.65	0.70	0.70	0.73	0.73	0.82	0.82	0.84	0.84
Natural Gas Subtotal .....	22.54	26.08	26.02	28.60	28.62	30.65	30.74	31.52	31.68
Metallurgical Coal .....	0.67	0.55	0.55	0.48	0.48	0.42	0.42	0.37	0.37
Steam Coal .....	21.99	24.35	24.37	25.16	25.20	26.80	26.68	29.89	29.68
Net Coal Coke Imports .....	0.05	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05
Coal Subtotal .....	22.71	24.95	24.97	25.69	25.73	27.27	27.16	30.31	30.10
Nuclear Power .....	7.97	8.49	8.49	8.62	8.62	8.67	8.67	8.67	8.67
Renewable Energy <sup>16</sup> .....	5.89	6.86	6.86	7.13	7.10	7.58	7.57	8.19	8.18
Liquid Hydrogen .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity Imports .....	0.02	0.03	0.03	0.07	0.07	0.05	0.05	0.04	0.04
<b>Total</b> .....	<b>98.22</b>	<b>111.09</b>	<b>111.03</b>	<b>117.54</b>	<b>117.50</b>	<b>124.32</b>	<b>124.33</b>	<b>131.52</b>	<b>131.56</b>
<b>Energy Use and Related Statistics</b>									
Delivered Energy Use .....	71.82	81.22	81.17	86.01	86.02	90.97	91.04	95.93	96.07
Total Energy Use .....	98.22	111.09	111.03	117.54	117.50	124.32	124.33	131.52	131.56
Population (millions) .....	291.39	310.12	310.12	323.55	323.55	336.99	336.99	350.64	350.64
Gross Domestic Product (billion 2000 dollars) .....	10381	13083	13084	15207	15208	17624	17632	20283	20297
Carbon Dioxide Emissions (million metric tons) .....	5788.7	6612.2	6608.4	7000.4	6991.5	7430.8	7419.7	7934.8	7922.0

<sup>1</sup>Includes wood used for residential heating. See Table C4 and/or Table C17 for estimates of nonmarketed renewable energy consumption for geothermal heat pumps, solar thermal hot water heating, and solar photovoltaic electricity generation.

<sup>2</sup>Includes ethanol (blends of 10 percent or less) and ethers blended into gasoline.

<sup>3</sup>Includes commercial sector consumption of wood and wood waste, landfill gas, municipal solid waste, and other biomass for combined heat and power. See Table C17 for estimates of nonmarketed renewable energy consumption for solar thermal hot water heating and solar photovoltaic electricity generation.

<sup>4</sup>Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>5</sup>Includes petroleum coke, asphalt, road oil, lubricants, still gas, and miscellaneous petroleum products.

<sup>6</sup>Represents natural gas used in the field gathering and processing plant machinery.

<sup>7</sup>Includes consumption of energy from hydroelectric, wood and wood waste, municipal solid waste, and other biomass.

<sup>8</sup>Diesel fuel containing 500 parts per million (ppm) or 15 ppm sulfur.

<sup>9</sup>Includes only kerosene type.

<sup>10</sup>Includes aviation gasoline and lubricants.

<sup>11</sup>E85 refers to a blend of 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable). To address cold starting issues, the percentage of ethanol actually varies seasonally. The annual average ethanol content of 74 percent is used for this forecast.

<sup>12</sup>Includes unfinished oils, natural gasoline, motor gasoline blending components, aviation gasoline, lubricants, still gas, asphalt, road oil, petroleum coke, and miscellaneous petroleum products.

<sup>13</sup>Includes electricity generated for sale to the grid and for own use from renewable sources, and non-electric energy from renewable sources. Excludes nonmarketed renewable energy consumption for geothermal heat pumps, buildings photovoltaic systems, and solar thermal hot water heaters.

<sup>14</sup>Includes consumption of energy by electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.

<sup>15</sup>Includes conventional hydroelectric, geothermal, wood and wood waste, municipal solid waste, other biomass, petroleum coke, wind, photovoltaic and solar thermal sources. Excludes net electricity imports.

<sup>16</sup>Includes hydroelectric, geothermal, wood and wood waste, municipal solid waste, other biomass, wind, photovoltaic and solar thermal sources. Includes ethanol components of E85; excludes ethanol blends (10 percent or less) in motor gasoline. Excludes net electricity imports and nonmarketed renewable energy consumption for geothermal heat pumps, buildings photovoltaic systems, and solar thermal hot water heaters.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports. Consumption values of 0.00 are values that round to 0.00, because they are less than 0.005.

Sources: 2003 consumption based on: Energy Information Administration (EIA), *Annual Energy Review 2003*, DOE/EIA-0384(2003) (Washington, DC, September 2004). 2003 population and gross domestic product: Global Insight macroeconomic model CTL0804, modified by EIA. 2003 carbon dioxide emissions: EIA, *Emissions of Greenhouse Gases in the United States 2003*, DOE/EIA-0573(2003) (Washington, DC, December 2004). Projections: EIA, AEO2005 National Energy Modeling System runs BASE.D0713051 and HR6.D071305F.

**Table C3. Energy Prices by Sector and Source**  
(2003 Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Residential</b>	<b>15.81</b>	<b>14.35</b>	<b>14.34</b>	<b>15.00</b>	<b>14.99</b>	<b>15.61</b>	<b>15.62</b>	<b>16.10</b>	<b>16.10</b>
Primary Energy <sup>1</sup>	9.68	8.37	8.35	8.76	8.74	9.19	9.19	9.62	9.61
Petroleum Products <sup>2</sup>	11.27	10.44	10.41	10.75	10.73	11.33	11.31	11.93	11.76
Distillate Fuel	9.57	8.28	8.25	8.48	8.48	8.86	8.81	9.12	9.02
Liquefied Petroleum Gas	14.58	14.26	14.25	14.43	14.39	14.96	14.97	15.64	15.37
Natural Gas	9.22	7.81	7.80	8.24	8.22	8.64	8.65	9.06	9.09
Electricity	25.42	23.00	22.96	23.68	23.66	24.12	24.12	24.22	24.23
<b>Commercial</b>	<b>15.63</b>	<b>13.80</b>	<b>13.76</b>	<b>14.91</b>	<b>14.87</b>	<b>15.69</b>	<b>15.68</b>	<b>16.16</b>	<b>16.15</b>
Primary Energy <sup>1</sup>	7.92	6.83	6.81	7.23	7.20	7.54	7.54	7.82	7.82
Petroleum Products <sup>2</sup>	8.03	7.15	7.14	7.33	7.29	7.61	7.57	7.86	7.72
Distillate Fuel	7.03	6.28	6.27	6.52	6.47	6.81	6.77	7.06	6.92
Residual Fuel	4.96	4.26	4.25	4.53	4.51	4.81	4.75	5.08	4.99
Natural Gas	8.08	6.89	6.87	7.35	7.33	7.67	7.67	7.95	7.98
Electricity	23.24	19.98	19.94	21.31	21.27	22.07	22.08	22.34	22.34
<b>Industrial<sup>3</sup></b>	<b>7.78</b>	<b>6.87</b>	<b>6.85</b>	<b>7.26</b>	<b>7.23</b>	<b>7.75</b>	<b>7.75</b>	<b>8.13</b>	<b>8.05</b>
Primary Energy	6.49	5.56	5.55	5.85	5.82	6.26	6.27	6.64	6.55
Petroleum Products <sup>2</sup>	8.29	7.27	7.26	7.45	7.44	7.89	7.94	8.40	8.19
Distillate Fuel	7.24	6.77	6.76	7.24	7.17	7.43	7.39	7.71	7.56
Liquefied Petroleum Gas	12.57	10.02	10.01	10.13	10.11	10.62	10.69	11.34	11.09
Residual Fuel	4.59	3.87	3.88	4.10	4.12	4.34	4.32	4.61	4.52
Natural Gas <sup>4</sup>	5.56	4.39	4.37	4.83	4.80	5.23	5.22	5.47	5.50
Metallurgical Coal	1.85	1.82	1.82	1.76	1.76	1.75	1.75	1.68	1.68
Steam Coal	1.55	1.56	1.56	1.55	1.55	1.56	1.56	1.59	1.60
Electricity	15.03	13.86	13.82	14.66	14.63	15.44	15.45	15.72	15.74
<b>Transportation</b>	<b>11.46</b>	<b>10.87</b>	<b>10.84</b>	<b>10.97</b>	<b>10.96</b>	<b>11.16</b>	<b>11.17</b>	<b>11.40</b>	<b>11.32</b>
Primary Energy	11.43	10.85	10.82	10.94	10.94	11.13	11.14	11.38	11.30
Petroleum Products <sup>2</sup>	11.43	10.85	10.82	10.95	10.94	11.14	11.14	11.38	11.30
Distillate Fuel <sup>5</sup>	10.92	10.74	10.75	10.76	10.68	10.73	10.68	10.82	10.70
Jet Fuel <sup>6</sup>	6.46	6.23	6.22	6.32	6.27	6.65	6.65	6.94	6.82
Motor Gasoline <sup>7</sup>	12.93	12.21	12.16	12.31	12.33	12.56	12.59	12.81	12.75
Residual Fuel	4.49	3.74	3.73	4.01	3.99	4.29	4.22	4.57	4.48
Liquefied Petroleum Gas <sup>8</sup>	16.65	15.24	15.23	15.26	15.22	15.56	15.53	16.22	15.82
Natural Gas <sup>9</sup>	9.17	8.87	8.85	9.48	9.47	9.79	9.79	10.02	10.05
Ethanol (E85) <sup>10</sup>	16.23	16.82	17.05	17.12	18.13	17.64	18.63	18.15	19.16
Electricity	20.64	18.85	18.82	19.63	19.61	19.96	19.97	19.92	19.92
<b>Average End-Use Energy</b>	<b>11.50</b>	<b>10.53</b>	<b>10.51</b>	<b>10.98</b>	<b>10.95</b>	<b>11.42</b>	<b>11.42</b>	<b>11.80</b>	<b>11.74</b>
Primary Energy	9.32	8.58	8.55	8.84	8.82	9.15	9.15	9.48	9.41
Electricity	21.74	19.40	19.36	20.39	20.36	21.08	21.08	21.34	21.34
<b>Electric Power<sup>11</sup></b>									
Fossil Fuel Average	2.24	2.06	2.05	2.29	2.27	2.44	2.44	2.46	2.48
Petroleum Products	5.28	4.55	4.54	4.77	4.75	5.11	5.08	5.43	5.30
Distillate Fuel	6.48	5.35	5.33	5.54	5.52	6.04	5.97	6.34	6.15
Residual Fuel	4.79	4.19	4.18	4.44	4.42	4.72	4.64	5.01	4.91
Natural Gas	5.46	4.29	4.27	4.82	4.80	5.20	5.19	5.44	5.47
Steam Coal	1.28	1.25	1.25	1.23	1.24	1.24	1.24	1.30	1.30

**Table C3. Energy Prices by Sector and Source (Continued)**  
(2003 Dollars per Million Btu, Unless Otherwise Noted)

Sector and Source	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Average Price to All Users<sup>12</sup></b>									
Petroleum Products <sup>2</sup>	10.51	9.86	9.83	10.01	10.00	10.28	10.28	10.61	10.49
Distillate Fuel	9.90	9.52	9.52	9.76	9.69	9.85	9.77	10.01	9.88
Jet Fuel	6.46	6.23	6.22	6.32	6.27	6.65	6.65	6.94	6.82
Liquefied Petroleum Gas	13.04	10.99	10.97	11.13	11.10	11.63	11.68	12.32	12.07
Motor Gasoline <sup>7</sup>	12.93	12.21	12.16	12.31	12.33	12.56	12.59	12.81	12.75
Residual Fuel	4.66	4.00	3.99	4.25	4.24	4.53	4.47	4.81	4.72
Natural Gas	6.86	5.54	5.52	5.94	5.92	6.29	6.28	6.58	6.61
Coal	1.30	1.27	1.27	1.25	1.26	1.26	1.26	1.31	1.32
Ethanol (E85) <sup>10</sup>	16.23	16.82	17.05	17.12	18.13	17.64	18.63	18.15	19.16
Electricity	21.74	19.40	19.36	20.39	20.36	21.08	21.08	21.34	21.34
<b>Non-Renewable Energy Expenditures by Sector</b> (billion 2003 dollars)									
Residential	177.16	175.92	175.07	193.00	192.02	208.85	208.01	222.78	221.88
Commercial	128.15	130.19	129.82	153.83	153.34	177.15	176.87	200.48	200.15
Industrial	147.11	140.04	139.74	152.82	152.81	169.95	170.83	185.29	184.66
Transportation	302.59	336.94	336.01	366.02	365.93	395.81	396.03	430.32	427.90
Total Non-Renewable Expenditures	755.02	783.08	780.64	865.68	864.11	951.76	951.74	1038.87	1034.59
Transportation Renewable Expenditures	0.02	0.03	0.03	0.05	0.05	0.06	0.06	0.08	0.07
<b>Total Expenditures</b>	<b>755.04</b>	<b>783.12</b>	<b>780.67</b>	<b>865.73</b>	<b>864.16</b>	<b>951.83</b>	<b>951.80</b>	<b>1038.95</b>	<b>1034.66</b>

<sup>1</sup>Weighted average price includes fuels below as well as coal.

<sup>2</sup>This quantity is the weighted average for all petroleum products, not just those listed below.

<sup>3</sup>Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>4</sup>Excludes use for lease and plant fuel.

<sup>5</sup>Diesel fuel containing 500 parts per million (ppm) or 15 ppm sulfur for on-road use. Includes Federal and State taxes while excluding county and local taxes.

<sup>6</sup>Kerosene-type jet fuel. Includes Federal and State taxes while excluding county and local taxes.

<sup>7</sup>Sales weighted-average price for all grades. Includes Federal, State and local taxes.

<sup>8</sup>Includes Federal and State taxes while excluding county and local taxes.

<sup>9</sup>Compressed natural gas used as a vehicle fuel. Includes estimated motor vehicle fuel taxes.

<sup>10</sup>E85 refers to a blend of 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable). To address cold starting issues, the percentage of ethanol actually varies seasonally. The annual average ethanol content of 74 percent is used for this forecast.

<sup>11</sup>Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>12</sup>Weighted averages of end-use fuel prices are derived from the prices shown in each sector and the corresponding sectoral consumption.

Btu = British thermal unit.

Note: Data for 2003 are model results and may differ slightly from official EIA data reports.

**Sources:** 2003 prices for motor gasoline, distillate, and jet fuel are based on: Energy Information Administration (EIA), *Petroleum Marketing Annual 2003*, DOE/EIA-0487(2003) (Washington, DC, August 2004). 2003 residential and commercial natural gas delivered prices: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2004/07) (Washington, DC, July 2004). 2003 electric power sector natural gas prices: EIA, *Electric Power Monthly*, DOE/EIA-0226, May 2003 through April 2004, Table 4.11.A. 2003 industrial natural gas delivered prices are estimated based on: EIA, *Manufacturing Energy Consumption Survey 1994* and industrial and wellhead prices from the *Natural Gas Annual 2002*, DOE/EIA-0131(2002) (Washington, DC, January 2004) and the *Natural Gas Monthly*, DOE/EIA-0130(2004/07) (Washington, DC, July 2004). 2003 transportation sector natural gas delivered prices are model results. 2003 coal prices based on EIA, *Quarterly Coal Report, October-December 2003*, DOE/EIA-0121(2003/4Q) (Washington, DC, March 2004) and EIA, AEO2005 National Energy Modeling System run BASE.D0713051. 2003 electricity prices: EIA, *Annual Energy Review 2003*, DOE/EIA-0384(2003) (Washington, DC, September 2004). 2003 ethanol prices derived from weekly spot prices in the Oxy Fuel News. **Projections:** EIA, AEO2005 National Energy Modeling System runs BASE.D0713051 and HR6.D071305F.

**Table C4. Residential Sector Key Indicators and End-Use Consumption**  
(Quadrillion Btu per Year, Unless Otherwise Noted)

Key Indicators and Consumption	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Key Indicators</b>									
<b>Households (millions)</b>									
Single-Family .....	76.15	84.29	84.29	89.62	89.62	94.54	94.54	99.50	99.50
Multifamily .....	29.51	31.12	31.12	32.34	32.34	33.68	33.68	35.08	35.08
Mobile Homes .....	6.35	6.63	6.63	7.15	7.15	7.55	7.55	7.90	7.90
<b>Total .....</b>	<b>112.01</b>	<b>122.03</b>	<b>122.03</b>	<b>129.11</b>	<b>129.11</b>	<b>135.77</b>	<b>135.77</b>	<b>142.47</b>	<b>142.47</b>
<b>Average House Square Footage .....</b>	<b>1742</b>	<b>1823</b>	<b>1823</b>	<b>1871</b>	<b>1871</b>	<b>1912</b>	<b>1912</b>	<b>1950</b>	<b>1950</b>
<b>Energy Intensity</b>									
<b>(million Btu per household)</b>									
Delivered Energy Consumption .....	103.6	103.7	103.3	102.7	102.2	101.4	100.9	99.8	99.4
Total Energy Consumption .....	190.3	192.1	191.6	189.8	189.1	187.7	186.9	186.1	185.3
<b>(thousand Btu per square foot)</b>									
Delivered Energy Consumption .....	59.5	56.9	56.6	54.9	54.7	53.0	52.8	51.2	51.0
Total Energy Consumption .....	109.2	105.4	105.1	101.5	101.1	98.2	97.8	95.4	95.0
<b>Delivered Energy Consumption by Fuel</b>									
<b>Electricity</b>									
Space Heating .....	0.40	0.44	0.44	0.45	0.46	0.46	0.47	0.47	0.48
Space Cooling .....	0.65	0.71	0.71	0.73	0.73	0.76	0.76	0.80	0.80
Water Heating .....	0.37	0.38	0.39	0.38	0.39	0.38	0.38	0.37	0.38
Refrigeration .....	0.40	0.36	0.36	0.35	0.35	0.35	0.35	0.36	0.36
Cooking .....	0.10	0.11	0.11	0.12	0.12	0.13	0.13	0.13	0.13
Clothes Dryers .....	0.24	0.26	0.26	0.26	0.26	0.27	0.27	0.29	0.28
Freezers .....	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.13
Lighting .....	0.78	0.92	0.90	0.99	0.97	1.06	1.03	1.13	1.10
Clothes Washers <sup>1</sup> .....	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Dishwashers <sup>1</sup> .....	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Color Televisions .....	0.13	0.19	0.19	0.23	0.23	0.27	0.27	0.28	0.28
Personal Computers .....	0.07	0.10	0.10	0.12	0.12	0.13	0.13	0.15	0.15
Furnace Fans .....	0.08	0.10	0.10	0.10	0.10	0.11	0.11	0.12	0.12
Other Uses <sup>2</sup> .....	0.95	1.26	1.26	1.46	1.46	1.65	1.65	1.85	1.85
<b>Delivered Energy .....</b>	<b>4.37</b>	<b>5.01</b>	<b>5.00</b>	<b>5.38</b>	<b>5.36</b>	<b>5.75</b>	<b>5.73</b>	<b>6.14</b>	<b>6.11</b>
<b>Natural Gas</b>									
Space Heating .....	3.70	3.99	3.96	4.16	4.13	4.28	4.25	4.36	4.33
Space Cooling .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Heating .....	1.17	1.27	1.26	1.29	1.28	1.30	1.30	1.32	1.32
Cooking .....	0.21	0.23	0.23	0.25	0.25	0.26	0.26	0.27	0.27
Clothes Dryers .....	0.07	0.09	0.09	0.10	0.10	0.11	0.11	0.12	0.12
Other Uses <sup>3</sup> .....	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.09	0.09
<b>Delivered Energy .....</b>	<b>5.25</b>	<b>5.67</b>	<b>5.64</b>	<b>5.89</b>	<b>5.86</b>	<b>6.05</b>	<b>6.01</b>	<b>6.17</b>	<b>6.13</b>
<b>Distillate</b>									
Space Heating .....	0.84	0.78	0.78	0.77	0.76	0.73	0.72	0.68	0.68
Water Heating .....	0.12	0.12	0.12	0.11	0.11	0.10	0.10	0.10	0.10
Other Uses <sup>4</sup> .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Delivered Energy .....</b>	<b>0.96</b>	<b>0.90</b>	<b>0.90</b>	<b>0.88</b>	<b>0.87</b>	<b>0.83</b>	<b>0.83</b>	<b>0.77</b>	<b>0.78</b>
<b>Liquefied Petroleum Gas</b>									
Space Heating .....	0.30	0.29	0.29	0.30	0.30	0.31	0.31	0.30	0.31
Water Heating .....	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Cooking .....	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Other Uses <sup>3</sup> .....	0.17	0.20	0.20	0.23	0.23	0.26	0.26	0.28	0.28
<b>Delivered Energy .....</b>	<b>0.54</b>	<b>0.57</b>	<b>0.57</b>	<b>0.61</b>	<b>0.61</b>	<b>0.64</b>	<b>0.64</b>	<b>0.67</b>	<b>0.67</b>
Marketed Renewables (wood) <sup>5</sup> .....	0.40	0.40	0.39	0.39	0.39	0.39	0.39	0.38	0.38
Other Fuels <sup>6</sup> .....	0.08	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10

**Table C4. Residential Sector Key Indicators and End-Use Consumption (Continued)**  
(Quadrillion Btu per Year, Unless Otherwise Noted)

Key Indicators and Consumption	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Delivered Energy Consumption by End-Use</b>									
Space Heating .....	5.72	5.99	5.96	6.18	6.15	6.27	6.24	6.28	6.26
Space Cooling .....	0.65	0.71	0.71	0.73	0.73	0.76	0.76	0.80	0.80
Water Heating .....	1.71	1.82	1.81	1.83	1.83	1.84	1.84	1.85	1.84
Refrigeration .....	0.40	0.36	0.36	0.35	0.35	0.35	0.35	0.36	0.36
Cooking .....	0.34	0.37	0.37	0.39	0.39	0.42	0.42	0.44	0.44
Clothes Dryers .....	0.31	0.35	0.35	0.36	0.37	0.38	0.38	0.40	0.40
Freezers .....	0.13	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.13
Lighting .....	0.78	0.92	0.90	0.99	0.97	1.06	1.03	1.13	1.10
Clothes Washers .....	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Dishwashers .....	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Color Televisions .....	0.13	0.19	0.19	0.23	0.23	0.27	0.27	0.28	0.28
Personal Computers .....	0.07	0.10	0.10	0.12	0.12	0.13	0.13	0.15	0.15
Furnace Fans .....	0.08	0.10	0.10	0.10	0.10	0.11	0.11	0.12	0.12
Other Uses <sup>7</sup> .....	1.22	1.56	1.56	1.79	1.79	2.00	2.00	2.23	2.23
<b>Delivered Energy .....</b>	<b>11.61</b>	<b>12.65</b>	<b>12.60</b>	<b>13.26</b>	<b>13.20</b>	<b>13.77</b>	<b>13.70</b>	<b>14.22</b>	<b>14.16</b>
<b>Electricity Related Losses .....</b>	<b>9.71</b>	<b>10.79</b>	<b>10.78</b>	<b>11.25</b>	<b>11.21</b>	<b>11.72</b>	<b>11.68</b>	<b>12.29</b>	<b>12.23</b>
<b>Total Energy Consumption by End-Use</b>									
Space Heating .....	6.61	6.93	6.91	7.12	7.11	7.21	7.19	7.22	7.21
Space Cooling .....	2.11	2.24	2.24	2.27	2.27	2.32	2.32	2.41	2.41
Water Heating .....	2.53	2.64	2.64	2.63	2.63	2.62	2.62	2.60	2.60
Refrigeration .....	1.30	1.15	1.15	1.08	1.08	1.07	1.07	1.08	1.08
Cooking .....	0.57	0.61	0.61	0.64	0.64	0.67	0.67	0.70	0.70
Clothes Dryers .....	0.85	0.91	0.91	0.92	0.92	0.94	0.94	0.97	0.97
Freezers .....	0.42	0.37	0.37	0.37	0.37	0.37	0.37	0.38	0.38
Lighting .....	2.51	2.91	2.85	3.07	2.99	3.22	3.13	3.39	3.29
Clothes Washers .....	0.10	0.10	0.10	0.09	0.09	0.08	0.08	0.08	0.08
Dishwashers .....	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.09
Color Televisions .....	0.43	0.60	0.60	0.70	0.70	0.81	0.81	0.85	0.85
Personal Computers .....	0.23	0.32	0.32	0.37	0.37	0.41	0.41	0.45	0.45
Furnace Fans .....	0.27	0.31	0.30	0.32	0.32	0.34	0.33	0.35	0.35
Other Uses <sup>7</sup> .....	3.32	4.28	4.28	4.83	4.83	5.35	5.35	5.93	5.93
<b>Total .....</b>	<b>21.31</b>	<b>23.44</b>	<b>23.38</b>	<b>24.51</b>	<b>24.41</b>	<b>25.49</b>	<b>25.38</b>	<b>26.51</b>	<b>26.40</b>
<b>Non-Marketed Renewables</b>									
Geothermal <sup>8</sup> .....	0.00	0.00	0.01	0.01	0.02	0.01	0.02	0.01	0.02
Solar <sup>9</sup> .....	0.02	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04
<b>Total .....</b>	<b>0.02</b>	<b>0.03</b>	<b>0.04</b>	<b>0.04</b>	<b>0.05</b>	<b>0.04</b>	<b>0.05</b>	<b>0.05</b>	<b>0.06</b>

<sup>1</sup>Does not include electric water heating portion of load.

<sup>2</sup>Includes small electric devices, heating elements, and motors not listed above.

<sup>3</sup>Includes such appliances as swimming pool heaters, outdoor grills, and outdoor lighting (natural gas).

<sup>4</sup>Includes such appliances as swimming pool and spa heaters.

<sup>5</sup>Includes wood used for primary and secondary heating in wood stoves or fireplaces as reported in the *Residential Energy Consumption Survey 2001*.

<sup>6</sup>Includes kerosene and coal.

<sup>7</sup>Includes all other uses listed above.

<sup>8</sup>Includes primary energy displaced by geothermal heat pumps in space heating and cooling applications.

<sup>9</sup>Includes primary energy displaced by solar thermal water heaters and electricity generated using photovoltaics.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

Sources: 2003 based on: Energy Information Administration (EIA), *Annual Energy Review 2003*, DOE/EIA-0384(2003) (Washington, DC, September 2004). Projections: EIA, AEO2005 National Energy Modeling System runs BASE.D0713051 and HR6.D071305F.

**Table C5. Commercial Sector Key Indicators and Consumption**  
(Quadrillion Btu per Year, Unless Otherwise Noted)

Key Indicators and Consumption	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Key Indicators</b>									
<b>Total Floorspace (billion square feet)</b>									
Surviving .....	70.1	79.0	79.0	85.9	85.9	93.6	93.6	101.8	101.8
New Additions .....	2.1	2.3	2.3	2.5	2.5	2.6	2.6	3.0	3.0
<b>Total .....</b>	<b>72.1</b>	<b>81.2</b>	<b>81.2</b>	<b>88.4</b>	<b>88.4</b>	<b>96.2</b>	<b>96.2</b>	<b>104.8</b>	<b>104.8</b>
<b>Energy Consumption Intensity (thousand Btu per square foot)</b>									
Delivered Energy Consumption .....	114.8	117.2	117.2	117.7	117.6	118.3	118.2	119.2	119.1
Electricity Related Losses .....	127.2	132.5	132.4	133.1	132.8	134.0	133.7	136.2	135.8
Total Energy Consumption .....	242.0	249.7	249.6	250.8	250.4	252.4	251.9	255.4	254.9
<b>Delivered Energy Consumption by Fuel</b>									
<b>Purchased Electricity</b>									
Space Heating <sup>1</sup> .....	0.15	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Space Cooling <sup>1</sup> .....	0.42	0.45	0.45	0.48	0.48	0.51	0.51	0.54	0.54
Water Heating <sup>1</sup> .....	0.14	0.15	0.15	0.15	0.15	0.16	0.16	0.16	0.16
Ventilation .....	0.16	0.17	0.17	0.18	0.18	0.19	0.19	0.20	0.20
Cooking .....	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Lighting .....	1.10	1.28	1.28	1.37	1.37	1.44	1.44	1.52	1.52
Refrigeration .....	0.20	0.23	0.23	0.24	0.24	0.26	0.26	0.28	0.28
Office Equipment (PC) .....	0.14	0.24	0.24	0.29	0.29	0.33	0.33	0.36	0.36
Office Equipment (non-PC) .....	0.31	0.45	0.45	0.57	0.57	0.70	0.70	0.87	0.87
Other Uses <sup>2</sup> .....	1.48	1.84	1.83	2.17	2.16	2.56	2.54	3.00	2.99
<b>Delivered Energy .....</b>	<b>4.13</b>	<b>5.00</b>	<b>4.99</b>	<b>5.63</b>	<b>5.62</b>	<b>6.33</b>	<b>6.32</b>	<b>7.13</b>	<b>7.11</b>
<b>Natural Gas</b>									
Space Heating <sup>1</sup> .....	1.36	1.42	1.43	1.47	1.47	1.51	1.51	1.56	1.56
Space Cooling <sup>1</sup> .....	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.03	0.03
Water Heating <sup>1</sup> .....	0.57	0.66	0.66	0.72	0.72	0.78	0.78	0.85	0.85
Cooking .....	0.26	0.31	0.31	0.34	0.34	0.37	0.37	0.40	0.40
Other Uses <sup>3</sup> .....	1.02	1.08	1.08	1.15	1.15	1.23	1.23	1.33	1.33
<b>Delivered Energy .....</b>	<b>3.22</b>	<b>3.48</b>	<b>3.49</b>	<b>3.68</b>	<b>3.69</b>	<b>3.91</b>	<b>3.91</b>	<b>4.17</b>	<b>4.16</b>
<b>Distillate</b>									
Space Heating <sup>1</sup> .....	0.22	0.32	0.32	0.37	0.37	0.42	0.42	0.48	0.48
Water Heating <sup>1</sup> .....	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.08
Other Uses <sup>4</sup> .....	0.23	0.22	0.22	0.22	0.22	0.21	0.21	0.21	0.21
<b>Delivered Energy .....</b>	<b>0.52</b>	<b>0.62</b>	<b>0.62</b>	<b>0.66</b>	<b>0.66</b>	<b>0.71</b>	<b>0.71</b>	<b>0.77</b>	<b>0.77</b>
Marketed Renewables (biomass) .....	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
Other Fuels <sup>5</sup> .....	0.33	0.34	0.34	0.34	0.34	0.34	0.34	0.35	0.35
<b>Delivered Energy Consumption by End-Use</b>									
Space Heating <sup>1</sup> .....	1.73	1.90	1.90	1.99	1.99	2.09	2.09	2.20	2.20
Space Cooling <sup>1</sup> .....	0.43	0.47	0.47	0.49	0.49	0.53	0.53	0.57	0.57
Water Heating <sup>1</sup> .....	0.78	0.88	0.88	0.94	0.94	1.01	1.01	1.09	1.08
Ventilation .....	0.16	0.17	0.17	0.18	0.18	0.19	0.19	0.20	0.20
Cooking .....	0.29	0.34	0.34	0.37	0.37	0.40	0.40	0.43	0.43
Lighting .....	1.10	1.28	1.28	1.37	1.37	1.44	1.44	1.52	1.52
Refrigeration .....	0.20	0.23	0.23	0.24	0.24	0.26	0.26	0.28	0.28
Office Equipment (PC) .....	0.14	0.24	0.24	0.29	0.29	0.33	0.33	0.36	0.36
Office Equipment (non-PC) .....	0.31	0.45	0.45	0.57	0.57	0.70	0.70	0.87	0.87
Other Uses <sup>6</sup> .....	3.15	3.56	3.56	3.96	3.95	4.43	4.42	4.98	4.97
<b>Delivered Energy .....</b>	<b>8.29</b>	<b>9.52</b>	<b>9.52</b>	<b>10.40</b>	<b>10.40</b>	<b>11.38</b>	<b>11.37</b>	<b>12.49</b>	<b>12.48</b>



**Table C5. Commercial Sector Key Indicators and Consumption (Continued)**  
(Quadrillion Btu per Year, Unless Otherwise Noted)

Key Indicators and Consumption	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Electricity Related Losses</b> .....	<b>9.18</b>	<b>10.76</b>	<b>10.75</b>	<b>11.77</b>	<b>11.74</b>	<b>12.89</b>	<b>12.86</b>	<b>14.27</b>	<b>14.23</b>
<b>Total Energy Consumption by End-Use</b>									
Space Heating <sup>1</sup> .....	2.06	2.24	2.24	2.32	2.32	2.41	2.41	2.52	2.52
Space Cooling <sup>1</sup> .....	1.37	1.44	1.44	1.49	1.49	1.56	1.56	1.66	1.66
Water Heating <sup>1</sup> .....	1.08	1.20	1.20	1.26	1.26	1.33	1.33	1.41	1.41
Ventilation .....	0.52	0.55	0.55	0.55	0.55	0.56	0.56	0.59	0.59
Cooking .....	0.36	0.41	0.41	0.43	0.43	0.46	0.46	0.49	0.49
Lighting .....	3.55	4.04	4.04	4.23	4.23	4.38	4.37	4.57	4.56
Refrigeration .....	0.65	0.71	0.71	0.75	0.75	0.80	0.80	0.85	0.85
Office Equipment (PC) .....	0.44	0.76	0.76	0.90	0.90	1.01	1.01	1.08	1.08
Office Equipment (non-PC) .....	1.00	1.41	1.41	1.75	1.75	2.13	2.13	2.61	2.61
Other Uses <sup>6</sup> .....	6.44	7.52	7.51	8.49	8.45	9.64	9.60	10.98	10.94
<b>Total</b> .....	<b>17.46</b>	<b>20.29</b>	<b>20.28</b>	<b>22.17</b>	<b>22.14</b>	<b>24.27</b>	<b>24.23</b>	<b>26.76</b>	<b>26.71</b>
<b>Non-Marketed Renewable Fuels</b>									
Solar <sup>7</sup> .....	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04

<sup>1</sup>Includes fuel consumption for district services.

<sup>2</sup>Includes miscellaneous uses, such as service station equipment, automated teller machines, telecommunications equipment, and medical equipment.

<sup>3</sup>Includes miscellaneous uses, such as pumps, emergency electric generators, combined heat and power in commercial buildings, and manufacturing performed in commercial buildings.

<sup>4</sup>Includes miscellaneous uses, such as cooking, emergency electric generators, and combined heat and power in commercial buildings.

<sup>5</sup>Includes residual fuel oil, liquefied petroleum gas, coal, motor gasoline, and kerosene.

<sup>6</sup>Includes miscellaneous uses, such as service station equipment, automated teller machines, telecommunications equipment, medical equipment, pumps, emergency electric generators, combined heat and power in commercial buildings, manufacturing performed in commercial buildings, and cooking (distillate), plus residual fuel oil, liquefied petroleum gas, coal, motor gasoline, and kerosene.

<sup>7</sup>Includes primary energy displaced by solar thermal space heating and water heating, and electricity generation by solar photovoltaic systems.

Btu = British thermal unit.

PC = Personal computer.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

Sources: 2003 based on: Energy Information Administration (EIA), *Annual Energy Review 2003*, DOE/EIA-0384(2003) (Washington, DC, September 2004). Projections: EIA, AEO2005 National Energy Modeling System runs BASE.D071305I and HR6.D071305F.

**Table C6. Industrial Sector Key Indicators and Consumption**

Supply, Disposition, and Prices	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Key Indicators</b>									
<b>Value of Shipments (billion 1996 dollars)</b>									
Manufacturing .....	3851	4836	4838	5388	5391	6037	6041	6723	6726
Nonmanufacturing .....	1254	1329	1329	1456	1457	1586	1592	1735	1746
<b>Total .....</b>	<b>5105</b>	<b>6166</b>	<b>6167</b>	<b>6845</b>	<b>6848</b>	<b>7623</b>	<b>7633</b>	<b>8458</b>	<b>8471</b>
<b>Energy Prices (2003 dollars per million Btu)</b>									
Distillate Oil .....	7.24	6.77	6.76	7.24	7.17	7.43	7.39	7.71	7.56
Liquefied Petroleum Gas .....	12.57	10.02	10.01	10.13	10.11	10.62	10.69	11.34	11.09
Residual Oil .....	4.59	3.87	3.88	4.10	4.12	4.34	4.32	4.61	4.52
Motor Gasoline .....	12.79	12.20	12.15	12.30	12.33	12.56	12.60	12.83	12.77
Natural Gas .....	5.56	4.39	4.37	4.83	4.80	5.23	5.22	5.47	5.50
Metallurgical Coal .....	1.85	1.82	1.82	1.76	1.76	1.75	1.75	1.68	1.68
Steam Coal .....	1.55	1.56	1.56	1.55	1.55	1.56	1.56	1.59	1.60
Electricity .....	15.03	13.86	13.82	14.66	14.63	15.44	15.45	15.72	15.74
<b>Energy Consumption (quadrillion Btu)<sup>1</sup></b>									
Distillate .....	1.02	1.04	1.04	1.08	1.08	1.14	1.14	1.19	1.21
Liquefied Petroleum Gas .....	2.09	2.30	2.30	2.44	2.44	2.59	2.59	2.74	2.74
Petrochemical Feedstocks .....	1.32	1.48	1.48	1.52	1.52	1.55	1.55	1.57	1.57
Residual Fuel .....	0.28	0.33	0.32	0.38	0.34	0.38	0.34	0.38	0.39
Motor Gasoline .....	0.31	0.31	0.31	0.33	0.33	0.35	0.35	0.37	0.37
Petroleum Coke .....	1.00	1.07	1.07	1.18	1.17	1.28	1.28	1.33	1.29
Still Gas .....	1.48	1.76	1.76	1.58	1.54	1.62	1.62	1.63	1.64
Asphalt and Road Oil .....	1.22	1.16	1.16	1.21	1.21	1.30	1.30	1.43	1.43
Miscellaneous Petroleum <sup>2</sup> .....	0.61	0.69	0.69	0.72	0.71	0.71	0.69	0.69	0.68
Petroleum Subtotal .....	9.31	10.15	10.14	10.43	10.34	10.91	10.87	11.33	11.32
Natural Gas .....	7.19	8.11	8.13	8.47	8.61	8.88	9.00	9.28	9.35
Lease and Plant Fuel <sup>3</sup> .....	1.15	1.21	1.20	1.22	1.23	1.32	1.38	1.30	1.40
Natural Gas Subtotal .....	8.34	9.31	9.33	9.70	9.84	10.20	10.38	10.58	10.75
Metallurgical Coal and Coke <sup>4</sup> .....	0.72	0.61	0.61	0.53	0.53	0.47	0.47	0.42	0.42
Steam Coal .....	1.39	1.43	1.43	1.42	1.42	1.42	1.43	1.43	1.43
Coal Subtotal .....	2.11	2.04	2.04	1.96	1.96	1.90	1.90	1.84	1.84
Renewables <sup>5</sup> .....	1.79	2.07	2.07	2.19	2.19	2.34	2.34	2.49	2.49
Purchased Electricity .....	3.31	3.78	3.78	3.97	3.98	4.18	4.19	4.39	4.39
<b>Delivered Energy .....</b>	<b>24.86</b>	<b>27.34</b>	<b>27.35</b>	<b>28.24</b>	<b>28.31</b>	<b>29.53</b>	<b>29.68</b>	<b>30.63</b>	<b>30.79</b>
Electricity Related Losses .....	7.35	8.13	8.13	8.31	8.32	8.52	8.53	8.79	8.78
<b>Total .....</b>	<b>32.21</b>	<b>35.47</b>	<b>35.49</b>	<b>36.55</b>	<b>36.63</b>	<b>38.05</b>	<b>38.21</b>	<b>39.42</b>	<b>39.57</b>
<b>Energy Consumption per dollar of Shipments<sup>1</sup> (thousand Btu per 1996 dollars)</b>									
Distillate .....	0.20	0.17	0.17	0.16	0.16	0.15	0.15	0.14	0.14
Liquefied Petroleum Gas .....	0.41	0.37	0.37	0.36	0.36	0.34	0.34	0.32	0.32
Petrochemical Feedstocks .....	0.26	0.24	0.24	0.22	0.22	0.20	0.20	0.19	0.19
Residual Fuel .....	0.05	0.05	0.05	0.06	0.05	0.05	0.05	0.05	0.05
Motor Gasoline .....	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04
Petroleum Coke .....	0.20	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.15
Still Gas .....	0.29	0.29	0.29	0.23	0.23	0.21	0.21	0.19	0.19
Asphalt and Road Oil .....	0.24	0.19	0.19	0.18	0.18	0.17	0.17	0.17	0.17
Miscellaneous Petroleum <sup>2</sup> .....	0.12	0.11	0.11	0.11	0.10	0.09	0.09	0.08	0.08
Petroleum Subtotal .....	1.82	1.65	1.64	1.52	1.51	1.43	1.42	1.34	1.34
Natural Gas .....	1.41	1.31	1.32	1.24	1.26	1.16	1.18	1.10	1.10
Lease and Plant Fuel <sup>3</sup> .....	0.23	0.20	0.20	0.18	0.18	0.17	0.18	0.15	0.16
Natural Gas Subtotal .....	1.63	1.51	1.51	1.42	1.44	1.34	1.36	1.25	1.27
Metallurgical Coal and Coke <sup>4</sup> .....	0.14	0.10	0.10	0.08	0.08	0.06	0.06	0.05	0.05
Steam Coal .....	0.27	0.23	0.23	0.21	0.21	0.19	0.19	0.17	0.17
Coal Subtotal .....	0.41	0.33	0.33	0.29	0.29	0.25	0.25	0.22	0.22
Renewables <sup>5</sup> .....	0.35	0.34	0.34	0.32	0.32	0.31	0.31	0.29	0.29
Purchased Electricity .....	0.65	0.61	0.61	0.58	0.58	0.55	0.55	0.52	0.52
<b>Delivered Energy .....</b>	<b>4.87</b>	<b>4.43</b>	<b>4.44</b>	<b>4.13</b>	<b>4.13</b>	<b>3.87</b>	<b>3.89</b>	<b>3.62</b>	<b>3.63</b>
Electricity Related Losses .....	1.44	1.32	1.32	1.21	1.22	1.12	1.12	1.04	1.04
<b>Total .....</b>	<b>6.31</b>	<b>5.75</b>	<b>5.75</b>	<b>5.34</b>	<b>5.35</b>	<b>4.99</b>	<b>5.01</b>	<b>4.66</b>	<b>4.67</b>

**Table C6. Industrial Sector Key Indicators and Consumption (Continued)**

Supply, Disposition, and Prices	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Industrial Combined Heat and Power</b>									
Capacity (gigawatts) . . . . .	24.87	29.44	29.45	32.15	32.20	35.83	35.99	39.83	40.09
Generation (billion kilowatthours) . . . . .	139.59	171.28	171.35	191.73	192.06	219.49	220.58	248.01	250.10

<sup>1</sup>Fuel consumption includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>2</sup>Includes lubricants and miscellaneous petroleum products.

<sup>3</sup>Represents natural gas used in the field gathering and processing plant machinery.

<sup>4</sup>Includes net coal coke imports.

<sup>5</sup>Includes consumption of energy from hydroelectric, wood and wood waste, municipal solid waste, and other biomass.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

**Sources:** 2003 prices for motor gasoline and distillate are based on: Energy Information Administration (EIA), *Petroleum Marketing Annual 2003*, DOE/EIA-0487(2003) (Washington, DC, August 2004). 2003 coal prices are based on: EIA, *Quarterly Coal Report, October-December 2003*, DOE/EIA-0121(2003/4Q) (Washington, DC, March 2004) and EIA, AEO2005 National Energy Modeling System run BASE.D071305I. 2003 electricity prices: EIA, *Annual Energy Review 2003*, DOE/EIA-0384(2003) (Washington, DC, September 2004). 2003 natural gas prices based on: EIA, *Manufacturing Energy Consumption Survey 1994* and industrial and wellhead prices from the *Natural Gas Annual 2002*, DOE/EIA-0131(2002) (Washington, DC, January 2004) and the *Natural Gas Monthly*, DOE/EIA-0130(2004/07) (Washington, DC, September 2004). 2003 consumption values based on: EIA, *Annual Energy Review 2003*, DOE/EIA-0384(2003) (Washington, DC, September 2004). 2003 shipments: Global Insight industry model, August 2004. **Projections:** EIA, AEO2005 National Energy Modeling System runs BASE.D071305I and HR6.D071305F.

**Table C7. Transportation Sector Key Indicators and Delivered Energy Consumption**

Supply, Disposition, and Prices	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Key Indicators</b>									
<b>Level of Travel</b>									
(billion vehicle miles traveled)									
Light-Duty Vehicles less than 8,500 pounds	2604	3025	3025	3358	3356	3685	3682	4058	4061
Commercial Light Trucks <sup>1</sup>	0	0	0	0	0	0	0	0	0
Freight Trucks greater than 10,000 pounds	198	252	252	284	284	319	319	354	354
(billion seat miles available)									
Air	932	1152	1152	1327	1327	1455	1455	1520	1520
(billion ton miles traveled)									
Rail	1352	1577	1578	1691	1692	1834	1831	1998	1992
Domestic Shipping	592	650	650	668	670	705	715	732	748
<b>Energy Efficiency Indicators</b>									
(miles per gallon)									
New Light-Duty Vehicle <sup>2</sup>	25.1	25.7	25.6	26.1	26.1	26.5	26.5	26.9	26.9
New Car <sup>2</sup>	29.5	29.7	29.7	30.2	30.2	30.6	30.6	31.0	31.0
New Light Truck <sup>2</sup>	21.8	22.9	22.9	23.4	23.4	24.1	24.1	24.7	24.7
Light-Duty Stock <sup>3</sup>	20.1	20.3	20.3	20.6	20.5	20.9	20.9	21.2	21.2
New Commercial Light Truck <sup>1</sup>	14.6	15.2	15.2	15.6	15.6	16.0	16.0	16.4	16.4
Stock Commercial Light Truck <sup>1</sup>	14.0	14.7	14.7	15.1	15.1	15.5	15.5	15.9	15.9
Freight Truck	6.0	6.0	6.0	6.2	6.2	6.4	6.4	6.6	6.6
(seat miles per gallon)									
Aircraft	55.3	59.2	59.2	62.0	62.0	65.2	65.2	68.5	68.5
(ton miles per thousand Btu)									
Rail	2.9	3.1	3.1	3.3	3.3	3.4	3.4	3.6	3.6
Domestic Shipping	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4
<b>Energy Use by Mode</b>									
<b>(quadrillion Btu)</b>									
Light-Duty Vehicles	16.91	19.55	19.55	20.91	20.93	22.17	22.17	23.75	23.79
Commercial Light Trucks <sup>1</sup>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bus Transportation	0.24	0.25	0.25	0.26	0.26	0.26	0.26	0.26	0.26
Freight Trucks	4.22	5.32	5.32	5.86	5.86	6.34	6.35	6.82	6.82
Rail, Passenger	0.12	0.13	0.13	0.15	0.15	0.16	0.16	0.17	0.17
Rail, Freight	0.47	0.51	0.51	0.52	0.52	0.54	0.54	0.55	0.55
Shipping, Domestic	0.26	0.28	0.28	0.29	0.29	0.30	0.30	0.31	0.31
Shipping, International	0.56	0.51	0.51	0.52	0.52	0.52	0.52	0.52	0.52
Recreational Boats	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air	2.74	3.43	3.43	3.83	3.83	4.11	4.11	4.25	4.25
Military Use	0.69	0.80	0.80	0.81	0.81	0.82	0.82	0.83	0.83
Lubricants	0.20	0.21	0.21	0.23	0.23	0.25	0.25	0.27	0.27
Pipeline Fuel	0.65	0.70	0.70	0.73	0.73	0.82	0.82	0.84	0.84
<b>Total</b>	<b>27.07</b>	<b>31.70</b>	<b>31.70</b>	<b>34.10</b>	<b>34.11</b>	<b>36.29</b>	<b>36.29</b>	<b>38.58</b>	<b>38.63</b>
<b>(million barrels per day oil equivalent)</b>									
Light-Duty Vehicles	8.89	10.32	10.32	11.02	11.04	11.68	11.68	12.50	12.53
Commercial Light Trucks <sup>1</sup>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bus Transportation	0.11	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Freight Trucks	2.00	2.53	2.53	2.79	2.79	3.02	3.03	3.25	3.25
Rail, Passenger	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.08	0.08
Rail, Freight	0.22	0.24	0.24	0.25	0.25	0.26	0.25	0.26	0.26
Shipping, Domestic	0.12	0.13	0.13	0.13	0.13	0.14	0.14	0.14	0.15
Shipping, International	0.25	0.22	0.22	0.23	0.23	0.23	0.23	0.23	0.23
Recreational Boats	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Air	1.33	1.66	1.66	1.85	1.85	1.99	1.99	2.06	2.06
Military Use	0.33	0.39	0.39	0.39	0.39	0.40	0.40	0.40	0.40
Lubricants	0.09	0.10	0.10	0.11	0.11	0.12	0.12	0.13	0.13
Pipeline Fuel	0.33	0.35	0.35	0.37	0.37	0.42	0.41	0.43	0.43
<b>Total</b>	<b>13.73</b>	<b>16.13</b>	<b>16.13</b>	<b>17.34</b>	<b>17.36</b>	<b>18.44</b>	<b>18.45</b>	<b>19.60</b>	<b>19.64</b>

<sup>1</sup>Commercial trucks 8,500 to 10,000 pounds.

<sup>2</sup>Environmental Protection Agency rated miles per gallon.

<sup>3</sup>Combined car and light truck "on-the-road" estimate.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

Sources: 2003: Energy Information Administration (EIA), *Natural Gas Annual 2002*, DOE/EIA-0131(2002) (Washington, DC, January 2004); Federal Highway Administration, *Highway Statistics 2001* (Washington, DC, November 2002); Oak Ridge National Laboratory, *Transportation Energy Data Book: Edition 22 and Annual* (Oak Ridge, TN, September 2002); National Highway Traffic and Safety Administration, *Summary of Fuel Economy Performance* (Washington, DC, February 2000); EIA, *Household Vehicle Energy Consumption 1994*, DOE/EIA-0464(94) (Washington, DC, August 1997); U.S. Department of Commerce, Bureau of the Census, "Vehicle Inventory and Use Survey," EC97TV (Washington, DC, October 1999); EIA, *Describing Current and Potential Markets for Alternative-Fuel Vehicles*, DOE/EIA-0604(96) (Washington, DC, March 1996); EIA, *Alternatives to Traditional Transportation Fuels 1998*, [http://www.eia.doe.gov/cneaf/alt\\_trans98/table1.html](http://www.eia.doe.gov/cneaf/alt_trans98/table1.html); EIA, *State Energy Data Report 2001*, DOE/EIA-0214(2001) (Washington, DC, November 2004) U.S. Department of Transportation, Research and Special Programs Administration, *Air Carrier Statistics Monthly, December 2003/2002* (Washington, DC, 2003); EIA, *Fuel Oil and Kerosene Sales 2002*, DOE/EIA-0535(2002) (Washington, DC, November 2003); and United States Department of Defense, Defense Fuel Supply Center. Projections: EIA, AEO2005 National Energy Modeling System runs BASE.D071305I and HR6.D071305F.

**Table C8. Electricity Supply, Disposition, Prices, and Emissions**  
(Billion Kilowatthours, Unless Otherwise Noted)

Supply, Disposition, and Prices	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Generation by Fuel Type</b>									
<b>Electric Power Sector<sup>1</sup></b>									
<b>Power Only<sup>2</sup></b>									
Coal .....	1916	2169	2171	2249	2253	2439	2424	2815	2789
Petroleum .....	106	112	111	118	118	124	141	126	130
Natural Gas <sup>3</sup> .....	407	631	627	849	839	1028	1017	1055	1065
Nuclear Power .....	764	813	813	826	826	830	830	830	830
Pumped Storage/Other .....	-9	-9	-9	-9	-9	-9	-9	-9	-9
Renewable Sources <sup>4</sup> .....	318	389	389	397	397	412	412	437	436
Distributed Generation (Natural Gas) .....	0	0	0	0	1	1	1	3	3
<b>Total</b> .....	<b>3501</b>	<b>4106</b>	<b>4103</b>	<b>4430</b>	<b>4424</b>	<b>4825</b>	<b>4816</b>	<b>5256</b>	<b>5244</b>
<b>Combined Heat and Power<sup>5</sup></b>									
Coal .....	34	33	33	34	33	34	33	34	33
Petroleum .....	7	6	6	7	6	7	8	7	8
Natural Gas .....	149	188	187	200	199	196	194	186	186
Renewable Sources .....	6	4	4	4	4	4	4	4	4
<b>Total</b> .....	<b>197</b>	<b>230</b>	<b>230</b>	<b>244</b>	<b>243</b>	<b>240</b>	<b>239</b>	<b>231</b>	<b>230</b>
<b>Total Net Generation</b> .....	<b>3699</b>	<b>4336</b>	<b>4333</b>	<b>4674</b>	<b>4667</b>	<b>5065</b>	<b>5056</b>	<b>5487</b>	<b>5475</b>
Less Direct Use .....	50	66	66	65	65	65	65	65	65
<b>Net Available to the Grid</b> .....	<b>3649</b>	<b>4271</b>	<b>4267</b>	<b>4609</b>	<b>4601</b>	<b>5000</b>	<b>4990</b>	<b>5422</b>	<b>5409</b>
<b>Commercial and Industrial Generation<sup>6</sup></b>									
Coal .....	21	21	21	21	21	21	21	21	21
Petroleum .....	6	9	9	10	10	12	12	12	12
Natural Gas .....	76	100	100	117	117	140	140	168	169
Other Gaseous Fuels <sup>7</sup> .....	6	4	4	5	5	5	5	5	6
Renewable Sources <sup>4</sup> .....	35	43	43	45	45	50	50	55	55
Other <sup>8</sup> .....	10	10	10	10	10	10	10	10	10
<b>Total</b> .....	<b>153</b>	<b>186</b>	<b>186</b>	<b>207</b>	<b>208</b>	<b>237</b>	<b>238</b>	<b>271</b>	<b>273</b>
Less Direct Use .....	126	138	139	148	149	164	164	182	183
<b>Total Sales to the Grid</b> .....	<b>28</b>	<b>48</b>	<b>48</b>	<b>59</b>	<b>59</b>	<b>73</b>	<b>74</b>	<b>89</b>	<b>90</b>
<b>Total Electricity Generation</b> .....	<b>3852</b>	<b>4523</b>	<b>4519</b>	<b>4881</b>	<b>4874</b>	<b>5302</b>	<b>5294</b>	<b>5758</b>	<b>5748</b>
<b>Total Net Generation to the Grid</b> .....	<b>3677</b>	<b>4318</b>	<b>4315</b>	<b>4667</b>	<b>4660</b>	<b>5073</b>	<b>5064</b>	<b>5511</b>	<b>5500</b>
<b>Net Imports</b> .....	<b>5</b>	<b>9</b>	<b>9</b>	<b>21</b>	<b>22</b>	<b>15</b>	<b>15</b>	<b>11</b>	<b>11</b>
<b>Electricity Sales by Sector</b>									
Residential .....	1280	1469	1467	1578	1572	1687	1681	1799	1792
Commercial .....	1210	1465	1464	1650	1647	1855	1851	2089	2084
Industrial .....	969	1107	1107	1165	1167	1226	1228	1286	1286
Transportation .....	23	26	26	29	29	32	32	35	35
<b>Total</b> .....	<b>3481</b>	<b>4067</b>	<b>4064</b>	<b>4422</b>	<b>4415</b>	<b>4799</b>	<b>4791</b>	<b>5208</b>	<b>5198</b>
Direct Use .....	175	204	204	214	214	229	229	247	248
<b>Total Electricity Use</b> .....	<b>3657</b>	<b>4271</b>	<b>4268</b>	<b>4635</b>	<b>4629</b>	<b>5028</b>	<b>5021</b>	<b>5456</b>	<b>5446</b>
<b>End-Use Prices<sup>9</sup></b> (2003 cents per kilowatthour)									
Residential .....	8.7	7.8	7.8	8.1	8.1	8.2	8.2	8.3	8.3
Commercial .....	7.9	6.8	6.8	7.3	7.3	7.5	7.5	7.6	7.6
Industrial .....	5.1	4.7	4.7	5.0	5.0	5.3	5.3	5.4	5.4
Transportation .....	7.0	6.4	6.4	6.7	6.7	6.8	6.8	6.8	6.8
<b>All Sectors Average</b> .....	<b>7.4</b>	<b>6.6</b>	<b>6.6</b>	<b>7.0</b>	<b>6.9</b>	<b>7.2</b>	<b>7.2</b>	<b>7.3</b>	<b>7.3</b>
<b>Prices by Service Category<sup>9</sup></b> (2003 cents per kilowatthour)									
Generation .....	4.8	4.1	4.1	4.5	4.5	4.7	4.7	4.9	4.9
Transmission .....	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
Distribution .....	2.1	2.0	2.0	1.9	1.9	1.8	1.8	1.8	1.8

**Table C8. Electricity Supply, Disposition, Prices, and Emissions (Continued)**  
(Billion Kilowatthours, Unless Otherwise Noted)

Supply, Disposition, and Prices	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Electric Power Sector Emissions<sup>1</sup></b>									
Sulfur Dioxide (million tons) .....	10.59	9.28	9.29	8.90	8.90	8.95	8.95	8.95	8.95
Nitrogen Oxide (million tons) .....	4.12	3.99	3.99	4.09	4.10	4.18	4.18	4.28	4.27
Mercury (tons) .....	50.05	53.91	54.39	54.29	54.90	54.84	55.83	55.24	55.74

<sup>1</sup>Includes electricity-only and combined heat and power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>2</sup>Includes plants that only produce electricity.

<sup>3</sup>Includes electricity generation from fuel cells.

<sup>4</sup>Includes conventional hydroelectric, geothermal, wood, wood waste, municipal solid waste, landfill gas, other biomass, solar, and wind power.

<sup>5</sup>Includes combined heat and power plants whose primary business is to sell electricity and heat to the public (i.e., those that report NAICS code 22).

<sup>6</sup>Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors; and small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid.

<sup>7</sup>Other gaseous fuels include refinery and still gas.

<sup>8</sup>Other includes batteries, chemicals, hydrogen, pitch, purchased steam, sulfur and miscellaneous technologies.

<sup>9</sup>Prices represent average revenue per kilowatthour.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

**Sources:** 2003 power only and combined heat and power generation, sales to utilities, net imports, residential, industrial, and total electricity sales, and emissions: Energy Information Administration (EIA), *Annual Energy Review 2003*, DOE/EIA-0384(2003) (Washington, DC, September 2004), and supporting databases. 2003 commercial and transportation electricity sales: EIA estimates based on Oak Ridge National Laboratory, *Transportation Energy Data Book 21* (Oak Ridge, TN, September 2001). 2003 prices: EIA, National Energy Modeling System run BASE.D071305I. **Projections:** EIA, AEO2005 National Energy Modeling System runs BASE.D071305I and HR6.D071305F.

**Table C9. Electricity Generating Capacity  
(Gigawatts)**

Net Summer Capacity <sup>1</sup>	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Electric Power Sector<sup>2</sup></b>									
<b>Power Only<sup>3</sup></b>									
Coal Steam	305.2	304.6	305.1	310.4	311.0	334.7	332.4	386.2	382.6
Other Fossil Steam <sup>4</sup>	128.6	119.4	119.4	100.7	99.2	99.7	98.2	99.0	97.6
Combined Cycle	106.9	136.3	136.2	147.1	147.2	175.2	176.1	191.1	193.6
Combustion Turbine/Diesel	124.8	132.6	132.6	142.6	141.9	168.3	168.2	188.7	189.1
Nuclear Power <sup>5</sup>	99.2	100.6	100.6	102.2	102.2	102.7	102.7	102.7	102.7
Pumped Storage	20.8	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9
Fuel Cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Sources <sup>6</sup>	92.0	95.0	95.0	96.1	96.1	98.7	98.9	103.7	103.6
Distributed Generation <sup>7</sup>	0.0	0.4	0.4	1.1	1.2	3.0	3.1	7.0	7.0
<b>Total</b>	<b>877.5</b>	<b>909.8</b>	<b>910.2</b>	<b>921.1</b>	<b>919.7</b>	<b>1003.1</b>	<b>1000.4</b>	<b>1099.2</b>	<b>1097.0</b>
<b>Combined Heat and Power<sup>8</sup></b>									
Coal Steam	5.1	5.1	5.1	5.0	5.0	5.0	5.0	5.0	5.0
Other Fossil Steam <sup>4</sup>	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Combined Cycle	31.3	33.5	33.5	33.5	33.5	33.5	33.5	33.5	33.5
Combustion Turbine/Diesel	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
Renewable Sources <sup>6</sup>	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
<b>Total</b>	<b>42.8</b>	<b>45.1</b>	<b>45.1</b>	<b>45.0</b>	<b>44.9</b>	<b>45.0</b>	<b>44.9</b>	<b>45.0</b>	<b>44.9</b>
<b>Cumulative Planned Additions<sup>9</sup></b>									
Coal Steam	0.0	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
Other Fossil Steam <sup>4</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Combined Cycle	0.0	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3
Combustion Turbine/Diesel	0.0	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pumped Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Sources <sup>6</sup>	0.0	2.7	2.7	2.8	2.8	2.9	2.9	3.0	3.0
Distributed Generation <sup>7</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total</b>	<b>0.0</b>	<b>36.7</b>	<b>36.7</b>	<b>36.8</b>	<b>36.8</b>	<b>36.9</b>	<b>36.9</b>	<b>37.0</b>	<b>37.0</b>
<b>Cumulative Unplanned Additions<sup>9</sup></b>									
Coal Steam	0.0	0.0	0.0	6.3	6.4	30.6	27.8	82.1	78.0
Other Fossil Steam <sup>4</sup>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Combined Cycle	0.0	3.4	3.3	14.8	14.9	42.9	43.8	58.8	61.3
Combustion Turbine/Diesel	0.0	5.8	5.9	19.6	19.8	47.4	47.8	69.1	70.3
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pumped Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Sources <sup>6</sup>	0.0	0.2	0.2	1.1	1.2	3.7	3.8	8.5	8.5
Distributed Generation <sup>7</sup>	0.0	0.4	0.4	1.1	1.2	3.0	3.1	7.0	7.0
<b>Total</b>	<b>0.0</b>	<b>9.8</b>	<b>9.7</b>	<b>43.0</b>	<b>43.5</b>	<b>127.5</b>	<b>126.4</b>	<b>225.5</b>	<b>225.0</b>
<b>Cumulative Electric Power Sector Additions</b>	<b>0.0</b>	<b>46.5</b>	<b>46.4</b>	<b>79.8</b>	<b>80.3</b>	<b>164.4</b>	<b>163.3</b>	<b>262.5</b>	<b>262.0</b>
<b>Cumulative Retirements<sup>10</sup></b>									
Coal Steam	0.0	2.4	1.9	3.0	2.6	3.0	2.6	3.0	2.6
Other Fossil Steam <sup>4</sup>	0.0	9.3	9.3	27.9	29.4	29.0	30.4	29.6	31.1
Combined Cycle	0.0	0.1	0.1	0.7	0.7	0.7	0.7	0.7	0.7
Combustion Turbine/Diesel	0.0	1.9	1.9	5.7	6.6	7.8	8.3	9.1	9.8
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pumped Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel Cells	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Sources <sup>6</sup>	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
<b>Total</b>	<b>0.0</b>	<b>13.8</b>	<b>13.3</b>	<b>37.4</b>	<b>39.3</b>	<b>40.5</b>	<b>42.1</b>	<b>42.4</b>	<b>44.2</b>
<b>Total Electric Power Sector Capacity</b>	<b>920.3</b>	<b>954.8</b>	<b>955.2</b>	<b>966.1</b>	<b>964.6</b>	<b>1048.1</b>	<b>1045.3</b>	<b>1144.2</b>	<b>1141.9</b>

**Table C9. Electricity Generating Capacity (Continued)**  
(Gigawatts)

Net Summer Capacity <sup>1</sup>	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Commercial and Industrial Generators<sup>11</sup></b>									
Coal .....	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
Petroleum .....	0.7	1.5	1.5	1.5	1.5	1.6	1.7	1.6	1.7
Natural Gas .....	14.4	17.3	17.3	19.6	19.6	22.7	22.8	26.5	26.7
Other Gaseous Fuels .....	1.8	1.5	1.5	1.6	1.6	1.6	1.6	1.7	1.7
Renewable Sources <sup>6</sup> .....	5.4	6.8	6.9	7.3	7.3	8.3	8.3	9.8	9.9
Other .....	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
<b>Total .....</b>	<b>27.1</b>	<b>32.0</b>	<b>32.1</b>	<b>34.8</b>	<b>34.9</b>	<b>39.0</b>	<b>39.3</b>	<b>44.5</b>	<b>44.8</b>
<b>Cumulative Capacity Additions<sup>9</sup> .....</b>	<b>0.0</b>	<b>4.9</b>	<b>5.0</b>	<b>7.7</b>	<b>7.8</b>	<b>11.9</b>	<b>12.2</b>	<b>17.4</b>	<b>17.7</b>

<sup>1</sup>Net summer capacity is the steady hourly output that generating equipment is expected to supply to system load (exclusive of auxiliary power), as demonstrated by tests during summer peak demand.

<sup>2</sup>Includes electricity-only and combined heat and power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>3</sup>Includes plants that only produce electricity. Includes capacity increases (uprates) at existing units.

<sup>4</sup>Includes oil-, gas-, and dual-fired capacity.

<sup>5</sup>Nuclear capacity reflects operating capacity of existing units, including 3.5 gigawatts of uprates through 2025.

<sup>6</sup>Includes conventional hydroelectric, geothermal, wood, wood waste, municipal solid waste, landfill gas, other biomass, solar, and wind power. Facilities co-firing biomass and coal are classified as coal.

<sup>7</sup>Primarily peak-load capacity fueled by natural gas.

<sup>8</sup>Includes combined heat and power plants whose primary business is to sell electricity and heat to the public (i.e., those that report NAICS code 22).

<sup>9</sup>Cumulative additions after December 31, 2003.

<sup>10</sup>Cumulative total retirements after December 31, 2003.

<sup>11</sup>Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors; and small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model estimates and may differ slightly from official EIA data reports.

Sources: 2003 electric generating capacity and projected planned additions: Energy Information Administration (EIA), Form EIA-860, "Annual Electric Generator Report" (preliminary). Projections: EIA, AEO2005 National Energy Modeling System runs BASE.D071305I and HR6.D071305F.



**Table C10. Electricity Trade**  
(Billion Kilowatthours, Unless Otherwise Noted)

Electricity Trade	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Interregional Electricity Trade</b>									
Gross Domestic Firm Power Trade .....	136.7	105.5	105.5	82.4	82.4	50.6	50.6	37.9	37.9
Gross Domestic Economy Trade .....	198.5	206.8	205.8	180.0	178.0	135.2	135.4	106.2	104.0
<b>Gross Domestic Trade .....</b>	<b>335.1</b>	<b>312.3</b>	<b>311.2</b>	<b>262.4</b>	<b>260.4</b>	<b>185.8</b>	<b>186.0</b>	<b>144.1</b>	<b>141.8</b>
Gross Domestic Firm Power Sales (million 2003 dollars) .....	6926.5	5344.6	5344.6	4176.6	4176.6	2564.5	2564.5	1919.7	1919.7
Gross Domestic Economy Sales (million 2003 dollars) .....	7958.1	7308.3	7226.3	7484.0	7344.7	6001.3	5976.8	4900.6	4791.8
<b>Gross Domestic Sales (million 2003 dollars) .....</b>	<b>14884.6</b>	<b>12653.0</b>	<b>12571.0</b>	<b>11660.6</b>	<b>11521.3</b>	<b>8565.9</b>	<b>8541.4</b>	<b>6820.3</b>	<b>6711.5</b>
<b>International Electricity Trade</b>									
Firm Power Imports From Canada and Mexico . . .	11.3	2.2	2.2	1.5	1.5	0.5	0.5	0.0	0.0
Economy Imports From Canada and Mexico .....	18.2	29.2	29.2	38.9	39.0	31.0	31.1	25.1	25.1
<b>Gross Imports From Canada and Mexico .....</b>	<b>29.5</b>	<b>31.4</b>	<b>31.3</b>	<b>40.4</b>	<b>40.5</b>	<b>31.4</b>	<b>31.6</b>	<b>25.2</b>	<b>25.2</b>
Firm Power Exports To Canada and Mexico .....	5.5	1.0	1.0	0.7	0.7	0.2	0.2	0.0	0.0
Economy Exports To Canada and Mexico .....	19.5	21.3	21.3	18.3	18.3	15.9	15.9	14.0	14.0
<b>Gross Exports To Canada and Mexico .....</b>	<b>24.9</b>	<b>22.3</b>	<b>22.3</b>	<b>18.9</b>	<b>18.9</b>	<b>16.1</b>	<b>16.1</b>	<b>14.0</b>	<b>14.0</b>

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports. Firm Power Sales are capacity sales, meaning the delivery of the power is scheduled as part of the normal operating conditions of the affected electric systems. Economy Sales are subject to curtailment or cessation of delivery by the supplier in accordance with prior agreements or under specified conditions.

Sources: 2003 interregional firm electricity trade data: North American Electric Reliability Council (NERC), Electricity Sales and Demand Database 1999. 2003 Mexican electricity trade data: DOE Form FE-718R, "Annual Report of International Electrical Export/Import Data." 2003 Canadian electricity trade data: National Energy Board, *Annual Report 2002*. Projections: Energy Information Administration, AEO2005 National Energy Modeling System runs BASE.D071305I and HR6.D071305F.

**Table C11. Petroleum Supply and Disposition Balance**  
(Million Barrels per Day, Unless Otherwise Noted)

Supply and Disposition	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Crude Oil</b>									
Domestic Crude Production <sup>1</sup>	5.68	6.02	6.02	5.49	5.56	5.21	5.86	4.75	5.76
Alaska	0.97	0.81	0.81	0.88	0.94	0.86	1.49	0.61	1.55
Lower 48 States	4.71	5.22	5.22	4.61	4.62	4.35	4.37	4.14	4.22
Net Imports	9.65	11.23	11.25	13.23	13.16	14.29	13.60	15.48	14.56
Gross Imports	9.66	11.25	11.26	13.25	13.17	14.30	13.61	15.49	14.58
Exports	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Other Crude Supply <sup>2</sup>	-0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total Crude Supply</b>	<b>15.31</b>	<b>17.26</b>	<b>17.27</b>	<b>18.73</b>	<b>18.72</b>	<b>19.50</b>	<b>19.46</b>	<b>20.22</b>	<b>20.33</b>
<b>Other Petroleum Supply</b>									
Natural Gas Plant Liquids	1.72	1.96	1.96	1.95	1.95	2.02	2.03	2.04	2.04
Net Product Imports	1.58	2.08	2.04	1.85	1.77	2.27	2.27	2.84	2.74
Gross Refined Product Imports <sup>3</sup>	1.85	2.01	1.97	1.61	1.54	1.94	1.94	2.42	2.31
Unfinished Oil Imports	0.34	0.58	0.59	0.76	0.76	0.85	0.85	0.93	0.94
Blending Components	0.41	0.48	0.48	0.50	0.50	0.53	0.53	0.56	0.56
Exports	1.01	0.99	0.99	1.02	1.02	1.04	1.05	1.07	1.08
Refinery Processing Gain <sup>4</sup>	1.00	1.10	1.11	1.36	1.38	1.47	1.48	1.53	1.50
Other Supply <sup>5</sup>	0.69	0.53	0.53	0.44	0.49	0.44	0.51	0.47	0.55
<b>Total Primary Supply<sup>6</sup></b>	<b>20.30</b>	<b>22.92</b>	<b>22.91</b>	<b>24.34</b>	<b>24.32</b>	<b>25.71</b>	<b>25.74</b>	<b>27.10</b>	<b>27.16</b>
<b>Refined Petroleum Products Supplied</b>									
Motor Gasoline <sup>7</sup>	8.93	10.23	10.22	10.84	10.86	11.41	11.42	12.14	12.17
Jet Fuel <sup>8</sup>	1.57	1.95	1.95	2.15	2.15	2.29	2.29	2.36	2.36
Distillate Fuel <sup>9</sup>	3.95	4.70	4.70	5.07	5.07	5.44	5.48	5.81	5.83
Residual Fuel	0.77	0.80	0.79	0.85	0.83	0.87	0.87	0.87	0.89
Other <sup>10</sup>	4.77	5.25	5.25	5.42	5.40	5.69	5.68	5.92	5.90
<b>Total</b>	<b>20.00</b>	<b>22.92</b>	<b>22.91</b>	<b>24.34</b>	<b>24.32</b>	<b>25.71</b>	<b>25.74</b>	<b>27.10</b>	<b>27.16</b>
<b>Refined Petroleum Products Supplied</b>									
Residential and Commercial	1.28	1.33	1.33	1.38	1.38	1.41	1.41	1.42	1.43
Industrial <sup>11</sup>	4.87	5.32	5.32	5.49	5.46	5.76	5.74	5.99	5.98
Transportation	13.35	15.70	15.70	16.88	16.90	17.92	17.93	19.06	19.10
Electric Power <sup>12</sup>	0.50	0.57	0.56	0.59	0.59	0.62	0.67	0.63	0.65
<b>Total</b>	<b>20.00</b>	<b>22.92</b>	<b>22.91</b>	<b>24.34</b>	<b>24.32</b>	<b>25.71</b>	<b>25.74</b>	<b>27.10</b>	<b>27.16</b>
<b>Discrepancy<sup>13</sup></b>	<b>0.29</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>-0.00</b>	<b>-0.00</b>	<b>0.00</b>
World Oil Price (2003 dollars per barrel) <sup>14</sup>	27.73	25.00	24.96	26.75	26.64	28.50	28.11	30.31	29.74
Import Share of Product Supplied	0.56	0.58	0.58	0.62	0.61	0.64	0.62	0.68	0.64
Net Expenditures for Imported Crude Oil and Petroleum Products (billion 2003 dollars)	113.78	124.54	124.03	149.53	147.10	174.23	163.87	205.90	191.25
Domestic Refinery Distillation Capacity <sup>15</sup>	16.8	18.7	18.7	20.2	20.2	20.9	20.8	21.6	21.7
Capacity Utilization Rate (percent)	93.0	93.8	93.9	94.1	94.0	94.8	94.8	94.8	94.8

<sup>1</sup>Includes lease condensate.

<sup>2</sup>Strategic petroleum reserve stock additions plus unaccounted for crude oil and crude stock withdrawals minus crude products supplied.

<sup>3</sup>Includes other hydrocarbons and alcohols.

<sup>4</sup>Represents volumetric gain in refinery distillation and cracking processes.

<sup>5</sup>Includes petroleum product stock withdrawals; domestic sources of blending components, other hydrocarbons, alcohols, and ethers; natural gas converted to liquid fuel; and coal converted to liquid fuel.

<sup>6</sup>Total crude supply plus natural gas plant liquids, other inputs, refinery processing gain, and net product imports.

<sup>7</sup>Includes ethanol and ethers blended into gasoline.

<sup>8</sup>Includes only kerosene type.

<sup>9</sup>Includes distillate and kerosene.

<sup>10</sup>Includes aviation gasoline, liquefied petroleum gas, petrochemical feedstocks, lubricants, waxes, asphalt, road oil, still gas, special naphthas, petroleum coke, crude oil product supplied, and miscellaneous petroleum products.

<sup>11</sup>Includes energy for combined heat and power (CHP) plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>12</sup>Includes consumption of energy by electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.

Includes small power producers and exempt wholesale generators.

<sup>13</sup>Balancing item. Includes unaccounted for supply, losses, and gains.

<sup>14</sup>Average refiner acquisition cost for imported crude oil.

<sup>15</sup>End-of-year operable capacity.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

Sources: 2003 product supplied based on: Energy Information Administration (EIA), *Annual Energy Review 2003*, DOE/EIA-0384(2003) (Washington, DC, September 2004). Other 2003 data: EIA, *Petroleum Supply Annual 2003*, DOE/EIA-0340(2003)/1 (Washington, DC, July 2004). Projections: EIA, AEO2005 National Energy Modeling System runs BASE.D0713051 and HR6.D071305F.

**Table C12. Petroleum Product Prices**  
(2003 Cents per Gallon, Unless Otherwise Noted)

Sector and Fuel	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>World Oil Price (2003 dollars per barrel)</b> .....	<b>27.73</b>	<b>25.00</b>	<b>24.96</b>	<b>26.75</b>	<b>26.64</b>	<b>28.50</b>	<b>28.11</b>	<b>30.31</b>	<b>29.74</b>
<b>Delivered Sector Product Prices</b>									
<b>Residential</b>									
Distillate Fuel .....	132.7	114.8	114.4	117.7	117.7	122.8	122.2	126.5	125.1
Liquefied Petroleum Gas .....	125.4	122.6	122.5	124.1	123.8	128.7	128.7	134.5	132.2
<b>Commercial</b>									
Distillate Fuel .....	97.3	86.7	86.5	89.9	89.3	93.9	93.4	97.3	95.5
Residual Fuel .....	74.3	63.7	63.7	67.8	67.5	72.0	71.1	76.1	74.8
Residual Fuel (2003 dollars per barrel) .....	31.21	26.77	26.74	28.46	28.35	30.23	29.85	31.95	31.40
<b>Industrial<sup>1</sup></b>									
Distillate Fuel .....	100.2	93.1	93.0	99.4	98.4	102.1	101.5	105.8	103.7
Liquefied Petroleum Gas .....	108.1	86.1	86.0	87.1	86.9	91.3	92.0	97.5	95.4
Residual Fuel .....	68.7	58.0	58.1	61.4	61.7	65.0	64.7	69.0	67.7
Residual Fuel (2003 dollars per barrel) .....	28.84	24.34	24.40	25.81	25.93	27.30	27.16	29.00	28.43
<b>Transportation</b>									
Diesel Fuel (distillate) <sup>2</sup> .....	150.4	147.3	147.4	147.4	146.4	147.0	146.3	148.3	146.6
Jet Fuel <sup>3</sup> .....	87.2	84.1	83.9	85.4	84.7	89.8	89.7	93.7	92.1
Motor Gasoline <sup>4</sup> .....	160.3	150.6	150.1	152.0	152.2	155.2	155.4	158.3	157.5
Liquid Petroleum Gas .....	143.2	131.1	131.0	131.3	130.9	133.8	133.6	139.5	136.0
Residual Fuel .....	67.3	55.9	55.8	60.1	59.8	64.2	63.2	68.4	67.0
Residual Fuel (2003 dollars per barrel) .....	28.25	23.50	23.45	25.23	25.10	26.95	26.54	28.71	28.15
Ethanol (E85) <sup>5</sup> .....	152.4	157.7	159.8	160.6	170.0	165.5	174.7	170.2	179.6
<b>Electric Power<sup>6</sup></b>									
Distillate Fuel .....	89.8	74.2	73.9	76.8	76.6	83.8	82.8	88.0	85.3
Residual Fuel .....	71.7	62.7	62.6	66.5	66.2	70.6	69.5	75.0	73.5
Residual Fuel (2003 dollars per barrel) .....	30.12	26.32	26.30	27.93	27.79	29.66	29.19	31.49	30.86
<b>Refined Petroleum Product Prices<sup>7</sup></b>									
Distillate Fuel .....	136.7	130.8	130.8	134.0	133.1	135.2	134.2	137.5	135.6
Jet Fuel <sup>3</sup> .....	87.2	84.1	83.9	85.4	84.7	89.8	89.7	93.7	92.1
Liquefied Petroleum Gas .....	112.1	94.5	94.4	95.7	95.5	100.0	100.5	106.0	103.8
Motor Gasoline <sup>4</sup> .....	160.3	150.6	150.1	152.0	152.2	155.2	155.4	158.3	157.5
Residual Fuel .....	69.8	59.8	59.8	63.7	63.5	67.8	66.9	72.0	70.6
Residual Fuel (2003 dollars per barrel) .....	29.32	25.12	25.10	26.74	26.68	28.46	28.10	30.23	29.65
<b>Average</b> .....	<b>136.6</b>	<b>127.4</b>	<b>127.1</b>	<b>129.2</b>	<b>129.0</b>	<b>132.2</b>	<b>132.2</b>	<b>136.0</b>	<b>134.7</b>

<sup>1</sup>Includes energy for combined heat and power plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>2</sup>Diesel fuel containing 500 part per million (ppm) or 15 ppm sulfur for on-road use. Includes Federal and State taxes while excluding county and local taxes.

<sup>3</sup>Includes only kerosene type.

<sup>4</sup>Sales weighted-average price for all grades. Includes Federal, State and local taxes.

<sup>5</sup>E85 refers to a blend of 85 percent ethanol (renewable) and 15 percent motor gasoline (nonrenewable). To address cold starting issues, the percentage of ethanol actually varies seasonally. The annual average ethanol content of 74 percent is used for this forecast.

<sup>6</sup>Includes electricity-only and combined heat and power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.

<sup>7</sup>Weighted averages of end-use fuel prices are derived from the prices in each sector and the corresponding sectoral consumption.

Note: Data for 2003 are model results and may differ slightly from official EIA data reports.

**Sources:** 2003 prices for motor gasoline, distillate, and jet fuel are based on: EIA, *Petroleum Marketing Annual 2003*, DOE/EIA-0487(2003) (Washington, DC, August 2004). 2003 residential, commercial, industrial, and transportation sector petroleum product prices are derived from: EIA, Form EIA-782A, "Refiners'/Gas Plant Operators' Monthly Petroleum Product Sales Report." 2003 electric power prices based on: Federal Energy Regulatory Commission, FERC Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants." 2003 ethanol prices derived from weekly spot prices in the *Oxy Fuel News*. 2003 world oil price: EIA, *Annual Energy Review 2003*, DOE/EIA-0384(2003) (Washington, DC, September 2004). **Projections:** EIA, AEO2005 National Energy Modeling System runs BASE.D071305I and HR6.D071305F.

**Table C13. Natural Gas Supply and Disposition**  
(Trillion Cubic Feet per Year)

Supply, Disposition, and Prices	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Production</b>									
Dry Gas Production <sup>1</sup> .....	19.07	20.50	20.48	20.66	20.71	21.78	21.87	21.82	21.95
Supplemental Natural Gas <sup>2</sup> .....	0.06	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
<b>Net Imports</b> .....	<b>3.24</b>	<b>4.82</b>	<b>4.79</b>	<b>7.04</b>	<b>7.01</b>	<b>7.91</b>	<b>7.91</b>	<b>8.72</b>	<b>8.74</b>
Canada .....	3.13	2.57	2.55	3.00	2.98	2.71	2.71	2.60	2.62
Mexico .....	-0.33	-0.13	-0.13	-0.29	-0.29	-0.34	-0.34	-0.25	-0.24
Liquefied Natural Gas <sup>3</sup> .....	0.44	2.39	2.37	4.33	4.32	5.54	5.54	6.36	6.37
<b>Total Supply</b> .....	<b>22.37</b>	<b>25.40</b>	<b>25.34</b>	<b>27.78</b>	<b>27.79</b>	<b>29.77</b>	<b>29.86</b>	<b>30.61</b>	<b>30.77</b>
<b>Consumption by Sector</b>									
Residential .....	5.10	5.51	5.48	5.73	5.69	5.88	5.84	5.99	5.95
Commercial .....	3.13	3.39	3.39	3.58	3.58	3.80	3.80	4.05	4.04
Industrial <sup>4</sup> .....	6.99	7.88	7.90	8.23	8.36	8.63	8.75	9.02	9.09
Electric Power <sup>5</sup> .....	4.96	6.71	6.68	8.35	8.26	9.39	9.34	9.46	9.50
Transportation <sup>6</sup> .....	0.02	0.06	0.06	0.08	0.08	0.09	0.09	0.11	0.11
Pipeline Fuel .....	0.64	0.68	0.68	0.71	0.71	0.80	0.80	0.82	0.82
Lease and Plant Fuel <sup>7</sup> .....	1.12	1.17	1.17	1.19	1.20	1.28	1.35	1.27	1.36
<b>Total</b> .....	<b>21.95</b>	<b>25.41</b>	<b>25.35</b>	<b>27.87</b>	<b>27.89</b>	<b>29.87</b>	<b>29.96</b>	<b>30.72</b>	<b>30.88</b>
Natural Gas to Liquids .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Discrepancy<sup>8</sup></b> .....	<b>0.42</b>	<b>-0.01</b>	<b>-0.01</b>	<b>-0.10</b>	<b>-0.10</b>	<b>-0.10</b>	<b>-0.10</b>	<b>-0.11</b>	<b>-0.11</b>
<b>Natural Gas Prices</b> (2003 dollars per thousand cubic feet)									
<b>Average Lower 48 Wellhead Price<sup>9</sup></b> .....	<b>4.98</b>	<b>3.66</b>	<b>3.64</b>	<b>4.18</b>	<b>4.16</b>	<b>4.53</b>	<b>4.53</b>	<b>4.79</b>	<b>4.82</b>
<b>Delivered Prices</b>									
Residential .....	9.49	8.04	8.03	8.48	8.46	8.89	8.90	9.32	9.35
Commercial .....	8.31	7.09	7.07	7.56	7.54	7.89	7.89	8.18	8.21
Industrial <sup>4</sup> .....	5.72	4.52	4.50	4.98	4.94	5.38	5.37	5.63	5.66
Electric Power <sup>5</sup> .....	5.57	4.38	4.36	4.92	4.90	5.30	5.30	5.55	5.58
Transportation <sup>10</sup> .....	9.44	9.13	9.11	9.76	9.74	10.08	10.08	10.31	10.34
<b>Average<sup>11</sup></b> .....	<b>7.04</b>	<b>5.69</b>	<b>5.66</b>	<b>6.11</b>	<b>6.08</b>	<b>6.46</b>	<b>6.45</b>	<b>6.76</b>	<b>6.78</b>

<sup>1</sup>Marketed production (wet) minus extraction losses.

<sup>2</sup>Synthetic natural gas, propane air, coke oven gas, refinery gas, biomass gas, air injected for Btu stabilization, and manufactured gas commingled and distributed with natural gas.

<sup>3</sup>Includes any natural gas regasified in the Bahamas and transported via pipeline to Florida.

<sup>4</sup>Includes energy for combined heat and power (CHP) plants, except those whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>5</sup>Includes consumption of energy by electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.

<sup>6</sup>Compressed natural gas used as vehicle fuel.

<sup>7</sup>Represents natural gas used in the field gathering and processing plant machinery.

<sup>8</sup>Balancing item. Natural gas lost as a result of converting flow data measured at varying temperatures and pressures to a standard temperature and pressure and the merger of different data reporting systems which vary in scope, format, definition, and respondent type. In addition, 2003 values include net storage injections.

<sup>9</sup>Represents lower 48 onshore and offshore supplies.

<sup>10</sup>Compressed natural gas used as vehicle fuel. Price includes estimated motor vehicle fuel taxes.

<sup>11</sup>Weighted average prices. Weights used are the sectoral consumption values excluding lease, plant, and pipeline fuel.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

Sources: 2003 supply values; and lease, plant, and pipeline fuel consumption; and residential and commercial delivered prices: Energy Information Administration (EIA), *Natural Gas Monthly*, DOE/EIA-0130(2004/07) (Washington, DC, July 2004). Other 2003 consumption based on: EIA, *Annual Energy Review 2003*, DOE/EIA-0384(2003) (Washington, DC, September 2004). 2003 electric power sector prices: EIA, *Electric Power Monthly*, DOE/EIA-0226, May 2003 through April 2004. 2003 industrial delivered prices are estimated based on: EIA, *Manufacturing Energy Consumption Survey 1994* and industrial and wellhead prices from the *Natural Gas Annual 2002*, DOE/EIA-0131(2002) (Washington, DC, January 2004) and the *Natural Gas Monthly*, DOE/EIA-0130(2004/07) (Washington, DC, July 2004). 2003 transportation sector delivered prices are model results. Projections: EIA, AEO2005 National Energy Modeling System runs BASE.D071305I and HR6.D071305F.

**Table C14. Oil and Gas Supply**

Production and Supply	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Crude Oil</b>									
<b>Lower 48 Average Wellhead Price<sup>1</sup></b> (2003 dollars per barrel) .....	<b>28.60</b>	<b>24.49</b>	<b>24.44</b>	<b>26.32</b>	<b>26.17</b>	<b>27.97</b>	<b>27.49</b>	<b>29.90</b>	<b>29.34</b>
<b>Production (million barrels per day)<sup>2</sup></b>									
U.S. Total .....	5.68	6.02	6.02	5.49	5.56	5.21	5.86	4.75	5.76
Lower 48 Onshore .....	2.99	2.63	2.63	2.42	2.42	2.24	2.24	2.09	2.08
Lower 48 Offshore .....	1.72	2.58	2.58	2.19	2.20	2.11	2.12	2.05	2.13
Alaska .....	0.97	0.81	0.81	0.88	0.94	0.86	1.49	0.61	1.55
<b>Lower 48 End of Year Reserves</b> (billion barrels) <sup>2</sup> .....	<b>18.94</b>	<b>21.23</b>	<b>21.23</b>	<b>18.89</b>	<b>18.93</b>	<b>17.78</b>	<b>17.83</b>	<b>16.63</b>	<b>16.51</b>
<b>Natural Gas</b>									
<b>Lower 48 Average Wellhead Price<sup>1</sup></b> (2003 dollars per thousand cubic feet) .....	<b>4.98</b>	<b>3.66</b>	<b>3.64</b>	<b>4.18</b>	<b>4.16</b>	<b>4.53</b>	<b>4.53</b>	<b>4.79</b>	<b>4.82</b>
<b>Dry Production (trillion cubic feet)<sup>3</sup></b>									
U.S. Total .....	19.07	20.51	20.48	20.66	20.71	21.78	21.87	21.82	21.95
Lower 48 Onshore .....	13.89	15.03	15.01	15.26	15.25	15.16	15.09	14.68	14.63
Associated-Dissolved <sup>4</sup> .....	1.54	1.32	1.32	1.22	1.22	1.15	1.15	1.08	1.08
Non-Associated .....	12.36	13.72	13.69	14.04	14.03	14.01	13.94	13.60	13.55
Conventional .....	5.68	5.67	5.67	5.63	5.63	5.42	5.38	5.02	5.00
Unconventional .....	6.68	8.05	8.02	8.41	8.40	8.60	8.56	8.58	8.55
Lower 48 Offshore .....	4.73	5.22	5.22	5.13	5.19	4.73	4.83	4.91	5.00
Associated-Dissolved <sup>4</sup> .....	0.99	1.81	1.81	1.48	1.48	1.40	1.42	1.33	1.35
Non-Associated .....	3.74	3.41	3.41	3.65	3.71	3.33	3.41	3.57	3.66
Alaska .....	0.44	0.25	0.25	0.27	0.27	1.89	1.95	2.23	2.32
<b>Lower 48 End of Year Dry Reserves<sup>3</sup></b> (trillion cubic feet) .....	<b>180.77</b>	<b>202.55</b>	<b>202.34</b>	<b>192.51</b>	<b>191.93</b>	<b>183.82</b>	<b>184.24</b>	<b>178.03</b>	<b>177.77</b>
<b>Supplemental Gas Supplies (trillion cubic feet)<sup>5</sup></b>	<b>0.06</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>	<b>0.08</b>
<b>Total Lower 48 Wells Drilled (thousands) .....</b>	<b>30.08</b>	<b>27.64</b>	<b>27.68</b>	<b>28.96</b>	<b>29.02</b>	<b>29.51</b>	<b>29.44</b>	<b>27.68</b>	<b>27.65</b>

<sup>1</sup>Represents lower 48 onshore and offshore supplies.

<sup>2</sup>Includes lease condensate.

<sup>3</sup>Marketed production (wet) minus extraction losses.

<sup>4</sup>Gas which occurs in crude oil reserves either as free gas (associated) or as gas in solution with crude oil (dissolved).

<sup>5</sup>Synthetic natural gas, propane air, coke oven gas, refinery gas, biomass gas, air injected for Btu stabilization, and manufactured gas commingled and distributed with natural gas.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

Sources: 2003 lower 48 onshore, lower 48 offshore, and Alaska crude oil production: Energy Information Administration (EIA), *Petroleum Supply Annual 2003*, DOE/EIA-0340(2003)/1 (Washington, DC, July 2004). 2003 natural gas lower 48 average wellhead price, Alaska and total natural gas production, and supplemental gas supplies: EIA, *Natural Gas Monthly*, DOE/EIA-0130(2004/07) (Washington, DC, July 2004). 2003 crude oil lower 48 average wellhead price: EIA, *Petroleum Marketing Annual 2003*, DOE/EIA-0487(2003) (Washington, DC, August 2004). Other 2003 values: EIA, Office of Integrated Analysis and Forecasting. Projections: EIA, AEO2005 National Energy Modeling System runs BASE.D071305I and HR6.D071305F.

**Table C15. Coal Supply, Disposition, and Prices**  
(Million Short Tons per Year, Unless Otherwise Noted)

Supply, Disposition, and Prices	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Production<sup>1</sup></b>									
Appalachia .....	388	403	403	384	384	383	380	402	401
Interior .....	146	159	159	156	156	164	164	181	180
West .....	549	676	677	730	732	798	797	896	888
East of the Mississippi .....	481	510	510	490	490	498	494	533	532
West of the Mississippi .....	603	729	730	780	782	847	846	946	938
<b>Total .....</b>	<b>1083</b>	<b>1238</b>	<b>1239</b>	<b>1270</b>	<b>1272</b>	<b>1345</b>	<b>1341</b>	<b>1479</b>	<b>1469</b>
<b>Net Imports</b>									
Imports .....	25	33	33	38	38	42	42	46	46
Exports .....	43	42	42	35	35	35	35	26	27
<b>Total .....</b>	<b>-18</b>	<b>-9</b>	<b>-9</b>	<b>3</b>	<b>3</b>	<b>7</b>	<b>7</b>	<b>20</b>	<b>19</b>
<b>Total Supply<sup>2</sup> .....</b>	<b>1065</b>	<b>1229</b>	<b>1230</b>	<b>1273</b>	<b>1275</b>	<b>1352</b>	<b>1347</b>	<b>1499</b>	<b>1488</b>
<b>Consumption by Sector</b>									
Residential and Commercial .....	4	5	5	5	5	5	5	5	5
Industrial <sup>3</sup> .....	62	66	66	66	66	66	66	66	66
Coke Plants .....	24	20	20	18	18	15	15	13	13
Electric Power <sup>4</sup> .....	1004	1138	1139	1185	1187	1267	1262	1416	1405
<b>Total Sectoral Consumption .....</b>	<b>1095</b>	<b>1229</b>	<b>1231</b>	<b>1273</b>	<b>1275</b>	<b>1352</b>	<b>1348</b>	<b>1500</b>	<b>1489</b>
Coal to Liquids									
Heat and Power (included in Industrial) .....	0	0	0	0	0	0	0	0	0
Liquids Production .....	0	0	0	0	0	0	0	0	0
<b>Total Coal Use .....</b>	<b>1095</b>	<b>1229</b>	<b>1231</b>	<b>1273</b>	<b>1275</b>	<b>1352</b>	<b>1348</b>	<b>1500</b>	<b>1489</b>
<b>Discrepancy and Stock Change<sup>5</sup> .....</b>	<b>-29</b>	<b>-0</b>	<b>-0</b>	<b>-0</b>	<b>-0</b>	<b>-1</b>	<b>-1</b>	<b>-1</b>	<b>-1</b>
<b>Average Minemouth Price</b>									
(2003 dollars per short ton) .....	17.93	17.32	17.28	16.83	16.85	17.23	17.12	18.10	18.30
(2003 dollars per million Btu) .....	0.86	0.85	0.85	0.84	0.84	0.86	0.85	0.90	0.91
<b>Delivered Prices (2003 dollars per short ton)<sup>6</sup></b>									
Industrial .....	34.74	33.75	33.72	33.36	33.40	33.70	33.60	34.31	34.55
Coke Plants .....	50.63	49.84	49.88	48.39	48.38	48.02	47.99	46.12	46.10
Electric Power									
(2003 dollars per short ton) .....	25.86	24.91	24.88	24.41	24.42	24.62	24.54	25.75	25.93
(2003 dollars per million Btu) .....	1.28	1.25	1.25	1.23	1.24	1.24	1.24	1.30	1.30
Coal to Liquids .....	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Average .....</b>	<b>26.91</b>	<b>25.79</b>	<b>25.77</b>	<b>25.21</b>	<b>25.22</b>	<b>25.33</b>	<b>25.25</b>	<b>26.31</b>	<b>26.50</b>
Exports <sup>7</sup> .....	39.80	39.28	39.30	37.37	37.37	37.28	37.15	35.97	35.84

<sup>1</sup>Includes anthracite, bituminous coal, lignite, and waste coal delivered to independent power producers. Waste coal deliveries totaled 11.1 million tons in 2002 and 11.6 million tons in 2003.

<sup>2</sup>Production plus net imports plus net storage withdrawals.

<sup>3</sup>Includes consumption for combined heat and power (CHP) plants, except those plants whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>4</sup>Includes all electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>5</sup>Balancing item: the sum of production, net imports, and net storage withdrawals minus total consumption.

<sup>6</sup>Sectoral prices weighted by consumption tonnage; weighted average excludes residential and commercial prices and export free-alongside-ship (f.a.s.) prices.

<sup>7</sup>F.a.s. price at U.S. port of exit.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

Sources: 2003 data based on: Energy Information Administration (EIA), *Annual Coal Report 2003*, DOE/EIA-0584(2003) (Washington, DC, September 2004); EIA, *Quarterly Coal Report, October-December 2003*, DOE/EIA-0121(2003/4Q) (Washington, DC, March 2004); and EIA, AEO2005 National Energy Modeling System run BASE.D071305I. Projections: EIA, AEO2005 National Energy Modeling System runs BASE.D071305I and HR6.D071305F.

**Table C16. Renewable Energy Generating Capacity and Generation**  
(Gigawatts, Unless Otherwise Noted)

Capacity and Generation	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Electric Power Sector<sup>1</sup></b>									
<b>Net Summer Capacity</b>									
Conventional Hydropower	77.93	78.18	78.18	78.18	78.18	78.18	78.18	78.18	78.18
Geothermal <sup>2</sup>	2.18	2.23	2.23	2.67	2.56	3.49	3.42	4.80	4.78
Municipal Solid Waste <sup>3</sup>	3.34	3.57	3.57	3.60	3.63	3.66	3.66	3.67	3.67
Wood and Other Biomass <sup>4,5</sup>	1.77	1.83	1.83	2.00	2.06	2.63	2.69	5.28	5.00
Solar Thermal	0.39	0.45	0.45	0.47	0.47	0.49	0.49	0.51	0.51
Solar Photovoltaic <sup>6</sup>	0.04	0.15	0.15	0.23	0.23	0.32	0.32	0.40	0.40
Wind	6.56	8.88	8.88	9.22	9.26	10.24	10.42	11.15	11.35
<b>Total</b>	<b>92.21</b>	<b>95.30</b>	<b>95.30</b>	<b>96.37</b>	<b>96.38</b>	<b>98.99</b>	<b>99.17</b>	<b>103.98</b>	<b>103.89</b>
<b>Generation (billion kilowatthours)</b>									
Conventional Hydropower	269.29	300.39	300.39	300.54	300.53	300.80	300.79	301.08	301.07
Geothermal <sup>2</sup>	13.15	12.53	12.53	16.17	15.24	23.16	22.62	34.31	34.19
Municipal Solid Waste <sup>3</sup>	20.28	25.58	25.58	25.88	26.07	26.36	26.36	26.49	26.49
Wood and Other Biomass <sup>5</sup>	9.40	27.65	27.68	29.80	30.08	32.54	32.67	42.81	40.86
Dedicated Plants	5.71	10.31	10.31	11.43	11.68	15.30	15.87	32.42	30.57
Cofiring	3.69	17.34	17.37	18.37	18.40	17.24	16.80	10.39	10.29
Solar Thermal	0.53	0.80	0.80	0.86	0.86	0.92	0.92	0.99	0.99
Solar Photovoltaic <sup>6</sup>	0.00	0.32	0.32	0.52	0.52	0.74	0.74	0.96	0.96
Wind	10.73	25.89	25.89	27.13	27.25	30.86	31.51	34.12	34.87
<b>Total</b>	<b>323.38</b>	<b>393.15</b>	<b>393.17</b>	<b>400.90</b>	<b>400.55</b>	<b>415.38</b>	<b>415.60</b>	<b>440.78</b>	<b>439.42</b>
<b>Commercial and Industrial Generators<sup>7</sup></b>									
<b>Net Summer Capacity</b>									
Conventional Hydropower <sup>8</sup>	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Municipal Solid Waste	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Biomass	4.08	5.14	5.14	5.55	5.55	6.18	6.18	6.75	6.75
Solar Photovoltaic <sup>6</sup>	0.06	0.39	0.43	0.44	0.50	0.80	0.87	1.80	1.88
<b>Total</b>	<b>5.43</b>	<b>6.82</b>	<b>6.87</b>	<b>7.29</b>	<b>7.35</b>	<b>8.27</b>	<b>8.34</b>	<b>9.84</b>	<b>9.92</b>
<b>Generation (billion kilowatthours)</b>									
Conventional Hydropower <sup>8</sup>	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82	5.82
Geothermal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Municipal Solid Waste	1.86	2.24	2.24	2.24	2.24	2.24	2.24	2.24	2.24
Biomass	27.59	33.76	33.77	36.18	36.20	39.83	39.85	43.16	43.18
Solar Photovoltaic <sup>6</sup>	0.12	0.83	0.93	0.95	1.06	1.68	1.84	3.73	3.91
<b>Total</b>	<b>35.39</b>	<b>42.64</b>	<b>42.75</b>	<b>45.18</b>	<b>45.32</b>	<b>49.57</b>	<b>49.75</b>	<b>54.94</b>	<b>55.15</b>

<sup>1</sup>Includes electricity-only and combined heat and power (CHP) plants whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>2</sup>Includes hydrothermal resources only (hot water and steam).

<sup>3</sup>Includes landfill gas.

<sup>4</sup>Facilities co-firing biomass and coal are classified as coal.

<sup>5</sup>Includes projections for energy crops after 2010.

<sup>6</sup>Does not include off-grid photovoltaics (PV). Based on annual PV shipments from 1989 through 2002, EIA estimates that as much as 134 megawatts of remote electricity generation PV applications (i.e., off-grid power systems) were in service in 2002, plus an additional 362 megawatts in communications, transportation, and assorted other non-grid-connected, specialized applications. See Annual Energy Review 2003, Table 10.6 (annual PV shipments, 1989-2002). The approach used to develop the estimate, based on shipment data, provides an upper estimate of the size of the PV stock, including both grid-based and off-grid PV. It will overestimate the size of the stock, because shipments include a substantial number of units that are exported, and each year some of the PV units installed earlier will be retired from service or abandoned.

<sup>7</sup>Includes combined heat and power plants and electricity-only plants in the commercial and industrial sectors; and small on-site generating systems in the residential, commercial, and industrial sectors used primarily for own-use generation, but which may also sell some power to the grid.

<sup>8</sup>Represents own-use industrial hydroelectric power.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

Sources: 2003 capacity: Energy Information Administration (EIA), Form EIA-860, "Annual Electric Generator Report" (preliminary). 2003 generation: EIA, *Annual Energy Review 2003*, DOE/EIA-0384(2003) (Washington, DC, September 2004). Projections: EIA, AEO2005 National Energy Modeling System runs BASE.D071305I and HR6.D071305F.

**Table C17. Renewable Energy Consumption by Sector and Source<sup>1</sup>**  
(Quadrillion Btu per Year)

Sector and Source	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Marketed Renewable Energy<sup>2</sup></b>									
<b>Residential (wood)</b> .....	<b>0.40</b>	<b>0.40</b>	<b>0.39</b>	<b>0.39</b>	<b>0.39</b>	<b>0.39</b>	<b>0.39</b>	<b>0.38</b>	<b>0.38</b>
<b>Commercial (biomass)</b> .....	<b>0.09</b>	<b>0.09</b>	<b>0.09</b>	<b>0.09</b>	<b>0.09</b>	<b>0.09</b>	<b>0.09</b>	<b>0.09</b>	<b>0.09</b>
<b>Industrial<sup>3</sup></b> .....	<b>1.79</b>	<b>2.07</b>	<b>2.07</b>	<b>2.19</b>	<b>2.19</b>	<b>2.34</b>	<b>2.34</b>	<b>2.49</b>	<b>2.49</b>
Conventional Hydroelectric .....	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Municipal Solid Waste .....	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Biomass .....	1.72	2.00	2.00	2.12	2.12	2.27	2.27	2.42	2.42
<b>Transportation</b> .....	<b>0.24</b>	<b>0.34</b>	<b>0.36</b>	<b>0.33</b>	<b>0.46</b>	<b>0.36</b>	<b>0.48</b>	<b>0.38</b>	<b>0.51</b>
Ethanol used in E85 <sup>4</sup> .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ethanol used in Gasoline Blending .....	0.24	0.34	0.35	0.33	0.46	0.35	0.48	0.38	0.51
<b>Electric Power<sup>5</sup></b> .....	<b>3.62</b>	<b>4.31</b>	<b>4.31</b>	<b>4.46</b>	<b>4.44</b>	<b>4.76</b>	<b>4.75</b>	<b>5.23</b>	<b>5.22</b>
Conventional Hydroelectric .....	2.72	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08
Geothermal .....	0.28	0.28	0.28	0.39	0.36	0.62	0.60	0.97	0.97
Municipal Solid Waste <sup>6</sup> .....	0.32	0.34	0.34	0.35	0.35	0.35	0.35	0.35	0.35
Biomass .....	0.18	0.32	0.32	0.34	0.35	0.37	0.37	0.45	0.43
Dedicated Plants .....	0.09	0.10	0.10	0.12	0.12	0.16	0.17	0.33	0.32
Cofiring .....	0.09	0.22	0.22	0.23	0.23	0.21	0.20	0.11	0.11
Solar Thermal .....	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02
Solar Photovoltaic .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wind .....	0.11	0.27	0.27	0.28	0.28	0.32	0.32	0.35	0.36
<b>Total Marketed Renewable Energy</b> .....	<b>6.13</b>	<b>7.20</b>	<b>7.21</b>	<b>7.46</b>	<b>7.56</b>	<b>7.93</b>	<b>8.05</b>	<b>8.57</b>	<b>8.69</b>
<b>Sources of Ethanol</b>									
From Corn .....	0.24	0.34	0.34	0.33	0.45	0.36	0.47	0.38	0.50
From Cellulose .....	0.00	0.00	0.01	0.00	0.01	0.00	0.01	0.00	0.01
<b>Total</b> .....	<b>0.24</b>	<b>0.34</b>	<b>0.36</b>	<b>0.33</b>	<b>0.46</b>	<b>0.36</b>	<b>0.48</b>	<b>0.38</b>	<b>0.51</b>
<b>Non-Marketed Renewable Energy<sup>7</sup></b>									
<b>Selected Consumption</b>									
<b>Residential</b> .....	<b>0.02</b>	<b>0.03</b>	<b>0.04</b>	<b>0.04</b>	<b>0.05</b>	<b>0.04</b>	<b>0.05</b>	<b>0.05</b>	<b>0.06</b>
Solar Hot Water Heating .....	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04
Geothermal Heat Pumps .....	0.00	0.00	0.01	0.01	0.02	0.01	0.02	0.01	0.02
Solar Photovoltaic .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Commercial</b> .....	<b>0.02</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.03</b>	<b>0.04</b>	<b>0.04</b>
Solar Thermal .....	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Solar Photovoltaic .....	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01

<sup>1</sup>Actual heat rates used to determine fuel consumption for all renewable fuels except hydropower, solar, and wind. Consumption at hydroelectric, solar, and wind facilities determined by using the fossil fuel equivalent of 10,280 Btu per kilowatt-hour.

<sup>2</sup>Includes nonelectric renewable energy groups for which the energy source is bought and sold in the marketplace, although all transactions may not necessarily be marketed, and marketed renewable energy inputs for electricity entering the marketplace on the electric power grid. Excludes electricity imports; see Table C8.

<sup>3</sup>Includes all electricity production by industrial and other combined heat and power (CHP) for the grid and for own use.

<sup>4</sup>Excludes motor gasoline component of E85.

<sup>5</sup>Includes consumption of energy by electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.

<sup>6</sup>Includes landfill gas.

<sup>7</sup>Includes selected renewable energy consumption data for which the energy is not bought or sold, either directly or indirectly as an input to marketed energy. The Energy Information Administration does not estimate or project total consumption of nonmarketed renewable energy.

Btu = British thermal unit.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

Sources: 2003 ethanol: Energy Information Administration (EIA), *Annual Energy Review 2003*, DOE/EIA-0384(2003) (Washington, DC, September 2004). 2003 electric power sector: EIA, Form EIA-860, "Annual Electric Generator Report" (preliminary). Other 2003 values: EIA, Office of Integrated Analysis and Forecasting. Projections: EIA, AEO2005 National Energy Modeling System runs BASE.D071305I and HR6.D071305F.



**Table C18. Carbon Dioxide Emissions by Sector and Source**  
(Million Metric Tons)

Sector and Source	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Residential</b>									
Petroleum .....	106	107	107	108	108	107	107	104	104
Natural Gas .....	277	300	298	311	309	319	317	326	324
Coal .....	1	1	1	1	1	1	1	1	1
Electricity .....	840	945	944	994	992	1056	1051	1139	1132
<b>Total .....</b>	<b>1225</b>	<b>1353</b>	<b>1350</b>	<b>1415</b>	<b>1411</b>	<b>1483</b>	<b>1476</b>	<b>1569</b>	<b>1561</b>
<b>Commercial</b>									
Petroleum .....	54	61	61	65	65	69	69	73	73
Natural Gas .....	171	184	184	194	195	206	206	220	220
Coal .....	9	9	9	9	9	9	9	9	9
Electricity .....	794	943	942	1040	1039	1161	1158	1322	1317
<b>Total .....</b>	<b>1028</b>	<b>1197</b>	<b>1197</b>	<b>1309</b>	<b>1308</b>	<b>1445</b>	<b>1442</b>	<b>1624</b>	<b>1619</b>
<b>Industrial<sup>1</sup></b>									
Petroleum .....	422	465	465	476	470	496	492	512	511
Natural Gas <sup>2</sup> .....	420	484	485	504	512	531	540	551	560
Coal .....	186	190	190	183	183	177	177	172	172
Electricity .....	636	712	713	734	736	767	768	814	812
<b>Total .....</b>	<b>1664</b>	<b>1852</b>	<b>1853</b>	<b>1897</b>	<b>1901</b>	<b>1971</b>	<b>1978</b>	<b>2049</b>	<b>2055</b>
<b>Transportation</b>									
Petroleum <sup>3</sup> .....	1822	2153	2152	2319	2311	2463	2455	2620	2615
Natural Gas <sup>4</sup> .....	35	40	40	43	43	48	48	50	50
Electricity .....	15	17	17	18	18	20	20	22	22
<b>Total .....</b>	<b>1872</b>	<b>2210</b>	<b>2209</b>	<b>2380</b>	<b>2372</b>	<b>2532</b>	<b>2523</b>	<b>2693</b>	<b>2687</b>
<b>Electric Power<sup>5</sup></b>									
Petroleum .....	96	97	96	101	101	107	114	107	111
Natural Gas .....	267	361	359	449	444	505	502	508	511
Coal .....	1906	2139	2141	2217	2220	2371	2360	2660	2640
Other <sup>6</sup> .....	17	20	20	21	21	21	21	22	22
<b>Total .....</b>	<b>2286</b>	<b>2617</b>	<b>2616</b>	<b>2787</b>	<b>2786</b>	<b>3004</b>	<b>2997</b>	<b>3297</b>	<b>3283</b>
<b>Total Carbon Dioxide Emissions by Primary Fuel<sup>7</sup></b>									
Petroleum <sup>3</sup> .....	2499	2883	2881	3069	3055	3242	3237	3416	3415
Natural Gas .....	1170	1369	1365	1502	1503	1610	1614	1655	1664
Coal .....	2103	2340	2342	2409	2413	2558	2547	2842	2822
Other .....	17	20	20	21	21	21	21	22	22
<b>Total .....</b>	<b>5789</b>	<b>6612</b>	<b>6608</b>	<b>7000</b>	<b>6992</b>	<b>7431</b>	<b>7420</b>	<b>7935</b>	<b>7922</b>
<b>Carbon Dioxide Emissions (tons per person) ..</b>	<b>19.9</b>	<b>21.3</b>	<b>21.3</b>	<b>21.6</b>	<b>21.6</b>	<b>22.1</b>	<b>22.0</b>	<b>22.6</b>	<b>22.6</b>

<sup>1</sup>Fuel consumption includes energy for combined heat and power (CHP) plants, except those plants whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>2</sup>Includes lease and plant fuel.

<sup>3</sup>This includes international bunker fuel, which by convention are excluded from the international accounting of carbon dioxide emissions. In the years from 1990 through 2002, international bunker fuels accounted for 82 to 100 million metric tons of carbon dioxide annually.

<sup>4</sup>Includes pipeline fuel natural gas and compressed natural gas used as vehicle fuel.

<sup>5</sup>Includes electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public.

<sup>6</sup>Includes emissions from geothermal power and nonbiogenic emissions from municipal solid waste.

<sup>7</sup>Emissions from the electric power sector are distributed to the primary fuels.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

Sources: 2003 emissions and emission factors: Energy Information Administration (EIA), *Emissions of Greenhouse Gases in the United States 2003*, DOE/EIA-0573(2003) (Washington, DC, December 2004). Projections: EIA, AEO2005 National Energy Modeling System runs BASE.D071305I and HR6.D071305F.

**Table C19. Macroeconomic Indicators**  
(Billion 2000 Chain-Weighted Dollars, Unless Otherwise Noted)

Indicators	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Real Gross Domestic Product</b> .....	<b>10381</b>	<b>13083</b>	<b>13084</b>	<b>15207</b>	<b>15208</b>	<b>17624</b>	<b>17632</b>	<b>20283</b>	<b>20297</b>
<b>Real Potential Gross Domestic Product</b> .....	<b>10736</b>	<b>13463</b>	<b>13463</b>	<b>15183</b>	<b>15183</b>	<b>17482</b>	<b>17488</b>	<b>20449</b>	<b>20460</b>
<b>Real Disposable Personal Income</b> .....	<b>7734</b>	<b>9594</b>	<b>9595</b>	<b>11188</b>	<b>11189</b>	<b>12778</b>	<b>12783</b>	<b>14991</b>	<b>15002</b>
<b>Components of Real Gross Domestic Product</b>									
Real Consumption .....	7356	9030	9030	10379	10378	11812	11814	13337	13344
Real Investment .....	1629	2324	2324	2974	2974	3803	3808	4867	4875
Real Government Spending .....	1909	2135	2135	2301	2301	2486	2487	2647	2648
Real Exports .....	1032	1917	1917	2640	2640	3632	3632	4954	4955
Real Imports .....	1550	2286	2286	2986	2985	3876	3875	5085	5088
<b>Energy Intensity</b> (thousand Btu per 2000 dollar of GDP)									
Delivered Energy .....	6.92	6.21	6.21	5.66	5.66	5.17	5.17	4.73	4.74
Total Energy .....	9.47	8.50	8.49	7.73	7.73	7.06	7.06	6.49	6.49
<b>Price Indices</b>									
GDP Chain-Type Price Index (2000=1.000) .....	1.060	1.218	1.218	1.373	1.373	1.564	1.565	1.815	1.816
Consumer Price Index (1982-4=1) .....	1.84	2.12	2.12	2.41	2.41	2.78	2.78	3.26	3.26
Wholesale Price Index (1982=1.00)									
All Commodities .....	1.38	1.50	1.49	1.61	1.61	1.74	1.74	1.91	1.91
Fuel and Power .....	1.13	1.13	1.13	1.35	1.35	1.61	1.61	1.92	1.92
<b>Interest Rates (percent, nominal)</b>									
Federal Funds Rate .....	1.13	5.50	5.49	5.56	5.56	5.52	5.53	5.91	5.93
10-Year Treasury Note .....	4.01	6.60	6.59	6.48	6.48	6.44	6.44	6.58	6.58
AA Utility Bond Rate .....	6.39	7.65	7.64	8.08	8.08	8.35	8.34	8.60	8.59
<b>Unemployment Rate (percent)</b> .....	<b>5.99</b>	<b>5.57</b>	<b>5.57</b>	<b>4.91</b>	<b>4.91</b>	<b>4.48</b>	<b>4.48</b>	<b>4.55</b>	<b>4.54</b>
<b>Housing Starts (millions)</b> .....	<b>1.98</b>	<b>1.89</b>	<b>1.89</b>	<b>1.89</b>	<b>1.89</b>	<b>1.88</b>	<b>1.88</b>	<b>1.89</b>	<b>1.89</b>
<b>Commercial Floorspace, Total</b> (billion square feet) .....	<b>72.1</b>	<b>81.2</b>	<b>81.2</b>	<b>88.4</b>	<b>88.4</b>	<b>96.2</b>	<b>96.2</b>	<b>104.8</b>	<b>104.8</b>
<b>Unit Sales of Light-Duty Vehicles (millions)</b> .....	<b>16.63</b>	<b>18.07</b>	<b>18.07</b>	<b>18.47</b>	<b>18.47</b>	<b>19.65</b>	<b>19.67</b>	<b>21.11</b>	<b>21.13</b>
<b>Value of Shipments (billion 1996 dollars)</b>									
Total Industrial .....	5105	6166	6167	6845	6848	7623	7633	8458	8471
Non-manufacturing .....	1254	1329	1329	1456	1457	1586	1592	1735	1746
Manufacturing .....	3851	4836	4838	5388	5391	6037	6041	6723	6726
Energy-Intensive .....	1048	1219	1220	1297	1298	1379	1380	1456	1457
Non-Energy Intensive .....	2803	3617	3618	4091	4093	4658	4661	5267	5269
<b>Population and Employment (millions)</b>									
Population with Armed Forces Overseas .....	291.4	310.1	310.1	323.5	323.5	337.0	337.0	350.6	350.6
Population (aged 16 and over) .....	226.5	244.1	244.1	254.5	254.5	265.3	265.3	276.5	276.5
Employment, Non-Agriculture .....	129.9	140.7	140.7	148.8	148.8	159.7	159.8	169.2	169.2
Employment, Manufacturing .....	14.5	14.0	14.0	13.3	13.3	13.0	13.0	12.7	12.7
Labor Force .....	146.5	159.3	159.3	163.4	163.4	169.8	169.8	176.8	176.8

GDP = Gross domestic product.  
Btu = British thermal unit.

**Sources:** 2003: Global Insight macroeconomic model CTL0804, modified by Energy Information Administration (EIA); and Global Insight industry model, August 2004.  
**Projections:** EIA, AEO2005 National Energy Modeling System runs BASE.D071305I and HR6.D071305F.

**Table C20. International Petroleum Supply and Disposition Summary**  
(Million Barrels per Day, Unless Otherwise Noted)

Supply and Disposition	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>World Oil Price (2003 dollars per barrel)<sup>1</sup></b> .....	<b>27.73</b>	<b>25.00</b>	<b>24.96</b>	<b>26.75</b>	<b>26.64</b>	<b>28.50</b>	<b>28.11</b>	<b>30.31</b>	<b>29.74</b>
<b>Production (Conventional)<sup>2</sup></b>									
<b>Industrialized Countries</b>									
U.S. (50 states) .....	9.09	9.61	9.62	9.25	9.39	9.14	9.88	8.78	9.86
Canada .....	2.25	1.83	1.83	1.64	1.64	1.60	1.60	1.57	1.57
Mexico .....	3.80	4.21	4.21	4.55	4.54	4.62	4.61	4.85	4.84
Western Europe <sup>3</sup> .....	6.69	6.35	6.35	5.89	5.89	5.51	5.51	5.00	5.00
Japan .....	0.13	0.08	0.08	0.07	0.07	0.06	0.06	0.06	0.06
Australia and New Zealand .....	0.66	0.96	0.96	0.91	0.91	0.89	0.89	0.86	0.86
<b>Total Industrialized</b> .....	<b>22.62</b>	<b>23.05</b>	<b>23.05</b>	<b>22.31</b>	<b>22.45</b>	<b>21.82</b>	<b>22.55</b>	<b>21.12</b>	<b>22.18</b>
<b>Eurasia</b>									
Former Soviet Union									
Russia .....	8.34	9.98	9.98	10.62	10.61	10.90	10.89	11.11	11.09
Caspian Area <sup>4</sup> .....	1.87	3.14	3.14	4.46	4.46	5.23	5.23	6.22	6.21
Eastern Europe <sup>5</sup> .....	0.22	0.33	0.33	0.38	0.38	0.41	0.41	0.45	0.45
<b>Total Eurasia</b> .....	<b>10.44</b>	<b>13.46</b>	<b>13.46</b>	<b>15.46</b>	<b>15.45</b>	<b>16.54</b>	<b>16.53</b>	<b>17.78</b>	<b>17.76</b>
<b>Developing Countries</b>									
<b>OPEC<sup>6</sup></b>									
Asia .....	1.38	1.47	1.47	1.45	1.45	1.49	1.48	1.54	1.52
Middle East .....	20.95	24.41	24.41	26.65	26.56	31.99	31.61	37.90	37.42
North Africa .....	2.99	3.43	3.43	3.68	3.67	4.38	4.33	4.71	4.65
West Africa .....	1.98	2.35	2.35	2.62	2.61	3.09	3.05	3.69	3.64
South America .....	2.85	3.33	3.33	3.78	3.77	4.38	4.33	5.12	5.06
<b>Non-OPEC</b>									
China .....	3.10	3.64	3.64	3.50	3.50	3.49	3.49	3.41	3.41
Other Asia .....	2.59	2.65	2.65	2.76	2.76	2.71	2.71	2.64	2.64
Middle East <sup>7</sup> .....	1.81	2.24	2.24	2.47	2.47	2.57	2.57	2.78	2.78
Africa .....	2.94	3.75	3.75	4.75	4.75	5.44	5.44	6.56	6.55
South and Central America .....	3.93	4.53	4.53	5.38	5.38	5.91	5.91	6.42	6.41
<b>Total Developing Countries</b> .....	<b>44.52</b>	<b>51.81</b>	<b>51.80</b>	<b>57.04</b>	<b>56.92</b>	<b>65.47</b>	<b>64.92</b>	<b>74.78</b>	<b>74.07</b>
<b>Total Production (Conventional)</b> .....	<b>77.58</b>	<b>88.31</b>	<b>88.31</b>	<b>94.81</b>	<b>94.82</b>	<b>103.83</b>	<b>104.00</b>	<b>113.68</b>	<b>114.01</b>
<b>Production<sup>6</sup> (Nonconventional)</b>									
U.S. (50 states) .....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other North America .....	0.93	1.73	1.73	3.09	3.09	3.33	3.33	3.46	3.46
Western Europe .....	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05
Asia .....	0.03	0.04	0.04	0.04	0.04	0.05	0.05	0.07	0.07
Middle East <sup>7</sup> .....	0.03	0.12	0.12	0.16	0.16	0.21	0.21	0.25	0.25
Africa .....	0.21	0.23	0.23	0.25	0.25	0.28	0.28	0.32	0.32
South and Central America .....	0.57	0.82	0.82	1.36	1.36	1.48	1.48	1.50	1.50
<b>Total Production (Nonconventional)</b> .....	<b>1.79</b>	<b>2.98</b>	<b>2.98</b>	<b>4.94</b>	<b>4.94</b>	<b>5.40</b>	<b>5.40</b>	<b>5.65</b>	<b>5.65</b>
<b>Total Production</b> .....	<b>79.37</b>	<b>91.29</b>	<b>91.29</b>	<b>99.75</b>	<b>99.76</b>	<b>109.23</b>	<b>109.40</b>	<b>119.34</b>	<b>119.66</b>

**Table C20. International Petroleum Supply and Disposition Summary (Continued)**  
(Million Barrels per Day, Unless Otherwise Noted)

Supply and Disposition	2003	Projections							
		2010		2015		2020		2025	
		Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH	Reference	H.R. 6 EH
<b>Consumption<sup>8</sup></b>									
<b>Industrialized Countries</b>									
U.S. (50 states) .....	20.00	22.92	22.91	24.34	24.32	25.71	25.74	27.10	27.16
U.S. Territories .....	0.36	0.38	0.38	0.40	0.40	0.43	0.43	0.47	0.47
Canada .....	2.17	2.30	2.30	2.46	2.46	2.62	2.63	2.80	2.82
Mexico .....	2.02	2.36	2.37	2.63	2.64	2.88	2.89	3.48	3.50
Western Europe <sup>3</sup> .....	14.22	14.72	14.72	15.08	15.09	15.45	15.47	15.71	15.75
Japan .....	5.58	5.70	5.70	5.72	5.73	5.69	5.71	5.84	5.88
Australia and New Zealand .....	1.04	1.27	1.27	1.40	1.40	1.54	1.54	1.69	1.69
<b>Total Industrialized .....</b>	<b>45.38</b>	<b>49.66</b>	<b>49.65</b>	<b>52.03</b>	<b>52.03</b>	<b>54.31</b>	<b>54.41</b>	<b>57.09</b>	<b>57.27</b>
<b>Eurasia</b>									
Former Soviet Union .....	4.18	4.39	4.39	5.02	5.02	5.74	5.75	6.45	6.46
Eastern Europe <sup>5</sup> .....	1.42	1.56	1.56	1.68	1.68	1.89	1.89	2.09	2.09
<b>Total Eurasia .....</b>	<b>5.59</b>	<b>5.95</b>	<b>5.95</b>	<b>6.70</b>	<b>6.71</b>	<b>7.63</b>	<b>7.64</b>	<b>8.54</b>	<b>8.55</b>
<b>Developing Countries</b>									
China .....	5.54	7.63	7.63	9.20	9.20	11.06	11.08	12.79	12.83
India .....	2.19	2.79	2.79	3.48	3.49	4.37	4.38	5.29	5.31
South Korea .....	2.17	2.51	2.51	2.65	2.65	2.75	2.76	2.93	2.94
Other Asia .....	5.74	7.28	7.28	8.36	8.36	9.47	9.48	10.66	10.68
Middle East <sup>7</sup> .....	5.58	6.83	6.83	7.53	7.53	8.34	8.35	9.08	9.09
Africa .....	2.72	3.13	3.13	3.57	3.57	4.13	4.13	4.66	4.66
South and Central America .....	4.69	5.81	5.81	6.53	6.53	7.48	7.49	8.61	8.62
<b>Total Developing Countries .....</b>	<b>28.64</b>	<b>35.98</b>	<b>35.98</b>	<b>41.31</b>	<b>41.32</b>	<b>47.59</b>	<b>47.65</b>	<b>54.01</b>	<b>54.14</b>
<b>Total Consumption .....</b>	<b>79.60</b>	<b>91.59</b>	<b>91.59</b>	<b>100.05</b>	<b>100.06</b>	<b>109.53</b>	<b>109.71</b>	<b>119.64</b>	<b>119.96</b>
OPEC Production <sup>10</sup> .....	30.60	35.73	35.73	39.36	39.23	46.66	46.13	54.33	53.65
Non-OPEC Production <sup>10</sup> .....	48.77	55.56	55.56	60.39	60.52	62.57	63.27	65.00	66.01
Net Eurasia Exports .....	4.84	7.51	7.51	8.75	8.75	8.92	8.89	9.25	9.20
OPEC Market Share .....	0.39	0.39	0.39	0.39	0.39	0.43	0.42	0.46	0.45

<sup>1</sup>Average refiner acquisition cost of imported crude oil.

<sup>2</sup>Includes production of crude oil (including lease condensates, natural gas plant liquids, other hydrogen and hydrocarbons for refinery feedstocks, alcohol and other sources, and refinery gains.

<sup>3</sup>Western Europe = Austria, Belgium, Bosnia and Herzegovina, Croatia, Denmark, Finland, France, the unified Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Macedonia, Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, Switzerland, United Kingdom, and Yugoslavia.

<sup>4</sup>Caspian area includes Other Former Soviet Union.

<sup>5</sup>Eastern Europe = Albania, Bulgaria, Czech Republic, Hungary, Poland, Romania, and Slovakia.

<sup>6</sup>OPEC = Organization of Petroleum Exporting Countries - Algeria, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela.

<sup>7</sup>Non-OPEC Middle East includes Turkey.

<sup>8</sup>Includes liquids produced from energy crops, natural gas, coal, oil sands, and shale. Includes both OPEC and non-OPEC producers in the regional breakdown.

<sup>9</sup>Includes both OPEC and non-OPEC consumers in the regional breakdown.

<sup>10</sup>Includes both conventional and nonconventional liquids production.

Note: Totals may not equal sum of components due to independent rounding. Data for 2003 are model results and may differ slightly from official EIA data reports.

Sources: Energy Information Administration, AEO2005 National Energy Modeling System runs BASE.D071305I and HR6.D071305F.