

**STATEMENT OF**  
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**before the**  
**SUBCOMMITTEE ON ENERGY AND MINERAL RESOURCES**  
**COMMITTEE ON RESOURCES**  
**U. S. HOUSE OF REPRESENTATIVES**

**February 12, 2004**

Madam Chairman and Members of the Committee:

I appreciate the opportunity to appear before you today to discuss the outlook for energy markets in the United States and some of the impacts that current market conditions are having on American households.

The Energy Information Administration (EIA) is the statistical and analytical agency within the Department of Energy. We are charged with providing objective, timely, and relevant data, analysis, and projections for the use of the Department of Energy, other government agencies, the U.S. Congress, and the public. We do not take positions on policy issues, but we do produce data and analysis reports that are meant to help policymakers determine energy policy. Because the Department of Energy Organization Act gives EIA an element of independence with respect to the analyses that we publish, our views are strictly those of EIA. They should not be construed as representing those of the Department of Energy or the Administration.

Each month, EIA updates its *Short-Term Energy Outlook*, which contains monthly projections through the next two calendar years, taking into account the latest developments in energy markets. Once each year, EIA updates its longer-term outlook in the *Annual Energy Outlook*, which currently provides annual projections for U.S. energy supply and demand through 2025. My testimony today is based on projections from the February 2004 *Short-Term Energy Outlook* and the *Annual Energy Outlook 2004*.

These projections are not meant to be exact predictions of the future but represent a likely energy future, given technological and demographic trends, current laws and regulations, and consumer behavior as derived from known data. EIA recognizes that projections of energy markets are highly uncertain, subject to many random events that cannot be foreseen, such as weather, political

disruptions, strikes, etc. Many of these uncertainties are explored through the generation of alternative cases.

The projections are not statements of what will happen but of what might happen, given certain assumptions. Because EIA does not propose, advocate, or speculate on changes in laws and regulations, one of our key assumptions is that all current laws and regulations remain as enacted. For *AEO2004*, that means, for example, that provisions in the current House and Senate energy bills, such as an Alaska gas pipeline tax credit, are not included in this forecast.

My testimony today will focus on EIA's short-term outlook and some implications of recent market developments for household energy costs. In addition, I will discuss briefly the longer-run outlook for oil and gas markets.

## **Short-term Outlook (Charts 1-3)**

### **Oil Prices:**

A combination of rising world oil demand growth and restraint by the Organization of Petroleum Exporting Countries (OPEC) has kept oil supplies tight and oil prices relatively high. EIA expects the average price of the benchmark West Texas Intermediate (WTI) crude oil to remain in the \$28-\$30 range through 2005, as shown in Chart 1.

We expect this crude oil price outlook would translate into an average regular gasoline price of about \$1.57 per gallon in 2004.

A typical household has two personal vehicles, each typically is driven about 11,000 miles per year, with an average on-the-road efficiency of about 20 miles per gallon. Such a household would spend about \$1,700 for gasoline in 2004 – similar to last year's costs but about \$200 above expenditures in 2002. Because there is a wide range of variation in the number of vehicles owned, vehicle efficiency, number of miles driven, and the local price of gasoline across households, the impacts of higher gasoline prices for specific households can vary widely from this average value.

### **Natural Gas:**

Market factors are also keeping natural gas prices high. In 2003, the average natural gas spot price was about \$5.51 per thousand cubic feet – about \$2.30 per thousand cubic feet more than the 2002 average. This increase was driven, in part, by the extraordinarily high level of storage refill requirements.

Spot prices, which averaged \$3.23 in 2002, rose more than 70 percent in 2003. We expect natural gas spot prices to retain most of that gain through at least 2005 as shown in Chart 2.

Residential or household-sector natural gas prices, which respond to spot prices (albeit with a lag) are expected to show an average increase of about \$2.10 per thousand cubic feet between 2002 and 2004. The average household having a gas hookup in the United States uses about 82 thousand cubic feet per year. The expected 2-year increase means that households will pay about \$815 in 2004, roughly \$170 more than in 2002.

#### Winter Heating Costs:

With a significant part of the heating season now past, the picture of winter 2003-2004 household heating bills, compared to last winter, shapes up as follows:

- Natural gas-heated homes: up 11 percent. Despite some decline in demand, residential prices this winter have reflected increased gas acquisition costs accumulated since the previous winter, as well as high near-term prices for spot natural gas.
- Heating oil users: down 1 percent. High crude oil costs and strong heating oil prices in the Northeast have been keeping bills for oil-heated homes high, but probably a bit below last winter as overall demand this season is expected to be slightly below the level seen in the 2002-2003 winter.
- Propane-heated households: up 7 percent. In this case, the average price increase is likely to offset the overall decline in demand.

- Homes with electric heat: up about 2 percent. Retail electric rates are expected to be several percent higher this winter, due in part to higher fuel costs. This offsets a modest decline in demand due to weather comparisons.

- Households have generally seen relatively high costs for heating fuels since 2000. EIA estimates that for the three winters between 2000 and 2003, a typical household (in areas where significant winter heating is required) probably paid an average of more than 40 percent more to heat the house than the average paid during the three prior heating seasons (Chart 3). It is worth noting that for homes heating with natural gas, heating oil or propane, heating expenditures for this winter are shaping up to be more than 30 percent above the previous 6-year average.

### **Longer-term Outlook (Charts 4-6)**

#### Natural Gas Prices:

In the *Annual Energy Outlook* reference case, average lower-48 wellhead gas prices are projected to decline from 2003 levels to \$3.40 per thousand cubic feet (2002 dollars) in 2010, and then increase to \$4.40 per thousand cubic feet in 2025 (Chart 4).

Wellhead gas prices rise over the long-term, because gas exploration and production costs are projected to increase as deeper and smaller gas reservoirs are brought into production. The rate at which gas exploration and production costs increase largely depends upon the future rate of technological progress. In the reference case, the future rate of technological progress is assumed to be the historic rate.

Future rates of technological progress, however, could be higher or lower than what has been observed historically, resulting in gas prices that are higher or lower than what is projected in the

reference case. The two other scenarios shown on Chart 4, namely, the rapid and slow technology cases, illustrate the impact of technological progress on wellhead gas prices.

#### Natural Gas Supply:

Total natural gas supply is projected to increase at an average annual rate of 1.4 percent per year between 2002 and 2025, reaching 31.3 trillion cubic feet per year by 2025 (Chart 5).

The traditional sources of supply, associated and nonassociated conventional production in the U.S. onshore and offshore, will remain important, meeting 39 percent of U.S. supply requirements in 2025, compared to 56 percent in 2002. However, U.S. natural gas supplies will become increasingly dependent on unconventional production, natural gas from Alaska, and liquefied natural gas imports.

Total nonassociated unconventional natural gas production is projected to grow from 5.9 trillion cubic feet in 2002 to 9.2 trillion cubic feet in 2025. With completion of an Alaskan natural gas pipeline in 2018 (capacity of 3.9 billion cubic feet per day) and its expansion in 2023 (incremental capacity of 0.9 billion cubic feet per day), total Alaskan production is projected to increase from 0.4 trillion cubic feet in 2002 to 2.7 trillion cubic feet in 2025.

Nearly all of the increase in U.S. net imports is expected to come from LNG. *AEO2004* projects expansion at the four existing U.S. LNG terminals (Everett, Massachusetts; Cove Point, Maryland; Elba Island, Georgia; and Lake Charles, Louisiana) and, starting in 2007, the construction of additional facilities in the lower-48 States.

Total net LNG imports are projected to increase from 0.2 trillion cubic feet in 2002 to 4.8 trillion cubic feet in 2025 (compared to 2.1 trillion cubic feet in 2025 in *AEO2003*).

#### Oil Prices:

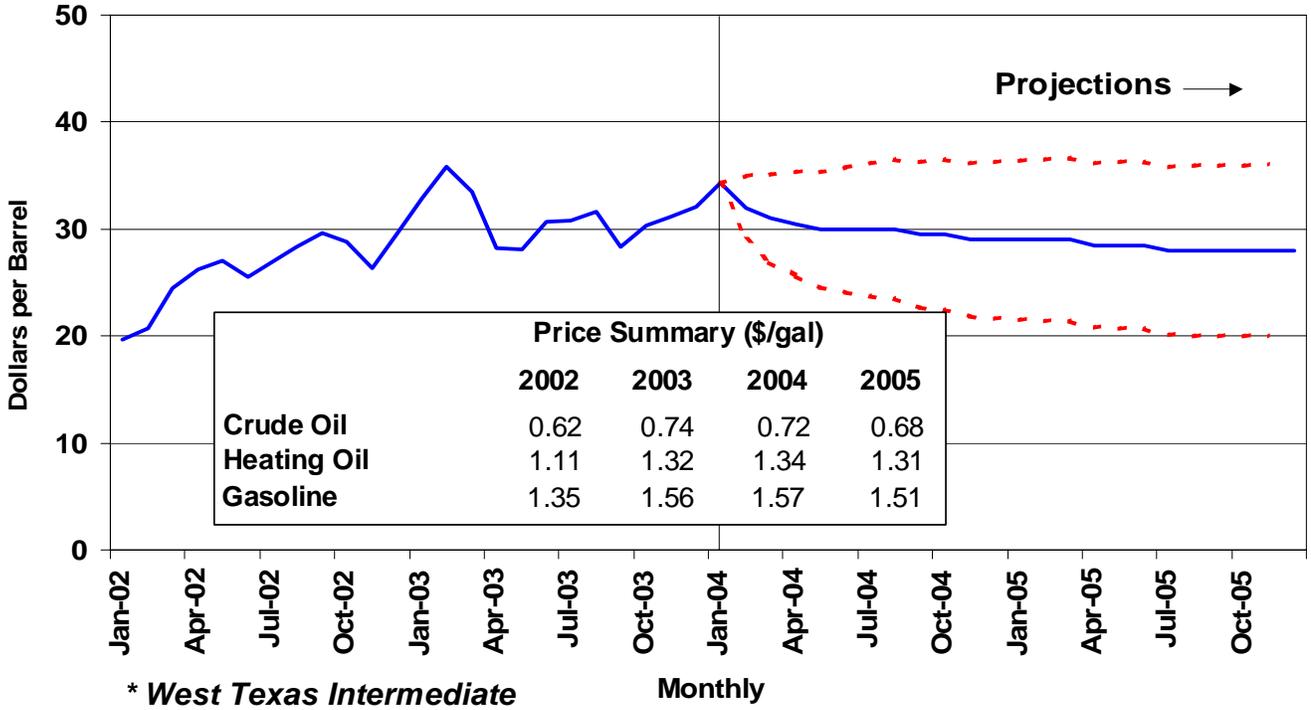
The historical record shows substantial variability in world oil prices, and there is similar uncertainty about future prices. The level of oil production by countries in OPEC is a key factor influencing the world oil price projections incorporated into *AEO2004*.

Three price cases allow an assessment of alternative views on the course of future oil prices (Chart 6):

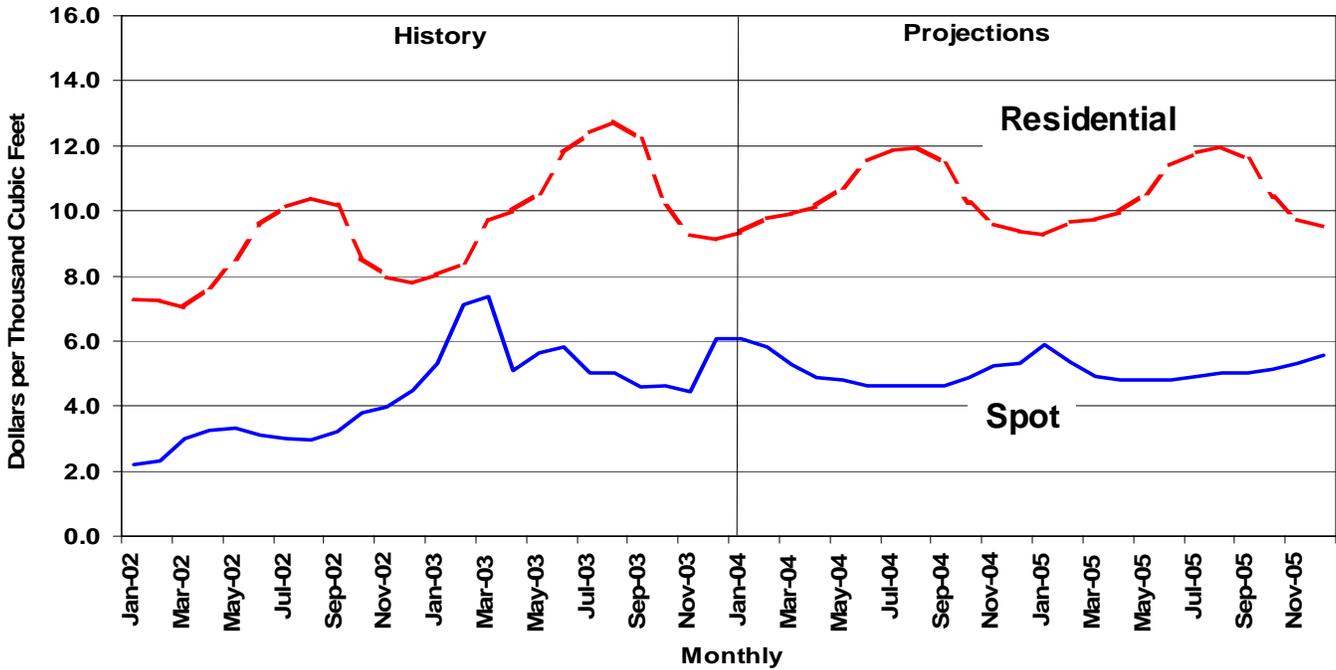
In the reference case, the projected world oil price falls through 2005 and then rises by about 0.7 percent per year, reaching \$27 per barrel in 2025 in 2002 dollars. In nominal dollars, the reference case price is expected to reach almost \$52 per barrel in 2025. In the low price case, prices in 2002 dollars are projected to decline from their high last year, reaching \$16.86 per barrel this year and remaining at about that level to 2025. The high price case projects an average annual real price rise of 1.7 percent per year from 2002 to 2025, with prices reaching about \$35 per barrel in 2025. The projected leveling off in the high price case is due to the market penetration of alternative energy supplies that could become economically viable at that price.

Thank you, Madam Chairman and members of the Committee. I will be happy to answer any questions you may have.

**Chart 1. Recent Crude Oil Price History and Outlook  
(West Texas Intermediate)**



**Chart 2. Natural Gas Prices**



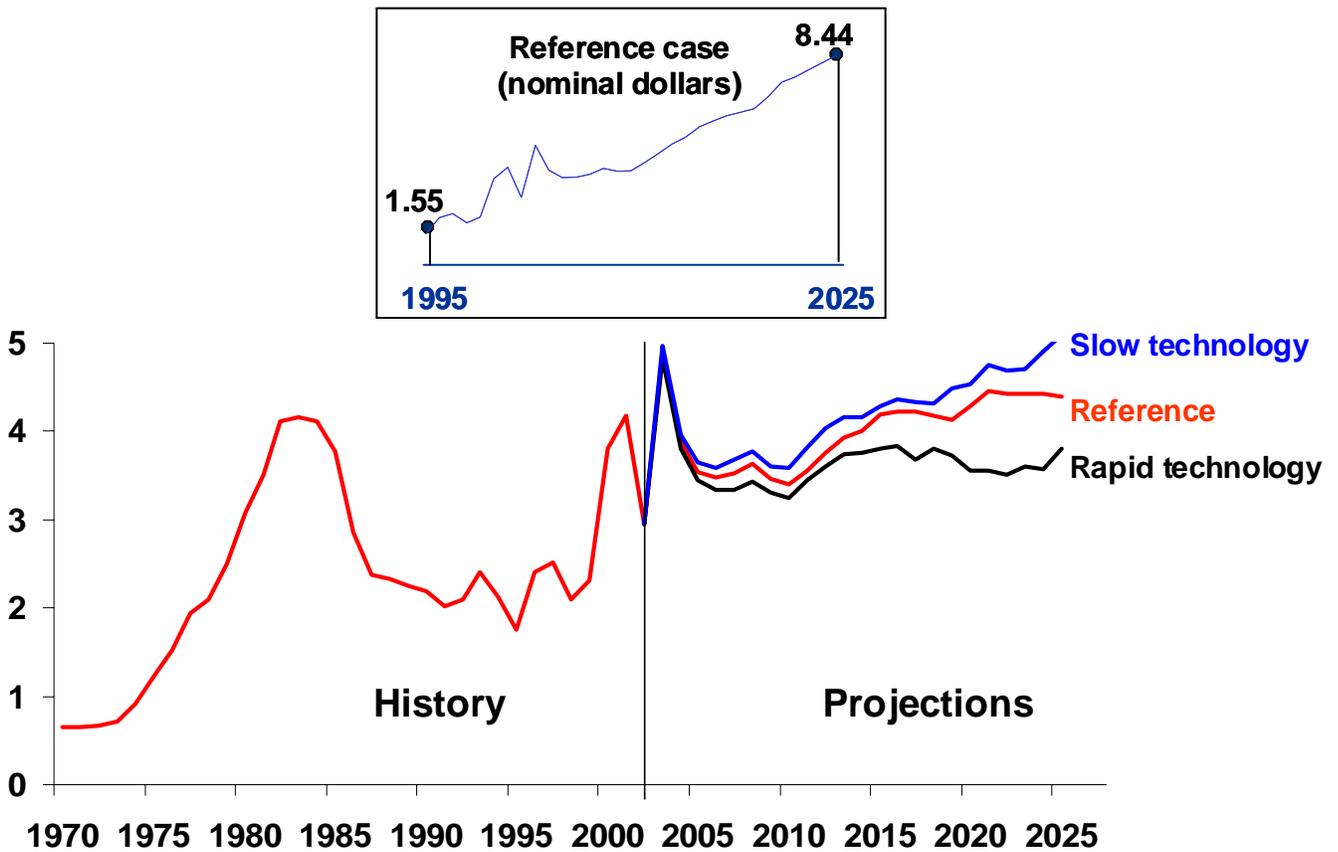
Price Summary (\$/mcf)				
	2002	2003	2004	2005
Spot Wellhead	3.22	5.51	5.07	5.12
Residential	7.86	9.41	9.95	9.91

**Chart 3. Household Heating Trends**

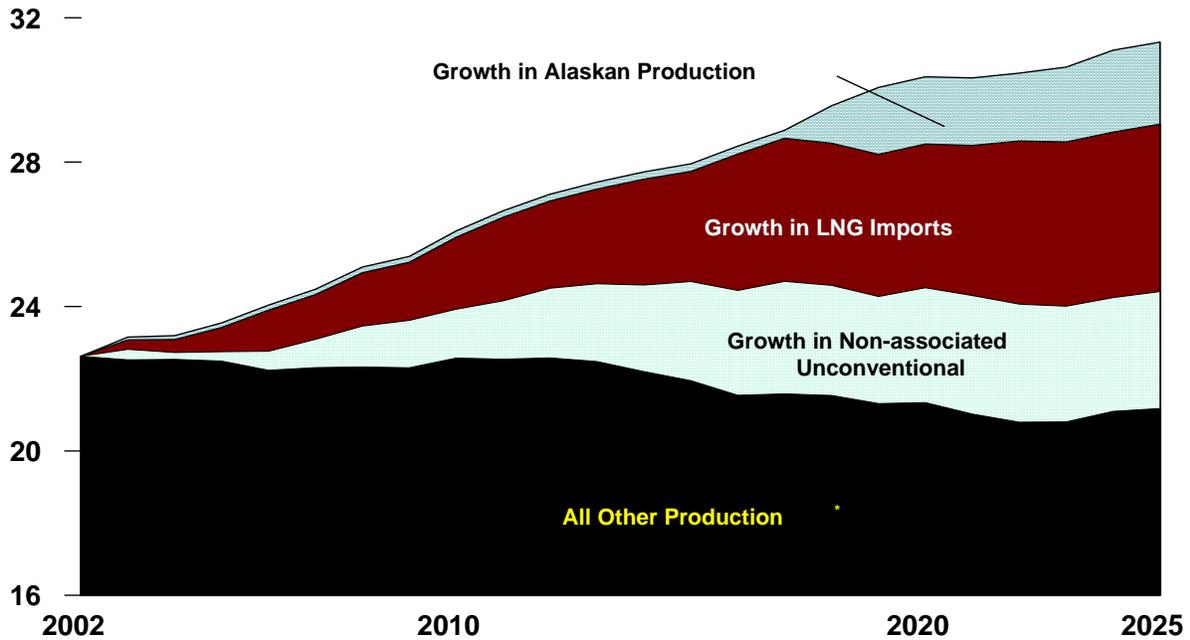
<b>Illustrative Consumer Prices and Expenditures for Heating Fuels During the Winter</b>					
	<b>Average 1997-1999</b>	<b>2000-2001 Actual</b>	<b>2001-2002 Actual</b>	<b>2002-2003 Actual</b>	<b>2003-2004 Base Forecast</b>
<b>Natural Gas (Midwest)</b>					
Consumption (mcf)	84	99.1	81.3	95.2	92.5
Avg. Price (\$/mcf)	6.51	9.53	7.38	8.39	9.55
Expenditures (\$)	550	944	600	799	883
<b>Heating Oil (Northeast)</b>					
Consumption (gals)	640	728	577	742	711
Avg. Price (\$/gal)	0.96	1.37	1.10	1.34	1.37
Expenditures (\$)	616	996	635	991	977
<b>Propane (Midwest)</b>					
Consumption (gals)	834	979	803	941	914
Avg. Price (\$/gal)	0.93	1.38	1.11	1.20	1.32
Expenditures (\$)	779	1349	888	1126	1202

Notes: Consumption based on typical per household use for regions noted.  
 Prices shown are national average delivered-to-household prices.  
 mcf = thousand cubic feet.  
 gal = gallon.

**Chart 4. Lower 48 Natural Gas Wellhead Prices, 1970-2025  
 (2002 dollars per thousand cubic feet)**



**Chart 5. Major Sources of Incremental Natural Gas Supply, 2002-2025 (trillion cubic feet)**



\*Includes total associated-dissolved, non-associated conventional, lower-48 offshore, supplemental natural gas production, Canadian, and Mexican imports.

**Chart 6. World Oil Prices, 1970-2025 (2002 dollars per barrel)**

