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Before the

SPECIAL COMMITTEE ON AGING

UNITED STATES SENATE

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Mr. Chairman and Members of the Committee:

I appreciate the opportunity to appear before you today to discuss the outlook for energy prices and heating expenditures and to examine their impact on the elderly population.

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Introduction

As it is for all Americans, direct energy expenditures for the elderly—defined for this testimony as those age 65 and over—is a combination of energy costs for running the household (such as heating and cooling) and the energy costs for transportation fuel. There are also indirect expenditures embodied within the energy component of the costs for goods and services, but this testimony will focus only on the direct costs.

The two major determinates of energy expenditures for households are energy prices and consumption levels. Energy prices are determined predominantly by world events, at least in the case of oil prices, and by domestic trends in the case of natural gas and electricity prices. In the short run, household energy consumption levels are determined largely as a function of weather. In the longer run, household consumption patterns are influenced by technology, structure, and behavioral trends, as homes are constructed or remodeled and energy-consuming equipment is purchased. Consumption levels for transportation are a function of vehicle choice, driving behavior, and other technological, structural, and behavioral issues.

Consumption patterns for this testimony are based on EIA's 2001 Residential Energy Consumption Survey (RECS), a quadrennial national-level survey on residential energy consumption and expenditures. (Data from the 2005 RECS survey are not yet available.) We recognize that consumption patterns are likely to change—as they have in the past— as technology continues to improve and new products enter the marketplace.

I first want to examine recent and projected energy prices and energy expenditures based on EIA's most recent monthly *Short-Term Energy Outlook*, which was released on December 6, 2005. (The next monthly *Outlook* will be released on January 10th.) I will then focus on consumption patterns and energy expenditures for elderly households.

Generally, demand drives energy prices higher but in 2005, the price increases were more the result of supply concerns due to the destruction caused by the hurricanes, as well as the reduction in world spare oil production capacity, which fell to its lowest level in over

three decades. Indeed, as U.S. spot prices of crude oil and natural gas increased an average of 36 and 47 percent, respectively, total U.S. energy demand remained flat in 2005, despite a relatively healthy economic growth rate of more than 3 percent.

Similarly, world oil prices climbed throughout the year despite slower demand growth in both the United States and China, the two largest consumers of oil.

In 2006, total domestic energy demand is projected to increase at an annual rate of about 2.0 percent, despite continued concerns about tight supplies and projected high prices for oil and natural gas. Recent declines in petroleum product prices (especially gasoline and diesel) due to mild weather and ongoing hurricane recovery efforts have caused us to lower our petroleum price forecasts for the next few months. However, prices for crude oil, petroleum products, and natural gas are projected to remain high through 2006 due to continuing tight international supplies and the slow recovery from hurricane-induced supply losses. For example, the price of West Texas Intermediate (WTI) crude oil is projected to average \$57 per barrel in 2005 and \$63 per barrel in 2006. Retail regular gasoline prices are projected to average \$2.27 per gallon in 2005 and \$2.41 in 2006. Henry Hub natural gas prices are estimated to average \$8.88 per thousand cubic feet (mcf) in 2005 and \$9.30 per mcf in 2006.

Hurricane Recovery

As of December 29, approximately 26 percent of normal daily Federal Gulf of Mexico oil production and approximately 19 percent of Federal Gulf of Mexico natural gas production remained shut-in due to Hurricanes Katrina and Rita. In Louisiana, shut-in on-shore oil and natural gas production is down to about 40 percent of pre-hurricane

capacity and is projected to be fully restored by the end of March 2006. In the Gulf of Mexico region, refinery shutdowns as of December 15 (latest data available) totaled 367,000 barrels per day. While two refineries in Louisiana remain out of service, both are projected to be operating by the end of February 2006.

The supply of natural gas has been disrupted because of hurricane damage to production platforms, subsea pipelines, and natural gas processing plants. However, the interconnectivity of the natural gas gathering system has helped speed the recovery of shut-in production as suppliers reroute gas flow around damaged pipelines to active processing plants. We now expect shut-in Federal Gulf of Mexico natural gas production to fall to 0.66 billion cubic feet (bcf) per day (6.5 percent of pre-hurricane Gulf production) by March 2006.

Gulf crude oil production has also improved, albeit at a slower pace than natural gas. The majority of platform repairs are projected to be completed by the end of 2005, although some of the largest oil platforms damaged by the hurricanes are projected to remain out of service through the second quarter of 2006. Crude oil production is projected to recover at a slightly faster pace than previously predicted. We forecast a gradual increase in Federal Gulf of Mexico crude oil production as shut-in production declines from about 504,000 barrels per day (bbl/d) in early December to about 297,000 bbl/d by March 2006 (19 percent of its June 2005 level).

Winter Heating Expenditures

Winter residential space-heating expenditures in 2005-06 are projected to be higher relative to the winter of 2004-05 because of higher energy prices. On average, households heating primarily with natural gas likely will spend \$281 (38 percent) more for fuel this winter than last winter. Households heating primarily with heating oil can expect to pay, on average, \$255 (21 percent) more this winter than last. Households heating primarily with propane can expect to pay, on average, \$167 (15 percent) more this winter than last. Households heating primarily with electricity can expect to pay, on average, \$46 (7 percent) more. These projections are based on weather forecasts by the National Weather Service. Should colder weather prevail, expenditures could be significantly higher. These averages provide a broad guide to changes from last winter, but fuel expenditures for individual households are highly dependent on local weather conditions, the size and energy efficiency of individual homes and their heating equipment, and thermostat settings (**Table 1**).

Petroleum Markets

Many of the same factors that drove world oil markets in 2005, such as low spare oil production capacity and rapid oil demand growth, will continue to affect markets in 2006. Other factors are less certain, such as the frequency and intensity of hurricanes, other extreme U.S. weather, and geopolitical instability in some of the major oil producing countries.

Worldwide petroleum demand growth in 2005 is projected to slow from 2004 levels, due largely to slower growth in China and the United States. However, world oil demand is estimated to increase by about 1.7 million bbl/d in 2006, up from 1.2 million bbl/d in 2005, led by an oil demand recovery in the United States.

Non-OPEC oil supply outside of the United States is estimated to grow by a net of approximately 800,000 bbl/d in 2006. New production of around 400,000 bbl/d is estimated to come online from the Caspian region (Azerbaijan and Kazakhstan), with additional projected increases of 450,000 bbl/d from the Western Hemisphere (particularly Canada and Brazil) and 150,000 bbl/d from West Africa. Conversely, production declines at mature fields in the North Sea, Mexico, and the Middle East will offset this supply growth. Additional capacity increases are projected in OPEC members such as Nigeria, Saudi Arabia, and the United Arab Emirates.

As non-OPEC and OPEC supplies increase, world spare oil production capacity will likely increase during 2006, despite growth in world oil demand. Overall, 2006 will likely see a 1-million-bbl/d increase in spare oil production capacity (to 2.0-2.5 million bbl/d).

Total U.S. petroleum demand in 2005 is projected to average 20.6 million bbl/d (0.5 percent less than the 2004 level) because of hurricane-related disruptions and higher prices. Petroleum demand in 2006 is estimated to average 21.1 million bbl/d, 2.3 percent more than in 2005.

Total U.S. refinery output in 2005 is projected to decline by about 0.3 percent compared with 2004 because of hurricane outages. A warmer-than-normal October-November and an increase in product imports continue to keep total product inventories at levels close to the average of the last few years. Current distillate fuel inventories remain above last year's levels, but motor gasoline and residual fuel oil inventories continue to lag behind.

Natural Gas Markets

Because prices remain high, 2005 total natural gas demand will likely remain at about 2004 levels, then increase by 1.0 percent in 2006, assuming a return to normal weather and expected reactivation of hurricane-damaged industrial plants in the Gulf of Mexico region. Residential demand is projected to decline by about 1.7 percent in 2005 mostly in response to relatively weak heating-related demand during the latter part of last winter, while industrial demand is estimated to decline by 7.5 percent in 2005 due to the much higher prices for natural gas as a fuel or feedstock. By 2006, both end-use sectors are expected to recover somewhat, with residential demand projected to increase 2.4 percent from 2005 levels and industrial demand to increase by 4.6 percent.

Domestic dry natural gas production in 2005 is estimated to decline by 3.8 percent, due mainly to the hurricane-induced infrastructure disruptions in the Gulf of Mexico, then to increase by 4.8 percent in 2006. Total liquefied natural gas (LNG) net imports for 2005 are estimated to remain at their 2004 level of approximately 650 bcf, then increase in 2006 to an average of about 1,000 bcf.

On December 23 (latest data available as of January 4), working natural gas in storage stood at an estimated 2,640 bcf, a level 234 bcf below 1 year ago but 1.3 percent above the 5-year average. End-of-year storage levels are estimated to be 8.9 percent lower at the end of 2005 than they were at the end of 2004. Natural gas storage levels at the end of 2006 will likely match the 2005 level. Hurricane-related natural gas production losses have reduced the amount of natural gas available for the market, which increases the projected requirement for withdrawals of gas from underground storage this winter.

Electricity Demand

Weather conditions and continuing economic growth are estimated to increase electricity demand by 3.5 percent in 2005 and an additional 1.2 percent in 2006. Year-over-year electricity demand growth rates are estimated to be particularly strong, as cooling and heating demands likely will be higher than in the mild third and fourth quarters of 2004. When compared to 2004 figures, regional residential demand in 2005 rose in nine of the ten regions (Alaska and Hawaii, treated as one region, is the exception). Commercial demands increased across all ten regions, but industrial demands fell in the three regions along the East Coast. Estimated 2005 prices for delivered electricity across all end uses range from 6.2 cents per kilowatt hour (kwh) in the East South Central region to 11.8 cents per kwh in New England. In response to higher utility fuel prices, average electricity prices for all end uses are projected to rise by 10.8 percent in New England and 8.7 percent in West South Central, but by 6.4 percent or less in all other regions in 2005 compared with 2004.

In 2005, electric power sector demand for coal is projected to increase by 2.4 percent and by 1.7 percent in 2006. Power sector demand for coal continues to increase in response to higher oil and particularly higher natural gas prices. U.S. coal production is projected to grow by 0.8 percent in 2005 and by an additional 3.9 percent in 2006. Coal prices to the electric power sector increased significantly in the first half of 2005, growing by 15.3 percent compared with the first half of 2004. These price increases are attributed to low coal inventories (caused by high demand and transportation problems) and increased transportation costs. The price of coal to the power sector is projected to rise throughout the forecast period, although at a lower rate than in the first half of 2005. More specifically, coal prices are projected to rise by an average 13.2 percent in 2005 and by an additional 5.0 percent in 2006, increasing from \$1.35 per million Btu in 2004 to \$1.61 per million Btu in 2006.

Energy Use and Expenditures by the Elderly

Household Energy Use and Expenditures. The effects of energy expenditures on the elderly can be difficult to isolate because the elderly live in a variety of housing arrangements. Many live alone; others live with elderly or non-elderly partners. Some live in extended family households and have primary responsibility for energy costs, and others live in the care of younger household members, and may have only partial or no responsibility for energy costs. Still others live in institutional or retirement facility settings where they may pay directly for energy or it may be included in their housing payment to the facility.

Table 2 shows the average energy use and expenditures for households with various configurations of elderly and non-elderly members (data are from EIA's 2001 Residential Energy Consumption Survey). The table shows that households consisting solely of elderly members use about as much energy as other households after accounting for the number of household members. The elderly use less energy per household because they tend to live alone and in smaller homes. The data show a floor of about \$1,000 for energy expenditures as of 2001 and \$1,200 using 2005 energy prices, for even the least-energy-consuming households.

Transportation Energy Use and Expenditures. Regardless of the living arrangements of the elderly, they still have transportation requirements. **Table 3** illustrates that, in contrast to household expenditures, the relative gap between transportation use by the elderly and by other types of households is quite large, even after considering differences in household composition. The elderly drive quite a bit less than younger households; although when there are two or more elderly persons in a totally elderly household they tend to have two cars and drive almost twice as many miles as a one-person elderly household.

Energy Expenditures. The amount of energy expenditures is meaningful in itself, but it is also useful to examine those expenditures relative to household income. **Table 4** shows average household energy expenditures for household-age composition and income categories. Once again there appears to be a floor of about \$1,000 per household for household energy expenditures regardless of income, even as of 2001. Applying the

generally higher 2005 energy prices to 2001 consumption levels, since 2005 consumption data are not yet available, results in higher expenditures. The burden falls most heavily on the lowest-income households, which are relatively more prevalent for the elderly than for the rest of the population. For a household with \$15,000 or less in household income, an annual energy bill exceeding \$1,100 has a much greater impact than a \$2,000 annual energy bill for a household with income greater than \$50,000.

To the extent that energy consumption for both household and transportation use is different now from what it was in 2001, the annual energy bill will also be different. But, adding household and transportation energy costs together, many low-income households, including low income elderly, are now spending 10 to 20 percent of their income on energy.

This concludes my testimony Mr. Chairman. I would be glad to respond to any questions you may have.

Table 1. Selected U.S. Average Consumer Prices* and Expenditures for Heating Fuels for the Winter

Fuel / Region	01-02	02-03	03-04	Avg. 99-04	04-05	Forecast 05-06	% Change (04-05/05- 06)
Natural Gas							
U.S. Average							
Consumption (mcf**)	62.5	71.7	67.2	69.7	66.7	66.7	-0.1
Price (\$/mcf)	7.45	8.37	9.76	8.41	11.14	15.36	37.9
Expenditures (\$)	465	600	655	586	743	1,024	37.8
Households (thousands)	59,367	59,602	60,388	58,877	61,225	62,003	1.3
Heating Oil							
U.S. Average							
Consumption (gallons)	542.7	670.5	625.1	642.5	622.9	610.5	-2.0
Price (\$/gallon)	1.16	1.42	1.44	1.35	1.92	2.38	23.7
Expenditures (\$)	627	951	903	865	1,199	1,454	21.3
Households (thousands)	8,119	8,000	8,018	8,286	8,052	8,079	0.3
Propane							
U.S. Average							
Consumption (gallons)	634.4	720.9	679.4	685.7	670.0	678.2	1.2
Price (\$/gallon)	1.16	1.29	1.42	1.29	1.64	1.87	13.8
Expenditures (\$)	736	928	962	885	1,102	1,269	15.2
Households (thousands)	4,982	4,939	4,972	4,929	5,006	5,048	0.8
Electricity							
U.S. Average							
Consumption (kwh***)	7,980.9	8,547.5	8,260.4	8,356.7	8,191.6	8,259.2	0.8
Price (\$/kwh)	0.08	0.08	0.08	0.08	0.09	0.09	5.6
Expenditures (\$)	665	699	700	685	717	763	6.5
Households (thousands)	30,961	31,226	31,655	31,027	32,121	32,536	1.3
All households	103,429	103,766	105,033	103,120	106,404	107,666	1.2
Average Expenditures (\$)	551	672	702	687	786	989	25.7

* Prices include taxes

** thousand cubic feet

*** kilowatthour

Source: EIA Short-Term Energy Outlook, December 6, 2005

Table 2. Household Energy Characteristics by Household Composition

Household Characteristics	Single-Person Households		Multiple-Person Households		
	65+	Under 65	All Members 65+	Some Members 65+	No Members 65+
Number of households (millions)	11.7	16.4	7.8	8.2	62.9
Percentage of households that are single family dwelling	48	41	72	73	62
Average floorspace per household	1550	1449	2258	2417	2255
Average consumption per household	67	65	96	111	101
Average dollars per household (2001 prices)	1039	1064	1473	1802	1652
Average dollars per household (2005 prices)	1270	1287	1804	2185	1980

Notes: Consumption values in million British thermal units (Btu).

Sources: 2001 Residential Energy Consumption Survey, Energy Information Administration; December 2005 Short Term Energy Outlook, Energy Information Administration, for prices used to derive 2005 expenditures

Table 3. Transportation Characteristics by Household Composition

Transportation Characteristics	Single-Person Households		Multiple-Person Households		
	65+	Under 65	All members 65+	Some Members 65+	No Members 65+
Vehicles per household	1.1	1.2	1.8	2.2	2.2
Vehicle Miles per household	7606	13516	14486	23368	28633
Gallons per household	377	650	753	1188	1410
Average dollars per household (2001 prices)	539	930	1077	1699	2016
Average dollars per household (2005 prices)	863	1489	1724	2721	3229

Sources: 2001 National Household Travel Survey, December 2005 Short Term Energy Outlook for prices used to derive expenditures, and the EPA Fuel Economy Ratings to derive vehicle energy consumption.

Table 4. Household Energy Expenditures for 2001 Energy Use by Household Composition and Income

Household Composition and Income	Number of Households (million)	Average floorspace (square feet)	Household Energy Dollars per Household	
			Using 2001 Prices	Using 2005 Prices
All Members 65+				
Less than \$15,000	6.9	1303	948	1162
\$15,000 - \$29,999	6.0	1805	1281	1575
\$30,000 - \$49,999	4.0	2232	1337	1631
\$50,000 +	2.6	2686	1558	1892
Some Members 65+				
Less than \$15,000	1.1	1542	1477	1788
\$15,000 - \$29,999	2.1	1822	1536	1881
\$30,000 - \$49,999	2.2	2524	1879	2297
\$50,000 +	2.7	3176	2089	2505
No Members 65+				
Less than \$15,000	10.6	1208	1113	1332
\$15,000 - \$29,999	14.8	1471	1282	1544
\$30,000 - \$49,999	20.9	1865	1434	1722
\$50,000 +	33.0	2788	1837	2202

Sources: 2001 Residential Energy Consumption Survey, Energy Information Administration; December 2005 Short Term Energy Outlook, Energy Information Administration, for prices used to derive 2005 expenditures