

October 2008

Short-Term Energy and Winter Fuels Outlook

October 7, 2008 Release

Highlights

- Average household expenditures for all space-heating fuels are projected to be \$1,137 this winter (October 1 to March 31), a 15-percent increase over the estimated \$986 spent last winter. The largest increases will be in households using heating oil and natural gas. The projected increases primarily reflect higher prices, although colder weather than last winter will also contribute to higher fuel use in many areas.
- Strong global demand and low surplus production capacity contributed to the run-up to record crude oil prices in July. The current slowdown in economic growth is contributing to the recent decline in oil demand and the sharp decline in prices since July. Nonetheless, oil markets are expected to remain relatively tight because of sluggish production growth. Absent a major worldwide economic downturn that significantly impacts global demand, West Texas Intermediate (WTI) crude oil prices are projected to average about \$112 per barrel in both 2008 and 2009.
- According to the [National Oceanic Atmospheric Administration's \(NOAA\)](#) most recent projection of heating degree-days, the Lower-48 States are forecast to be 2.4 percent colder this winter compared with last winter, but 1.7 percent warmer than the 30-year average (1971 to 2000). However, regional heating degree-day projections vary widely; for example, the West North Central region is projected to be almost 5 percent warmer than last winter.
- During September, Hurricanes Gustav and Ike shut in a total of 32 million barrels of crude oil and 165 billion cubic feet (Bcf) of natural gas production in the Federal Gulf of Mexico. Recovery is ongoing and expected to continue at least through October.

Projected Winter Fuel Expenditures by Fuel and Region

The average household winter heating fuel expenditures discussed in this *Outlook* provide a broad guide to changes from last winter, but fuel expenditures for individual households are highly dependent on local weather conditions, market size, the size and energy efficiency of individual homes and their heating equipment, and thermostat settings.

Natural Gas. Households heating primarily with natural gas are expected to spend an average of \$155 (18 percent) more this winter. Nationwide, about 52 percent of all households depend on natural gas as their primary heating fuel. The increase in natural gas expenditures reflects the combined effects of a 17-percent increase in price and 1-percent increase in consumption. In the Midwest, where 72 percent of all households rely on natural gas, a projected 17-percent increase in average household expenditures results from a 19-percent increase in prices and a decline in consumption of 2 percent due to the forecast of slightly warmer weather than last winter.

Heating Oil. Households heating primarily with heating oil can expect to pay an average of \$449 (23 percent) more this winter. Only 7 percent of U.S. households depend on heating oil for winter fuel and most of these households are in the Northeast, where 31 percent of households use heating oil as their primary space heating fuel. In that region, the average household is projected to pay 24 percent more than last winter as a result of an 18-percent increase in prices and a 5-percent increase in consumption. Residential heating oil prices in the Northeast are projected to average about \$3.90 per gallon during the winter season compared with \$3.31 per gallon last winter. The projected increase is consistent with higher crude oil prices and projections of lower distillate inventories than last year going into the heating season.

Propane. Households heating primarily with propane can expect to pay an average of \$188 (11 percent) more this winter. Propane-heated households, which represent about 6 percent of total U.S. households, are projected to see an average increase of 11 percent in propane expenditures this winter, but that increase varies widely by region. Western households are expected to see an average increase in expenditures of 5 percent, while Southern homes are expected to spend 16 percent more this winter.

Electricity. Households heating primarily with electricity can expect to pay an average of \$89 (10 percent) more. Thirty-five percent of all U.S. households rely on electricity as their primary heating fuel, ranging from 12 percent in the Northeast to 59 percent in the South. On average, electricity expenditures during the winter are projected to rise by 10 percent because of increased consumption and prices.

Households in the South are projected to pay 13 percent more this winter on electricity bills.

Global Petroleum

Overview. Higher oil production in Saudi Arabia during summer 2008 combined with the demand response to extremely high prices and recent credit market problems that point to a lower trajectory for the world economy and oil consumption growth are currently reinforcing the sentiment of a loosening in the global oil balance. As a result, the recent supply disruptions in the Gulf of Mexico have not resulted in the kind of price increases that would have been expected had they occurred earlier in the year.

However, unless the global economy is weaker than anticipated, EIA expects that the call on Organization of the Petroleum Exporting Countries' (OPEC) crude oil will exceed OPEC crude oil production over the next 6 months. This market balance and the relatively low level of Organization for Economic Cooperation and Development (OECD) commercial oil inventories suggest some upward pressure on prices. However, if non-OPEC oil production increases as expected during 2009, oil price pressures would then moderate.

Consumption. Global oil consumption is projected to rise by about 300,000 barrels per day (bbl/d) in 2008 and by almost 800,000 bbl/d in 2009 compared with year-earlier levels. Growth for 2008 is nearly 350,000 bbl/d lower than last month's projection, reflecting the deteriorating global economic outlook. Solid growth in non-OECD countries, especially China, Latin America, and oil-exporting countries in the Middle East, is partly offset by sharp declines in U.S. oil consumption as well as lower oil consumption in many other OECD countries ([World Oil Consumption](#)). In 2008, non-OECD consumption is expected to rise by 1.4 million bbl/d, while OECD consumption is expected to fall by 1.1 million bbl/d. China's oil consumption remained high in August 2008 as imports for crude and oil products climbed 12 percent and 32 percent, respectively, from year-earlier levels according to Chinese government data. These trends are similar for 2009, although the decline in OECD consumption in 2009 is expected to be about half of the amount seen in 2008. The level of Chinese demand growth following the Olympics will have an important impact on non-OECD consumption growth and will depend on the domestic economy as well as the level of exports to other countries.

Non-OPEC Supply. Non-OPEC supply had been expected to increase in the second half of the year after declining by almost 300,000 bbl/d during the first half of 2008 compared with year-earlier levels. However, a series of supply disruptions,

especially the closure of the Baku-Tbilisi-Ceyhan oil pipeline and the impacts of Hurricanes Gustav and Ike upon the U.S. Gulf of Mexico, led to a revision in this *Outlook*. As a result, non-OPEC supply is expected to decline by about 115,000 bbl/d during the second half of 2008, compared with the year-earlier level, and consequently non-OPEC supply growth in 2008 is now expected to be negative for the first time since 2005. The 2009 growth in non-OPEC supply of 730,000 bbl/d is expected to largely meet the anticipated increase in global consumption, barring delays in new projects and unanticipated disruptions. The United States, Azerbaijan, and Brazil represent the bulk of non-OPEC supply growth in 2009, although some of the growth in two of these countries simply represents a return to normal production conditions ([Non-OPEC Oil Production Growth](#)).

OPEC Supply. OPEC crude oil production is expected to average 32.7 million bbl/d during the third quarter of 2008, up 1.7 million bbl/d from year-earlier levels. The forecast assumes production in Saudi Arabia of 9.6 million bbl/d in the third quarter, representing a 900,000-bbl/d rise from year-earlier levels. OPEC's call for greater compliance with quotas at its September meeting, suggests about a 500,000-bbl/d cut in output, but this outcome is uncertain. Given that the bulk of OPEC above-target output has been coming from Saudi Arabia, the group's decision to scale back production will depend on Saudi Arabia's willingness to cut. Taking into account uncertainties about Saudi actions, this *Outlook* assumes that OPEC crude oil production declines to 32.4 million bbl/d in the fourth quarter of 2008 and falls through 2009 to an average of 31.6 million bbl/d for that year. Lower crude oil production, combined with planned increases in OPEC total liquids production capacity, suggests OPEC surplus crude production capacity could increase from 1.5 million bbl/d in the second quarter of 2008 to over 3 million bbl/d by the end of next year ([OPEC Surplus Oil Production Capacity](#)).

Inventories. Revised data indicate that OECD commercial inventories held steady during the second quarter of 2008, well below the average build of 900,000 bbl/d during this time of year. At the end of the second quarter, estimated OECD commercial inventories stood at 2.56 billion barrels, 35 million barrels below the 5-year average ([Days of Supply of OECD Commercial Stocks](#)). OECD commercial inventories are projected to rise by about 280,000 bbl/d in the third quarter compared with the average seasonal build of about 400,000 bbl/d. EIA expects OECD commercial inventories to remain below 5-year average levels throughout the forecast period.

U.S. Petroleum

Consumption. Consumption of all petroleum products has fallen in 2008, driven down by the increase in prices and the weakening economy. Motor gasoline and distillate fuel lead the way with projected average declines of about 200,000 bbl/d for each fuel compared with last year. The declines in consumption are expected to continue in 2009 but at a much lower rate. Total domestic petroleum consumption is projected to average 19.8 million bbl/d in 2008, down 830,000 bbl/d from the 2007 average ([U.S. Petroleum Products Consumption Growth](#)), followed by a further 100,000-bbl/d decline in 2009.

Production. In 2008, domestic crude oil production is projected to average just below 5.0 million bbl/d, down from 2007 levels due to the loss of production in the Gulf of Mexico caused by Hurricanes Ike and Gustav ([U.S. Crude Oil Production](#)). Domestic crude production has been steadily declining since the 1970s and the 2008 projection for crude oil production falls under 5 million bbl/d for the first time since 1946. However, domestic production is projected to increase in 2009 by 330,000 bbl/d to an average of 5.3 million bbl/d. Contributing to the increases in output are the Thunderhorse platform, which is expected to come on stream later this year, and the Tahiti platform, expected to come on stream late in 2009.

Prices. Oil markets are expected to remain tight over the next 6 months because of sluggish production growth, which will help push WTI crude oil prices to \$120 per barrel by April 2009, before declining to \$106 per barrel by year's end. WTI prices are projected to average \$112 per barrel in both 2008 and 2009 ([Crude Oil Prices](#)). Further deterioration in actual or expected global economic growth as a fallout of the current financial crisis may lead to weaker oil prices.

Gasoline

Inventories. Motor gasoline inventories during the summer were tight and became even tighter as a result of Hurricanes Gustav and Ike. On September 30, total gasoline inventories were estimated at 180 million barrels, 23 million barrels below the 5-year average and the lowest since August 1967 ([Motor Gasoline Inventories](#)). Continued weakness in motor gasoline markets and growth in domestic fuel ethanol production is expected to allow inventories to recover. By the beginning of the second quarter next year, total gasoline inventories are expected to reach 205 million barrels, about 4 million barrels below the previous 5-year average.

Prices. Regular grade gasoline prices are projected to average \$3.56 per gallon in both 2008 and 2009, following movements in projected crude oil prices. Because of the

continued weakness in motor gasoline consumption, the difference between the price of gasoline and the cost of crude is expected to remain low throughout the forecast interval.

Distillate

Inventories. Refinery shut-ins caused by Hurricanes Gustav and Ike also pulled distillate (diesel fuel and heating oil) inventories down to relatively low levels ([Distillate Fuel Inventories](#)). As of September 30, the start of the winter heating season, distillate fuel inventories were an estimated 122 million barrels, down 12 million barrels from the previous year and 11 million barrels below the average of the last 5 years. Total distillate inventories at the end of March 2009 are projected to be 104 million barrels, about 6 million barrels below the previous 5-year average but still within the low end of the normal range.

Prices. The increases in heating oil and diesel fuel prices this year have outpaced the rise in crude oil prices because of the continuing stronger growth in global distillate demand relative to other petroleum products. Residential heating oil retail prices this winter are projected to average \$3.89 per gallon, an increase of 58 cents per gallon over last winter, compared with a projected 38-cents-per-gallon increase in the price of WTI crude oil. Although oil prices are expected to be up slightly on average next year, the on-highway diesel fuel retail prices are projected to average \$3.91 per gallon in 2009, down from a projected \$4.01 per gallon in 2008, reflecting a weakening of the very high wholesale distillate-crude oil price margins seen this past summer.

Propane

Inventories. As of September 30, U.S. propane inventories were an estimated 59 million barrels, slightly above last year's level but 7 million barrels below the average over the last 5 years. These inventories are projected to end the winter season at about 28 million barrels, near the average of the last 5 years. This projection assumes that, because of high prices and a slow economy, the combination of propane production increases and reduced petrochemical consumption will offset the reduced availability of waterborne supplies, which have been diverted to fast-growth areas such as Asia and the Middle East.

Prices. Spot propane prices are strongly influenced by both crude oil and natural gas prices. Retail propane prices are projected to average \$2.60 per gallon in 2008 and \$2.65 per gallon in 2009. However, with current low inventories, propane markets are likely to remain relatively tight this winter, with the potential for additional upward

pressure on residential propane prices if the United States experiences colder-than-expected weather.

Natural Gas

Consumption. Total natural gas consumption is expected to increase by 2.4 percent in 2008 and by 1.9 percent in 2009 ([Total U.S. Natural Gas Consumption Growth](#)).

Despite slower expected growth in 2009, consumption is expected to increase in all sectors during the forecast period. This winter, total residential consumption of natural gas in the United States is expected to increase by 3.5 percent year-over-year based on the projected 2.4-percent increase in heating degree-days. In addition to weather, worsening economic conditions add significant uncertainty to the forecast, particularly for the industrial sector. In annual terms, consumption in the industrial sector is expected to increase by 1.0 percent in 2008 and 1.1 percent in 2009.

Production and Imports. Total U.S. marketed natural gas production is expected to increase by 6.7 percent in 2008 and by 4.2 percent in 2009. Domestic production continues to be led by the development of fields in the Lower-48 non-Gulf of Mexico region, which is expected to increase production by 9.7 percent in 2008. Recent hurricane damage resulted in estimated production shut-ins of about 165 Bcf in the Federal Gulf of Mexico in September, with at least an additional 16 Bcf in the onshore and State waters areas of Louisiana. While the length of the hurricane recovery process is unknown, marketed natural gas production from the Federal Gulf of Mexico is projected to decline by 9.1 percent in 2008. In 2009, Federal Gulf of Mexico and Lower-48 non-Gulf of Mexico growth are expected to be 8.1 and 3.8 percent, respectively.

U.S. imports of liquefied natural gas (LNG) remain below year-ago levels with third-quarter imported cargoes less than half of what they were last year. Demand growth in Europe and Asia combined with limited global supply increases to date continue to weigh on the market. LNG imports to the United States are no longer expected to increase during the remainder of 2008, and import growth in 2009 remains vulnerable to additional delays in new capacity and unexpected maintenance on existing capacity. For the year, LNG imports are expected to total about 350 Bcf and about 450 Bcf in 2009 as more global LNG capacity is expected to be brought online.

Inventories. On September 26, 2008, working natural gas in storage was 3,110 Bcf ([U.S. Working Natural Gas in Storage](#)). Current inventories are now 50 Bcf above the 5-year average (2003–2007) and 137 Bcf below the level during the corresponding week last year.

Prices. The Henry Hub spot price averaged \$7.88 per thousand cubic feet (Mcf) in September, \$0.62 per Mcf below the average spot price in August. Despite hurricane damage to supply infrastructure in the Federal Gulf of Mexico, the recent decline in prices was the result of demand loss associated with these same hurricanes, moderate temperatures, lower oil prices, and uncertainties about future economic growth. This winter, however, natural gas expenditures for U.S. households are expected to increase by about 18 percent compared with last winter. The increase in end-use prices is the result of the particularly high spot prices that were recorded earlier this year as a portion of the inventories for the upcoming heating season were being built. Beyond the winter, continued growth in on-shore production is expected to bring prices down. On an annual basis, the Henry Hub spot price is expected to average about \$9.67 per Mcf in 2008 and \$8.17 per Mcf in 2009, compared with \$7.17 per Mcf in 2007.

Electricity

Consumption. After a relatively warm June and July, cooling degree-days during August in most regions of the United States were lower than normal ([U.S. Summer Cooling Degree-Days](#)). Summer residential electricity consumption this year was approximately the same as it was in the summer of 2007. For the entire year, total electricity consumption is expected to grow by about 1 percent ([U.S. Total Electricity Consumption](#)). Growth in consumption during 2009 is expected to remain relatively low, primarily as a result of the projected slow growth in economic activity.

Prices. The delivered cost of fuel continues to affect power generators. During 2008, the cost of natural gas and coal for electric utilities is projected to be 36 percent higher and 12 percent higher, respectively, than last year. As electricity providers continue to pass along these increased costs, U.S. residential electricity prices are expected to grow by 6.2 percent this year and 9.4 percent in 2009 ([U.S. Residential Electricity Prices](#)). Price increases are expected to be especially pronounced in the Middle and South Atlantic regions.

Coal

Consumption. Electric-power-sector coal consumption is projected to grow by about 1.2 percent in 2008. Slow growth in electricity consumption, combined with projected increases in electricity generation from other sources (nuclear, natural gas, and wind), will lead to a slight decline (0.9 percent) in electric-power-sector coal consumption in 2009 ([U.S. Coal Consumption Growth](#)).

Production and Inventories. Growth in domestic coal consumption and particularly in exports is expected to contribute to a 3-percent increase in coal production in 2008 ([U.S. Annual Coal Production](#)). In 2009 coal production will remain relatively unchanged as increases in coal exports are offset by decreases in domestic consumption and producer-held stocks. Secondary (consumer-held) coal stocks, which grew to almost 160 million short tons in 2007, are expected to remain stable in 2008 and grow by an average of 2.3 percent in 2009.

Exports. In the first half of 2008, U.S. coal exports increased by 13 million short tons, or 50 percent, over first-half 2007 shipments. Strong global demand for coal, combined with supply disruptions in several key coal-exporting countries (Australia, South Africa, and China), were the primary factors behind the increase in U.S. coal exports. Continued robust worldwide demand for coal is projected to lead to an overall 43-percent increase in U.S. coal exports in 2008. Coal exports are projected to grow 2.4 percent to 86.5 million short tons in 2009.