

CRS Report for Congress

Received through the CRS Web

Oil and Gas: Supply Issues After Katrina

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Summary

Hurricane Katrina made landfall on August 29, 2005, leaving behind considerable devastation. Some onshore refineries were shut down in advance of the storm; others remain down now because of the widespread interruption of electric power and flooding. Assessment of damage to oil and gas production rigs, as well as refineries, continues. Some operating refineries whose crude supply has been interrupted are borrowing crude from the Strategic Petroleum Reserve (SPR). On September 2, the International Energy Agency (IEA) announced a coordinated drawdown of European and Asian stocks totaling 60 million barrels to be released at the rate of 2 million barrels daily. Some refineries have resumed operation, but at reduced runs. A number of major refineries remain shut. The Louisiana Offshore Oil Port (LOOP) resumed operation late September 1, and is accepting crude oil imports. The Colonial pipeline, which supplies refined products to regions of the South and Northeast, has resumed operation and is at 100% of pumping capacity. The industry advises that it may be months before the area's oil and gas production and refining are fully restored. Spot and futures prices for gasoline and middle distillates rose sharply in the days following the storm, but prices began to fall early the week of September 5; the price decline continues. This report will be updated.

Hurricane Katrina shut down oil and gas production from the Outer Continental Shelf in the Gulf of Mexico, the source for 25% of U.S. crude oil production and 20% of natural gas output. Four oil refineries that provide almost 5% of the nation's refined petroleum products were seriously damaged and will remain shut for an indeterminate period. Others were damaged but have resumed or are in the process of resuming operations. Much of the product from Gulf refineries is transported by pipeline for the East Coast and Midwest. Important to policymakers will be continuing information on the damage to production facilities, refineries, and transport facilities and how soon they can be restored to operation. Most of the information cited in this report is from the trade press, the Minerals Management Service, and the Energy Information Administration.

On August 31, Secretary of Energy Bodman announced that the Bush Administration was authorizing releases of Strategic Petroleum Reserve (SPR) crude oil. Operating refineries whose crude supply has been interrupted have requested to borrow roughly 9

million barrels. The release of SPR oil and the announcement on September 2 from the International Energy Agency (IEA) of a coordinated drawdown of 60 million barrels of crude and refined products calmed markets by early in the week of September 5. The first of this supply should reach the United States shortly. However, recovery from the hurricane's effects will depend upon resumption of production and refining operations in the Gulf, and the ability to transport petroleum products.¹ Roughly 900,000 barrels of refining capacity at four plants in the Gulf remains completely shut down; more than 2.0 million barrels per day were down at the end of August. Outage and slow startups have reduced the amount of fuel in commercial inventories significantly, contributing to high gasoline and other refined product prices.

Factors Affecting Oil and Natural Gas Supply

- *Outer Continental Shelf (OCS) Production.* Natural gas and petroleum production in the Gulf is beginning to come back. Almost 60% of oil production (4% of U.S. consumption) was offline as of September 15, as was 34% of gas output (5% of U.S. consumption).² On September 16, Minerals Management Service (MMS) director Burton indicated that it would take three months for OCS output to return to 90% of its pre-Katrina output.³
- *Lack of Alternative Gas Supplies.* OCS natural gas supply losses are not easily made up by imports because additional supply possibilities from Canada and from liquefied natural gas (LNG) are limited. There is no Strategic Petroleum Reserve (SPR) for gas.
- *Crude Oil Imports.* About 2.5 mbd of crude oil imports — including 0.9 mbd by way of the Louisiana Offshore Port (LOOP) — flow through impacted ports in LA, MS and AL. This constitutes more than 12% of petroleum consumption.⁴ LOOP resumed operation late September 2, and is operating near full capacity. Other Gulf Coast ports through which oil imports flow are resuming operation but may not be capable of full capacity throughput.
- *Pipeline Transport of Crude Oil and Refined Products.* Pipelines from the Gulf to the Midwest and East Coast have been affected. The Colonial and Plantation Pipelines — serving the whole East Coast with refined products — was operating at full capacity early in the week of September 5. The Capline pipeline, which supplies crude oil to the Mid-continent,

¹ For additional information, see CRS Issue Brief IB87050, *The Strategic Petroleum Reserve*, by Robert L. Bamberger.

² Energy Information Administration, *Special Report — Hurricane Katrina's Impact on U.S. Energy*, at [http://tonto.eia.doe.gov/oog/special/eia1_katrina.html], frequently updated.

³ Bloomberg.com, *Gulf Oil and Gas Output Seen Taking 3 Months for 90% Recovery*. Sept.16, 2005 10:06 EDT.

⁴ Ibid.

resumed operation on September 1. Availability of pipeline inputs remain an issue.

- *Damage to Offshore Natural Gas Pipelines.* The extent of damage to underwater gas pipelines and gathering systems is difficult to estimate. Analysts following storm recovery have been unable to develop a clear picture of pipeline damage, noting that lack of information likely indicates problems. One report notes that MMS continues to decline to provide details about offshore pipelines and platforms, noting that one pipeline had confirmed a line which had been severed and displaced and another gathering platform and associated piping had significant damage. Other facilities surveyed revealed “the majority of the measurement and electronic equipment in the area had been damaged or destroyed.”⁵ Spot prices at Henry Hub rose from a \$9.00 average⁶ in August to \$11.34 on September 15. Prices could rise more if pipeline outages continue into the heating season.
- *Product Imports and International Energy Agency (IEA) Response.* On September 2, the IEA initiated a coordinated stock drawdown of 60 million barrels of crude and refine product stocks from Europe and Asia. Two million barrels daily will be released. Gasoline imports currently on the water should begin reaching the United States soon.⁷

Refineries

Four facilities having total capacity of about 900,000 barrels per day remain closed; DOE said they are expected to be down for an extended period. The facilities are:

- ExxonMobil/PDVSA’s 187,000 b/d plant at Chalmette LA
- ConnocoPhillips’ 250,000 b/d plant at Belle Chasse LA
- Murphy Oil’s 125,000 b/d plant at Meraux LA
- Chevron’s 325,000 b/d plant at Pascagoula MS

This means over 5% of the nations refining capacity will be out of service for an indeterminate period. More than 2 mbd of refining capacity in the Gulf was completely shut down at some point after the storm. Even though much has been restored, a significant period of hard-to-make-up output has been lost, and this will impact inventories as the numbers are tallied.

⁵ Platts Oilgram News, *Numbers Belie Norton’s Optimism on US Gulf Damage*, Sept. 14, 2005. P.1.

⁶ Energy Information Administration, *Short Term Energy Outlook*. Sept. 7, 2005.

⁷ *IEA Releases Emergency Crude, Gasoline*, Oil Daily, Tuesday, September 6, 2005.

Also impacting refining recovery are concerns about staffing facilities because employees have been scattered by the storm; there is both concern and uncertainty whether some will return to the region. Additional issues regarding crude supply and transportation into and out of refineries linger as well.

Electric Power⁸

At the height of Katrina, it is estimated that 2.6 million customers lost power. Power is now being restored. Inaccessibility due to flooding and saltwater damage to equipment are major factors slowing restoration. Mississippi Power estimates that about 70% of its 8,000 miles of transmission and distribution lines will have to be repaired or replaced because of Katrina — a process the utility estimates could take four weeks. Early in the week of September 5, Mississippi Power had restored power to over 44% of its customers.⁹ Entergy, which serves the greater New Orleans area, reports that a major obstacle to restoring service is the lack of food and water for its repair crews, who are sleeping in their trucks. Entergy reports that priority for crews includes restoring service for pumping, sanitation, medical, and housing facilities.¹⁰ Power outages have hindered or delayed the resumption of pipeline operations. The Louisiana Public Service Commission is working with Entergy to assess the situation and provide guidance on priorities. FEMA Region IV is working with Mississippi officials on the same subject.

Relaxation of Motor Fuel Standards¹¹

On August 31, 2005, Environmental Protection Agency (EPA) Administrator Stephen Johnson announced that EPA would temporarily waive certain gasoline and diesel fuel standards through September 15, 2005, in order to help increase available fuel supplies. For gasoline, EPA is waiving volatility standards that would otherwise prohibit the sale of gasoline produced for northern states in the South, or the sale of “winter” gasoline in the summer months. This waiver — -which was extended until early October — -should allow gasoline normally prohibited in certain areas to be transported to those areas in response to supply limitations. EPA is also waiving sulfur standards for diesel fuel, so that fuel produced for non-road uses may be legally used in highway vehicles. This waiver should help mitigate some of the disruption in diesel fuel supplies.¹²

Gasoline and Distillate Inventories

As of August 26, the Energy Information Administration reported that U.S. commercial gasoline inventories were 194 million barrels, near the lower bound of the normal range. By September 9, they had only declined to 192 million barrels. Minimum

⁸ Prepared by Larry Parker. For daily bulletins on Katrina’s energy impacts, see [<http://www.ea.doe.gov/hurricanes.html>].

⁹ Ibid.

¹⁰ For more information on Entergy’s efforts, see [<http://www.entergy.com/corp/>].

¹¹ Prepared by Brent Yacobucci.

¹² Remarks by Administrator Stephen L. Johnson, United States Environmental Protection Agency, August 31, 2005, [<http://www.epa.gov/katrina/activities.html>].

operating level is 170 million barrels, representing the point at which localized shortages occur because the distribution system cannot be drawn down further without hindering operations. At current consumption rates, this amounts to less than three days of available supply.

The situation with middle distillates (heating oil and diesel fuel) is somewhat similar, reflecting the normal seasonal build of stocks, standing at 132 million barrels on September 9, reflecting only a small decline from 135 million barrels on August 26. This represents the equivalent of nearly nine days of available supplies.

As a result of Katrina, wholesale gasoline prices on the New York Mercantile Exchange surged almost immediately, in anticipation of a shortage. At the beginning of September, wholesale gasoline traded on the NYMEX briefly surged to \$2.40 before settling to \$1.87/gallon on September 16. Pump prices also reached a new high of \$3.06 nationwide, but have subsequently decline to \$2.87, according to the American Automobile Association. Distillate prices followed a course paralleling that of gasoline.

Commercial Inventories of Crude Oil

Crude stocks were 321 million barrels on August 26, up from 285 million barrels during the same period last year. Minimum operating level for crude is 270 million barrels, suggesting that 51 million barrels might be available from existing inventories. This could be used to offset the shortfall of OCS production and imports, if it were located where it could be accessed by refiners seeking replacement crude. But it is not clear that logistics would support this, nor is it clear how rapidly refining capacity to utilize these inventories will be restored.¹³

Strategic Petroleum Reserve

On August 31, Secretary of Energy Bodman announced that the Administration was authorizing loans of crude oil from the Strategic Petroleum Reserve. By September 6, loans had been granted to six companies totaling roughly 12.5 million barrels.¹⁴ A few days later, on September 2, as part of an international 60 million barrel crude and product stock drawdown co-ordinated by the International Energy Agency (IEA), the U.S. offered 30 million barrels of SPR crude for sale. On September 14, DOE announced the sale of 10.8 million barrels of sweet crude and 200,000 barrels of sour at prices ranging from \$59.76 to \$66.46. Bids for an additional 8.2 million were rejected.

Industry analysts interpret the results of the sale, including the rejected bids, as an indication that the fundamental problem in markets is product rather than crude supply. Additionally, some of the companies awarded loans may not borrow the full volume of crude for which they asked. As noted above, SPR oil can contribute to more product in

¹³ For weekly updates on inventories, as well as spot prices, see Energy Information Administration, *Weekly Petroleum Status Report*, [<http://tonto.eia.doe.gov/oog/info/twip/twip.asp>].

¹⁴ Department of Energy. Office of Fossil Energy. See: [http://www.fe.doe.gov/news/techlines/2005/tl_spr_loan_090105.html].

markets if there is insufficient refining capacity to turn its stocks of crude oil into gasoline or diesel fuel.