Order Code RS22233
August 31, 2005

CRS Report for Congress
Received through the CRS Web

Oil and Gas: Supply Issues After Katrina

Robert L. Bamberger and Lawrence Kumins
Resources, Science, and Industry Division

Summary

Hurricane Katrina made landfall on August 29, 2005, leaving behind considerable devastation. In anticipation of the hurricane's landfall, workers were evacuated from oil rigs in the Gulf region. Some onshore refineries were shut down in advance of the storm; others are also down now because of the widespread interruption of electric power. Assessment of damage to oil and gas production rigs, as well as refineries, has begun. It is uncertain when electricity will be restored. Until more is known, the outlook for oil and gas is unclear. In the meantime, spot and futures prices for gasoline and middle distillates are rising sharply. This report will be updated.

Hurricane Katrina has 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. Additionally, there are a number of oil refineries shut down along the Gulf Coast in Louisiana and Mississippi that provide a significant share of the nation's refined petroleum products, much of which is transported by pipeline for the East Coast and upper Midwest. Important to policymakers will be information on the extent of the damage from Hurricane Katrina to production facilities, refineries, and transport facilities and how soon they can be restored to operation. Most of the information cited in this report has come from the trade press and the Energy Information Administration.

The policy option most mentioned during the first hours after the hurricane was the Strategic Petroleum Reserve (SPR). On August 31, Secretary of Energy Bodman indicated that the Bush Administration was authorizing releases of SPR crude oil. Operating refineries whose crude supply will be interrupted by hurricane damage can request a loan or swap of crude from the SPR. Roughly 5.4 million barrels of SPR oil was loaned to refiners in the aftermath of Hurricane Ivan in September 2004. However, as a policy tool to respond to the crisis, the SPR has limitations because a barrel of crude contributes to product supply only if there is refining capacity to turn the crude into gasoline or diesel fuel. Consequently, 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]

Factors Affecting Oil and Natural Gas Supply

- *Outer Continental Shelf (OCS) Production.* Natural gas and petroleum production in the Western Gulf of Mexico is virtually halted. Eastern Gulf output is seriously curtailed. About 1.4 million barrels per day (mbd) of crude and 8.8 billion cubic feet per day (bcf/d) of gas output are currently offline.[2] This is the equivalent of 6.5% of U.S. petroleum consumption and 15% of natural gas demand.

- *Suspension of Natural Gas Deliveries at Henry Hub.* This is the delivery point, located in Louisiana, for consumers taking physical delivery of gas traded on the New York Mercantile Exchange (NYMEX), where such trading has been suspended. The Henry Hub gas contract is an important pricing benchmark widely used in setting prices nationwide, and the suspension of trading leaves the industry without guidance from this visible public auction market.

- *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. A short-term problem could worsen if the shortage continues into the heating season. The status of natural gas pipelines has yet to be determined.

- *Crude Oil Imports via Louisiana Offshore Oil Port (LOOP).* About 1 mbd of crude oil imports flow through this tanker offloading facility, which is now closed. This constitutes roughly 5% of petroleum consumption.[3] Other Gulf Coast ports through which oil imports flow are not operating; the shortfall in crude oil supply likely involves more than the LOOP and OCS production loss. It has been reported that damage to LOOP is minimal to the offshore facility and that it could resume operation once power is restored.

- *Pipeline Transport of Crude Oil and Refined Products.* Pipelines from the Gulf to the Midwest and East Coast have been impacted. The Colonial Pipeline — serving the whole east coast with refined products — is currently closed. While there has been no statement from the pipeline owners regarding the nature of the difficulties, lack of product input and electric power supply are likely considerations.

---

[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], August 30, 2005.

[3] Ibid.

Refineries

Nine major facilities (and three small plants) in Louisiana and Mississippi with 2.1 mbd capacity are closed;[4] this constitutes 12.4% of total U.S. capacity, and is the equivalent of about 10% of total refined product consumption. (See **Table 1**.) This includes an estimated 1.2 mbd of gasoline (13% of consumption) and 0.4 mbd of distillate (10% of consumption). These refineries were shut down before the storm. Located in low-lying areas, they are currently underwater, precluding physical inspection. Inspection from aircraft suggests minimal damage, although there is no electric power available.

Gasoline and Distillate Inventories

As of August 26, the Energy Information Administration (EIA) reports that U.S. commercial gasoline inventories were 194 million barrels, near the lower bound of the normal range. Minimum 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, now standing at 135 million barrels, the equivalent of nearly nine days of available supplies.

As a result of Katrina, wholesale gasoline prices on the NYMEX surged almost immediately, in anticipation of a shortage. On August 31, wholesale gasoline traded on the NYMEX reached $2.52 per gallon, a new high. Pump prices also reached a new high of $2.62 nationwide, according to the American Automobile Association. Distillate prices followed, albeit with a lower rate of increase.

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 when the 2.1 mbd of shut refining capacity could be restored to utilize these inventories.

Strategic Petroleum Reserve

On August 31, Secretary of Energy Bodman indicated that the Administration was authorizing loans of crude oil from the Strategic Petroleum Reserve. Three refineries are reported to have requested SPR oil, only one of which has yet been identified. Citgo Petroleum Corporation has asked for 250,000-500,000 barrels for its refinery at Lake

---

[4] Platts Oilgram Price Report, *Saudi Oil, SPR Loans Promised To Ease Shortages*, August 29, 2005. p 1.

Charles, Louisiana.[5] But as noted above, the SPR will be of limited help in this situation if there is insufficient refining capacity to turn its stocks of crude oil into gasoline or diesel fuel.

Table 1. Major Refineries Affected by Hurricane Katrina

Capacity (thousands of barrels per day)	**Owner**	**Location**	**Status as of 8/31**
493.5	ExxonMobil	Baton Rouge, LA	Briefly operating at reduced capacity.
187.0	ExxonMobil/PDVSA	Chalmette, LA	Shut. Water damage likely.
325.0	Chevron	Pascagoula, MS	Shut.
226.0	Motiva Enterprises[6]	Norco, LA	Shut.
235.0	Motiva Enterprises	Convent, LA	Shut.
247.0	ConocoPhillips	Belle Chase, LA	Shut. Water damage expected.
245.0	Marathon-Ashland	Garyville, LA	Shut.
120.0	Murphy Oil	Meraux, LA	Shut. Water damage expected.
185.0	Valero Energy	St. Charles, LA	Out 1-2 weeks. Water damage expected.

Source: Energy Information Administration, Office of Electricity Delivery and Energy Reliability. *Hurricane Katrina Situation Report #12.* August 31, 2005 (10:00 AM EDT).

[5] "White House to Release Oil From Reserves," Eileen Putnam, Associated Press.

[6] Motiva is a joint venture between Royal Dutch Shell and Saudi Aramco.