

# ONRR Year In Review

## Fiscal Year 2008 in Review

### Overview:

For Fiscal Year (FY) 2008, October 2007 through September 2008, the domestic oil and gas markets experienced unprecedented commodity value volatility. To a lesser extent, production volumes also experienced volatility. This volatility is reflected in volume and value data for production on Federal and Indian lands reported to MMS by production year.<sup>[1]</sup> Geopolitical risk, an economic downturn, supply disruptions, rising and falling demand, financial market technical factors, and localized weather events continue to drive much of the volatility.

The crude oil markets saw a dramatic rise in prices from October 2007 through early July 2008 followed by an equally dramatic fall through September 2008. New York Mercantile Exchange (NYMEX) West Texas Intermediate (WTI) values averaged a record \$107.70 per barrel for FY 2008, ranging from a low of \$79.02 on October 3, 2007 to a high of \$145.29 on July 3, 2008. Significant variations in the price difference (basis) between the Gulf of Mexico and onshore Federal oil production continued to exist due to variations in supply and demand and quality. Federal oil volumes subject to royalty payments increased dramatically in July 2008 when the program to add volumes to the Strategic Petroleum Reserve (SPR) ended, but fell just as quickly as Hurricane Ike and Gustav damaged Gulf Of Mexico infrastructure in late August and early September 2008.

Natural gas prices saw similar volatility to oil prices in FY 2008, rising and falling at the same times. Daily prices at Henry Hub averaged \$8.98 per MMBtu in FY 2008, with a low of \$6.06 on October 2, 2007 and a high of \$13.32 on July 3, 2008. Significant variations in the price basis between the Gulf of Mexico and onshore Federal gas production, and between producing and consuming areas, continued to exist due to pipeline constraints and differences in transportation costs and local economics. Federal royalty gas volumes were steady through the year until experiencing a steep decline due to the late August and September hurricanes.

Overall U.S. coal production increased slightly during FY 2008, with the Western region of the country showing an increase while the Appalachian and Midwest regions showed a decrease. Nationally, coal prices increased slightly through the year. Volume and prices rose because of increased U.S. electricity demand for heating and cooling and increasing demand for U.S. coal in foreign markets.

U.S. coal production totaled over 1 billion tons, with about 50 percent of the total coming from Federal and Indian lands. Over 80% of Federal and Indian production is mined in the Powder River Basin of northeast Wyoming and southeast Montana .

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[1] Sales year data provides a “snap shot” view of reported sales of mineral commodities, including adjustments for the current year, as of the report publication date. It offers a “point in time” view of the reported royalty revenue data sets that are useful for data analysis and/or trending purposes.

### Oil Volume Observations:

#### Oil Volumes by Sales Year



Onshore and offshore total sales volumes based on sales year (without prior period adjustment)

Offshore oil production has been trending upward starting in late 2004. Many of the larger deep-water fields are ramping-up production leading to an overall Gulf of Mexico production increase despite declining production rates from many older, smaller fields. Some of these projects include new fields in the Southern Green Canyon and other deep-water areas.

Of note are the significant impacts of Gulf of Mexico hurricanes in recent years, including Hurricane Ivan in late 2004, Hurricanes Katrina and Rita in late 2005, and Hurricanes Ike and Gustav in late 2008. Also, the MMS effort to supply royalty oil to the Department of Energy for use in their program to fill the Strategic Petroleum Reserve (SPR) <sup>[2]</sup> that began in the summer of 2007 and ended in July 2008, led to a significant increase in Federal oil volumes subject to royalty payments.

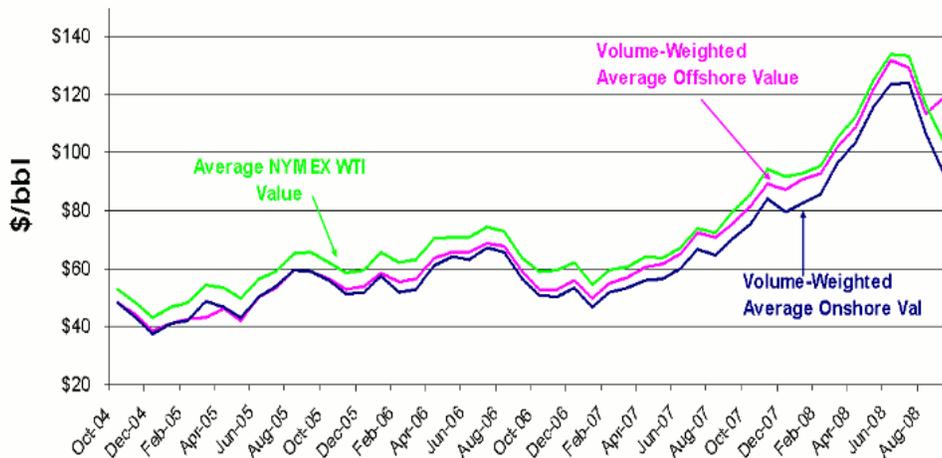
Onshore crude oil production remained steady in 2008 with falling production rates from older onshore fields being offset by:

- increasing oil production from onshore shale plays,
- increasing condensate production from onshore gas fields, and
- Enhanced Oil Recovery projects.

[2] The sales volumes reported on leases included in the SPR program are not included in the volume or value data in this report as MMS receives no royalty payments on this production.

**Oil Value Observations:**

**Oil Unit Values by Sales Year**



Monthly values are calculated by dividing monthly reported sales values by sales volume using sales year data (without prior period adjustments) for both RV and RIK transactions

When the oil sales value per unit reported to MMS is compared to the NYMEX WTI value, a slight divergence is seen. This is due to the fact that much of the Federal production is heavy sour; these oil types receive a significant discount from WTI in the marketplace due to low API gravity and high sulfur content. The discount relates to the limited product yield and/or additional sulfur removal refinery considerations for these barrels versus the light sweet production.

Some discounts are especially deep in particular onshore production fields as this production can be very heavy - suitable for limited use in applications such as asphalt or roofing-material production. These onshore fields also are affected by the increased supply and import of Canadian crude, as these barrels displace domestic production.

Both onshore and offshore values reported to MMS may also include deductions for transportation and pipeline quality considerations resulting in a reduction in unit value. Royalty regulations allow these deductions and they typically range from \$1 to \$2 per barrel offshore and under \$1 onshore.

FY 2008 oil prices continued the dramatic rise that began in early 2007 until experiencing an equally dramatic fall beginning in the summer of 2008, due in part to an economic downturn affecting oil demand.

**Natural Gas Volume Observations:**

**Natural Gas Volumes by Sales Year**



Onshore and offshore total sales volumes based on sales year (without prior period adjustment)

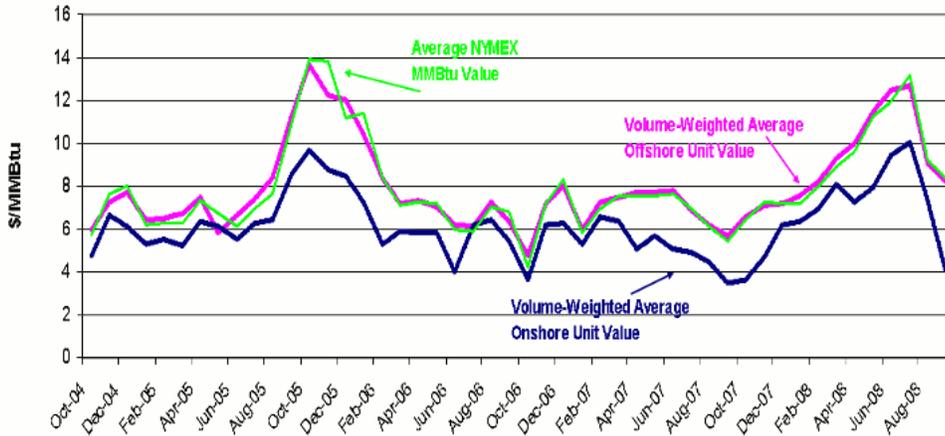
Overall offshore gas production is steadily declining, especially on the shelf portion of the Gulf of Mexico. In FY 2008, production from the deepwater Independence Hub somewhat stemmed this decline, although much of this production is subject to royalty relief. After the 2005 and 2006 hurricanes, some production never returned to pre-hurricane production levels. It is yet to be seen if the 2008 hurricanes will have a similar long-term affect on Gulf of Mexico volumes.

However, some of the new deepwater oil projects also have significant associated gas production. These new fields may help offset declines in the future.

Federal onshore production is steadily increasing due in large part to gas development in the Rockies. A large jump was seen beginning in January 2008 due to opening of the Rockies Express Pipeline (REX) increasing the Rockies natural gas takeaway capacity. The volume decline later in FY 2008 is attributed to maintenance on REX and declining Rockies natural gas prices. The onshore natural gas production increase is a trend expected to continue with the extent of the increase impacted by pipeline infrastructure, prices, and political considerations.

**Natural Gas Value Observations:**

**Natural Gas Unit Values by Sales Year**



Monthly values are calculated by dividing monthly reported sales values by sales volume using sales year data (without prior period adjustments) for both RV and RIK transactions

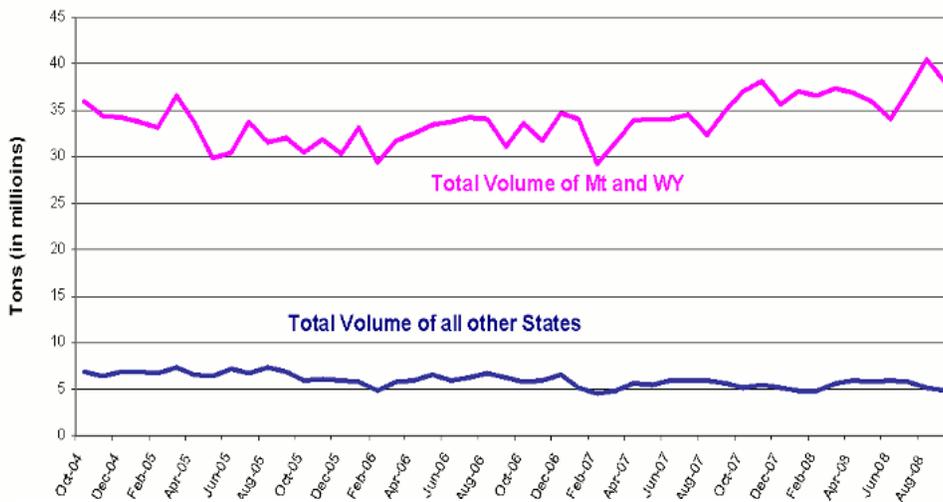
Natural gas values increased dramatically from the beginning of FY 2008 until mid-summer, where they decreased just as dramatically. Contributing to the decline was natural gas industrial demand destruction caused by the high prices and a general economic downturn.

Offshore Gulf of Mexico values closely follow the average NYMEX Henry Hub value with some slight variance due to differences in local price indices and allowances for transportation and processing costs.

Onshore values typically trend lower than the NYMEX value because of limited onshore pipeline infrastructure and the remote locations of many onshore fields. Local onshore pricing indices show this differential when compared against the NYMEX Henry Hub value. Several significant pipeline projects underway are designed to move more gas from these discounted markets to more populated demand centers with stronger index values. The REX project that moves natural gas production from Wyoming and Colorado to points in the Mid-Continent (and to eastern Ohio in 2009) greatly improved the price basis between the Rockies and the Mid-Continent. Various parties have proposed other pipeline projects to move more natural gas out of the Rockies which should continue to maintain or improve the Rockies basis with the consuming regions.

**Coal Volume Observations:**

**Coal Volumes by Sales Year**



Onshore and offshore total sales volumes based on sales year (without prior period adjustment)

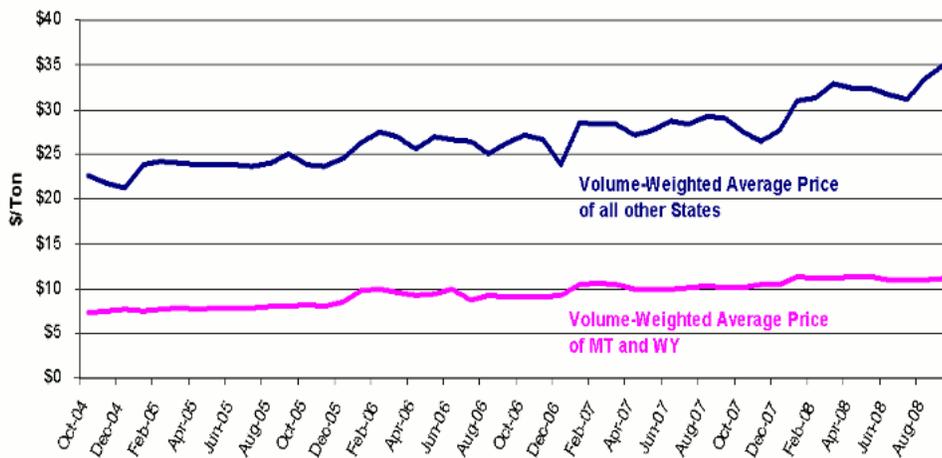
After a relatively consistent first half of the FY, total U.S. coal sales rose slightly in the second half. Coal production in the West (in particular Montana and Wyoming) rose moderately, while overall production from all others states rose in mid-year, only to decline at the end of the year.

Eastern coal sales increased slightly mid-year largely driven by an increase in export sales. Western sales likely increased as the result of increased demand by electric power producers. New Mine Safety and Health Administration safety standards signed into law in 2006 increased the cost of underground mining and thus probably decreased demand for Appalachian and Midwest coal.

Western coal production continues to have an advantage over eastern and Midwest production, largely due to lower cost surface mines and the commonly lower sulfur content of western coal. Most western coal production is "compliant" coal (1.2 lb or less SO<sub>2</sub>/mmBtu), and some is considered "super-compliant," containing about one-third the sulfur of compliant coal. However, the distance of western coal sources to eastern markets remains a deterrent to western coal sales to the eastern U.S.

**Coal Value Observations:**

**Coal Unit Values by Sales Year**



Monthly values are calculated by dividing monthly reported sales values by sales volume using sales year data (without prior period adjustments) for both RV and RIK transactions

Coal values were relatively flat in the first few months of the FY, but increased during the rest of the year. Montana and Wyoming coal prices rose slightly during this latter period, and then stabilized, while prices from sources outside the Powder River Basin showed greater increases but with more volatility. Strong demand from the utility sector for power generation and foreign demand helped cause sales prices to rise. Increasing eastern export sales and increasing prices of alternative power-generating fuels also drove prices upward.