# Fiscal Year 2006 in Review

## **Overview:**

For the fiscal year October 2005 through September 2006, the domestic oil and gas markets experienced high volatility in both commodity values and production levels. This volatility can be seen in volume and value data for production on Federal and Indian lands reported to MMS by production year. World-wide geopolitical risk, supply disruptions, demand fluctuations, financial market technical factors, and localized weather events drove much of the volatility.

Federal royalty payments increased due to onshore heavy oil and stripper well royalty reduction program terminations. Additionally, the directive to replenish the Strategic Petroleum Reserve (SPR) through royalty oil terminated in late 2005 adding royalty revenue back to MMS.

The crude oil markets saw a steady increase in unit values from the fall of 2005 through summer 2006, with a marked drop in the fall of 2006. New York Mercantile Exchange (NYMEX) West Texas Intermediate (WTI) values climbed nearly 17 percent to all-time nominal high levels in mid-2006 (over \$77 on July 14). Significant variations in price (basis) between the Gulf of Mexico and onshore Federal oil production were noted.

Natural gas values spiked in the aftermath of the Gulf of Mexico hurricanes to nearly \$14 per MMBtu on the NYMEX (over twice the levels in the previous summer months). After the hurricanes, natural gas markets were poised to achieve values of up to \$20 per MMBtu by the start of 2006. Fortunately, a mild winter tempered further natural gas value increases as production levels slowly returned to pre-hurricane levels and storage inventories became robust. Significant variations in price (basis) between the Gulf of Mexico and onshore Federal gas production, and between producing and consuming areas, were noted.

Coal production remained generally steady throughout the year with only a slight decrease. There was a mild increase in value as electricity demand increased through the above-average summer heat.

### **Oil Value Observations:**



**Oil Unit Value by Production Date** 

\*Onshore and Offshore values based on reported sales values by month using total reported value divided by reported volume

When the MMS-reported oil sales value per unit is tracked against the NYMEX WTI value, a slight divergence is seen in the more recent years. This is due to the fact that much of the Federal production is now "heavy" and "sour"; these oil types receive a significant discount from WTI in the marketplace. The discount relates to the limited product yield and/or additional sulfur-removal refinery considerations for these barrels versus the "lighter" or "sweeter" 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 MMS-reported values may also contain particular "allowances" for transportation and pipeline quality considerations resulting in a reduction in unit value. These deductions are allowed by law and typically range from \$1 to \$2 per barrel offshore and under \$1 onshore.

## **Oil Volume Observations:**



**Oil Volume by Production Date** 

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, these include Hurricane Ivan in late 2004 as well as Hurricanes Katrina and Rita in late 2005.

Onshore crude oil production is declining slowly as many older fields are experiencing falling production rates. In some fields, production decline rates of as much as 10 percent per year are not uncommon. Many enhanced recovery projects are beginning, and with rising oil values, there is some expected additional recovery. However, this recovery will likely not be significant enough to offset the general onshore declining production trend.

<sup>\*</sup>Onshore and Offshore volumes based on a summation of total reported sales volumes by month

#### Natural Gas Value Observations:



Natural Gas Unit Value by Production Date

Natural gas values generally increased over the past few years peaking in early winter 2005 after the Gulf of Mexico hurricanes. Demand for natural gas in industrial and residential applications remains strong and is expected to increase over time.

Offshore Gulf of Mexico values closely follow the average NYMEX Henry Hub Louisiana value with some slight variance due to:

-Many unique index points are used for location pricing that may differ slightly in value from the New York-traded market.

-Deductions or "allowances" are made against reported values for transport and processing liquids-rich gas.

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 Louisiana 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.

#### Natural Gas Volume Observations:





Overall offshore gas production is declining, especially on the shelf portion of the Gulf of Mexico. However, some of the new deep-water oil projects will have significant associated gas production. These new fields may help offset declines in the future. Of note is the significant hurricane-related production decline where some fields were still struggling for full recovery at the end of September 2006, though recovery would not change the underlying decline in the Gulf of Mexico natural gas production.

Federal onshore production is steadily increasing and this trend is expected to continue. This is due in large part to unconventional gas development in the Rockies.

<sup>\*</sup>Onshore and Offshore volumes based on a summation of total reported sales volumes by month

#### **Coal Value Observations:**



**Coal Unit Value by Production Date** 

\*Values based on reported sales values by month using total reported value divided by reported volume

Coal values continue to trend higher over time. Strong demand from the local utility sector for power generation continues to boost values. Coal is a commodity with relatively low price volatility making it a valuable commodity in utility expansion projects and electricity production. Coal in areas farther from population centers and more prone to high-value transportation costs (such as Montana and Wyoming) typically commands a lower value. As shown above, the average value for Montana and Wyoming is significantly below that of other producing states mainly due to heavy reliance on transportation. Producers are typically allowed transportation deductions from sales values in calculating royalty payments.

## **Coal Volume Observations:**



**Coal Volume by Production Date** 

Coal production is on a slight downward trend beginning mid-2005. The reasons for this include stricter carbon emissions standards and some displacement from natural gas used in power generation. However, reserves are estimated to be sound with no significant decline in extraction rates for many years to come.