Independent Statistics & Analysis
U.S. Energy Information Administration

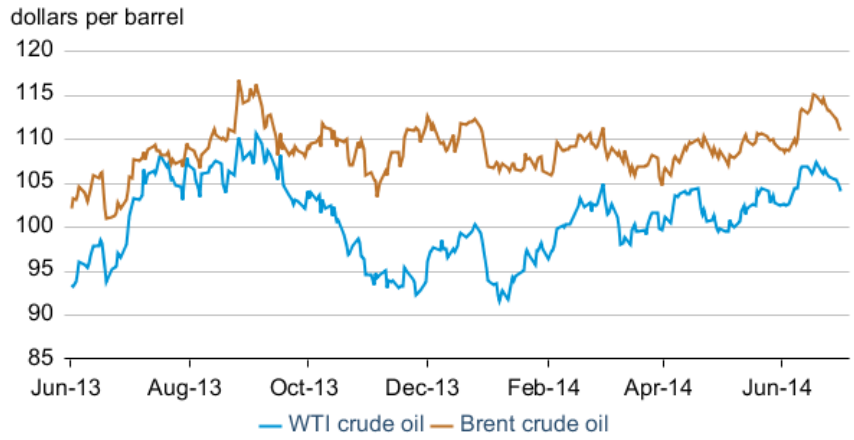
July 2014

Short-Term Energy Outlook
Market Prices and Uncertainty Report

Crude Oil

Prices: After an upward move in mid-June, crude oil prices retreated close to previous levels. The North Sea Brent front month futures price settled at $111/barrel on July 3, an increase of $2.17/barrel from June 2 **(Figure 1)**. The front month West Texas Intermediate (WTI) contract also rose, settling at $104.06/barrel on July 3, $1.59/barrel higher than on June 2.

Figure 1. Historical crude oil front month futures prices



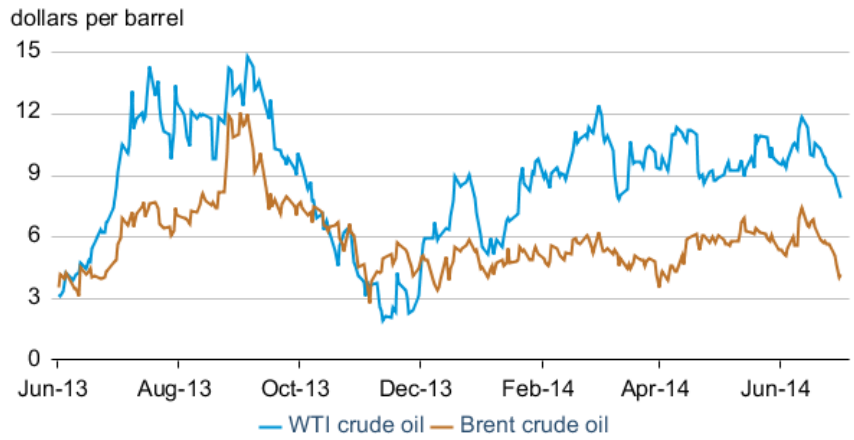
Tensions in Iraq were the primary driver of the crude oil price increase in mid-June. Brent crude oil prices settled over $115/barrel on June 19 for the first time since September 2013. Although most of the current conflict is limited to the northern and western parts of Iraq, where effects on crude oil production are relatively small, markets are also considering the risks of a potential future disruption to Iraqi production and exports from the major southern fields. With low surplus production capacity and high unplanned outages compared to historic levels, threats to current production will noticeably affect crude oil prices.

This is a regular monthly companion to the EIA Short-Term Energy Outlook (http://www.eia.gov/forecasts/steo/)
Contact: James Preciado (james.preciado@eia.gov)

In June, backwardation (when near-term prices are greater than longer-term ones) in the Brent futures curve reached its highest level of the year in reaction to concerns over Iraqi production. The Brent 1st-13th month spread settled at $7.42/barrel on June 13 before declining to settle at $4.18 on July 3 **(Figure 2)**. Higher prices for near-term delivery relative to prices further out on the futures curve suggested that market participants were less willing to sell crude oil out of inventory, perhaps in preparation for potential future supply disruptions; however, a return to previous levels suggests that these market concerns lessened in the subsequent week.

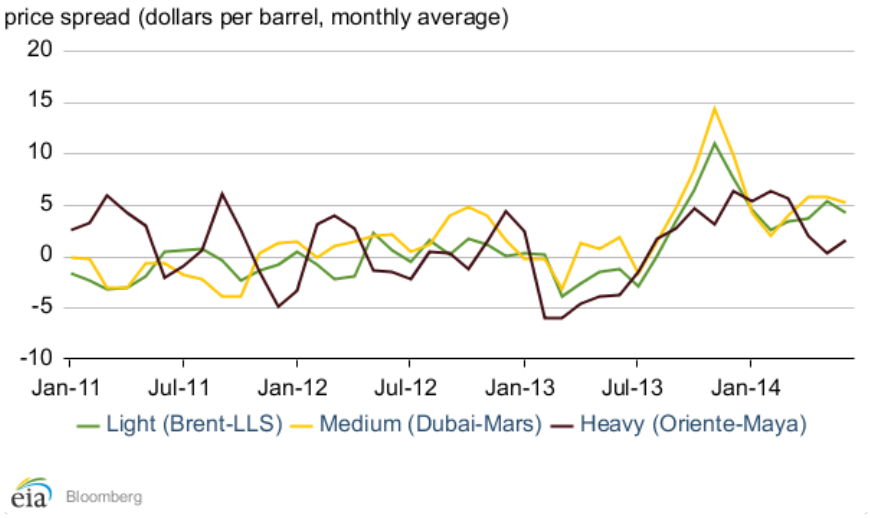
The 1st-13th month spread in the WTI futures curve followed a similar pattern in June, rising to a peak of $11.84/barrel on June 13 and settling below beginning-of-June levels on July 3. Crude oil inventory declines in Cushing, Oklahoma, slowed last month, averaging 223,000 barrels per week for the four weeks ending June 27. The average decline over the previous four weeks was 665,000 barrels per week.

Figure 2. Crude oil front month - 13th month futures price spread



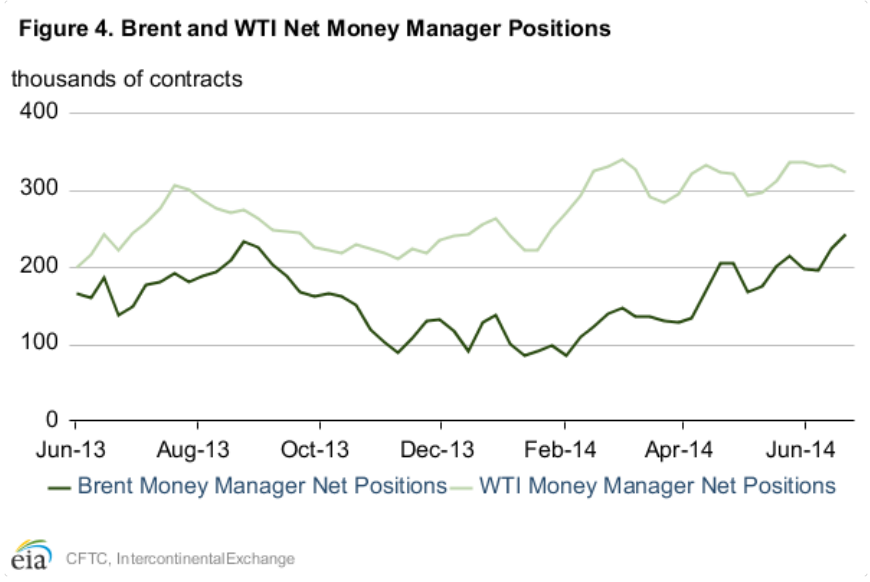
The discount of U.S. Gulf Coast (PADD 3) light and medium grade crude oil prices to international crude oil benchmarks is lower in 2014 compared to fourth-quarter 2013, but still elevated compared to historical averages. Over the past three months, Louisiana Light Sweet (LLS) and Mars averaged $4.41 and $5.60/barrel lower than Brent and Dubai crude oil prices, respectively **(Figure 3)**. Meanwhile, after reaching its steepest discount to Oriente crude oil in February, Maya crude oil strengthened over the past few months to reach near parity in May and a discount of only $1.54/barrel to Oriente in June. This suggests that demand for heavy crude oil on the U.S. Gulf Coast remains strong, and that imports of heavy crude oil may rise while the demand for medium and light crude oil is being met by increased U.S. crude oil production.

Figure 3. International and U.S. Gulf Coast crude price differentials



Money Manager Positions: Money manager net long positions for Brent reached their highest level since the IntercontinentalExchange (ICE) began tracking them in 2011 at 242,000 contracts on June 24 **(Figure 4)**. An increase in risks to future crude oil production in Iraq contributed to the rise in net money managers positions in Brent futures contracts. A similar increase in net length, and the last time that net money manager positions reached more than 200,000 contracts, occurred last year when Libyan supply disruptions removed 1 million b/d from global markets. Net length in WTI contracts decreased slightly throughout June, falling by 13,000 contracts since June 3.

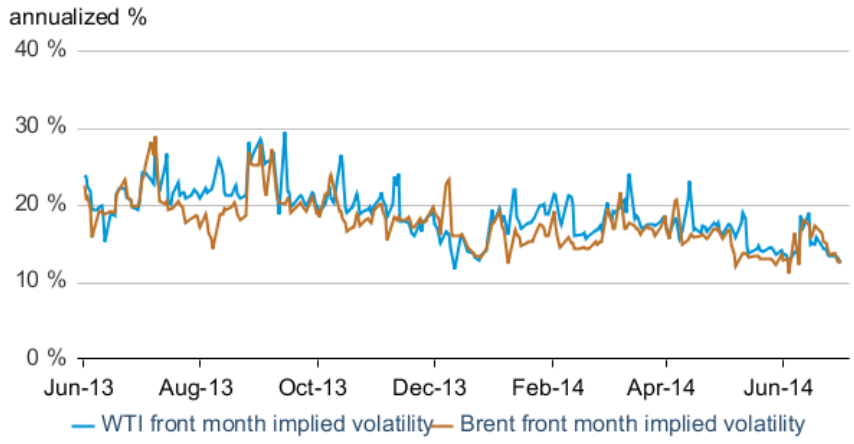
Figure 4. Brent and WTI Net Money Manager Positions



Volatility: Implied volatility for both the Brent and WTI front month futures contract increased in June as the situation in Iraq added uncertainty to future oil supplies but

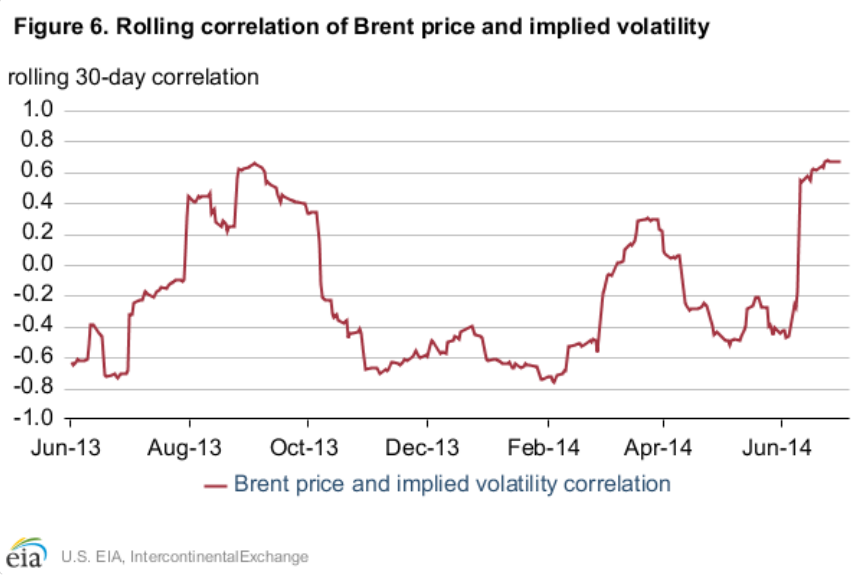
then declined toward the end of the month. Brent and WTI implied volatility settled at 12.8% and 12.4%, respectively, on July 3, falling by 0.8 and 1.8 percentage points, respectively, since June 2 **(Figure 5)**.

Figure 5. Crude Oil Implied Volatility



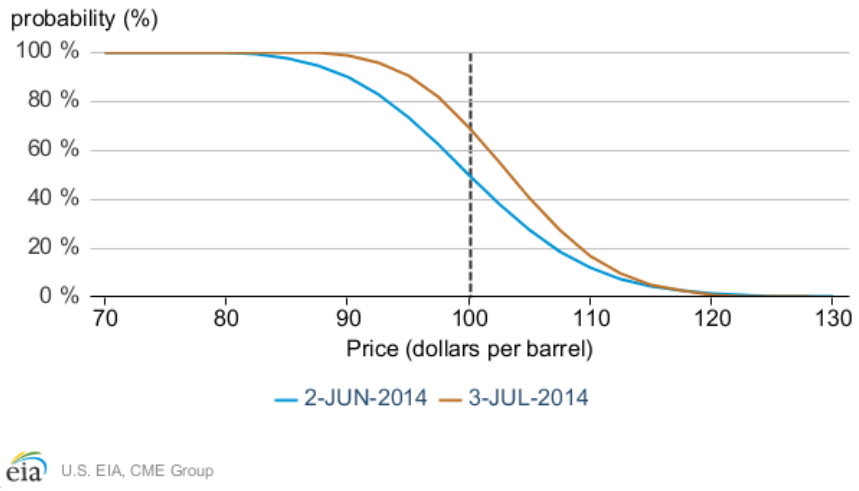
The correlation between daily percent changes in the Brent futures contract and its implied volatility is an indicator of the degree to which supply-side risks are influencing oil prices. The rolling 30-trading day correlation between daily changes of Brent prices and implied volatility changes became positive on June 12, shortly after tensions in Iraq increased, and was 0.67 for the 30-trading-day period ending July 3 **(Figure 6)**. This marked the highest correlation since September 2013, when Libyan crude oil production dropped sharply. The continuing positive correlation suggests that the recent drop in prices could reflect a decline in concern surrounding future Iraqi oil production.

Figure 6. Rolling correlation of Brent price and implied volatility



Market-Derived Probabilities: The October 2014 WTI futures contract averaged $103.54/barrel for the five trading days ending July 3 and has a probability of exceeding $100/barrel at expiration of 69%. The same contract for the five trading days ending June 2 had a probability of exceeding $100 of 50% (**Figure 7**). Because Brent prices are higher than WTI prices, the probability of Brent futures contracts expiring above the same dollar thresholds is higher.

Figure 7. Probability of the October 2014 WTI contract expiring above price levels



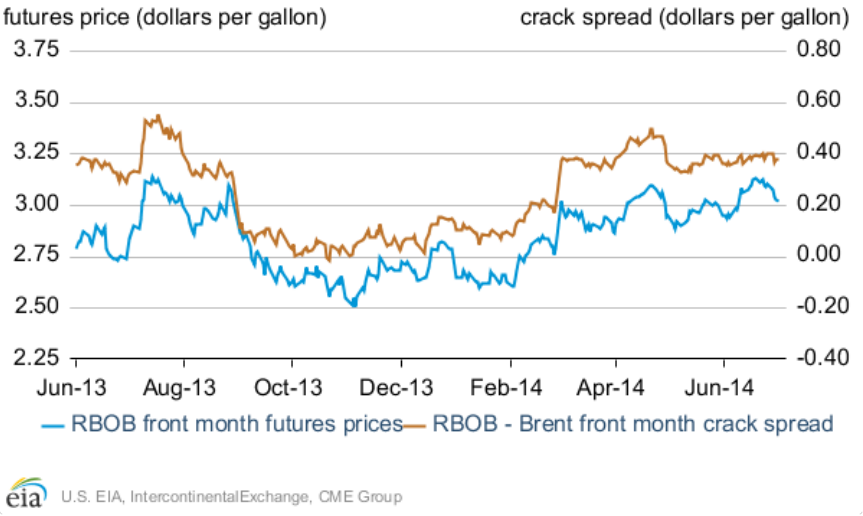
eia U.S. EIA, CME Group

Petroleum Products

Gasoline prices: The reformulated blendstock for oxygenate blending (RBOB, the petroleum component of gasoline) front month futures price increased 7 cents per gallon (gal) from June 2 to settle at $3.02/gal on July 3 **(Figure 8).** The RBOB-Brent crack spread rose slightly to 38 cents/gal on July 3, a gain of 2 cents/gal since June 2. The average RBOB-Brent crack spread in June was 38 cents/gal, the highest for that month since 2007.

The rise in gasoline prices over the past month is attributable to the rise in crude oil prices over the same period, demonstrated by a relatively stable crack spread. The gasoline market continues to be well supplied, as consumption and exports declined from May to June. For the four weeks ending June 27, consumption plus exports reached 9.3 million b/d, 0.2 million b/d lower than in May, which was the first decline from May to June since 2008. Total U.S. motor gasoline inventories as of June 27 stood at 214 million barrels, an increase of 2 million barrels from May.

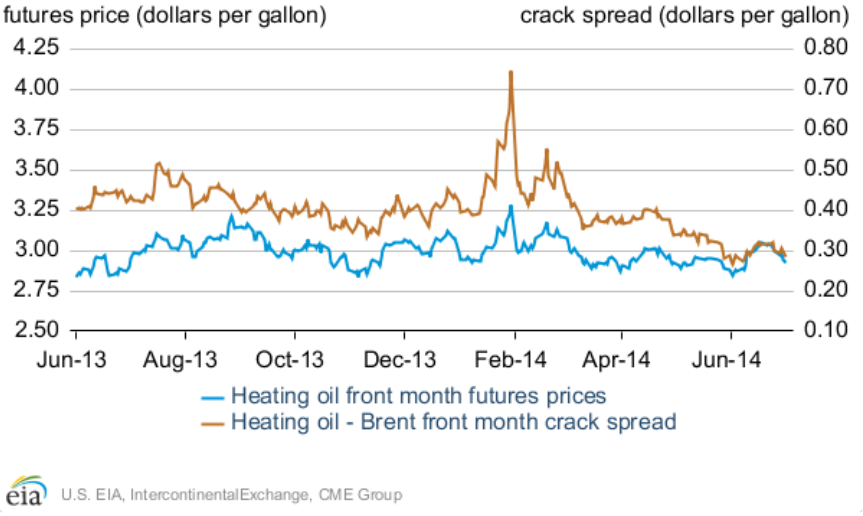
Figure 8. Historical RBOB futures prices and crack spread



Heating Oil prices: The front month futures price for heating oil increased 5 cents/gal from June 2, settling at $2.93/gal on July 3 **(Figure 9)**. The heating oil-Brent crack spread settled at 29 cents/gal on July 3, ending at the same level as the beginning of June.

Distillate price movements, like those of gasoline, over the last month were directly related to the price movements of crude oil, though crack spreads remain well below year-ago levels. For the four weeks ending June 27, distillate consumption plus exports was 4.8 million b/d, the first time in 13 months that distillate consumption and exports did not show year-over-year growth. Total U.S. distillate inventories rose to 122 million barrels and, for the first time since November, re-entered their five-year range.

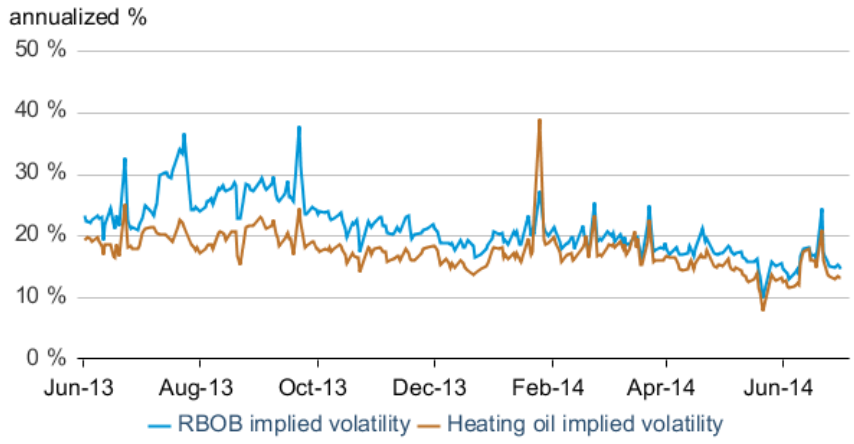
Figure 9. Historical heating oil futures price and crack spread



Volatility: Implied volatility for the front month RBOB contract and front month heating oil contract declined slightly by 1.2 percentage points and 0.1 percentage point,

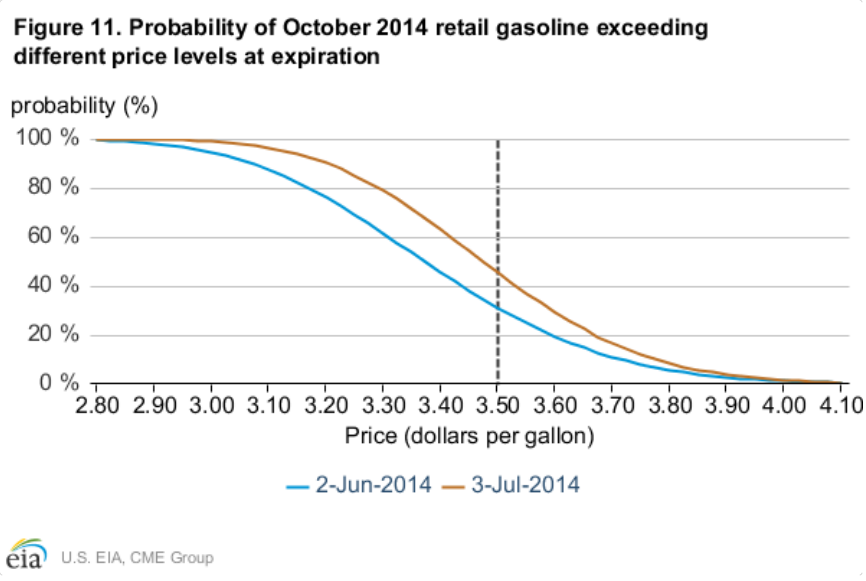
respectively, from June 2 to settle at 14.5% and 13.2%, respectively, on July 3 **(Figure 10)**. The implied volatility for both contracts rose sharply in the middle of June as RBOB and heating oil futures prices reacted to the sudden price movements in the crude oil market.

Figure 10. RBOB and Heating oil Implied Volatility



Market-Derived Probabilities: The October 2014 RBOB futures contract averaged $2.83/gal for the five trading days ending July 3 and has a 47% probability of exceeding $2.85/gal (typically leading to a retail price of $3.50/gal) at expiration. The same contract for the five trading days ending June 2 had a 31% probability of exceeding $2.85/gal **(Figure 11)**.

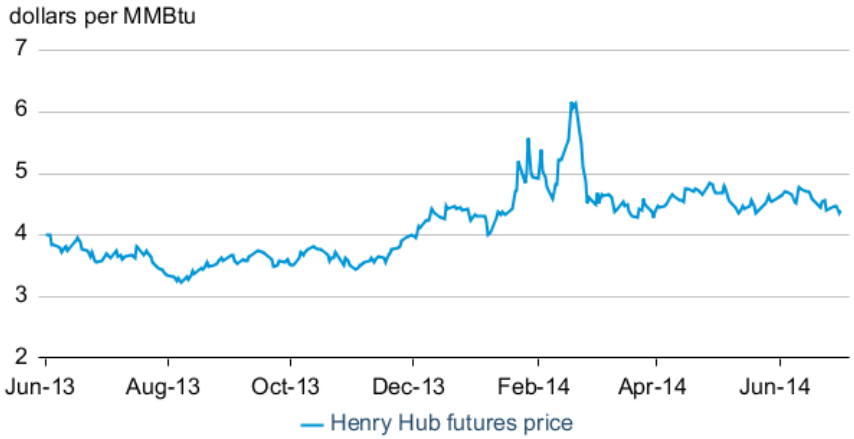
Figure 11. Probability of October 2014 retail gasoline exceeding different price levels at expiration



Natural Gas

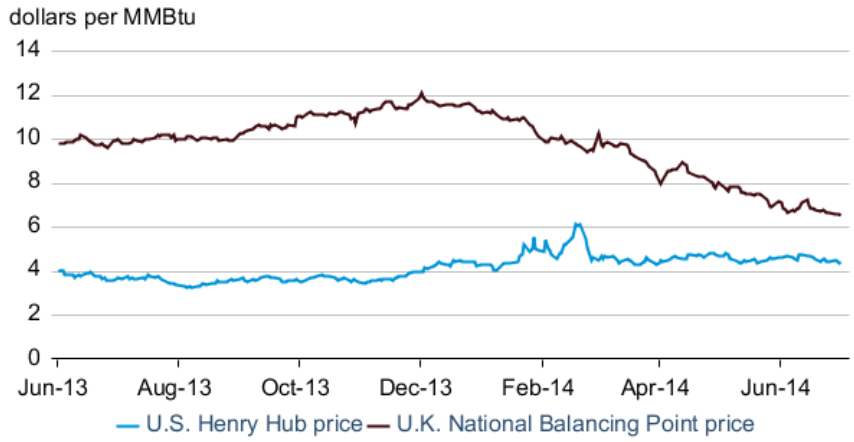
Prices: Front month futures prices for natural gas have remained in a 56 cent/MMBtu range since the beginning of March. Prices for the first three weeks of June averaged $4.64/MMBtu, but declined after storage injections continued to top or reach 100 billion cubic feet (Bcf) for the weeks of June 13, June 20, and June 27, the highest since 2003. Prices settled at $4.41/MMBtu on July 3, 21 cents/MMBtu lower than on June 2 **(Figure 12)**.

Figure 12. Historical front month U.S. natural gas prices



While temperatures in the United States were colder than normal this past winter, temperatures in Europe were much milder compared to historical averages. Similar to what happened in the United States after its own mild winter in December 2011 to January 2012, inventory levels at the start of injection season were higher than normal in the United Kingdom and prices for natural gas moved lower there. The price of natural gas at the U.K. national balancing point was $6.54/MMBTU on July 3, the lowest level since September 2010 and the smallest differential to the U.S. Henry Hub price since September 2010 **(Figure 13)**.

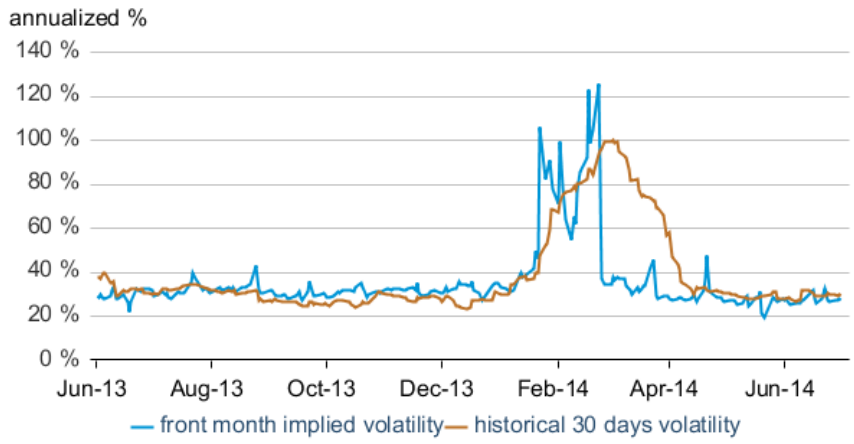
Figure 13. U.S. and U.K. natural gas prices



eia CME Group, Bloomberg

Volatility: Natural gas implied volatility decreased 0.5 percentage points since June 2, settling at 27% on July 3 **(Figure 14)**. Realized historical volatility increased 0.8 percentage points from June 2, settling at 28.9% on July 3.

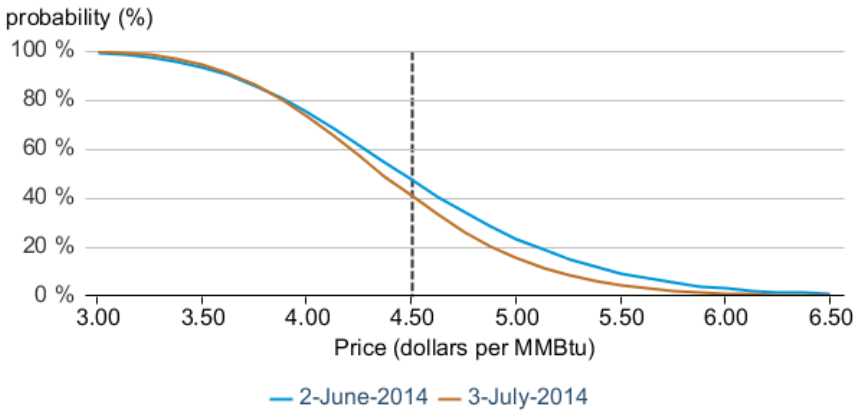
Figure 14. Natural gas historical and implied volatility



eia U.S. EIA, CME Group

Market-Derived Probabilities: The October 2014 Henry Hub futures contract averaged $4.40/MMBtu for the five trading days ending July 3 and has a 41% probability of exceeding $4.50/MMBtu at expiration. The same contract for the five trading days ending June 2 had a 47% probability of exceeding $4.50/MMBtu **(Figure 15)**.

Figure 15. Probability of the October 2014 Henry Hub contract expiring above price levels

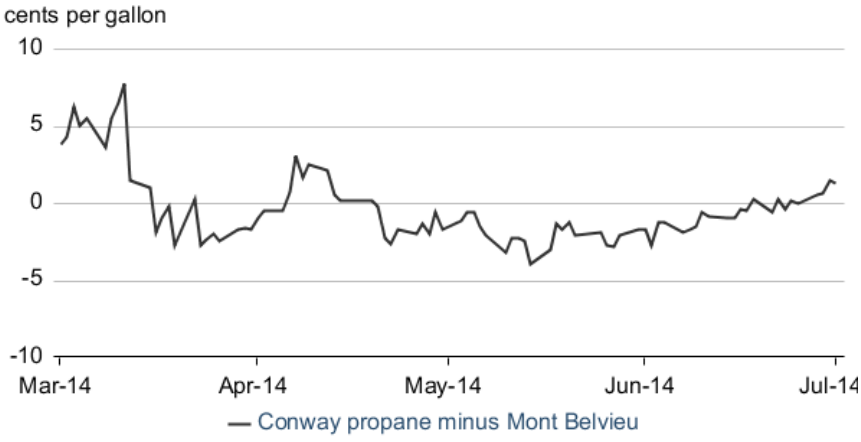


eia U.S. EIA, CME Group

Propane

Prices: Similar to natural gas, the propane market experienced a large draw in inventories because of a colder-than-average winter. Propane production at natural gas plants is 150,000 thousand b/d higher than last year, which pushed U.S. propane inventories above the 5-year average for the first time since before the winter. However, PADD 2 inventories are still below last year's levels and are more than 3.6 million barrels below the 5-year average. After falling to a discount in April and May, Conway prices developed a premium to Mont Belvieu in June, with the spread increasing 3 cents/gal since June 2 to settle at a 2 cents/gal premium on July 3 **(Figure 16)**. A premium at Conway should help attract additional supply to PADD 2.

Figure 16. Conway propane minus Mont Belvieu



eia Bloomberg