

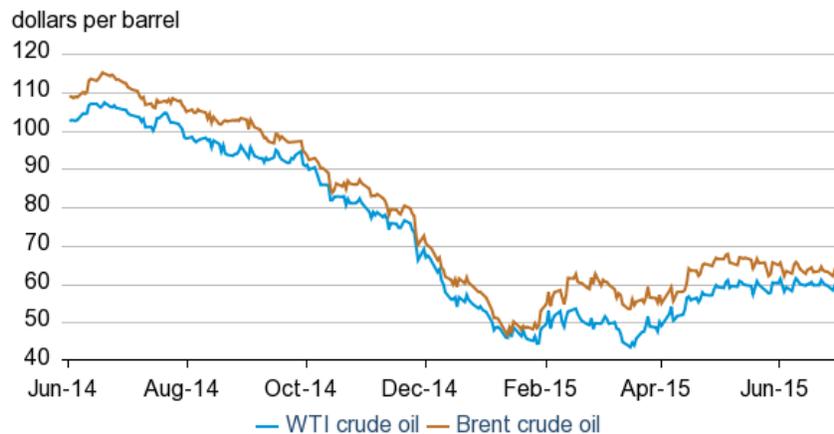


## Short-Term Energy Outlook Market Prices and Uncertainty Report

### Crude Oil

**Prices:** Global and domestic crude oil prices traded in a narrow range in June. The North Sea Brent front month futures price declined \$2.87 per barrel (b) since June 1 to settle at \$62.01/b on July 1 (**Figure 1**). The West Texas Intermediate (WTI) front month futures price declined \$3.24/b over the month, settling at \$56.96/b on July 1.

**Figure 1. Historical crude oil front month futures prices**



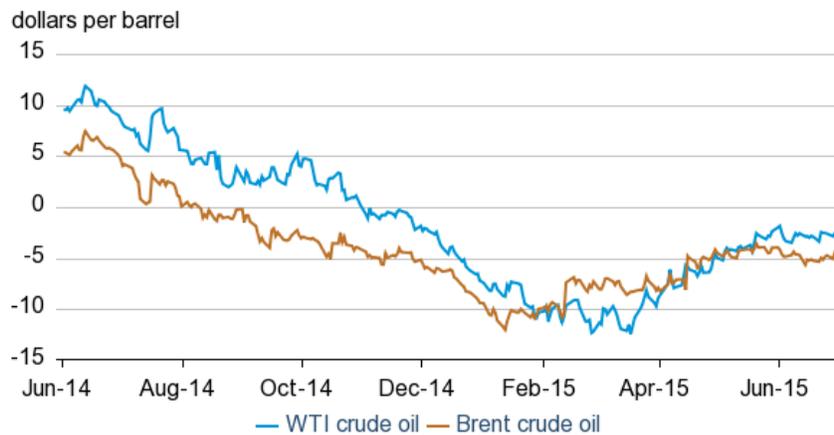
Bloomberg L.P.

As global crude oil supply remains robust, demand-side factors are likely contributing to renewed price stability in international oil markets. Consumption in the Organization for Economic Cooperation and Development (OECD) countries has been higher than expected, as lower fuel prices and rising employment spur gasoline consumption. Whether demand and refinery runs can remain strong into the period of seasonal declines later this year will help determine if oil prices can maintain current levels.

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](mailto:james.preciado@eia.gov))

Near-term prices for Brent and WTI decreased compared to longer-dated ones, reversing several months of narrowing time spreads. The 1<sup>st</sup>-13<sup>th</sup> spread for Brent settled at -\$4.67/b on July 1, a decrease of 71¢/b since June 1 (**Figure 2**). Increases in inventories and a comparatively loose Atlantic Basin market have contributed to increased contango in the Brent structure. This may be opening up opportunities for Asian buyers to make purchases in this market, increasing flows eastward. In the United States, commercial crude oil inventories declined for eight [consecutive weeks](#) before increasing the week ending June 26, averaging a weekly decline of 3 million barrels per week in June. An unexpected build in inventories in the last week of the month contributed to a steeper decline in the futures curve for WTI, with the 1<sup>st</sup>-13<sup>th</sup> spread declining \$1.53/b since June 1, settling at -\$3.54/b on July 1.

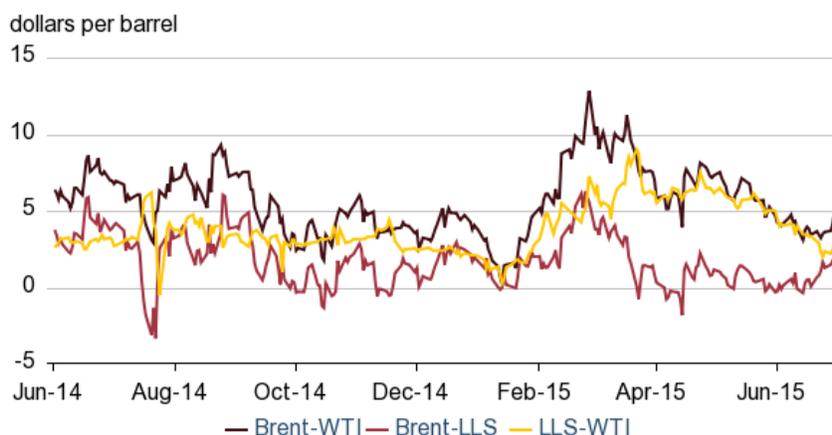
**Figure 2. Crude oil front month - 13th month futures price spread**



eia Bloomberg L.P.

Prices for Light Louisiana Sweet (LLS), the light sweet crude oil delivered in the Gulf Coast, weakened against both Brent and WTI. The Brent-LLS spread settled at \$2.05/b on July 1, an increase of \$2.37/b since June 1 while the LLS-WTI differential declined \$2.00/b over the same period to settle at \$3.00/b (**Figure 3**). A drop in LLS prices compared with both Brent and WTI coincides with a drop in refinery runs on the U.S. Gulf Coast. PADD 3 crude inputs to refineries fell by 169,000 b/d from the end of May to the week ending June 26. This suggests that prices are reflecting less demand for crude oil imports and movements by pipeline into the Gulf Coast and could lead to less crude oil being moved into the Gulf Coast area in the future.

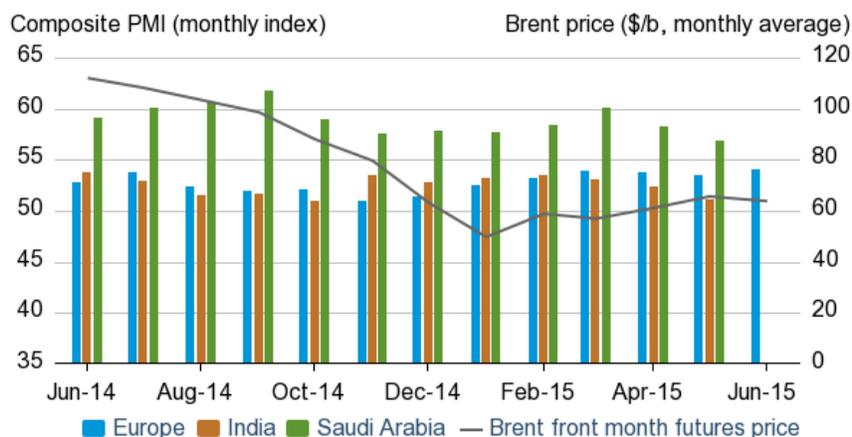
**Figure 3. Historical crude oil differentials**



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**Composite Purchasing Manager's Index:** The composite Purchasing Manager's Index (PMI) is a leading indicator of economic activity, surveying managers in both services and manufacturing businesses on expectations of output, new orders, employment, and other measures. The European PMI in June reached a four-year high of 54.1 (where any reading greater than 50 indicates expansion in activity). Notwithstanding issues surrounding Greece's fiscal and monetary stability, this indicator suggests that businesses throughout Europe are seeing expansions in real activity, which is supporting European demand for petroleum products. In Saudi Arabia and India, the latest readings for May were 57 and 51.2, respectively (**Figure 4**). While those readings were lower than the previous month, every month over the past year has indicated expansion in services and manufacturing in these countries, which have also experienced strong year-over-year growth in petroleum product consumption. Continued expansion of business activity in these countries could raise expectations for global GDP growth throughout the second half of 2015 and indicate higher consumption of crude oil and petroleum products. However, lower PMI readings in Europe, India, or Saudi Arabia could be an early signal of a slowdown in demand growth for petroleum products.

**Figure 4. Monthly PMI and average Brent price**



eia Markit, Bloomberg L.P.

**Energy Company Bond Yields:** A market-based measure on the risk of bond repayments is the yield on a given company’s outstanding bonds compared to the yield on a risk-free one, such as U.S. Treasury bonds. The Bloomberg High Yield Corporate Bond Index is a market-value weighted index to measure the value of corporate bonds for companies whose credit rating is below investment grade against the risk-free rate. When crude oil prices began declining in the second half of 2014, the spread between high yield bonds issued by energy companies and treasuries increased, reflecting investors need to be compensated for the higher risk to energy companies in a low crude oil price environment. Lower crude oil prices reduce expectations for the future earnings of energy companies and increase the risks associated with investing in energy companies. High yield corporate bond spreads in the energy sector reached a high of 1,061 basis points in December 2014, 443 basis points above the composite high yield bond index (**Figure 5**). As crude oil prices have stabilized, spreads have also declined but remain higher than other corporate sectors. Higher borrowing rates could make some projects less economically viable and affect future production.

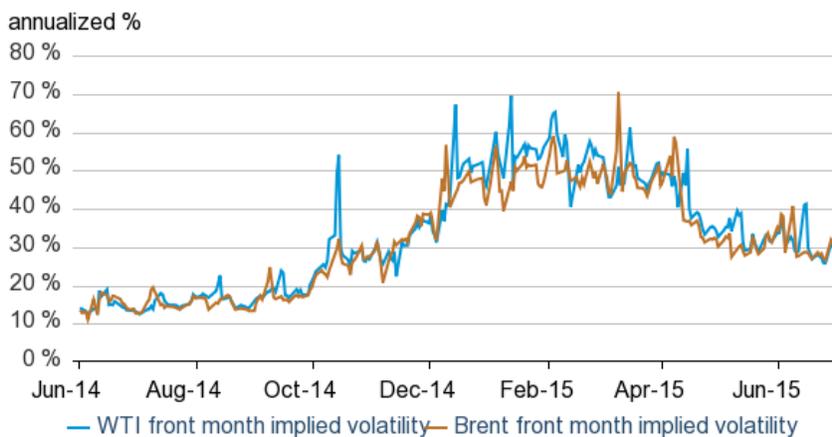
**Figure 5. Bloomberg High Yield Corporate Bond Index**



eia Bloomberg L.P.

**Volatility:** Implied volatility for Brent and WTI declined slightly throughout the month, averaging near 30% for the second consecutive month. Brent implied volatility settled at 31.1% on July 1, a decrease of 4 percentage points since June 1 (**Figure 6**). For WTI, volatility declined 1.6 percentage points over the same time period to settle at 32.2% on July 1. While volatility remains higher than last year, it is more in line with the historical range and reflects expectations that supply and demand imbalances could narrow.

**Figure 6. Crude Oil Implied Volatility**

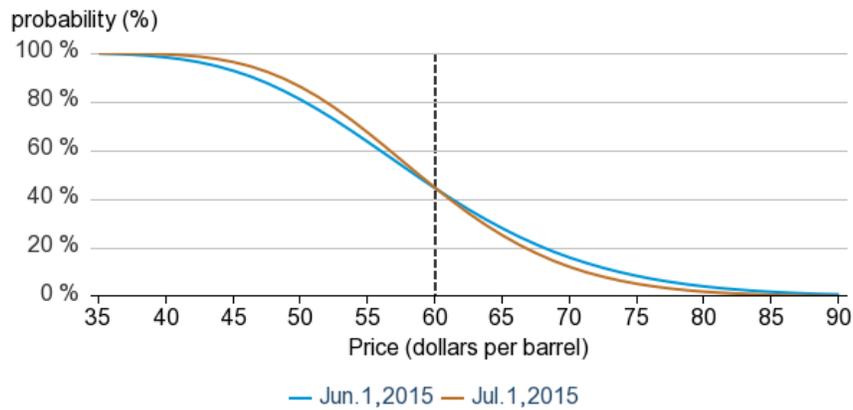


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**Market-Derived Probabilities:** The October 2015 WTI futures contract averaged \$59.45/b for the five trading days ending July 1 and has a 45% probability of exceeding \$60/b at expiration. The same contract for the five trading days ending June 1 had a 44% probability of exceeding \$60/b (**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 2015 WTI contract expiring above price levels**



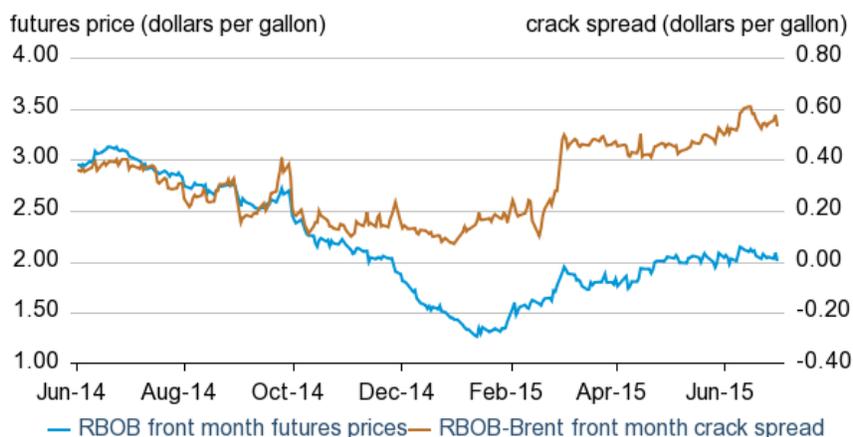
 U.S. Energy Information Administration, CME Group

## Petroleum Products

**Gasoline prices:** The reformulated blendstock for oxygenate blending (RBOB, the petroleum component of gasoline) front month futures price decreased slightly by 4 cents per gallon (¢/gal) from June 1 to July 1, settling at \$2.01/gal (**Figure 8**). The RBOB-Brent crack spread increased by 3¢/gal over the same period and settled at 53¢/gal.

Gasoline prices stayed relatively flat despite declines in crude oil prices over the past month. The average gasoline crack spread in June was 55¢/gal, the highest for any month since 2007, as gasoline prices were supported by strong demand. [Gasoline consumption and exports](#) averaged 9.9 million b/d in June, 0.16 million b/d more than May. Refiners, encouraged by robust crack spreads, increased runs to meet the higher demand. Gross inputs to refineries in June were 16.8 million b/d, an increase of 0.28 million b/d from May, which helped to slow the drawdown in [gasoline inventories](#) through June.

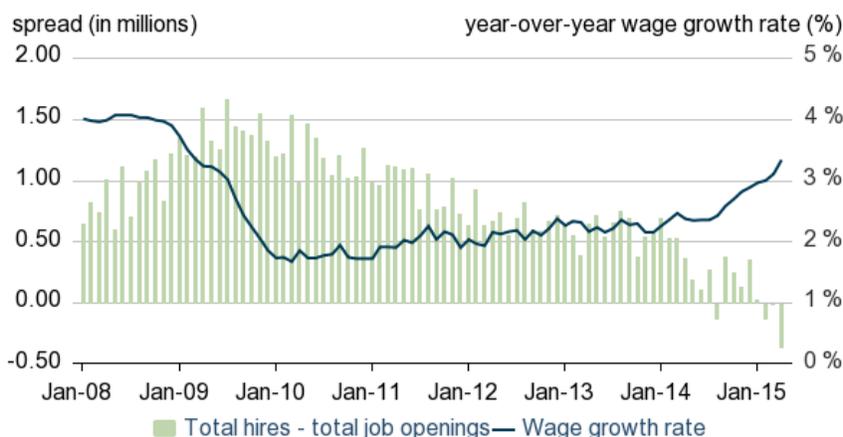
**Figure 8. Historical RBOB futures prices and crack spread**



eia Bloomberg L.P.

**U.S. job market and wage growth:** From October 2014 to April 2015, U.S. [gasoline consumption](#) was close to or exceeded five-year highs. Strength in the U.S. job market, increased wage growth, and trends in the automotive market may have contributed to the increased gasoline consumption over that period. The Bureau of Labor Statistics provides monthly data on [labor availability](#), including the number of people hired each month (hires) and the number of jobs left unfilled (job openings). The spread between the number of hires and the number of job openings reflects how tight or loose the labor market is. Since the start of 2014, this spread declined, and, in April 2015, the number of job openings exceeded the number of hires by 370,000 (**Figure 9**). Unlike during the Great Recession, when the number of job openings was low and the availability of labor was high, competition has increased to find qualified candidates in a smaller labor pool. Consequently, wages may be responding to the tighter labor market as [year-over-year wage growth](#), calculated by the Federal Reserve Bank of Atlanta, increased by 3.3% in April 2015, the highest since 2009.

**Figure 9. U.S. labor availability and wage growth**



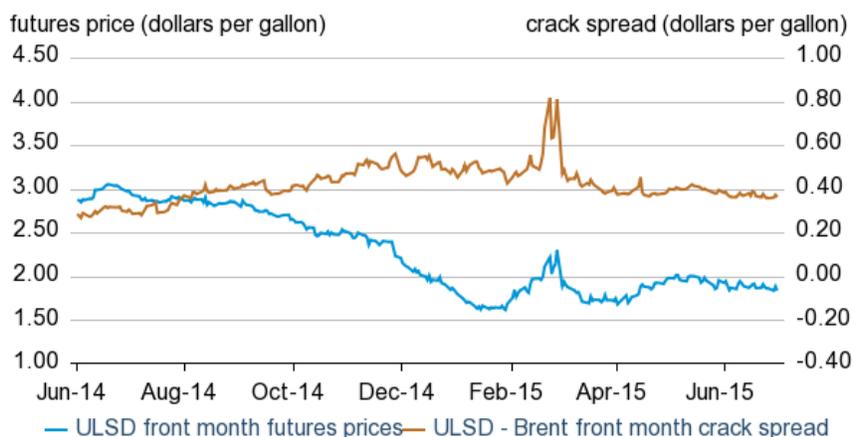
eia Bloomberg L.P., Federal Reserve Bank of Atlanta

An improved job market and higher wages provides some indication that, along with lower gasoline prices, consumers may be driving more and purchasing more light-duty trucks than passenger cars. The [12-month average total vehicle miles traveled](#) reported by the U.S. Federal Highway Administration has increased sharply since 2014 and set record highs each month from January to April 2015. The Bureau of Economic Analysis’s monthly data on [vehicle sales](#) show that for the first five months of 2015, light-duty truck sales outpaced car sales by 21%, compared to just 9% during the same period last year. As a result, some of the increase in gasoline consumption may reflect not only more driving by U.S. consumers as employment and purchasing power improve, but also slower growth in fuel efficiency as consumers purchase more light-duty trucks compared with cars.

**Ultra-Low Sulfur Diesel prices:** The front month futures price for the New York Harbor Ultra-Low Sulfur Diesel (ULSD) contract decreased 9¢/gal from June 1 to settle at \$1.84/gal on July 1 (**Figure 10**). The ULSD-Brent crack spread decreased slightly by 2¢/gal since over the same period to settle at 36¢/gal.

[Distillate consumption plus exports](#) were nearly unchanged from May to June, while on average there was a 60,000 b/d increase during that period from 2010 to 2014. [Distillate stocks](#) in the United States rose 3.2 million barrels from May to June compared with an average increase of just 1.1 million barrels in the past five years. Rising inventory levels may indicate weaker demand in the domestic and international markets, as market participants choose to store rather than sell distillate. This may place additional downward pressure on ULSD prices in the near term.

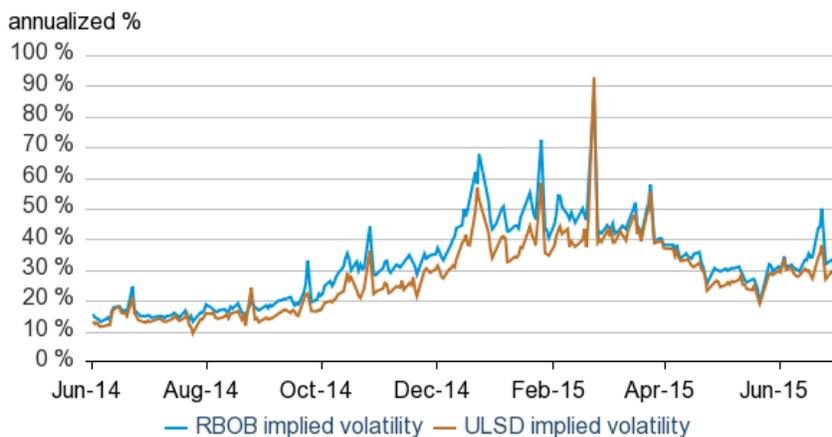
**Figure 10. Historical ULSD futures price and crack spread**



eia Bloomberg L.P.

**Volatility:** Implied volatility for the RBOB front month futures contract rose 2.2 percentage points from June 1 to settle at 33.3% on July 1 (**Figure 11**). The implied volatility of the ULSD front month futures contract was nearly unchanged, down 0.3 percentage points to 30.1% over the same period.

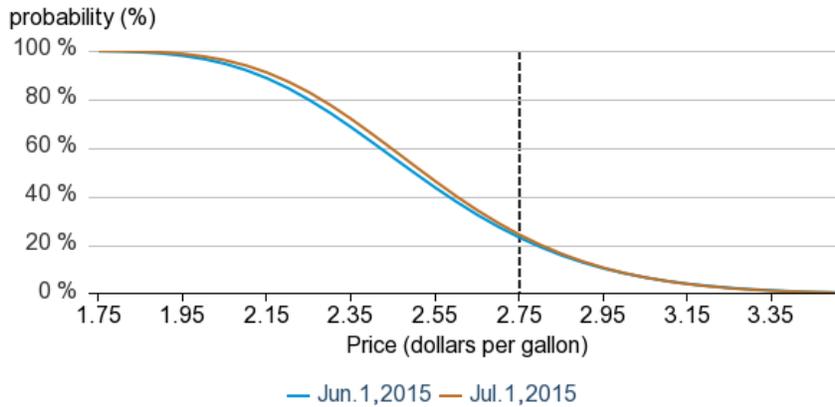
**Figure 11. RBOB and ULSD Implied Volatility**



eia CME Group, Bloomberg L.P.

**Market-Derived Probabilities:** The October 2015 RBOB futures contract averaged \$1.80/gal for the five trading days ending July 1 and has a 24% probability of exceeding \$2.10/gal (typically leading to a retail price of \$2.75/gal) at expiration. The same contract for the five trading days ending June 1 had a 23% probability of exceeding \$2.10/gal (**Figure 12**).

**Figure 12. Probability of October 2015 retail gasoline exceeding different price levels at expiration**

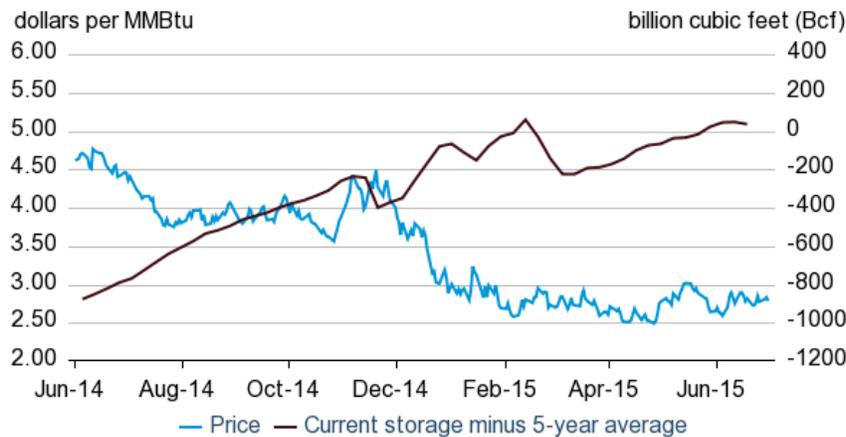


eia U.S. Energy Information Administration, CME Group

## Natural Gas

**Prices:** U.S. natural gas prices strengthened in June as working storage levels stabilized just above the five-year average for this time of year. The front month Henry Hub futures price settled at \$2.78/MMBtu on July 1, an increase of 13¢/MMBtu from June 1 (**Figure 13**). Natural gas working inventories were 2,577 bcf for the week ending June 26, 29 bcf higher than the [five-year average](#) for this time of year. Cooling degree days rose above their five-year averages in June, reducing the pace of natural gas inventory builds and supporting domestic prices.

**Figure 13. U. S. natural gas prices and storage**

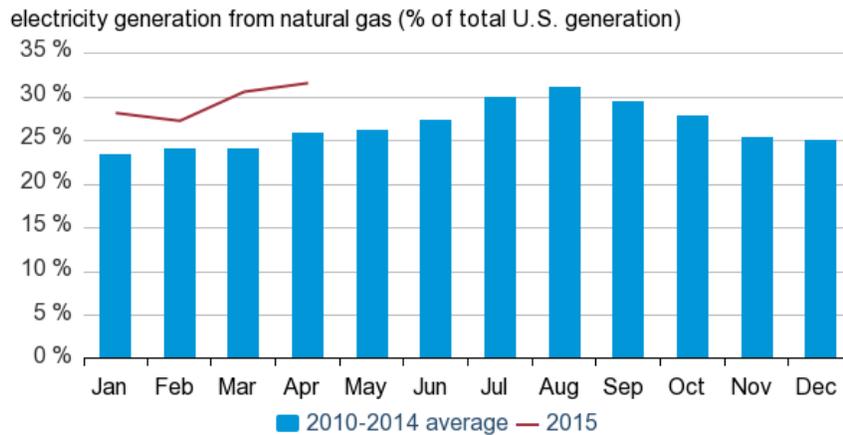


eia U.S. Energy Information Administration, CME Group

**Natural gas and electricity generation:** The proportion of U.S. electricity generation from natural gas typically peaks in July or August. From 2010 to 2014, the percentage of total electricity generation from natural gas in July and August averaged 30% and 31%,

respectively (**Figure 14**). Monthly data from January through April 2015 shows that the proportion of electricity generated from natural gas outpaced the previous five-year average by 4.9 percentage points. Natural gas also surpassed coal as the largest fuel source for electricity generation in April for the first time.

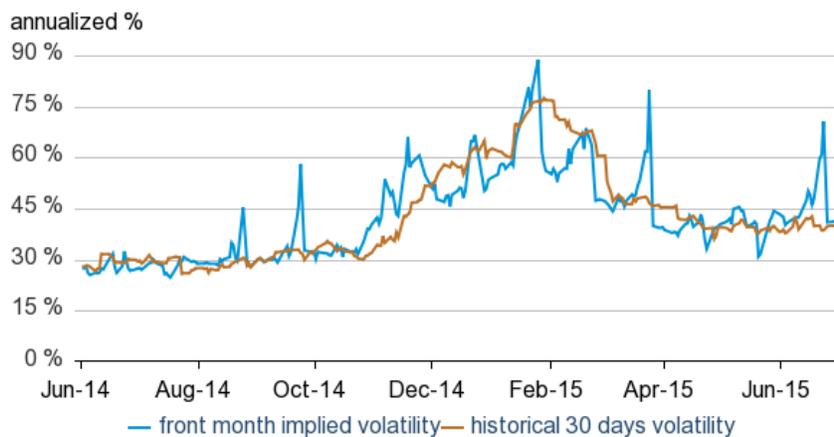
**Figure 14. U.S. Electricity Generation from Natural Gas**



eia U.S. Energy Information Administration

**Volatility:** Volatility levels for the front month natural gas futures contract were relatively unchanged over the past month, reflecting the continued uncertainties in the natural gas market related to consumption this summer and future production in a lower natural gas and liquids price environment. Implied and historical volatility settled at 40.4% and 40%, respectively, on July 1, a decrease of 3 and an increase of 1.9 percentage points since June 1, respectively (**Figure 15**).

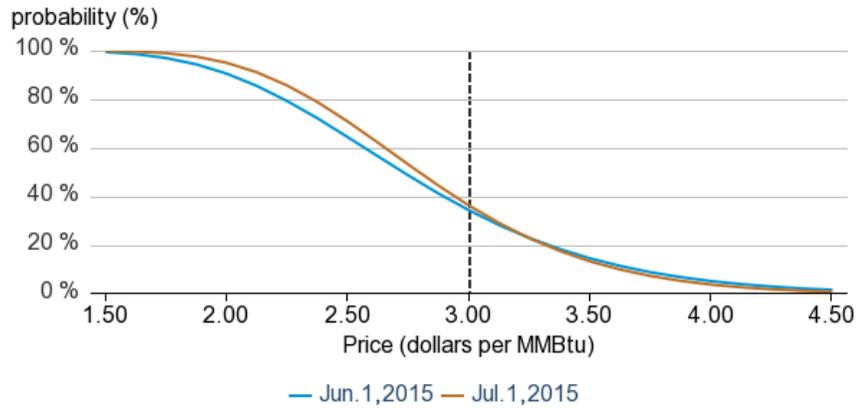
**Figure 15. Natural gas historical and implied volatility**



eia Bloomberg L.P.

**Market-Derived Probabilities:** The October 2015 Henry Hub futures contract averaged \$2.85/MMBtu for the five trading days ending July 1 and has a 36% probability of exceeding \$3.00/MMBtu at expiration. The same contract for the five trading days ending June 1 had a 34% probability of exceeding \$3.00/MMBtu (**Figure 16**).

**Figure 16. Probability of the October 2015 Henry Hub contract expiring above price levels**



 U.S. Energy Information Administration, CME Group