

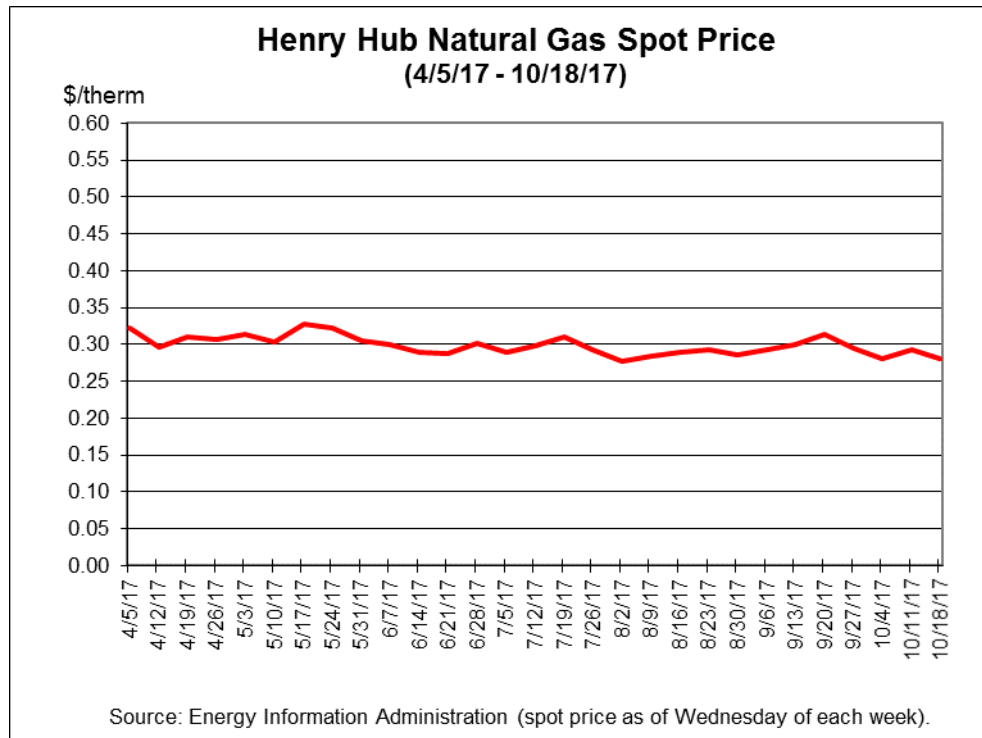
WHOLESALE NATURAL GAS MARKET ASSESSMENT

Wholesale Natural Gas Futures Prices as of October 5, 2017

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Outlook for Wholesale Natural Gas Prices

This report presents the Office of Technical and Regulatory Analysis' ("OTRA") assessment of wholesale natural gas supply and prices for October 2017.¹ OTRA's current assessment of the natural gas market suggests that wholesale natural gas prices may remain around \$0.30 per therm, or lower, during November 2017 (see Henry Hub Spot Price figure). Recent natural gas spot prices are down over 7 percent from prices for the same period a year ago.



Data from the Energy Information Administration ("EIA") indicates that the average Henry Hub natural gas spot price for September 2017 was about \$0.30 per therm, up slightly from the \$0.29 month in August.² In its Short-Term Energy Outlook ("STEO") for October 2017, EIA indicates that **“[f]utures prices declined in early September, largely because of reduced demand related to Hurricane Irma in Florida. Most electricity generation in Florida is natural gas-fired, and electricity generation in Florida on September 11 was 41% lower than the average of the first seven days of September. Injections of working natural**

¹ This assessment is based on information collected from various sources. Projecting future conditions is a difficult task at best, so these comments are subject to change as new information becomes available.

² EIA, *Natural Gas Weekly Update* (various issues).

gas into underground storage exceeded market expectations and historical averages for the first three weeks in September, which further contributed to lower prices.”³ EIA expects natural gas prices to rise over the forecast period due to new natural gas export capabilities and growing domestic natural gas consumption. Henry Hub natural gas prices averaged about \$0.25 per therm in 2016 and the forecasted price rises to \$0.30 per therm in 2017 and \$0.32 per therm in 2018.⁴

As of October 13, 2017, natural gas in storage stood at 3,646 billion cubic feet (“Bcf”). The working gas in storage is down about 5 percent from the same period a year ago, and is down by 1 percent compared to the 5-year average.

Commodity prices, together with the costs Washington Gas Light (“WGL”) incurs for storage, peaking, and balancing, have resulted in a higher retail price than what was experienced last year. Specifically, the costs WGL incurs to acquire and deliver natural gas to customers are reflected in WGL’s retail commodity price, called the Purchased Gas Charge (“PGC”).⁵ The PGC for October 2017 is 48.09 cents (\$0.48) per therm, compared with 43.68 cents (\$0.44) per therm for the same period a year ago—up 10 percent. The PGC for October 2017 was unchanged from the previous month.

The major factors that contribute to this outlook are described below. These factors include the weather, the economy, the storage situation, the supply situation, and national security.

Weather

Weather variations always have an effect on natural gas price formation. As of October 19, 2017, the National Oceanic and Atmospheric Administration (“NOAA”) indicated that its outlook for November 2017 generally calls for above normal temperatures for much of the southwestern portion of the nation and parts of the Northeast.⁶ Equal chances of below, near, or above normal temperatures are more likely for large areas of the central and eastern portions of the nation. The expected weather for November may be neutral for natural gas prices.

As noted in the previous Outlook, on August 9, 2017, NOAA released its updated 2017 Atlantic Hurricane Outlook. In its update, NOAA now indicates that an above-normal hurricane season is most likely. In particular, the outlook calls for a 60% chance of an above-normal season, a 30% chance of a near-normal season, and only a 10% chance of a below-normal season. NOAA calls for a 70% probability for each of the following ranges of activity during the 2017 hurricane season: 14-19 named storms; 5-9 hurricanes; and 2-5 major hurricanes (rated at Category 3 or above, with a maximum sustained wind speed of at least 111 miles per hour). NOAA also mentioned that this hurricane season could be the most active since 2010. As of October 22, 2017 there have been 15 named storms, with 10 developing into hurricanes—6 of

³ EIA, *Short-Term Energy Outlook* (October 2017) at 9.

⁴ *Ibid* at 2.

⁵ The current Purchased Gas Charge reflects current market conditions and current collections. The current cost of gas (including commodity, demand, and other cost adjustments) reflects the seasonal market. Alternative suppliers’ newer fixed price offers should generally reflect the PGC benchmark, with anticipated price changes as well, over the next twelve months.

⁶ NOAA at <http://www.cpc.ncep.noaa.gov/>.

which were major hurricanes. The Atlantic hurricane season generally runs from June 1 through November 30. Any significant storm-related disruption to the energy infrastructure—in the Gulf of Mexico, for example—will tend to contribute to upward pressure on natural gas prices. However, the share of production from the Gulf of Mexico (“GOM”) has been decreasing over time and in 2016, GOM production represented just 4 percent of total U.S. natural gas production.⁷ With a growing volume of natural gas being produced from on-shore shale resources, which are typically outside of hurricane-prone areas, disruption to natural gas production from hurricane activity is lower and less severe on the natural gas market.

Economic Conditions

National economic factors also contribute to the formation of wholesale natural gas prices. The Federal Reserve’s Beige Book provides anecdotal information on current economic conditions from various regions—twelve Federal Reserve Districts—in the nation.⁸ Reports from all 12 Federal Reserve Districts indicated that economic activity increased at a moderate pace in September through early October. Several regions reported major disruptions from Hurricanes Harvey and Irma in some areas and sectors, including transportation, energy, and agriculture. Manufacturing activity and nonfinancial services expanded modestly to moderately in most Districts. Retail spending rose slowly, while vehicle sales and tourism increased in most regions. Residential construction continued to increase, and growth in commercial construction was up slightly on balance. Low home inventory levels continued to constrain residential sales in many areas, while nonresidential real estate activity increased slightly overall. Employment growth was modest on balance, with most Districts reporting flat to moderate increases, although labor markets were generally described as tight. Many regions noted that employers were having difficulty finding qualified workers, particularly in construction, transportation, skilled manufacturing, and some health care and service positions, and these shortages were also restraining business growth. Price pressures remained modest since the previous report. At present, the current state of economic activity may still be relatively neutral for natural gas prices.

Storage

EIA reports that the working gas in storage was 3,646 Bcf as of October 13, 2017, a net increase of 51 Bcf from the previous week. Stocks were 179 Bcf lower than the same period a year ago—down 4.7 percent—and down 35 Bcf from the 5-year average of 3,681 Bcf—a decrease of 1.0 percent.⁹ EIA indicates that “[s]o far during the 2017 refill season, net injections into storage are 16% lower than the comparable five-year average—1,595 Bcf during the 2017 refill season compared with the five-year average increase of 1,895 Bcf. If net injections continue at 16% lower than the five-year average for the remaining three weeks, working gas stocks will reach 3,781 Bcf by the end of the refill season. Working gas stocks will total 3,807 Bcf if net injections into working gas match the five-year average for the remainder of the refill season.”¹⁰ Thus, the current storage picture still appears relatively neutral for natural gas prices at this time.

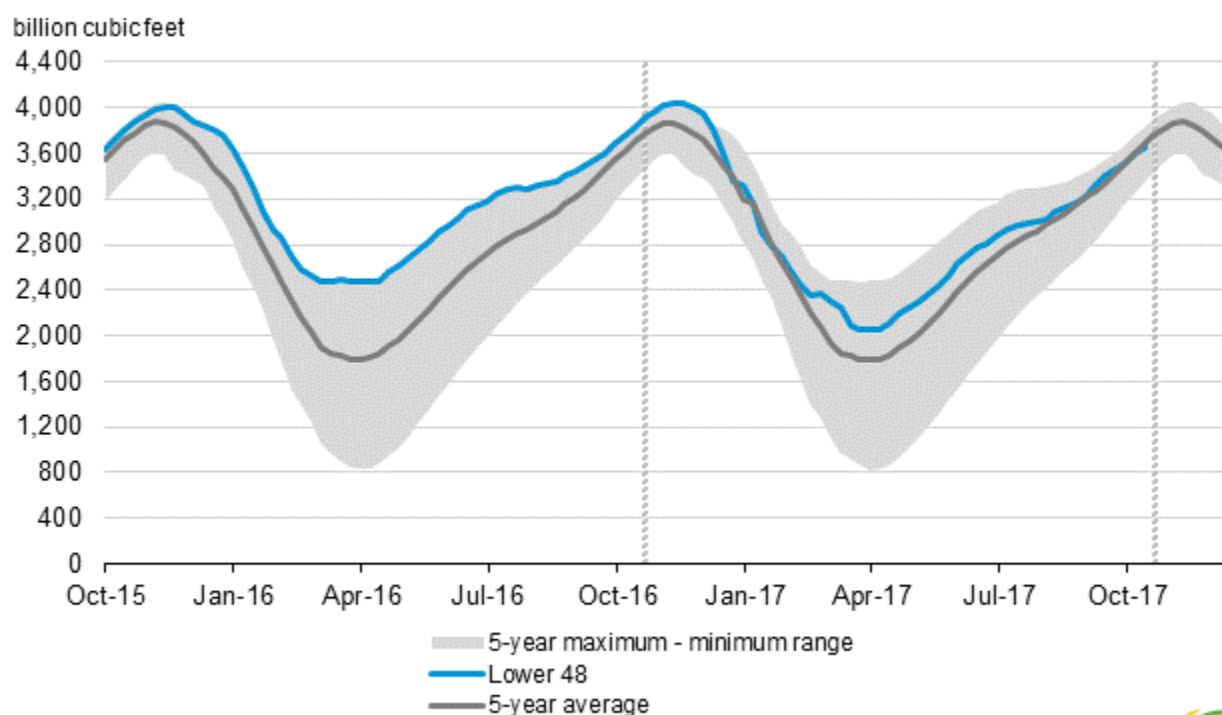
⁷ EIA, *Natural Gas Weekly Outlook* (released September 14, 2017).

⁸ Beige Book (released October 18, 2017).

⁹ EIA, *Weekly Natural Gas Storage Report* (released October 19, 2017).

¹⁰ EIA, *Natural Gas Weekly Outlook* (released October 19, 2017).

Working gas in underground storage compared with the 5-year maximum and minimum



Source: U.S. Energy Information Administration



Note: The shaded area indicates the range between the historical minimum and maximum values for the weekly series from 2012 through 2016. The dashed vertical lines indicate current and year-ago weekly periods.
Source: EIA, *Weekly Natural Gas Storage Report* (released October 19, 2017)

Supply

Flexibility in the nation’s domestic production has helped to soften upward price pressure, especially with the continued development of natural gas in shale formations. In the October 2017 STEO, EIA notes that “[a]s rising natural gas production keeps pace with increasing consumption and demand for exports—particularly for liquefied natural gas (LNG)—EIA projects a balanced market from the last quarter of 2017 through 2018. LNG export capacity is expected to increase, with LNG exports projected to exceed 3 billion cubic feet per day (Bcf/d) in 2018, 66% higher than in 2017. In addition, increased takeaway capacity out of the Marcellus/Utica shale plays as a result of several new projects (such as the Rover and Nexus Gas Transmission pipelines) will help increase production.”¹¹

National Security

As noted in previous reports, we see little danger to the natural gas supply.¹² Most of the U.S. supply is secure, in that it is generally domestically produced or imported from Canada.

¹¹ EIA, *STEO* (October 2017) at 10.

¹² The Department of Homeland Security (“DHS”) issued its last advisory bulletin on May 15, 2017, which highlighted the continuing threat from homegrown terrorists, many of whom are inspired online to violence by foreign terrorist organizations. The bulletin went on to indicate that an informed, vigilant, and engaged public remains one of the greatest assets to identify potential homegrown terrorists and prevent attacks.

Future Natural Gas Prices

The PGC rate of roughly \$0.48 per therm for October 2017 is unchanged from the previous month, and is up 10.1 percent compared to the same period a year ago.¹³ The November 2017 PGC (assuming that the commodity market adjustment factor is zero) should be around \$0.48 per therm, based, in part, on the expectation that near-term NYMEX futures prices trade between \$0.28 and \$0.31 per therm, among other things. OTRA's assessment of natural gas prices may be significantly different from actual market prices if: (i) there are significant variations in weather-related factors, (ii) crude oil prices change significantly, (iii) other substantial disruptions to the energy market occur, or (iv) certain cost-related assumptions are significantly different.

As always, investments in energy efficiency and conservation measures are important ways toward reducing energy consumption and lowering energy bills. Ratepayers are encouraged to invest in measures such as insulation, weather stripping, or replacing an old inefficient water heater and/or furnace. Finally, for those residential consumers whose budgets are severely challenged, arrangements for assistance should be made as soon as possible in anticipation of need. Contact either the District Department of the Environment's Energy Office or the D.C. Public Service Commission's Office of Consumer Services for advice and/or solutions as well as programs such as the Washington Area Fuel Fund (888-318-9233).

The National Terrorism Advisory System, or NTAS, replaces the color-coded Homeland Security Advisory System.

¹³ The commodity market adjustment factor for the October 2017 PGC was \$0.0 per therm, resulting in the adjusted PGC (excluding the commodity market adjustment factor ("CMAF")) being equal to \$0.4809 per therm.

Wholesale Natural Gas Price/Supply Assessment Information

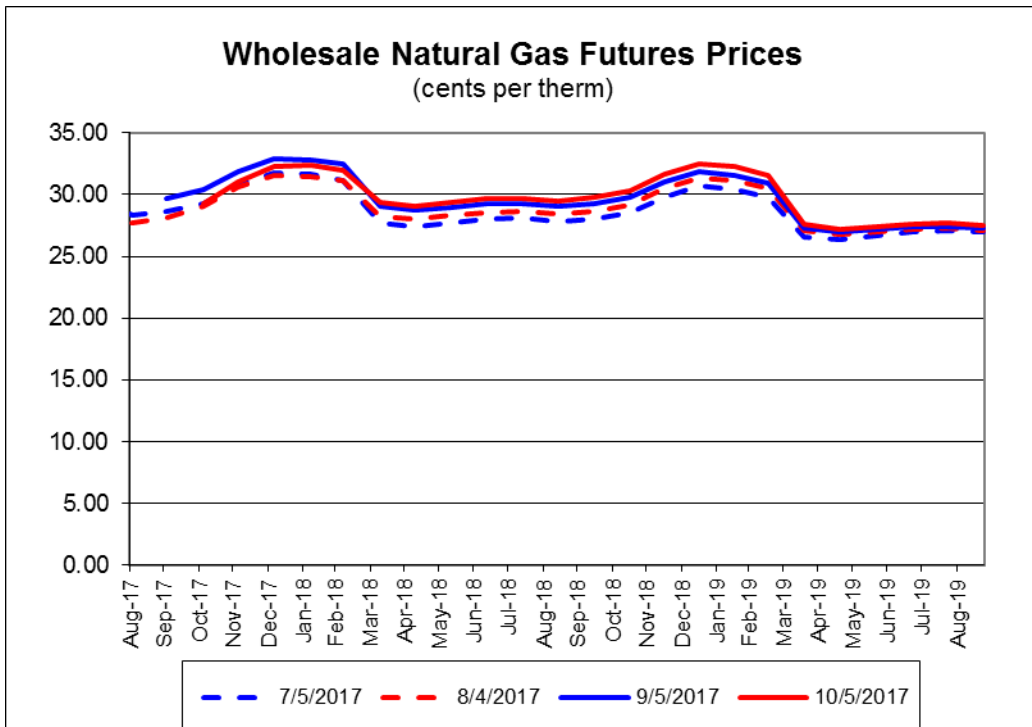
Current for October 5, 2017

Price Information

Twelve Month NYMEX Strip Components
10/5/17, cents per therm

Henry Hub Spot Market Price
10/5/17, cents per therm

<u>Current Month</u>	<u>Previous Month</u>	<u>Current Only Available</u>
Nov 17 29.23	Nov 17 30.44	29.1
Dec 17 31.03	Dec 17 31.89	
Jan 18 32.30	Jan 18 32.87	
Feb 18 32.35	Feb 18 32.85	
Mar 18 31.93	Mar 18 32.44	
Apr 18 29.39	Apr 18 29.11	
May 18 29.11	May 18 28.75	
Jun 18 29.39	Jun 18 29.01	
Jul 18 29.66	July 18 29.27	
Aug 18 29.69	Aug 18 29.31	
Sep 18 29.51	Sep 18 29.07	
Oct 18 29.74	Oct 18 29.26	



The current PGC for October 2017 is about \$0.48 per therm. Assuming, among other things, that near-term futures prices are around \$0.28 to \$0.31 per therm, the PGC rate (excluding the commodity market adjustment factor) for November 2017 may be about \$0.48 per therm. However, given the uncertainty about the weather, as well as other factors, this assessment could easily change. The assessment for October 2017 is that wholesale prices may remain around \$0.30 per therm, or lower, resulting in wholesale prices that are comparable to year ago levels (see Market Conditions Summary).

Weather Forecast

1. Current for next few days to one week:

<http://www.cnn.com/Weather/>
<http://home.accuweather.com/>

2. National Oceanic and Atmospheric Administration Forecast for the Winter

<http://www.noaa.gov/>

3. U.S. Weather Service Atlantic Hurricane and Storm Reports

<http://www.nhc.noaa.gov/>

Wholesale Natural Gas Market Conditions Summary October 23, 2017

Factors	Next Month	Winter Season
Oil Prices		
Weather - Temperature		
Weather - Hurricanes		
Economic Conditions		
Storage		
Natural Gas Supply		
National Security		
Overall		

Code: Red - Upward Pressure
 Blue - Downward pressure
 Yellow - No Change
 No color - Not Applicable
 N.A.