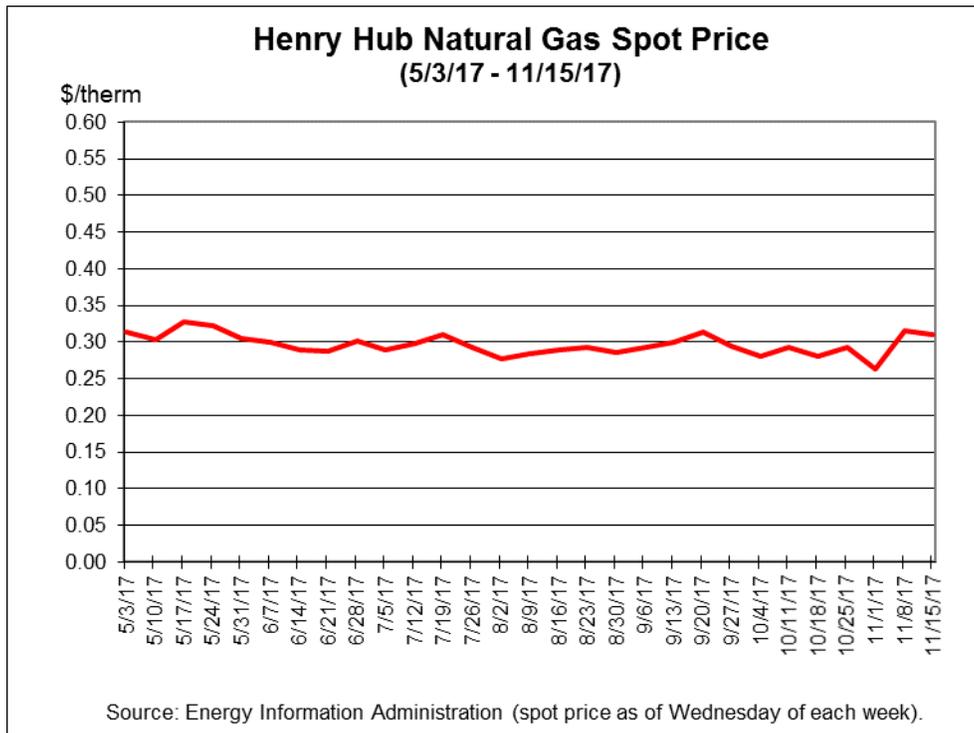


WHOLESALE NATURAL GAS MARKET ASSESSMENT
Wholesale Natural Gas Futures Prices as of November 5, 2017

by Roger Fujihara
Office of Technical and Regulatory Analysis

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 November 3, 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 slightly higher, during December 2017 (see Henry Hub Spot Price figure). Recent natural gas spot prices are up at least 25 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 October 2017 was about \$0.29 per therm, down slightly from the \$0.30 month in September.² In its Short-Term Energy Outlook (“STEO”) for November 2017, EIA indicates that **“[I]iquefied natural gas (LNG) exports in October increased from September, as the Gulf Coast region recovered from hurricane-related service disruptions. Despite growing export demand and below-average storage injections—factors that could contribute to upward pressure on prices—front-month**

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).

futures prices remained in a narrow trading range. The National Oceanic and Atmospheric Administration’s (NOAA) revised winter forecast called for milder temperatures, putting downward pressure on futures prices and contributing to the January natural gas futures contract price falling to the lowest level since March 2016.”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 \$0.31 per therm in 2018.⁴

As of November 10, 2017, natural gas in storage stood at 3,772 billion cubic feet (“Bcf”). The working gas in storage is down about 7 percent from the same period a year ago, and is down by nearly 3 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 November 2017 is 48.09 cents (\$0.48) per therm, compared with 48.86 cents (\$0.49) per therm for the same period a year ago—down about 2 percent. The PGC for November 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 November 16, 2017, the National Oceanic and Atmospheric Administration (“NOAA”) indicated that its outlook for December 2017 shows above normal temperatures for much of the southern U.S., with the highest chances in the southwestern portion of the nation.⁶ Below normal temperatures are possible for portions of the northwestern U.S. 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 December 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

³ EIA, *Short-Term Energy Outlook* (November 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/>.

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 November 19, 2017 there have been 17 named storms, with 10 developing into hurricanes—6 of 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 Open Market Committee (“FOMC”) continued to hold its target range for short-term interest rates at a relatively low 1 to 1-1/4 percent.⁸ Information received since the FOMC met in September indicates that the labor market has continued to strengthen and that economic activity has been rising at a solid rate despite hurricane-related disruptions. **“Although the hurricanes caused a drop in payroll employment in September, the unemployment rate declined further. Household spending has been expanding at a moderate rate, and growth in business fixed investment has picked up in recent quarters. Gasoline prices rose in the aftermath of the hurricanes, boosting overall inflation in September; however, inflation for items other than food and energy remained soft. On a 12-month basis, both inflation measures have declined this year and are running below 2 percent. Market-based measures of inflation compensation remain low; survey-based measures of longer-term inflation expectations are little changed, on balance.”**⁹ 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 3,772 Bcf as of November 10, 2017, a net decrease of 18 Bcf from the previous week. Stocks were 271 Bcf lower than the same period a year ago—down 6.7 percent—and down 101 Bcf from the 5-year average of 3,873 Bcf—a decrease of 2.6 percent.¹⁰ The recent cold weather in the eastern portion of the nation may contribute to storage withdrawals. Thus, the current storage picture tends to put some upward pressure on natural gas prices at this time.

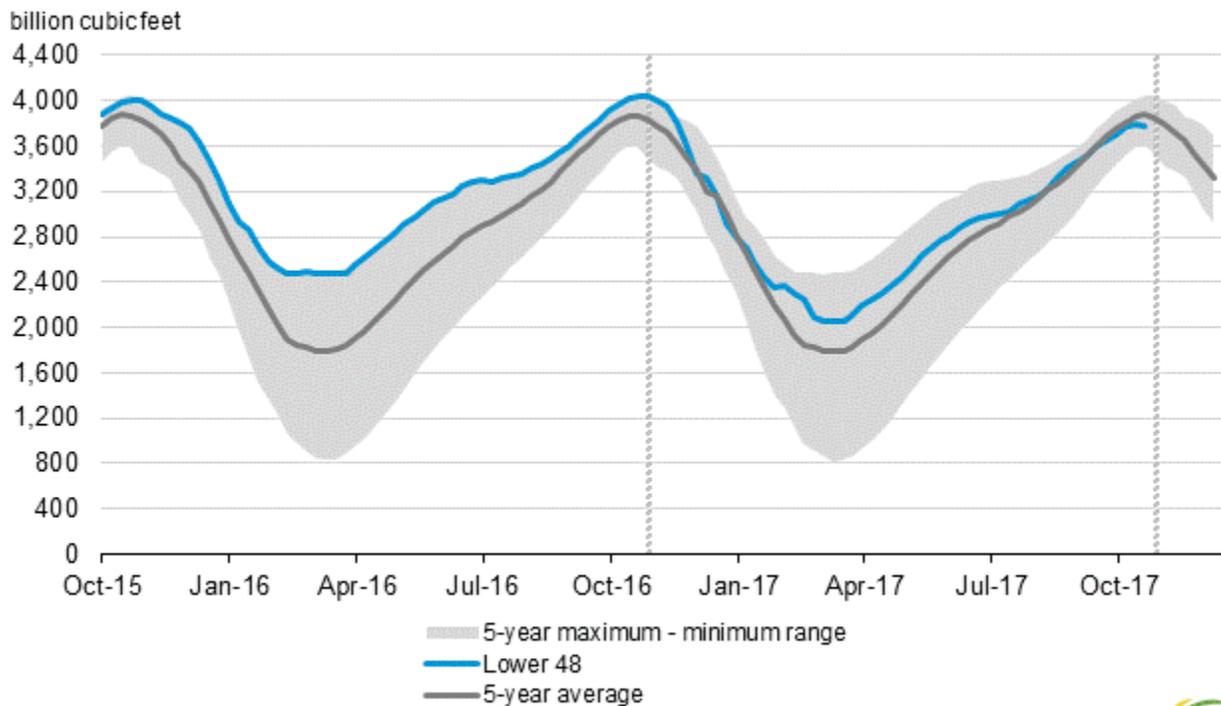
⁷ EIA, *Natural Gas Weekly Outlook* (released September 14, 2017).

⁸ Statement of the Federal Open Market Committee (released November 1, 2017).

⁹ Ibid.

¹⁰ EIA, *Weekly Natural Gas Storage Report* (released November 16, 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 November 16, 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 November 2017 STEO, EIA notes that **“U.S. dry natural gas production is forecast to average 73.4 billion cubic feet per day (Bcf/d) in 2017, a 0.6 Bcf/d increase from the 2016 level. Natural gas production in 2018 is forecast to be 5.5 Bcf/d higher than the 2017 level.”**¹¹ In addition, increased takeaway capacity out of the Marcellus/Utica shale also plays a role as a result of several new projects (such as the Rover and Nexus Gas Transmission pipelines) that will help increase production.

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* (November 2017) at 2.

¹² The Department of Homeland Security (“DHS”) issued its last advisory bulletin on November 9, 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. The National Terrorism Advisory System, or NTAS, replaces the color-coded Homeland Security Advisory System.

Future Natural Gas Prices

The PGC rate of roughly \$0.48 per therm for November 2017 is unchanged from the previous month, and is down 1.6 percent compared to the same period a year ago.¹³ The December 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 \$0.29 and \$0.33 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).

¹³ The commodity market adjustment factor for the November 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

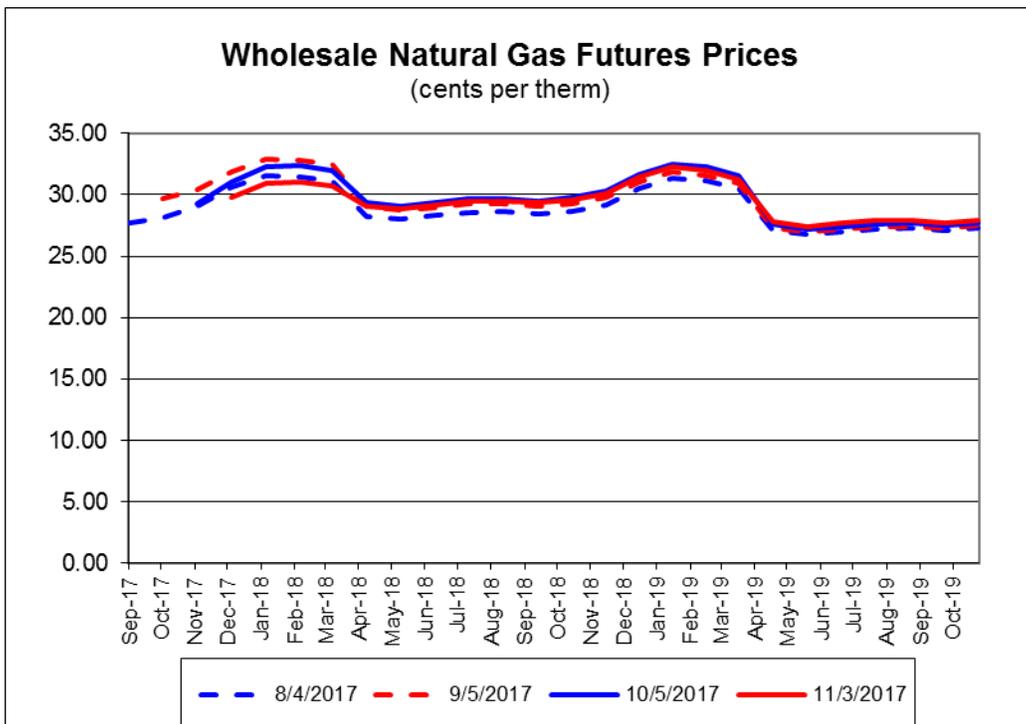
Current for November 3, 2017

Price Information

Twelve Month NYMEX Strip Components
11/3/17, cents per therm

Henry Hub Spot Market Price
11/3/17, cents per therm

<u>Current Month</u>	<u>Previous Month</u>	<u>Current Only Available</u>
Dec 17 29.84	Dec 17 31.03	27.4
Jan 18 30.97	Jan 18 32.30	
Feb 18 31.02	Feb 18 32.35	
Mar 18 30.68	Mar 18 31.93	
Apr 18 29.03	Apr 18 29.39	
May 18 28.85	May 18 29.11	
Jun 18 29.14	Jun 18 29.39	
Jul 18 29.47	July 18 29.66	
Aug 18 29.51	Aug 18 29.69	
Sep 18 29.34	Sep 18 29.51	
Oct 18 29.57	Oct 18 29.74	
Nov 18 30.11	Nov 18 30.28	



The current PGC for November 2017 is about \$0.48 per therm. Assuming, among other things, that near-term futures prices are around \$0.29 to \$0.33 per therm, the PGC rate (excluding the commodity market adjustment factor) for December 2017 may remain 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 November 2017 is that wholesale prices may remain around \$0.30 per therm, or somewhat higher, resulting in wholesale prices that are at least 25 percent higher compared 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
November 20, 2017

Factors	Next Month	Winter Season
Oil Prices	Yellow	Yellow
Weather - Temperature	Yellow	Red
Weather - Hurricanes	Yellow	No color - Not Applicable
Economic Conditions	Yellow	Yellow
Storage	Red	Red
Natural Gas Supply	Yellow	Yellow
National Security	Yellow	Yellow
Overall	Yellow	Red

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