



NYMEX OUTLOOK

BULLS & BEARS REPORT

HOUSTON, TEXAS

LOUISVILLE, KENTUCKY

NEW YORK, NEW YORK

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PAPER TOPIC:



NATURAL GAS

INTRODUCTION

The month of June saw a surprising move in natural gas trading, a move downward. June is typically the start of hot temperatures for many in the United States, in return, leading to increased natural gas generation. However, that wasn't the case for several areas in the United States. Both the Midwest and East Coast experienced mild temperatures for the majority of June, contributing to less cooling demand. Prompt month pricing for the July 2017 contract started at \$3.25/MMBtu before quickly moving to the \$3.00 threshold in

the first week of June. The mild temperatures and larger than expected storage injections further pushed natural gas pricing downward, reaching a low of \$2.89/MMBtu for the July contract. However, a small "rally" during the last week of June moved pricing back above the \$3.00 threshold with the July 2017 contract settling at \$3.067/MMBtu, \$0.169/Dth less than the June 2017 settlement price.

The July contract is off the board, but the August prompt trading is starting to look like its predecessor. Trading after

the July 4th holiday quickly moved pricing back below \$3.00/MMBtu for prompt month gas and the 2018 curve is now trading near \$2.90/MMBtu and feels heavy. The NYMEX market has been here several times over the last couple of months; will it be able to break any further south? This report will take a closer look into that question by discussing the fundamentals that are impacting the natural gas market. Since the market seems to be stuck in a neutral/bearish position we will let those two positions to start if off...



• NEUTRAL •

STORAGE

The latest natural gas storage report, Week 26, provided an injection of 46 Bcf, which was within market expectations. The injection moved natural gas storage levels to 2,816 Bcf, making it only 145 Bcf away from the five-year average. Although storage levels are moving closely within the five year average, current levels are at their

third highest mark all time for week 26, only lagging behind the 2012 and 2016 levels. This has been a consistent theme in 2017, as storage levels have remained higher than the five-year average, but several hundred Bcf from the all-time highs. This trend is expected to continue for the next several weeks as projected injections (see associated chart for Week

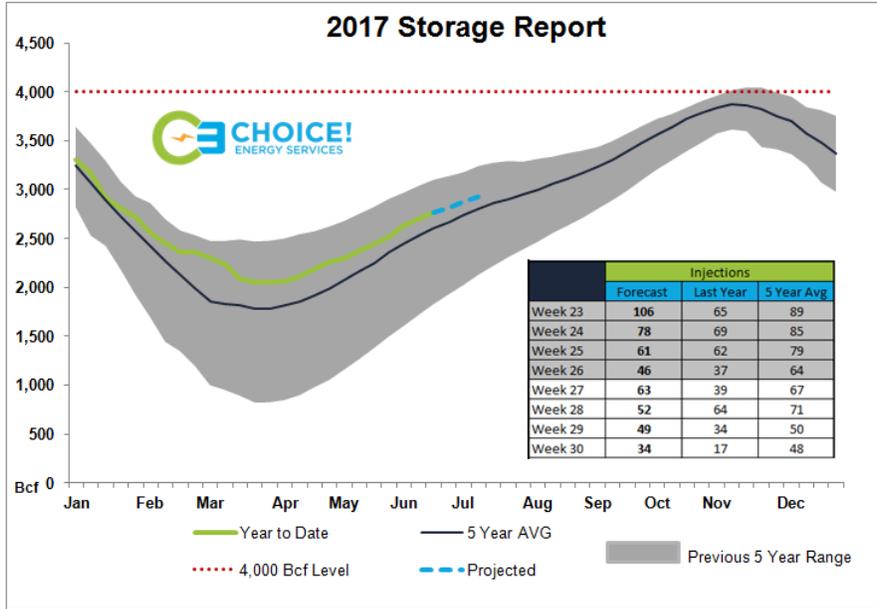
27 – 30 expectations) are in-line with the five-year average injections levels. On the bright side, the upcoming injections should slightly cut into deficit to last year, pulling within 280 Bcf.

How will storage end the 2017 injection season? If injections levels keep pace of the five year average than storage will

likely end near 4,000 Bcf. U.S. storage levels have only broken the 4,000 threshold a couple of times, both occurring in the previous two years, so hitting that level would be a bearish

indicator. On the other hand, if injections begin to match levels of last summer, an injection season marred by record temperatures and declining production numbers, storage levels will

likely only reach 3,750 Bcf. Storage at 3,750 Bcf would equate to the second lowest ending storage level in the last eight years.



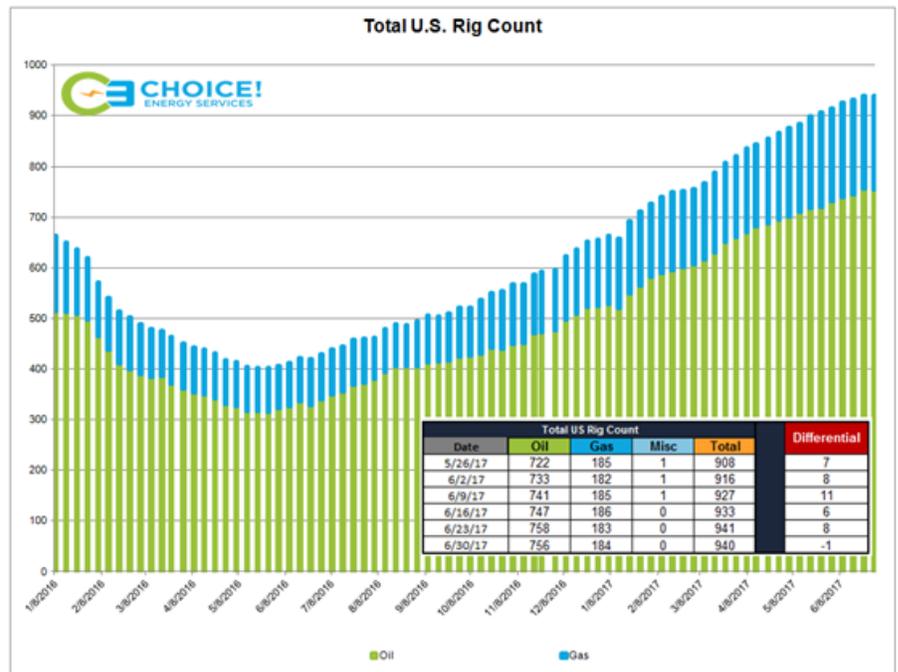
Source: EIA Weekly Natural Gas Storage
Graph: Choice Energy Services

RIG COUNT

A consistent topic in the Bulls & Bears report has been the rig count. Choice Energy Services has discussed the turnaround of rig counts in numerous reports dating back to its blog entry on the subject in late June 2016. However, the rig count levels have flattened in recent weeks compared to the strong growth that was seen in Q1 of 2017 when the Baker Hughes weekly report consistently reporting double digit rig growth. As of the 06/30/2017 report, the U.S. rig count totaled 940 rigs (756 Oil vs. 184 Natural Gas), which represented a decline of one rig since the previous report. The latest Baker Hughes report was the first time a rig count decline was reported in over 24 weeks.

Although rig counts may have flattened, numbers are still quite strong compared to recent history. Just a year ago our reports were discussing the low rig count numbers as it bottomed at 404 total rigs in the 05/27/2016 Baker Hughes report. Flash forward a year later and rig counts

have grown over 130% since its 2016 lows. Furthermore, prior to this past month it had been since April 2015 since the last time Baker Hughes reported 940 total rigs exploring for oil and natural gas.



Source: Baker Hughes
Graph: Choice Energy Services

NG PRODUCTION SLOWLY RISING

Production growth in 2017 was expected but it has been a slow process. Production increases were a common occurrence over the last decade, before it plateaued in 2015. Dry natural gas production peaked at 75.01 Bcf/D in April 2015 and held near 73 Bcf/D as late

as April 2016 (per EIA STEO Report). However, the collapse in commodity prices in late 2015 and early 2016 finally took its toll on producers, and rig counts declined dramatically. Following the decline in rig counts, total U.S. dry production dropped to only 70.7 Bcf/D

by the fall of 2016. Production has increased from those levels, but not significantly. Current production is at 71.8 Bcf/D, and will need to grow at a much faster rate to meet the growing natural gas demand in exports, generation, and industrials.



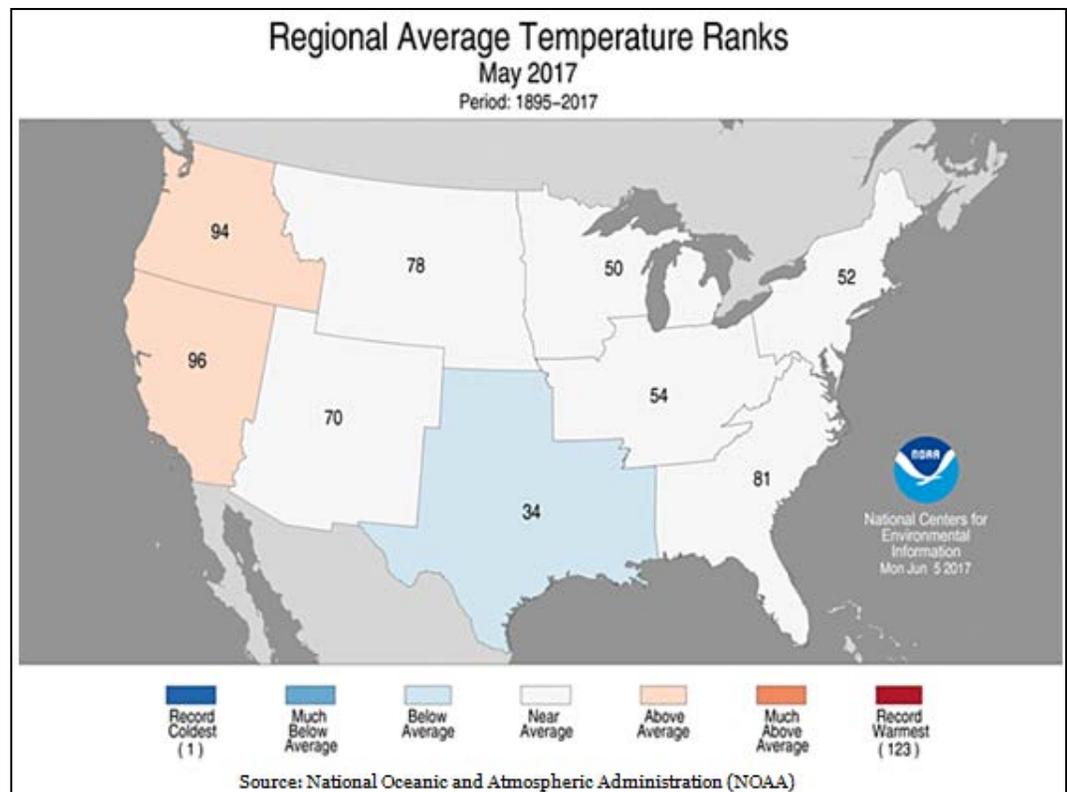
• THE BEARS •

2017 WEATHER TO DATE

The same bearish fundamental mentioned last month, can be said again this month; mild temperatures in 2017. Temperatures in 2017 are the main reason for solid storage levels thus far, NOT a significant change in supply & demand. As mentioned in the last report, Q1 of 2017 was measured as one of the warmest on record by the National Oceanic and Atmospheric Administration (NOAA) for the United States and included the second warmest February recorded. The warmer than normal temperatures meant less natural gas demand for residential/commercial

heating. Moving forward to the summer, the mild temperatures have remained for the majority of the country (except the west coast). The mild start to summer has meant less natural gas generation required to keep up with cooling demand. For

example, May 2017 saw average temperatures for the majority of the country, with Texas experiencing one of its coolest Mays on record. June 2017's data has yet to be released by NOAA, but it should look very similar to May 2017.

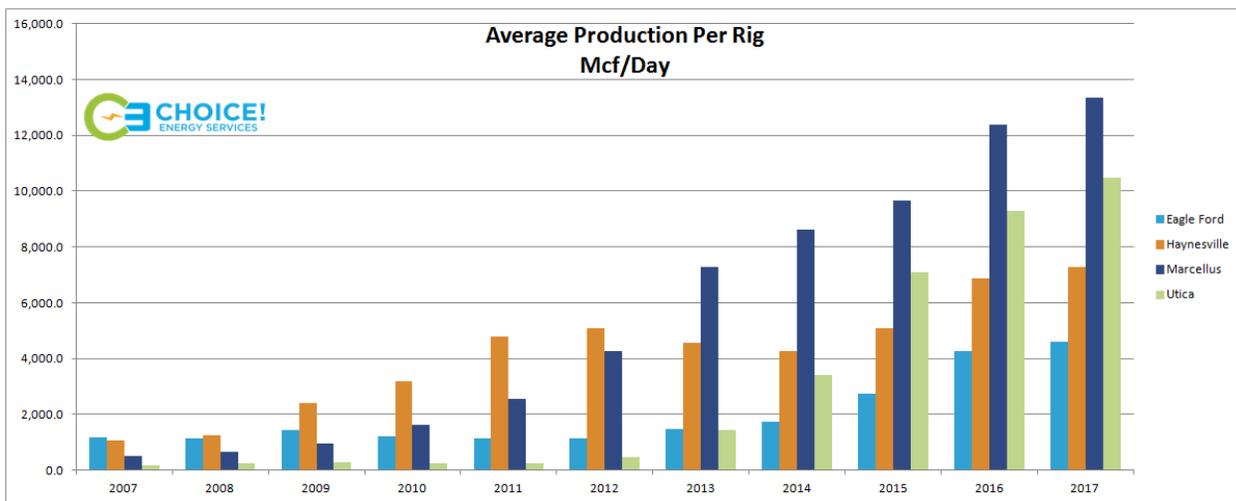


DRILLING EFFICIENCY

Exploratory rigs are at its highest point in over two years, and those rigs are becoming more and more efficient. Technology improves such as pad drilling (practice of drilling multiple wellbores from a single surface location), extending the length of horizontal wells (ability to drill two miles horizontally within the shale rock), and reducing the drill time of a rig (have improved it by over 10 days over the last couple of years) has made the overall drilling process more efficient and more

profitable for E&P companies. The efficiency improvements are seen with every new monthly Drilling Productivity Report provided by the EIA. This report highlights the average production per rig in every major natural gas shale play in the United States. The latest EIA data, shown in the associated graph & chart, illustrates the efficiency improvements per rig for every major shale play in the United States. However, no other shale play highlights drilling efficiency more than Marcellus.

Marcellus has been the leader in production per rig since 2013, but its current production per rig numbers is nearly double that of just four years ago. Current production per rig is now averaging 13,340 Mcf/D in 2017 which is nearly 1,000 Mcf/D higher than the average of last year. Overall production in Marcellus is now at its highest point as well. The latest EIA data shows overall natural gas production at 17,848 BCF/D, representing 39.8% of the overall shale production in the United States.



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Bakken	79.5	98.6	170.2	176.8	197.3	273.8	362.8	474.3	717.7	1,205.6	1,516.8
Eagle Ford	1,163.3	1,156.8	1,427.2	1,220.9	1,128.1	1,135.9	1,474.3	1,737.8	2,750.2	4,258.7	4,616.0
Haynesville	1,050.2	1,265.0	2,392.8	3,169.1	4,781.5	5,078.3	4,554.6	4,257.8	5,070.5	6,866.4	7,287.9
Marcellus	499.6	640.9	970.2	1,615.3	2,563.9	4,279.0	7,293.3	8,620.2	9,669.7	12,384.6	13,340.1
Niobrara	1,285.2	1,481.9	2,139.5	2,446.4	1,741.2	1,569.9	1,361.1	1,409.6	1,975.6	3,331.7	4,291.6
Permian	506.5	475.3	439.9	358.8	223.8	244.0	334.2	411.8	716.1	1,131.1	1,091.6
Utica	165.5	243.5	296.5	243.5	227.9	459.5	1,431.9	3,427.3	7,079.6	9,308.9	10,468.6

Source: EIA Drilling Productivity Report
Graph & Chart: Choice Energy Services

E&P COMPANIES FINALLY MAKING \$

Rising rig counts and increased rig efficiency should in return lead to greater natural gas production in the future. The EIA believes that will be the case, as its predicting marked production will increase by over 6 Bcf/D by the end of 2018. Another sign to point to for production increases is the fact that E&P companies are finally making money again. 2015 and 2016 were tough years for natural gas focused E&P

companies, such as Cabot Oil & Gas, Chesapeake, Rice, National Fuel, and Southwestern Energy. These E&P companies were struggling with declining prices, especially with the sub \$2 price environment that occurred between the March through June 2016 NYMEX contracts. As a result, not one of the leading gas weighted E&P companies showed a profit in 2015 and 2016. However, through gains of

efficiency, lower breakeven points, and most importantly higher natural gas prices, eight of the nine gas weighted E&P companies posted a profit in Q1 of 2017, with only CONSOL Energy falling short of the mark. Thus, with more cash coming in, combined with a greater understanding of shale drilling economics, look for natural gas production to continue to rise in 2017 and beyond.



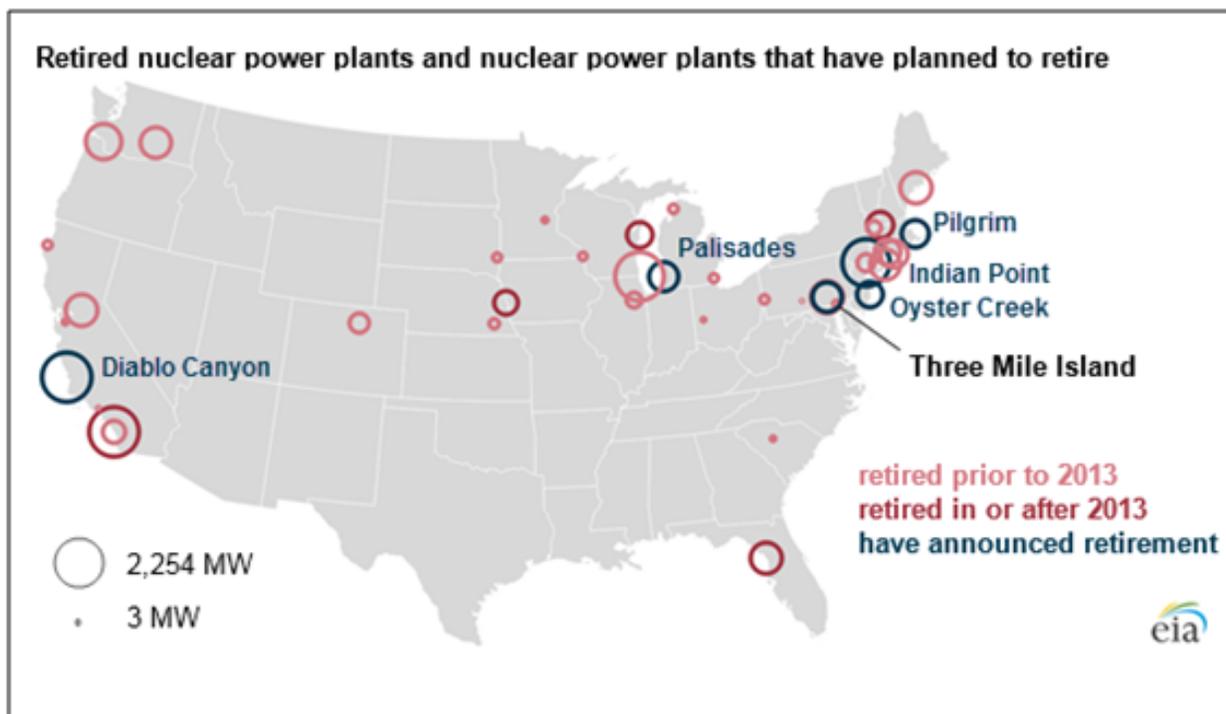
• THE BULLS •

DEATH OF NUCLEAR

The growth in U.S. natural gas demand has been well documented by Choice Energy Services through Bulls & Bears reports. Previous topics included: industrial usage growth, NG Exports, Exports to Mexico, and electricity generation. The latter could even see more growth in the coming years, with the growing retirement of nuclear generation facilities. It wasn't long ago that many among the industry and several politicians were pushing for more nuclear generation in the United States. That hit a road block after Japan's Fukushima accident in March 2011. Still the United States did not see a nuclear facility retire from 1998 up

till 2013, but since that time has experienced five retirements to date (Crystal River, Kewaunee, San Onofre, Vermont Yankee and Fort Calhoun). The five retired facilities represented nearly 5,000 MW of combined generation capacity. The decline in nuclear generation will not stop with those five facilities. Six additional plants are set to retire in the next nine years, representing another 7,000 MW capacity lost. Furthermore, of the six retiring plants, four of them are retiring more than a decade earlier than their license expiration. New nuclear plants receive 40-year operating licenses, but the vast

majority (90%) of operating nuclear facilities received license extensions for an additional 20 years. However, nuclear has not been able to compete with the low price alternative of natural gas in deregulated markets. This was just seen with the last shut down announcement, when Exelon Corp announced on May 30, 2017 that the infamous Three Mile Island would prematurely shut down unless it receives price support from Pennsylvania legislature. Thus, natural gas has not only been able to cut into coal generation, but also into nuclear generation, and its market share will only rise in the coming years.



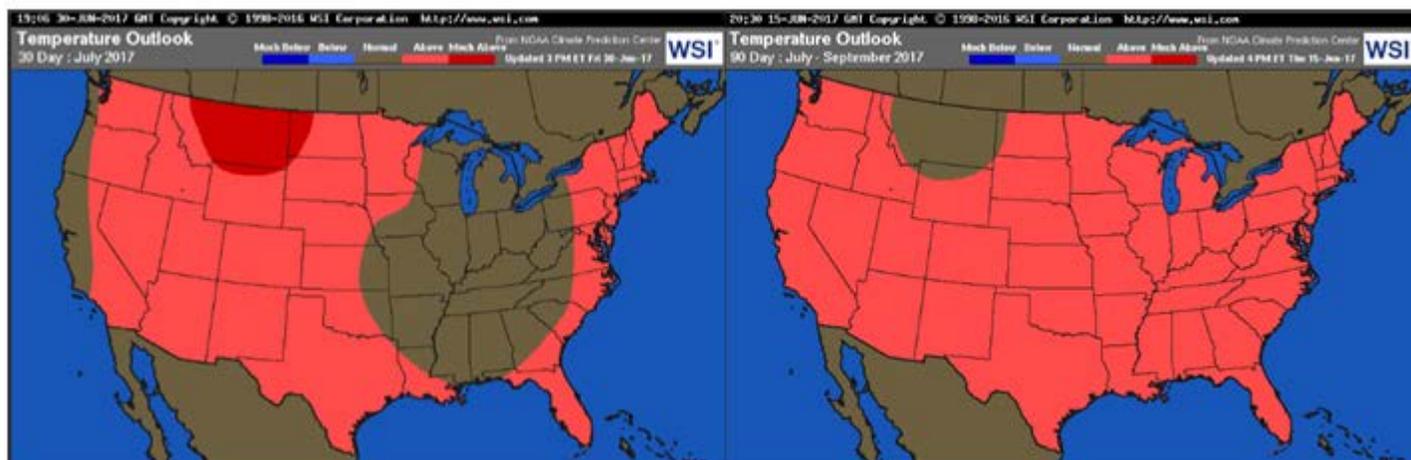
Source & Map: U.S. Energy Information Administration (EIA)

WEATHER/TEMPERATURE FORECASTS

2017 temperatures have been bearish for the first half of 2017, but will it be for the second half as well? Many meteorologists do not believe that to be the case. Recent forecasts, such as ones provided by NOAA, are expecting warmer than normal temperatures for the majority of the United States for the month of June. Additionally, the latest weather maps (see below) are expecting the warmer temperatures to extend through the end of summer. The warmer temperatures would result in increased natural gas generation needed for cooling demand, especially

as natural gas has become's the United States' number one fuel source for electricity generation. Traders do not have to remember too far back in history to see how a hot summer can impact the natural gas market. Last year the United States experienced one of the hottest summers on record. The hot summer had a profound impact on the weekly storage inventory levels, which even included a withdrawal from storage last August (previously unheard of in the natural gas market). Last year's storage greatly benefited from record

high levels prior to summer; as a result, 2016 storage was able to endure the warm temperatures and low injections. However, 2017 storage levels are currently 332 Bcf behind 2016 levels; thus storage injections similar to last summer would bring some bullish sentiment in the market. As stated earlier, if injections begin to match levels of last summer, storage levels will likely only reach 3,750 Bcf by the end of injection season. That would equate to second lowest ending storage level in the last eight years.



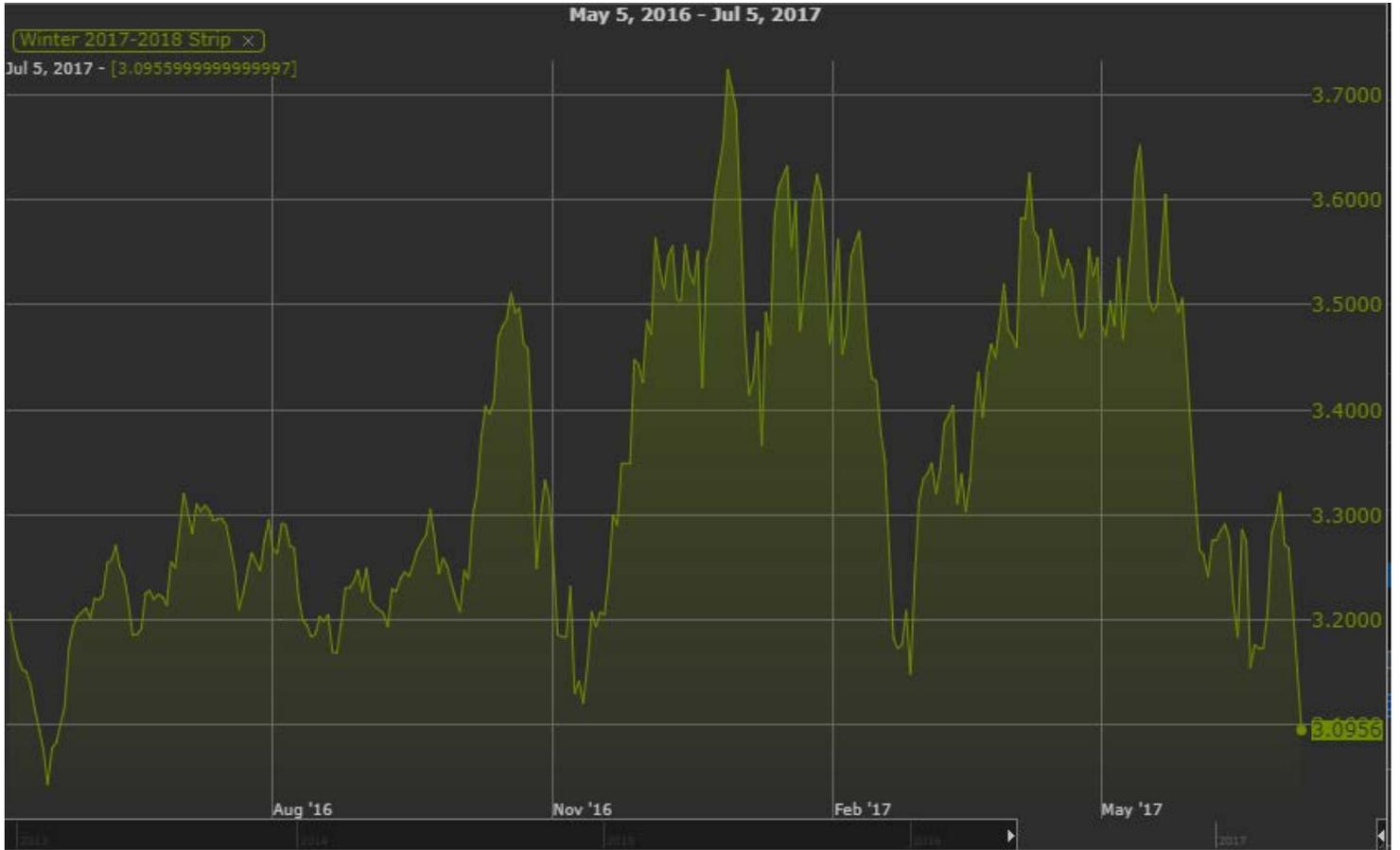
Source: National Oceanic and Atmospheric Administration (NOAA)
Left = July 2017 Outlook, Right = July - September 2017 Outlook

SUMMARY: TIME TO LOOK AT WINTER 2017-2018

Mild weather in 2017 is the primary reason NYMEX pricing has traded in a tight window around \$3.00. Increasing natural gas demand, combined with a slow recovery in natural gas production, could have led to a rally in 2017. However, the weather didn't cooperate for the Bulls. Bullish weather has not existed since this past December, which was the only time natural gas was able to trade above \$3.50/MMBtu. Since that time bearish weather has pushed down residential and commercial demand for

both heating and cooling, leading natural gas pricing to its tight price range today. Although 2017 NYMEX settlements have traded in a tight range for the prompt month, there has been a premium for the remaining 2017 curve heading into next winter. As a result, Choice Energy Services has not recommended its clients to hedge the 2017 months, but focus on hedging their contracts from April 2018 and beyond (see previous [Bulls & Bears](#) report for reference).

However, the most recent bearish move after the holiday trading has the winter 2017-2018 strip at \$3.095/MMBtu as of the 07/05/2017 close. That is lowest point the Nov 17 – Mar 18 strip has traded since May 20, 2016, and of great value compared to its high just two months ago at \$3.65/MMBtu on May 12, 2017. If an end-user has waited patiently to secure its winter gas, they have been rewarded with the most recent trading action (see next page for corresponding graph).



Source: EOX Live
Graph: Choice Energy Services via Morningstar Platform