

## **DANGEROUS TIMES IN US NATURAL GAS**

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“Keep your eyes on the road, your hands upon the wheel...  
The future’s uncertain and the end is always near”. The Doors, “Roadhouse Blues”

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### **CONCLUSION AND OVERVIEW**

The probable range for the United States natural gas marketplace (NYMEX nearest futures continuation basis) for the next several months is a relatively broad avenue between major support at 1.65/1.90 and significant resistance at 3.10/3.45. For prices to sustain voyages over 3.00, it probably will require a significantly colder than normal winter or noteworthy cuts in natural gas production. A containment risk (supplies too high relative to available storage), although currently not probable, nevertheless lurks for the end of calendar 2016 build season, especially if 2015-16’s winter is warmer than usual. If significant containment problems develop, and perhaps even if the potential for significant containment difficulties significantly increases, the 1.65 to 1.90 floor could be broken.

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The NYMEX natural gas major bear trend that followed 2/24/14’s major peak at 6.493 smashed through 4/27/15’s 2.443 low, tumbling to 1.948 on 10/27/15 (near NYMEX contract expiration; many key troughs have occurred around contract expiration). The late October 2015 depth borders the last prior major bottom, 1.902 on 4/19/12. Historical analysis indicates the bear trend from February 2014 to October 2015 travelled sufficiently far in price and duration terms to look for a trend shift from bearish to neutral or bullish. In addition, the most recent Commitments of Traders reports for key natural gas contracts reveal a massive net noncommercial short position. Many significant marketplace trend changes in natural gas roughly coincide with very elevated net long or short noncommercial positions. Current and (assuming normal weather) anticipated upcoming natural gas days coverage through winter 2015-16 and the 2016 build season appear fairly close to historical averages, particularly in the context of NYMEX natural gas prices well under 3.00.

However, the dramatic February 2014 to October 2015 price tumble is not the greatest or longest on record. So a further descent in NYMEX natural gas would not be unprecedented. Moreover, the days coverage perspective of course does not provide a complete viewpoint on the natural gas inventory situation and related price risks. After all, arithmetic quantities (bcf) of gas must be put in arithmetic storage places. And currently, the containment risks for the end of build season 2016 are not insubstantial; this bearish potentiality weighs on prices.

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Natural gas prices often travel substantially independently of both petroleum (and commodities “in general”) and so-called “international” or “financial” factors. Trend changes in NYMEX natural gas need not coincide with one in the petroleum complex or in commodities in general.

However, especially since mid-to-late June 2014 (NYMEX natural gas nearest futures interim high 6/16/14 at 4.886) and into calendar 2015 (gas interim top 5/19/15 at 3.105), bearish natural gas price movements have intertwined with those in the petroleum complex (and commodities in general) and the bull move in the broad real trade-weighted US dollar. Such natural gas retreats to some extent have paralleled slumps in emerging marketplace stocks. Note also the timing

coincidence between May 2015's natural gas top and the S+P 500's 5/20/15 high at 2135. See "Commodities: Captivating Audiences" (10/12/15) and other recent essays.

Worldwide OECD industry and United States petroleum stocks are very elevated. OPEC next meets 12/4/15. It remains determined to capture market share and induce output cutbacks by high-cost oil producers around the world (including some American and Canadian ones). Thus even if petroleum manages to rally further from its recent lows, it likely will remain relatively weak. The broad real trade-weighted United States dollar edged slightly lower (about one percent) to 97.0 in October 2015 from its September 2015 bull move high at 98.0 (Federal Reserve, H.10; monthly average), but it probably will remain relatively strong for the near term. Weak oil and a strong dollar, all else equal, are bearish factors for American natural gas prices.

### **US NATURAL GAS INVENTORIES**

"It's showtime, folks!" declares the choreographer Joe Gideon in the film "All That Jazz" (Bob Fosse, director).

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For the week ending 10/23/15, United States working gas in underground storage (Lower 48 states) was 3877bcf, up 409bcf and 11.8 percent relative to the prior year week. This year-on-year comparison, however, does not tell the whole story regarding inventory levels and their implications.

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Detailed historical analysis of working natural gas inventories enables audiences to ascertain the degree of tightness in America's overall supply/demand situation. Although arithmetical (bcf) levels are important, review from the days coverage perspective generally offers greater insight. However, in the current gas marketplace context, a potential containment risk (arithmetic storage capacity availability) looming for end build season 2016 is relevant to natural gas oversupply issues and fears and thus price levels and trends. Fundamental considerations related to days coverage should be interpreted alongside the 2016 containment topic as well as marketplace history relating to price and time factors.

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Nowadays, for calendar October (and for all other calendar months), the medium run span from 2006 to the present arguably better displays the normal (average) level of days coverage than the long run 1990-present vista. Why? The average level of natural gas industry stock holding probably shifted upwards beginning around 2006. One likely variable influencing this boost has been alternative investment in commodities, which reduces natural gas free supply. This reduction in free supply probably can have particularly significant consequences in low inventory situations around the finish of the winter draw season. Essays such as "US Natural Gas- a Winter's Tale" (1/12/14), "US Natural Gas Inventory: the Producing Region Drawing Board" (12/16/13), and "US Natural Gas: Drawing Pictures" (11/25/13) address this matter.

However, the alternative investment situation is not the only relevant development regarding days coverage. The further explosive natural gas production boost in the past couple of years, particularly when viewed in the context of notable gas pipeline expansion/building (over that time span and looking forward), perhaps has pushed the natural gas industry's desired level of days coverage downward to some extent. Greater output now (or relatively soon) will have (more) avenues of escape, so why should players keep as much inventory around?

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In the following discussion regarding and tables for US working gas inventories, bcf levels are from the Energy Information Administration (“EIA”). Recent bcf history and estimates come from its Short-Term Energy Outlook, (“STEO”, Table 5a, 10/6/15, next release 11/10/15).

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**END BUILD SEASON 2015**

The EIA’s prediction for end build season 2015 inventory total (taken “alone” and “all else equal”) analyzed from the days coverage perspective looks neutral to slightly bullish for natural gas prices.

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The EIA forecasts working natural gas inventories will be 3956bcf at end October 2015 (STEO, Table 5a). Relative to calendar year 2015 demand of about 76.2bcf/day (up a sharp 4.2pc year-on-year), days coverage at the close of the 2015 build season will be about 51.9 days (compare October 2014’s 49.0 days coverage).

Let’s survey the 3956bcf stocks and 51.9 days coverage level for end October 2015 in historical context. Focus especially on the days coverage variable.

	<b>Long Run (1990-2014)</b>	<b>Long Run (1990-2014)</b>		
	<b>End Calendar Month</b>	<b>End Calendar Month</b>		
	<b>Arithmetic (Bcf)</b>	<b>Days Coverage</b>		
	<b><u>Average</u></b>	<b><u>Average</u></b>		
<b><u>October</u></b>	<b>3316</b>	<b>53.6</b>		
	<b><u>Season Highs (Year)</u></b>		<b><u>Season Lows (Year)</u></b>	
	<b><u>(Bcf)</u></b>	<b><u>Days Cover</u></b>	<b><u>(Bcf)</u></b>	<b><u>Days Cover</u></b>
<b><u>October</u></b>	3929 (2012)	66.0 (1990)	2732 (2000)	42.9 (2000)
	3851 (2010)	60.7 (2009)	2810 (1996)	45.5 (1996)
<b><u>October</u></b>	<b>Medium Run (2006-2014)</b>			
	<b>End Calendar Month</b>			
	<b><u>Days Cover Average</u></b>			
	<b>55.8 days</b> (2.2 days more than the 1990-2014 time span)			

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End October 2015’s 51.9 days coverage level slides 3.9 days beneath the 2006-14 end October average of 55.8 days and 1.7 days under 1990-2014’s 53.6 days. This end October 2015 days coverage total, therefore on its face is neutral, or even slightly bullish, particularly with the NYMEX nearest futures natural gas price decisively under 3.00. Even if end October 2015 inventories are 4000bcf, 52.5 days coverage remains somewhat below average.

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However, although end October 2015 days coverage of 51.9 days is below average, 3956bcf will establish a new record arithmetical level for end October, besting 2012's high. This lofty arithmetic level prompts containment fears for the close of the natural gas 2016 build season.

Demonstrated underground maximum working gas capacity in the lower 48 states as of November 2014 was 4336bcf (EIA, "Underground Natural Gas Working Storage Capacity"; 2/25/15, next release February 2016). Although the US as a whole does not face significant containment problems this year, it may at the end of build season 2016.

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End November average inventories from 1990-2014 3207bcf and 51.8 days coverage.

Sometimes US natural gas inventories build a bit more into calendar November. Over the calendar 2000 to 2014 period, end November stocks even have exceeded those of end October three times. Underline 2001 (end October's 3144bcf to end November's 3254bcf, up 110bcf), 2009 (3810bcf to 3837bcf, up 27bcf), and 2011 (3804bcf to 3843bcf, a 39bcf rise). 2005 managed only a 5bcf monthly draw, from 3194bcf to 3189bcf.

Stock builds into calendar November 2015, if any, will add to pressure on natural gas prices and magnify end build season 2016 containment worries.

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### **END WINTER 2015-16 DRAW SEASON: MARCH 2016 NATURAL GAS STOCKS**

In the following discussion regarding and tables for US end March working gas inventories, the indicated "year" for a given March derives from the calendar year of the preceding October. Thus the 2473bcf (in actual calendar March 2012) noted for the 2011 "year" is from the end October 2011 to March 2012 winter draw season. This table extends through winter 2014-15 (includes the 2014 year).

	<b>Long Run (1990-2014)</b>		<b>Long Run (1990-2014)</b>	
	<b>End Calendar Month</b>		<b>End Calendar Month</b>	
	<b>Arithmetic (Bcf)</b>		<b>Days Coverage</b>	
	<b><u>Average</u></b>		<b><u>Average</u></b>	
<b><u>March</u></b>	<b>1343</b>		<b>21.8</b>	
	<b><u>Season Highs (Year)</u></b>		<b><u>Season Lows (Year)</u></b>	
	<b><u>(Bcf)</u></b>	<b><u>Days Cover</u></b>	<b><u>(Bcf)</u></b>	<b><u>Days Cover</u></b>
<b><u>March</u></b>	2473 (2011)	37.1 (2011)	730 (2002)	11.6 (2002)
	1692 (2005)	28.1 (2005)	742 (2000)	11.6 (2000)
			857 (2013)	12.0 (2013)
			758 (1995)	12.5 (1995)

Some statisticians would label the 1723bcf end March inventory for the 2012 year as very high. Yet this represented only 24.7 days coverage- a modest 2.9 days above the long run average, whereas 2005's leaped 6.3 days above that average. Compare calendar year 2012's 69.8bcf/day consumption with 2005's 60.3bcf/d.

## March

### **Medium Run (2006-2014)**

#### **End Calendar Month**

#### **Days Cover Average**

**24.1 days** (2.3 days greater than 1990-2014's time span)

At end March 2016, the EIA predicts working gas inventory of 1892bcf. So at around the finish of winter 2015-16 draw season, days coverage will be about 24.8 days relative to calendar year 2015 demand of 76.2bcf/day. This stands .7 day above the 2006-14 average and three days above that for the 1990-2014 span. From the historic end March days coverage vantage point, this is slightly bearish.

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### **THE MORE DISTANT FUTURE: NATURAL GAS STOCKS IN OCTOBER 2016**

“Just Scratchin’ the Surface”, by the jazz great, Duke Ellington

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Now stare further out into the cloudy future to October 2016. Of course much can happen between now and then. Based upon the EIA's current STEO, potential days coverage does not suggest notable oversupply relative to historic averages.

The EIA forecasts end October 2016 stocks at 4016bcf. October 2016's hypothetical days coverage is 52.6 days (4016bcf/full calendar year 2016 average daily demand of about 76.4bcf/d. This is one day under the 53.6 day 1990-2014 average for that calendar month and 3.2 days beneath 2006-14's 55.8 day average. This days coverage is mildly supportive of prices.

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However, the EIA's inventory viewpoint relative to end build season 2016 of course is not destined to occur. Potential bearish developments for end build season 2016 and thus for prices could emerge between now and then.

Suppose supply increases more than expected relative to demand. EIA's current estimates show calendar 2016's demand at just over 76.4bcf/day up only slightly from 2015's 76.2bcf/d. Second, recall inventory build seasons 2014 and 2015. Suppose the 2015-16 winter is warmer than forecast. Or, what if the US economic recovery decelerates more than gurus predict?

Could US natural gas production increase more for the balance of 2015 and calendar 2016 than the EIA expects? Although natural gas rig count trends, signs of declining energy investment, and low prices suggest that output will not jump more than the EIA predicts (and arguably hint that production may increase less than the current STEO forecast), production gains of recent years warn that observers cannot rule out the possibility of greater than expected output.

The EIA states calendar 2015 total US marketed production is about 79.1bcf/day, up a towering 5.6 percent year-on-year (dry gas production jumped 5.6pc to about 74.4bcf/d). Calendar 2016 total marketed production keeps rising, adding another 1.9pc to reach almost 80.6bcf/d.

Bearish scenarios may underline not only the output boosts of recent years, but also the production acceleration from March 2014's 72.5bcf/day (around the February 2014 NYMEX natural gas price peak; March 2013's was 68.9bcf/d) even though prices tumbled. US total marketed production was 78.0bcf/d in December 2014, about 78.8bcf/d in March 2015, achieving a new high of 79.6bcf/day in September 2015.

The EIA predicts total US production generally will march upward, touching 79.8bcf/d in December 2015 and 81.5bcf/d in December 2016.

The EIA's statistics for total marketed natural gas production for the lower 48 states (excluding the Gulf of Mexico) manifest a similar pattern to that for America as a whole. Lower 48 calendar 2014 production was 70.5bcf/day, jumping 6.0pc to 74.7bcf/d in calendar 2015. Calendar 2016 supplies increase 2.5pc to 76.6bcf/d.

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Production estimates and actual output for the balance of 2015 and calendar 2016 obviously in part depend on price. The most recent stage of the NYMEX nearest futures bear move therefore may reduce production estimates from the EIA and other marketplace wizards. In any case, the October STEO projects the Henry Hub spot natural gas price will average \$2.83/mmbtu in 4Q15, (\$2.81 calendar year 2015; compare calendar 2014's \$4.39) and \$3.05 in calendar 2016 (Table 2).

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As for the United States, Canada's natural gas output has been abundant. Canadian marketable natural gas production for the first half of calendar 2015 (most recent statistics; National Energy Board, 9/30/15) displays year-on-year production gains in each month, although output gains have slowed. January 2015 supply climbed 5.5 percent year-on-year, June 2015 rose 1.7pc year-on-year.

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In any case, suppose US natural gas supply relative to consumption expands significantly more than the EIA now forecasts. This bearish viewpoint, though conjectural is not unreasonable. It derives further support from the memorable inventory increases of the 2014 and 2015 build seasons.

Consequently, potentially very lofty arithmetical gas inventory totals for end build season 2016 (even though current and anticipated US natural gas days coverage levels are not "unusual" or "excessive") create containment fears for end build season 2016. This arithmetic perspective in the containment context tends to put downward pressure on prices along the entire natural gas price curve.

### **CONTAINMENT HAZARDS**

"To every thing there is a season, and a time to every purpose under the heaven." Ecclesiastes, Chapter 3, verse 1 (King James Version)

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The EIA estimates the demonstrated maximum working gas storage volume for the lower 48 states. It defines this as the sum of the highest storage inventory levels of working gas observed in each storage reservoir over the previous five year period. According to the EIA, this rose merely three bcf from November 2013 to November 2014's 4336bcf (2/25/15). November 2014's total working gas design capacity of 4665bcf likewise was about unchanged year-on-year (inactive fields are not included in the design capacity statistic).

The EIA's next release date for its underground natural gas working storage capacity survey, February 2016, will provide data as of November 2015. Thus estimates for build season 2016 and thus end October 2016 will remain conjectural.

The basically flat storage build for November 2014 versus 2013 occurred despite rising US natural gas production. This warns that storage may have grown little since November 2014, and that capacity increases may be modest through the end of build season 2016.

Although the EIA releases its key comprehensive storage capacity survey only annually, it also generates monthly estimates for lower 48 states working natural gas total underground storage capacity. These figures do not precisely duplicate those released in the EIA's annual survey. However, let's review them for changes. They do not indicate storage capacity volume increases. August 2015's estimate of about 4719bcf is about even with November 2014's 4717bcf (10/30/15 release). The EIA also offers monthly estimates for lower 48 states total natural gas underground storage capacity; these likewise shifted little from November 2014 to August 2015.

The EIA also compiles information on "Planned Storage Projects" ("Upcoming U.S. Natural Gas Storage Facilities"; 10/16/15, next release 1Q16). This data is not collected via an EIA survey, but from trade press, FERC, and other industry sources. The EIA notes this is not a forecast, and that capacity additions may differ significantly from the indicated data. In any case, the figures do not indicate substantial capacity expansion for 2015 or 2016.

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However, sustained production increases, all else equal, tend to encourage storage growth (via expansion of existing facilities or from new building). Many past periods have manifested storage expansion.

In any case, focus on demonstrated maximum working gas volume statistics. A one percent rise versus the November 2014 estimate will expand volume 43bcf to 4379bcf ( $4336bcf * 1.01$ ). Two pc adds 87bcf, making the maximum volume 4423bcf.

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Suppose actual inventories happened to fall beneath a given maximum working gas storage capacity estimate. Apparently "empty space" does not necessarily equate to the practical free (readily available) storage capacity, whether for the lower 48 states as a whole or for a given region. And not everyone seeking storage space may be able to acquire it. Thus coming close to a demonstrated working gas capacity level in practice can produce a containment problem.

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In any case, suppose little new storage is built. Will there be containment problems if end build season 2016 supplies attain the EIA's 4016bcf estimate? After all, the maximum theoretical storage space may not necessarily be achievable in practice. Also, storage space may not be available to all marketplace players desirous of it. Nevertheless, inventories of 4016bcf fill about 92.6pc of November 2014's 4336bcf demonstrated maximum working gas volume storage level, so there appears to be at least a little breathing room. There probably will not be nationwide containment problems, though some may appear in particular regions.

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Bearish concerns regarding end October 2016 inventory levels remain conjectural. Perhaps relatively low prices will slash production. Perhaps the winter will be colder than normal.

However, suppose end October 2016 stocks are notably larger than the EIA's current STEO prediction. In addition to a warm 2015-16 winter, is there any build season history that justifies worrying about this?

The 2014 build season saw a gigantic 2730bcf climb from end March's 857bcf to end October's 3587bcf. What is the EIA's 2015 March to estimated October build? Stocks expand a hefty 2473bcf from end March's 1483bcf to reach end October 2015's 3956bcf.

Assume end March 2016 stocks are what the EIA predicts, 1892bcf. Assume limited expansion of maximum working gas volumes relative to the 4336bcf level.

A 2730bcf inventory build from an end March 2016 level of 1892bcf leaves end October 2016 stocks at 4622bcf, bursting above November 2014's 4336bcf demonstrated maximum working gas volume total for the lower 48 states. That build would challenge November 2014's total working gas design capacity of 4665bcf. Thus there very probably would be a notable containment problem in many locations. In the absence of storage capacity increase (via facility expansion or new construction), even if the 4336bcf maximum working gas threshold in practice could stretch slightly, the containment problem remains. It persists even if maximum storage volume builds two percent by end October 2016 to 4423bcf. If underground working gas inventory at end October 2016 stood at 4662bcf, it would take a 7.5 percent increase from the 4336bcf November 2014 demonstrated maximum working gas storage volume to match it.

Growth of 2473bcf from 1892bcf in March 2016, repeating 2015's experience, leaves them at 4365bcf, slightly exceeding current (November 2014) demonstrated maximum working gas storage capacity of 4336bcf. Even if that maximum working gas capacity builds two percent by end October 2016 to 4423bcf, and even if that threshold stretches upward a bit in practice, storage problems probably nevertheless probably would emerge in many regions.

The average days coverage build from end March to end October over the 2006-14 span is about 30.7 days. Assuming end March 2016 days coverage of 24.8 days, average days coverage expansion will leave end October 2016 working gas inventories at about 55.5 days coverage. If calendar 2016 consumption is as the EIA predicts, about 76.4bcf/day, then end October inventories will be about 4240bcf (55.5 days times 76.4). This stands at 97.8 percent of November 2014's maximum working gas storage capacity. Absent notable net storage expansion between November 2014 and end October 2016, this total probably also would generate storage problems in quite a few regions.

To avoid severe containment problems, would some natural gas producers be forced to shut-in or flare production?

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The 2013 build season net injection was much less than those of 2014 and 2015, at just under 2100bcf (end October 3817bcf versus end March's 1720bcf). The October STEO's 2016 build season estimate of 2124bcf (4016bcf less 1892bcf) is relatively close to yet exceeds 2013's.

Also, 2014's huge build in part reflected an effort to respond to high natural gas prices and very low inventories. The 2016 build background situation probably will be different in those respects, so a massive build akin to one in 2014 is rather unlikely unless the winter is significantly warmer than normal.

However, 2015's ultimate arithmetic build will be rather large, despite sufficient stocks and relatively low prices. So given the variety of variables influencing natural gas inventory levels, it is conceivable, even if relatively unlikely, that 2016 build season arithmetic stock gains could more closely resemble 2015 than 2013.

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In regard to 2015's and 2016's fairly high production levels, do debt burdens in the context of rather low natural gas prices force some US natural gas producers to maximize production to pay off creditors and stay in business, especially going into calendar year end 2015? Will this situation persist in calendar 2016?

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If current prices remain rather low, marketplace sentinels concerned about the 2016 stock build season should pay especially close attention not only to weather, but also to actual production levels and variables such as rig count and drilling productivity.

### **UNCERTAINTY, CONTINUED: INVESTMENT, RIG COUNTS, COAL, AND LNG**

“So much trouble in the world...  
The way earthly thin's are goin'  
Anything can happen”. Bob Marley and the Wailers, “So Much Trouble in the World”

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Energy groups generally appear to be slashing investment projects. For example, the Financial Times underlines: “Energy groups postpone \$200bn in projects as oil price slumps again” (7/27/15, p1). Though this FT headline focuses on oil, the consequences of such price concerns also apply to US natural gas.

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Baker Hughes data reveals the collapse of petroleum rotary rig counts in the context of the oil price crash. The Baker Hughes oil rotary rig count on 10/30/15 was 578, a new depth for the rig trend. It falls 64.1 percent from the 1609 peak on 10/10/14.

What about natural gas? Gas drilling (via fracking, especially) has become more productive, so fewer rigs are producing more supplies. Rotary gas rigs at end year 2011 were 810, end 2012 about 430, and end 2013 almost 375. However, note the slump in natural gas rigs since 11/7/14's 356 rigs; recall the interim price top in NYMEX natural gas nearest futures at 4.544 on 11/10/14. The 3/7/14 total, close to February 2014's major price pinnacle at 6.493, was 345. As of 10/9/15 (the low to date; 10/30/15 was 197), there were only 189 gas rigs (contrast the 313 at that time last year), a 46.9pc plunge relative to 11/7/14.

In the key Marcellus natural gas producing region, on 10/30/15 there were only 43 rigs. Compare 10/31/14's interim high of 84 rigs (4/25/14 counted 86).

Thus in the context of current relatively low gas prices, what do falling investment and the slumping gas rig count suggest? The EIA's current estimate for only a modest US natural gas production increase and a related modest stock build during the 2016 build season probably are more likely than predictions of big production boosts and hefty stock increases promoted by marketplace bears. And maybe even the EIA output estimates in practice will turn out to be optimistic.

In the output context, monitor natural gas production levels and decline rates for natural gas from legacy (older) wells. See the EIA's "Drilling Productivity Report".

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At current or even lower natural gas prices, maybe there will be further switching to gas from coal. This may reduce natural gas oversupply.

The EIA's October 2015 STEO notes the sharply declining gap between coal and natural gas fired electricity generation marketplace shares from 2014 to 2015. Coal's annual share of US generation was 38.7 percent in calendar 2014, falling to 35.0pc in 2015. The average fuel share of natural gas was 27.4pc in 2014, ascending to 31.6pc in 2015. However, although coal's share dips in calendar 2016 to 34.8pc, the natural gas level slips to 31.0pc. In several recent 2015 months (April, July, and August), the natural gas share of electricity generation exceeded that of coal. See the EIA's "Today in Energy" (7/31/15 and 10/7/15) and "Electricity Market Update" (10/27/15). In August 2015, natural gas captured a 35.3pc share, coal 34.6pc. In July 2015, natural gas had 35.0pc, coal 34.9pc.

American electricity consumption in calendar 2014 was 10.58 billion kilowatt hours/day. The October 2015 STEO predicts flat American electricity demand from 2015 to 2016 (Table 7a). Compare 2015's 10.62 bbkwh/d and 2016's 10.62 bbkwh/d.

Coal retirements continue, which should fortify natural gas demand. Yet renewable energy sources creep higher in importance in many regions. What will be the outcome of heated legal battles related to the Clean Air Act and coal power plants? Will environmental concerns related to fracking grow stronger?

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What about US LNG exports? LNG exports eventually are a significant bullish variable for America's natural gas arena. Yet this is a relatively longer run factor. Near-term prospects are relatively modest. The EIA believes LNG gross exports will be only .1bcf/day in 4Q15, rising to .7bcf/d in 1Q16 (and averaging .8bcf for calendar year 2016).

### **MARKETPLACE TRENDS: LOOKING FOR COMMITMENTS**

At times the CFTC's Commitments of Traders is a helpful indicator for predicting significant trend changes and travels in natural gas marketplaces. Review the benchmark NYMEX and ICE natural gas contracts (futures and options combined) plus the NYMEX European look-alike options contract. In the natural gas complex, sometimes (but not always) key highs and lows in price occur alongside notable levels in the net noncommercial position.

On 2/18/14, the net noncommercial long ("NCL") position peaked at about 328,000 contracts, or 7.7 percent of total open interest. The net NCL percentage of total open interest attained its 8.4pc high the following week (8.4pc is the record net NCL since the ICE began to report data in January 2010). February 2014's net NCL summit roughly coincided with the NYMEX natural gas (nearest futures continuation) 2/24/14 pinnacle at 6.493. The substantial liquidation of this large net noncommercial long position in natural gas helped to propel prices sharply lower in succeeding months.

What about recent times? On 10/27/15, the day of the recent low for NYMEX nearest futures natural gas, the net noncommercial short position (“NCS”) reached about 264,000 contracts. This is the highest net NCS total since January 2010. The net NCS as a percentage of total open interest was 9.4 percent, a record percentage for the net NCS position (and even higher than the 8.4pc net NCL plateau).

With NYMEX nearest futures prices relatively feeble (under 3.00), this very large net NCS position warns of potential notable rallies from the October 2015 low. Keep in mind price level, time, and distance considerations in this context.

Of course the net noncommercial short position could get larger if prices (watch individual contract months, not just nearest futures continuation) fall further. And recall that after the net NCS peaked in November 2011, prices kept diving lower while the net NCS position diminished. On 4/24/12, the net NCS position was merely 15m contracts. Thus one should approach the Commitments of Traders data with care.

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As year-end calendar 2015 nears, if natural gas prices do not manage to rally much from their late October 2015 low, some gas “investors” (and buy side “speculators”) may choose to liquidate their positions. Watch broad commodity index trends in that regard as well.

### “TECHNICAL” FACTORS: PRICE, DISTANCE, AND TIME

“Oh, seasons change with scenery,  
Weaving time in a tapestry...” “A Hazy Shade of Winter”, Simon and Garfunkel

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Interpretation of natural gas price history can venture beyond the NYMEX nearest futures continuation contract. Wall Street trend seekers may elect to review individual actual contract months (such as the NYMEX January 2016 natural gas futures contract). Within a particular NYMEX natural gas winter draw season, the price of a given nearby actual NYMEX winter contract may be lower than a subsequent winter month (price curve structure in contango). Marketplace navigators may analyze several trading months of a gas season (as in the NYMEX summer 2016 strip), calendar years (like the calendar 2020 strip of contracts), spreads (such as NYMEX March 2016/April 2016), prices in other regions than the NYMEX realm, and basis relationships. Marketplace players can derive insight into and tell tales regarding natural gas domains and their past, present, and potential bull and bear patterns by analyzing electricity, coal, oil, and other financial battlefields, as well as assorted additional economic and political phenomena. In natural gas as in other territories, supply/demand investigation can intertwine with so-called technical analysis.

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Here follows one perspective on major natural gas bear moves based upon the NYMEX natural gas nearest futures continuation contract.

<u>High; Date</u>	<u>Low; Date</u>	<u>Decline (Percent)</u>	<u>Duration (Months)</u>
1. 4.60; 12/20/96	1.68; 2/24/97	63.5pc	Two
2. 3.85; 10/28/97	1.61; 8/27/98	58.2	Ten
3. 10.10; 12/27/00	1.76; 9/26/01	82.6	Nine

4. 11.90; 2/25/03	4.39; 9/22/03	63.1	Seven
5. 15.78; 12/13/05	4.05; 9/27/06	74.3	Nine and two weeks
6. 13.694; 7/2/08	2.409; 9/4/09	82.4	Fourteen
7. 6.108; 1/7/10	1.902; 4/19/12	68.9	Twenty-seven and one wk

The average distance traveled over these seven bear moves is 70.4 percent. The average duration is about eleven and one-quarter months.

Looking back prior to the December 1996 high does not significantly alter the table's price and time portrait. The 53.4 percent decline from the 3.72 plateau on 12/21/95 to the 1.735 valley on 9/5/96 lasted about nine and a half months (though a final low, as part of a double bottom, arguably occurred 2/24/97 at 1.68). The 60.0pc drop from 11/26/90 at 2.65 to 6/25/91 at 1.06 spent seven months. The 52.3pc fall from 11/5/91 at 2.14 to 1/24/92 at 1.02 lasted two and a half months.

So for the ten bear moves combined, the average fall is about 65.9 percent (66pc erosion from February 2014's 6.493's summit is 2.162), with the average duration about nine and three quarter months.

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What does the current marketplace situation indicate? The collapse from the 6.493 major high on 2/24/14 to 10/27/15's 1.948 low is 70.0 percent and 20 months.

Thus from the historical distance (price move) perspective, the bear slump has been about average. Note that the 1.948 level stands nearby other important support. Recall not only 4/19/12's major low, but also the double bottom of 1.85 (1/28/02)/1.76 (9/26/01) as well as a trough at 1.735 on 9/5/96 alongside a low at 2/24/97's low at 1.68.

From the historical bear move duration vantage point, the decline since February 2014 has been twice as long as average, surpassed only by the January 2010 to April 2012 crash. Thus from the time parameter, and though history is not destiny, a change from the bear trend that commenced in February 2014 could occur relatively "soon". Watch various NYMEX individual contract months, strips, and spreads (and other marketplaces) to indicate (confirm) such a trend change.

The October 2015 low occurred around contract expiration. Many important NYMEX natural gas trend changes have occurred around contract expiration.

Though the combined time and price variables hint that NYMEX gas prices (nearest futures continuation) will not easily break by much if at all the October 2015 depth, they do not guarantee this. October 2015 may not be the final bottom. After all, among other factors, the 2015-16 winter may be warmer than normal. Keep end build season 2016 containment risks in view. Also, remember that some major bear moves exceeded 70 percent. A 75pc drop from the February top gives 1.623 (2/26/99 bottom was 1.625, 8/27/98 trough 1.61), an 80pc one 1.298 (82.6pc 1.130; 1/13/95's bottom was 1.25, the all-time low 1/24/92 at 1.02).

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On the significant price resistance front, keep in mind the key gap around 3.35/3.45 (12/19/14 low at 3.449, 12/22/14 high 3.351, 1/15/15 minor high 3.352). Note 5/19/15's interim high at 3.105 (compare 2/23/15's 3.039 and 6/17/15's 2.995).

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One should not be dogmatic about calendar month timing regarding major trend shifts, though such history can offer guidance. Chronicles of calendar month timing of key marketplace trend changes attract some soothsayers. What does history reveal regarding prior appearances of very important (major) highs and lows in the NYMEX natural gas nearest futures continuation contract for calendar October and the next several calendar months?

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\*\*October- Key October highs are 10/28/97 at 3.85, 10/28/99 at 3.28, and 10/28/04 at 9.20. Major lows generally have not occurred in calendar October. However, see 10/27/10's interim low at 3.212. There could be an interim rally, even if not a major bull advance, from the October 2015 low.

\*\*November- one key low, that of 11/24/99 (2.08; part of a double bottom with 1/15/00's 2.13); highs 11/26/90 (at 2.65), 11/5/91 (at 2.14), and 11/30/06 (9.05). The 11/5/13 depth at 3.379 was an important take-off point within the long run bull move, but it was not a major low (similarly, 11/23/12's 3.933 and 11/10/14's 4.544 were interim tops).

\*\*December- no noteworthy lows; major tops 12/21/95 (at 3.72), 12/20/96 (4.60), 12/27/00 (10.10), 12/13/05 (15.78; all-time high). Though establishing a major low in calendar December (or calendar October, for that matter) would be unusual (contrary to the historic pattern), the large extent (distance) and long duration of the major bear trend since February 2014 would not make it extraordinary. Besides, the NYMEX natural gas 25 year trading history is relatively short; compare wheat or the Dow Jones Industrial Average. A December 2015 trough would be a ten year diagonal move from December 2015's all-time pinnacle.

\*\*January- significantly, there have been four key bottoms in calendar January. The two highs that also occurred in January underscore the potential for trend change during that month. If natural gas prices move beneath the October 2015 low, January is an important calendar month to watch for the bear trend to end. Major and record low 1/24/92 (1.02), 1/13/95 (1.25), 1/15/00 (2.13; see November), 1/28/02 (1.85; preceded by the 9/26/01 low at 1.76); tops 1/9/04 (7.63) and 1/7/10 (6.11). Keep in mind the interim lows in early January 2013 (1/2/13's 3.05 and 1/9/13's 3.09).

\*\*February- troughs at 2/24/97 (1.68), 2/26/99 (1.63); summits 2/2/94 (2.69), 2/25/03 (11.90), and 2/24/14 (6.493). A major low in February 2016 would be a two year diagonal time move from 2/24/14's pinnacle.

\*\*March- no noteworthy lows or highs.

\*\*April- major bottom 4/19/12 at 1.902. Interim low, but not a major one, on 4/27/15 at 2.443. April 2015's nearest futures continuation 2.443 depth stands close to 9/4/09's major low at 2.409. In ancient times, recall the 4/23/93 top at 2.80.

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