

US NATURAL GAS: TRAVELING FORWARD

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Bob Dylan's song "All Along the Watchtower" states:
"There must be some way out of here," said the joker to the thief
"There's too much confusion, I can't get no relief".

CONCLUSION

The United States natural gas (NYMEX nearest futures continuation basis) major bear trend that followed 2/24/14's major peak at 6.493 ended with 3/4/16's 1.611 bottom. For the next several months, however, natural gas likely will remain in a sideways pattern. The probable range for the United States natural gas marketplace remains a relatively broad avenue between major support at 1.60/1.90 and significant resistance at 3.10/3.45. This sideways outlook partly results from two currently contending marketplace stories.

For the near term, substantial natural gas oversupply exists, weighing on prices. Containment risks still loom for end of build season 2016. If noteworthy containment problems erupt, March 2016's bottom may be attacked, even though current prices hover significantly above 1.60/1.90 and even if an assault on that support does not last for much time. What if a torrid summer 2016 dramatically reduces the stock build total and thus helps containment fears for end build season 2016 to disappear? Then prices likely will not revisit the 1.60/1.90 range, but instead will maintain their ascent toward 3.10/3.45.

The US natural gas supply/demand perspective over the so-called long run is moderately bullish. Assuming normal winter 2016-17 weather, moderate US economic growth, and no renewed collapse in the overall commodities complex (particularly petroleum), gas prices probably will march higher.

NATURAL GAS: (PARTLY) DANCING IN STEP WITH OTHER MARKETPLACES

Natural gas prices often travel substantially independently of both petroleum (and commodities "in general") and so-called "international" or "financial" marketplaces and variables. Trend changes in NYMEX natural gas need not roughly coincide with one in the petroleum complex or commodities in general, or currency, stock, or interest rate playgrounds.

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 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 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 peak at 2135. In regard to the timing of the S+P 500's May 2015 high, the nominal broad trade-weighted dollar (Federal Reserve, H.10, which has daily data) made an interim low at 112.8 on 5/15/15 before appreciating further.

The recent low in NYMEX natural gas nearest futures, 3/4/16's 1.611, occurred fairly close in time to the first quarter 2016 peak in US dollar and an assortment of notable intertwined 1Q16

lows in other important marketplaces. The trend shifts (price reversals) in first quarter 2016 in various marketplaces assisted the upward move in natural gas that emerged in early March 2016.

**The broad real trade-weighted United States dollar (monthly average) peaked at 101.2 in January 2016; the nominal TWD (which has daily data) established a top 1/20/16 at 126.2 (Federal Reserve, H.10).

**NYMEX crude oil (nearest futures continuation): bottoms \$26.19 on 1/20/16 and \$26.05 on 2/11/16.

**Broad Goldman Sachs Commodity Index (GSCI): 268 on 1/20/16. January 2016's GSCI low occurred midway between the calendar month times of its 2008-09 bottom (12/24/08 at 308 and 2/19/09 at 306).

**S+P 500: Note the sharp rally from lows of 1812 on 1/20/16 and 1810 on 2/11/16.

**MXEF (MSCI emerging stock markets index; Morgan Stanley): 687 on 1/21/16, 708 on 2/12/16.

**Ten year US Treasury note: 1.53 percent yield low 2/11/16.

US NATURAL GAS INVENTORIES: AN OVERVIEW

In the ensuing analysis 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, 6/7/16, next release 7/12/16).

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. After all, supply and demand levels in commodity playgrounds can evolve over time, sometimes significantly. For US natural gas, compare calendar year 2015's 75.3bcf/day consumption with 2005's 60.3bcf/d.

However, the days coverage perspective of course does not provide a complete viewpoint on the natural gas inventory situation and related price risks. So fundamental considerations related to days coverage should be interpreted alongside the potential for inventory containment problems (supply relative to arithmetic storage capacity availability). After all, one should focus closely on arithmetic levels because arithmetic quantities (bcf) of gas must be put in arithmetic storage places.

End March 2016 gas inventories of 2492bcf were very high, establishing a new end March record for the 1990-present scene. In days coverage terms, end March 2016's 33.1 days exceeded the 1990-present average for end March by almost eleven days, and that of 2006-present by about eight days. However, anticipated end October 2016's 54.3 days coverage level is about average.

A modest days coverage level for October 2016 nevertheless does not eliminate a containment danger. Since the US created little new natural gas storage capacity over the past couple of years, containment problems could emerge near the end of the 2016 inventory build season (roughly

around end October 2016). As the containment risks for the end of build season 2016 are not insubstantial; this bearish potentiality weighs on prices. Sustained low US natural gas prices has not reduced production much, despite the big drop in US natural gas rig counts.

Everyone knows that much can happen between now and 2017. Yet based upon the EIA’s bcf prediction, natural gas days coverage at end October 2017 probably will be below average, a bullish factor. The EIA’s bcf arithmetic inventory forecast for end October 2017 implies there probably will not be a containment problem around the end of build season 2017.

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

In the following discussion regarding and tables for US end calendar 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 2015-16 (includes March 2016’s 2492bcf inventory).

	Long Run (1990-2015)	Long Run (1990-2015)		
	End Calendar Month	End Calendar Month		
	Arithmetic (Bcf)	Days Coverage		
	<u>Average</u>	<u>Average</u>		
<u>March</u>	1387	22.2		
	<u>Season Highs (Year)</u>		<u>Season Lows (Year)</u>	
	<u>(Bcf)</u>	<u>Days Cover</u>	<u>(Bcf)</u>	<u>Days Cover</u>
<u>March</u>	2492 (2015)	33.1 (2015)	730 (2002)	11.6 (2002)
	2473 (2011)	36.9 (2011)	742 (2000)	11.6 (2000)
	1692 (2005)	28.1 (2005)	857 (2013)	12.0 (2013)
			758 (1995)	12.5 (1995)
<u>March</u>	Medium Run (2006-2015)			
	End Calendar Month			
	<u>Days Cover Average</u>			
	25.0 days (2.8 days greater than 1990-2015’s time span)			

At end March 2016, the EIA’s 2492bcf of stocks established a record arithmetic high for the past twenty-five years. Relative to about 75.3bcf/day of full calendar year 2015 demand, they equaled about 33.1 days of coverage. From the historic end March days coverage vantage point, the end March 2016 days coverage level is bearish. Though about four days beneath the 2011 season’s mammoth 36.9 days, it flew 8.1 days above the 2006-15 average and soared 10.9 days above that of 1990-2015.

THE 2016 BUILD SEASON: CENTER STAGE

“Calling out around the world, are you ready for a brand new beat? Summer’s here and the time is right, for dancing in the street.” The song “Dancing in the Street”, by Marvin Gaye, William Stevenson, and Ivy Jo Hunter

For the week ending 6/3/16, United States working gas in underground storage (Lower 48 states; EIA) was 2972bcf, up 660bcf and 28.5 percent relative to the prior year week. This year-on-year comparison, however, does not tell the entire tale regarding inventory levels and their implications.

The EIA forecasts working natural gas inventories will ascend to 4161bcf at end October 2016 (STEO, Table 5a). Relative to calendar year 2016 consumption of about 76.6bcf/day (up 1.8 percent year-on-year), days coverage at the close of the 2016 build season will be about 54.3 days (4161bcf divided by 76.6bcf/day). That neighbors October 2015's 52.5 days coverage total (3953bcf).

Let's survey the projected 4161bcf stocks and 54.3 days coverage level for end October 2016 in historical context. Focus for now especially on the days coverage variable.

	Long Run (1990-2015)		Long Run (1990-2015)	
	End Calendar Month		End Calendar Month	
	Arithmetic (Bcf)		Days Coverage	
	<u>Average</u>		<u>Average</u>	
<u>October</u>	3340		53.6	
	<u>Season Highs (Year)</u>		<u>Season Lows (Year)</u>	
	<u>(Bcf)</u>	<u>Days Cover</u>	<u>(Bcf)</u>	<u>Days Cover</u>
<u>October</u>	3953 (2015)	66.0 (1990)	2732 (2000)	42.9 (2000)
	3929 (2012)	60.7 (2009)	2810 (1996)	45.5 (1996)
	3851 (2010)			
<u>October</u>	Medium Run (2006-2015)			
	End Calendar Month			
	<u>Days Cover Average</u>			
	55.5 days (1.9 days more than the 1990-2015 time span)			

End October 2016's 54.3 days coverage level is less than one day over 1990-2015's end October 53.6 day average and slips 1.2 days beneath 2006-15's 55.5 days. Thus the anticipated end October 2016 days coverage total (taken "alone" and "all else equal") is neutral.

Although end October 2016's days coverage will be about average, a 4161bcf total will vault over the prior end October all-time bcf pinnacle. Gas supplies must be stored somewhere. Whatever days coverage happens to be, there can be natural gas oversupply in the actual physical practice (real world) context. That lofty arithmetic level prompts containment fears for the close of 2016 build season.

End November inventories from 1990-2015 average 3235bcf and 51.9 days coverage.

Sometimes US natural gas inventories accumulate a bit more into calendar November. Over the calendar 2000 to 2015 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, 2015 a 15bcf one.

CONTAINMENT HAZARDS

Steppenwolf sings in "Born to Be Wild":
"Get your motor runnin'
Head out on the highway
Looking for adventure
In whatever comes our way".

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.

Demonstrated underground maximum working gas capacity in the lower 48 states as of November 2015 was 4343bcf ("Underground Natural Gas Working Storage Capacity"; 3/16/16, next release February 2017). This crawled up a paltry seven bcf from November 2014's 4336bcf. And November 2014 rose merely three bcf from November 2013's total (2/25/15). November 2015's total working gas design capacity of 4658bcf eroded seven bcf versus November 2014's 4336bcf (inactive fields are not included in the design capacity statistic).

What about storage building during after November 2015 for build season 2016? The EIA compiles information on "Planned Storage Projects" ("Upcoming U.S. Natural Gas Storage Facilities"; 2Q16). This data is not collected via an EIA survey, but from trade press, FERC, and other industry sources. The EIA underlines this is not a forecast; capacity additions may differ significantly from the indicated data. In any case, the 2Q16 statistics do not indicate any notable capacity expansion for 2016 (and merely 15bcf in 2017). If maximum storage volume builds one percent by end October 2016, it totals 4386bcf.

Even if actual inventories rest beneath a given demonstrated 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. Moreover, not everyone seeking storage space may be able to acquire it; it may be "tied up (controlled) by others". Thus coming close to a demonstrated working gas capacity level in practice can produce a containment problem. This arithmetic perspective in the containment context tends to put downward pressure on prices particularly during build season months, but has impact along the entire natural gas price curve.

The EIA predicts a relatively small 1669bcf stock build from end March 2016 to end October 2016 (2492bcf to 4161bcf). Will there be containment problems if end build season 2016 supplies attain the EIA's end October 4161bcf estimate? At 4161/4343bcf, this equals 95.8 percent of capacity, an elevated total. Since the maximum theoretical storage space may not necessarily be achievable in practice, and as storage space may not be available to all marketplace players hunting for it, the United States probably will confront natural gas containment problems in some

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

Bearish concerns regarding end October 2016 inventory levels remain conjectural. Perhaps spring/summer 2016 may be unusually hot and boost natural gas demand, or arguably production will fall more than current estimates. How much switching from coal to natural gas will occur? Yet suppose end October 2016 stocks are larger than the EIA's current STEO prediction. Spring/summer 2016 may be relatively cool.

Does build season history justify worrying about larger stock increases than the EIA currently estimates?

The 2014 build season saw a gigantic 2730bcf climb from end March's 857bcf to end October's 3587bcf. In 2015's build season, stocks expanded a hefty 2470bcf from end March 2015's 1483bcf to reach end October 2015's 3953bcf.

A 2730bcf inventory build (as in the 2014 season) from end March 2016's 2492bcf levels propels end October 2016 stocks to 5222bcf. Suppose 2016 US natural gas stocks increase the same quantity as in 2015's build period. End October inventories would be 4962bcf (2492 plus 2470bcf). Such conjectural end October 2016 inventories skyrocket above November 2015's 4343bcf demonstrated maximum working gas capacity and even exceed November 2015's total working gas design capacity of 4658bcf. Almost certainly, notable containment problems would emerge in many locations.

The average days coverage build from end March to end October over the 2006-15 span is about 31.0 days. Assuming end March 2016 days coverage of 33.1 days, average days coverage expansion will leave end October 2016 working gas inventories at about 64.1 days coverage, far above average.

Assume calendar 2016 consumption is as the EIA predicts, about 76.6bcf/day. If days coverage grows by 31.0 days, 31.0 days times roughly 76.6bcf/day creates a 2375bcf build (less than 2015's 2470bcf). Add 2375bcf to the EIA's 2492bcf end March 2016 level. This hypothetical 4867bcf inventory also significantly exceeds November 2015's maximum working gas storage capacity.

However, high inventory levels at end March 2016 probably will inspire smaller builds than suggested by these 2014 and 2015 build season perspectives.

Recall that 2014's huge build in part reflected an effort to respond to high natural gas prices and very low inventories (12.0 days cover at end of the 2013-14 winter season). The 2016 build background situation is very different in those respects, for end winter 2015-16 ended with mountainous inventories and depressed prices. A massive inventory build in 2016 akin to the 2014 one therefore is unlikely. A huge inventory jump as in 2015 also likely will not occur.

Yet 2015's ultimate arithmetic build was still rather large in the context of only slightly below normal days coverage at end winter season 2014-15. Although 20.3 days coverage as of end March 2015 was a bit below average, NYMEX natural gas prices (nearest futures) were not very high. And prices during 2015 build season stood far under February 2014's 6.493 pinnacle. For

most of the 2015 build season, prices stayed in the range of 2.443 (the 4/27/15 low) and 3.105 (5/19/15's high), though they plunged to 1.948 on 10/27/15.

The US inventory and price situation at end March 2016, however, probably is similar to that at end March 2012. At end March 2012, inventories were extremely high in arithmetic and days coverage terms. NYMEX natural gas achieved its bottom 4/19/12 at 1.902. Stocks built only 1456bcf from end March to end October 2012 (2473bcf to 3929bcf); days coverage rose only 19.4 days over build season 2012's span (36.9 days to 56.3 days). The EIA's anticipated 1669bcf build from end March 2016 to end October 2016 is 213bcf greater than 2012's; 2016's days coverage rise of 21.8 days (1669bcf/76.6bcf per day) likewise is modestly greater.

Thus far, for build season 2016, the arithmetic build rate appears relatively close to the 2012 pattern. In calendar 2012, US natural gas stocks were 2473bcd at end March, 2611bcf at end April, and 2887 at end May. Thus stocks built 414bcf from end March to end May 2012, and a further 228bcf to end June's 3115bcf.

At end March 2016, working gas inventories totaled 2492bcf, climbing to 2633bcf at end April and 2980bcf at end May. The 488bcf end March to end May 2016 build is fairly close to the 2012 total over those months. The EIA's recent STEO predicts end June 2016 stocks of 3263bcf, a 283bcf increase from end May. A 2016 increase from end March through end June of 771bcf still remains fairly close to 2012's 642bcf advance over those calendar months.

But even if the 2014 and 2015 situations do not fit 2016's stage very well, and though the 2012 build season appears to be a much better benchmark, keep 2013 build season in mind. That year, net injection at just under 2100bcf was much less than those of 2014 and 2015, (end October 2013's 3817bcf versus end March's 1720bcf).

US natural gas production has not tumbled much from its 2015 heights, and calendar 2016 output actually rises year-on-year. Will debt burdens in the context of relatively low natural gas prices force some US natural gas producers to maximize production to pay off creditors and stay in business during calendar year 2016? Suppose summer 2016 weather is cooler than currently forecast.

A 2100bcf increase from the EIA's 2492bcf end March 2016 leaves end October 2016 inventories at 4592bcf, around 105.7 percent of November 2015's 4343bcf storage capacity. If this occurs, the US natural gas industry likely would confront noteworthy containment challenges.

The EIA's "Today in Energy" (6/8/16) says some industry analysts believe natural gas storage in Alberta, Canada is nearing capacity and could be full in the next few months. Alberta natural gas stocks had been high earlier this year, and consumption fell in the aftermath of the Fort McMurray area fires.

NATURAL GAS STOCKS IN MARCH AND OCTOBER 2017

“(All down the line.) We’ll be watching out for trouble, yeah.
(All down the line.) And we’d better keep the motor running, yeah” The Rolling Stones, “All Down the Line”

The future for 2017 is cloudy. Obviously much can happen between now and then.

The EIA estimates calendar 2016 US demand of 76.6bcf/d grows about 1.4bcf/d relative to 2015, or about 1.8 percent year-on-year. Forecast calendar year 2017 consumption of 77.8bcf/d climbs 1.5pc versus 2016.

Suppose end March 2017 working gas inventory is the EIA's predicted 1912bcf (STEO, Table 5a). Relative to full calendar year 2016 demand of about 76.6bcf/day, that represents 25.0 days coverage. This matches 2006-15's 25.0 day end March average, and is only 2.8 days over the 1990-2015 long run vista.

The EIA states end October 2017 inventories will be 3841bcf, 320bcf less than its estimate for October 2016. At this bcf total, build season 2017 probably will not face containment problems. Natural gas days coverage at end October 2017 will be about 49.4 days coverage (3841bcf divided by 77.8bcf/day). Such end October 2017 days coverage is rather bullish. It falls 6.1 days under the 1996-2015 end October average of 55.5 days and 4.2 days beneath 1990-2015's 53.6 day average. Thus, although in marketplaces the near-term entangles with the long term, "the October 2017 natural gas situation appears much more bullish than the October 2016 one."

NATURAL GAS SUPPLY/DEMAND, CONTINUED

Marketplace headlines, though most focus on the petroleum complex, indicate that energy groups around the globe generally appear to be slashing investment projects.

Baker Hughes data reveals the collapse of petroleum rotary rig counts in the context of the oil price crash and the fall in US crude oil production. According to the EIA (June 2016 STEO, Table 4a), lower 48 crude oil output (excluding the Gulf of Mexico) peaked at 7.7mmbd in April 2015 (compare 4.3mmbd of March 2012). It stumbled to 7.3mmbd in September 2015 and 6.6mmbd in May 2016. It averages 6.0mmbd in 4Q16 (down 1.7mmbd from the April 2015 plateau), with calendar 2017 at 5.9mmbd. The Baker Hughes United States oil rotary rig count on 5/27/16 touched 316, a new depth for the rig trend. That nosedived 80.4 percent from the 1609 peak on 10/10/14 (6/10/16 at 328).

What about US natural gas? Its rig count collapsed, but unlike oil, overall natural gas output did not decline much as prices cratered. Gas drilling (via fracking, especially) has become more productive, so fewer rigs are producing more supplies.

Rotary gas rigs at end year 2011 were about 810, end 2012 430, and end 2013 almost 375. 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 2/24/14's major price pinnacle at 6.493, was 345. As of 10/9/15, there were only 189 gas rigs (contrast the 320 on 10/10/14). The total collapsed further to 97 rigs on 3/4/16. There were only 82 on 6/3/16, a 77.0 pc plunge relative to 11/7/14.

In the key Marcellus natural gas producing region, on 6/10/16 there were only 23 rigs. Compare 10/31/14's interim high of 84 rigs (4/25/14 counted 86).

Production estimates and actual output for calendar 2016 and thereafter obviously in part depend on price. Sustained low natural gas prices may reduce production estimates from the EIA and other marketplace wizards. In any case, the June 2016 STEO (Table 2) projects the Henry Hub spot natural gas price will average \$2.22/mmbtu in calendar 2016, and the current price around \$2.60 exceeds that. Compare \$2.63 for calendar year 2015 and calendar 2014's \$4.39. The estimate for calendar 2017 is \$2.96.

The EIA states calendar 2015 total US marketed production was 78.8bcf/day, up a towering 5.2 percent year-on-year from 2014's 74.9bcf/d (dry gas production jumped 5.1pc to about 74.1bcf/d). Recall the production acceleration from March 2014's 72.5bcf/day occurred around February 2014's NYMEX natural gas price peak. The March 2013 output was 68.9bcf/d.

The recent production high quarter was 3Q15's 79.6bcf/d. The recent high month was September 2015's 80.0bcf/d. Although 4Q15 dipped to 78.9bcf/d, output resumed its upward climb, and is expected to reach 80.2bcf/d in 4Q16. Calendar 2016 total marketed production rises slightly, about 1.0pc to reach 79.6bcf/d (it reaches a low in June 2016 at 79.1bcf/d and then advances). The EIA predicts calendar 2017 total production increases 2.3pc to 81.4bcf/d (4Q17's is 82.1bcf/d).

EIA 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 5.3pc to 74.2bcf/d in calendar 2015. The EIA forecasts that the recent quarterly high, 3Q15's 74.8bcf/d, probably will be surpassed slightly in 2Q16 and thereafter. Calendar year 2016 supplies increase 1.6pc to 75.4bcf/d, with 2017's hopping up 2.7pc to 77.4bcf/d.

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".

Canada's natural gas output has been abundant. Estimates for Canadian marketable natural gas production in calendar 2016 suggest about a four percent year-on-year boost (National Energy Board, 6/3/16).

According to the June 2016 STEO, in recent months natural gas has remained the leading fuel for power generation. In first quarter 2016, natural gas supplied 32.1 percent of total US electricity production at utility scale power plants, whereas coal contributed 28.7pc. Compare these with 2015's 1Q, where natural gas had 28.6pc and coal 36.0pc. For the rolling 12 months ending in March 2016, natural gas's share was 33.6pc, that for coal 31.4pc. See also Table 1.1, "Net Generation by Energy Source", in the "Electric Power Monthly". The March 2016 STEO had earlier predicted 2016 will be the first year US natural gas-fired electrical generation exceeds coal generation (33pc versus 32pc).

Coal retirements continue, which should fortify natural gas demand. Yet renewable energy sources creep higher in importance in many regions.

At current or lower natural gas prices, maybe there will be further switching to gas from coal. This may reduce natural gas oversupply. But if prices rally further from current levels as 2016 build season continues, and if the weather is normal (or cooler than normal), will that reduce natural gas demand and increase containment risks?

American electricity consumption in calendar 2015 was 10.58 billion kilowatt hours/day. The June STEO predicts flat American electricity demand from 2015 to 2016 and 2017 (Table 7a). See 2016's 10.54 bbkwh/d and 2017's 10.71 bbkwh/d.

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?

What about US liquefied natural gas exports? LNG exports are a significant longer run bullish variable for America's natural gas arena. The EIA believes LNG gross exports will be only .4bcf/day in 2Q16, rising to .7bcf/d in 3Q16 and 1.0bcf/d in 4Q16 (averaging .6bcf for calendar year 2016). Calendar 2017 averages 1.3bcf/d.

"TECHNICAL" FACTORS: PRICE, DISTANCE, AND TIME

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 October 2016 natural gas futures contract). 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 October 2016/January 2017 or March 2017/April 2017), 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.

See "US Natural Gas: Caught in the Middle" (2/1/16) for a detailed discussion of long run NYMEX natural gas bear price move history (nearest futures continuation). What does the current marketplace situation indicate?

From the historical distance (price move) perspective, ten major NYMEX natural gas bear moves traveled an average of 65.9 percent; for the seven collapses beginning with the December 1996 one, the downturn is 70.4pc. From the time parameter, the average decline for the 10 big bear moves was about nine and three-quarter months. For the most recent seven major bear moves preceding the one that began in February 2014, the duration averages about eleven and one-quarter.

The collapse from 2/24/14's 6.493 major high to 3/4/16's 1.611 low was 75.2 percent and just over 24 months. Thus the price move traveled moderately farther than average. Significantly, the two year decline since February 2014's summit was more than twice as long as average major bear trends, surpassed only by the January 2010 to April 2012 crash (during which the price fell 68.9pc). Thus from the interrelated price and time variables (nearest futures continuation basis), and though history is not destiny, a major change from the long-running bear trend that commenced in February 2014 probably occurred following 3/4/16's low.

Also note that March 2016's 1.611 level stands within a range other important support. Recall not only 4/19/12's major low at 1.902, but also the double bottom of 1.85 (1/28/02)/1.76 (9/26/01), a trough at 1.735 on 9/5/96 alongside a low at 2/24/97 at 1.68, and 1998-99's bottom (8/27/98 at

1.61/2/26/99 at 1.625). Also, the March 2016 trough did not break 12/18/15's interim low at 1.684 by much.

One should not be dogmatic about calendar month timing regarding major trend shifts. But marketplace history can offer guidance. The long run history for the NYMEX natural gas contract (see "US Natural Gas: Caught in the Middle"; 2/1/16) does not display major lows or highs for calendar March until 3/4/16's 1.611. Yet the NYMEX natural gas 25 year trading history is relatively short; compare wheat or the Dow Jones Industrial Average. Moreover, from a calendar day viewpoint, March 4 is within several days of the February dates for the important late February bottoms of 1997 (2/24/97 at 1.68) and 1999 (2/26/99 at 1.625). In addition, the March 2016 low is a two year diagonal time move relative to the late February 2014's pinnacle.

Yet with build season 2016 containment risks in view, a brief price crash to low levels later in that build season, even if unlikely, is not inconceivable. Remember that two major bear moves (nearest futures continuation) exceeded 75 percent. From 12/27/00's majestic 10.10 peak, prices plummeted 82.6pc to 1.76 (on 9/26/01) over nine months. From the 7/2/08 summit at 13.694, prices crashed 82.4pc to 2.409 (on 9/4/09) in fourteen months. An 80pc drop from the February 2014 top gives 1.299. Ten percent of the all-time high, 12/13/15's 15.78, is about 1.58; a five percent break under the 3/4/16 low gives about 1.53. Monitor the October 2016 less January 2017 NYMEX natural gas spread to see if its contango (near month price under distant month price) widens as the 2016 build season moves onward.

In the near term, watch to see if the NYMEX nearest futures continuation contract can hold over 2.40/2.50. The 1/8/16 interim top was 2.495. A fifty percent rally from the 3/4/16 low at 1.611 is 2.417. The major bottom of 9/4/09 was 2.409.

A 66 percent rally from 3/4/16's low gives about 2.684 (compare 6/13/16's high around 2.64).

Significant resistance for NYMEX natural gas stands in the 3.10/3.45 range. There is a crucial price gap from 3.449 (12/19/14's low) to about 3.351 (12/22/14 high; the 1/15/15 high was 3.352. An earlier December 2014 price gap around 4.05 looms above this gap.). A 100 percent rally from the March 2016 trough equals 3.222. A one-third retracement of the move from February 2014's 6.493 to March 2016's 1.611 gives about 3.237. A fifty percent fall from the February 2014 peak equals 3.247. The 5/19/15 interim top at 3.105 was important.

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. See "US Natural Gas: Caught in the Middle" (2/1/16) for a detailed historical analysis of natural gas net noncommercial trader positions in price trend context.

On 2/18/14, the net noncommercial long ("NCL") position in natural gas 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 reporting data in January 2010). February 2014's net NCL summit roughly coincided with the NYMEX natural gas 2/24/14 pinnacle at 6.493.

As of 6/7/16, the net noncommercial natural gas position is neutral in its price implications. The net noncommercial short position (“NCS”) is merely 3,000 contracts. Compare 3/8/16’s fairly high net NCS of 131,000 contracts (4.4 percent of total open interest), which occurred close in time to 3/4/16’s key NYMEX natural gas low.

The March 2016 net NCS total, however, was much smaller than 10/27/15’s 264,000 net NCS (9.4pc of total open interest). But recall the preceding major bear move, which began at 6.108 on 1/7/10. In that bear trend, after the net NCS peaked in November 2011 at 227m contracts, prices kept diving lower while the net NCS position diminished. On 4/24/12, near the 4/19/12 major low at 1.902, the net NCS position was merely 15m contracts. One should approach Commitments of Traders data with care.

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