

CONCLUSION

Assuming normal weather, the United States natural gas inventory situation probably will remain around average levels (1990-2012 history) in days coverage terms as the April/October 2013 build season marches forward. Yet if NYMEX prices (nearest futures continuation basis) persist over 400, there is a modest risk that over the next several months greater stock increases than many forecasters predict will occur. In any event, even based on current Energy Information Administration (EIA) supply/demand estimates, by the end of winter 2013-14 draw season, US natural gas days coverage probably will be moderately above average. Also, not only has the major bull move from the dismal April 2013 bottom around 190 (4/19/13) to recent highs around 443 (4/18/13) been enormous (about 133 percent); it has been lengthy in time (a one year diagonal time move).

So what is the near term outlook for US natural gas prices (nearest futures continuation)? They probably will retreat further from around the levels reached in mid-April 2013. A 20 percent decline gives around 354; important support exists around the 305/310 1Q13 lows. What about the mystical time horizon called the long run? Suppose weather is normal and the American economy grows moderately. The longer run natural gas trend probably will be sideways, with the broad range roughly 280/310 to 490/520.

US NATURAL GAS BUILD SEASON INVENTORY- A NATIONWIDE PERSPECTIVE

The first two columns in the table below display the long run average (1990 through 2012) for US working natural gas inventories at end calendar month over the April through October build season. The two columns on the right detail highs for those two decades. Bcf totals are from the EIA. Though several of the arithmetical and days coverage peaks over this time span occurred many years ago, the table includes them alongside more recently achieved peaks. Since consumption varies over time, days coverage for a given inventory level can shift accordingly, sometimes dramatically.

	Long Run End Calendar Month Arithmetic (Bcf) <u>Average</u>	Long Run End Calendar Month Days Coverage <u>Average</u>	<u>Build Season Highs (Year)</u>	
			<u>Arithmetic (Bcf)</u>	<u>Days Coverage</u>
April	1519bcf	24.9 days	2613 (2012); 2037 (1991); 38.0 (1991); 37.6 (2012); 2011 (2010)	32.7 (2006)
May	1870	30.7	2890 (2012); 2420 (2010)	42.4 (1991); 41.6 (2012); 38.9 (2006)
June	2215	36.3	3118 (2012); 2760 (2009)	47.6 (1991); 44.8 (2012); 44.0 (2006+09)
July	2504	41.1	3246 (2012); 3090 (2009)	53.1 (1990); 49.2 (2009); 46.7 (06+2012)
August	2763	45.4	3409 (2012); 3359 (2009)	58.5 (1990); 53.5 (2009)
September	3073	50.4	3693 (2012); 3646 (2009)	63.2 (1990); 58.1 (2009)
<u>October</u>	3282	53.8	3930 (2012); 3851 (2010)	66.0 (1990); 60.7 (2009)

In August, September, and October 2012, arithmetic inventory levels climbed to new historic peaks. Yet days cover of 49.0 days at end August 2012 did not smash previous highs for that calendar month. Neither did end September 2012's 53.1 days. End October 2012's 56.5 days coverage likewise lurked well beneath prior summits.

The average build from end April to end October is around 1763bcf. Days coverage rises about 28.9 days. Sometimes slight additional builds have occurred in calendar November, particularly in recent years. For example, the 10/26/12 total was 3908bcf (weekly statistics), with the peak 11/2/12 at 3929bcf. Inventories topped out at 3837bcf on 11/27/09. The 2010 high was 3840bcf on 11/5/10. In 2011, 11/18/11's 3852bcf exceeded 10/28/11's 3794bcf.

Suppose end April 2012 stocks are around 1800bcf. Relative to full calendar year forecast demand of just under 70.3 bcf/day (EIA; Short-Term Energy Outlook, "STEO"; 4/9/13; Table 5a; next release 5/7/13), days coverage will be 25.6 days. This exceeds by less than one day the long run end April average of 24.9 days. Compare end April all-time lows of 854bcf and 13.8 days coverage (1996).

Lows in arithmetic builds from end April to end October (1990-present) are 1991's 1332bcf and 2002's 1457bcf. The most meager days coverage increase was 2002's 23.1 days.

In build season 2003, stocks ballooned a record 2237bcf over these months. Build season 2004's expansion was a notable 2050bcf, with 2011's 2016bcf. What about the more enlightening days coverage yardstick? The 36.7 day rise in coverage in 2003 remains the record, with the 2004 increase at 33.5 days coverage. The calendar 2011 inventory days cover boost was 30.2 days.

Assume the EIA's current demand estimates for full year calendar 2013 of about 70.3bcf/day. What end October 2013 inventory amount produces the long run average of 53.8 days coverage? About 3780bcf.

What will be natural gas days coverage at end calendar October 2013? It probably will be fairly close to the long run average. The EIA's STEO (Table 5a) forecasts end September 2013 working gas inventory of 3512bcf. The average stock increase from end September to end October is 209bcf (1990-2012). Add this to the end September estimate, and therefore suppose end October 2013 inventories will be around 3721bcf. This represents about 52.9 days cover relative to full calendar year 2013 demand (3721/70.3bcf/day). Or, calculate coverage via an alternative method. Assume end April 2013's inventory represents 25.6 days of coverage. If inventories build by the long run average of 28.9 days, end October 2013 stocks will be about 54.5 days, close to the long run average of 53.8 days.

Based on the current EIA demand estimate for calendar 2013, if end October inventories are 3900bcf, days coverage will be 55.5 days; at 3800bcf, it will be 54.1 days. What if natural gas stocks are 3600bcf? Then at 51.2 days cover, they will be 2.6 days less than average. At 3500bcf, they will equal 49.8 days.

Note that calendar 2013 US natural gas consumption at about 70.3bcf/day rises only about one percent versus 2012's roughly 69.6bcf/d. Calendar 2014 demand ebbs to just under 70.1bcf/d.

Low natural gas prices during winter 2012-13 and for several months thereafter encouraged substantial switching from coal to natural gas in the key electric power sector. However, the sustained explosive natural gas rally relative to coal has curtailed natural gas consumption in that domain. Gas prices staying over around 300 apparently matter, with their venture into and above the high 300 range slashing demand even further. The EIA predicts calendar 2013 electric power sector demand of about 23.0bcf/day, tumbling 2.0 bcf/d from calendar 2012's 25.0bcf/d. It forecasts a small slide in electric power demand to around 22.8bcf/d in calendar 2014.

Underscore that the EIA gives the calendar 2013 Henry Hub spot price at 363 (2012's was 283; 2014 predicted at 371). At current price levels over 400, and all else equal, arguably consumption in this important sector will slip further in 2013 relative to the EIA's April STEO forecast. **Thus if prices stay around current levels or higher, the stock build from end April to end October 2013 may be more than many expect.** Prices over 400 also may slice demand in other sectors (commercial, industrial, residential) as well.

Highlight the overall American electricity demand vista. US 2013 total electricity consumption rises only about one percent versus calendar 2012 (EIA, April 2013 STEO, Table 7a). However, 2Q13's 10.12 billion kilowatt hours/day is about flat with 2Q12's 10.14bbkwh/d, and 3Q13's 11.68bbkwh/d slips 1.1 percent versus 3Q12.

Most commercial commodity marketplace participants wish to have sufficient inventory around. What constitutes enough of course is a matter of opinion. Also, just-in-case inventory management differs from a just-in-case approach. Though arithmetical inventory levels are relevant to this analysis, days coverage ones are more so since they more clearly (directly) portray sufficiency relative to apparent marketplace needs (demand, consumption). So merely because working natural gas storage capacity is a given bcf total, there is no intrinsic, objective, or natural need to come close to filling it.

Demonstrated peak working gas capacity as of April 2012 for the lower 48 states was 4239bcf (EIA, 9/12/12), so in theory there is adequate space available relative to likely (or even higher) end October/early November 2013 inventories.

Suppose US natural gas inventories during this build season are around 3700bcf. For this quantity, there will not be a containment issue for the United States this autumn. Even if stocks soar to 4000bcf, there probably will not be a nationwide containment problem, although a few locations may confront difficulties. Traders should monitor and compare regional storage situations, including Canada.

Moreover, operators probably constructed a bit more storage since April 2012. Arguably they will proceed to do so through 2013 build season. The demonstrated peak working gas storage capacity build from April 2010 to April 2011 was about 1.3 percent, with that from April 2011 to April 2012 about 3.3pc. According to the EIA, US calendar 2012 through 2014 natural gas total marketed production will be about flat (about 69.1bcf/d in 2012, with calendar 2013 at just over 69.3bcf/d and 2014 at almost 69.4bcf/d). Given this roughly unchanging production viewpoint, suppose that capacity at end October 2013 edges up only one percent relative to the April 2012 total. Then it will be around 4281bcf, an ample margin over 3700bcf and a sufficient height over 4000bcf.

Now venture beyond the summer build season to get an early view on the potential end winter 2013-14 (end March 2014) inventory situation.

In arithmetic terms, end March 2012 natural gas inventories of 2477bcf attained a new record plateau (1990-present). They skyrocketed above winter 1990-91's 1912bcf. End March 2012 stocks equaled 37.1 days coverage, thus jumping beyond the prior end March record of 36.4 days (winter 1990-91). They soared over the more recent pinnacle of 28.1 days established in winter 2005-06. March 2012's days coverage dwarfed the end March average (1990-2012) of 22.3 days by nearly fifteen days.

End March 2013 inventories of 1686bcf collapsed dramatically from end March 2012's lofty height. They represent about 24.2 days coverage.

Obviously much can happen between now and end March 2014. However, the EIA's April STEO predicts end 1Q13 natural gas inventories will be 1869bcf. This increases 183bcf relative to end March 2013. **Thus March 2014 natural gas inventory days coverage will be about 26.6 days, a rise of about 2.4 days versus end March 2013 and around 4.3 days over the long run average (1990-2012). Such March 2014 days coverage levels are somewhat bearish and consequently will tend to pressure prices.** Assuming this potential March 2014 inventory situation, it will be difficult for NYMEX natural gas prices (nearest futures) between now and then to sustain levels at recent highs (or higher).

MORE BEAR SCENERY

Note that the recent high in the summer 2013 PJM electricity marketplace at 6413 on 4/18/13 occurred alongside that in NYMEX nearest futures natural gas. Appalachian coal (nearest futures continuation) has eroded from its 11/28/12 high at 6207 (and its lower top on 2/21/13 at 6048).

NYMEX intramarket natural gas spread trends and levels often reflect (confirm) trend moves, patterns, and changes in outright (flat price) natural gas price marketplaces. Note the timing coincidence of the recent highs in the March 2014 less April 2014 natural gas spread with the 4/18/13 one at 443 in nearest futures natural gas. The March/April 2014 spread highs (settlement basis) were around 41 (backwardation) on 4/12/13 and 4/18/13. The March/April spread's recent low was just under seven (backwardation) on 2/15/13; natural gas accelerated upward from its 313 low that day.

Analysis of the most recent CFTC Commitments of Traders report for 4/16/13 indicates noncommercial players hold a substantial net long position in natural gas (futures and options combined, key NYMEX and ICE marketplaces). What probably will happen to outright (flat, spot) prices if many of these participants liquidate?

In the price trend and inventory level context, suppose a fairly significant bear trend in natural gas (nearest futures continuation) develops from around the time of the recent April 2013 elevation near 443. Recall that several very important natural gas lows appeared in late August and calendar September. Recall 8/27/98 at 161, 9/26/01 at 176, 9/22/03 at 439, 9/16/04 (final bottom) at 452, 9/27/06 at 405, and 9/4/09 at 241. With the exception of a top almost 20 years ago (9/23/92 at 279), significant summits have not occurred in this calendar period window.

HAS THERE BEEN A CHANGE IN INVENTORY MANAGEMENT PRACTICES?

Perhaps the desired level of natural gas inventory holding in days coverage terms in recent years has climbed relative to its overall (1990-present) long run average. See “US Natural Gas in Winter 2012-13: Drawing Conclusions”, 12/17/12. This uncertainty underlines the need to be cautious regarding natural gas supply/demand analysis in general and inventory viewpoints in particular.

Review the following table. Arithmetical records are interesting and grab headlines, but demand has not stood still in recent years.

<u>Inventory at</u>		<u>Days Coverage</u>
<u>End October (bcf)</u>		
2006	3452	58.1
2007	3565	56.3
2008	3399	53.4
2009	3810	60.7
2010	3851	58.3
2011	3804	57.2
2012	3930	56.5

These seven years (2006-12) average 57.2 days. This is a noteworthy amount, 3.4 days, above the long run average including them (57.2-53.8 days). Suppose end October 2013 days coverage ends up in the 52.9 to 54.5 day range (see above). From this 2006-12 perspective, that October 2013 days coverage days is around four days below this seven year “revised normal” figure.

Suppose the desired holdings for end March (and for other calendar months) likewise shifted upward in recent years (employ the October analysis for 2006-12 as a sign of this). Imagine a boost in the end March long run average of 22.3 days (1990-2012) by the same 3.4 days that end October for the 2006-12 span rises relative to the 1990-2012 longer run. That makes a hypothetical end March average of 25.7 days. The hypothetical 26.6 day end March 2014 level derived above still is somewhat high, but not significantly so.

Consider another factor in this context. Over the past several years, significant alternative “investment” in natural gas, as in other commodities, probably has reduced free supply to some extent. One can debate how much. The natural gas industry therefore in practice needs to hold relatively more inventory to achieve desired (free supply) days coverage target levels.

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