

## US NATURAL GAS- BUILDING ENTHUSIASM

© Leo Haviland, 646-295-8385

April 16, 2012

### CONCLUSION

Assuming normal weather, the current severe United States natural gas oversupply situation will become quite a bit less so in days coverage terms as inventory build season 2012 proceeds (and as winter 2012-13 draw season occurs). This will support prices. However, unless more substantial production cuts actually emerge, significant natural gas oversupply relative to historical averages probably will persist through winter 2012-13. Containment risks for the 2012 build period have not disappeared, but they probably will be less severe than many believe.

### US NATURAL GAS BUILD SEASON INVENTORY- THE NATIONWIDE HORIZON

The first two columns in the following table display the long run average (1990 through 2011) for US working natural gas inventories at end calendar month for the April through October build season. The two columns on the right detail highs for those two decades. Bcf totals are from the EIA. Although 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	Long Run	<u>Build Season Highs (Year)</u>	
	End Calendar Month Arithmetic (Bcf) <u>Average</u>	End Calendar Month Days Coverage <u>Average</u>	<u>Arithmetic (Bcf)</u>	<u>Days Coverage</u>
<b>April</b>	1469bcf	24.3 days	2037 (1991); 2011 (2010)	38.0 (1991); 32.7 (2006)
<b>May</b>	1824	30.2	2420 (2010)	42.4 (1991); 38.9 (2006)
<b>June</b>	2174	35.9	2760 (2009)	47.6 (1991); 44.0 (06+09)
<b>July</b>	2471	40.8	3090 (2009)	53.1 (1990); 49.2 (2009)
<b>August</b>	2733	45.2	3359 (2009)	58.5 (1990); 53.5 (2009)
<b>September</b>	3044	50.3	3646 (2009)	63.2 (1990); 58.1 (2009)
<b><u>October</u></b>	<b>3253</b>	<b>53.7</b>	<b>3851 (2010)</b>	<b>66.0 (1990); 60.7 (2009)</b>

**The average build from end April to end October is around 1784bcf. Days coverage rises about 29.4 days.** A few years had slight additional builds into calendar November. For example, inventories peaked at 3837bcf on 11/27/09 (weekly statistics). The 2010 high was 3840bcf on 11/5/10. And in 2011, 11/18/11's 3852bcf exceeded 10/28/11's 3794bcf.

On 4/6/12, working gas inventories were 2487bcf, soaring 55.5 percent over the year-ago week's 1599bcf. End April 2012 surely will represent a new record for that calendar month in bcf terms. Suppose end April 2012 stocks reach 2600bcf. Relative to full calendar year forecast demand of 69.6 bcf/day (EIA's Short-Term Energy Outlook;"STEO"; 4/10/12; Table 5a), days coverage will be 37.4 days (2500bcf equals 35.9 days). This will break through 2006's "recent history" 32.7 day ceiling of 32.7, though it falls slightly beneath 1991's high for the 1990-present period. April 2012 leaps above April 2011's 1789bcf and 26.8 days coverage. Compare end April all-time lows of 854bcf and 13.8 days coverage (1996).

\*\*\*\*

Looking forward, depressed natural gas prices relative to coal probably will generate substantial fuel switching from coal to gas. **Thus the stock build from end April to end October 2012 may be less than average.**

Lows in arithmetic builds from end April to end October (1990-present) are 1991's 1332bcf and 2002's 1457bcf. The tiniest days coverage increase was 2002's 23.1 days. In 2003, stocks ballooned a record 2237bcf over these months; 2003's 36.7 day rise in coverage remains the record. The calendar 2011 inventory rise was 2015bcf, or 30.2 days coverage.

What end October 2012 inventory amount produces the average 53.7 days coverage? About 3738bcf. To achieve that level, assuming end April 2012 stocks of 2600bcf, a build of about 1138bcf must occur. This very sluggish growth would fall well short of the 1991 and 2002 record low increases.

\*\*\*\*

**What will be natural gas days coverage at end calendar October 2012?** The EIA's STEO (Table 5a) forecasts end September 2012 working gas inventory of 3923bcf. The EIA (p10) expects a new record arithmetical inventory high at end October 2012.

**Suppose end October inventories are 4050bcf. That will represent 58.2 days coverage (4050bcf divided by calendar year 2012 average daily consumption of 69.6bcf per day). This is a bearish amount, for it is about 4.5 days above the 53.7 day end October average. However, it is two and one-half days below end October 2009's 60.7 days. At 4000bcf, days coverage is about 57.5 days; at 4100, days coverage climbs to 58.9 days.**

Numerous supply/demand variables of course intertwine to affect natural gas price levels, trends, and relationships. Perhaps current high inventory levels will continue to pressure prices, especially in nearby months. However, for NYMEX natural gas (nearest futures continuation basis), remember the major bottom in September 2009 (9/4/09) was around 241. Assume that end October 2012 US inventory appears headed for "about" 57.5 to 58.9 days coverage, less than October 2009's 60.7 days. **Then all else equal, for NYMEX natural gas prices "around the time of the later months of 2012 build season" to sustain lows under September 2009's price depth, there probably will have to be noteworthy containment problems.**

\*\*\*\*

Suppose US natural gas inventories during this build season reach around 4000bcf. At this level, will there be a notable containment issue for the United States this autumn? Probably not. Most operators will scrape by, even though some locations may face problems.

Demonstrated peak working gas capacity as of April 2011 for the lower 48 states was 4103bcf (EIA, 8/31/11), so in theory there will be only about 100bcf of space still available. However, operators probably constructed a bit more storage since April 2011. Arguably they will continue to do so through 2012 build season. The demonstrated peak working gas storage capacity build from April 2010 to April 2011 was about 1.3 percent. Suppose that capacity at end October 2012 is up two percent relative to the April 2011 estimate. Then it will be around 4185bcf, a fair margin over 4000bcf.

**Physical storage capacity may be challenged within several US regions by the end of build season 2012 if inventories climb much above 4000bcf. If nationwide inventories are around the 4050-4100bcf level, then some areas (or sections within regions) may have containment**

**problems. However, assuming this two percent storage capacity growth, containment problems may not be as severe (or as long-lasting) as some analysts believe.**

Of course if the capacity build is less or if inventories advance above 4100bcf, containment challenges will be greater. A greater than two percent build would mitigate difficulties. A three percent storage capacity increase relative to the April 2011 total gives 4226bcf, a four percent boost 4267bcf.

Traders should closely monitor regional storage situations. Demonstrated peak working gas capacity as of April 2011 for the Producing Region was 1340bcf, up from April 2010's 1297bcf (EIA, 8/31/11). As of April 2011, peak working gas capacity for the Eastern Consuming Region was 2205bcf. Demonstrated peak working gas capacity as of April 2011 for the Western Consuming Region was 558bcf (EIA, 8/31/11). Canada matters too.

\*\*\*\*

In the price trend and inventory level (and containment issue) context, note that several very important natural gas lows emerged 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), notable highs have not occurred in this calendar period window.

\*\*\*\*

In arithmetic terms, as well as from the days coverage perspective, end March 2012 natural gas inventories of 2482bcf are a new record plateau (1990-present). They ascend above winter 1990-91's 1912bcf. End March 2012 stocks equal 37.2 days coverage. They thus march beyond the prior end March record of 36.4 days (winter 1990-91) and soar over the more recent pinnacle of 28.1 days (winter 2005-06). They dwarf the end March average of 22.2 days by fifteen days.

**The EIA predicts end March 2013 inventories of 2001bcf, down substantially from end March 2012's 2482bcf. This will equal about 28.8 days coverage. Though still significantly above the end March average from 1990 to the present (by 6.6 days), they are not nearly as stratospheric as current totals. Recall that calendar 2012 US natural gas consumption of 69.6bcf/day increases almost 4.3 percent relative to calendar 2011's 66.8bcf/day, a substantial shift.**

\*\*\*\*

NYMEX intramarket natural gas spread trends and levels (as in March versus April and October against January) can reflect (confirm) trend moves, patterns, and changes in outright (flat price) natural gas price marketplaces.

NYMEX natural gas (nearest futures continuation) slumped dramatically since its 498 high on 6/9/11. The March less April 2013 natural gas spread likewise tumbled downhill from its 6/6/11 backwardation high about 28 cents (closing basis), reaching around one cent backwardation recently. This March/April spread move confirmed the bear trend in flat prices (NYMEX nearest futures continuation). The October 2012 less January 2013 spread peaked at around -43 cents (contango) on 6/7/11, plummeting to around -80 cents recently.

To indicate that a sustained move to the bull side in the natural gas complex is underway, not only outright natural gas prices (watch nearest futures continuation as well as actual contract months), but also important intramarket natural gas spreads must strengthen. For example, increased backwardation in the March/April spreads would confirm a bullish price move. Of

course, not all the various March/April spreads move in exactly the same fashion. The same is true of the assorted October/January ones.

\*\*\*\*

This essay is furnished on an "as is" basis. Leo Haviland does not warrant the accuracy or correctness of this essay or the information contained therein. Leo Haviland makes no warranty, express or implied, as to the use of any information contained in this essay in connection with the trading of equities, interest rates, currencies, or commodities, or for any other use. Leo Haviland makes no express or implied warranties and expressly disclaims all warranties of merchantability or fitness for a particular purpose. In no event shall Leo Haviland be liable for any direct, indirect, special, incidental, or consequential damages (including but not limited to trading losses or lost profits) arising out of or related to the accuracy or correctness of this essay or the information contained therein, whether based on contract, warranty, tort, or any other legal theory.

All content copyright © 2012 Leo Haviland. All Rights Reserved.