

CONCLUSION

Having established a major low at 190 on 4/19/12 (NYMEX nearest futures continuation), natural gas marched sharply higher, reaching significant resistance around 330 (7/31/12). After retreating to 258 (8/29/12), the marketplace renewed its assault on the 330 barrier in late September. Even if prices lose some ground in the near term, and assuming normal weather, a decisive advance above that level, and to at least major resistance hovering at 380 to 415, probably will occur in the next few months. It would not be surprising if the initial assault on 380/415 occurred relatively soon.

But why will prices keep climbing? Admittedly, bears have good arguments. For example, current United States natural gas inventories (9/21/12 stocks of 3576bcf) are up about nine percent year-on-year. Suppose weather is around average for the 2012-2013 winter draw season. An initial review of United States natural gas inventories from a days coverage perspective indicates oversupply for the upcoming draw season.

However, there arguably is less oversupply in the near term than many believe. There seems to have been an upward shift in desired stockholdings from the days coverage vantage point in recent years.

In addition, inventories during winter and at end season 2012-13 probably will be far less excessive than during the preceding draw season. This will tend to excite many bulls.

For the next few months, natural gas production growth appears to be flattening (compare calendar 2012 with 2013). But gas demand increases, assuming sustained higher prices over 330, and maybe a bit cheaper, also may level off.

Yet it seems that natural gas is “looking forward” over a longer horizon than just the next few months (or maybe even calendar 2013). A bullish aura underpinning natural gas “for the long run” derives significantly from the coal plant retirement story (especially in 2014 and thereafter). This enthusiasm (though it may eventually confront supply jumps) thus thereby assists to some extent the bullish near term price trends. Also, nuclear power supplies probably will not increase much anytime soon; some players question how much and how quickly renewable supply will blossom from here.

This longer run bullish natural gas faith (orientation) has an implication for the probable willingness of natural gas producers to short hedge, say at around 380/415, or even 450 and beyond (strategies surely differ for each calendar year). Short hedging at these levels probably will be less than many believe.

What about LNG? The extent of LNG exports is conjectural. However, at quite low prices (picture under 200, maybe even 250), the export appeal rises. Though these floors are much beneath current prices, this story tends to support the upward price bias established in April 2012.

Add a technical bull point from the timing perspective. Many key natural gas (NYMEX nearest futures) marketplace bottoms have been reached in late August and calendar September. This did

not occur in calendar 2012, which argues that the new highs being made recently will be surpassed. Also, the minor low around 258 in late August, although not close to the April 2012 depth, nevertheless occurred at a time from which prices often have sprung higher. Thus the quick travel higher of the past several weeks argues for a further upward flight.

US NATURAL GAS DRAW SEASON INVENTORY- THE NATIONWIDE HORIZON

The first two columns in the table below portray the long run average (1990 through winter 2011-12: bcf totals from the Energy Information Administration, “EIA”) for US working natural gas inventories at end calendar month for draw season. The two columns on the right indicate highs for that over 20 year span. Although several of the arithmetical and days coverage peaks during this over two decade vista occurred in 1990, the table includes them alongside more recently attained elevations.

The table’s draw year dates for any given season derives from the calendar October of the end October through March period. Thus for the draw season months of January, February, and March, draw season high dates in parentheses are based on the season year’s designation via the preceding October. So the table lists the summit reached in calendar February 2012 at 2455bcf as 2011 because it belongs within the 2011/12 draw season. This approach calculates January, February, and March days coverage by dividing the given end month bcf inventory by the prior full calendar year (January through December) average daily demand. Thus the March year indicated refers to the calendar year that includes the preceding end October (end of build season). Dividing end March 2012 inventories of 2477bcf by calendar 2011 average daily consumption of 66.60bcf/day gives 37.2 days coverage.

Remember that rising demand (as in recent years) cuts days coverage for any given inventory total.

	Long Run	Long Run	Draw Season Highs (Year)	
	End Calendar Month	End Calendar Month	Arithmetic (Bcf)	Days Coverage
	Arithmetic (Bcf)	Days Coverage		
	<u>Average</u>	<u>Average</u>	<u>Arithmetic (Bcf)</u>	<u>Days Coverage</u>
October	3253bcf	53.7 days	3851 (2010)	60.7 (2009); 66.0 (1990)
November	3152	52.0	3843 (2011)	61.1 (2009); 66.1 (1990)
December	2662	44.0	3462 (2011)	52.0 (2011); 58.4 (1990)
January	1995	33.0	2916 (2011); 2383 (2006)	43.8 (2011); 40.1 (2006)
February	1519	25.1	2455 (2011); 1886 (2005)	36.9 (2011); 31.3 (2005)
<u>March</u>	1342	22.2	2477 (2011); 1692 (2005)	37.2 (2011); 28.1 (2005)

As a footnote for those with long memories, one can insert in the table the high in February 1990 at 2063bcf and March 1990’s 1912bcf. Recall lofty days coverage in January 1990 (45.0 days) February 1990 (39.3 days), and March 1990’s ancient 36.4 day ceiling shattered by March 2011’s 37.2 days.

The average draw from end October to end March is around 1911bcf. Days coverage gives an average of about 31.5 days. A few years saw slight additional builds into calendar November. For example, 11/18/11’s 3852bcf was the build peak, surpassing 10/28/11’s 3794bcf (weekly statistics). The same occurred in 2009 and 2010. In 2009, inventories peaked at 3837bcf 11/27/09 (10/30/09’s were 3788bcf); in 2010, 11/5/10’s 3840bcf high beat 10/28/10’s 3821bcf.

The biggest arithmetical draw year tumble was 2002's 2386bcf; 1992 revealed the most massive days coverage decline, 39.7 days (2002's was 37.8 days). The 2010 draw season inventory decline was large: 2270bcf and 34.4 days (2009's was substantial too, at 2158bcf and also 34.4 days). The smallest inventory falls were 2011's 1327bcf and 19.9 days and 2005's 1502bcf and 24.9 days. How likely are huge- or very small- inventory drops this winter if weather is average?

Long Run End Calendar Month

Inventory Record Lows

	<u>Bcf</u>	<u>Days Coverage</u>
October	2732 (2000)	42.9 (2000)
November	2442 (2000)	38.3 (2000)
December	1719 (2000)	27.0 (2000)
January	1265 (2000)	19.8 (2000)
February	851 (2002)	13.5 (2002)
March	730 (2002; 742 in 2000)	11.6 (2002 and 2000)

The sizable range between record tops and bottoms in US natural gas days coverage for a given calendar month reflects the potential for large shifts in inventory holdings and therefore enormous price moves.

End October 2012 inventories at "a new record" of 3950bcf (EIA's 9/11/12 "Short-Term Energy Outlook", "STEO", p6), equal 56.6 days coverage relative to full calendar year 2012 demand. They are 2.9 days above the long run (1990-2011) end October average. Adjusting them to around 3900bcf (next STEO is 10/10/12; many forecasters estimate end October 2012 stocks will be around that sum) generates 55.9 day coverage (3900bcf divided by 2012 calendar day consumption of 69.79bcf/day).

EIA predicts 1952bcf for end March 2013 in its September STEO. Reduce this to 1900bcf in case the October 2012 level (and watch the EIA's October STEO) turns out to be about 50bcf beneath its September forecast. Relative to calendar 2012 demand, that is 27.2 days of coverage (1900bcf/69.79bcf per day), about five days higher than the long run end March average. Incidentally, calendar 2013 consumption edges up only slightly, to 69.96bcf/day.

SOME BULL STORY CONSIDERATIONS

Rather than repeat the list of bullish factors discussed above, focus on some considerations regarding them. One crucial point is that the October 2012 oversupply probably is less than many observers believe. Concentrating on days coverage underlines this. Arithmetical records are interesting and grab headlines, but demand has not stood still in recent years.

Anyway, if end October 2012 inventories touch around 3900bcf, the 55.9 days of coverage will be about 2.2 days above the 53.7 day long run (1990-2011) average. First of all, that is not a big overload relative to that long run average.

However, and more importantly, perhaps the desired level of inventory holding in recent years has risen relative to that long run average. The details in the following table suggest this phenomenon.

	<u>Inventory at</u> <u>End October (bcf)</u>	<u>Days Coverage</u>
2006	3452	58.1
2007	3565	56.3
2008	3399	53.4
2009	3810	60.7
2010	3851	58.3
2011	3804	57.1

The average of these six years (2006-11) is 57.3 days. This is a noteworthy amount, 3.6 days, above the long run average including them. From this perspective, the October 2012 days coverage around 55.9 days actually is 1.4 days less than the 2006-11 period's average. Moreover, the anticipated October 2012 inventory in days coverage terms falls beneath that of five of the six years.

These years cover both strong and weak economic times and bullish and bearish natural gas price trends. The increase in arithmetic supply in the past few years (particularly due to the shale gas revolution) and increased physical storage do not themselves definitively or entirely show why days coverage has climbed over the past six years "in general". How important was shale production in 2006 and 2007?

Perhaps to some extent this apparent shift in natural gas holding levels resembles the likely shift within the petroleum complex to a "just-in-case" situation. However, petroleum's more geopolitical concern (whether due to the Iranian nuclear situation or other potential sources of supply interruption) surely is far greater than that for US natural gas.

The growing popularity of alternative investment in recent years probably has reduced free supply throughout the world of actively traded commodities, though gurus can debate as to how much. A reduction in free supply propels a commercial need to possess more inventory in order to maintain the desired free supply level.

Inventory levels- whether presented in days coverage or arithmetic terms- obviously are only one variable influencing natural gas price levels and trends.

However, since it is still fairly recent history, place end October 2011 inventory of 57.1 days in price context. June 2011's high around 498 was not recorded in ancient times. More significantly from the end October perspective, the high at end October 2011 was about 398. Should natural gas nowadays therefore rally to around 400 sooner rather than later?

Keep in mind that the days coverage oversupply at end October 2011 (assuming that based on the long run perspective of 1990-2011 it was excessive), worsened greatly by the end of draw season in March 2012. Even in mid-December 2011, the price was around 330 (note the key gap at the 12/9/11 low at 3.309 and the 12/13/11 high at 3.299).

The year-on-year focus on inventories is not as important as a more detailed study of historic trends. However, many players pay close attention to this. Assuming normal winter weather, the US situation from that view probably will look better and better as time passes.

The build season days coverage for last year at end month grew from 57.1 days at end October to 57.7 days at end November. It was 52.0 days for December, 43.8 days for January, 36.9 days for February, with end March an extraordinary 37.2 days.

Suppose we underscore the gigantic oversupply at end March 2012 as well as end April 2012. This underscores how “relatively bullish” from this outlook the comparable 2013 situation probably will seem. The end March 2012 working gas hoard, not long before the dismal 190 April bottom, was 2477bcf. The March 2012 days coverage blasted about 15 days beyond the end March average (1990-2011).

Since the major trough at 190 occurred in calendar April, compare April 2012 with end April long run history (1990-2011, not including April 2012 in the average). End April 2012’s 2613bcf inventory flew over 1000bcf higher than average. In addition (relative to calendar 2012 demand), its 37.4 days coverage towered over the end April 24.3 day average by more than thirteen days. It soared over 2006’s peak of 32.7 days and brushed against 1991’s 38.0 day pinnacle.

The 2011 draw season saw a boost from end February to end March of 22bcf. It usually draws (long run average decline is 177bcf). Maybe the overall winter will be warm again. But how likely is that to recur, and we certainly won’t know it in the next two calendar months.

The sustained reduction in days coverage to around average levels (whether the perspective of 1990-present, or 2006 to the present) likely will take place eventually, even if it probably will not occur by the end of March 2013, and even if takes a few years to do so.

The March 2012 inventory decisively climbed over the prior end March arithmetic mountaintops (around 1692bcf of March 2006 for recent years, and even the 1912bcf one of March 1991). Hence the great containment fears for the end of calendar 2012 build season that existed a few months ago. The 2012 build season, however, escaped containment problems; this removed a significant bearish concern burdening natural gas prices.

In addition, looking rather far forward, there probably will not be a national containment issue. The EIA states that peak demonstrated working gas capacity at end April 2012 is 4239bcf, up a substantial 136bcf year-on-year (9/12/12). There probably has been additional storage built since April 2012. Based on the pattern of past years, at least some storage likely will be constructed (especially if production keeps inching higher).

Even though Eastern region storage rose only 14bcf year-on-year, a potential regional problem (due to further output increases and no notable storage builds) does not create a nationwide containment issue.

In 2009, a substantial price rally ensued when the containment issue passed away. Note the price level to which NYMEX nearest futures initially spiked- 404 on 9/25/09. It jumped to 532 on 10/21/09, before winter weather set in. After falling to 416 (11/19/09), it raced quickly to the major high of 611 (1/7/10).

Note the days coverage around these price levels in relation to the overall days coverage averages (1990-2011). From highs of 60.7 days in October 2009 and 61.1 days in November 2009, days coverage fell to 49.9 days in December 2009, eroding sharply to 36.7 days at end January and 26.8 days at end February.

In America, the bear trend and prices under 250/275 or so slowed big supply growth. Calendar 2011 total marketed production was 66.22bcf/day, leaping up to 68.86bcf/day in 2012. However, 2013 edges up only about half a bcf/day, to 69.32bcf/day. Maybe higher prices will accelerate production again, but one must await this. Even though some point out the increased natural gas and gas liquids production alongside some petroleum drilling, the natural gas rig count still has cratered.

Scan outside the US natural gas patch. Does the year-on-year drop in marketable Canadian production in recent months and forecast for the balance of 2013 (National Energy Board, 9/27/12) encourage and help to sustain rallies in US natural gas prices? March 2012 slipped very slightly versus March 2011. However, April dove 5.9 percent lower, with May off 4.8pc against May 2011. June was -4.1pc year-on-year, July -2.1pc, August -2.1pc. Though September inches down -1.1 pc and October only -1.2pc, the NEB predicts November 2012 will fall -3.2pc, with December -5.1pc relative to December 2011.

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. Not only does the absence of such a crucial low in that calendar time period this year indicate there are higher prices to come. Also, 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. This consideration also argues for a further rally in the current bull marketplace.

The NYMEX natural gas calendar strips for 2013 through 2016, like nearest futures continuation, achieved lows in April 2012. Watch these years to see if they break out of their sideways pattern to the upside.

As always, watch other NYMEX natural gas calendar months and intramarket spreads (such as October/January and March/April alongside NYMEX nearest futures trends. Monitor natural gas basis relationships and electricity and coal price levels and trends in these contexts as well.

Regarding the 415/400/380 range, keep in mind interim highs during the downtrend after June 2011 at 414 (8/11/11) and 398 (10/31/11; a 20pc fall from the 6/9/11 peak 498 is 398). Again, note the gap after the 9/25/09 high around 404. The 11/19/09 low at 416 was the last noteworthy one before the spike up to 611. The mean for nearest futures continuation since futures trading began in 1990 is around 400. Recall the 405 depth on 9/27/06. Twice the 4/19/12 low at 190 is 380.

What are technical reasons to watch around 330/317? See the tiny price gap (now filled) between the 12/9/11 low at 3.309 and the 12/13/11 high at 3.299. A 33pc fall from 498 is 331; note the 321 low achieved 10/27/10. A 66pc rally from 190 gives 317.

Underneath, if prices slump sharply, recall the major low at 241 on 9/4/09, the 223 low on 1/23/12, and the 217 take-off point on 6/14/12. Alongside the 4/19/12 bottom at 190, in the distant past over a decade ago, see the double bottom of 9/26/01 at 176/ 1/28/02 at 185.

See “US Natural Gas: Burning Up” (7/23/12) and earlier essays for more extensive price resistance and support information and further calendar timing details.

SOME BEAR CHAPTERS

Fairly brief spikes above the 380/415 price band may occur. Yet assuming a normal winter, and all else equal, and looking over the next several months, NYMEX natural gas will not easily sustain a rally over the 380/415 range.

In addition to technical considerations and the potential for increased production (or short hedging, or both) around 400 and higher, what are some arguments to underline from the bear perspective.

First, look at the probable end March 2013 inventory situation from the days coverage standpoint. It probably will be somewhat above "average".

Take end October 2012 at 3900bcf and subtract the average draw of 1911bcf (1990-2011 average). That gives 1989bcf, or 28.5 days coverage. This leaves end March at over six days higher than 1990-2011's 22.2 day average, a very bearish difference.

Alternatively, the EIA's September STEO forecasts working gas inventory of 1952 bcf. Lower this to 1900bcf. This represents 27.2 days coverage, which is a bearish total because it exceeds by five days the end March average.

Suppose the desired holdings for end March (and for other calendar months) have shifted upward in recent years (using the October analysis for 2006-11 as a sign of this). The 27.2 day end March level still is somewhat high. Picture a boost in the end March long run average of 22.2 days (1990-2011) by the same 3.6 days that end October for the 2006-11 span rises relative to the 1990-2011 longer run. That makes a hypothetical average for end March of 25.8 days.

Study some other conceivable lower inventory levels for end March 2013. At 1800bcf, days coverage is 25.8 days. Though high from the very long run average, this matches the adjusted average level of 25.8 days based on the 2006-2011 analysis. However, if end October 2012 natural gas stocks are 3900bcf, a draw of 2100bcf (making end March 2013 inventory 1800bcf) would be on the high side (compare 2009 and 2010). Thus end stocks of 1800bcf, though not highly unusual, probably are not likely absent a colder than normal winter. End stocks of 1700bcf equal 24.2 days coverage.

What end March 2013 inventory amount produces the long run average of 22.2 days coverage? About 1550bcf. ($1549/69.79\text{bcf} = 22.2$) To reach that level, starting with end October stocks of 3900bcf, a draw of about 2350bcf must occur. How likely is that? This would dwarf the average drawdown from end October to end March of around 1911bcf by about 440bcf. This draw would approximate the record disappearance of winter 2002 (2386bcf). Unless the winter is much colder than usual (or demand jumps up quite a bit), such a drawdown is unlikely. Thus a mammoth drawdown will be necessary for end March 2013 to reach around 1550 or even 1600bcf (which would be 22.9 days).

In addition, look at the likely increasing relative oversupply in days coverage terms versus the 1990-2011 average for the given month as time passes from end October to end March. At 3900bcf, end October days coverage floats days 2.2 days above the long run average (55.9 days less 53.7 days). Compare March 2013. If inventory is 1900bcf, that total is about five days over average (27.2 less 22.2). If inventories are 1800bcf, the excess is 3.6 days (25.8 less 22.2), still

above the end October 2012 2.2 day difference. Thus March 2013 looks more bearish from this inventory viewpoint than October 2012.

What's the bottom line? The likely still-excessive natural gas inventories for March 2013 will weigh on natural gas prices.

Of course the winter might be colder than normal. This not unreasonable potential makes some firms reluctant to short hedge 2012-13 winter months around current price levels.

EIA says calendar year 2011 US consumption was 66.60bcf/day. Though it jumps to 69.79bcf/day in 2012, 2013's 69.96bcf/day is about unchanged. At "around" current price levels, there probably will be flattening demand due to reduced switching from coal to gas. If prices rally further toward 380/415, such switching probably will decline further.

EIA statistics show a leap in natural gas consumption by the electric power sector of over four bcf per day from 2011 to 2012 (20.83bcf/day to 25.21bcf/day). However, EIA predicts that calendar 2013 will plummet over 2.0bcf/day to 23.09bcf/day. Concentrate on around the 2013 calendar horizon.

The EIA states in its September STEO: "Because of the projected increase in natural gas prices relative to coal, EIA expects the recent trend of substituting coal-fired electricity generation with natural gas generation to slow and likely reverse over the next year. From April through August 2012, average monthly natural gas prices to electric generators increased by 34 percent, while coal prices fell slightly. EIA expects that coal-fired electricity generation will increase by 9 percent in 2013, while natural gas generation will fall by about 10 percent."

Prices are generally as high or higher now than at the time of the EIA's September STEO. Absent a decline very soon, it is unlikely the EIA will change its opinion on switching.

So looking forward into 2013, suppose that coal does not rally much relative to natural gas. If natural gas prices stay over 330, and especially if they reach and stay around 400, the anticipated overall 2013 natural gas consumption gains probably will remain small. Thus US calendar 2013 demand (even if aided by a normal winter relative to 2011-12's warm one) will be about unchanged relative 2012 totals.

Renewed US economic weakness, and widespread selling of commodities in general, or warmer than normal weather would increase the likelihood that prices will not sustain moves over 380/415 (or even over 330).

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.