US NATURAL GAS IN WINTER 2012-13: DRAWING CONCLUSIONS

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"A sad tale's best for winter:
I have one of sprites and goblins." Shakespeare, "A Winter's Tale"

CONCLUSION

The current bear trend in US natural gas (NYMEX nearest futures continuation basis) that began in late November 2012 at 393 will continue. Assuming normal cold winter weather, the price probably will slump to around the 300 to 285 range. When will the price quit sledding downhill? Though it may only be an initial significant bottom, look for an important low in calendar January or February 2013, probably around futures expiration.

DAYS COVERAGE

The first two columns in the following table 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 high stocks 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 the 2011/12 draw season encloses it. This approach calculates end 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 (approximate end of build season). Dividing end March 2012 inventories of 2477bcf by calendar 2011 average daily consumption of 66.54bcf/day gives 37.2 days coverage.

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

	Long Run End Calendar Month Arithmetic (Bcf) Average	**Long Run End Calendar Month Days Coverage Average**	**Draw Season Highs (Year)**	
			Arithmetic (Bcf)	**Days Coverage**
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)
March	**1342**	**22.2**	**2477 (2011);** 1692 (2005)	**37.2 (2011);** 28.1 (2005**)**

Those digging into the distant past may insert February 1990's plateau at 2063bcf and March 1990's 1912bcf. Recall towering days coverage in January 1990 (45.0 days) February 1990 (39.3 days), as well as March 1990's ancient 36.4 day ceiling shattered by March 2011's 37.2 days.

The average drawdown from end October to end March is around 1911bcf. Days coverage dives an average of about 31.5 days. Several years- including the past four- saw slight additional builds into calendar November. Review weekly statistics. This year, 11/2/12's 3929bcf edged over 10/26/12's 3908bcf. In autumn 2011, 11/18/11's 3852bcf was the build apex, surpassing 10/28/11's 3794bcf. 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.

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End October 2012 inventories were around 3923bcf according to the EIA barometer (Short-Term Energy Outlook, December 2012; "STEO"). Therefore end October's 56.3 days of coverage rest about 2.6 days above the 53.7 day long run (1990-2011) average. Though not a big overload relative to that long run average, it is sufficient to place some burden on prices.

Moreover, look at the likely increasing relative oversupply in days coverage terms versus the 1990-2011 average for the given calendar month as time passes from end October 2012 to end March 2013. At end March 2013, forecast inventories of 1873bcf (December STEO, Table 5a) represent about 26.9 days coverage (1873bcf divided by 69.70bcf/d). This jumps about 4.7 days over the 22.2 day long run average for that month, more than October's 2.6 days.

Suppose end March 2013 inventories are 1800bcf. The excess relative to the long run average is 3.6 days (25.8 less 22.2). This still hovers above the 2.6 day end October 2012 difference.

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Current working gas in underground storage (12/7/12; EIA, weekly), 3806bcf, exceeds the 3758bcf of one year ago. The 1285bcf in the Producing Region is up 4.0 percent versus the 1236bcf on 12/7/11. Suppose winter temperatures remain relatively mild. Even if days supply at end March 2013 are nowhere near as gigantic as at end winter 2012-13, potential supplies appear rather abundant.

Though winter 2012-13 obviously has not been definitively painted, current fairly ample supplies (particularly from the perspective of those who focus on arithmetic rather than days coverage inventory levels) evoke colorful memories of winter 2011-12's dreary price crash. Moreover, the weather of first half December 2012 has not been frigid.

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How likely are huge- or very small- inventory drops this winter if weather is average? The biggest arithmetical draw year tumble from end October to end March 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.

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Despite the ongoing near term downtrend, and absent another very mild winter akin to 2011-12's, a NYMEX natural gas price collapse close to the 190 abyss of April 2012 (or even the 1/23/12 and 6/14/12 depths near 220) is unlikely.

Based on 2012's substantial switching from coal to natural gas, particularly in the electric power territory, natural gas demand probably will mount if prices sustain levels beneath (roughly) 275.

In addition, another factor probably will mitigate price declines. Concentrate on days coverage holdings in recent years.

The desired level of natural gas inventory holding in recent years arguably has climbed relative to that long run average. Consequently the oversupply of October 2012 through March 2013 probably is less than many observers believe. See the following table. Arithmetical records are interesting and grab headlines, but demand has not stood still in recent years.

	Inventory at End October (bcf)	**Days Coverage**
2006	3452	58.1
2007	3565	56.3
2008	3399	53.4
2009	3810	60.7
2010	3851	58.3
2011	3804	57.2

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 (57.3-53.7 days). Yet from this six year perspective, the October 2012 days coverage around 56.3 days is about "normal". Though rather close to 2011's, it even rests one day beneath the 2006-11 period average.

Suppose the desired holdings for end March (and for other calendar months) have shifted upward in recent years (employ the October analysis for 2006-11 as a sign of this). 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 end March average of 25.8 days. The 26.9 day end March 2013 level still is somewhat high, but not massively so.

Consider another factor in this context. Especially 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 needs to hold relatively more inventory to achieve desired coverage levels.

TAKING MARKETPLACE TEMPERATURE (CONTINUED)

Numerous intertwined supply/demand factors, including the price itself, of course will influence the extent and duration of the current bear marketplace. The EIA's current calendar 2013 estimates on balance look bearish. Calendar 2012 demand jumped up over 4.7 percent (almost 3.2bcf/day) versus the prior year. However, calendar 2013 melts just under half of one percent relative to 2012, from 69.7bcf/day to 69.4bcf/d. What about US total marketed production? Although it climbs only slowly, by around half of one percent in calendar 2013 (as does dry gas production), this output growth contrasts with the consumption decline.

The outlook for gas inventory at the end of build season 2013 is rather misty. But based on EIA numbers, it looks slightly bearish. According to the STEO, which does not give an end October 2013 estimate, end September 2013 stocks will be 3276bcf, stretching modestly over end 3Q12's 3683bcf. Days coverage at end September 2012 thus was about 52.8 days, whereas end September 2013's will reach 53.7 days. This longer run outlook underlines the difficulty of breaking above recent price highs in the near future.

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Keep in mind the coal switching issue. At or near the highs reached in November (and October) 2012, this variable is bearish. All else equal, and as natural gas prices attain prices around the mid-300s, and higher, demand from the key electric power sector apparently tends to diminish. Especially when inventories are at least adequate, this bearish consideration makes natural gas rallies above the high 300s hard to achieve and difficult to sustain. A scan of EIA statistics suggests this.

The calendar 2011 Henry Hub spot price averaged 400 (four dollars) per million btu, with 2012's 278 level 30.5 percent lower (STEO, Table 2). The EIA weathervane conjectures that Henry Hub will average 368 per mmbtu. Propelled substantially by very low natural gas prices, US electric power sector demand leaped 4.4bcf/day year-on-year in 2012 to just under 25.2bcf/day. The EIA's forecasts a 2.6bcf/day drop to about 22.6bcf/day in calendar 2013. This gloomy consumption fall probably depends a great deal on whether natural gas prices remain close to its 369 prophecy. Of course coal price trends, electricity demand patterns, and other considerations matter.

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If natural gas prices plummet to near calendar 2012 average price levels (or less), the electric power demand plunge predicted for 2013 probably will be less. This obviously will tend to reduce any inventory surplus.

US natural gas rotary rigs as of 12/7/12 are merely 417 (recent low 11/9/12 413). Compare the 1606 summit on 8/29/08 and the lower ones at 992 on 8/1310 and 936 on 10/14/11. As prices sustain rather depressed levels, eventually these low counts help underpin prices. However, increased crude oil drilling has boosted associated natural gas output.

Note that Canadian marketable natural gas production has fallen year-on-year since March 2012. May 2012 slumped about 4.8 percent versus May 2011; the (estimated) December 2012 output craters about 9.2pc relative to December 2011 (Canada, National Energy Board).

Coal has become less desired as a source of energy demand, so coal plant retirements support natural gas prices over the long run. LNG politics and plans will help to spark bullishness if prices tumble toward the lows of 2012, but US LNG exports will not occur in the near term.

Monitor environmental issues in regard to natural gas production, as well as nuclear and renewable fuel output.

TIMING

King Henry II: "I've snapped and plotted all my life. There's no other way to be alive, king, and fifty all at once." From the film "The Lion in Winter" (Anthony Harvey, director)

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On a nearest futures continuation basis, the recent natural gas peak was achieved 11/23/12 at 393. Yet keep in mind the initial top on 10/30/12 at 382, for highs in several actual calendar year strips and individual contract months for 2013 and thereafter occurred in October 2012. One should not neglect the patterns of actual contract months and calendar (and seasonal) strips, for nearest futures continuation does not tell whole story of natural gas complex time and price patterns.

In addition, since the build season of the past four years has extended into calendar November, that argues for interpreting price highs (lows) made late in calendar October alongside of those in November.

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Recent trends in the CFTC's Commitments of Traders for natural gas (futures and options combined) offer evidence that the overall natural gas complex entered a bear trend in late October to November 2012. Suppose one looks at net noncommercial positions in the combined traditional benchmark NYMEX natural gas contract (futures and options combined), the NYMEX European look-alike options contract, and the ICE NYMEX Henry Hub contract. Admittedly price highs (and lows) in the natural gas complex are not always mirrored by notable elevations in the net noncommercial long position (net noncommercial short position).

However, the net noncommercial long position (NCL) peaked on 10/23/12 at around 148 thousand contracts (3.4 percent of total open interest; the high percentage recently was 10/30/12's 3.5pc), with a secondary net NCL high of 129 thousand contracts on 11/27/12 (3.3pc of open interest). Note the declining net NCL as prices have fallen. On 12/11/12, the net NCL was 59m (1.6pc of total open interest).

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In any event, history reveals several marketplace turns in late October and calendar November. Thus for the current marketplace situation, an overall natural gas marketplace downturn starting in either late October or calendar November (or the two times combined) is not unusual.

Marketplace history is not marketplace destiny, After all, no major lows in nearest futures continuation natural gas had been achieved in calendar April prior to that in April 2012.

Anyway, what does draw season history reveal regarding the past and potential timing of major marketplace lows and highs (NYMEX nearest futures continuation basis)?

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**October- Key October highs are 10/28/97 at 385, 10/28/99 at 328, and 10/28/04 at 920. Major lows generally have not occurred in calendar October. However, see 10/27/10's interim low at 321.

**November- one low, that of 11/24/99 (208; part of a double bottom with 1/15/00's 213); highs 11/26/90 (at 265), 11/5/91 (at 214), and 11/30/06 (905).

**December- no noteworthy lows; important tops 12/21/95 (at 372), 12/20/96 (460), 12/27/00 (1010), 12/13/05 (1578; all-time high).

Since calendar December to date never has achieved a very significant bottom, and as November 2012's peak around 393 probably will not be broken during calendar December 2012 by nearest futures continuation (since the nearby price is well beneath 393 and January 2013 contract expiration beckons), lower prices than recently achieved likely loom ahead.

Should natural gas (nearest futures continuation) nevertheless advance to make new highs in calendar December 2012, the number of past December peaks warns that observers should watch for a top that month (or in calendar January or February).

**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. Major low 1/24/92 (102), 1/13/95 (125), 1/15/00 (213; see November), 1/28/02 (185; preceded by the 9/26/01 low at 176); tops 1/9/04 (763) and 1/7/10 (611).

**February- troughs at 2/24/97 (168), 2/26/99 (163); summits 2/2/94 (269), 2/25/03 (1190)

**March- no noteworthy lows or highs.

**April- major bottom 4/19/12 at 190.

Since calendar March has had no significant price turns, and as April accomplished only one (aided by a very warm winter), odds favor any significant floor in the current tumble will be achieved in January, February, or a much later month (as in late August or calendar September).

PRICE PICTURES

"Winter rain, now tell me why,
Summers fade, and roses die.
The answer came; the wind and rain." "Weather Report Suite", a Grateful Dead song

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The heated seven month bull charge of over 100 percent from 190 on 4/19/12 to 393 on 11/23/12 was long and far enough to complete a very significant bull move.

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Since late October 2012, the weakening (and move from backwardation to contango) of natural gas intramarket spreads such as January 2013 less April 2013 (peak about 10 cents backwardation on 10/19/12, 12/14/12 had 11 cent contango; settlement basis) and March 2013 less April 2013 (six cents backwardation on 10/19/12, four cent contango 12/14/12) confirms the bear trend.

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The NYMEX natural gas calendar year strips for 2013 through 2016, like nearest futures continuation, achieved key lows in April 2012. In addition, they likewise achieved important highs in October or November 2012.

The calendar 2013 through 2016 natural gas strips all snowballed down to reach bottoms on 4/23/12: calendar 2013 around 318, calendar 2014 at 365, calendar 2015 at 391, calendar 2016 at 414.

What about the highs for these calendar year strips? Calendar 2013 was about 410 on 10/22/12, calendar 2014's 435 on 11/23/12; the 2015 strip top occurred 10/29/12 at 451, the calendar 2016 one also on 10/29/12 at 4.69. Though the recent strip highs did not all occur at the same time, the October and November highs for a given strip were not distant in either price or time terms. Remember that the initial high in nearest futures continuation was 10/30/12 at 382.

A similar pattern applies to various NYMEX actual calendar months, not just the yearly strips. For example, the January 2013 contract low was 4/23/12 at 306. Its October high (10/22/12 near 409) scraped just above its November one (11/23/12 at 406).

This behavior of the year strips and actual contract months underlines that the downturn in natural gas futures which began in November 2012 (nearest futures continuation) involves the entire NYMEX natural gas complex, not merely first futures continuation.

Should the nearest futures continuation price venture into (or below) the 300/285 region, April 2012's lows in many of the calendar year strips may be significantly tested (or even broken).

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As always, monitor electricity and coal marketplaces.

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The following price framework is for NYMEX nearest futures continuation, though it is relevant for other actual calendar months. Means and standard deviations of course are likely to change as time passes, particularly when the measurement duration is relatively brief.

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***610/585**: 1/7/10 major high at 611. The mean plus one standard deviation from the 7/2/08 major high at 1369 is 584.

***530/500**: One-third the all-time high of 1578 (12/13/05) is 526. The 6/15/10 top was 519, the 8/16/10 high 501; the crucial 498 peak was 6/9/11. Low at 519 on 8/27/07. The interim high after the 9/4/09 low near 241 was 532.

***460/440**: 460 was the 12/20/96 major high. 439 low 9/22/03, 452 bottom 9/16/04. The mean plus three standard deviations from the 4/19/12 major trough at 190 is about 444. The mean plus two SD from the 6/9/11 pinnacle is 457; the mean plus one SD from the 1/7/10 summit also is 457.

***425/400/375**: Double the 190 low of April 2012 is 380; when a commodity marketplace doubles in price over an extended time period, a retracement often occurs fairly soon thereafter. The mean for nearest futures continuation since natural gas futures trading began in 1990 is 398. The mean since the 7/2/08 major high at 1369 is around 428. The mean plus two SD from the 4/19/12 low is about 395. The mean plus one standard deviation from the 6/9/11 peak is 388. The mean since the 1/7/10 high is around 374. Note the (now filled) 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. Recall the 405 depth on 9/27/06.

Many fear that history will repeat itself this winter should the winter again be warmer than normal. Recall not only the interim highs during the descent from June 2011's 498 pinnacle: 414 (8/11/11) and 398 (10/31/11). With the ghost of last year's awesome avalanche in mind, recall the subsequent bounce to- and fall-off from- 12/1/11 at 369. Some may compare 11/23/12's 393 timing high with this 12/1/11 date. Moreover, 393 is within the 414/398/369 range, and these three 2011 interim tops average 394. Note the worrisome price fall into first half December 2012. Compare inventory levels in fourth quarter 2011 with those of 4Q2012 to date. As a footnote in relation to the breakdown in 2011-12 after the 369 minor top, recall the 365 price gap low (expiration rollover) at end October 2010.

***345/337/317**: The mean plus one SD from the 4/19/12 low is 346. See the tiny price gap between 12/9/11 low at 3.309 and 12/13/11 high at 3.299 (since filled) and 7/31/12's minor high at 328. Recall the 321 low achieved 10/27/10. The mean since the critical 6/9/11 peak at 498 is

319. The mean plus three SD since the 4/19/12 low is 337. A 66 percent rally from 190 gives 317; a 20pc dip from 11/23/12's 393 gives 314.

***300/260**: Half the 611 pinnacle is 305. The mean since the 4/19/12 bottom is about 297. The mean less one SD since 1/7/10's top equals 291. A 50pc rally from 190 is 285 (about 284 is the 1/30/12 top). Note the minor high in the rally from 4/19/12 at 276 (5/18/12) and the take-off point around 274 on 9/19/12. The mean less one SD from the 7/2/08 peak is 272. A 33 percent fall from the 393 11/23/12 high is about 262; watch the 258 minor low of 8/29/12.

***250/240**: Around 250 is a 50pc dive from 498. 241 was the 9/4/09 major low. The mean less one SD from June 2011's top is about 250. The mean less one SD from the 4/19/12 bottom is 248.

***220/210**: See the 223 low on 1/23/12, the 217 one on 6/14/12. Mean less two SD from the 1/7/10 elevation is 208.

***190/175**: 4/19/12 major bottom was 190. Remember the double bottom 9/26/01 at 176 to 1/28/02 at 185. The mean less two SD from the 6/9/11 top is 181.

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Suppose United States natural gas days coverage eventually is reduced to about the long run average level (this could take quite some time). This boosts the odds for an eventual move above 400.

If days supply jump dramatically due to a very warm 2012-13 winter, natural gas prices may tumble back beneath 241 and toward April 2012's 190 depth. However, eager bears should recall that at end winter 2011-12 containment fears for the upcoming build season were substantial. These containment terrors probably will be much less significant at end of winter 2012-13.

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Money printing by the Federal Reserve and its central banking allies tends to boost nominal commodity prices, as does their interest rate repression policies. However, despite these highly accommodative central banking schemes, if the United States (or Japan, or other very important nations) fall off a fiscal "cliff", commodities in general (and equities such as the S+P 500) probably will stumble downhill for a while.

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