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Energy Risk
Management Services

U.S. Natural Gas Perspectives Monthly Review and Outlook

Summary

Over the past month the prompt NYMEX natural gas contract has declined by roughly \$.70 per mmBtu on a point-to-point basis. As crude oil prices continued to fall, within the period natural reached a settlement low on October 10 before stabilizing. Although the discount of natural gas to crude oil has narrowed, the market remains unwilling to restore the ratio to anything close to historical experience, in large part due to concerns with regard to the state of the U.S. economy. While traders have been able to offset, at least until recently, concerns about weaker U.S. oil demand with optimism with regard to China, OPEC, and India, for natural gas the demand “hit” is all within our borders. In this context, the most recent manufacturing data as published by the FRB came in even weaker than our conservative assumptions. As such, we are compelled to modestly revise our Base Case natural gas balances, effectively delaying the recovery in manufacturing activity until later in 2009. Our long-standing thesis that robust domestic production would be partially offset by lower net imports has been on the mark. However, larger than expected working storage builds have been the result of adverse economic impacts on industrial and electric utility sector gas demand. Although weaker manufacturing has obviously been exacerbated by the credit freeze, higher energy prices sowed the recessionary seeds several months ago.

In terms of price, our revised balances compel us to reduce our expectations for 2009 to a prompt NYMEX/Henry Hub average of \$8.00 per mmBtu, some \$.25 per mmBtu lower than our previous assumption. This implies that natural will be trading, on average, at about 53% of crude oil next year, since we are retaining at this point, right or wrong, our WTI average for next year of \$90.00 per barrel. Clearly our Base Case crude oil price outlook for next year, which we have retained without revision even when WTI was trading close to \$150.00 per barrel, now looks overly optimistic, but given market volatility a steady state approach is justified until the short-term economic and financial picture stabilizes.

- + U.S. natural gas demand is forecast to rise by 0.4% or some 85 bcf next year.
- + Domestic dry gas production is expected to increase by 3.0%, or about 620 bcf in 2009.
- + Our balances imply a net build in working storage next year of about 500 bcf.

Viewpoint

Over the past month the prompt NYMEX natural gas contract has declined by roughly \$.70 per mmBtu on a point-to-point basis. As we issue this report the contract is trading modestly under \$7.00 per mmBtu.

While crude oil prices continued to fall reflecting global financial de-leveraging, within the period the prompt natural contract reached a settlement low of \$6.535 per mmBtu on October 10 before stabilizing.

Although the discount of natural gas to crude oil has finally narrowed, traders are unwilling to restore the ratio to anything close to historical experience, in large part due to justifiable concerns about the current state of the U.S. economy.

While analysts have been able to offset, at least until recently, concerns about weaker U.S. oil demand with optimism with regard to China and other non-OECD countries, for natural gas the adverse demand impact lies completely within our borders.

In this context, the most recent manufacturing data as published by the Federal Reserve Board for the month of September came in even weaker than our conservative assumptions.

As such, and given additional anecdotal economic evidence, we are compelled to modestly revise our Base Case natural gas balances, effectively assuming a delay in the recovery in manufacturing activity until later in 2009.

Our long-standing thesis that robust domestic production would be partially offset by lower net imports has been on the mark, confirmed by the latest data showing lower pipeline imports as well as LNG cargoes plus higher exports to Mexico.

However, recent working storage builds, somewhat larger than expected, have reflected the adverse impacts on industrial and electric utility sector gas demand as the economy continues to falter.

Although the weaker manufacturing picture has obviously been exacerbated by the credit freeze, higher energy prices clearly sowed the recessionary seeds several months ago.

With regard to price, our revised balances compel us to reduce our expectations for 2009 to a prompt NYMEX/Henry Hub average of \$8.00 per mmBtu, some \$.25 per mmBtu lower than our previous assumption.

This implies that natural will be trading, on average, at about 53% of crude oil next year, since we are retaining at this point, right or wrong, our forecast WTI average for next year of \$90.00 per barrel.

Our Base Case crude oil price outlook for next year has been in effect without revision even when WTI was trading close to \$150.00 per barrel. Given the velocity of the price decline, our outlook now looks overly optimistic, as the consensus continues to cut its expectations. However, given market volatility we believe a steady state approach is justified until the short-term economic and financial picture begins to stabilize.

Demand: Review and Outlook

The Federal Reserve Board just issued industrial production assessments for the month of September, revealing that manufacturing activity has deteriorated.

Eight Largest Industrial Consumers Of Natural Gas July Manufacturing Output

Industry	YOY %Chg. Output
Chemicals	-5.3
Petroleum and Coal	-8.1
Primary Metals	-0.3
Paper	-1.9
Food	-2.8
Non-Metallic Mineral	-7.1
Fabricated Metal	-3.5
Transportation Equip.	-16.7

Our customary table illustrated above confirms that for the eight largest industrial consumers of natural gas, year-over-year

conditions have deteriorated compared to the previous month, on average.

While clearly the data for chemical and petroleum were impacted by the effects of Hurricanes Gustav and Ike, weakness in transportation equipment, paper, and select other industries confirms that an industry-wide slowdown has accelerated.

Taking stock of the latest numbers, it is clearly difficult to call the turning point. We sense, right or wrong, that the stock market is in the process of bottoming and, as a leading economic indicator, is suggesting things should improve next year.

Nonetheless, we are compelled to revise our path of improvement, and we now assume negative year-over-year manufacturing growth of varying degrees until the second quarter of next year.

For 2009 as whole, we now assume that manufacturing activity will gain by an average of only 1.5%, versus our previous assumption of +2.5%. As such, we now expect industrial sector gas demand to rise by 0.3%, or some 20 bcf next year, a downward revision from our previous assessment by about 85 bcf.

For the residential sector, once again we assume normal weather and some incremental conservation over last winter, partially offset by additional natural gas hookups.

Putting all sectors together, we now believe total U.S. natural gas demand will increase by 0.4%, or around 85 bcf, a downward revision from last month's report by some 80 bcf.

Supply: Review and Outlook

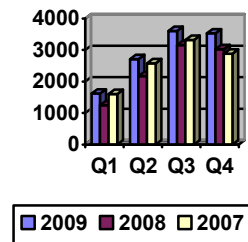
As discussed earlier in this report, our long-standing thesis has suggested that lower LNG and pipeline imports, combined with higher exports to Mexico, would go a long way in helping to offset what has been robust domestic production growth. This perspective has been on the mark.

Impacting our balances, specifically the path of working storage, however, has been

a weaker economic picture than even our conservative outlook had assumed.

As such, we now need to revise our storage outlook. While we still do not believe that we will enter winter setting another all-time record, we have in fact revised up our year-end target to a shade over 3.0 tcf, which represents a roughly 100 bcf upward revision from our previous year-end forecast.

End-Quarter Working Gas Storage Levels (BCF)



If reasonable, it would place end-2008 working storage about on par with the end of 2006. Once again assuming normal first quarter weather, we would look for a somewhat smaller net draw in storage than that occurring during the first quarter of this year.

At the end of next March we expect working storage to stand at about 1.6 tcf, some 370 bcf above end-March of 2008. For 2009 as a whole, our balances now imply a net build in working storage totaling about 500 bcf, some 235 bcf higher than our previous Base Case had assumed.

Implications for Price

As we issue this report crude oil is staging a modest recovery from recent declines, finding a bottom in the "60s" per barrel as we suggested it might. Factors accounting for the short-term reversal include a stronger equity market, and as we suggested earlier it is our feeling that equities in general are in the process of bottoming.

Traders and funds are also covering short positions now that OPEC has sufficiently

panicked to advance its emergency meeting to October 24.

Although natural gas has periodically succeeded in de-linking itself from crude oil, no doubt the outcome of the OPEC meeting will have some bearing, however transient or not, on NYMEX natural gas values.

The market will invariably expect a 1.0+ MMB/D reduction in the official OPEC ceiling, but we are not sure that Saudi Arabia has firmly decided one way or another.

While revenue streams need to be protected since the Kingdom does not hedge, at least not materially, prices may not have declined low enough long enough to induce Saudi Arabia to support such a production cut.

This is particularly true since we do not believe other members would generally comply with a pro rata reduction and, if so, Saudi Arabia is unlikely to be patient, particularly given concerns about global economic activity.

Thus, even if a cut is agreed to, we do not believe the price effect will be long lasting. As such, we would peg our December (basis January NYMEX) natural gas price target on WTI at \$80.00 per barrel, some \$20.00 per barrel lower than previously assumed.

**Henry Hub Price Outlook
Average for Month of December 2008
(\$/mmBtu)**

1990-2007 Relationships \$3.70(E)
1990-1999 Relationships \$1.95(E)
2000-2007 Relationships \$5.95(E)

2000-2007 Relationships
Plus Oil Premium \$7.50(E)(a)

a) @ 226 cents per gallon distillate and \$80.00 per barrel WTI.

Under our model this would now imply fair value for the January NYMEX contract at around \$7.50 per mmBtu versus our previous target of \$7.80 per mmBtu.

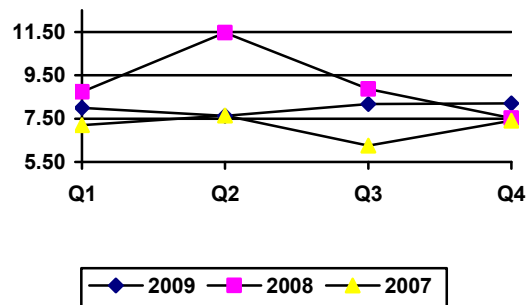
Our higher year-end storage level reduces the target by some \$.10-\$.15 per mmBtu, further cut by lower oil price

assumptions. However, the current trend in the natural to crude oil ratio partially offsets the negative influences of storage and crude oil prices.

For 2009, our revised balances now imply a prompt NYMEX/Henry Hub average of around \$8.00 per mmBtu, marking a \$.25 per mmBtu downward revision from last month.

Thus, our outlook still suggests an improvement in the average ratio of natural to crude oil compared to this year, but somewhat less robust given the adverse economic impact on gas demand growth as previously discussed.

**Henry Hub Prices
2007-2009
(Dollars per MCF)**



October 17, 2008

U.S. Natural Gas Supply and Demand Balances
2008-2009
(Billion Cubic Feet)

	Q1	Q2	Q3(E)	Q4(E)	2008(E)	%Chg 08-07	Q1(E)	Q2(E)	Q3(E)	Q4(E)	2009(E)	%Chg 09-08
Supply												
Total Dry Gas Production	5,080	5,128	5,159	5,289	20,656	7.2	5,232	5,282	5,314	5,447	21,276	3.0
Withdrawals From Storage	1,891	242	(59)	682	2,756	-17.0	1,668	96	216	634	2,614	-5.2
Supplemental Gaseous Fuels	11	14	14	13	53	-12.9	11	15	14	13	54	1.5
Imports	1,088	894	1,045	1,103	4,130	-10.3	1,102	900	1,059	1,108	4,169	0.9
Canada	1,009	790	933	994	3,727	-1.3	1,019	798	938	999	3,755	0.7
LNG	76	97	101	100	374		80	92	110	100	382	
Other	3	7	11	9	29		3	9	11	9	32	
Balancing Item	(36)	88	348	(250)	151		0	0	0	(270)	(270)	
Total Supply	8,034	6,367	6,508	6,838	27,746	2.8	8,013	6,292	6,604	6,933	27,842	0.3
Disposition												
Additions To Storage	255	1,173	1,103	551	3,082	-2.0	258	1,185	1,114	557	3,113	1.0
Exports	324	215	184	205	928	12.8	317	202	185	205	909	-2.0
Consumption	7,455	4,979	5,221	6,081	23,736	3.1	7,439	4,905	5,305	6,171	23,820	0.4
Lease And Plant Fuel	307	311	310	317	1,246	6.5	314	317	319	327	1,277	2.5
Pipeline and Distribution Use	201	135	157	175	667	7.1	165	166	170	180	681	2.0
Residential	2,355	776	255	1,421	4,807	1.8	2,382	695	257	1,436	4,770	-0.8
Commercial(a)	1,303	569	382	892	3,146	4.6	1,298	497	380	888	3,063	-2.7
Industrial	1,867	1,603	1,554	1,699	6,723	1.4	1,830	1,613	1,566	1,732	6,741	0.3
Electric Power	1,422	1,585	2,563	1,577	7,147	4.0	1,450	1,617	2,614	1,608	7,290	2.0
Total Disposition	8,034	6,367	6,508	6,838	27,746	2.8	8,013	6,292	6,604	6,933	27,842	0.3
Addendum:												
Net Storage Injections	(1,636)	931	1,162	(131)	326		(1,410)	1,089	897	(77)	499	
End Period Working Gas In Storage	1,247	2,171	3,160	3,029	3,029		1,619	2,707	3,605	3,528	3,528	
Henry Hub Price (Dollars Per mmBtu)	8.74	11.46	8.86	7.52	9.15	28.4	8.00	7.63	8.17	8.20	8.00	-12.5
Gas Wells Drilled					33,733	2.5					34,239	1.5
Total Discoveries(Bcf)					14,168	-4.3					13,353	-5.7
Discoveries Per Well(Bcf)					0.42	-6.7					0.39	-7.1
Total Revisions and Adjustments(Bcf)					4,000	0.0					4,000	0.0
Total Reserve Additions(Bcf)					18,168	-3.4					17,353	-4.5
Reserve Replacement Ratio					88%						82%	
Total Recoverable Reserves (Bcf)					183,997	-1.3					180,075	-2.1
Reserve To Production Ratio(Years)					8.9						8.5	

Source: Historical Data, U.S. Department of Energy.

Note: May not sum to totals in all cases due to rounding.

(E) WHB Energy Research LLC estimates.

(a) Includes minor use as vehicle fuel.

Information contained herein is believed to be reliable but its accuracy cannot be guaranteed. Past performance is not indicative of future results and the risk of loss is substantial in futures trading.

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