



Natural Gas Price

By CK Wong 2006.09.18

[http://www.ck-wong.ca/Energy/natural %20gas%20price%2020060918.pdf](http://www.ck-wong.ca/Energy/natural%20gas%20price%2020060918.pdf)

Introduction

Natural gas future price is driven by a very precise mathematical model based on the weather, supply and demand that allows the utility and the producer to set the price of the future contracts. It looks like these rules have been broken. This piece identifies the facts.

Exhibits

The following is the end of day shot of the natural gas price as of September 15, 2006.

September 15, 2006 NY Mercantile Exchange Natural Gas EOD price

	Price	Change	Diff Average		Price	Change		Price	Change		Price	Change		Price	Change
Oct-06	4.982		0.171	Oct-07	7.894	0.180	Oct-08	7.869	0.170	Oct-09	7.609	0.170	Oct-10	7.509	0.165
Nov-06	6.364	1.382	0.721	Nov-07	8.689	0.795	Nov-08	8.589	0.720	Nov-09	8.289	0.680	Nov-10	8.199	0.690
Dec-06	7.774	1.410	0.706	Dec-07	9.444	0.755	Dec-08	9.269	0.680	Dec-09	8.969	0.680	Dec-10	8.909	0.710
Jan-07	8.504	0.730	0.453	Jan-08	9.924	0.480	Jan-09	9.699	0.430	Jan-10	9.439	0.470	Jan-11	9.339	0.430
Feb-07	8.569	0.065	0.000	Feb-08	9.924	0.000	Feb-09	9.699	0.000	Feb-10	9.439	0.000	Feb-11	9.339	0.000
Mar-07	8.464	-0.105	-0.251	Mar-08	9.674	-0.250	Mar-09	9.434	-0.265	Mar-10	9.189	-0.250	Mar-11	9.099	-0.240
Apr-07	7.314	-1.150	-2.158	Apr-08	7.494	-2.180	Apr-09	7.234	-2.200	Apr-10	7.089	-2.100	Apr-11	6.949	-2.150
May-07	7.274	-0.040	-0.130	May-08	7.364	-0.130	May-09	7.104	-0.130	May-10	6.959	-0.130	May-11	6.819	-0.130
Jun-07	7.384	0.110	0.090	Jun-08	7.444	0.080	Jun-09	7.179	0.075	Jun-10	7.064	0.105	Jun-11	6.919	0.100
Jul-07	7.499	0.115	0.094	Jul-08	7.534	0.090	Jul-09	7.254	0.075	Jul-10	7.164	0.100	Jul-11	7.029	0.110
Aug-07	7.604	0.105	0.088	Aug-08	7.604	0.070	Aug-09	7.339	0.085	Aug-10	7.259	0.095	Aug-11	7.129	0.100
Sep-07	7.714	0.110	0.093	Sep-08	7.699	0.095	Sep-09	7.439	0.100	Sep-10	7.344	0.085	Sep-11	7.219	0.090

Other than the first column of the NG price, the different from previous month are very close to the average which is highlighted in yellow. The first column of price are those close to the present. The different is about double of the average with bias to lower price.

From a mathematical perspective, the monthly increment for the first column of price is much higher to bring the future price to align with the average. The question is why the near future or current price is much lower than expected. It has been reported with fact that the production has been declined. The demand has been increased. Yet the price falls.

The price of October contract is almost as low as the lowest in 2004. Consider all factor except energy price remains the same, the price would have higher due to rise of energy price. The price of natural gas could be calculated as following:

Lowest price of NG in September 2004	\$4.53
assume 10% of the NG price for the energy cost	\$0.45
Price of crude on the same day	\$42.81
Price of crude on September 15, 2006	\$63.00
Percentage of increase in energy cost	47%
Estimated energy cost of NG	\$0.67
Estimated price of NG as on Sept 15, 2006	\$4.74
NG price on Sep 15 with 6% of inflation per year	\$5.25

It may be startle to find that the NG price could below the U\$5 level but we should see this as the floor because no inflation has been factored in. By factoring in the 6% inflation rate, the price has been moved up to U\$5.25. This is the price that has been kept on coming back when NG price pulls too high.

But what is wrong with this picture. The major flaw is the price of NG. The 200 day moving average (the more accurate long term view) is U\$5.92. If we repeat the same calculation, the NG price will look like something below:

200 day average price of NG in September 2004	\$5.92
assume 10% of the NG price for the energy cost	\$0.59
Price of crude on the same day	\$42.81
Price of crude on September 15, 2006	\$63.00
Percentage of increase in energy cost	47%
Estimated energy cost of NG	\$0.87
Estimated price of NG as on Sept 15, 2006	\$6.20
NG price on Sep 15 with 6% of inflation per year	\$6.86

Using the \$6.86 number would be more align with the mathematical model which tells us that the current price could be undervalued.

Conclusion

It may be true that the price of NG is undervalued. There are stock inventory driving the market price. For security, the management and the RLI govern the performance. However, in long term, we could see the price upward pressure.

Resources

[1] *New York Mercantile Exchange*, <http://www.nymex.com/>