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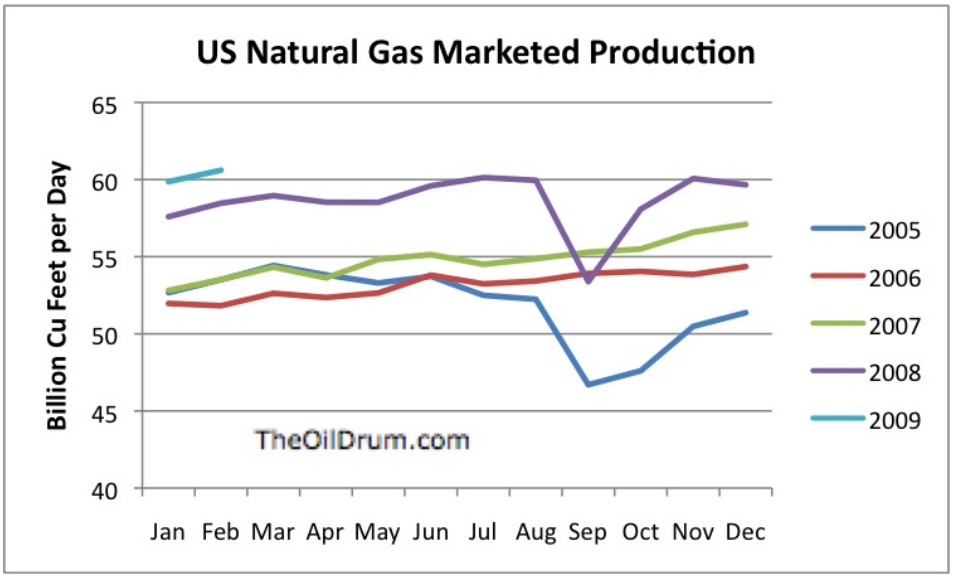
US Natural Gas - May 09

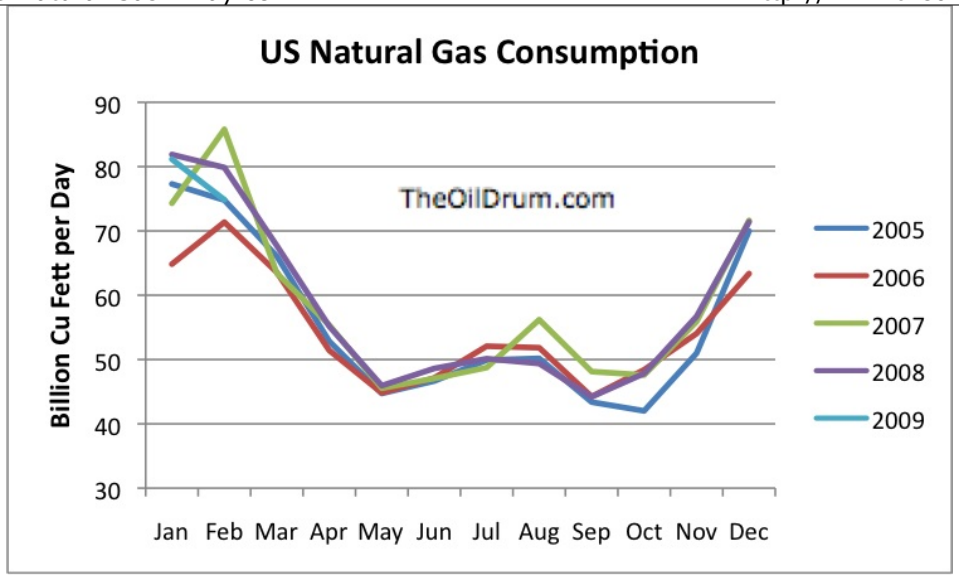
Posted by Gail the Actuary on May 20, 2009 - 10:31am
Topic: Supply/Production
Tags: natural gas [list all tags]

Natural gas seems like it should have huge potential, but the prices remain too low to encourage additional production. In this post we will look at a few recent graphs and their implications.

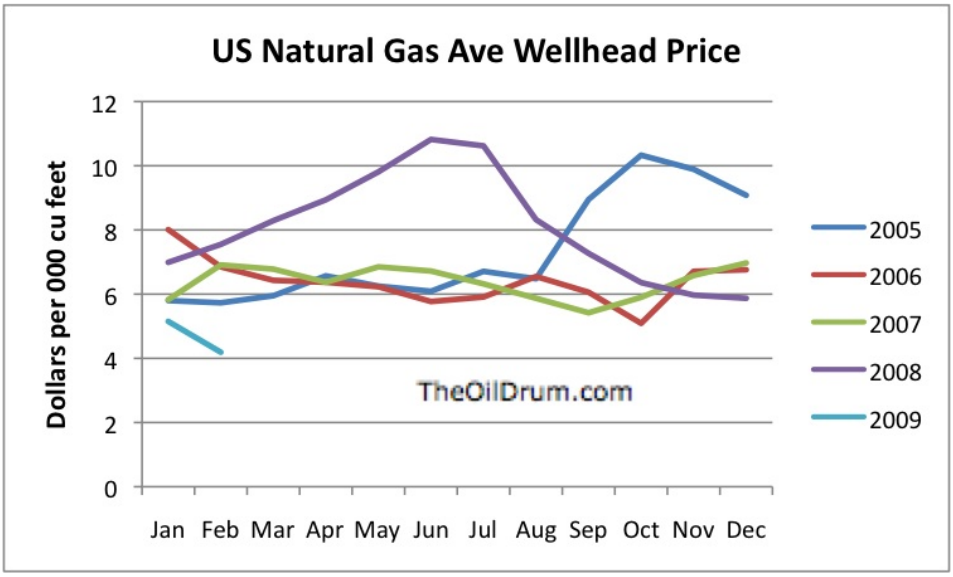
This is a graph of US natural gas production. One can see that production increased by about 8% during 2008, but there was a huge dip as the result of the September hurricanes. Production in the first part of 2009 is up a little under 4% above production in the first part of 2008. (All graphs are based on EIA data.)



This is a graph of US natural gas consumption. One can see that consumption has been virtually flat. Consumption is closely tied to heating buildings and making electricity, and these amounts have not been changing rapidly. Industrial consumption has declined, offsetting the increases in electrical consumption.



The result of the mismatch between more production and constant consumption is prices that are too low to encourage more production.



It is clear that 2009 prices have been below those of recent years. Huge reserves of natural gas from shale and other forms of tight gas indicate that there is likely to be a huge amount of natural gas available if prices would stay at a high enough level to encourage production. If prices were constantly at least as high as they were generally in the 2005 to 2008 period -- say in the $6 to $7 range, it would be help quite a bit. If prices were even a little above this--say $8 to $10, it would be even better, in encouraging shale gas and tight gas production over the long term.

The question is how to get supply and demand to match. With the current recession, it looks like there will be excess world supply of LNG, and this LNG is expected to be sold in this country at low prices as well. This is expected to make the mismatch worse, at least in the short term.

One factor offsetting the excess supply is likely to be at least a small shift from coal to natural gas for electricity production, because of the low price of natural gas, and the availability of power plants to burn the natural gas for electricity. This change is especially likely if there is any type of carbon tax or cap and trade.

Greater use of natural gas in vehicles could also help bring the balance between supply and demand into better balance. It seems like what would be needed is a few fleets of busses and other commercial vehicles in cities near where natural gas is produced. The energy equivalence of natural gas to oil is about 6 to 1, so $7 natural gas would be similar to $42 oil and $10 natural gas would be similar to $60 oil, at least for transportation purposes.

Natural gas in the US usually trades at a substantial discount (as much as 50%) to the Btu equivalent of oil, though, because of the high cost of transporting natural gas, and because it is not as highly valued as oil. For these reasons, for electricity and heating, most users would find $8 to $10 natural gas quite expensive. If prices were this high, homeowners would find it necessary to cut back on other purchases to pay their heating and electricity bills.

Getting a balance on natural gas is very tricky. Pipelines and built infrastructure are inflexible. Building only a few too many vehicles could tip the balance the other direction again. Changes in natural gas for electrical use could have an almost immediate effect, and would need to be considered in the balance.

It seems like natural gas has the potential to do more than it is now doing, if we could only figure out how to harness the capabilities of what we have. To do this, we will need to keep the price high enough and get the right amount of new end use infrastructure built.