

North American Natural Gas – Production Declines – What Happened?

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J. Cameron Bailey, CFA
CEO, Fortress Energy Inc.
(TSX: FEI)

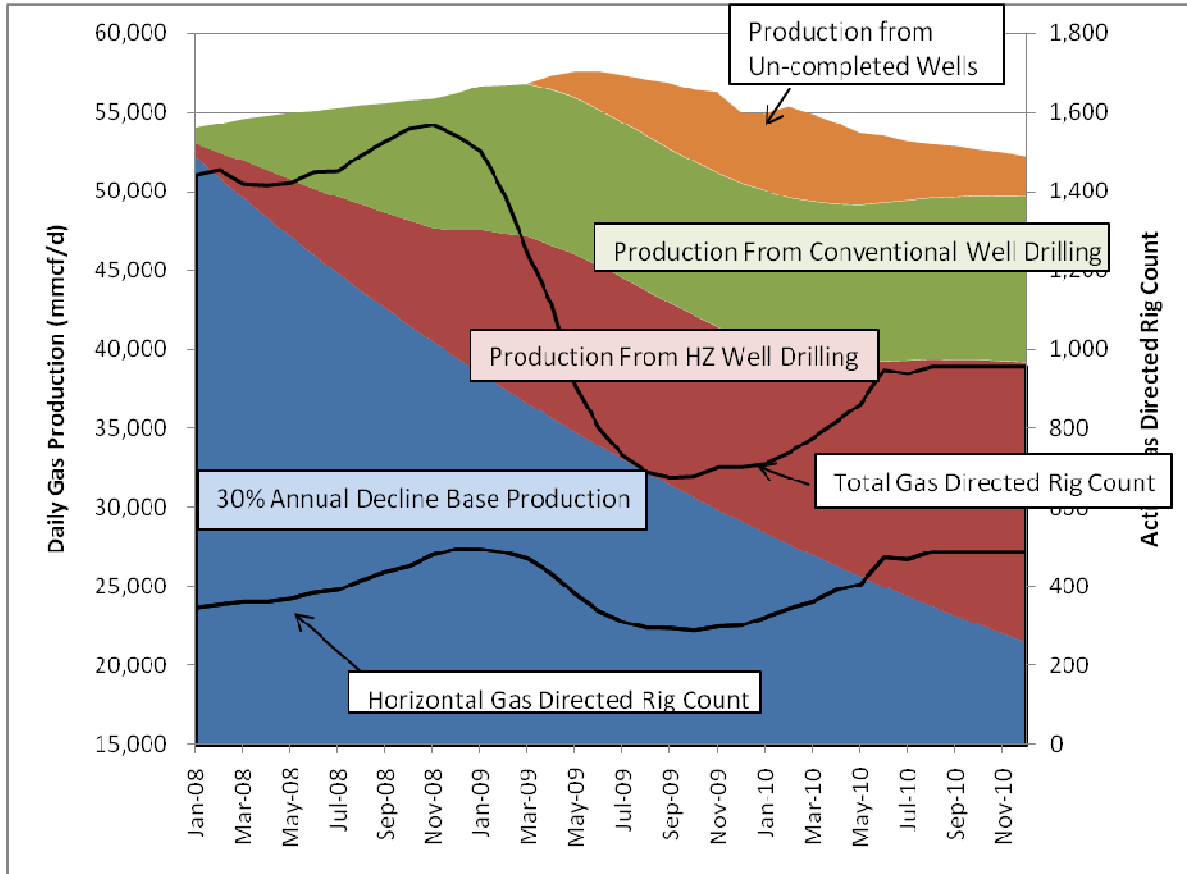
We entered last winter heating season with a record amount of gas in storage and a record amount of gas supply, primarily from the exuberance of investors to provide capital to producers for them to apply horizontal fracturing techniques to gas shales and tight gas reservoirs.

The drilling response from low gas price that were observed throughout 2009 and natural decline rates were expected to correct the oversupplied North American markets. In addition the cold three month winter heating season created enough demand to burn through the gas supply overhang and bring gas inventories into the levels experienced over the past five years.

The problem was that supply did not decline to the levels expected. So what happened? The drilling activity witnessed in 2008 had a significantly larger impact on gas supply than we ever expected. We had described the impact of the inventory of wells that were drilled but not yet tied-in and attempted to account for the backlog by delaying the production response of horizontal drilling activity by six months. This has turned out to be a significant underestimation of the impact of production inventory represented by drilled but un-completed wells. We have learned from analysis performed by Parks Paton Hoepfl & Brown and from Dr. Jonathan Lewis of Halliburton (NYSE: HAL) who spoke at the RMI Oilfield Breakfast, that the shale well back log consisting of wells drilled but not yet completed accumulated to as many as 3,000 wells at the end of the first quarter of 2009. The simple explanation was that there simply not enough fracing equipment to service these wells. It was also estimated that this back log was not worked off until the end of the first quarter of 2010.

If this is case, it provides a logical explanation to the mystery of the resilience of the US production observed throughout 2009 and into 2010 while gas directed rig count has been operating at less than 50% of the levels experienced in 2008.

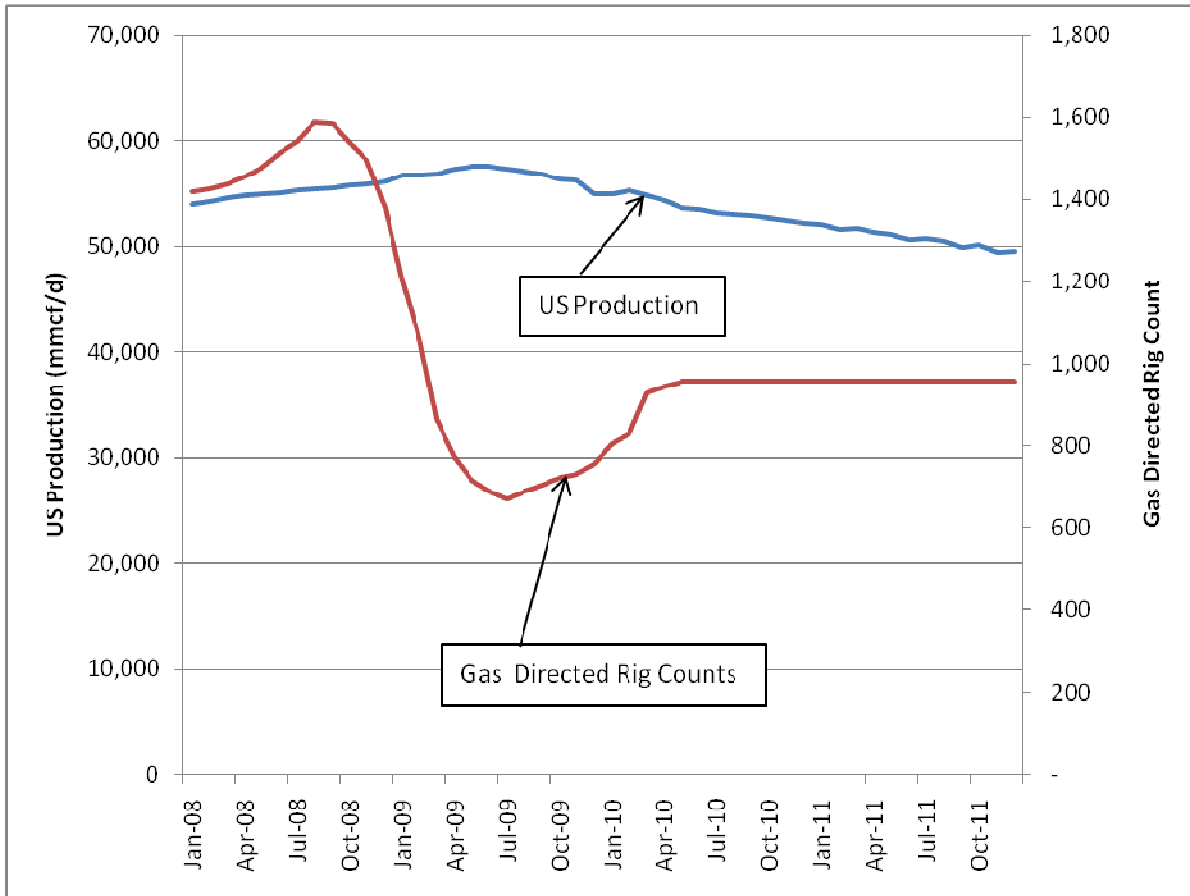
Below is the calculated US natural gas production based on the 3,000 undeveloped well inventories that were put on stream from the second quarter of 2009 to the first quarter of 2010.



The entire decline expected through 2009 has been replaced by wells drilled in 2008 and completed throughout 2009 and into the first quarter 2010 with an estimated 5 bcf/d of production being added.

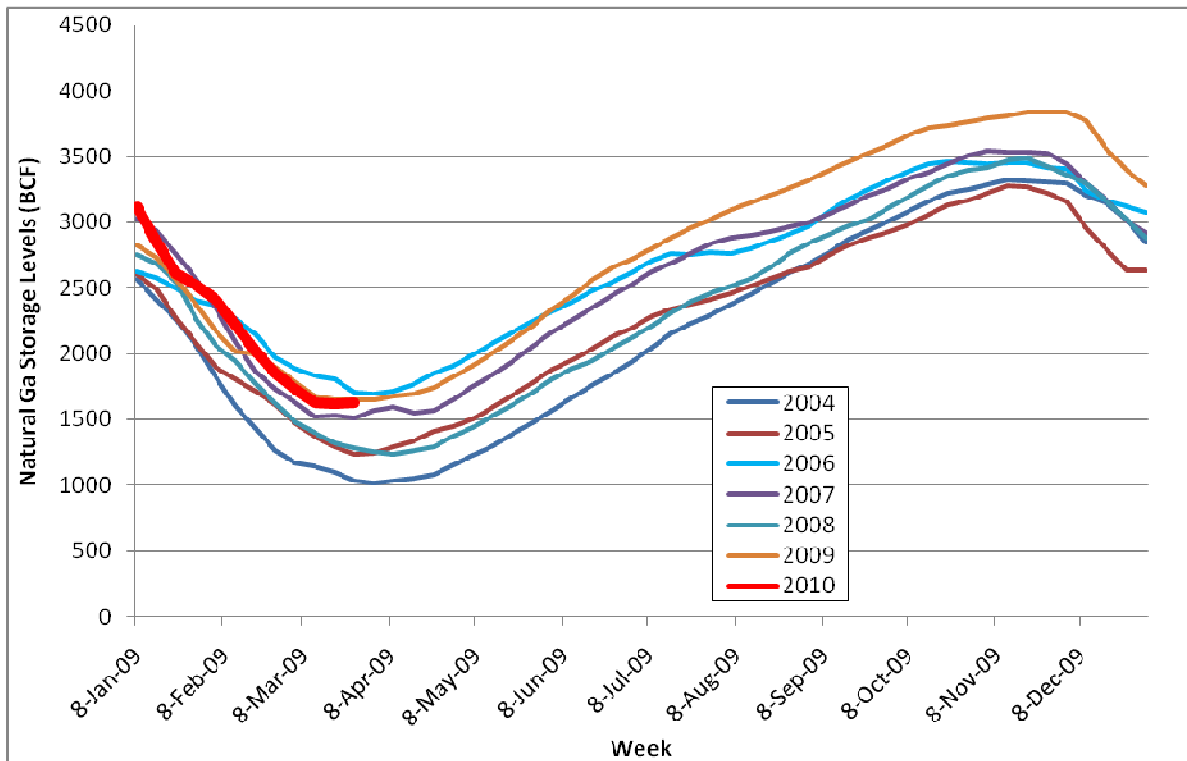
Now that gas directed drilling activity has improved in particular, gas directed horizontal drilling activity has reached levels very close to the peak of 2008, and the ability to replace production has become a reality rather than expecting declining gas supplies.

The following is a forecast of US natural gas production assuming natural gas drilling activity remains at these levels.



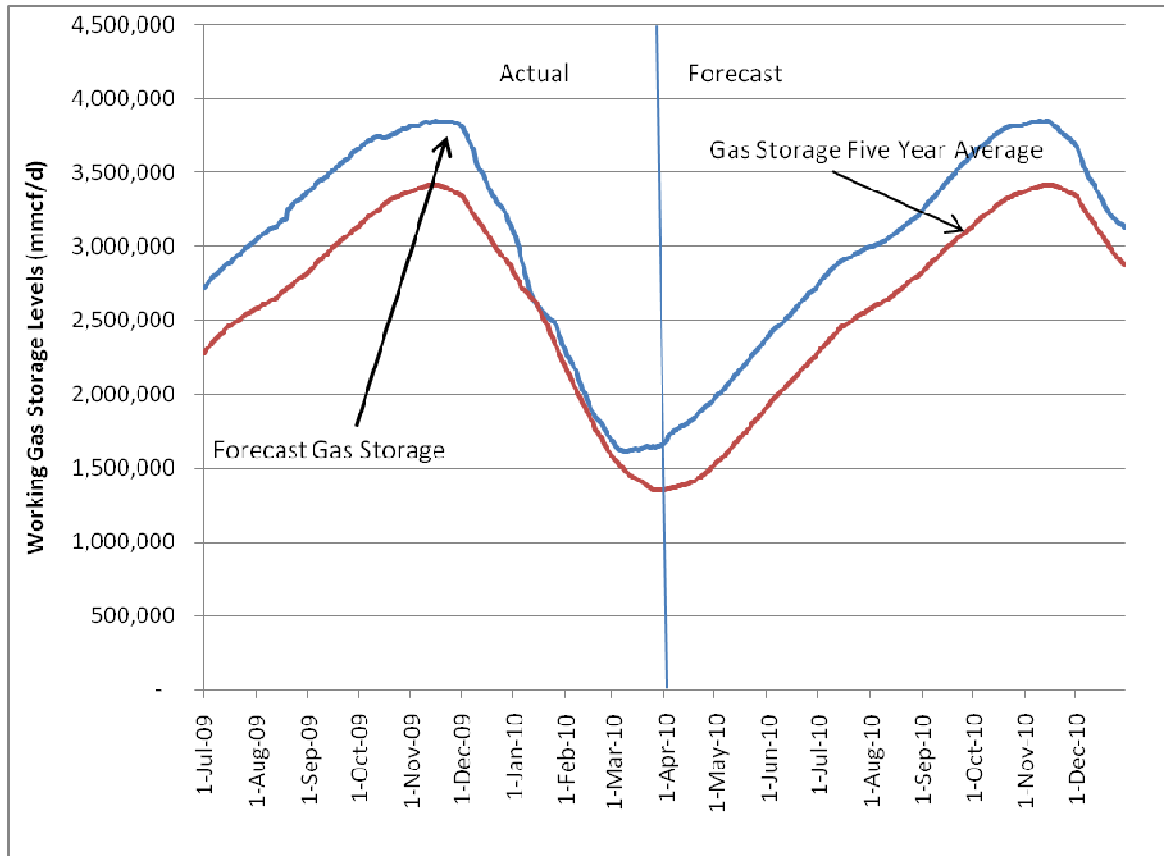
This new level of production has significant implications to inventory levels for the 2010 refill season. Although the cold winter experience in the mid west and north east united states made a big impact on the surplus inventories throughout the 2009/2010 , the higher than expected production levels will result in further surpluses entering into 2010/11 winter heating season.

Natural Gas Storage Levels



If we forecast forward using the average gas demand throughout the fill season, using the new expected production levels it is likely that we end the refill season at very similar inventory level we experienced in October 2009.

US Natural Gas Inventory Levels



With lower prevailing gas prices it is likely that we see a response from producer similar to the announcement of the shale champion Chesapeake to lay down 20 drilling rigs. If this becomes more wide spread we are much more likely to see a more direct response to production. Until this happens expect the relatively low gas prices to continue.