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## Gas Price Rebound Expected But When and How High Uncertain

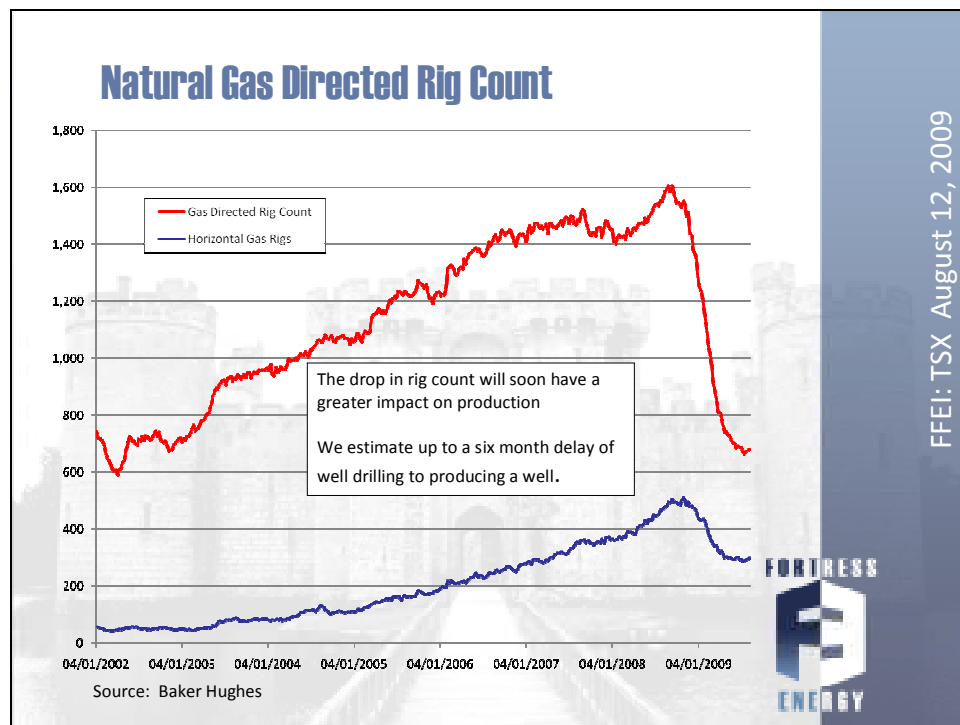
**By Paul Wells**

Many natural gas industry analysts and producers alike expect a rebound in prices next year from the current lows, however the true fallout from the dramatic reduction in North American drilling activity and its eventual impact on supply and storage is a point of heated debate.

The overall decline rate from new and existing wells drilled in the U.S. and the extent of any economic recovery in the U.S. will play key roles - on top of the usual weather influences - in whether there is a mild recovery in prices next year or a rapid rise, with most analysts predicting the former.

The top executive of a 100% natural gas weighted Calgary-based junior says a serious shortage may be developing with less than 700 natural gas-focused rigs operating in the United States and just over 80 operating in Canada.

**Fortress Energy Inc.**'s Chief Executive Officer **Cam Bailey** offered his market assessment in a report that was included with his company's recent second quarter release, and he believes many industry analysts are misreading the tea leaves when it comes to projecting the severity of the pending drop in production.



"I have read many articles on natural gas prices, presenting the likelihood of a pending natural gas bull market. Surprisingly, I have yet to see any editorial committed to predicting the impact of the falling rig count in North America," Bailey said.

He said bearish natural gas price forecasts are driven by the high productivity of shale plays, industrial demand destruction and liquefied natural gas (LNG) imports, with bullish price forecasts

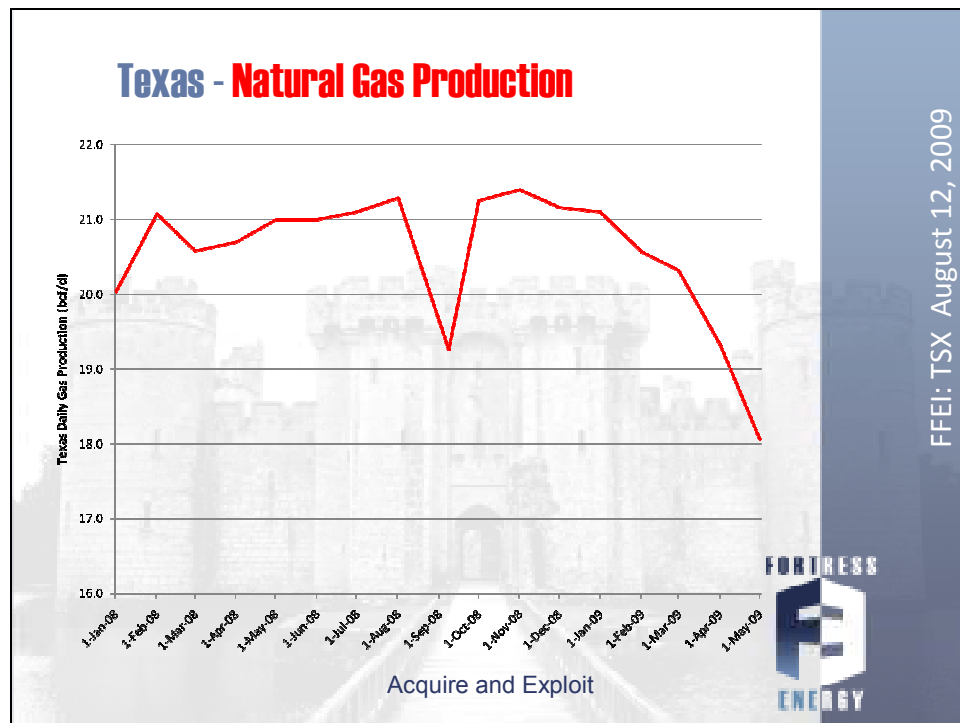
based on the precipitous drop in drilling activity. After doing his analysis, Bailey says the evidence points to a "very alarming supply shortage" that's about to hit North American natural gas markets.

"I get research from virtually every firm in the country and I couldn't see anybody predict what the outcome of only 700 rigs drilling will be ... when are we likely to see the impact of critical supply shortage because of the decline rates we're suffering?"

In his analysis, which is available on the company's web site ([here](#)), Bailey concludes that not even an eventual ramp-up in drilling and increased production from shale gas plays will be enough to stem the tide of shrinking output and counteract the supply shortage he is predicting.

"Without question some dramatic supply issues are mounting. If rig counts remain at 700 for any length of time, and North American producers continue to focus on drilling shale wells, those wells' robust initial production rates are clearly insufficient to offset declines from their overall drilling activities," Bailey contends.

"Even more concerning is the fact that shale gas is likely to represent 70% of all new gas added in the next year. The initial decline rates of shale gas are estimated to be 60%, compounding the industry's challenge to replace production."



Bailey used the following assumptions: Base production in the United States is 56 bcf per day; average production declines amount to 35% per annum; in 2008, there were 1,491 active rigs focused on natural gas drilling; of the total rig count, 30% were drilling horizontal wells of which 80% were natural gas wells; and in total there were approximately 32,000 natural gas wells drilled in 2008. He said incremental production amounted to 19.6 bcf per day.

In order to maintain U.S. production from 2007 to 2008, Bailey said each well drilled during that period produced an average 601 mcf per day and he used this assumption for forecasting the impact of lower drilling activity this year.

He noted that the natural gas-directed rig count has fallen from its peak of 1,600 in September 2008 to 700 in June 2009. Given that average production rate of a well placed onstream in its first year, Bailey calculated the replacement production derived from the drilling activity of 700 gas-directed rigs over the course of a year and determined in his "simple 700 well analysis" that incremental production this year would equate to 9.2 bcf.

"Based on these assumptions, our calculations indicate that drilling replaced 9.2 bcf per day out of the 19.6 bcf per day necessary to maintain U.S. production - a 10.4 bcf per day shortfall," he said.

But what about all the high-productivity shale gas wells that are being put onstream? Factoring in conventional natural gas incremental production of 2.5 bcf per day, Bailey ran the numbers based on two scenarios - an "optimistic" take on shale production and a "realistic" take.

In the first scenario, he assumed that 298 horizontal rigs would drill 2,716 shale wells with a first year production rate of 3.1 mmcf per day. In the realistic scenario he used the same number of rigs and wells but reduced the first year production rate to two mmcf per day.

Combined with the 2.5 bcf per day of incremental conventional output, in the optimistic shale gas scenario, Bailey said "we only obtain 11 bcf of incremental production - a resulting short fall in U.S. production of 8.6 bcf per day" while the more conservative analysis "results in a supply deficit of 11.6 bcf per day."

"At the current rate of drilling there would be insufficient supplies to fill inventories during the 2010 summer season," Bailey said. "The delays in the production decline is a result of a large inventory of primarily shale wells that are being brought onstream as pipelines and gathering system have been constructed."

In any of the scenarios, the deficit is large and Bailey said shrinking Canadian output can't make up for the shortfall and neither will LNG imports.

"With the production declines already experienced in Canada, there is much less ability for Canada to provide a supply cushion to make up for the seven bcf per day supply cushion that it has provided in recent past -- there is not likely to be a soft landing."

And although that suggests a price rebound is in the offing at some point for the natural gas sector, Bailey isn't looking forward to the months that will define the bridge from bearish to bullish.

"It's bit of a bitter pill to be honest," he said. "We've got to go through quite a downturn in the industry before we see a significant correction in prices."

**EOG Resources Inc.**, a U.S.-based gas producer which drills in Canada and the U.S., recently pointed out that gas market observers are not paying enough attention to the dramatic decline in conventional vertical wells, particularly in Texas.

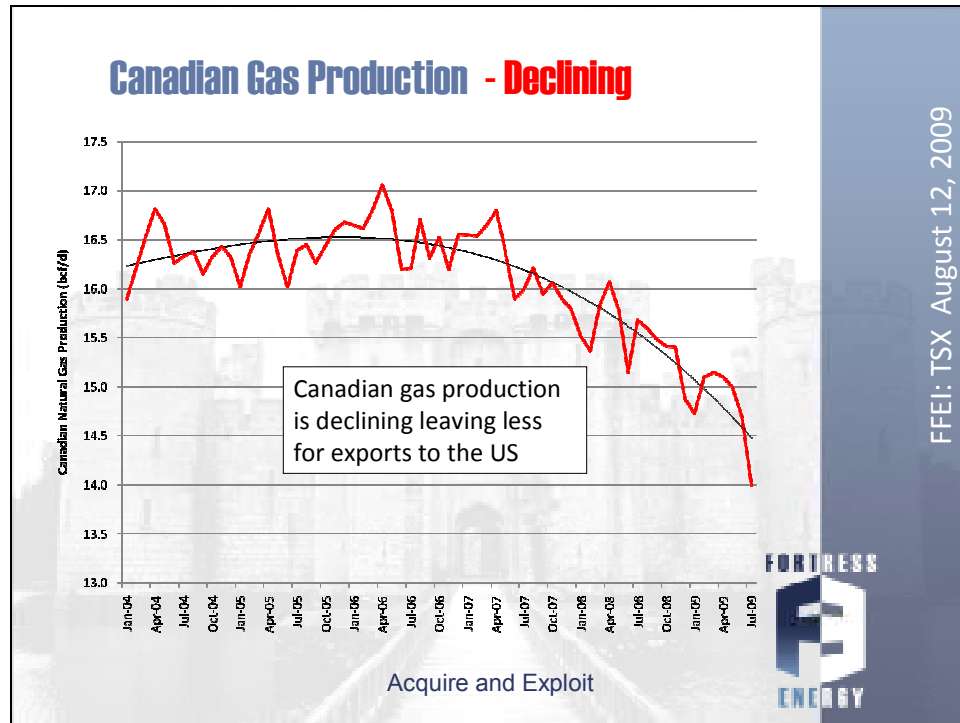
In the company's second quarter conference call, CEO **Mark Papa**, offering his view of the North American natural gas market, said his company has become more bullish regarding 2010 and 2011 gas prices but still expects North American gas prices to remain quite low through the end of 2009.

Papa said that EOG, which in 2008 was 81% weighted to natural gas, has historically devoted a lot of work to developing domestic gas supply models and that the company's current model is the "most granular and best we've ever built."

He said that model concludes that by December 2009 domestic U.S. production will be 4.8 bcf a day lower than year-end 2008 and this deficit will deepen further throughout 2010.

"When added to the Canadian supply drop of at least 0.8 bcf a day, we expect the gas market to turn sometime early in 2010 almost regardless of what happens to LNG imports," Papa said.

He added that many analysts seem to be focusing on the supply growths from new horizontal plays, but the "800 pound gorilla in the room" is Texas vertical gas production, which represents the largest single block of production in the U.S. -- 16.3 bcf a day in December 2008. Papa noted that the vertical rig count in Texas has fallen from 450 rigs in January 2008 to 145 rigs.



"Our model shows production from this large segment of domestic production will fall from 16.3 bcf a day at year-end 2008 to 13.2 bcf a day by year-end 2009 and then 11.6 bcf a day by year-end 2010, or down 4.7 bcf a day over two years," he said.

"In my opinion, this is the most important well population that people should be focusing on if they want to understand what's going to happen to gas supply over the next 24 months."

**Christina Lopez**, vice-president of institutional research at investment firm **Tristone Capital Inc.**, said that opinions vary widely as to the mid- to long-term outlook for natural gas.

"I think right now in the gas market in particular, you're getting very binary outcomes as to people's thoughts as to bullish or bearish," she said.

"It's very different, though, in the oil market. It's largely a function of the current state of the gas market and kind of seeing past this point to the point of the unknown, largely with where inventories are going to be, how quickly they are going to fill and then what happens when that storage re-set happens."

That said, Lopez said Tristone sits in the "more bullish camp" and expects prices to begin to recover later this year and then average \$6.75 (U.S.) Henry Hub and AECO \$6.45 in 2010.

"We do expect storage to re-set and from that point we'll really start to see the impact of underlying declines, in particular the fall in the rig count," she noted.

"It's definitely a recovery from this year, but not nearly to the extreme bullish side as maybe Fortress is suggesting."

She added that Fortress' Bailey and EOG's Papa make some valid points, albeit the methodology - especially Bailey's use of a 35% decline rate - differs greatly from Tristone's own analytical processes.

"I'd say EOG does a better job of being a bit more balanced. Obviously they're talking their book, but I'd say they're definitely a little bit more balanced along the way," Lopez said.

"Part of getting to an 'alarming' level depends on what your base decline rate is. Fortress is using a 35% base decline rate and we would disagree with that."

Lopez said the sensitivities when you change the decline rate "are massive." For instance, she noted that a three per cent change up or down equates to roughly 0.5 bcf a day.

"We're currently using a 27% decline rate," she said. "What's important is what are you categorizing your base decline as - conventional or unconventional.? Historically, a lot of U.S. production has experienced conventional exponential declines, and in the near-term what they're basing as very steep base declines in the 25-30% is probably true."

However on a go forward basis, Lopez said that one thing to be careful of is all this shale production that's been brought on stream in the past few years in the U.S. with steep flush declines.

"That's not going to decline exponentially. You're going to have a larger wedge of overall production with a smoother, harmonic and shallower decline," she said.

Lopez added that the pace of development witnessed in the U.S. in 2007 and 2008 is "probably, arguably, an unsustainable pace of drilling if we're allocating all those dollars to unconventional."

"I think that's a big argument. We're not going to see the boom cycle be able to sustain that kind of level of activity towards the shales just because you're going to see that massive growth in production re-emerge as declines start shallowing from the unconventional supply there (U.S.)."

Through the winter and supported by Tristone's \$6.75 Henry Hub projection for next year, Lopez said that a lot of that steep decline in supply likely won't be refilled in the near-term from the re-emergence of domestic supply growth. Rather, it's all going to be backfilled by LNG supply that's been sitting behind pipe or curtailed.

"At \$3 or \$4 gas, there's probably not a lot of exporters out there that are too inclined to aggressively start floating it over, but in a \$5 or \$6 environment, the LNG economics of some projects make a ton of sense. They can turn up the volumes really quickly," she said.

**Peter Tertzakian**, chief energy economist at Calgary-based **ARC Financial Corp.**, agrees with some of the assumptions offered by Fortress and EOG, but agrees with Lopez that a 35% decline rate is probably on the lofty side.

"I think the general notion that when drilling takes a dramatic downturn that declines set in is very valid. The outstanding question really is how fast is it going to decline, given what's happening in the U.S., which is a blend of highly prolific shale gas and a large base of conventional," he said.

"I think (35%) is high. It's important to distinguish what you're assessing. I'd say that 35% on new conventional drilling is probably right, but on the entire stack of conventional put together, it's probably in the mid-20% range."

Tertzakian said that ARC's own models would suggest that by the end of this year, U.S. production will be down about 2.5 bcf per day.

"That's the exit rate of production relative to the entry rate of production. It's not the average amount that it's down year over year," he noted.

"So it's down 2.5 bcf a day in the U.S., and in Canada it's going to be down probably another one bcf per day, so the total continent is down 3.5 bcf a day, which is substantial. However, the numbers quoted in the Fortress report were substantially higher than that."

Tertzakian pointed out that one fact that is often overlooked is the idea that rig productivity is increasing - in other words, producers are getting more production for fewer wells drilled.

"You're also able to drill more wells with a rig, but each well is more prolific so there's sort of a dual impact here," he said.

"So merely saying rig counts and horizontals are down is not reflective. Historically you used to be able to say that but historically the assumption was also that technology was more or less constant, whereas now it is not. There is an innovation curve that is quite steep that's happening."

Tertzakian added that ARC Financial is attempting to "quantify the potential impact" of production that has been shut-in or is behind pipe.

"There's no question that there's some shut-in production that's been tied-in but shut-in. But there's more than that. There's also wells that have been drilled that have productive capacity but have not yet been tied-in but could quickly be tied-in," he said.

"So there's actually a difference here and this is quite important - the difference between productive capacity and production."

Tertzakian said that up until a few years ago, North American produced at its productive capacity. But that's not the case anymore.

"Now it seems there's some excess capacity that also has to be mopped up as storage gets burned down. When the price eventually goes up, the first thing to come back would be your shut-in stuff, the second to get taken care of would be the not tied-in stuff in capacity and then you go and start drilling new stuff."

Like many analysts, Tertzakian is well aware of the crap-shoot that is forecasting the natural gas markets these days. That said, ARC has some preliminary thoughts on what natural gas producers can expect going forward.

"In 2010, I hesitate to give pin-point numbers here, but the broader trend if you believe in the 2.5 bcf (decline in the U.S.) by the end of the year is with low prices continuing then the declines will continue to take hold and the system will self-correct and prices will have to recover," he said.

"We don't disagree necessarily with the long end of the curve, which is suggesting between \$5 and \$6 gas in 2010."

And, as always when it comes to natural gas markets, weather will play its usual role, Tertzakian added.

"If it's a colder than normal winter it will actually help and I think that the forward curve has a good chance of materializing."