

ETRM Bulletin

Energy Trading & Risk Management Systems - An Insider's View

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Natural Gas

Today's Challenges, Tomorrow's Opportunities:

Market Turmoil and Structural Changes in Natural Gas

Natural gas market participants have had to deal with tremendous challenges that will transform the natural gas market during this decade.

So often viewed as a marginal holding in diversified energy portfolios, natural gas assets will, in our view, become a much more prominent source of exposure and revenues for the energy market. In addition, there will be a rise in unconventional sources and a rapid development of Liquid Natural Gas (LNG) infrastructure.

For most natural gas traders and structurers, the last eighteen months have been the most challenging extended market period in living memory. The price action witnessed in the US natural gas market during the last 12 months has been staggering. In early January 2009, the Henry Hub contract was trading at just above \$6MMBtu (less than half the level just six months earlier). By late February it had fallen to around \$4MMBtu amid continuing supply and weaker demand. Then, after several months of volatile trading where prices largely stayed in the \$3.5–4.5MMBtu range, the price dived during August to reach a low of around \$2.4MMBtu in early September.

Falling prices during the third quarter of 2009 were prompted by market concerns that a supply glut was poised to overwhelm storage capacity. At that time, it was assumed in the market that US storage capacity was approximately 3.8Tcf. However, actual storage inventories reached nearly 3.84Tcf and the anticipated severe collapse in prices did not happen. This underscored a difficulty in accurately estimating available volume in depleted wells, aquifers and salt caverns. It's also interesting to note that part of the reason that natural gas prices did not sag as much as was expected was that power sector usage in the East Coast and Mid-Atlantic regions actually increased during 2009, despite the slump in electricity consumption prompted by the recession.

Aided by a cold snap amid concerns about production/supply disruption and a drawdown of natural gas in storage, prices are now (as of January 2010) once again hovering around \$6MMBtu. Many US producers took advantage of the steep contango earlier in 2009 to hedge 2010 production at the \$6–7MMBtu range which helps explain the pick-up in drilling activity during the second half of 2009.

Extreme volatility, a price collapse, storage capacity worries, and a supply glut have pressured bottom lines. All market participants—from hedge funds caught out by the historic widening of the natural gas-crude oil basis, to producers forced to slash drilling activity to preserve capital—are re-examining their risk management strategy.

Macro-economic developments help explain some of this re-examination. As China, India and other developing economies play an increasingly important role in fueling global growth, energy consumption is increasing. Future LNG mega-projects such as the proposed Gorgon project in Western Australia, with more affordable non-standard drilling technology, suggest that natural gas will become a more significant portion of energy production. Many analysts estimate that by 2020, annual global LNG demand will double to approximately 400 million tonnes.

Natural gas is becoming a more important resource than ever before. With plans for a rapid expansion of wind power in the US and other countries, natural gas is the generation fuel of choice for balancing the intermittency of future wind power capacity. Environmental considerations are also increasing interest in natural gas. Although political and scientific controversy still surround the environmental cost of drilling (especially hydraulic fracturing or “fracking”), natural gas is widely viewed as less-environmentally damaging than coal and nuclear-fired generation. Natural gas is two-thirds as carbon intensive as oil and only half as carbon intensive as coal.

Two of the big structural themes for natural gas markets that became more prominent in 2009 and that, in our view, will remain so in the next decade are the ascendancy of unconventional (especially shale gas) drilling, and the rapid development of LNG infrastructure.

The flurry of recent major deal activity associated with these themes demonstrates the strategic importance that the major players are now according to the US natural gas market. The bellwether in this regard is ExxonMobil’s \$41 billion move to buy XTO Energy. Assuming that the deal closes, the world’s largest listed oil company’s US natural gas production capabilities will nearly double, and will secure ownership of vast estimated amounts of unconventional gas in shale rock, coal bed methane and tight sands.

Senior management have indicated that, despite the current low-price environment, there is a compelling longer-term opportunity to get a strong foothold in the US natural gas market. On a smaller scale, companies like Total, BP and Statoil (have all signed deals to gain access to US shale assets over the last 18 months. It’s noteworthy that as prices plummeted to historic lows in 2009 and cash-strapped producers reduced capital spending on drilling overall, horizontal drilling suffered less of a pullback due to its popularity in shale gas production.

ExxonMobil is also trying to develop its capabilities across the globe in Australia. Chevron and Anglo-Dutch Royal Dutch Shell, and ExxonMobil are involved in the Gorgon project, which promises to produce around 15 million tonnes of natural gas per annum. Annual global production capacity is currently around 190 million tonnes. Gorgon’s gas fields are estimated to hold around 40–50Tcf of LNG—equivalent to around one quarter of Australia’s known gas reserves. Chevron, which has a 47% interest in Gorgon, plans to build a domestic gas plant and three 5 million tonne per annum LNG trains.

The Gorgon project train plans are just the latest example of a large, prolonged build-out in the global LNG infrastructure. Numerous new liquefaction projects and additions came online last year. And, although initial disruptions and delays have occurred, most significantly in Indonesia, Qatar and Yemen—most have successfully begun to ramp up in the interim.

Similarly, global regasification capacity continues to expand. Thanks to new regasification plants in India, China, Taiwan and Japan, in 2010 Asia should be able to receive over 1.5Bcf/d in additional LNG compared to last year. Growth has been even stronger in Europe, but the region where most regasification capacity is being added is North America. Current US capacity is just under 14 Bcf/d. Analysts estimate that this figure could rise to more than 20Bcf/d by as early as 2011 with most of the build occurring on the Gulf Coast. Given the current and projected growth in domestic natural gas production, much of the US regasification capacity is likely to continue to be underused during the early part of this decade.

Conclusion

During much of the last decade, with US coal, hydroelectric and nuclear plants operating at ever closer to capacity, natural gas-fueled power accounted for the majority of additional capacity. Now, with industrial demand not expected to quickly return to its pre-recessionary level, natural gas’s prominence as a fuel in US power generation may temporarily recede in the near term, if it does not price competitively with coal.

Nevertheless, over the coming decade a rapid expansion in unconventional drilling and LNG infrastructure will increasingly help serve the growing energy needs of the developing world.

With this rising complexity, managing the financial and volumetric risks associated with pipeline natural gas and LNG, and understanding these within the context of a wider energy portfolio, will become all the more crucial. Consequently, a truly cross-asset risk management approach that integrates physical and financial risks will, in our view, become all the more vital.

Founded in 1992, OpenLink is a leading developer of cross-asset trading, risk management, and related operational and portfolio management software. Headquartered on Long Island, New York, and with offices in New York City, Houston, London, Berlin, Vienna, São Paulo, Sydney, and Singapore, OpenLink has more than 750 employees worldwide.

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