WORLD GAS INTELLIGENCE

HORIZON: When US Shale Gas Revolution Encounters LNG Competition

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Wednesday, March 24, 2010

US shale gas growth is reverberating worldwide. Some analysts are convinced that it has brought a paradigm shift toward lower US gas prices and shrunken import volumes from Canada and as LNG that can only spread further. However, the outcome of competition between LNG and shale gas over the next decade isn't all that clear-cut. Other analysis suggests that shale gas growth could slow over the medium-term to make room for LNG exported by default to the US, as Europe and Asia prove incapable of absorbing all the new supply hitting markets.

US shale gas output has increased eightfold over the last decade. "In the last five years, accelerating shale gas production caused US gas production [overall] to trend upward 3.9% per year," Energy Information Administration (EIA) head Richard Newell said recently. Looking ahead, the Marcellus and Haynesville plays can probably be brought into production more rapidly and at lower unit costs than the initial Barnett play. In its 2010 reference case, the EIA forecasts shale production at 2.75 trillion cubic feet (7.3 billion cubic feet per day) in 2010 and 4.515 Tcf (12 Bcf/d) in 2020.

By contrast, Advanced Resources International (ARI), consultants on unconventional resources, anticipates shale gas production of 10.4 Bcf/d in 2010 and looks for unconventional gas, including coalbed methane and tight gas as well as shale, to provide 46 Bcf/d by 2020, or two-thirds of total US gas production, ARI President Vello Kuuskraa told the Washington Energy Policy Conference earlier this month.

The EIA base-case projections are inherently conservative, as they assume unchanged regulations and technology. EIA analyst Aloulou Fawzi tells WGI: "If we assume more rapid growth in technology, which lowers costs, or a larger resource base, we can expect to see higher shale gas projections." But on the flip side, the Barnett Shale may already have peaked, casting some doubt on the longevity of shale production. After years of rapid acceleration, the highest production reported by the EIA thus far for the Barnett was 5.2 Bcf/d in March 2009. "We may well have achieved the peak for Barnett production," Fawzi says. Simmons and Co. Chairman Emeritus Matthew Simmons told WGI in November that sharp decline rates of around 90% before output stabilizes mean few shale wells will prove economic over time.

Whatever its future trajectory, this growing indigenous source of US gas is having a big impact on global gas markets today by pushing LNG out of the US and into Europe. US LNG imports in 2009 averaged a low 9.2 million tons (1.2 Bcf/d), while several European

countries have imported record-high amounts of LNG, as has China.

But the winds may be changing. "This year we don't need LNG, but we are going to get it anyway," PFC Energy Senior Director Raoul Leblanc told the Washington Energy Policy Conference. Long-term commitments to pipeline gas and underground storage constraints mean Europe can't take much more LNG, while the US can. Ben Schlesinger, president of BSA Energy, described the convergence of increased shale gas and a projected further 38% jump in world liquefaction capacity a "double hit." At the start of this year, 230 Bcm/yr (168 million tons per year) of liquefaction capacity was in service and another 85 Bcm (62 million tons/yr) under construction.

"Explosive growth" in shale gas will by around 2012 reverse or at least stagnate "because of the competition with LNG and persistent coal use in the power sector," Jen Snyder, head of North American Gas Research for Wood Mackenzie, told the Washington conference. Competition between shale gas and LNG is likely to play out on economic grounds. Unconventional gas is now cheaper to produce than conventional gas, Kuuskraa told the conference. Technological improvements have cut shale drilling and completion costs to below $4 per million Btu, from around $5/MMBtu just last year. BofA Merrill Lynch Global Research reports that break-even costs in the major shale plays range from $1.50-$3/MMBtu in the Marcellus to under $4/MMBtu in the Haynesville.

By contrast, the marginal cost of producing conventional US gas averages $6/MBtu, so some of that production is likely to fall out first and may already be doing so: The EIA projects a 1.64 Bcf/d fall in total US gas output this year to 58.7 Bcf/d, with 2011 output still below 2009 levels. But even the lower shale gas cost can't compete with LNG if push comes to shove. Qatar can profitably bring LNG to the US at a gas price of $2-$2.50/MMBtu, WGI is told, due to profitable sales of associated liquids and the economies of scale from its megatrains. "Can shale gas compete with LNG is the real question," not the other way around, RasGas chief Hamad Rashid al-Mohannadi said during the recent Cera Week conference in Houston.

"We have much more low-cost shale gas than we thought, even as recently as a year ago. Nevertheless, and somewhat ironically, we'll be importing more than three times the LNG in 2015 that we currently import," Schlesinger told WGI. "More will come into Gulf of Mexico receiving terminals in the summer, as low-cost supplies from the Middle East and West Africa seek to flood us, waiting for European and Chinese markets to develop, and more will come into US northeastern and eastern Canadian ports in winter, flattening high prices there."

The pendulum may swing back after 2016, as LNG sales competition cools, but that's beyond the power of most crystal balls.