EAST TEXAS HAYNESVILLE

Encouraged by success stories on the Louisiana side of the Haynesville shale, operators in East Texas are taking a turn in the spotlight.

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East Texas extension

Radnor, Pennsylvania-based Penn Virginia Corp. started the Haynesville-Bossier buzz in East Texas in May 2008 with its #5-H Fogle in Harrison County, Texas. The horizontal well, drilled to 11,378 feet, had an IP rate of 8 million cubic feet per day, greater than the company expected.

Penn Virginia's Haynesville entry was an outgrowth of its existing program in East Texas. "We'd been making a living off of some low-permeability rocks for a long time, so we were trained to look out for other similar kinds of opportunities," says Mike Mooney, vice president and regional manager.

"As we were drilling the wells into the shale we were picking up some large gas shows. We drilled a dozen wells across our acreage position to evaluate it, utilizing state-of-the-art technology to help us identify the gas-in-place numbers. Over time we found the same general characteristics across a broad area."

The company estimated about 150 Bcf of gas in place per section in a lower shale interval and 50 Bcf per section in an upper shale. As the company got ready to start drilling, commodity prices skyrocketed and a boom hit the oil and gas industry. Penn Virginia needed to drill several wells across its East Texas acreage to rationalize increasing land costs, Mooney says.

"To that end, we've drilled 21 wells; 16 are producing and five are pending completion. We've also drilled quite a few wellbores throughout the Cotton Valley, and we're going to see about capturing those reserves with horizontal wellbores as opposed to 20-acre-offset vertical wells."

Penn Virginia has identified key elements of what it will take to succeed in the Lower Bossier/Haynesville. At year-end 2009, the company held 55,000 acres in East Texas, and its production there was 4.3 Bcfe, or 8.43% of the company's total.

This year, its Lower Bossier/Haynesville budget is $120 million, of which $10- to $12 million is for small land and lease acquisitions. The company is also open to joint ventures.

Now that companies have locked up most of the leases in the Haynesville trend, there is pressure to hold them by production. Other challenges include managing the conversion from water-based to oil-based drilling mud and high bottomhole temperatures and pressures.

"Everything from the bits, motors and MWD (measurement-while-drilling) selections has to work and be sustained in that kind of environment to effectively drill these wells," says Mooney. "Well completions also require thorough planning. And while service costs have come down slightly, the big operators have a lot of the equipment tied up in long-term contracts. We have to work around all of those limitations."

While Penn Virginia laid down rigs (as did much of the industry) in October 2008, it started to increase drilling again in fourth-quarter 2009. By that point the company was able to drill a 4,500-foot lateral in the shale in about 30 days, and its spud-to-sales time ranged from 45 to 50 days. Also in 2009, the management decided to start drilling longer laterals and increase frac stages. This strategy is likely to push the spud-to-sales time to 60 days, with higher costs, but it should ultimately add reserves at a higher stabilized rate.

"Right now, a 4,500-foot lateral costs about $7.5 million," says Mooney. "We'd all feel better with gas prices north of $5, but these wells are cheap to operate. Our direct lifting cost is less than $0.20 per Mcf. And we have less than $400 an acre tied up in most of our acreage."

The company's two East Texas wells that came online in early 2009 had IPs ranging from 10- to 11 million cubic feet per day, but the EUR for the wells is a mystery, Mooney says.

"We conservatively think 4.5 Bcf, optimistically 7.5 Bcf or greater. The trick is determining where these wells stabilize. A steep initial decline in the wells followed by stabilized production and minimal decline—that's been our experience since we entered the play."

Operators in the shale need to have a systematic approach and keep expectations in tune with reality, Mooney says. "In plays like this there's a lot more that you don't know versus what you do. In the end you have to expose the capital, drill a number of wells and take opportunities to improve. Despite the initial hype, there's predictability to a play like this. It's on the upper end of capital intensity, but the bang for the buck comes in the long-term production."