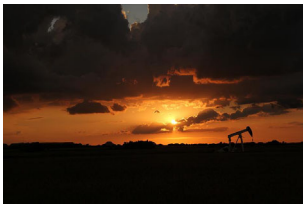
EXPLORATION & PRODUCTION UNITED STATES

Big Data Boosts Western Anadarko

Richard Mason Chief Technical Director Hart Energy Tuesday, December 4, 2018 - 5:00am



OKLAHOMA CITY—Puzzled over how the digital oilfield can extend productivity in an underappreciated stacked pay basin? Take a cue from Denver-based, private equity-backed FourPoint Energy Inc. The company is rapidly transforming the western Anadarko Basin stacked pay play into an economically versatile portfolio able to respond quickly to commodity price signals from either oil or gas.

Toss in the ability to go long on cost-saving superlaterals and it appears the western Anadarko has running room yet after more than 100 years of production.

That's the word from Brendan Currant, FourPoint's vice president geology. Curran outlined rapid change in the company's understanding of the western Anadarko Basin at Hart Energy's DUG Midcontinent Conference in November.

Curran itemized how FourPoint strategically consolidated the western Anadarko in Oklahoma and the Texas Panhandle through eight acquisitions following formation of the latest corporate iteration in January 2014. The company's previous incarnation, Cordillera Energy Partners III, sold to Apache Corp. in 2012.

FourPoint's 2014 consolidation effort built positions in the Texas Panhandle and western Oklahoma incorporating acreage formerly held by EOG Resources Inc., QEP Resources Inc., SM Energy, Laredo Petroleum Inc., and Linn Energy, and added Chesapeake Energy Corp.'s shelf properties over the ensuing three years. FourPoint has been involved in a joint venture with Enervest Ltd. in the region since 2014.

The acquisitions swelled FourPoint's acreage to 750,000 net acres and made the company the only privately-held E&P controlling a majority of acreage in a significant tight formation basin in contrast to the public independents who comprise the prominent players in the Appalachian, Williston, Eagle Ford, Denver, Midland and Delaware basins.

"Eighty percent of our growth occurred after the decline in oil and gas prices in 2014," Curran told conference attendees. Currently 98% of the company's holdings are held by production, allowing the company to pursue a strategy of "build, explore, enhance and optimize to create value."

Conceptually, the western Anadarko contains an oil rich shelf pro-grading south and west into a deep trough along the ancestral Anadarko mountain front that subsequently filled with multi-layered deposits of hydrocarbon-rich sand and debris

The company's acreage is concentrated in western Oklahoma counties bordering the Texas state line and includes substantial acreage just west across the Texas border in Lipscomb, Hemphill, and Wheeler counties, home to the pre-2014 Granite Wash effort.

According to Curran, significant technological change came with the move to horizontal drilling in a basin that featured tens of thousands of vertical wells. FourPoint has drilled 187 horizontals since 2014 and identified 21 reservoir zones in the stacked pay Anadarko, 16 of which are currently producing. The company will test five more zones in 2019.

Employing Digital Technology

For context on how FourPoint employs digital technology, it is important to remember that the western Anadarko Basin has hosted 45,000 wells over the last 100 years with cumulative production above 15 Tcfe. E&Ps have drilled 7,500 horizontal wells targeting 26 different stratigraphic layers. Daily production in the western Anadarko exceeds 2.4 Bcfe/d.

While there are no problems with resource availability, there has been a Tower of Babel-sized challenge with the region's complex stratigraphy. First among these is nomenclature. It is not unusual for the same formation to be known by different names within a county, let alone by different names for the same stratigraphy across the play.

FourPoint, through consolidation, but also because the company retained copies of its archives from previous acreage sales, constructed a suite of proprietary databases to understand the complex geology of the stacked multiple resource plays in the western Anadarko. The company's effort began with 950 wells to normalize internal stratigraphic nomenclature along 17 regional cross sections.

"This cured one of the largest problems operators have in the basin," Curran said. "The stratigraphic nomenclature that is publicly available is really a jumbled mess and is not that useful for figuring out what zones different wells are targeting. With the stratigraphic nomenclature in place, everything snaps into focus. We know where all the different horizontals are drilled in our own portfolio, and in others, and we're able to migrate all of our core data into that stratigraphic framework and do core to log petrophysics and transfer that onto maps across the entire basin."

The company maintains a set of resource maps for each productive zone in the western Anadarko. When combined with engineering and production data, FourPoint has further dissected each resource play zone into multiple type curves.

The effort provides FourPoint two competitive advantages. The first is an ability to predict well performance and economics in order to develop a strategic approach to developing the western Anadarko.

Secondly, the proprietary database is a competitive advantage when evaluating deals.

"We can quickly drop acreage positions onto our map to know what wells are completed and how many locations remain and what the economics of those remaining upsides will be," Curran said.

Old Play, New Results

The geologist provided DUG attendees a flyby of reservoir potential in the western Anadarko Basin. While the Tonkawa core on the basin's shelf is developed, it continues to yield results from the Hogshooter Missourian-aged oil reservoir, particularly in Wheeler County, Texas.

"The upper Cleveland continues to impress us but requires careful geosteering and high-density completions," Curran said, adding the Lower Cleveland consistently makes the company's most profitable wells. Longer laterals have created a type curve economics uplift in the Upper Cleveland in southern Lipscomb County, Texas.

As for the Granite Wash, FourPoint has had recent success in an overlooked portion of the Granite Wash Brit zone in southern Wheeler County and in the Granite Wash Caldwell zone that straddles the state line between Hemphill and Beckham counties. The latter is a bypassed pay story.

Curran credited the Oklahoma Energy Job Act, which made it possible to drill two-mile laterals in non-shale plays.

"As an example, a lot of our plays that weren't making the cutoff, say 15 or 17 percent return, saw in excess of 30% rate of return when we converted to long laterals," Curran said.

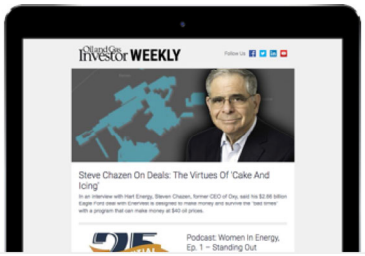
Moving to longer laterals cannibalized some of the reserves originally identified for shorter laterals, but improved economics for areas where short laterals didn't make the financial cut while proving up potential in newer areas. While the number of locations increased incrementally via the conversion from a strategy of short laterals to long laterals, the volume of reserves increases 50%, Curran said, and the value created by adding those reserves grows by 200%.

In 2019, FourPoint plans 42 wells that will reach out 10,000 feet. Curran said the company has 1,600 locations that are suitable for 10,000 foot laterals and will yield a positive return at PV20.

Richard Mason can be reached at rmason@hartenergy.com.

RICHARD MASON

Richard Mason is chief technical director at Hart Energy. He has 20 years of experience in oil and gas writing and publishing. He served previously as director of research for PLS Inc. and as owner and publisher of *The Land Rig Newsletter*. See full bio



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