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Benesch Shale Industry Report

Quarterly
Summary
Q3 2014



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1. Top Issues and Considerations

Top Issues	Considerations
Several companies at the Utica II Summit outlined billions of dollars worth of investments in midstream infrastructure upgrades in the region. The companies – Blue Racer, Access and EnLink – said the projects were “only the beginning.” Several other companies have also announced pipeline projects.	The lack of significant midstream infrastructure remains an obstacle to development in the Utica play. The investments of these and other companies, as well as the promise of future projects, is a positive indication that midstream capabilities are being developed in preparation for the expected production increase.
Two competing pipeline proposals to flow gas through Ohio, southeast Michigan and into Canada starting in 2017 are facing a review by the Federal Energy Regulatory Commission (FERC).	The future of both multi-billion-dollar projects are undetermined at this time. The commission could approve either one, neither or both proposals, if it decides long-term demand exists. The proposed route of each and the reactions of local landowners could influence the ultimate success of the pipelines.
A study reported that fracking triggered almost 400 small, unnoticeable earthquakes in Harrison County in late 2013. The quakes, which occurred on a previously unmapped fault line, coincided with nearby fracking activity. The period outlined in the study was also months before Ohio first connected seismic activity to fracking.	Ohio was at the forefront as states began recognizing a link between horizontal drilling and seismic activity, and the state had already introduced toughened regulations before this report was published. However, the continued emergence of further evidence may create social and/or political pressure for even stronger regulations related to seismic activity.
Houston-based EnerVest is exploring the Clinton sandstone formation in Stark County to determine whether there is another layer of opportunity to be exploited in Ohio. The company is looking for areas of the Clinton that have not been over-tapped with vertical wells by experimenting with the new horizontal drilling technology.	The company said it would take at least 90 days to gather results from the venture, meaning they could be complete by early December. Should they prove positive, the strategy could open up added potential for investment and production in Ohio’s O&G sector. The shallower Clinton wells would also likely be less expensive than Utica wells to drill.

2. Shale Industry Moves

E&P – Overview for Ohio

- To date, Ohio has permitted 1,548 horizontal wells and operators have drilled 1,111 unconventional wells. ODNR expects 1,800 wells will have been permitted by the end of 2014.
- A group of wells in Center Township, Columbiana Co. is among the top-producing regions in the entire Utica play, [according to ODNR](#). The cluster includes the Dye 10H well, which produced 526 million cubic feet of natural gas during the period, and the Andrulic and Tritten wells, which yielded 508 million cubic feet and 426.9 million cubic feet, respectively. The results come amid a [general shift in focus](#) to the play's southern counties and show the north could yet hold significant methane reserves.
- Growth in the U.S. oil and natural gas industry is evident in Ohio's economy, according to a PwC study conducted for the American Petroleum Institute. The data shows the sector is supporting business activity across the state, where it is home to 255,100 jobs, equal to [3.9% of Ohio's total employment](#). The oil and natural gas industry also totals \$12.7 billion in annual labor income in Ohio, representing 4.1% of the total state labor income.
- The American Petroleum Institute issued [guidelines](#) aimed at assisting companies to be "good neighbors" with regards to natural gas fracking. The guidelines recommend firms carry out public meetings on safety, work with educational institutions to discuss job training opportunities and help explain their activities in the communities in which they function. It also recommends introducing firm and project heads to local leaders, addressing the economic, cultural and environmental context of work in a firm's engagement strategy, as well as quickly answer questions from the surrounding community.

2. Shale Industry Moves (cont.)

E&P – Company news

- **Magnum Hunter Resources'** Stewart Winland 1300U well, its first Utica Shale well in West Virginia, [tested](#) at a peak rate of 46.5 MMCF of natural gas per day on an adjustable rate choke with 7,810 psi FCP - output the company says makes it the Utica play's top-producing well, surpassing **Rice Energy's** Bigfoot 9H well in Belmont Co., Ohio.
- A consortium led by **MarkWest Energy** [signed an agreement](#) with American Energy - Utica, an affiliate of **American Energy Partners**, to provide natural gas gathering, processing and fractionation services in the Utica shale play.
- **Magnum Hunter Resources** sold a 6.5% stake in Eureka Hunter - its natural gas gathering subsidiary in the Marcellus and Utica shale fields - to **Morgan Stanley Infrastructure** for [\\$65 million](#). The Morgan Stanley unit also bought ArcLight Capital Partners' 41% stake in the business for an unspecified amount.
- **Antero Resources** updated its previously released Q2 2014 financial and operational report, in which it stated it [expects it will surpass the 1 Bcf/d net production threshold](#) during the second half of the year - a 5% increase over its previously reported estimate for 2014.
- **Royal Dutch Shell**, as part of its combined [\\$2.1-billion sale of shale drilling rights](#) in Louisiana and Wyoming, will also receive rights to land in Ohio and Pennsylvania. Shell will sell its Pinedale acreage in Wyoming to Ultra Petroleum in exchange for \$925 million and 155,000 acres in the Utica and Marcellus shale formations in Ohio and Pennsylvania.

2. Shale Industry Moves (cont.)

Financial Results

- **Chesapeake Energy** reported adjusted EBITDA of [\\$1.236 billion](#), compared to \$1.325 billion in the third quarter of 2013. Average daily production consisted of approximately 118,900 barrels of oil, 95,900 barrels of natural gas liquids and 3.1 Bcf/d of natural gas.
- **Antero Resources'** adjusted net income was [\\$72 million](#), a 47% increase over the prior year quarter. Its production averaged 1,080 MMcf/d, a 91% increase over Q3 in 2013.
- **Cabot Oil & Gas** had net income of [\\$85 million](#), a 14% increase over the same quarter in 2013. Its production reached 132.4 Bcfe, up 24% over the same quarter last year.
- **Hess Energy** reported [profits of \\$1 billion](#), compared to \$420 million in the same quarter in 2013. Its oil and gas production was 318,000 barrels of oil equivalent per day, compared with 310,000 Boe/d in the year-ago quarter. Hess reported it had drilled 10 new wells in the Utica play, where production increased to approximately 11,000 Boe/d for the quarter.
- **PDC Energy** reported a net income of [\\$54 million](#), compared to a net loss of \$16 million for the third quarter of 2013. Its production increased 57% to 29,400 Boe/d, from all operations, including a 60% increase to 25,600 Boe/d from its Wattenberg and Utica operations.
- **Magnum Hunter** had adjusted EBITDA of [\\$34.1 million](#), a 7% increase over the prior year's Q3 results. The company's production averaged 16,361 Boe/d and adjusted production was 24,593 Boe/d. Throughput volume on the Eureka Hunter Pipeline reached an average of 223,708 MMBtu/d during the quarter, with a peak of 325,000 MMBtu/d.

3. Ohio Shale Infrastructure

Midstream

- A pair of [proposed natural gas pipelines](#) – **DTE Energy**'s 250-mile Nexus and the longer **Energy Transfer** Rover - that would transport gas through Ohio, southeast Michigan and into Canada beginning in 2017, will be considered by the Federal Energy Regulatory Commission for approval.
- **Columbia Pipeline Group**, a unit of NiSource, will spend [\\$1.75 billion on pipeline infrastructure](#) to transport up to 1.5 Bcf/D of natural gas from the Marcellus and Utica shale regions. The investment includes two projects, including the construction of a 160-mile natural gas pipeline in Ohio and West Virginia.
- Houston-based **Appalachian Resins** leased 50 acres from the Monroe County Port Authority and plans to [build a \\$1-billion cracker plant](#) to process ethane from Utica and Marcellus shale activity into polyethylene for plastics. The planned facility, to be located near Clarington, would employ 150 to 200 workers and could be in operation by 2018.
- **EnLink Midstream** will spend [\\$250 million to build pipelines and processing facilities](#) in a "major expansion" of its activities in the Utica shale. A planned 45-mile pipeline will move condensate to its existing 200-mile pipeline system in eastern Ohio and West Virginia. It also plans to build six processing facilities in Belmont, Guernsey and Noble counties with a capacity of up to 560 Mcf/d of natural gas and 41,500 barrels per day of condensate.
- **Hess Midstream Partners** [filed](#) for an IPO with the SEC that could raise up to \$250 million. Morgan Stanley and Goldman Sachs are the underwriters for the offering, which is a spin-off of Hess Corp.'s midstream assets, particularly intended to support growth within the Bakken shale play.

3. Ohio Shale Infrastructure (cont.)

Midstream (cont.)

- **Magnum Hunter Resources** [increased throughput volumes](#) on subsidiary Eureka Hunter's gas gathering pipeline system in West Virginia and Ohio to approximately 316,500 MMBtu per day. Triad Hunter, another subsidiary, is producing approximately 35% of the gas flowing through the pipeline system and the company expects the pipeline to reach a volume of approximately 400,000 MMBtu per day by year-end as production grows.
- A joint development agreement of **Rice Energy** and **Gulfport Energy** are finalizing an agreement to [build and operate natural gas pipelines](#) from Gulfport's Utica shale interests in Belmont County. Gulfport also reached a deal with midstream company **MarkWest Energy** to construct pipelines to Gulfport wells in Belmont and Monroe counties. The projects would have a combined capacity of more than 1 Bcfd.
- **Ergon** will upgrade its subsidiaries' processing facilities across the Appalachian Basin, including [expanding capacity](#) at its Marietta, Ohio river terminal. The company plans to start up 10,000 barrels per day of condensate stabilization capacity at that location by the end of 2014.
- **NiSource**, the parent company of Columbia Gas and Columbia Pipeline, started engineering and planning for its [\\$50-million Utica Access project](#). The project includes construction of facilities to transport Utica shale gas for **Eclipse Resources** to liquid trading points on the Columbia Gas Transmission system in West Virginia. The 200-million-cubic-feet-per-day project is scheduled to be in service by the end of 2016.

3. Ohio Shale Infrastructure (cont.)

Downstream

- **Kinder Morgan Energy Partners** is proceeding with an [ethane pipeline](#) from Ohio's Utica shale to Ontario. The 12-inch-in-diameter, 240-mile pipeline would run from Harrison County to Kinder Morgan's Cochin Pipeline near Riga, Michigan, where it would be moved east to Windsor, Ontario. The liquids will be processed in Ohio before being transported via the pipeline.
- **Dominion Resources, Duke Energy** and other partners proposed a \$4.5-billion natural-gas pipeline which would connect the Southeast with natural gas produced in Ohio, Pennsylvania and West Virginia. The [Atlantic Coast Pipeline](#) would begin in Harrison County in north central West Virginia, and stretch through Virginia and North Carolina to Robeson County, near the South Carolina border.
- Austrian petrochemical company **Borealis** signed a [10-year deal to buy ethane](#) from the Marcellus and Utica shale formations, building further demand for plans to build a second pipeline to supply an export terminal in Marcus Hook, Penn. The liquid would be piped across the state and loaded onto ships bound for Sweden at a **Sunoco Logistics Partners** terminal in Marcus Hook. The agreement begins in 2016, when Sunoco expects its second Mariner East pipeline will begin service.

3. Ohio Shale Infrastructure (cont.)

Real Estate

- **Bakken Hunter**, a subsidiary of Magnum Hunter Resources, closed on the [\\$23-million sale](#) of non-core and non-operated working oil and gas interests in North Dakota to a private company affiliated with **Formation Energy**. The sale brought the company's total divestitures in 2014 to approximately \$125 million.
- **Magnum Hunter** paid [\\$22.3 million to buy property](#) surrounding an Ormet aluminum smelting plant in Monroe County, Ohio and Ormet's property in Wetzel County, W.Va. Magnum Hunter, which was already operating three wells at the site, may be planning further drilling activities for the property, which has seen some of the Utica's wetter gas results.
- West Virginia's Division of Natural Resources is [seeking bids from Utica and Marcellus shale drillers](#) to access gas in Wetzel, Marshall and Pleasants counties, along to border with eastern Ohio, on state-owned land below the Ohio River.

Supply chain

- Ohio's [injection well disposal industry has grown](#) alongside the oil and gas boom in the state, which now has more than 200 active injection wells for oil and gas waste. More than 16 million barrels of wastewater were pumped into Ohio rock formations in 2013 - 2 million barrels more than in 2012. The increased wastewater activity created about \$2 million in additional revenue for ODNR in 2013.
- **Exterran Partners** acquired [162 natural gas compression units](#) from MidCon Compression, a subsidiary of **Chesapeake Energy**, for approximately \$135 million. The assets have approximately 110,000 horsepower in total and the majority are currently being used to provide compression services to BHP Billiton Petroleum in Arkansas' Fayetteville shale play.

4. Government

Regulatory - Ohio

- After discovering evidence that two-deep injection wells for fracking wastewater may have caused a [2.1-magnitude earthquake](#), Ohio state regulators suspended operations at the wells. The ODNR issued a chief's order to **American Water Management Services** for its Weathersfield site near Warren. The [ban was lifted](#) at the shallower of the two wells after approximately two weeks.
- Benedict Lupo, owner of Youngstown-based oil-and-gas-drilling company **Hardrock Excavating**, was [sentenced to more than two years in prison and fined \\$25,000](#) for telling employees to dump storage tanks of flowback wastewater from hydraulic fracturing into a storm drain that empties into the Mahoning River. The violations of the Clean Water Act occurred on more than 30 occasions between November 2012 and January 2013. Lupo also instructed employees to lie about dumping the water, which contained pollutants such as benzene and toluene.
- The Ohio Seventh District Court of Appeals [overturned](#) a Monroe County trial court's ruling in **Hupp v. Beck Energy Corporation**, which found that a standard oil and gas lease form was void as against public policy. The appeals court found the delay rental provision didn't allow the lease to be held in perpetuity through ongoing nominal payments. It also ruled the phrase "capable of production" requires a well to be capable of producing, and that a lessee cannot indiscriminately decide if a well is capable of production.
- The **State of Ohio**, through the Governor's Office of Appalachia, [issued a \\$150,000 training grant](#) to the Plumbers and Pipefitters Local 396 to train 40 union welders during the next year. The training is designed to bolster the workforce in the Utica and Marcellus shale operations.

4. Government (cont.)

Regulatory - Federal

- The U.S. **Energy Information Administration** added the Utica Shale play to its [monthly drilling production report](#). The report uses recent data on the total number of drilling rigs in operation along with estimates of drilling productivity and estimated changes in production from existing oil and natural gas wells to provide up-to-date oil and natural gas production figures for regions including: Bakken, Eagle Ford, Haynesville, Marcellus, Niobrara, Permian and Utica.
- The **EPA Greenhouse Gas Reporting Program's** 2013 [data](#) showed a 73% drop in ethane emissions from hydraulically fractured gas wells since 2011. Methane emissions from oil and gas wells decreased 12% during that same period. The report, based on facility-level data from major industrial sources like power plants, oil and gas production and refining, iron and steel mills and landfills, covers more than 8,000 facilities that represent about half of the country's greenhouse gas emissions. Coal produced the most pollution, with petroleum and natural gas systems the second-highest polluters, emitting 224 million metric tons of greenhouse gases, down 1% from 2012.