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# Deeper shale gas deposits may be tapped

**The Utica Shale lies under the Marcellus. Its potential is not known, but it may be lucrative.**

By David Thompson

WILLIAMSPORT SUN-GAZETTE

WILLIAMSPORT, Pa. - The Marcellus Shale may be Pennsylvania's biggest economic development story in decades, but it is not the state's only potentially lucrative shale play.

"What we are likely to see in some areas of the Marcellus region is that there will be the potential of additional shales being developed," said Thomas Murphy, a Penn State Cooperative Extension educator and co-director of the university's Marcellus Center for Outreach and Research (MCOR). "One is the Utica Shale, which is deeper than the Marcellus. There are other shales above the Marcellus in what is known as the Upper Devonian Group."

The Utica Shale is an older formation that extends through the Marcellus Shale region and beyond, which means some areas not within the Marcellus Shale may see shale gas development, said Michael A. Arthur, a geoscience professor at Pennsylvania State University and co-director of MCOR.

For example, Montour and Northumberland Counties, which are outside the developable portion of the Marcellus Shale and thus expected to see little or no shale gas drilling, someday may see it as companies begin exploring the Utica Shale, Arthur said.

"The range of the [Utica Shale] extends as far west as Michigan and as far north as Quebec and Ontario," Murphy said. "Companies are searching around those edges as well as in Pennsylvania, Ohio, and West Virginia."

The Utica Shale could become more important to the state than the Marcellus Shale, said Robert Watson, associate professor emeritus of natural gas engineering and geo-environmental engineering at Penn State.

That is because it has the potential to be commercially viable in counties in the northwestern portion of the state that are starving for economic development - places such as Venango, Butler, Mercer and Erie Counties.

Those counties had manufacturing-based economies, already have a tradition of oil and gas development, and are outside the developable area of the Marcellus Shale, Watson said.

"These counties that have suffered as Rust Belt counties will welcome the presence of high-paying jobs and the development of unconventional shale resources," Watson said.

Having multiple layers of shale in the same area as the Marcellus Shale makes that region more appealing as well, Murphy said.

"There is definitely more appeal to a company if they have an area with multiple zones to tap gas from," he said.

Arthur said the Utica Shale lies 2,000 feet or more beneath the Marcellus Shale and has not been explored enough to make a determination as to its true potential.

"We don't really know how much of it contains gas at this point," he said. "The Utica Shale, as far as I can see from our available data, is not as rich in organic carbon" as the Marcellus Shale, "but the bottom line is, we don't really know."

"It still has to be proven, but it has the potential," Watson said.

Fort Worth, Texas-based Range Resources, which has a division office in Canonsburg, has drilled in the Utica and Upper Devonian shales. Company spokesman Matt Pitzarella was cautiously optimistic those shales could be profitable.

"We were the first company to test and complete a Utica well in Pennsylvania and perhaps in the United States," Pitzarella said. "We also were the first to successfully test the Upper Devonian formation, which is above the Marcellus."

"While it still is early for the Marcellus, it is really early for the other shales, but we believe that collectively these other two targets could be as prolific as the Marcellus," Pitzarella said, adding, "But only time will tell."

Consol Energy of Cannonsburg also is exploring the potential of the Utica Shale. A Consol vertical test well in Belmont County, Ohio, produced 1.5 million cubic feet of gas in one day without using hydrofracturing or any other well stimulation technology, according to company spokeswoman Loral Ziemba.

The well outproduced vertical wells drilled in the Marcellus Shale that were stimulated by the company, Ziemba said.

Ziemba said the results were "impressive."

"It's still early," she said. "We're intrigued, we're encouraged, but we're just trying it out before we jump in with both feet."

Although gas leases in the western part of the state traditionally contain clauses limiting the depth to which a company can drill on a particular parcel of leased land, in central Pennsylvania most leases allow companies to drill regardless of the formation they are developing, said Lester "Bud" Greevy, a Williamsport lawyer with expertise in oil and gas law.

"Most [leases] are not limited by formation depth," Greevy said.

"An oil and gas lease, typically written, includes all oil and gas on that tract of property," Murphy said. "Some leases do have clauses allowing leasing only in a certain zone."

The source of gas removed from a leased property should not impact royalties negotiated by the owner of the property, Murphy said. For example, if a landowner negotiates a 15 percent royalty, that rate would be in effect regardless of which shale formation the gas was removed from.


According to Watson, the Utica Shale is not as deep in the western part of the state. Because of that, it would be less expensive to develop the shale there.

Once compressor stations, pipeline, and other infrastructure needed to develop the Marcellus Shale are in place, that could make developing the Utica Shale less expensive in this region, Arthur said.

"The obvious advantage is, once the infrastructure is in place for the Marcellus, it most likely will be economical to develop the other shale plays, especially the deeper Utica," Arthur said. "Right now, it would be pretty costly to drill a well and take a chance that it would be productive."

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