

# Shale Gas Roundup



Potter County, Pa.

4th Quarter

2017

## Shale Gas: Big Numbers

With an uptick in shale gas activity across the region, Potter County Natural Gas Resource Center (NGRC) has been revitalized and will resume its series of public informational meetings. NGRC is now jointly administered by the county's Planning and Community Development departments. A wide variety of locally relevant topics will be on the agenda for the center's next public meeting, to be held Tuesday, Oct. 17, from 7 pm to 8:30 pm in the auditorium of the Gunzburger Building in Coudersport.



From the “drill, baby, drill!” mouthpieces to the activists who favor a ban on hydraulic fracturing and deep drilling, there is no shortage of strong opinions about the shale gas phenomenon in Pennsylvania. It's the mission of the Potter County Natural Gas Resource Center and professional educators such as Penn State's Jim Ladlee (shown) to serve as reliable sources for those who seek credible information. NGRC steering committee members shown here are (from left) Al Haney, Doug Morley, Jason Childs and Jennifer Rossman.

Featured speaker will be Dan Brockett, educator at Penn State University and the PSU Marcellus Center for Outreach and Research. He will present an overview of the shale gas industry and related topics — best practices, land use issues, economics, and environmental, agricultural and social issues in communities where shale gas development is taking place or anticipated. There will also be updates from the Potter County Water Quality Work Group, Triple Divide Watershed Coalition, Pennsylvania CareerLink, Potter County Education Council, and Potter County Emergency Management Agency.

Story continues on page 2

### Inside this issue:

Energy companies pay for roads	3
JKLM moving local gas to market	4
Epiphany plan awaits okay from DEP	5
Get ready: here come the pipelines	5

## Continued from front...

Future of the NGRC was plotted during a recent meeting of the center's steering committee. Leading the session were coordinators Will Hunt (Planning Director) and Jennifer Rossman (Community Development Director). Also attending were members Terry Cole (Pa. CareerLink); Al Haney (Gas Field Specialists Inc.); Charlie Tuttle (Triple Divide Watershed Coalition); Commissioners Susan Keffer, Doug Morley and Paul Heimel; Jason Childs (Potter Co. Conservation District/Water Quality Work Group); and Helene Nawrocki (Potter County Education Council).

Among highlights of Jim Ladlee's report:

- Roughly 50 percent of Potter County's 684,000 acres contain shale gas that could be subject to drilling. That does not mean it will be developed. Too many uncertainties exist to forecast the extent of development.
- Returns on the Marcellus Shale production (3.34 billion cubic feet produced at last report) show that it may be "marginal" in terms of the industry's desired return on investment. However, early forays into the deeper Utica Shale gas (four producing wells reported) suggest that the resource is more bountiful. Ladlee cautioned that there's not enough data available today to reach any firm conclusions on the Utica Shale's potential.
- Production of shale gas will likely be a long-term phenomenon, whether it's used as a "bridge" between fossil fuels and a renewal energy future, or as a longer-term foundation for both domestic use and exportation. Using a worksheet, Ladlee directed Steering Committee members through a formula to demonstrate how, depending on multiple factors, there could be 3,000 or more wells drilled in the county over a period of decades. Purpose of the exercise was to emphasize the importance of preparing for change and guarding against negative impacts on the environment, infrastructure, housing and other community resources.
- Recognizing Potter County's track record in water quality stewardship, Ladlee reviewed current practices in shale gas drilling and hydrofracturing. He also analyzed reports of violations and impacts on water resources. Greatest vulnerability in the drilling process, he said, lies within the first few hundred feet, where the casing passes through groundwater aquifers. A second frequent source of violation notices has been surface spills. Both of these underscore the importance of effective regulations and regulatory oversight.

Guest speaker was Jim Ladlee, Penn State Extension, Assistant Director of Energy, Entrepreneurship, Economic and Community Development Programs, who is also affiliated with the PSU Marcellus Center for Outreach and Research (MCOR). Tony Siliano and Melissa Sankey, regional administrators for Penn State Extension, also attended.

Ladlee's presentation covered a wide range of topics. His associate, Dan Brockett, will touch on most of the same issues during his Oct. 17 program. Ladlee emphasized that Penn State and its MCOR take seriously their reputation as a trusted source of information. Neither the university nor the center is for or against shale gas drilling, Ladlee said. The information that is disseminated, as well as projections based on data and historical trends, is fact-based and apolitical. Steering Committee members committed themselves to operating with the same approach.

Also at the Steering Committee meeting, Jason Childs presented an update on the Potter County Water Quality Group. Among activities is the continued maintenance and data storage from water quality monitors placed in several streams in areas where shale gas drilling is taking place or forecasted.

Charlie Tuttle reported on the installation of water quality monitors on 18 separate sources servicing the public drinking water systems in Potter County. Real-time data being collected is archived for creation of a baseline and can also be accessed remotely for any sudden changes that might require immediate investigation.

*Story continues on page 3*

## Continued from page 2...

Terry Cole provided a summary of local and regional employment opportunities in the gas/oil industry. Helene Nawrocki discussed educational/training opportunities for those interested in employment in the field. Both Terry and Helene commented that some firms report having trouble finding workers who can meet their employment criteria in the areas of physical ability, education/training and being drug-free.

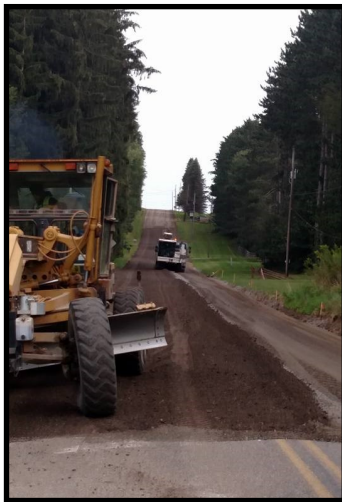
Will Hunt, Jennifer Rossman and Paul Heimel gave an update on the launch of a new website, accessible at [naturalgasresource-center.com](http://naturalgasresource-center.com). They will be working together to build each section of the site, with a particular focus on Resources, Business Directory, Information/Education, and Maps.

PSU Extension regional administrators Melissa Sankey and Tony Siliano reported that the Penn State Extension water resources education position vacated by Jim Clark's retirement will soon be filled and his successor will likely be able to serve on the Steering Committee.



## Energy Companies Paying For Road Improvements

Contractor Glenn O. Hawbaker crews have fast-tracked full-depth reclamation work on North Hollow Road so that it can re-open to general traffic by mid-October. It's one of the highways being stabilized and repaved as part of a partnership between PennDOT and JKLM Energy.



PennDOT's former slogan, "Temporary Inconvenience; Permanent Improvement," certainly applies to a couple of well-traveled roads in Potter County. Gas companies are spending millions of dollars to upgrade some of the roads they need to carry heavy vehicles required to harvest the bounty locked in shale layers two miles or more underground in Potter County.

More than 50 miles of Rts. 44 and 144 in southern Potter County were reconstructed during 2015-16. That work zone included the section from Carter Camp to Cherry Springs State Park, as well as the road from Carter Camp all the way south to the Lycoming County line.

Energy companies Shell, Tenaska, and Dominion Transmission contributed nearly \$2 million toward the \$17.5 million project, since weight limits affecting Rts. 44 and 144 had limited the equipment they could transport to natural gas construction sites.

PennDOT's most recent "public-private partnership" is with JKLM Energy, currently the only deep-gas driller with substantial operations in Potter County. That company is helping to foot the bill for two major road improvement projects.

Full-depth reclamation work continues on North Hollow Road (Rt. 4013) from the Rt. 6 intersection in east Coudersport Borough toward Seven Bridges. It should be completed by mid-October. Similar work was recently completed on Fox Hill Road (Rt. 1001) from the village of Brookland to Ulysses. JKLM has also made significant improvements to two township routes, the Billy Lewis Road and Irish Farm Road, to accommodate heavy equipment.

## JKLM Energy Sending Potter County Gas To Market

JKLM Energy continues to move forward with an ambitious plan to deliver natural gas found in Utica Shale formations to the national pipeline network. What's unique about the company's plan is that, so far, its sole focus has been on Potter County, where it has about 120,000 acres under lease.

Entering the fourth quarter of 2017, JKLM is still on course to drill approximately a dozen more wells. Since the last report in *Shale Gas Roundup* (July 2017), six more wells have been drilled or are currently being drilled, with four more top-hole drilling operations on the way beginning in November. Another four will begin in December.

As far as natural gas flowing into the marketplace to meet distribution contracts, JKLM has put two more Utica Shale wells into sales since July, a company spokesman reported, and is expecting to complete flowback on four wells in Reese Hollow that were still being drilled and prepared as of the July update.

JKLM officials said they're pleased with the volume of gas that is being found in the deep shale layers at this early stage, but they caution that the sampling is still relatively small.



A decade after signs of a natural gas “boom” could be coming in northcentral Pennsylvania, drillers are reporting that they may have found the motherlode. Early results from Utica Shale drilling, much deeper than the vaunted Marcellus shale, have energy companies changing their strategies and brightening their production forecasts.

### Seneca Resources Confirms Shale Gas ‘Game Changer’

Seneca Resources, which has holdings in Potter County, has confirmed a bounty of natural gas locked in Utica Shale formations in northcentral Pennsylvania.

Seneca officials believe the Utica has all the signs of a game-changer. “We are transitioning from Marcellus Shale development to a Utica development program,” said spokesman Rob Boulware. “Our initial Utica results indicate that reserves are significantly higher than those in our Marcellus wells.”

Seneca has five Utica wells in the Rich Valley/Clermont area of Cameron and McKean counties, and more are coming. The company will return to well pads it has used for Marcellus development and drill down to the deeper Utica shale.

Meanwhile, Boulware said a Utica well drilled on state forest land in Tioga County produced eye-opening results: “It is flowing into the Tennessee pipeline line at about 15 million cubic feet per day, and the potential of that tract is estimated at more than 1.1 trillion cubic feet over 75-plus well locations.”

## Epiphany Water Treatment Plan Awaits DEP permit

A proposal to build a shale gas wastewater processing facility just west of Coudersport has yet to secure approval from the Pa. Dept. of Environmental Protection (DEP). Pittsburgh-based Epiphany Environmental proposes to build the plant close to the Coudersport Area Municipal Authority (CAMA) plant off Toles Hollow Road. Initially, it could process about 20,000 gallons of fluid per day. As additional wells are tapped in the region, that capacity could increase. DEP's decision is expected no later than November.

A handful of area residents have raised concerns about the potential for volatile organic compounds, carcinogens and radioactive elements in the waste water to enter the environment. The fact that Coudersport Elementary School is situated less than a mile downwind has also raised questions.



Tom Joseph, chief technology officer at Epiphany Environmental, describes his company's contained system for processing contaminated water from shale gas drilling as a cost-effective, environmentally sound alternative. Epiphany is seeking an agreement with the Coudersport Area Municipal Authority to discharge treated water into CAMA's sewage plant.

CAMA chairman Bill Krog said he believes the public's apprehension is unwarranted: "I realize people have concerns, but they don't have a true understanding of how the process actually works. The evaporation process will not release into the atmosphere -- it's a contained system."

Epiphany has been developing a cellular water treatment system which uses distillation and mist evaporation. According to company officials, the process first removes minerals and heavy metals from the fluid. Solids are contained, dried and disposed of in state-licensed landfills.

The brine that remains is processed in the second stage. Its by-products include distilled water, as well as salt that can be sold for commercial use such as road application. The water can be reused for hydrofracturing or discharged into a conventional sewage treatment plant, in small enough doses that its purity does not upset the microbial balance.

If DEP gives the project the green light, CAMA would still need to approve a separate contract with Epiphany that would allow the firm to discharge the treated water into the sewage treatment plant for a per-gallon fee that has yet to be determined, according to Krog.

"At this point we're only leasing the land and have no agreement in place to take the wastewater, although that is something we're considering," the chairman said. "It will be a benefit to everyone if we can eliminate the waste in a safe, controlled manner." (Source: *Endeavor News*)

## Historic Number of Pipelines Coming

Driven by the Marcellus and Utica shale plays, Pennsylvania is poised to be a major supplier of new natural gas in the U.S. for decades to come, according to a research project reported recently by Forbes Magazine. One factor is its close proximity to "states that like to use, but not produce," natural gas, Forbes pointed out. That dynamic has already launched a massive campaign to build and connect a pipeline infrastructure of historic proportions. In 2016 alone, the Federal Energy Regulatory Commission approved almost 40 major pipeline projects across the country, covering 1,200 miles with more than \$10 billion in new investment. Many are targeted for Pennsylvania and will include a network of smaller transmission lines and gathering lines that trace back to individual well pads.

As natural gas continues to rise in the U.S. electric power system (doubling its market share of power generation to 35 percent since 2005) more infrastructure to move gas will be crucial. One element supporters emphasize is the use of more gas, as opposed to coal, is the primary reason why the U.S. power sector is significantly lowering carbon dioxide emissions. "These pipelines are coming," Forbes reported. "This will allow this once-constrained gas market to continually reach even more end-users downstream and increase gas-on-gas competition. In fact, Appalachia gas will be fueling mushrooming gas power plants across the country and even distant LNG export terminals along the Gulf. Natural gas is surging toward being 50% of all U.S. generation capacity."





## Shale gas developments:

# What's the buzz??

**Controversy Over Methane Rules.** Pa. Dept. of Environmental Protection recently released its inventory of air emissions for the shale gas industry. DEP says 2015 emissions of methane and volatile organic compounds from well sites and mid-stream reporting facilities increased from 2014 levels. Several other pollutants, including nitrogen oxides, sulfur dioxide and particulate matter, all saw decreases from 2014 emission levels. DEP Secretary Patrick McDonnell said the methane numbers “underscore the need to do more to detect and fix leaks.” DEP has proposed changes to the general permit requirements for new well sites and compressor stations that would reduce methane emissions. Industry representatives strongly oppose the new rules, describing them as regulatory overreach that could severely curtail gas production plans.

**DRBC Moves Toward Ban.** Delaware River Basin Commission members, by a split vote, approved a resolution that could prohibit hydraulic fracturing to produce shale gas in the Delaware River watershed. The vote starts a rule-making process that will last into 2018. It will be subject to public comment and hearings. Wayne and Pike counties are the only part of the Pennsylvania shale gas region that drains into the Delaware river.

**DEP Hiking Permit Fees.** State environmental regulators plan to hike fees imposed on shale well operators, although the amount is still to be determined. They currently pay a \$5,000 permit application fee. DEP’s oil and gas program is supported by fees, fines, and penalties paid by oil and gas companies. It does not receive any money from the General Fund. In the same notice, DEP said it intends to wait until late next year to introduce a revised package of regulatory updates for conventional (shallow, non-shale) oil and gas operators. The department will work with the new Conventional Crude Oil Development Advisory Committee to review the proposed regulations.

**Shale Gas Mini-Boom Measured.** A report issued by the Tioga County Development Corp. summarizes the impact of the county’s shale gas “mini-boom” followed by a lull in production. Researchers found that total employment in the county was almost identical in 2015 to the 2007 figures, even though it had risen by 12 percent between 2009 and 2012. Shale gas did bring better-paying jobs, with 31-percent wage growth during 2009 and 2012, compared to a statewide average of 12 percent. Businesses benefitting the most were construction, professional services, transportation/warehousing, wholesale trade and finance.



This publication is produced by the Natural Gas Resource Center in Coudersport, Pennsylvania. Previous editions are available on the website, [pottercountypa.net](http://pottercountypa.net). Anyone with story ideas or comments should contact Paul Heimel ([pheimel@pottercountypa.net](mailto:pheimel@pottercountypa.net)).