

Gas Drilling Impacts on Tioga County

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On Thursday, December 3, Chris Burger spoke to a standing-room only crowd in Owego about what drilling in the Marcellus means for Tioga County. Burger, Chair of the Binghamton Regional Sustainability Coalition, noted that Marcellus shale is only one of 19 shale basins in the United States.

With an estimated 500 trillion cubic feet of natural gas trapped within the shale, the Marcellus formation may be the largest natural gas reservoir in the U.S. But, said Burger, only 10-percent of that gas can be recovered using current technology. Still, that's 50 trillion cubic feet – twice the amount of natural gas consumed by the U.S. in a year.

Unlike conventional gas reservoirs, shale gas is trapped in tiny pores between the particles of clay that make up the Marcellus shale. That means the gas drillers have to break the rock apart, Burger said. And to do that they use a process called hydraulic fracturing, or fracking. He noted that many people are concerned about potential for water contamination from this process.

“These companies don't go out of their way to disturb our aquifers,” Burger said. Then he listed other impacts that people living near gas drilling will be aware of: compressors, separators, and pipelines.

Cumulative Road-Use Impacts

“No drill site is an island,” Burger stated. While those living near a drilling site will experience the most direct impacts, everyone in the community will be affected by gas drilling. The first thing people will notice is the increased truck traffic.

There will be about 30 trucks hauling construction materials, Burger said. He noted a need for about 350 trucks hauling equipment and close to 1,000 trucks hauling material for each well (see sidebar).

“For a multi-pad well with six wells, that would mean about 6350 trucks driving on the roads,” Burger said. But it's not just the number of trucks driving by, it's the frequency. If the drillers don't recycle their flowback water on-site, there could be trucks hauling that wastewater from the drill site every 15 to 30 minutes over a week's time.

“Our rural roads are not designed for this heavy equipment,” Burger said.

Well Pad impacts

Constructing well pads in the east is a lot more destructive than in the western states, Burger said. As the shale drilling has moved east, and evolved from small single-well pads to multiple-well pads, there's been an increase in land disturbance. This has a lot to do with the geography of the area. Pennsylvania and New York are much hillier than western states, and the drillers have to do a lot more cut and fill to create a flat well pad large enough to accommodate frack trucks, tanks, water impoundments and the drill rig itself.

Even if you don't have a lease, you may end up with a drilling rig nearby. That means the lights, noise, and dust from the industrial drilling activities may affect your enjoyment of your property. The average time to complete a well is about three to four months, Burger said. But the gas industry estimates that these wells will be producing for 30 – 50 years, and they may be re-fracked as frequently as every five years.

Once the drilling is over, the gas company may add compressors, separators and wastewater storage tanks on the site.

“If you add a clause requiring sound mitigation to your lease, they may build sheds or use acoustic blankets to help with the noise,” Burger said.

But the affects of drilling go beyond the actual extraction and production of gas. In Pennsylvania, people are noticing an increase in gravel mining in the areas where there is gas drilling, Burger said. That's because the drillers like to use gravel for their well pads.

Water and Waste

Water is our most valuable resource, Burger said. He then outlined some of the threats to groundwater and surface water from drilling activities. To prevent groundwater contamination, drillers must cement the casings. Even so, there are some opportunities for contamination to occur, Burger noted. There might be a void in the rock outside the wellbore, and cement may not fill that completely. Or there may be water seepage that prevents the cement from curing properly. Another concern is that over time concrete deteriorates.

One issue that isn't being addressed adequately, Burger feels, is the contamination of air from drilling activities. Beyond the obvious – exhaust from trucks and generators – there are emissions from wells and compressor stations as well as from any ponds where wastewater is stored. Volatile organic compounds in flowback water can evaporate into the air, said Burger.

Right now if things go wrong, people have to prove that a drilling activity caused the problem, Burger stated. What if, instead, we required industry to prove that their technology would not cause harm?

Sidebar:

How many Truck Trips Does it Take to Build a Well?

According to the DEC, it could take thousands of truck trips to bring in rigging, equipment, water and materials for the multi-well pads they expect in the Marcellus. Estimates of truck trips per multi-well pad (assuming two rig and equipment deliveries and eight wells) are:

Drill pad & road construction equipment	10 – 45 truckloads
Drilling rig	60 truckloads
Drilling fluid & materials	200 – 400 truckloads
Drilling equipment (casing, etc)	200 – 400 truckloads
Completion rig	30 truckloads

Completion fluids & materials	80 – 160 truckloads
Completion equipment (pipe, wellhead)	10 truckloads
Hydraulic fracture equipment	300 – 400 truckloads
Hydraulic fracture water	3200 – 4800 tanker trucks
Hydraulic fracture sand	160 – 200 truckloads
Flowback water removal	1600 – 2400 tanker trucks

(numbers from DEC's draft SGEIS section 6.11 – Road Use)