

GOOD TIMES BAD TIMES



SPRING 2011

A RESIDENTS GUIDE TO GAS DRILLING

ISSUE #4

Welcome to our 4th newsletter about industrial gas development in our area. Our first three issues covered a lot of the basics, information we think everyone should be aware of, whether you're considering signing a lease, or concerned about what will happen if neighbors sign. In this issue, we've broadened our scope to include information about developing long-term, sustainable economic alternatives to gas drilling. If you have comments or questions, please email us at info@meredith-coalition.org or visit our website at www.meredith-coalition.org.

A SMOKING GUN?

A new Duke University study just published by the august National Academy of Sciences strongly suggests that there are "important environmental risks" associated with the process of hydrofracking, which gas companies are using to extract methane from layers of shale deep below the surface.

Samples were taken from one drilling site in Otsego County, about 8 miles north of Meredith, and from others in Pennsylvania. The highly elevated levels of methane found in drinking water near many of the sites are either leaking from faulty cement casings or migrating upwards through nearby faults and fissures as a result of the fracking explosions, which can reach tremendous pressures, in excess of those generated by aerial bombs. Most wells are fracked multiple times, an average of about 5 over a span of 20-30 years. Each frack releases additional gas. And, according to the study, some of that gas isn't going back up the well, but into the aquifer system that surrounds the well.

There have been numerous reports in recent years documenting instances of drinking water contamination from "methane migration" near sites where deposits of shale gas have been fracked. The Oil & Gas industry has always argued, often with the support of state regulators, that the released gas is "naturally occurring," and not a result of the hydrofracking process.

However, there is nothing natural about the correlation the study has found: proximity to fracking significantly increases the likelihood that homeowners will be able to light their faucets, requiring venting to prevent explosions and making it impossible to sell their property.

The Duke study is the very first of its kind, so it is not surprising that the results have been a big surprise to everyone, including the research scientists who did the testing, who are already doing a follow-up study to confirm their initial findings.

Even if the problem turns out to be improper gas casings, it is difficult to see how it can be remediated, especially in the long term, after the wells have been capped and the gas companies have left, and are no longer liable for damages.

The implication is that hydrofracking may be inherently unsafe, as a simple matter of physics and geology, and if the data continues to support this conclusion, the only real fix may be a ban.

A number of municipalities in Otsego County, including Middlefield, Cherry Valley and Springfield, are now proposing such a ban within their borders. One town has already done it. See the article on page 2 for more details.

For a copy of the Duke study, entitled "*Methane contamination of drinking water accompanying gas-well drilling and hydraulic fracturing*," please see our website.

SHOULD WHAT HAPPENS LOCALLY BE DECIDED LOCALLY?

Several towns in our area have decided that they – not NY state – have the right to use home rule to decide if land within their borders is subject to heavy industrial development, including gas extraction.

The premise is simple: Towns have the legal right to create and implement comprehensive or master plans in order to set out a common vision for future development. In accordance with that plan, they may enact zoning regulations for the optimal use of land within their borders, applicable to any company or individual wishing to do business in the township, so long as such rules apply to all the businesses in the zoning category, and do not single out any particular one for exclusion.

All the towns – Middlefield, Otsego, Cherry Valley, and Springfield – are in Otsego County, adjacent to Otsego Lake, where gas companies have already leased tens of thousands of acres of land and have started drilling exploratory vertical wells.

On May 11, the Otsego Town Board voted 4-1 to strengthen its ban on heavy industry. The proposed land-use laws were first submitted and approved unanimously by the Otsego County Planning Board on May 9.

The Otsego Town Board said it was acting in response to an active and vocal majority of town residents who pushed for the ban. The town is now the first in New York to invoke home rule to ban drilling, defining drilling as a heavy industry that is undesirable development, according to the town's master plan.

The Middlefield Town Board has also reviewed its comprehensive plan and zoning laws, which have existed since the 1970's. These define acceptable development in Middlefield as falling into two categories: "agricultural" and "village." In other words, farms and towns, and the development each needs to prosper. Other potential business and residential development are subject to special review and permitting. The new plan has been submitted to the Otsego County Planning Board and approved. The Town Board has since put the changes out for public review and comment.

Middlefield's Board has been unanimous in support but emphasizes the need to carefully follow every legal protocol in order to make the revisions as legally strong as possible, in anticipation of a likely legal challenge. To that end, the town has consulted environmental attorneys and planning groups for advice on the proposed changes. The next step will be a final town board vote, probably this June. The expectation is that it will easily pass, given the amount of previous support from voters and local businesses.

Middlefield resident and attorney Michelle Kennedy is working with Otsego 2000, a non-profit environmental organization, and the law firm of Zarin & Steinmetz, from White Plains, with extensive experience in land use and environmental law. The goal is to see if it is possible to coordinate efforts and create a coalition of towns to share legal defense of local laws adopted under NY's Municipal Home Rule Law. Middlefield has also retained attorney Rapport Meyers to review the proposals.

Other towns in the area, including Springfield and Cherry Valley, are also taking steps to rewrite their plans and to invoke the authority of home rule granted under the state constitution.

Residents in Morris, Roseboom, Westford, Plainfield, Sharon Springs, Sharon and Richfield Springs have also expressed interest in some form of a heavy industry ban. Hartwick has had a number of informational meetings. Local organizers are planning forums to discuss next steps.

Those who oppose local efforts to ban heavy industry have cited two main objections. The first, and most important, is that the NYS Dept. of Environmental Conservation has been given specific legislative authority, in Article 23 of the Environmental Conservation Law ("ECL-23") to "supersede all local laws or ordinances relating to the regulation of the oil, gas and solution mining industries."

On the other hand, the State Legislature, under the Statute of Local Governments, specifically gives to local governments the power "to adopt, amend and repeal zoning ordinances." And it requires that any subsequent legislation that diminishes this power must be enacted twice, during *consecutive* legislative terms. ECL-23 was adopted in 1972 and amended in 1981, but was never re-enacted.

According to a number of attorneys involved in drafting the new town laws, including Michelle Kennedy, this suggests that the legislature never intended for ECL-23 to preempt local zoning ordinances.

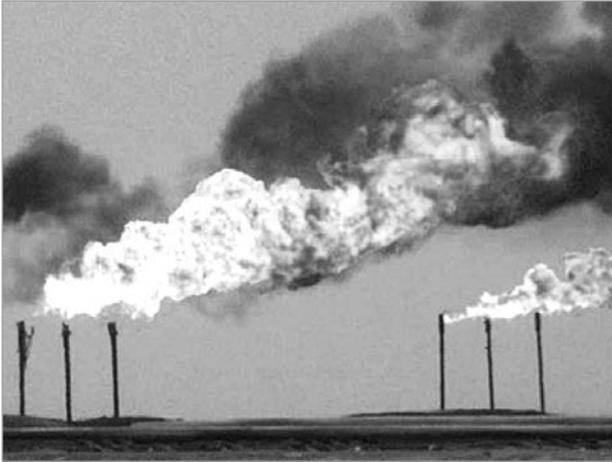
There are no appellate decisions interpreting the reach of either of these conflicting laws, but, regarding a separate state statute, the Mined Land Reclamation Law, the Court of Appeals has twice ruled in favor of a town's decision to enforce its local zoning ordinance and preclude mineral extraction in certain districts. However, legal challenges appear inevitable.

Another objection gas-drilling proponents have made concerns their claim that a heavy-industry ban would violate their basic right to derive income from their property, nullifying lease agreements with gas companies.

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JUST HOW CLEAN IS NATURAL GAS?



One of the biggest benefits of natural gas is that it is cleaner than oil and much cleaner than coal. This will help wean the nation off dirtier fossil fuels and reduce global warming. At least that is what the Oil & Gas industry has been telling everyone over and over again in its multi-million dollar ad campaigns on national TV.

Natural gas *is* cleaner when burned, but that may be only part of the story. Two new studies suggest that releases of unburned natural gas during production and distribution may pour enough methane, a potent greenhouse gas, into the atmosphere to more than offset any clean-burning advantage.

The problem, the studies suggest, is that planet-warming methane, the chief component of natural gas, is escaping into the atmosphere in far larger quantities than previously thought, puffing out from shale gas wells, intentionally vented or flared, or seeping from loose pipe fittings.

“The old dogma of natural gas being better than coal in terms of greenhouse gas emissions gets stated over and over without qualification,” said Robert Howarth, a professor of ecology and environmental biology at Cornell University and the lead author of one of the studies.

“I think this is just the beginning of the story,” Howarth said, “and before governments and the industry push ahead on gas development, at the very least we ought to do a better job of making measurements.”

The industry argues that it has vastly reduced the amount of fugitive methane with new technologies and upgraded pipe fittings and other equipment. Mark Whitley, senior vice president for engineering and technology with Range Resources, a gas drilling company with operations in several regions of the country, said the losses suggested by Mr. Howarth’s study were

simply too high.

“That’s our cash crop,” he said. “The idea that we would just let 5, 6, 7, 8 percent of that fritter away into the atmosphere, that’s absurd. We wouldn’t be in business past lunchtime if that was the actual case.”

“The leakages we’re talking about are a few percent,” Howarth said. “Apparently industry has done the cost-benefit analysis and decided it just isn’t worth that much of an investment.”

The cleanliness of natural gas is largely based on its lower carbon dioxide emissions when burned. It emits roughly half the amount of carbon dioxide as coal and about 30 percent less than oil.

Less clear, largely because no one has bothered to look, are the emissions over its entire production life cycle – that is, from the moment a well is plumbed to the point at which the gas is used.

Methane leaks have long been a concern because while methane dissipates in the atmosphere more quickly than carbon dioxide, it is far more efficient at trapping heat. Recent evidence has suggested that the amount of leakage has been underestimated. A report in January by the nonprofit journalism organization ProPublica, for example, noted that the Environmental Protection Agency had recently doubled its estimates for the amount of methane that is vented or lost from natural gas distribution lines.

Chris Tucker, a spokesman for Energy in Depth, a lobbying group for the Oil and Gas industry, dismissed Prof. Howarth as an anti-drilling advocate. Howarth defended his study, citing its publication in a peer-reviewed journal and reliance on government and industry numbers.

Howarth included methane losses associated with flow-back and drill-out processes in hydraulic fracturing and other unconventional gas drilling techniques. The study combined these emissions with studies of other methane losses along the processing and distribution cycle to arrive at an estimated total methane loss range from 3.6 to 7.9 percent for the shale gas industry.

The researchers include a recent study from NASA’s Goddard Institute for Space Studies suggesting that an interaction of methane with certain aerosol particles significantly amplifies methane’s already potent greenhouse gas effects, particularly over a 20-year time horizon. When all is factored together, the Cornell study concludes that the greenhouse gas footprint of shale gas can be as much as 20 percent greater than, and perhaps twice as high as, coal per unit of energy.

A VISION FOR ECONOMIC DEVELOPMENT

An open letter to farmers, economic developers and investors

Agriculture has been Meredith's job engine during its 200-year history. Drawn by productive grassland, and proximity to the largest market in the nation, skilled livestock farmers came to Meredith and created a thriving economy based on grazing livestock and dairy production. In recent years, competition from lower-cost producers has caused a decline in the dairy industry. But the productive grassland, the huge market, and the skilled farmers are still here.



How can Meredith's pastures be returned to productive agricultural use to create jobs and economic benefits, while preserving the historic and agricultural character of the town that we all value?

A recent report from Cornell's Grassland Utilization Work Team – "Green Grass, Green Jobs" – examines how this can be accomplished through a range of profitable farming options based on grazing.

Meredith's farming industry was initially dominated by sheep, and then by dairy cattle, which produced first butter and, as transportation improved, fluid milk. But the local dairy has been in a 50-year decline, as better transportation allowed competition from lower-cost dairy producing regions more conducive to 'modern' confinement operations. These operations rely on cost-effective machine planting and harvesting of feed, which is cheaper on farmland with flatter terrain and less rocky soil than ours.

In 1960 over 60% of Meredith's jobs were in farming. By 2000 it was down to 5%. This story has played out across New York State. According to the Cornell report, there are now nearly 3 million acres of pasture either underutilized or not used at all.

In Meredith we have approximately 18,000 acres of open land (not forested). Of these about 2000 acres are used for grazing, and about 4000 for hay. So there is about 12,000 acres of

grassland that was formerly farmed, and which is now unused, and much more that has reverted to scrub or forest. With more intensive management, much of the currently grazed land, and the lands that now lie fallow, including the scrubland, could become much more productive, with its economic output doubling, or even tripling.

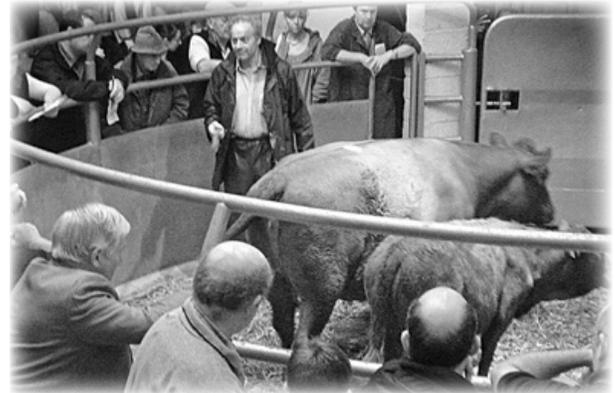
Current pasture-based livestock production in Meredith can be broken into three types.

1. The few dairy farmers in Meredith who understand how to remain profitable.

2. Producers of grass-fed meat, for which there is increasing demand. This market has potentially higher margins, but is less liquid and harder to manage than the conventional market, though this has been slowly improving.

3. Producers of livestock, mostly cattle, for the conventional market. The margins tend to be lower, but the market is well-established and highly liquid. Timely buying and selling is much easier.

Here is one example of a grazing enterprise, in the 'conventional' market. It's called 'backgrounding' cattle on pasture, which means purchasing weaned calves in the spring, grazing through the warm weather months, and selling the cattle in the fall. We are using a conventional market example because it is an option open to the broadest number of farmers, even those with no interest or time to direct-market their cattle.



The basic plan is as follows. Purchase 100 weaned beef steers in the spring at 500 lbs, graze them from May 15th through November 15th, and then sell them at the higher weight. The cattle would be bought and sold at large liquid auction sites, like Seneca Falls or New Holland, PA. Costs would be controlled by feeding only on pasture grasses, and by using intensive rotational grazing, which increases weight gain per acre sub-



stantially, and by using land rented for about \$10-15 per acre, or already owned.

This model requires good perimeter fence, access to water, and electricity for internal fencing to allow rotational grazing. Depending on the quality of the pasture and the skills of the grazer, between 75 and 150 acres are needed for these cattle. The long days will permit caring for the cattle while maintaining a regular daytime job, even with daily rotation of the cattle. You don't need heavy equipment, but you will need a special "catch area" for the cattle.

This is not a novel model. In Midwest cattle regions, this model is so popular that land rental costs (per head of cattle) are about ten times higher than in our area.



Average daily weight gain should be around 2 pounds per animal, but let's be conservative and say 300 lbs. of gain per animal for a season of 180 days (1.65 lb./day). The price/lb. you receive in the fall will be on average about 10% less than what you pay in the spring. So your purchase cost is \$50k (\$1/lb. for 100 head at 500 lbs.) and your sale price is \$72k (\$0.90/lb. for 100 head at 800 lbs).

From this \$22k difference between purchase and sale, you must subtract expenses for supplies, cost of the loan, loss of cattle, insurance, land lease, and trucking. Fencing cost is a capital cost spread over a number of years, like equipment. Management skill and access to healthy cattle is required. (A full spreadsheet model is on our website.)

In an average year, this model should typically yield the farmer around \$13,000 in net income – \$10,000 of profit plus \$3000 labor cost the farmer pays to himself for his work time, which will average less than 2 hours per day.

What are the barriers?

- Access to capital. This is clearly an issue, as in the above example the grazer needs a 6-month loan of \$50k to buy cattle in the spring, to be repaid in the fall when the cattle are sold. Lenders have been reluctant to make loans on livestock without other collateral, like a house or farm equipment. This type of loan seems like a natural for local economic development agencies. There may also soon be 'social investors' with an interest in regional agriculture entering this type of loan market.
- Access to land. Recent surveys in Otsego County indicate that many landowners, some absentee, would like to have their land grazed. Our sense is that offering modest rent, plus access to the agricultural exemption on property taxes, would offer an attractive option to many owners of unused pasture.
- Access to knowledge. Many courses are available on rotational grazing, construction of fencing and watering systems. There are grazers in Meredith who would volunteer as mentors to help with fencing, grazing techniques, etc.
- Access to insurance. The USDA, through its Risk Management Agency, provides low-cost insurance that guarantees a gross profit margin in the fall when the cattle are sold, but this program is not yet available in New York. In the meantime, it may be possible to set up a small fund to allow futures contracts to be purchased from commodity brokers and shared by grazers, so that insurance can be tailored to any herd size.

This model has the advantage of simplicity, and easy purchase and sale of cattle, without the need for any marketing skills. Similar models can be created for grass-fed beef, which have a somewhat higher sale price, but the current market is not yet as liquid.

If even just half of Meredith's unused pasture land – 6000 acres – were put into the program described above, we'd have around 6000 additional cattle grazing in the summer, generating an additional \$4.3 million in farm revenue, of which about \$780,000 would be income to the farmers involved.

We wish to make clear that the business model outlined here is only a first step in a long process. Crucial to the success of any effort to revitalize sustainable agriculture in our area will be institutional support from lending agencies and educational outreach to help dairy producers and people new to farming to learn how to properly utilize rotational grazing methods to maximize the enormous profit potential of livestock grazing. For more information, please visit our website.

RISK ASSESSMENT FOR NATURAL GAS EXTRACTION IN NEW YORK

The following is the opening summary from Dr. Ron Bishop's recently published study, "Chemical and Biological Risk Assessment for Natural Gas Extraction in New York." Bishop is Professor of Biochemistry at SUCO in Oneonta. The full text is available on our website.

Over the last decade, operators in the natural gas industry have developed highly sophisticated methods and materials for the exploration and production of methane from unconventional reservoirs. In spite of the technological advances made to date, these activities pose significant chemical and biological hazards to human health and ecosystem stability. If future impacts may be inferred from recent historical performance, then:

- Approximately two percent of shale gas well projects in New York will pollute local ground-water over the short term. Serious regulatory violations will occur at more than one of every ten new shale gas projects.
- More than one of every six shale gas wells will leak fluids to surrounding rocks and to the surface over the next century.
- Each gas well pad, with its associated access road and pipeline, will generate a sediment discharge of approximately eight tons per year. If not sequestered from local waterways, these sediments will further threaten federally endangered mollusks and other aquatic organisms.
- Construction of access roads and pipelines will fragment field and forest habitats, further threatening plants and animals which are already species of concern.
- Some chemicals in ubiquitous use for shale gas exploration and production, or consistently present in process wastes, constitute human health and environmental hazards when present at extremely low concentrations. Potential exposure effects for humans include poisoning of susceptible tissues, endocrine disruption syndromes, and elevated risks for certain cancers.
- Exposures of gas field workers and neighbors to toxic chemicals and noxious bacteria are exacerbated by certain common practices, such as air/foam-lubricated drilling and the use of impoundments for flowback fluids. These methods, along with the intensive use of diesel-fueled equipment, will degrade air quality and may cause a recently described "down-winder's syndrome" in humans, livestock and crops.
- State officials have not effectively managed oil and gas exploration and production in New York, evidenced by thousands

of undocumented or improperly abandoned wells and numerous incidents of soil and water contamination. Human health impacts from these incidents may include abnormally high death rates from glandular and reproductive system cancers in men and women. Improved regulations and enhanced enforcement may reasonably be anticipated to produce more industry penalties, but not necessarily better industry practices, than were seen in the past.

Overall, proceeding with any new projects to extract methane from unconventional reservoirs by current practices in New York State is highly likely to degrade air, surface water and ground-water quality, to harm humans, and to negatively impact aquatic and forest ecosystems. Mitigation measures can partially reduce, but not eliminate, the anticipated harm.



A worker preparing chemicals to be used in hydrofracking a gas well in Pennsylvania.

GAS DRILLER FINED

Chesapeake Energy, one of the most active companies in Pennsylvania's natural gas drilling boom, has been fined more than \$1 million by the state, including a \$900,000 penalty for contaminating 16 families' drinking water with methane in Bradford County. Officials called it the single largest state fine ever for an oil or gas operator in the state.

In some cases, the methane became an explosion risk and families had to be evacuated from their homes. In other cases, residents could light their tap water on fire. It is still not clear whether these incidents, and similar ones in nearby Susquehanna County, are directly related to water samples taken in the area by Duke University researchers as part of their recently published study, but the fines indicate that Pennsylvania regulators are in agreement that the problem is urgent and needs immediate attention.

The contamination incidents addressed in the order are unrelated to a blowout at a Chesapeake gas well in April in Leroy that spilled an estimated 10,000 gallons of wastewater onto a field and into a stream, requiring the evacuation of 7 families.



TOWNS BAN HEAVY INDUSTRY

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According to this view, prohibiting gas drilling would give leaseholders the right to bring lawsuits under the Takings Doctrine, a legal concept stemming from eminent domain that if government regulations are so onerous that a property owner no longer has any economically beneficial use of his property, the government must reimburse the owner for the lost value.

Environmental lawyer Paula Greene counters that all that would be lost is “a speculative opportunity to receive revenues from selling their gas” and that the rest of the private property owners will suffer the consequences, including “the continued deterioration of our property values.”

Elected town officials, moreover, have pointed to their obligation to ensure the overall health and welfare of its citizens. A town, they say, should have a right to determine its own future, and that it is a reasonable exercise of power to enact laws that will protect and preserve its agricultural and rural character, and to prevent it from being overrun by heavy industry.

FRENCH LOWER HOUSE OF PARLIAMENT VOTES BAN

On May 11, France’s National Assembly voted 287-186 to forbid hydraulic fracturing for the exploration and production of shale gas and oil. The vote follows widespread protests over the environmental impact of fracking and anger over the government’s decision earlier this year to issue several exploration permits without any public consultation.

The Senate is expected to follow suit in June, making France the first country to ban the process.



WHO WE ARE

The Meredith Landowners Coalition is a non-profit community group of local residents.

The Steering Committee of the Meredith Landowners Coalition, in alphabetical order:

Larry Bennett, Nancy Cannon, Carolyn June, Bob Rosen, Kelley Snodgrass, Cynthia Waterman

Copies of all our newsletters are available for download from our website at www.meredith-coalition.org.

You’ll also find videos, photos and links to information about gas drilling in our area.

MLC MEMBERSHIP

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I/we wish to remain anonymous

Please make your check payable to: **MEREDITH LANDOWNERS COALITION**

Mail to us at PO Box 2, Meridale, NY 13806

