

**Testimony Presented by Jannette M. Barth, Ph.D.
Katonah Public Library, August 23, 2011
Re: Economic Impact of Gas Drilling in the Marcellus Shale**

My name is Jannette Barth. I am a Ph.D. Economist and I have been conducting economic analyses and developing economic models for 35 years.

The gas industry claims that gas drilling in the Marcellus Shale will bring great economic prosperity to upstate New York. The gas industry is seriously misleading the public and our politicians. They ignore costs and exaggerate benefits.

There are some New Yorkers who desperately want to believe that shale gas drilling will be a panacea to all of the economic woes in upstate New York. In reality the region is likely to be even worse off in the long-run if we allow drilling in the Marcellus Shale. And remember that the Utica Shale, which extends to this side of the Hudson, will be next.

I have reviewed the frequently quoted economic impact studies and I will explain the multiple reasons why the conclusions from these studies are exaggerated.

Before discussing the studies, however, there are several important facts to know. One is that gas workers move from well to well, so the jobs are not measured in “person-years”. Many of the jobs created are short-term and part-time. Many of these workers are imported from other states on a transient, non-permanent basis. Some estimates in Pennsylvania are that as many as 70% of the Marcellus workers are from out of state. Such transient workers send their wages to their families in their home states to be spent there and improve the economies there, not here in New York.

Industry claims that they are committed to hiring local workers. An Oklahoma paper reported that many gas companies are using dormitory style housing because “most workers are from outside the area, spending 2 weeks on the job and 2 weeks off.” We know that Chesapeake built exactly such housing in the Marcellus Shale area in Pennsylvania. Why build this if they are truly committed to training and hiring local residents?

Also be aware that the oil & gas industry is ten times more capital-intensive than the average industry. Capital-intensive industries, by definition, are **not** major job creators. It would be far better for our economy, and in particular for job creation, to encourage a more labor-intensive industry.

The studies that claim a positive economic impact from gas drilling tend to be biased, dated, seriously flawed, or inapplicable to our region. It's critical to examine what has been left out of these studies. What costs have not been taken into account?

I have reviewed studies from multiple regions. In New York, I reviewed the economic analysis in the 2009 Draft Supplemental Generic Environmental Impact Statement and the Broome County Study commissioned by the Broome County Legislature. In Pennsylvania, I reviewed the studies out of Penn State funded by the gas industry and another one funded by the American Petroleum Institute. Also in the Marcellus Shale, I reviewed a study of West Virginia. In the Fayetteville Shale in Arkansas, there were two studies out of the business school, both funded by Southwestern Energy and other gas companies. In Texas, I looked at the Perryman study. I reviewed a study of western states by a non-profit firm, Headwaters Economics, not funded by the gas industry. I also reviewed several independent academic studies, also not funded by the gas industry. ? (See papers by Jannette M. Barth, Ph.D., "Unanswered Questions About the Economic Impact of Gas Drilling in the Marcellus Shale: Don't Jump to Conclusions", March 27, 2010; "North American Shale Gas Plays: More Unanswered Questions", January 17, 2011; "The Truth About Those Industry Funded Studies", March 4, 2011; all are available at www.catskillcitizens.org or by emailing a request to jm.barth@mac.com.)

The studies funded by the gas industry ignore declines in other industries that are likely to result from a combination of pollution, a shift to an industrial landscape and "crowding out". Examples of industries likely to be negatively affected include agriculture, tourism, organic farming, wine making, hunting, fishing and river recreation.

The organic farming industry is a relatively fast growing industry, and it could be devastated by hydrofracking. A major food co-operative in New York City that purchases millions of dollars of New York State produced agricultural products has stated "our members will not want the fruit and veggies that come from farms in an industrialized area" and they are

concerned about “whether the cows they buy were drinking contaminated water and breathing the air fouled by numerous enormous trucks that will support the hydrofracking process and the hydrofracking process itself.”

A thorough evaluation would include impact analysis of potential declines in other industries.

The industry-funded studies ignore the fact that there will be damage to infrastructure, especially roads and bridges. In the Fayetteville Shale region, in Arkansas, the state Highway Dept reported that the gas industry has caused \$455 million worth of damage to highways. Insufficient funds are collected from the industry, and even with a severance tax, it appears that the taxpayers of Arkansas will have to pay more than \$400 million of the road repair costs.

The costs of drinking water contamination and land, stream and air pollution are ignored in the economic impact studies. The cost of mitigation is ignored and so is the cost in terms of health. Various contaminants in the fracking fluid and the flowback fluids are endocrine disruptors and carcinogens. The economic costs of treating birth defects and serious diseases are not reflected in any of the economic impact studies.

Costs to communities are ignored, including costs due to the increased demand on hospitals, police, fire departments and emergency health services. A recent presentation by a hospital administrator in Bradford County, Pennsylvania, where hydrofracking is proceeding intensively, summarizes many negative community impacts that will be costly, including for example, increased industry related injuries and exposures to dangerous frack fluids, increased traffic and related traffic accidents, and increased reports of illegal drug use. (“Local Experiences Related to the Marcellus Shale Industry,” Staci Covey, President, Troy Community Hospital, May 10, 2011)

Likely declines in property values are ignored. Supporters of gas drilling say that property values will increase. Rental rates will probably increase due to the influx of transient workers, and hotel occupancy rates may increase. We have seen this happen in Pennsylvania. The value of large tracts of land may increase, but single-family homes and small lots will probably decline in value. Reports indicate that some banks are not giving mortgages for properties with a gas lease or even for properties nearby

leased land. How can one sell a house if a buyer can't get a mortgage or if the house has contaminated drinking water? Also, some insurance companies are refusing to issue policies on homes with gas wells.

It was reported that in Wise County, Texas, where gas drilling takes place in the Barnett Shale, the Central Real Estate Appraisal District decreases values of homes by 75 percent when a gas well sits on the land. Remember that if property values decline, so do property tax revenues.

The industry-funded studies take a myopic view. They don't address what happens when the gas is gone and we may be left with contaminated drinking water, pollution, an industrial landscape, a population with failing health, and vanished employment opportunities.

These studies use data that may be highly biased as the data are provided by the gas industry, and they use a technique called input/output analysis, which is not an appropriate stand-alone economic modeling technique in this case. Among other things, it does not properly reflect the transient nature of the workforce, it does not capture price changes and other changes over time, and it is not accurate for the introduction of a new industry into a region.

While there are many factors that may distinguish one county from another, I took a look at some measures of economic health in gas intensive New York State counties. I looked at actual data for the top ten gas producing counties in New York State for the period from 2006 to 2008. This is, of course, conventional, vertical gas drilling. I compared the top ten gas producing counties to five neighboring counties without gas wells. The gas-intensive counties are not better off than the non-gas drilling counties when you look at the number of families below poverty level, median household income, or unemployment rates. More recently, a Cornell Professor, Dr. Susan Christopherson, did this comparison for both New York State counties and Pennsylvania counties, and she and reached the same conclusion. And very recently, the West Virginia Center on Budget and Policy reached the same conclusion for West Virginia.

It appears that the industry has been exaggerating its estimates of gas production expected from shale. Arthur Berman, a petroleum geologist and financial consultant to the energy sector, has shown that the decline curves for gas extraction in the Barnett Shale and Fayetteville Shale are much steeper than industry claims. In reality, the vast majority of the gas is

produced in the very first year or two. So, the years of production per well are fewer in reality than what is assumed in the economic impact studies. Analysts have also claimed that reserves themselves may be overestimated by a substantial factor. One analyst stated that the gas companies may have borrowed a huge amount of money based on reserves that they cannot pull out of the ground at a commercially viable cost. Some analysts have gone so far as to liken this to the mortgage backed securities bubble. And remember, if this is a bubble, and if there is contamination, there may be few solvent independent gas companies to conduct remediation, either voluntarily or by court order.

So, if assumptions of levels of gas production and the number of years of production are greatly exaggerated and put into an economic model, then it is obvious that the projections coming out of that model (such as employment levels, income levels and tax revenue) will also be greatly exaggerated.

The economic impact studies coming out of Penn State University have used the exaggerated gas production numbers provided by the gas industry as inputs to their models, so their economic impact conclusions are likewise exaggerated.

The Marcellus Shale Coalition, a lobbying organization for the gas industry, frequently quotes the Penn State studies (which they funded). The Coalition claimed that 88,000 new jobs were created in Pennsylvania in 2010 due to Marcellus Shale drilling. Publicly available Pennsylvania data available at that time clearly showed that **total job creation** in the **entire state** was only 65,600. And half of these jobs were in “education and health” and in “leisure and hospitality.” The grandiose job creation claimed by the industry is not at all consistent with data from unbiased, publicly available sources.

More recently, gas industry groups such as the Marcellus Shale Coalition and Energy in Depth have continued to mislead the public by misinterpreting a report from the Pennsylvania Department of Labor & Industry. The report states that there were 48,000 new hires in core and ancillary Marcellus industries from 4th Quarter 2009 through 1st Quarter 2011. The industry has been claiming these 48,000 new hires as employment growth. This is less than the 88,000 jobs claimed for 2010 alone, but it’s still a highly inaccurate statement. Anyone familiar with the “New Hires” data knows that these data do not accurately reflect employment growth. The gas

industry representatives fail to point out that users of “New Hires” data should not draw conclusions about job growth trends based on “New Hires” data. Note that new hires and the actual change in employment may be vastly different when a large number of jobs are added by some employers during the same period that a large number of jobs are eliminated by other employers. Also, a “new Hire” is not necessarily a “new Job”.

Official employment numbers out of Pennsylvania, as reported by the Keystone Research Center, show that the Marcellus core industries and ancillary industries, taken together, created less than 6,000 net jobs between 4th Quarter 2007 and 4th Quarter 2010. **That’s less than 6,000 net new jobs in three years.**

So, again, the industry continues to mislead the public in order to paint a rosy picture so that they can reap high profits at the expense of our environment, our public health and our economy.

Independent, unbiased economic analysis reaches vastly different conclusions than do the industry-funded studies.

Headwaters Economics compared the economic health of Western counties that focused on fossil fuel extraction as a strategy for economic development to neighboring counties that did not. It concluded that counties that were **not** focused on fossil fuel extraction experienced higher growth rates, more diverse economies, better-educated populations, a smaller gap between high and low income households, and more retirement and investment income.

An academic study published in Sociological Inquiry concluded that unemployment and poverty worsened in mining counties in non-metropolitan regions. **It found that the highest levels of long-term poverty are in places where there was once a thriving extractive industry.** (“Mining the Data: Analyzing the Economic Implications of Mining for Nonmetropolitan Regions”, Freudenburg, in Sociological Inquiry, 2002.)

Very recently, a peer reviewed article, in the academic journal Ecological Economics, concludes that the industry funded economic impact studies of shale gas extraction are overstating the economic impacts, and it is very important to have accurate estimates for the functioning of the state economy. (“The economic impact of shale gas extraction: A review of

existing studies”, Thomas C. Kinnaman, Ecological Economics 70 (2011) 1243-1249.)

Another study not funded by the gas industry is being conducted by Dr. Susan Christopherson at Cornell University. Dr. Christopherson says that the gas industry is “a speculative, high risk, short term industry” and that the shale play is likely to create a short-term boom followed by a long-term bust.

The oil and gas industry has a record of booms and busts. Extractive industries are known for the boom/bust cycle. Nobody disagrees that there will be short-term jobs created, including jobs on drilling sites and ancillary jobs such as truck drivers, welders, road workers, and hotel and restaurant workers. The questions are: How many are long-term, full-time jobs? How many are good jobs? How many of these jobs will be filled by local residents? How long will these jobs last?

I visited Bradford County, Pennsylvania recently, and I spoke with various people and toured the area to see gas drilling sites. I was told by a county commissioner that Bradford County was advised by a team of academic sociologists that 80% of communities with gas drilling are worse off in the long run. Bradford County wants to be one of the 20%, but it takes careful planning and proper regulation and policy making, and it would require significantly slowing down of the pace and extent of drilling in Pennsylvania. I was told that people in Bradford County feel that their community is being treated as a “throw away” community for the benefit of the oil & gas industry. I don’t want that for our communities in New York State.

The economic impact of pipelines must be addressed. With hydrofracking we will see the building of a vast network of pipelines, gas company gathering lines and transmission lines. I observed the spider web of pipelines when I visited Bradford County. It has been pointed out in both Texas and in Bradford County that the potential of future development is destroyed in many communities because building cannot take place on top of or too close to pipelines. Large, winding spider webs of gas lines from drilling pads to transmission lines may very well prevent our communities from building and developing into the future.

And a fact that many don't realize is that small towns are much more exposed to the economic risk. Small towns have small budgets, a small taxpayer base, and little diversity.

We must also pay attention to the fact that communities with the actual well pads are not the only communities that will be impacted in a negative way. Nearby communities without gas wells will have related industrial development such as water treatment facilities, staging areas, man camps, and pipelines. These communities will also have costs associated with heavy industrial development and a long-term bust, even if there is no drilling going on there.

The reality is that the only parties likely to benefit in the long-run are the gas companies and a very few lucky landowners.

The economic impact is unlikely to be worth the risk of the potentially severe and in some cases irreversible consequences in the form of health, environmental and infrastructure degradation.

Gas drilling in the Marcellus Shale may well result in a net negative economic impact for New York.