

The Truth About Those Industry Funded Studies

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Various industry representatives and industry organizations, such as The Marcellus Shale Coalition, Energy in Depth and the Independent Oil & Gas Association of New York (IOGA- NY), continue to propound unproven statements touting the economic impact of gas drilling in the Marcellus Shale.

For example, the Marcellus Shale Coalition, a lobbying group for the natural gas industry, asserts that 88,000 jobs were created by the natural gas industry in Pennsylvania in 2010. In reality, according to Pennsylvania Department of Labor and Industry, the number of non-farm jobs created in Pennsylvania in 2010 was only 65,600, and almost half of those jobs were in the education and health, and leisure and hospitality industries.

IOGA-NY, a trade association, recently stated in the Albany press that researchers associated with the American Petroleum Institute found that in 2009, wells drilled in Pennsylvania and West Virginia yielded 57,357 jobs. This curious statement is belied by the fact that according to the United States Department of Labor, Bureau of Labor Statistics, during 2009, total non-farm employment in Pennsylvania and West Virginia combined, declined by more than 200,000 jobs, from 6,561,400 jobs to 6,352,600 jobs. In the “mining and logging” industry sector, the sector that includes oil & gas extraction, total employment in Pennsylvania and West Virginia combined dropped from 53,300 to 51,800 jobs in 2009.

Such data inconsistencies should be enough to raise a very large red flag when it comes to numbers quoted by gas drilling supporters. IOGA-NY states that it represents “more than 400 individuals and companies engaged in the oil and natural gas industry” and it “promotes the common interests of its members who represent all industry sectors.”

It is clear that with so much potential money at stake for the oil and natural gas industry and all of its industry sectors, the comments made by IOGA-NY, the Marcellus Shale Coalition and Energy in Depth regarding environmental, public health and local and regional economic impacts should be carefully scrutinized by independent researchers.

IOGA-NY has asked Commissioner Joseph Martens, the Legislature and Governor Cuomo to consider the potential economic impact associated with the natural gas industry. Along with this request, IOGA-NY quotes an economic study by Petro Enterprise. This particular study, authored by a petroleum engineer, and based on numbers from a study of the Barnett Shale done by a consulting firm called the Perryman Group, raises a number of concerns. The Perryman Group does not identify the source of its data and it states that the structure of the underlying economic model is proprietary, thus shielding the analysis and its results from verification, evaluation or replication by independent researchers.

The economic impact of shale gas drilling in the Barnett Shale is likely to be very different than the economic impact of shale gas drilling in the Marcellus Shale, for several reasons. First, the labor force resident in Texas has the requisite skill set due to Texas's long and recent history of oil and gas drilling. Rural counties in upstate New York will have to import much of this labor and can expect it to be transitory. Reports from Pennsylvania indicate that 70% of its gas drilling labor force is being imported from other states. The imported labor is often temporary and transient, sending most of its income to families in other states. Texas has a huge support industry network for oil & gas industry activities. It has all the requisite machinery and equipment, much of which is distributed, contracted for, repaired and serviced in Texas. New York State doesn't have gas company headquarters, which tend to be headquartered in other states, such as Oklahoma and Texas. The Barnett Shale is in the Dallas-Ft. Worth metroplex, a dynamic urban region with all the affected industries ensconced there. This is very different than rural New York.

The principal technique used in the economic impact studies quoted by the gas industry representatives is input-output analysis. There are several reasons why input-output analysis, as a stand-alone technique, is likely to result in inaccurate estimates of net economic impact of gas drilling in the Marcellus Shale.

- Input-output analysis doesn't capture the cost of environmental degradation, damage and wear and tear on roads, health effects and pollution or negative impacts on other industries such as tourism and agriculture.
- An input-output model assumes that all populations have identical spending patterns. This exaggerates economic impact if new workers are transient and non-permanent. Even some of the industry-funded studies point out that much of the gas industry labor force is from out of state.
- Input-output analysis assumes "constant returns to scale". This implies that the gas industry would get no volume discounts on supplies. This is unlikely to be a realistic assumption.
- Input-output models are static in time and aspatial. These are assumptions which imply that coefficients do not change over time and do not fully reflect transportation costs.
- Perhaps the greatest problem with using input-output modeling in this case is that the actual coefficients are unknown. The true coefficient values cannot be determined in a case where the industry does not already exist in a region, such as horizontal drilling and hydrofracking in upstate New York.
- The production function is held constant, so there is no input substitution or changes in proportions of inputs as technology changes over time.
- And finally, there are no price changes, another unrealistic assumption.

Research NOT funded by the gas companies, trade associations, lobbying groups, or landowner coalitions has reached vastly different conclusions than has research funded or sponsored by industry groups openly seeking to gain financially in the gas plays.

Examples of economic impact studies by researchers independent of the gas industry include the following:

“Fossil Fuel Extraction as a County Economic Development Strategy: Are Energy-Focusing Counties Benefiting?”, Headwaters Economics, September 2008. (<http://headwaterseconomics.org>)

This study 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.

“Mining the Data: Analyzing the Economic Implications of Mining for Nonmetropolitan Regions”, Freudenberg, Sociological Inquiry, 2002.

Freudenberg 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.

“The Local Economic Impacts of Natural Gas Development In Valle Vidal, New Mexico” Thomas Michael Power, Professor and Chair Economics Department, University of Montana, January 2005.

Professor Power concluded that because natural gas development is land, capital and technology intensive, it makes limited use of human labor, thereby providing limited employment and pay opportunities. This is one of the reasons that it can create such great value for the industry. He also concluded that because natural gas development requires specialized skilled workers who by necessity must move to wherever new gas fields are under development, many of the development jobs will not be available to local residents. The spillover or “multiplier” impacts on the local economy associated with natural gas development are very limited for several reasons. First, much of the natural gas is shipped out of the local economy unprocessed. Second, most of the equipment, tools and materials are specialized and must be imported into the local area from distant trade centers. Third, because of the mobile workforce, much of the payroll leaves the local economy flowing to the workers’ home bases. Regarding job creation, Professor Power is more specific. He says,

The employment and payroll associated with natural gas development are associated with two distinct phases of that development: The first phase involves the actual drilling and development of the wells, including the development of the road system and other infrastructure and the necessary pipeline system to collect the gas and dispose of the water. The second phase involves the operation and maintenance of the wells and the collection system once they are in place.

The drilling and development largely employ specialized skilled workers who move from one drilling site to another. Other construction workers are needed for the roads and pipeline infrastructure. If the employment associated with these activities over the year is divided by the

number of wells developed, there is about one job associated with the development of each well.

The operation and maintenance of the gas field once it is producing is less labor intensive. The employment level per operating well appears to vary considerably among different areas, possibly depending on the density of the wells. In the Colorado portion of the Raton Basin, employment in oil and gas production is quite low compared to the number of wells (0.12 jobs per well). In the Colfax County portion of the Basin, the number of jobs per well appears much higher, 0.46 jobs per well. In La Plata County, Colorado, employment per well is in between these two values, 0.33 jobs per well.

And finally, Professor Power concludes that across the nation, local economies that rely heavily on mineral development face instability and downward cycles of boom and bust.

Jannette M. Barth, Ph.D. is president of J.M. Barth & Associates, Inc., an economic research and consulting firm, and founder of Pepacton Institute LLC. Dr. Barth has worked in the fields of economic analysis and econometric modeling and forecasting for over 35 years. She received her B.A. from Johns Hopkins University and her M.A. and Ph.D. from the University of Maryland. Several of her former positions include Chief Economist, New York Metropolitan Transportation Authority and Consultant and Account Manager, Chase Econometrics/Interactive Data Corporation. Dr. Barth's areas of concentration in graduate school and beyond have been econometrics, public finance and industrial organization. Dr. Barth has evaluated economic decisions using various techniques including econometric modeling, input-output analysis and cost-benefit analysis. She has applied these techniques in various industries and has experience in both the development and evaluation of a wide variety of economic models and analyses. Dr. Barth has taught economics at both the graduate and undergraduate levels. As a landowner in Delaware County, New York, in the Marcellus Shale region, Dr. Barth became interested in the economic and environmental impacts of gas drilling using hydraulic fracturing techniques. After reviewing the existing studies of economic impacts of gas drilling in New York, including the treatment in the draft Supplemental Generic Environmental Impact Statement produced by the Department of Environmental Conservation, Dr. Barth authored a summary report, "Unanswered Questions About the Economic Impact of Gas Drilling in the Marcellus Shale: Don't Jump to Conclusions" and a later report, "North American Shale Gas Plays: More Unanswered Questions." Her work in this area is entirely self-funded.