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Booms and Fumes: Economic Progress and Regress Caused by Natural Gas Exploration

BY LINDSAY HOSKINS
LEHIGH UNIVERSITY

Natural gas exploration is the newest gold rush in the United States. Drilling for natural gas is a process that involves local communities in many ways. One of the most lucrative and positive impacts can be seen economically through business, leasing, and governmental actions. The money may be flowing in, however there are also issues that citizens have with the way they are being treated. While positive impacts may be obvious, there are also negative impacts that can follow. There are three reasons it is important to look into positive and negative economic impacts natural gas exploration has on local communities

It is important to look at the positive impacts the gas companies can have on local communities because fracking has garnered a bad reputation at a national level. Positive information can influence public opinion, especially those who oppose fracking. While covering negatives can be useful for problem prevention in the future, covering positives can help give gas exploration a future. With potentially 100 more years of drilling ahead of America, it is important to know what the future holds.

It is also important to study the economic impacts to see what is happening to communities where fracking is occurring so they can be used as case studies for towns that will be involved with fracking in the future. Many communities have not yet been confronted by gas companies, but could potentially be in the future. It is important to the controversy of fracking because it will help show whether there is some promise for the future of communities, and help them from maybe making the same mistakes previous ones did.

The most essential factor is sustainability for communities. The economical aspect deals with how communities are to survive once the industry may leave their towns. It is essential to any community's economy to know how to manage an influx of economy to prevent a potential crash in the end. This is also important because if this industry is to be accepted on a local and national scale, there must be evidence that progress happened in communities it as affected.

Worthy and Unworthy Compensation: Are people receiving a fair amount of money from their gas leases?

The value of the recoverable natural gas in the Marcellus Shale has reached \$500 billion, and the gas' economic impact is expected to be extensive over the years of drilling that ensue for landowners, workers, and local communities. The negative stigma surrounding fracking is driven by the notions of harm to private property, environmental issues, and issues of unfair leasing and royalties. In communities, the implications that follow fracking can be both negative and positive during and long after the fracking is done. This paper reviews the positive and negative effects of The Guaranteed Minimum Royalty Act, Act 13 in Pennsylvania, severance taxes, downtown impacts and boom and bust cycles. The causes and effects of each aspect

should prove fracking is an issue with many factors with benefits or harms for people in Pennsylvania and the United States ("Questions Citizens,"2009).

Marcellus Shale drilling started with 60 wells in Pennsylvania beginning in 2007 and increased dramatically to 1,454 wells statewide in 2010. The surge in drilling has created royalty and leasing opportunities for private property owners. Leasing of mineral rights for the land starts with an overall contract that tells landowners what payments they will receive from the gas company. Royalties are negotiated in the lease, along with other stipulations the landowner may wish to implement. Under Pennsylvania's Guaranteed Minimum Royalty Act of 1979, Pennsylvanians are entitled to 12.5 percent of the money companies make selling the gas. The amount is based on terms negotiated in the lease that recognizes the owner's right to a portion of the value of gas resulting from the lease of exploration rights ("Pennsylvania Dairy", 2008).

Many new forms of legislation have been passed to protect landowners and give back to local communities affected in Pennsylvania. "In 1982, in a landmark effort to keep people from being fleeced by the oil industry, the federal government passed a law establishing that royalty payments to landowners would be no less than 12.5 percent of the oil and gas sales from their leases" (Lustgarten, 2013). In the case of *Kilmer v. Elexco Land Services*, the Supreme Court of Pennsylvania on March 24, 2010, decided that the royalty is 12.5 percent of the sale price minus 12.5 percent of post-production costs, leaving landowners with less money than they initially thought (Kelly, 2010).

As of June 28, 2013, legislation has been proposed to strengthen the act to respond to concerns of landowners with oil and gas leases whose royalty payments have decreased because of the deduction of post-production costs. Post-production costs are costs of bringing the gas to the market to be purchased. The proposed legislation seeks to prohibit companies from deductions ranging from 40 percent to 90 percent (Bagnell Snyder R. & Lepore, 2013).

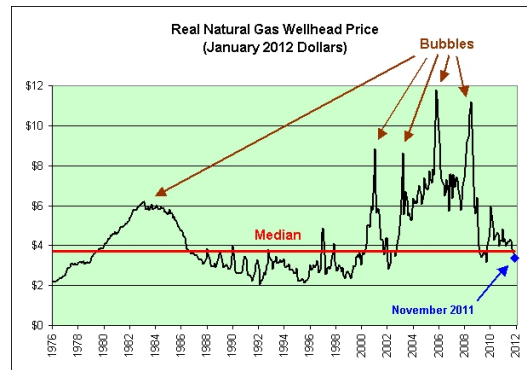
Some landowners believe they are receiving worthy compensation from gas companies. In some cases, farm owners are using royalty money to pay off debt, purchase new equipment, and stay on their land. In Pennsylvania alone natural gas royalties could amount to \$1.2 billion for 2012. By analyzing state tax information and production records and estimates from the National Association of Royalty Owners, the Associated Press has concluded that royalties have topped the 12.5 percent standard rate to a significant increase to 18.75 percent in some cases (Begos, 2013). However, not all the news is good, some landowners are experience negative aspects.

The post-production costs are angering landowners who are losing royalties that they believed was theirs initially, but are being withheld by oil companies by manipulation of costs. Many times these costs are ambiguous, leaving the property owners in the dark, in some cases companies have withheld 90 percent of the

income without explaining why. ProPublica, an independent, non-profit newsroom whom has dedicated an entire series to issues around fracking said in an article released August 2013, “In many cases, lawyers and auditors who specialize in production accounting tell ProPublica energy companies are using complex accounting and business arrangements to skim profits off the sale of resources and increase the expenses charged to landowners,” (Lustgarten, 2013).

Many landowners who were promised they would be millionaires are virtually making nothing off the gas or oil produced on their property. Decrease in royalties can also be attributed to the drop of wholesale price of gas. The decrease in wholesale prices means fewer royalties for landowners (Lustgarten, 2013). As demonstrated in chart 1, gas prices have fluctuated greatly, affecting the overall amount landowners receive.

Chart 1



<http://www.moneynewsnow.com/2013/06/hydrofracking-boom-or-bust/>

The love-hate relationship between Act 13 and citizens

Another form of legislation that positively affects the Pennsylvania communities is Act 13, passed in 2012. “The law places an impact fee on every well drilling for gas in the Marcellus Shale formation. The levy will change from year to year based on natural gas prices and the Consumer Price Index, but in 2012, drillers paid \$45,000 per-well. (Smaller, vertical wells paid \$9,000.)” (Phillips, Cusick, Colaneri, & Legere, 2013).

The act set into motion an unconventional gas well fee that is imposed on gas companies. Its purpose was to enact stronger environmental standards and monetary benefits for areas involved and being affected by gas companies. The impact fee brought in \$204 million to Pennsylvania for 2011, and \$202 million during 2012. There was less money in 2012 because the fees are tied to the price of natural gas, which declined by a third” (Phillips et al., 2013).

The money is distributed between local governments and the Marcellus Legacy Fund that helps fund state highways and bridge improvements,

environmental clean-up projects, and many other areas that help improve Pennsylvania infrastructure (“Marcellus Shale,” 2013).

While it appears on the surface to be beneficial, not all of Act 13 is positive for citizens. While the gas companies may be compensating the counties and municipalities handsomely, they are also benefiting from the law. The law initially allowed gas companies to drill in areas even where local officials had voted against wells, but this part of the law has since been ruled unconstitutional by Pennsylvania’s Commonwealth Court (Su, 2012). As seen in photo 1, gas companies could build very close to homes or in other areas even if citizens deem them unacceptable. Other stipulations of Act 13 also benefit companies and harm citizens. Since its enactment, doctors are bound by law not to divulge what harmful fracking chemicals are affecting their patients, leaving the gas companies with little accountability for their environmental health implications. Recently this issue has been sent back to the Pennsylvania Commonwealth Court to re-evaluate if it is constitutional or not (Cusick 2013). The act also has regulations for how the money can be spent. “They can use it to provide low income housing for gas workers, for example, but not to conduct air quality testing” (Su 2012).

Photo 1



www.marcellus-shale.us/Act13-of-2012_HB1950.htm

Severance Taxes: Better for a state overall, but not to those who are directly impacted

While Pennsylvania uses Act 13, other states capitalize on fracking by using severance taxes. Severance taxes ensure that gas companies must pay for costs associated with gas extraction on a state level. Projects such as road construction and environmental protection are included and they impact what companies must

pay for so taxpayers do not have to. “States distribute revenues in various ways, but typically, most of the collected taxes are deposited into the general fund. Many states also use the extra revenue to fund conservation and environmental cleanup projects and distribute portions of the collected taxes to local governments” (Pless, 2012). In 31 states, severance taxes are imposed on gas and oil companies, but Pennsylvania, one of the largest natural gas-producing states does not have a severance tax. The Pennsylvania Budget and Policy Center has estimated that the absence of the tax has cost Pennsylvanians \$300 million in potential money earned. With a projected 11,500 wells probably operating by 2020, Pennsylvania is expected to lose at least \$24 billion in gas revenues over the next 20 years (PA Budget and Policy Center, 2012).

While Act 13 may seem to be cheating Pennsylvania out of money, it is overall beneficial to those who are directly affected by fracking. Unlike severance taxes that go to the state, much of the money from Act 13 goes directly to the local areas affected. Act 13 money is more beneficial in areas of heavy drilling because they directly receive the money. Each year different fees will be due by gas companies. In 2013 companies must pay \$45,000 per horizontal well, \$9,000 per vertical well, along with fees of wells already in place” (Sacavage, 2012). Chart 2 demonstrates how the money is going to the places that need it to restore and repair their environment and infrastructure being affected. These counties listed below are being compensated because they are heavily drilled, or heavy impact areas from drilling in Pennsylvania.



Chart 1

<https://www.act13-reporting.puc.pa.gov/Modules/PublicReporting/Overview.aspx>

Downtown Impacts: How temporary workers have reignited the economy and personally owned businesses

As drilling operations move in and out of towns, they bring with them people to work, maintain and supervise the drilling sites. Workers come from many states to temporarily live on or around fracking sites during production. In these mostly rural communities, downtown businesses have benefited from increased sales. Consumer demand has increased for restaurants, gas stations and bars, and even jewelry stores. The influx of workers has led to demands for apartments, laundromats, and dry cleaning services. This population increase has helped feed the economy, but also has affected resources and space in local communities. Roads that were once filled with light traffic are plagued with continuous truck traffic that makes it difficult for people to park and shop downtown. Also, with the small number of hotels in these areas, businesses have had to turn away tourists in order to house workers (“Downtown Business”, 2011).

Towanda Case Study: Looking at the once epicenter of natural gas exploration in Towanda, Pennsylvania, and seeing how they have been affected by the boom and bust of their economy

The potential risk towns face is displayed well by looking at the example of Towanda, Pa., located in Bradford County. Since 2008, Towanda has seen a steady presence of natural gas drilling sites, making the borough steadily become an epicenter for fracking, with a boom of economy. Stores started shifting their merchandise along with restaurants changing their menus to satisfy workers in the area. Within four years the sales tax revenue jumped 61 percent in the middle of a recession.

With the increase of economy, Towanda has seen negative impacts as well. Crime has increased 40 percent from 2009 to 2011. Additionally, with the demand of rooms and office space, property owners adjusted rates to match the demand. The cost of a one-bedroom apartment soared from a rate of \$275-300 in 2008 to a price of over \$1000 in 2011, making it too expensive for many Towandan residents to afford. While sales tax revenue may have jumped, the economy has not been a friend to all. A local church organization that helps homeless residents that have nowhere to go saw 460 homeless people in 2012, 100 more than 2011 (Detrow, 2012). The boom has created positive and negative impacts on the economy and overall community welfare, but just as citizens have started to adjust, the tides have turned once more. Gas companies now have started to move out of heavily drilled areas such as Towanda to other drilling sites.

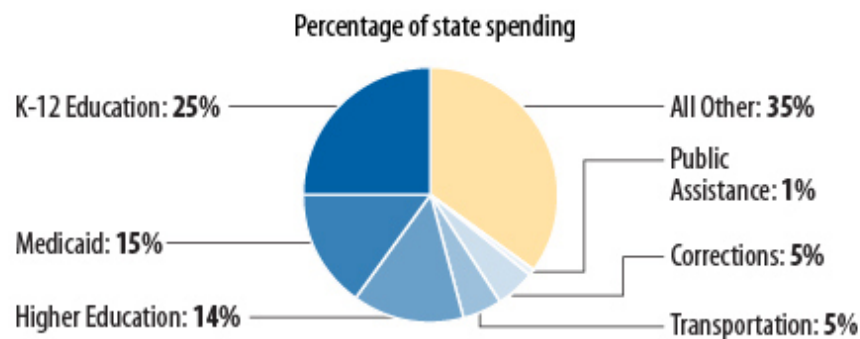
Companies have moved out of the area because the price of natural gas has dropped. Businesses have seen decreases in profits as workers leave. Towns shifted to meet the needs of the companies that brought the business, but now, their

relationship is dependent on the price of gas. The boom-and-bust cycles of towns need to be planned for long-term in order to keep them afloat. With businesses tailoring their stores to workers' needs they are setting themselves up for a heavily dependent relationship ("Downtown Business," 2011).

How state income tax collection has helped Pennsylvania overall

Because of economic boom, some Pennsylvania households have seen boosts in personal income, which affects state income tax collection. In a study done where counties were categorized by how many wells were drilled in their area, income tax varied from states with and without drilling greatly. The average change in state income tax by county from 2007-2008 shows, "Counties with ten or more wells reported an average of 6.96 percent increase in taxable income, and counties with between one and nine wells reported a 3.08 percent increase." In counties without wells, there was a .89 percent increase. With the increase of state income tax, more money goes to aid K-12 education, health services, transportation and other needs to improve the state ("State Tax," 2011). As seen in chart 3 below, most taxes are distributed to improve the state's overall infrastructure and services.

Most State Tax Dollars Go to Education and Health



Note: "All Other" includes care for residents with disabilities, pensions, and health benefits for public employees, economic development, environmental projects, state police, parks and recreation, and general aid to local governments.

Source: National Association of State Budget Officers State Expenditure Report FY 2011, December 2012

Center on Budget and Policy Priorities | cbpp.org

Chart 2

www.cbpp.org/cms/?fa=view&id=2783

In researching this topic it is critical to pay attention to long-term effects that fracking brings. It is hard not to look at the big picture with the economy booming and towns improving their streets and infrastructure, but there are a lot of risks as well. With the newfound industry bringing money into the area, communities must plan ahead for when the money stops coming. Landowners and citizens must do their research to know if the short-term money is worth the risk and how to save money now for the future. While Act 13 may have a bad stigma, in actuality it is beneficial to local residents in fracking counties. If an area is being impacted, Act 13

may bring money directly back to impact a community. Citizens can make better decisions for their area if they conduct research. To protect their land, while benefitting from one of the greatest booms of the century, citizens must do their homework.

Interview

Ray Stolinas is the Planning Director of Bradford County Planning Commission. He has over 20 years of experience providing municipal comprehensive planning, subdivision and land development and zoning advice to 52 townships and boroughs within Bradford County. Mr. Stolinas performs county and municipal planning functions in the most impacted county in northeastern Pennsylvania within the Marcellus Shale Play with over 1,880 permitted natural gas well sites since 2008. The information below was summarized from Mr. Stolinas' interview.

Do you believe it is more beneficial to have Act 13 in Pennsylvania rather than severance taxes?

For myself I definitely think Act 13, although it's not the ultimate way people want to see it happen. I think it is probably the most advantageous for our municipalities because they are seeing the impact. If we were to have a severance tax, a lot of that money would go to Harrisburg and we wouldn't have as much revenue locally to do those projects that I outlined in Act 13 such as the infrastructure, emergency preparedness, or planning. I think the severance tax would totally be a detriment to that. We would be putting money into programs at the state level that we wouldn't know where that money was going. At least we know now that there's a certain amount of money coming to each township and to each county that has natural gas drilling, I always compare it to casinos. When casinos came into Pennsylvania we never saw revenue from the casinos that came into Bethlehem or Wilkes-Barre Scranton. The money went to the local municipalities around those casinos, but we never saw a benefit from that, but yet we're expected to share the revenue of natural gas. Because we're a rural area, we don't have the power in the legislature to keep that money here. The urban municipalities have a lot of say in how that money's distributed, so I think there's definitely an imbalance there. That's why I'm bringing up casinos; we don't see any share in that, and yet we have to share the natural gas revenue with everyone? This money (from Act 13) is coming back to small townships like Armenia Township and Burlington Township. The borough I live in we don't have any drill sites in our borough, but received \$30,000 I think, the last two years. Now I'm sure our borough is putting it into streets or other things that we didn't have the money to do so before, but since we have an impact here with traffic and a couple more people here and there, it helps."

Bradford County's economy has experienced an economic boom because of gas companies. How do you prepare the economy for when gas companies leave?

We had a group go down to New Mexico, last year I think it was, and New Mexico has been in the oil and gas business for 50 years and this is an industry based on price and supply where there's boom and times where there's a bust. Right now we are at a low point and we don't have as much drilling going on right now, but there have been a lot of permits that have been issued and there's still activity and there's still folks here putting pipeline and infrastructure in, but there's not as much drilling. At the height of our drilling I think we had 30-33 rigs active here and now we are down to three or four, but you know, there's other things going on. There are workers here building a massive power plant that's going to be fueled by natural gas. So people want to say workers have left, well not necessarily. We have different types of workers here, it may not be the type of workers who work on the 30 some rigs that we have, but we have pipe liners here, welders, people working on compressor stations and we have people working on the power plant.

Have you had to sell the idea to the community about fracking? Have you dealt with negative and positive feedback since fracking has entered the area?

I don't think we had to sell them on anything, we're just providing them information on the trends here in the county. As far as my experience with negative versus positive, I think it's been more positive than negative. I haven't had tons of people coming in and saying, 'we don't want fracking,' or, 'we don't want natural gas.' I haven't had that? I've heard people complain maybe about the royalty situation we have as far as some of the companies taking huge amounts of money out of their royalties. I haven't heard about the environmental effects at all. I think people see that the gas companies here are trying to be responsible and they do have methods of trying to avoid any type of environmental disaster. Some people I've talked to have gotten a well pad on their property and they didn't realize that it's going to be noisy, that there are lights going to be 24/7 and they've learned the lesson that it's not going to be a quiet operation. So it's an eye opener to them. I think that's pretty much what I've heard from folks that the negative is that maybe they didn't realize that there's going to be as much truck traffic or maybe they didn't realize that there was going to be a noisy time on the well pad when their house is just a mile away or maybe a half mile away. They've learned through the process that they have to deal working with the company and seeing how they can live next to each other. There have been positives and negatives; I don't think it's been a total disaster like people outside of the county say. People will say, 'people outside the county say Bradford County is just an industrialized environment.' It is not; it is still a rural county, it still has character, it's just we have this presence of natural gas now and I think that presence at times makes people perceive something totally different if they are not living here.

How does Act 13 recirculate money back into areas that have been affected by hydraulic fracturing?

This distribution of Act 13 money means the gas companies end up paying a cost per well through the state as far as those wells being spud or producing and spud basically means that the well had been initiated as far as whatever drilling process it is. And it's based on the price of gas each year and that money is then collected by PEC (Pennsylvania Environmental Council) and then redistributed to the counties and municipalities with this equation that they had developed in the law that deal with population, how many road miles you have, how many producing wells you have in your municipalities, how many you have surrounding your municipalities. So it involves calculations for each municipal government, and then that money, what is calculated, is redistributed back to both the county and the townships. So what we've done is try to keep track of how much funding has come back to the county and the local townships and boroughs. For our case, every township and bureau in our county has received some amount of Act 13 money because of the impacts of natural gas here. And the county has in the last two years has received over \$15 million. Again when you talk about township government or borough government it's up to the township supervisors or borough council to allocate that money where they see fit. So at the county level it would be the county commissioner making that decision, as a planning director, I don't have any say in where that money goes. Since Pennsylvania is a commonwealth you have all these local elected officials at the county municipal level who are making decisions to where this money is being spent."

So the county receives money from Act 13, is the money split up between municipalities also?

The county in total received at total of \$15.7 million (to be exact). In Bradford County we have 51 local governments, and \$23.4 million went to the local governments. So for the last two years, Bradford County has received a total of \$39 million. Under Act 13 there are specific uses for this money. The PEC won't tell you how to use your money, but they are going to say to municipalities there are 13 uses in the law that you can use the money for. The law basically states that you can use it for the construction, repair or maintenance of roads and bridges and other infrastructures such as water and storm water and sewer. When it comes to emergency preparedness for your fire, police, and ambulances, you can use money for that. It can also go toward any kind of environmental programs such as parks, trails and recreation or any kind of preservation, reclamation of surface or sub-surface waters and water supply.

Profiles of Key Individuals and Groups

Swank Program in Rural-Urban Policy Summery and Report – The Ohio State University

Dr. Mark Partridge is Swank Professor of Rural- Urban Policy, Department of Agricultural, Environmental and Development Economics at The Ohio State University. Dr. Amanda Weinstien is in the Department of Agricultural, Environmental and Development Economics at The Ohio State University.

They released a study in December 2011 that examines the growth Pennsylvania is having because of natural gas exploration, particularly in the area of economics. Their study is important because it outlines the flawed industry studies about job creation and economical positives and provides clarification of more reliable estimations of economic impacts that will occur in Ohio in the next couple years. Based on what has happened in drilling versus non-drilling areas in Pennsylvania the pair estimates what will become of Ohio when the gas industries move in. You can find more information on their findings at <http://aede.osu.edu/programs/swank/>

Study: The Economic Impact of Natural Gas Industry and the Marcellus Shale Development in West Virginia.

This study done by West Virginia University looks at the economic impact the natural gas industry had on West Virginia in 2009. Amy Higginbotham, Adam Pellicle, Tami Gurley-Calves, and Tom S. Witt in the Bureau of Business and Economic Research College of Business and Economics West Virginia University conducted the study. This is an objective source that analyzes data to explain impacts drilling have on the area. More information can be found on their website, <http://www.be.wvu.edu/bber/pdfs/BBEr-2010-22.pdf>

COGENT (The Connection for Oil, Gas & the Environment in the Northern Tier)

COGENT is a resource for landowners and communities within Pennsylvania that need reliable information regarding all the components of living next to or near unconventional gas sites. COGENT is a good resource for finding out what issues are plaguing an area and how they should be dealt with. It displays local concerns from all around the state. The site is a good balance of negative and positive information with objectivity. The site advocates a balance of public health, safety, community, and environment with the needs of the gas industry. COGENT can be contacted on its website at <http://cogentpa.org/about/>.

Pennsylvania Department of Environmental Protection

This state agency website displays news of what is going on with the Act 13 along with new grants that have been awarded by Governor Corbett. The site has web seminars to help explain and address improvements that have been, or need to be, made in Act 13. Also there are PowerPoint presentations outlining different actions Act 13 does to enforce and protect the environment. There are resources such as permit forms for oil and gas wells. To contact the Pennsylvania Department of Environmental Protection go to its website

http://www.depweb.state.pa.us/portal/server.pt/community/act_13/20789

Web Resources for Additional Information

1. The Economic Effects of Hydrofracturing on Local Economies

New York's state governments report on what Pennsylvania's experience in hydro fracturing to decide if it is good for New York. The report analyzes data by jobs and income growth in Pennsylvania and is extremely in depth with a lot of background on the development of the Marcellus Shale. It also has a lot of charts supporting the data it has found and conclusions it has made. The report shows that Pennsylvania has had significant economic growth in areas where hydraulic fracking took place. The site is clear and informative, and heavily filled with content.

Link:

<http://www.empirecenter.org/Reports/2013/05/econeffectfracking050613.cfm>

2. Interview with George Mitchell

This interview with pioneer of the shale gas economy, George Mitchell, provides an insider's expertise and concerns in an industry he helped create. Mitchell is balanced in addressing the positive economic progress of hydraulic fracturing, but also addressing risks that come along with it. Mitchell expresses concern for natural gas companies failing to address environmental issues. He believes the gas companies should be held more accountable for regulation that will be more beneficial to communities.

Link: <http://www.economist.com/blogs/schumpeter/2013/08/interview-george-mitchell>

3. New York Times Article: *With Gas Drilling Next Door, County in New York Gets an Economic Lift*

This article showed how gas drilling has positive impacts on areas not involved. The area of Horseheads, N.Y., is experiencing an economic boost from drilling workers passing through the area looking for something to buy for their wives or girlfriends. The story displays positive impacts of gas drilling by analyzing sales in stores. It also

stays balanced by showing the problems that have also followed such as the lack of housing for both residents and workers moving into the area.

Link: <http://www.nytimes.com/2011/12/28/nyregion/hydrofracking-gives-chemung-county-ny-economic-boost.html?pagewanted=all>

4. CNN's series, Gas fracking divides Pennsylvania

The story follows the personal story of mechanic Christ Sutton, who becomes a millionaire because of natural gas production. The story is balanced because it shows what fortune one community member can have, and what turmoil another can have. After talking about Sutton, the story transitions into problems of other residents. The story does a good job of bringing personal stories into the article to make it interesting.

Link:

http://money.cnn.com/2010/10/06/news/economy/penn_community/index.htm

5. Market Watch article, *Can Fracking save the U.S. economy?*

This article talks about the performance of counties in comparison to drilling wells in the area. This story looks at the positive impacts natural gas companies can bring back to America. The article looks at the different states being impacted by natural gas and how much gas they produce.

Link: <http://www.marketwatch.com/story/can-fracking-save-the-us-economy-2013-10-04>

6. National Association of Royalty Owners- Pennsylvania

This national organization represents, oil and gas royalty owners' interests. The organization is important because it looks out for the landowners and acts as a resource to protect their interests. It holds meetings statewide in Pennsylvania to help bring the concerns of royalty owners to elected officials to help protect their land and rights. This organization has first-hand accounts of experiences felt by the gas companies moving in. The website also keeps royalty owners informed about what is happening with particular gas companies and leases. More information can be found at

Link: <http://www.naro-us.org/Pennsylvania>

For More Information

1. <http://shalegasreporter.com/shale-faq>
2. <http://www.shaletec.org/docs/economicimpactfinalaugust28.pdf>
3. <http://stateimpact.npr.org/pennsylvania/tag/marcellus-shale/>
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