

ASSESSING THE IMPACTS OF SHALE DRILLING: FOUR COMMUNITY CASE STUDIES



EXECUTIVE SUMMARY

The first hydraulically fractured shale wells were drilled in Pennsylvania and West Virginia nearly a decade ago. Drawing on existing experiences in these states, and the rapid advance of hydrofracking in Ohio, we can begin to assess the effect of shale development on the most active drilling communities. As pressure mounts to increase domestic oil and gas production, and shale development continues to grow, communities anticipating a shale energy boom need to understand what to expect, how to respond, and what to avoid.

Researchers with the Multi-State Shale Research Collaborative set out to document the impact of shale drilling on the economy, community, government agencies, and human services in four counties with significant shale development – Carroll County in Ohio, Greene and Tioga counties in Pennsylvania, and Wetzel County in West Virginia. Using publicly available data, press reports, and local interviews, the collaborative has identified both the benefits and costs of drilling, and ways in which these communities have been transformed as a result.

All four counties are small, rural, and generally poorer than the state as a whole. All are experiencing shale industry development and are among the largest producers in their respective states. Their experiences have been remarkably similar: Each reported a rapid influx of out-of-state workers; few local land-use limitations were in place when drilling took off; and for the most part companies have operated independently from local government oversight. There are differences among the counties, too, particularly as the industry shifted from developing methane (dry) gas to shale oil and wet gas rich in higher-priced liquid gas products.

In Carroll, Greene, and Tioga, growth in drilling brought positive economic benefits and some new jobs as well as additional costs for police, emergency services, road damage, social services, increased rents, and a shortage of affordable housing.

In Wetzel County, the story was slightly different. While the county produces 17 percent of West Virginia's shale gas, it is home to a much larger number of conventional gas wells and better equipped to handle shale industry development. The county did report both positive and negative impacts from the growth in shale drilling, but not to the same degree as the other counties. For instance, Wetzel did not see a boom in population or a tightening in the housing market as other counties did.

Greene County is no stranger to extractive industries with its long history of coal mining and conventional gas drilling. The expansion of shale gas drilling has had positive economic benefits so far, but Greene's first-hand knowledge of the long-term economic and environmental impacts of mineral extraction offer a cautionary tale.

In Tioga County, we found a community unprepared for the sudden overwhelming presence of the industry, with few tools to manage, let alone plan for, growth and change. Drilling brought economic benefits at the height of the boom, but those benefits proved temporary. As the industry shifted away from Tioga to other more lucrative shale plays in Ohio, Southwestern Pennsylvania, and North Dakota, businesses closed, employment declined, and the boom ended.

Carroll County is home to half of Ohio's gas wells. Residents, businesses, and labor leaders have welcomed new jobs in the county but are concerned that the best and highest-paying jobs are going to out-of-state workers rather than local residents.

While local governments in Carroll and Wetzel saw an increase in tax revenue with more drilling, the same was not true in Greene and Tioga because of Pennsylvania’s local tax structure. The state enacted a local impact fee in 2012 that has provided local governments with new resources to mitigate some drilling impacts.

Below is a summary of the key findings from each of the four case studies. To read the case studies themselves, go to <http://multistateshale.org/casestudies>.

Demographics and Drilling Activity

<u>Carroll County</u>	<u>Greene County</u>	<u>Tioga County</u>	<u>Wetzel County</u>
Population: 28,322	Population: 38,085	Population: 42,577	Population: 16,000
Median Income: \$41,790	Median Income: \$42,565	Median Income: \$42,027	Median Income: \$37,763
Poverty: 18.5%	Poverty: 15.9% (12.6% PA)	Poverty: 15.7% (12.6% PA)	Poverty: 15.6% (17.5% WV)
Drilling: 138 wells drilled in 2013, over half of 247 wells statewide	Drilling: 517 wells drilled in 2006-2012, 8% of state’s unconventional gas wells	Drilling: 811 wells drilled in 2006-12, 13% of state’s unconventional gas wells	Drilling: 997 wells drilled in 2012 (only 87 producing Marcellus Shale wells)
<i>Carroll: Median household income & poverty data from American Community Survey, 2010-2012</i>			
<i>Greene, Tioga, & Wetzel: Median household income & poverty data from American Community Survey, 2007-2011</i>			

Leases, Signing Bonuses, and Royalties: In all four counties, signing bonuses and royalties have increased the incomes of local residents and businesses benefiting from increased spending – but the economic benefits have not been shared equally or broadly

- Landowners are organizing to negotiate better lease agreements, which have been controversial.
- In Greene, Wetzel and Tioga, a handful of landowners, including out-of-state residents and businesses, own a large share of property, meaning that substantial lease and royalty income is concentrated in the hands of a few. This has diluted benefits to the local economy as income “leaks” out of town and out of state.

Employment and Economic Benefits: Each of the four counties reported growth in oil and gas drilling jobs, but overall shale-related employment is still a small share of total county employment.

- Greene experienced the most significant growth in employment of the four counties. Private-sector employment grew by 40.2 percent between 2005 and 2012, and more than a quarter of the county’s workers are employed in natural resources and mining, although seven in 10 jobs are in coal.
- In Tioga, jobs and other economic benefits proved to be temporary, as the industry shifted to more lucrative shale plays. Tioga’s unemployment rate, which was below the state average during the boom, has risen, as statewide unemployment has fallen.
- Wetzel’s unemployment rate has remained consistently higher than the state average. Small local businesses, like gas stations, construction firms, and motels, have seen an increase in business. Shale-related employment itself accounts for only 2 percent of jobs in the county – 93 jobs.
- Jobs have been added in Carroll, but far fewer than promised. Unemployment fell from a recessionary 14 percent to 8.3 percent, but remains higher than pre-recession levels (5.8 percent in July 2007). Statewide, shale-related employment is at fewer than 3,000 jobs, less that one-tenth of 1 percent of total Ohio jobs.
- Many oil and gas drilling jobs have gone to “transient” workers from parts of the country where the industry is more developed and the workers more experienced.

Housing: Out-of-state oil and gas workers have created increased demand for temporary housing in Carroll, Greene, and Tioga counties. Hotels filled up and new rooms were added, but growth was not sufficient to resolve what has become a problem. This insufficient housing supply has caused rents to increase, creating challenges for many local renters, including seniors, young people, and low-income individuals and families.

- In Carroll, rent increased significantly, in some cases doubling or tripling. Some low-income families received modest rental assistance, but it has not been enough.
- Greene, which faced a shortage of quality rental housing before the boom, has been hit particularly hard.
- Both Tioga and Greene reported an increased demand for housing assistance and an increase in homelessness. In Greene, some low-income families unable to secure adequate housing were separated and children were put into the foster care system.
- Hotel and campground occupancy by out-of-state workers increased in Wetzel, but the county did not experience the same level of housing cost increases as the others.

Roads and Infrastructure: In all four counties, drilling activity has increased traffic of heavy trucks carrying gravel, equipment, water, chemicals, sand, and waste. This has caused greater wear and tear on roads not designed for heavy truckloads, and increased motor vehicle accidents.

- In Carroll, increased truck traffic created congestion, drove up traffic accidents, and raised costs for emergency services and road and guardrail damage.
- In Greene, truck traffic is damaging roads and bridges, increasing highway maintenance costs.
- Road damage has been a problem in Tioga, where roads were not posted and bonded at first; that has changed as gas drilling increased.
- Both Greene and Tioga reported increases in traffic-related accidents.
- Traffic and road safety are primary concerns in Wetzel. The sheriff's office reported an increase in traffic citations for violations, including speeding and driving left-of-center. Heavy truck permits, maintenance costs, and vehicle accidents have all increased.

Crime: Crime data varied between the Pennsylvania communities and Wetzel County.

- In Greene and Tioga, researchers documented an increase in crime activity as drilling activity increased.
- Wetzel, on the other hand, did not experience any increase in crime or social services costs, other than traffic violations attributed to drilling activity.

Health and Environmental Impacts: The risk of water contamination near well sites and drilling waste disposal were key concerns in all four counties.

- In Carroll, citizens reported concerns about the potential of fracking wastewater contaminating drinking water supplies. 95 percent of county residents draw drinking water from wells.
- Greene residents reported concerns about water contamination and the increased costs that come with it, including costs for residents who had to re-build damaged water wells, haul water, find safe water for livestock, and buy bottled water to drink.
- In Wetzel, there are concerns about drilling waste disposal. In one month in 2013, the Wetzel County Landfill accepted 25,000 tons of drilling waste, prompting worries about the drilling waste's potential radioactivity and its effect on landfill workers.

Emergency Room Visits: Hospital data from Greene and Tioga counties showed an increase in emergency room visits as drilling activity increased.

- Greene's Southwest Regional Medical Center had a steady and dramatic increase in emergency room visits between 2005-2006 and 2010-2011.
- At Tioga's Soldiers and Sailors Memorial Hospital, emergency room visits were relatively steady between 2000-01 and 2007-08, but increased substantially during the boom years, along with uncompensated care costs.

Education: Few drilling company workers brought families with them to any of the counties studied. School enrollments, for the most part, remained stable or continued to decline in all four counties.

- The dropout rate grew in Greene, exceeding the state average, as some students left school to take high-paying jobs in the industry. As companies moved elsewhere more recently, young men without high school diplomas have sought help from local human service providers.
- In Tioga, officials saw a decline in the share of low-income students, reporting that rising rent drove low-income families out of the area.
- Both Greene and Tioga reported an increase in the need for special education services. Drilling families in Greene accounted for one quarter of those seeking early intervention services, while more students in Tioga required special education services, including emotional and learning supports.
- School enrollment had been declining in Wetzel before the drilling boom and has continued to decline.

Government Revenues

- In Carroll, increased economic activity has generated more sales tax revenue for local government. More income is being generated from recording more deeds, mortgages, and leases, and heavy trucks paying the fuel tax. Local government and nonprofit organizations, including the Carrollton School District and the county itself, are benefiting from leasing of mineral rights.
- In Wetzel, total property tax revenue has nearly tripled since 2005, and the county's share of revenue from the severance tax and local hotel occupancy tax has increased. The county has collected more in property taxes assessed on natural gas reserves and drilling equipment.
- In Pennsylvania, initial increases in hotel occupancy taxes fell off because hotel occupants who stay over 30 days – many of them drilling workers – do not pay the tax. An impact fee authorized in Act 13 of 2012 has provided local governments with new resources to mitigate some drilling impacts.
- School enrollment had been declining in Wetzel before the drilling boom and has continued to decline.

Recommendations

- All four case studies recommend that local officials gather as much information as possible up front before drilling begins in their communities. The Carroll, Greene, and Tioga studies recommend following in the footsteps of Wetzel by creating a local oil and gas taskforce to coordinate discussions between government agencies, local communities, stakeholders, and companies.
- The Multi-state Shale Research Collaborative has recommended that Ohio, Pennsylvania, and West Virginia adopt severance taxes of no less than 5 percent, as is currently assessed in West Virginia, in order to help cover the costs of shale drilling activity. The case studies echo this call, recommending adoption of a severance tax in Pennsylvania and a higher tax rate in Ohio.
- The Wetzel case study recommends that drilling communities consider enacting local fees on gas wells and setting aside the revenue for future use.
- All four case studies recommend that state and local officials increase investments in fixing and policing the roads and take steps to address the shortage of affordable housing.
- The Carroll case study recommends that policymakers protect landowner and citizen rights, while the Greene and Tioga case studies recommend that local landowners organize to help each other navigate the growth of the oil and gas industry.
- The Carroll study recommends that policymakers investigate methods to encourage the oil and gas industry to hire more local workers and provide health insurance.
- The Greene and Tioga case studies recommend Pennsylvania require that local governments conduct assessments to ensure impact-fee money adequately addresses the impacts of increased drilling.

Full Case Studies: To read the four case studies, go to <http://multistateshale.org/casestudies>.

The Multi-State Shale Research Collaborative conducts in-depth research and interviews to produce trend analyses and policy recommendations on the impacts of drilling in the Marcellus and Utica Shale. Member organizations include Fiscal Policy Institute of New York, Policy Matters Ohio, Keystone Research Center/Pennsylvania Budget and Policy Center, Commonwealth Institute for Fiscal Analysis in Virginia, and West Virginia Center on Budget and Policy.