

CENTRE COUNTY, PA MARCELLUS SHALE INDUSTRY UPDATE



Snow Shoe Township — Day Before Hydrofracturing, 2008

Drill Sites in Centre County - 2-28-09

Number of Permitted Marcellus Wells: 21

Drilling Companies Active in Centre County:

- Anadarko Petroleum Corporation 9 wells
- Carrizo Oil and Gas, Inc. 1 well
- EXCO—North Coast Energy, Inc. 9 wells
- Range Resources - Appalachia, LLC 1 well
- Rex Energy Corporation 1 well

Locations of Activity by Municipality:

- Burnside Township 12 wells
- Curtin Township 1 well
- Rush Township 1 well
- Snow Shoe Township 7 wells

Pipelines

Lateral pipelines are in the planning stages. Early indications are that the largest of these lines will be 24 inches in diameter and will connect to the major north-south Texas Eastern Line and the Dominion Line.

Water Use Requests

The hydrofracturing process necessary to retrieve large quantities of natural gas from the Marcellus Shale formation requires many gallons of water. Public water suppliers are providing much of the water but in recent months the County has seen an increase in requests for surface water withdrawals from local waterways.

Water Allocations

Water use requests to public water suppliers have averaged 4 million gallons per day with the duration of use usually permitted for a 30-day period. This water is drawn from metered locations; and hydrants are providing easily accessible locations.

Centre County water suppliers include:

- Bellefonte Borough Authority
- Boggs Township
- Milesburg Water Authority
- PA American Water - Philipsburg System
- Snow Shoe Borough Water Authority
- Snow Shoe Township

Source locations beyond the county include: Jersey Shore and Montoursville in Lycoming County and Burnside Borough and Irvona in Clearfield County.

Surface Water Withdrawals

Centre County Stream Locations:

- Bald Eagle Creek - Foster Joseph Sayers Lake
- Beech Creek - NE of Snow Shoe
- Black Moshannon Creek
- West Branch Susquehanna River

Today's Oil and Gas Industry

The following facts were taken from the Pennsylvania Economy League's November 2008 research titled, "The Economic Impact of the Oil and Gas Industry in Pennsylvania".

- The industry's direct economic impact, which includes drilling, extraction and support activities, brings in \$4.5 billion each year. In addition, the increased demand for energy has brought this industry to the forefront of economic development.
- These economic contributions are driven by the jobs and wages earned by working Pennsylvanians. More than 26,000 men and women hold full- and part-time positions that can be traced to direct, indirect and induced jobs supported by oil and gas development.
- Oil and gas workers also earn competitive wages, with an average annual compensation of \$63,000, a figure \$20,000 higher than the average annual compensation of a private sector employee in Pennsylvania. These total industry wages of nearly \$350 million each year are then infused into local and regional economies in the state.
- Another large contribution is found in the industry's payments to landowners who lease property for oil and gas drilling activity. More than \$200 million is given each year to landowners in the form of lease payments. Once a well is drilled and producing gas, landowners share in the benefits from royalty payments that are paid over the life of the well. These payments, made directly to property owners, are a dominant source of wealth and sustainment for property owners, particularly in rural counties. The payments have grown tremendously in recent years with the increase in production efforts.

Potential Opportunities to Come

The potential of the Marcellus Shale has not been realized – Pennsylvania is only in the infancy of the exploration and development process. Economic studies will be completed in early 2009 that will provide additional insight into projected future growth and benefits that can accrue across the state.

A smaller-scale comparison can be offered in a review of the recent experience in north Texas, where the Barnett Shale formation has been undergoing development for a little over a decade. The Barnett formation, at 5,000 square miles, pales in comparison to the size and potential of the Marcellus Shale formation, which extends 95,000 square miles and includes approximately 60 percent of Pennsylvania's land mass.

A recent evaluation of economic activity in the Barnett Shale region found the following:

- A total of 55,000 people are directly employed in the exploration and production of natural gas
- An additional 108,000 jobs support those direct workers in a full spectrum of employment sectors
- The gas industry contributes more than \$10 billion to the region's economy each year

With a land area spanning three states and almost 20 times the size of the five-county Barnett region, the Marcellus Shale provides an unparalleled economic opportunity for Pennsylvania.

Potential Opportunities for Employment

In addition to all of the jobs that go into directly operating gas drilling rigs, opportunities are also available in a variety of business sectors.

- Engineering and surveying
- Equipment manufacturing, service and repair
- Water transport/wastewater management
- General labor
- Legal, accounting and other professional services
- Food and Accommodations
- Construction and earthmoving
- Environmental permitting
- Well servicing
- Retail Trade
- Health Services
- Transportation