

Marcellus Shale Gas Development Considerations for Landowners

Introduction: Property owners and stakeholders in Western Maryland have expressed increased interest in Marcellus Shale Gas development. This fact sheet is designed to provide considerations and information to assist landowners with understanding factors that might influence their decisions regarding the potential development of this natural resource.

What is Marcellus Shale? Marcellus Shale is a geologic formation that occurs beneath a large region in the Northeastern U.S. and is known for producing natural gas. In Maryland, Marcellus Shale is found in Washington, Allegany, and Garrett Counties at depths ranging from surface outcrops to 9,000 feet below the surface. The actual thickness of the shale formation varies from approximately 50 to 200 feet, with the thicker zones having the potential for greater natural gas capacity. Natural gas resources from the Marcellus Shale are becoming very important to the nation because of their potential large volume and proximity to Eastern cities. Natural gas is a clean energy alternative with the lowest carbon emission per unit energy of any fossil fuel, no ash, and no smog-forming chemicals. Marcellus Shale gas wells are expected to produce for 30 to 50 years, and perhaps much longer.

Who Regulates Drilling Wells for Gas Production in Maryland? The Maryland Department of the Environment's Mining Program regulates exploration, drilling, production, transmission and overall management of developing mineral resources including natural gas in Maryland. The MDE's website has a fact sheet about obtaining permits for gas production in Marcellus Shale;
http://www.mde.maryland.gov/assets/document/mining/marcellus_fact_sheet.pdf.

What are the Environmental Concerns of Gas Production? Production of natural gas from deep underground is an industrial process with the potential to impact surface and ground water, landscapes, habitat, ecosystems, and air quality. However with proper planning, regulation and management, natural gas can be safely produced in an environmentally responsible manner. Landowners are encouraged to obtain a well water chemistry report (water quality test) prior to gas drilling for establishing baseline conditions. A USGS fact sheet identifies the three important water resource concerns related to Marcellus Shale gas production: supplying water for drilling without impacting local water resources, avoiding degradation of watersheds, and determining proper methods for the safe disposal of potentially contaminated fluids. The Fact Sheet is available at <http://md.water.usgs.gov/publications/fs-2009-3032/fs-2009-3032.pdf>.

What are the Economic Benefits of Gas Production? With increasing energy costs, natural gas production can provide a direct positive economic contribution to the local and regional economy. For the landowner, the surface value of the land can be far exceeded by the value of the mineral estate. In some areas in Western Maryland the value of the natural gas may be worth ten fold (or more) times the value of the land surface. For the property owner, the actual value of the gas resource depends upon many factors including the ability to obtain local and state approval, the amount of surface land ownership, the extent of the gas resource under the surface, exploration and development costs, and

production and transmission costs. Property owners are encouraged to obtain their own legal representation when negotiating the leasing of their mineral rights with perspective gas production companies. Natural gas is an abundant domestic resource that can directly replace surface mined coal and imported petroleum in nearly every process that burns fossil fuel.

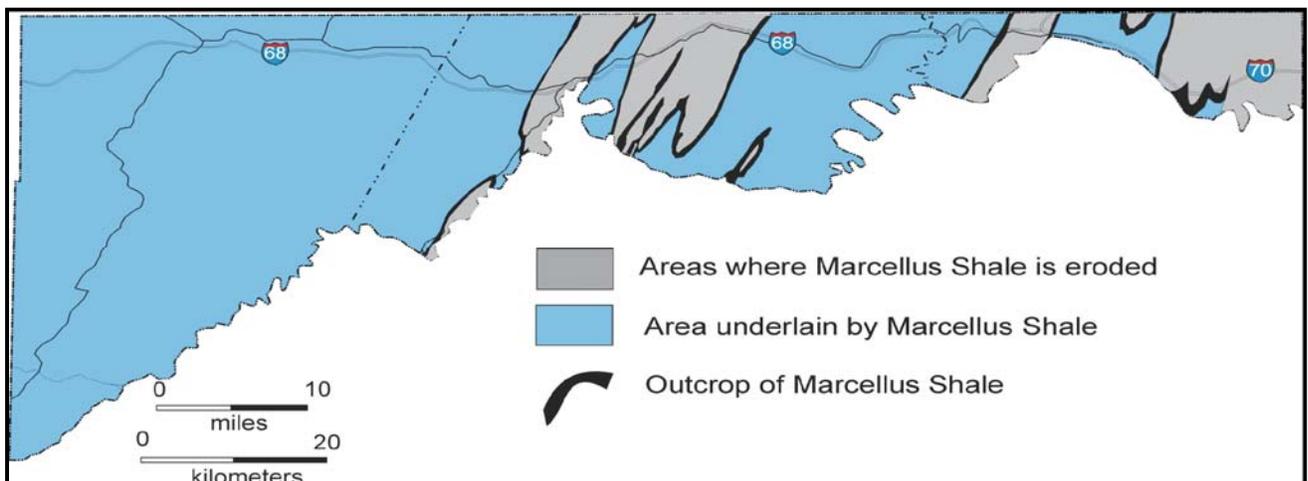
How do landowners determine if they own the subsurface mineral rights? Property owners should check their property deeds to determine if they have ownership to mineral rights. If their property deed does not contain this information they may need to conduct historical research of previous deeds for the property at the respective County Courthouse. According to state law, property deeds having undefined mineral rights defer to the surface landowner. In brief, the Maryland Dormant Mineral Interested Act which can be found at the following website;

http://mlis.state.md.us/2010rs/chapters_noln/Ch_269_hb0320T.pdf states that non surface owners of mineral rights have until 10/1/11 to file to maintain the rights to unused claims. At that time surface owners can file to gain ownership of the unused claim. Unused is defined as inactive for 20 years or more.

How long do gas wells produce? The life expectancy of a natural gas well in shale is 30 to 50 years, with 30 years being the most common. However, a shale gas well drilled in Fredonia, New York over a century ago is still producing. New technology has improved the economics of shale gas production, especially staged hydraulic fracturing and advances in drilling technology such as horizontal directional drilling. These new techniques allow drillers to extract much more gas from inside the shale, and the new horizontal wells can easily produce ten times more gas than a traditional vertical well.

What is shale rock fracturing or fracking? In order to extract large quantities of gas from a fine grained rock like shale, high permeability flowpaths must be created into the formation to gather up the gas and transmit it to a well. These flowpaths are created by cracking or fracturing the rock using hydraulic or water pressure. The fracturing is done at multiple locations or stages along a long horizontal borehole, resulting in an extensive network of cracks connected to the well bore that allow the gas to flow easily out of the formation. The oil industry has used fracking for decades. In 1997 it was used for the first time to extract natural gas from the Barnett Shale in Texas. More information on hydraulic fracturing can be found on the following webpage from the American Petroleum Institute:

<http://www.api.org/policy/exploration/hydraulicfracturing/index.cfm>



Marcellus Shale in Western Maryland

Graphic Courtesy of Department of Natural Resources, Maryland Geologic Survey