



## Forest Landowners and Natural Gas Development

**L**easing your property to an oil or gas company is an option for producing income from your property. Before signing a lease on your forestland, there are many things to consider to protect your interests. Building roads, installing pipelines, and clearing drilling pads will affect many forest values. Understanding these issues and your options are important in making the right decision for you and your forestland.

### Plan Ahead

If you have a management plan for your property, refer to it when deciding on appropriate locations for gas wells, roads, and pipelines. The resource professional who helped write your plan may offer useful advice. If you don't have a plan, contact your local DCNR Bureau of Forestry Service forester to obtain a list of qualified plan writers. It is in your best interest to have a forest management plan for your property before leasing your land. As a rule of thumb, work with the gas company to minimize disturbance to your forestland by using existing roads when possible and concentrating new roads, pipelines, and well sites along existing openings. The language in your lease should require your approval for all well site, road, and pipeline locations.

### Timber Resource

Gas and oil drilling will require cutting trees to construct access roads, drilling pads, and pipelines. You should negotiate fair compensation for trees removed to develop these sites. There are two common approaches for establishing a value for these trees: (1) fair market value and (2) competitive bidding. To establish the fair market value, use an independent third party, such as a consulting forester, to set the value. This estimated value then becomes a starting point for negotiating a reimbursement for your standing timber affected by site development.

Alternatively, a landowner can sell designated trees competitively by requesting bids on the volume. This approach may yield a higher return. Since an outside buyer, other than the lessee, is purchasing the timber you must allow sufficient time for the buyer to harvest designated trees. It is not uncommon for the bidding and harvesting process to involve a year's time. Therefore, it is essential to work with the gas company to clearly define infrastructure locations in advance to complete the harvest operation. If you chose to sell timber through a competitive bid and you do not have roads on the site, the buyer will need to construct roads to complete the harvest. The successful bidder will bear the cost of building these roads and this will likely reduce the bid price. If an extensive



road system is required, you may benefit more by having the lessee build the roads and remove the timber. A consulting forester can help with making this decision.

### **Wildlife and Habitat Quality**

Many forest landowners consider wildlife, either for hunting or viewing, an important benefit received from their land and providing quality habitat for wildlife one of their management objectives. The development of the drilling infrastructure will affect wildlife habitat and depending on extent may change the quality of your land for wildlife. Species sensitive to disturbance, such

as forest-dwelling hawks or species requiring large, undisturbed forest areas such as many of our migrant songbirds, may decline in number or disappear from your property. There is the potential that other wildlife species, such as deer and turkey, might benefit from the openings created by the drilling pad and roads depending on how the land is ultimately managed and restored. However, studies from the western U.S. where natural gas development has been in place for much longer, have found that wildlife, including mule deer, sage grouse, and songbirds, tend to avoid areas of natural gas development and show population declines as the level of development increases across the landscape. In general, minimizing disturbance to your land from gas well development will minimize negative impacts on wildlife.

### **Areas of Special Concern**

Your property may contain features such as wetlands, vernal ponds, spring seeps, unique timber stands, rock outcrops, streamside forests, or even abandoned home sites that you want to protect during gas and oil development. To protect them, you should clearly define where these areas are and have language in the lease agreement that defines permitted activities.



Forested watersheds are an important source of clean water. Forest soils help recharge the water table by allowing rainwater to move through rock layers to become groundwater. Forested watersheds supply over 80 percent of the drinking water in Pennsylvania. Be aware that the removal of trees during development activities can affect how water flows through a property, potentially affecting the quantity and quality of water entering nearby water resources such as streams, ponds, and private wells. Specify buffers around sensitive conservation areas such as streams, vernal ponds, springs, and wetlands to make sure they are protected.

Many landowners depend on private water wells for their drinking water. There are basic regulations in place to protect private water supplies, but additional strategies and protection methods to include in a lease agreement are described in the fact sheet "Gas Well Drilling and Your Private Water Supply" available at [resources.cas.psu.edu/WaterResources/pdfs/gasdrilling.pdf](https://resources.cas.psu.edu/WaterResources/pdfs/gasdrilling.pdf).

You may decide you do not want drilling on your property and may negotiate a lease agreement protecting the surface of your property. This will permit the lessee to drill under your property from an adjacent ownership. You can still receive a prorated share of the royalties if your land is within the drilling unit.



## Drilling Pad

It is important to understand the impact the drilling pad will have on your forest. Depending on the type of well drilled, the drilling pad area may occupy between one and five acres. Shallow gas wells require a smaller drilling pad and deeper wells; those drilled into the Marcellus shale require more equipment and a larger drilling pad. Developing the drilling pad involves removing all trees and leveling the site. To contain waste fluids from the drilling and fracturing operations, the pad site will also have lined pits. Depending on the equipment involved, this area can become severely compacted and may have reduced productivity in the future.

## Roads

Access roads are essential for moving equipment to the site and for maintaining it during the well's productive life. These roads may also be a permanent asset for forest management on your land. If roads already exist, clearly define your expectations for maintaining or restoring their condition. You may also want to specify in the lease a payment schedule for trees damaged outside the road right-of-way. If new roads are necessary, clearly designate these areas and specify in

the lease your right to review their location and construction using a qualified engineer or forester. Also clearly specify the use of best management practices (BMPs) for road construction to protect your soil resources and water quality. Erosion and sedimentation BMPs for silvicultural operations are available from Pennsylvania Department of Environmental Protection and can be used as a basis for designing the road system. In all cases, an erosion and sedimentation plan must be developed to protect surface water quality. The Pennsylvania Department of Environmental Protection Bureau of Oil and Gas enforces erosion and sedimentation regulations during well site development and operation.

## Pipelines

Pipelines are essential for collecting and distributing gas and oil. Work with the lessee to negotiate a route that will have the least effect on your forestland. Whenever possible, try to negotiate a plan that follows roads or existing rights-of-ways. During construction damage to trees beyond the actual pipeline right-of-way will occur. You should specify in the lease a fair compensation for these damages. Be aware that some leases provide blanket ac-



cess to the lessee for pipeline right-of-way development. Be certain your lease does not give the lessee the right to run pipelines from other wells through your property. If pipelines from other wells are necessary on your property, negotiate a separate agreement and compensation rate. Doing this will help you maintain control over the surface rights for your land.

## Reclaiming the Site

A good lease not only considers development issues but also site reclamation. To return the site to its full productivity, banked topsoil should be redistributed across the pad site. Returning this soil to the site will increase the likelihood of a successful restoration project. You may want to return the site to forest cover or use this opportunity to plant a wildlife food plot. Many gas companies are willing to negotiate the species of grasses, forbs, trees, and shrubs for replanting. Because many exotic plants have become invasive and are difficult to control, be sure to select native species. A natural resource professional can assist you with plant selection. To help ensure successful plant establishment, conduct a soil test to determine lime and fertilizer application rates. Soil test kits are available at your county cooperative extension office. In some areas it may be necessary to protect plantings from deer with either tree seedling protectors or fencing.



## Conclusion

Leasing forestland for natural gas exploration can be profitable. Negotiate in good faith with gas companies and be reasonable with your demands to protect your interests. Prior to signing a lease, have an attorney experienced with gas leases review its content and seek advice from a qualified natural resource professional.

## Sources of Additional Information

### Penn State Cooperative Extension, Natural Gas Resource Management Program

Contains information for landowners about leasing land for natural gas exploration.

[naturalgas.psu.edu](http://naturalgas.psu.edu)

### Penn State Cooperative Extension, Renewable Natural Resources Extension

The Renewable Natural Resources Extension program in the School of Forest Resources helps people make informed decisions that improve their own well-being and ensure clean water, viable populations of native wildlife, recreational opportunities, attractive communities, and the sustainable production of wood and paper products.

[rnnext.cas.psu.edu](http://rnnext.cas.psu.edu)

### Pennsylvania Department of Environmental Protection Bureau of Oil and Gas Management.

This is the bureau responsible for statewide oil and gas regulations, programs, and policies.

[www.dep.state.pa.us/dep/deputate/minres/oilgas/oilgas.htm](http://www.dep.state.pa.us/dep/deputate/minres/oilgas/oilgas.htm)

### New York State Department of Environmental Conservation: Marcellus Shale

This site provides information about gas well drilling in the Marcellus shale.

[www.dec.ny.gov/energy/46288.html#Information](http://www.dec.ny.gov/energy/46288.html#Information)

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## Put Our Experience to Work for Your Community

The Penn State Cooperative Extension Marcellus Education Team strives to bring you accurate, up-to-date information on natural gas exploration and drilling in Pennsylvania. Learn about your rights and choices as a landowner, a businessperson, a local official, or a concerned citizen. Discover the resources available to you.

Visit [naturalgas.psu.edu](http://naturalgas.psu.edu).

### Penn State Cooperative Extension

Penn State Cooperative Extension has a special mission—to enable individuals, families, communities, agriculture, businesses, industries, and organizations to make informed decisions. Through a system of county-based offices, we extend technical expertise and practical, how-to education based on land-grant university research to help Pennsylvanians address important issues, solve problems, and create a better quality of life. From improving agriculture and building stronger communities, to developing skills with today's youth, we are dedicated to giving Pennsylvanians the means to grow, achieve, compete, go farther, and do more. Learn what extension can do for you. Contact your county cooperative extension office or visit [www.extension.psu.edu](http://www.extension.psu.edu).

### The Agricultural Law Resource and Reference Center

The Agricultural Law Resource and Reference Center is a collaboration between Penn State's Dickinson School of Law and Penn State's College of Agricultural Sciences. Located at both the University Park and Carlisle facilities and funded in part by the Pennsylvania Department of Agriculture, the center is designed to provide the highest-quality educational programs, information, and materials to those involved or interested in agricultural law and policy.



FACT-BASED INFORMATION

# natural gas

Marcellus Education Team  
[www.naturalgas.psu.edu](http://www.naturalgas.psu.edu)

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