

## Addressing the Community Impact of Forced Pooling on Local Drilling Decisions

### Abstract

Increased unconventional oil and gas development has created concerns about property right issues and land degradation problems for many U.S. landowners. Many states allow "forced pooling," which forces landowners to lease their lands to an operator, even if the owner disagrees, when a threshold is reached. Extension professionals need to provide relevant information to decision makers and other local stakeholders on the effects of forced pooling. This article examines how forced pooling laws can affect local voice. Findings suggest that the holders of decision-making power at the local level differ according to the forced pooling thresholds used.

**Keywords:** [forced pooling](#), [gas drilling](#), [decision making](#), [minimum operator control requirement](#)

**Sarah Osmane**  
Ph.D. Graduate in  
Agricultural and  
Extension Education  
and International  
Agriculture and  
Development  
[sarahosmane@gmail.com](mailto:sarahosmane@gmail.com)

**Timothy Kelsey**  
Professor and Director  
of the Marcellus Shale  
Center  
[tkelsey@psu.edu](mailto:tkelsey@psu.edu)

Department of  
Agricultural  
Economics, Sociology,  
and Education  
The Pennsylvania  
State University  
University Park,  
Pennsylvania

### Introduction

Because of Pennsylvania's growing gas extraction industry, property rights issues and land degradation problems are growing concerns for many Pennsylvania landowners, even those who do not lease their lands for gas drilling. Landowners can be affected by activities occurring on their lands or on their neighbors' lands (Flanery & Morgan, 2011). Additionally, people are afraid of the deterioration of air, water, and soil quality and health impacts caused by gas drilling in the region's Marcellus Shale (Goldstein, Kriesky, & Pavliakova, 2012; Rahm, 2011).

Typically, mineral rights owners must agree to allow gas drilling to occur on their land; however, "forced pooling" laws can force reluctant mineral rights owners to allow development to occur on their lands (Flanery & Morgan, 2011). This situation is not unique to Pennsylvania. According to Flanery and Morgan (2011), 33 states have forced pooling and unitization regulations. These forced pooling laws are intended to allow for the orderly development and extraction of the resource by eliminating doughnut holes of nonparticipants' lands that can make development of pipelines and other infrastructure more difficult (Flanery & Morgan, 2011; Peek, Penn, Sanders, Shideler, & Ferrel, 2015). Under forced pooling, the state sets a threshold that companies must meet through voluntary sign-ups of mineral rights owners; such a threshold may be a percentage of acreage, a percentage of landowners, or a combination of percentages of acreage and owners (Landy & Reese, 2011). Once this threshold is reached, other land can be forced into the drilling unit without owners' consent. Thresholds vary

across states and depend on state law. Flanery and Morgan (2011) indicated that thresholds "range from 50% of the proposed pooled interest to 75% or 80% consent by relevant owners thereof on a net acreage basis" and that "most states require between 63% and 75% consent from working interest and royalty owners" (p. 508).

Forced pooling already exists in Pennsylvania law, in the provisions of the 1961 Pennsylvania Oil and Gas Conservation Law. Under this law, the Department of Environmental Protection can issue a pooling order after a public hearing (Pennsylvania Budget and Policy Center, 2011). However, this provision applies only to the Onondaga Limestone Formation below the Marcellus Shale, including the Utica Shale. Although about 68% of the Marcellus Shale in Pennsylvania is available for drilling (Blohm, Peichel, Smith, & Kougentakis, 2012), existing state law does not address pooling relative to the Marcellus Shale (Flanery & Morgan, 2011). Over the past few years, there has been policy debate in the state capital about whether Pennsylvania should extend forced pooling provisions to Marcellus Shale development.

To address educational needs of communities and policy makers, Extension professionals should become knowledgeable about various effects of oil and gas extraction policies and regulations. To that end, we examine in this article how the policy choice of what threshold to use in forced pooling laws can affect local voice. We examine five hypothetical forced pooling threshold scenarios to determine what the influence of each would be on gas drilling decisions in four Pennsylvania counties. Our process and results have implications for policy makers and others considering gas extraction policy in Pennsylvania and for Extension professionals working in areas experiencing oil and gas extraction booms.

## Research Questions

Previous study of Pennsylvania Marcellus Shale counties has indicated that a majority of the land is owned by only 10% of the local landowners (Kelsey, Metcalf, & Salcedo, 2012). Therefore, if a forced pooling law were adopted for the Marcellus Shale in Pennsylvania, only this small group of people—rather than the majority of landowners—would have the power to make decisions about leasing land for gas drilling. In addition, this small group also would receive most of the associated royalty payments (George, 2010).

In this article, we discuss research that focused on two major aspects of the potential adoption of a forced pooling law for the Marcellus Shale in Pennsylvania:

1. the implication of forced pooling on landowners' rights and
2. the influence of differing minimum operator control requirements (acreage threshold vs. percentage of landowners threshold) on local decision making.

## Methodology

The study reported here was an extension of previous research on effects of Marcellus Shale development. In that 2012 study, Kelsey et al. used publicly available geographic information system data on landownership in 11 counties and census household data on homeownership and renting from the 2010 U.S. Census. For each county, Kelsey et al. (2012) determined the land area owned by residents of the county and the land area owned by nonresidents, including landowners from outside the county and public sector landowners. In our study, we used these data to conduct our analysis, choosing to focus on four of the 11 counties studied by Kelsey et al. We selected Bradford and Tioga Counties because they have some of largest numbers of wells in northeastern Pennsylvania and Greene and Washington Counties because they had had the largest wells in southern

Pennsylvania during the preceding 3 years (Pennsylvania Department of Environmental Protection, 2015). We recognize that forced pooling is typically locally focused rather than county based, but our analysis is intended simply to show what could happen in four different parts of the state if such a law, with its accompanying threshold, were passed.

To examine the potential effect of forced pooling on local decision-making power, we devised, processed, and analyzed data for five hypothetical forced pooling threshold scenarios:

- Scenario 1—threshold is 75% of the land area.
- Scenario 2—threshold is 90% of the land area.
- Scenario 3—threshold is 80% of the landowners of the property.
- Scenario 4—threshold is 60% of the landowners of the property.
- Scenario 5—threshold is 75% of the land area and 60% of the landowners of the property.

To show how each threshold would affect the local residents' ability to decide whether to join drilling activities and how it would affect the majority of the county resident landowners, we performed several calculations. For scenarios 1 and 2, we added the percentage of the county's land owned by the top 10%–20% of county resident landowners (residents) to the percentage of the county's land owned by nonresidents (i.e., land owned by people residing outside the county and land owned by the public sector, which mostly consists of state-owned forest and game land and thus is not under local control). For scenarios 3 through 5, we calculated the land share owned by the bottom 80% of residents and the land share owned by the bottom 60% of residents. After performing these calculations, we conducted a critical analysis of the effects of the five scenarios on residents' local voice. Throughout this article, we use "top" to refer to individuals owning the greatest amounts of land and "bottom" to refer to individuals owning the least amounts of land.

## Results

Table 1 and Figure 1 show the results of our data analysis—percentages of land owned by various types of landowners in each county. In all four counties, the top 10% of resident owners own the majority of the resident-owned land. Thus, they have more influence on land uses in the counties than the other resident owners do. Moreover, the top 10% of resident owners and the nonresident owners combined own the majority of all land in the county, with that share ranging from 83.6% in Bradford County to 90.9% in Washington County. In all counties, the land share owned by the top 10% of resident owners and the nonresident owners exceeded the threshold of 75% of land share. Also, the land share owned by the top 20% of resident owners and the nonresident owners reached the threshold of 90% of the land share. In all counties, the bottom 80% of resident owners together own a land area that does not exceed 6.9% of the county land. Moreover, the bottom 80% of resident landowners and the nonresident owners together cannot reach the threshold of 75% of land share. This finding underscores the real power of the top 20% of resident landowners, and more specifically the top 10%, as they have 36%–68% landownership in the counties. Applying a threshold of 60% or 80% of the landowners would give decision-making power to the resident owners. However, the land area owned by the bottom 60% or the bottom 80% of the resident owners does not total more than 6.9% in any of the counties. If a threshold of 75% of the land area and 60% of landowners were chosen, the bottom 50% of resident owners and top 10% of

resident owners would have the decision-making power.

**Table 1.**

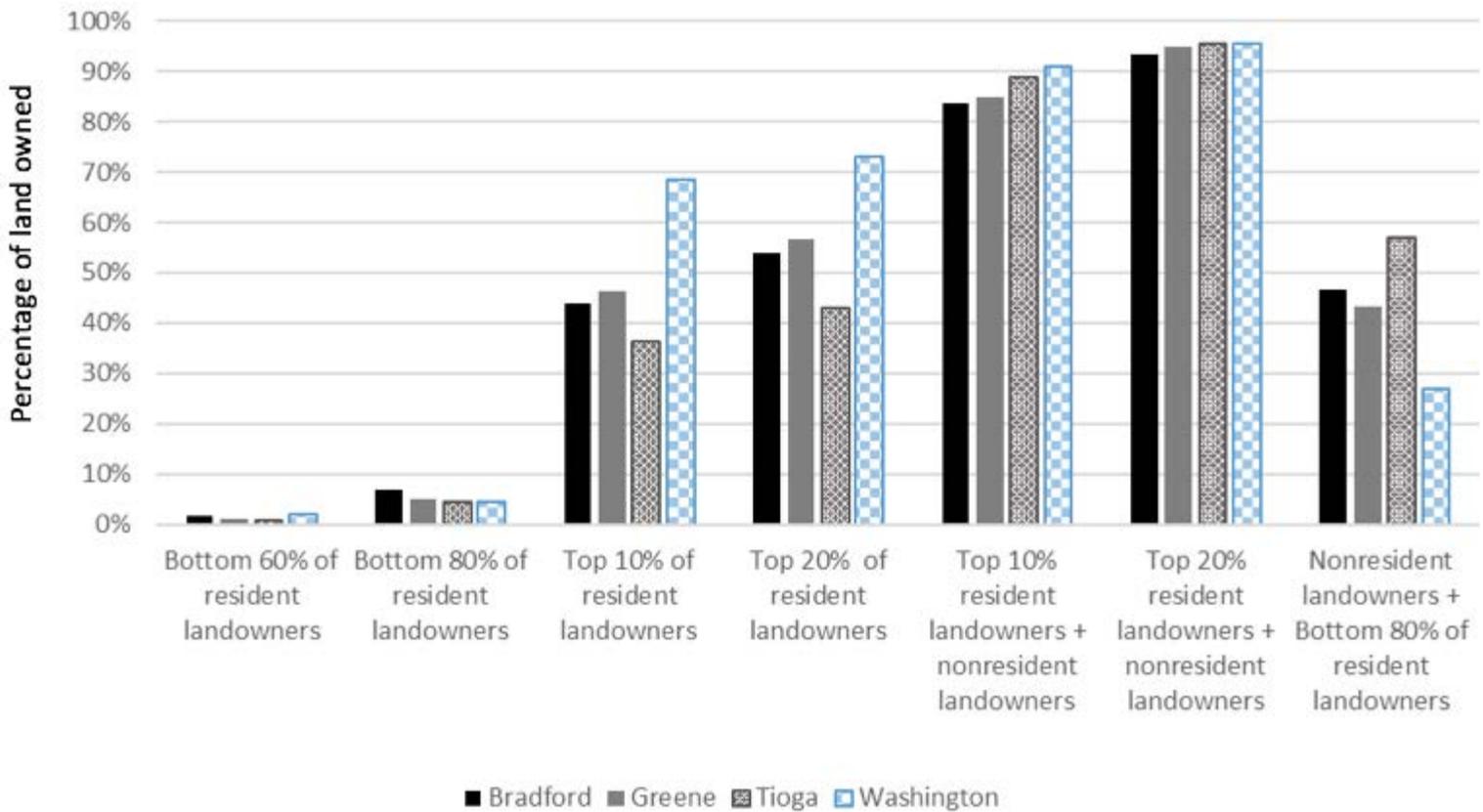
Land Share per Owner Type in Selected Pennsylvania Counties

<b>Landowner type</b>	<b>Bradford</b>	<b>Greene</b>	<b>Tioga</b>	<b>Washington</b>
Resident landowners	60.30%	61.50%	47.70%	77.60%
Nonresident landowners	39.70%	38.50%	52.40%	22.40%
Bottom 60% of resident landowners	1.60%	1.10%	0.90%	2.00%
Bottom 80% of resident landowners	6.90%	4.90%	4.40%	4.50%
Bottom 90% of resident landowners	16.40%	15.10%	11.40%	9.10%
Top 10% of resident landowners	43.90%	46.40%	36.30%	68.50%
Top 20% of resident landowners	53.80%	56.50%	43.10%	73.00%
Top 10% of resident landowners plus nonresident landowners	83.60%	84.90%	88.70%	90.90%
Top 20% of resident landowners plus nonresident landowners	93.50%	95.00%	95.50%	95.40%
Bottom 80% of resident landowners plus nonresident landowners	46.60%	43.40%	56.80%	26.90%

*Note.* Source: Kelsey, T., Metcalf, A., & Salcedo, R. (2012). *Marcellus Shale: land ownership, local voice, and the distribution of lease and royalty dollars*. Retrieved from <http://aese.psu.edu/research/centers/cccd/publications/marcellus/marcellus-shale-land-ownership-local-voice-and-the-distribution-of-lease-and-royalty-dollars>

**Figure 1.**

Land Share Percentages of Resident and Nonresident Owners



## Discussion

### Scenarios 1 and 2: Thresholds of 75% and 90% of Land Area

When forced pooling law is executed on the basis of a minimum requirement of land acreage ownership, the people owning the largest percentage of the land control the decision-making process. Their decisions about their own land can force leasing of others' lands, and they garner the highest revenues from the drilling activity. In most of the counties we studied, the top 10% of resident owners owned 44%–68.5% of the land area. In all counties, the threshold for scenario 1 was reached by adding the land owned by the top 10% of resident owners to that owned by the nonresident owners. Thus, those people can force all the other landowners to lease their lands. The bottom 90% of resident landowners in those counties would not be able to avoid forced pooling or have the right to protect their lands from associated pollution.

In scenario 2, the threshold was reached in all counties by adding the land owned by the top 20% of resident owners to the land owned by the nonresident owners. Although the application of this scenario would give greater voice to resident owners, a forced pooling decision could be made against the wishes of the vast majority (80%) of resident owners. The upshot is that with scenarios 1 and 2, the decision making could be done without the agreement of the majority of the local landowners.

### Scenarios 3 and 4: Thresholds of 80% and 60% of Landowners of the Property

In scenario 3, the majority of local people would have a voice and decision-making power; they could control

their lands and resources. They would be able to choose whether to participate in the gas drilling. Yet this scenario does not take into consideration percentage of land share. In all counties, the bottom 80% of resident owners own less than 7% of the land. Their voice would affect those who own about 93% of the land, the environmental aspects of the local area, and extraction efficiency.

In scenario 4, the bottom 60% of resident owners would have a voice in the forced pooling process, even though in most counties this group owns less than 2% of the land. Their decisions would affect those owning 98% of the land.

## **Scenario 5: Threshold of 75% of Land Area and 60% of Landowners of the Property**

In this scenario, both the top 10% of resident owners and the bottom 50% of resident owners could share the decision-making process relative to participating in drilling activities at the local level. The top 10% of resident owners could not force the majority (90%) of owners to take part in drilling activities. Moreover, the voice of the local residents would be taken into consideration. They would be able to decide whether to be affected by drilling activities. Of course, the developers would be dealing with many more people, potentially with different goals and drivers.

## **Implications and Conclusion**

Policy makers should take into consideration local residents' voices when generating forced pooling policies. It is important to analyze the implications of each proposed policy. In this article, we discussed different scenarios and their consequences. If scenarios 1 or 2 were chosen, the majority of the local landowners would have no voice in the decision-making process. If scenarios 3 or 4 were selected, the majority of the local landowners would have more control over their land. They own less than 10% of the land, but their decisions would affect 90% of it. In scenario 5, local people would have more power to control their resources. They would share the decision-making process with the top 10% of resident owners and the nonresident owners. The decision-making power would be held by most of the stakeholders. Local people who are affected by forced pooling would have the right to accept or deny participation in drilling activities.

Any threshold option that is chosen will have equity-related implications. Extension educators should be aware of the applicable power and voice dynamics to educate local stakeholders about the implications of forced pooling thresholds. Extension personnel can develop training sessions that help policy makers understand the positive and negative implications of forced pooling and the implications of whichever threshold is used in such a law. Also trainings can help residents understand the impact of threshold choice on their local voice, know their rights, and advocate for better solutions. Because forced pooling is locally focused and not county based, researchers conducting future studies can test scenarios that are more locally focused to get a better understanding of the different implications of the threshold selection on local voice.

## **References**

- Blohm, A., Peichel, J., Smith, C., & Kougentakis, A. (2012). The significance of regulation and land use patterns on natural gas resource estimates in Marcellus Shale. *Energy Policy*, 50, 358–369.
- Flanery, S. O., & Morgan, R. J. (2011). *Overview of pooling and unitization affecting Appalachian shale development*. 32 *Energy & Min. L. Inst.* 13. Retrieved from

[https://www.emlf.org/clientuploads/directory/whitepaper/Flanery\\_Morgan\\_11.pdf](https://www.emlf.org/clientuploads/directory/whitepaper/Flanery_Morgan_11.pdf)

George, C. (2010, May). Special update on severance tax and forced pooling and H. B. 2213. House Environmental Resources and Energy Committee. Retrieved from <http://wallaby.telicon.com/PA/library/2010/2010060189.PDF>

Goldstein, B., Kriesky, J., & Pavliakova, B. (2012). Missing from the table: Role of the environmental public health community in governmental advisory commissions related to Marcellus Shale drilling. *Environmental Health Perspectives*, 120, 483–486.

Kelsey, T., Metcalf, A., & Salcedo, R. (2012). *Marcellus Shale: Land ownership, local voice, and the distribution of lease and royalty dollars*. Retrieved from <http://aese.psu.edu/research/centers/cecd/publications/marcellus/marcellus-shale-land-ownership-local-voice-and-the-distribution-of-lease-and-royalty-dollars>

Landy, B. R., & Reese, M. B. (2011). Getting to "yes": A proposal for a statutory approach to compulsory pooling in Pennsylvania. *Environmental Law Reporter*, 41(11), 11044–11058.

Peek, J., Penn, C., Sanders, L., Shideler, D., & Ferrel, S. (2015). The oil and gas boom: Basic information about oil and gas activities for Extension professionals. *Journal of Extension*, 53(3), Article 3TOT3. Available at: <http://www.joe.org/joe/2015june/tt3.php>

Pennsylvania Budget and Policy Center. (2011). *Marcellus Shale: A citizens view*. Retrieved from <https://pennbpc.org/sites/pennbpc.org/files/CMSC-Final-Report.pdf>

Pennsylvania Department of Environmental Protection. (2015). [Interactive Report]. Retrieved from <https://pennbpc.org/sites/pennbpc.org/files/CMSC-Final-Report.pdf>

Rahm, D. (2011). Regulating the hydraulic fracturing in shale gas plays: The case of Texas. *Energy Policy*, 39, 2974–2981.

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