

Getting to “Yes”: A Proposal for a Statutory Approach to Compulsory Pooling in Pennsylvania

by Brigid R. Landy and
Michael B. Reese

Brigid R. Landy and Michael B. Reese are third-year students at Temple University’s James E. Beasley School of Law in Philadelphia.

Editors’ Summary

The natural gas reserves in the Marcellus Shale gas play offer profound economic potential as new technologies make its extraction economically viable. However, Pennsylvania’s current oil and gas conservation laws lack a comprehensive statutory scheme for compulsory pooling in the state. Existing statutes in major oil and gas-producing states like Oklahoma and Texas, as well as their courts’ interpretation of those statutes, offer lessons for how Pennsylvania might construct an appropriate statutory scheme. Proposed language for such a scheme distinguishes leased and unleased landowners, recognizing the specific needs and desires of each, and highlights how all interested parties may benefit.

The commonwealth of Pennsylvania was among the first in the United States to develop oil and gas. In 1859, Col. Edwin Drake drilled his well to a depth of 69.5 feet in the northwestern frontier town of Titusville, Pennsylvania, and made his famous discovery.¹ The Drake well set off an explosion of drilling, speculation, leasing, and subleasing of property throughout what became known as the “oil region” of Pennsylvania.² Despite the feverish pace of exploration, the oil market of the late 1800s was anything but consistent. In fact, as rock oil began to replace whale oil as the dominant source of fuel for illumination, supply often exceeded demand.³ Pennsylvania’s oil production peaked in 1891,⁴ and in its wake came the great western booms. Despite the decline of production, by 1901, Pennsylvania had produced 50% of the world’s oil.⁵ The early days of Pennsylvania oil and gas were successful, but the 20th century established Pennsylvania as a footnote in the history of oil and gas development in the United States. Pennsylvania’s footnote status is not destined to last forever.

At the outset of the 21st century, Pennsylvania stands on the precipice of yet another boom. This time around, the boom is being caused by the development of the Marcellus Shale gas play. The Marcellus represents an economic opportunity of great importance for the commonwealth of Pennsylvania and its citizens. The development of gas in the state has the potential to change lives, create financial security for families, and generate desperately needed tax revenue. Despite the benefits, we must proceed with caution. Development of natural gas throughout the state comes with significant risk. Environmental concerns are diverse and plentiful; the consequences of mismanagement could be catastrophic.

Conservation laws generally and compulsory pooling specifically are critical tools within the statutory scheme necessary to ensure that development of Pennsylvania’s gas resources will be conducted in a fair, efficient, and environmentally sound manner. Spacing and unitization of natural gas fields define the area of ownership and identify the owners that will participate in the well. A pooling arrange-

Many thanks to Dean Robert Bartow, Professor David Post, R. Joseph Landy, Esquire, and Elizabeth Reese. Thank you for your guidance, advice, and support throughout.

1. S.T. Yuster, *Review of Pennsylvania Petroleum, 1750-1872: A Documentary History* by Paul H. Giddens, 15 PA. HIST. 342, 342 (1948).
2. DANIEL YERGIN, *THE PRIZE: THE EPIC QUEST FOR OIL, MONEY, AND POWER* 29-30 (Simon and Schuster 1991).
3. *Id.*
4. WILLIAM S. LYTLE, *CRUDE OIL RESERVES OF PENNSYLVANIA* 60-62 (Commw. of Pa. 1950).
5. PALEONTOLOGICAL RESEARCH INST., *Petroleum Education: History of Oil*, <http://www.priweb.org/ed/pgws/history/pennsylvania/pennsylvania2.html> (last visited Sept. 26, 2011).

ment subsequently determines the entitlement of interest owners, the basis of their compensation, and provides for cost-sharing. This may include a penalty for “holding out,” which will be described further below. A pooling arrangement may be agreed upon voluntarily by the interested parties, or it may be ordered by the state. Appropriately, statutorily enabled orders are referred to as compulsory pooling orders.

The purpose of this Article is to propose a compulsory pooling statute for the commonwealth of Pennsylvania. Part I introduces the reader to the Marcellus Shale play, including an overview of natural gas use in the United States, the significance of the Marcellus Shale, the technologies of horizontal drilling and hydraulic fracturing, the environmental concerns of the increased drilling activities, and, finally, the economic benefits for Pennsylvania. Part II covers the legal justification for pooling laws, explaining the basic principles that govern oil and gas and the correlative rights doctrine. Part III explains Pennsylvania’s current approach to oil and gas conservation law, including the fact that compulsory pooling already exists. Part IV provides an overview of the nuts and bolts of pooling, both voluntary and compulsory, including an example statute from North Dakota, and explains the complexities of cost-sharing under a compulsory pooling order. Part V gives an in-depth description of compulsory pooling, describing the various approaches that have been established in other major hydrocarbon-producing states. This section of the Article divides compulsory pooling into two categories: the nonconsenting working interest owner; and the nonconsenting interest holders who have not leased their mineral rights. The final aspect of this section explains how Pennsylvania’s current legislation already reflects certain elements of the approaches of other states. Finally, Part VI of this Article advances the authors’ suggestions for Pennsylvania moving forward, including proposed statutory language for compulsory pooling in the commonwealth.

I. Shale Gas: Why Now and Why Here?

A. Importance of Natural Gas

Natural gas serves a significant role in meeting U.S. energy demands and accounts for approximately 22% of the nation’s total energy consumption.⁶ Natural gas use extends across the full spectrum of the U.S. economy as a vital source of energy for industrial use, electrical genera-

tion, and, most significantly, residential heating.⁷ There is no doubt that natural gas will continue to play a critical role in energy use in our country for decades to come.

The United States has abundant natural gas resources that the Energy Information Administration (EIA) estimates consist of more than 1,744 trillion cubic feet⁸ (tcf) of technically recoverable natural gas.⁹ Technically recoverable natural gas represents the total amount of gas thought to be recoverable with available technology, regardless of economics.¹⁰ The EIA sets the technically recoverable shale gas resource in the United States at 827 tcf in their 2011 Annual Energy Outlook Report Preview.¹¹ Natural gas is highly versatile as a fuel and has a well-developed infrastructure throughout the United States.¹² Natural gas is exceptionally reliable; in fact, 97% of the gas used in the United States is produced in North America, and 84% of the gas used in the United States is produced in the United States.¹³ That means there is no dependence on foreign production in parts of the world vulnerable to armed conflict or destabilizing political and social change.

Natural gas is also relatively clean-burning when compared to coal, fuel oil, and other fossil fuels. The combustion of natural gas emits one-half as much carbon dioxide (CO₂) as coal, and nearly 30% less than fuel oil.¹⁴ As a result, the increased use of natural gas would help to lower CO₂ emissions and would help bridge the gap between our nation’s current dependence on fossil fuels for energy production until sources of alternative energy become more economically efficient and available.

A great deal of the gas reserves in the United States are considered “unconventional.” An unconventional gas reservoir is a term generally used to describe gas trapped in low-permeability geologic formations that require technologically advanced extraction methods. Shale gas is characterized by wells that produce from low-permeability shale, and, accordingly, is considered an unconventional gas.¹⁵ Low permeability means the gas trapped in the shale

6. GROUND WATER PROTECTION COUNCIL, MODERN SHALE GAS DEVELOPMENT IN THE UNITED STATES: A PRIMER ES-1 (2009), available at <http://www.gwpc.org/e-library/documents/general/Shale%20Gas%20Primer%202009.pdf> [hereinafter SHALE PRIMER].

7. *Id.*

8. The Ground Water Protection Council has noted that: Natural gas is generally priced and sold in units of one thousand cubic feet or Mcf. Units of trillion cubic feet are used to measure large amounts, such as annual consumption or reserves in the ground. A tcf is one billion Mcf and is enough natural gas to (1) heat 15 million homes for one year; (2) generate 100 billion kilowatt hours of electricity; (3) fuel 12 million natural gas fired vehicles for one year.

SHALE PRIMER, *supra* note 6, at 3.

9. SHALE PRIMER, *supra* note 6, at ES-1.

10. *Id.* at 6.

11. U.S. ENERGY INFORMATION ADMINISTRATION, ANNUAL ENERGY OUTLOOK 2011 WITH PROJECTIONS TO 2035 EARLY RELEASE REPORT 1 (2010), available at [http://www.eia.gov/forecasts/aeo/pdf/0383er\(2011\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383er(2011).pdf) [hereinafter AEO EARLY RELEASE 2011].

12. SHALE PRIMER, *supra* note 6, at 5.

13. *Id.*

14. *Id.*

15. *Id.* at 15.

cannot move easily within the rock except over millions of years.¹⁶ Shale gas is typically a “dry” gas, primarily composed of 90% methane.¹⁷ There are exceptions, however. For example, much of the shale gas in southwestern Pennsylvania is “wet,” meaning it is mixed with a variety of other hydrocarbons and requires more extensive processing. Shale gas wells can be drilled both horizontally and vertically, and generally require hydraulic fracturing for production.¹⁸

Shale reservoirs constitute a vast source of domestic energy. For example, the Barnett Shale play in Texas, which has only been producing for a few years, accounts for 6% of all natural gas produced in the lower 48 states.¹⁹ Ten years ago, shale gas accounted for 1% of all U.S. natural gas production, while today shale gas accounts for 25%.²⁰ Shale gas can help create energy independence and reduce CO₂ emissions. Accordingly, gas represents an increasingly important piece of the puzzle of the country’s energy future.

B. The Marcellus Shale

There are several substantial shale gas plays in the United States. Among those, the Marcellus Shale is by far the largest with an estimated basin area of 95,000 square miles, stretching across six states in the northeastern United States.²¹ The Marcellus Shale is the largest natural gas shale deposit in the world.²² The Barnett Shale play in Texas was the first of its kind to be developed in the United States. The development of the Marcellus Shale is a direct result of the advancements in horizontal drilling and hydraulic fracturing developed in the Barnett play. These advancements have made shale gas production an economically viable pursuit.²³ The technological development of horizontal drilling and hydraulic fracturing have combined to create an atmosphere of growth and increased investment in Pennsylvania and in the rest of the Marcellus play.

C. Horizontal Drilling and Hydraulic Fracturing

Horizontal drilling was first used in Texas in 1929.²⁴ The technology has been used and improved throughout the intervening decades. By the 1980s, the use of the technique was widespread in the petroleum industry.²⁵ Significantly, the technique allows for multiple wells from a single platform or pad.²⁶ Horizontal wells are drilled to a predetermined vertical depth and are then turned on an angle using specially developed mechanisms and drilled sideways for thousands of feet more.²⁷ The extended reach of horizontal wells allows access to hundreds of feet of additional shale that would otherwise be unavailable using conventional vertical drilling methods.²⁸ Horizontal drilling creates maximum contact with the gas-bearing shale and allows for multiple well bores that in turn create greater efficiency and effectiveness. Due to the digging of multiple wells from a single well pad, surface impact is reduced by lowering the number of wells and drill pads needed for production. This aspect of the process is good for the environment, because it reduces surface impact.²⁹

Increased access does not come without a price: horizontal wells can cost three to four times more than a vertical well.³⁰ A typical horizontal well that utilizes hydraulic fracturing can cost from \$3-5 million to complete.³¹ After drilling is complete, the next step is to stimulate the well to produce gas, which requires hydraulic fracturing.

Essentially, hydraulic fracturing stimulates the shale formations by widening natural fissures while at the same time creating artificial fissures, freeing up the natural gas trapped in the low-permeability shale of the Marcellus. The process requires the pressurized injection of fluids that consist of water and chemical additives into the shale formation.³² The pressure in the well exceeds the strength of the

16. *Id.* at 14.

17. *Id.*

18. *Id.* at 15.

19. *Id.* at 8.

20. Editorial, *The Facts About Fracking: The Real Risks of the Shale Gas Revolution, and How to Manage Them*, WALL ST. J., June 25, 2011, <http://online.wsj.com/article/SB10001424052702303936704576398462932810874.html>.

21. SHALE PRIMER, *supra* note 6, at 17. According to Drs. Terry Engelder and Gary G. Lash, well-known geo-scientists, of this 95,000 square miles, it is estimated that 34 million acres have “at least 50 feet of organic-rich section,” meaning it contains technically recoverable gas. *Marcellus Shale Play’s Vast Resource Potential Creating Stir in Appalachia*, AM. OIL & GAS REP., May 2008, available at http://www.wpsu.org/gasrush/assets/pdfs/Marcellus_Shale_Play_May08.pdf.

22. TIMOTHY CONSIDINE ET AL., AN EMERGING GIANT: PROSPECTS AND ECONOMIC IMPACTS OF DEVELOPING THE MARCELLUS SHALE NATURAL GAS PLAY 2 (2009), available at <http://s3.amazonaws.com/publica/assets/monongahela/EconomicImpactsMarcellus.pdf> (analyzing the economic impact of the natural gas industry in Pennsylvania).

23. SHALE PRIMER, *supra* note 6, at 9.

24. John A. Harper, *The Marcellus Shale—An Old “New” Gas Reservoir in Pennsylvania*, 28 PA. GEOLOGY 10 (Spring 2008), available at <http://www.dcnr.state.pa.us/topogeo/pub/pageolmag/pdfs/v38n1.pdf> (discussing, among other things, the nature of the Marcellus Shale geologic formation, its gas content, and the technologies used to drill in the Marcellus).

25. *Id.*

26. SHALE PRIMER, *supra* note 6, at ES-3.

27. CONSIDINE ET AL., *supra* note 22, at 14.

28. *Id.* at 4.

29. Despite this positive aspect, the disruption of the land and use of roads and other infrastructure during the drilling process, although brief in duration, is intense. Heavy equipment and trucks must access the pad during the drilling stage of development. In Pennsylvania, most of the drilling is occurring in rural areas where the local infrastructure is not designed to bear industrial use. Municipalities and companies are, in some cases, finding solutions to these issues. Jennifer Kingsley, *PennDOT Curtails Chesapeake Appalachia Road Permits*, STAR-GAZETTE, Apr. 12, 2011, <http://www.stargazette.com/article/20110412/NEWS01/104120369/PennDOT-curtails-Chesapeake-Appalachia-road-permits?odyssey=tab%7Ctopnews%7Ctext%7CFRONTPAGE>.

30. CONSIDINE ET AL., *supra* note 22, at 14.

31. David M. Kargbo et al., *Natural Gas Plays in the Marcellus Shale: Challenges and Potential Opportunities*, 44 ENVTL. SCI. & TECH. 5679, 5679 (2010) (describing process of extracting gas from the Marcellus Shale and contrasting the economic benefits with environmental concerns).

32. U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA), SCIENCE IN ACTION BUILDING A SCIENTIFIC FOUNDATION FOR SOUND ENVIRONMENTAL DECISIONS: HYDRAULIC FRACTURING RESEARCH STUDY 1-2 (2010), available at <http://www.epa.gov/safewater/uic/pdfs/hfresearchstudyfs.pdf> (describing why an EPA study of hydraulic fracturing is necessary).

shale and widens or opens fractures in the rock.³³ The purpose of “fracking” a shale well is to intersect and connect the many natural fissures in the shale to the well.³⁴ As the formation is fractured, a “propping agent,” usually sand, is injected into the fractured rock to prevent the fractures from closing.³⁵ This process is commonly performed in the following stages: the operators of the well (1) perforate the casing and cement, (2) pump water-based “frack” fluid into the perforations, (3) set a plug, and (4) remove the fluid up the well bore, leaving some of the proppant material behind.³⁶ In the end, the operator is left with a highly fractured well bore that could run for at least 3,000 feet in multiple directions from the drilling pad.³⁷ As a result of this process, natural gas is free to flow from the pores and fractures in the shale and up the well bore for extraction.

D. Environmental Concerns

Despite the great expense of these technologies, the process has become economically viable due to increased demand, resulting in part from the high price of oil and other fossil fuels. But viability of the industry does not eliminate the risk of negative environmental impacts. The Marcellus is in close proximity to major East Coast population centers, such as Philadelphia and New York City. While this is great from a marketing perspective, the Marcellus’ proximity to important watersheds and the use of hydraulic fracturing presents a plethora of possible impacts. Water use and pollution is a major concern. Approximately 36% of the Delaware River Basin, home to 5 million people, is underlain by the Marcellus.³⁸ The Susquehanna River Basin, which flows to the Chesapeake Bay, lies atop the Marcellus Shale as well. These watersheds provide water for drinking, agriculture, and industrial use for millions of Americans. The Delaware River alone provides water for 15 million people.³⁹ Hydraulic fracturing fluid contains a variety of toxic and nontoxic chemicals, including hydrochloric acid, diesel, and formaldehyde, among others.⁴⁰ Management of the wastewater is therefore of great importance. At least one alternative to water-based frack fluids has been developed. This approach, developed by GASFRAC Energy Services, uses liquefied propane in a gel form in place of water.⁴¹ The process produces zero wastewater, and nearly 100% of the propane is removed back up the well.

Despite these difficulties, the development of gas in Pennsylvania is going forward. Furthermore, the economic benefits for the commonwealth of Pennsylvania are proven and continue to grow as the industry expands.

33. *Id.*

34. *Id.*

35. *Id.*

36. Kargbo et al., *supra* note 31, at 5680.

37. *Id.*

38. *Id.* at 5681.

39. DELAWARE RIVER BASIN COMMISSION, <http://www.nj.gov/drbc/thedrb.htm> (last visited Sept. 15, 2011).

40. Kargbo et al., *supra* note 31, at 5681.

41. See generally GAS FRAC ENERGY SERVICES, <http://www.gasfrac.com/> (last visited Sept. 15, 2011).

Regulation of the industry is needed and should include a pooling statute.

E. Economic Figures for Pennsylvania

Research has shown that Marcellus producers spent \$4.7 billion in Pennsylvania from the beginning of the industry in 2005 through the first quarter of 2009.⁴² Of that, \$2.5 billion was spent on leases, bonuses, and other land payments.⁴³ The remaining \$2.2 billion was spent on supplies.⁴⁴ These figures do not include business-to-business spending that cuts across the spectrum of the Pennsylvania economy and includes oil and gas well service suppliers, the construction industry, and wholesale trade.⁴⁵ On the aggregate, these numbers have been rising. By using a value-added measure of impact on the Pennsylvania economy, a recent Pennsylvania State University (Penn State) report concludes the total economic impact of the Marcellus industry in 2008 alone was \$2.3 billion.⁴⁶ The Penn State report goes on to state that “[i]n 2015, the gross output of the Marcellus industry could exceed \$12 billion with employment of over 160,000 and over \$1.3 billion in additional state and local taxes.”⁴⁷ There is no doubt the commonwealth and its citizens stand to benefit financially from the further development of the Marcellus Shale, because the growth of the industry represents a significant opportunity to bring investment and create jobs.

Natural gas will continue to play an important role in meeting our nation’s energy needs. Therefore, drilling will continue to occur in the commonwealth of Pennsylvania, with or without the necessary regulation. Hydraulic fracturing and horizontal drilling will play a dominant role in this development. Concerns about the environment and leaving gas stranded in the ground are real. Citizens need to be secure in their negotiations and transactions with gas companies and land speculators alike. As a result, it is essential for the legislature to step in and create the regulatory framework necessary to ensure efficient, fair, and safe extraction of gas from the Marcellus Shale in Pennsylvania. The regulatory scheme must include conservation laws. Pooling is of particular importance and has played a significant role in the regulatory schemes of other historic oil and gas-producing states. Will we proceed in an equitable and responsible manner? Compulsory pooling will help get us to “yes.”

II. Justification for Pooling Laws

Much of the nation’s oil and gas jurisprudence has its roots in the common-law principle that a landowner has dominion over the surface of his property, up to the heav-

42. CONSIDINE ET AL., *supra* note 22, at 22.

43. *Id.*

44. *Id.*

45. *Id.*

46. *Id.*

47. *Id.* at 30.

ens, and down to the core of the earth.⁴⁸ When the oil and gas boom began in the early 20th century, this idea became even more important. With control of the mineral rights, one could drill down from anywhere on the surface of his land in search of this newly discovered liquid gold.⁴⁹ If she struck oil or gas, anything extracted from the well was hers.⁵⁰ This often included oil that may have migrated underground from the reservoir extending beneath a neighboring parcel of land.⁵¹ Such is the basis for the common-law rule of capture. The unpredictable nature of oil and gas has been compared to a wild animal.⁵² For this reason, under the rule of capture, the resource is deemed to belong to the person who catches it.⁵³

Under the traditional rule of capture, the neighboring landowner's only remedy was self-help.⁵⁴ The neighbor was forced to tap into the same reservoir via a well on his own property in order to obtain possession and profit from the oil or gas and prevent it from draining onto neighboring property.⁵⁵ The result of this practice was often an unnecessarily high number of wells tapping into the same reservoir of oil or gas.

Two major negative impacts resulted from the increased drilling activity. First, the high number of drill points released the natural pressure of the reservoir needed to push the oil or gas to the surface. This resulted in much of the oil or gas left unrecoverable in the reservoir.⁵⁶ Second, the greater drilling activity led to an increase in surface activity and greater environmental disturbance.⁵⁷ The regulation of these two issues led to a third problem in the form of a threat to correlative rights.⁵⁸

A. Overdrilling Leads to Waste and Environmental Harm

It was not long after the discovery of oil that government regulations were enacted to mitigate the negative side effects of the rule of capture, making the prevention of

the waste of oil and gas its first priority. In 1935, six states joined together to curb waste resulting from the rule of capture and signed the Interstate Oil and Gas Compact. By doing so, they promised to enact legislation with the purpose of conserving oil and gas.⁵⁹ Later, states began invoking these same police powers with the added goal of protecting the environment.

Conservation efforts include statutes that allow for the unitization of land, establish minimum spacing requirements, and either allow for or require the pooling of property interests within those units. It should be noted that the terms "unitization," "spacing unit," and "pooling" are sometimes used interchangeably, often causing confusion. For the purposes of this Article, we have attempted to distinguish them, and used the terms in a consistent manner throughout. The following definitions are useful:

Unitization of land designates a common source of supply, such as a reservoir of oil.⁶⁰ The entirety of the land overlaying the common source of supply is considered to be within this unit.

Spacing units are created based upon minimum spacing requirements. As the name suggests, these regulations dictate both the minimum acreage required to drill a well, in addition to well density over the designated common source of supply. These units are distinct from the larger patches of land created by "unitization." A spacing unit refers to the area in which only a single well may be drilled. Multiple spacing units may sit over a single common source of supply.

Pooling is the grouping of mineral interests that lay within a common spacing unit.

The determination of units is based on geological studies of the common source of supply, assuming the most advanced techniques will be used in drilling.⁶¹ Unitization of land involves the grouping of mineral interests covering a common source of supply.⁶² Because a common source of supply can extend underground for miles, a unit may contain numerous spacing units and pooling agreements.⁶³ Units may be established by voluntary cooperation among interested parties. Because of the large number of parties typically involved, however, this is not often achieved.⁶⁴ For this reason, most producing states have compulsory unitization statutes whereby the state establishes the unit.⁶⁵

48. The latin phrase *cujus est solum, ejus est usque ad coelum et ad inferos* has been used to describe this concept. PATRICK H. MARTIN & BRUCE M. KRAMER, WILLIAMS & MEYERS, OIL AND GAS LAW §202 (LexisNexis Matthew Bender 2010) [hereinafter WILLIAMS & MEYERS].

49. 1-4 EUGENE KUNTZ, A TREATISE ON THE LAW OF OIL AND GAS §4.1 (Matthew Bender, rev. ed.). See also *Barnard v. Monongahela Natural Gas Co.*, 216 Pa. 362 (1907).

50. *Barnard*, 216 Pa. at 362; *Brown v. Humble Oil & Refining Co.*, 126 Tex. 296, 305 (1935); *Imo Oil & Gas Co. v. Charles E. Knox Oil Co.*, 120 Okla. 13, 15 (1926).

51. See *Barnard*, 216 Pa. at 362.

52. *Westmoreland & Cambria Nat'l Gas Co. v. De Witt*, 130 Pa. 235, 249 (1889). See also Bruce M. Kramer & Owen L. Anderson, *The Rule of Capture, an Oil and Gas Perspective*, 35 ENVTL. L. 899, 921 (2005).

53. *Id.*

54. *Barnard*, 216 Pa. at 362; see also Robert E. Hardwicke, *The Rule of Capture and Its Implications as Applied to Oil and Gas*, 13 TEX. L. REV. 391, 393-94 (1935).

55. *De Witt*, 130 Pa. at 249; *Hague v. Wheeler*, 157 Pa. 324, 341 (Pa. 1893).

56. 1 BRUCE M. KRAMER & PATRICK H. MARTIN, THE LAW OF POOLING AND UNITIZATION §2.02 (3d ed. 2008) [hereinafter KRAMER & MARTIN].

57. WILLIAMS & MEYERS, *supra* note 48, §204.4; see also *Alabama ex rel. Evans v. U.S. DOI*, 84 F.3d 410, 413 (11th Cir. 1996).

58. *Prairie Oil & Gas Co. v. Allen*, 2 F.2d 566, 571 (8th Cir. 1924); KRAMER & MARTIN, *supra* note 56, §5.01.

59. Interstate Oil and Gas Compact Commission: About Us, <http://www.iogcc.state.ok.us/about-us> (last visited Oct. 6, 2011).

60. KRAMER & MARTIN, *supra* note 56, §6.02.

61. *Id.*

62. *Id.*

63. *Id.*

64. *Id.*

65. The scope of this Article mandates a limited discussion of compulsory unitization statutes. Such statutes are often lengthier than those allowing for compulsory pooling. For example, some require that a certain percentage of interested parties agree to the unitization of the land before the order may be granted. For a more detailed discussion of compulsory unitization statutes and unitization generally, see KRAMER & MARTIN, *supra* note 56, §6.02. See also Bruce M. Kramer, *Compulsory Pooling and Unitization: State Options*

The relationship between unitization and pooling will be discussed briefly in a later section.

Spacing regulation is a logical solution to problems caused by too many wells in a given area. Such statutes regulate both the minimum acreage required to drill, in addition to well density over a common source of supply. Agencies like the Texas Railroad Commission and the Oklahoma Corporation Commission are charged with implementing these regulations through a permit process.⁶⁶

Spacing determinations are made in relation to the nearest well and to neighboring property lines. The first of this kind of spacing regulation was written in Texas and prohibited new wells from being drilled less than 300 feet from existing wells or less than 150 feet from property lines.⁶⁷ These statewide regulations are often referred to as lineal spacing rules. Some states also take into account the geological formation or depth to which the well will be drilled.⁶⁸ For example, wells drilling to the same formation may be subject to spacing requirements, but wells seeking to extract from different depths may be closer together. Exceptions to spacing rules are permitted under certain circumstances.⁶⁹

Some states, not including Pennsylvania, require a minimum acreage be dedicated to the well before a permit will be issued.⁷⁰ Oklahoma has standard spacing requirements, ranging from 10 to 640 acres, depending on the depth of the well and whether the well is extracting oil or gas.⁷¹ Generally, oil wells are permitted to be closer to one another than gas wells. Oklahoma permits both square and rectangular spacing units.⁷²

B. A Threat to Correlative Rights

While these modifications to the traditional rule of capture have come a long way to mitigate the rule's negative side effects, the regulations themselves brought up another issue: a threat to correlative rights.

A common source of supply can continue for miles. As a result, a designated unit may contain numerous spacing units and more than one pooling agreement.⁷³ Furthermore, spacing units often include a number of tracts with distinct operating interests. However, spacing limitations usually have the effect of prohibiting the drilling of a well by every interest holder in the unit. As mentioned above, self-help, by drilling an offset well, was the only remedy for

neighboring operators to prevent drainage from their land. When regulations prohibit this self-help, the common-law doctrine of correlative rights protects the operator's right to extract their share of the hydrocarbons.

The correlative rights doctrine is stated succinctly by Bruce M. Kramer in his treatise on Pooling and Unitization:

[E]ach person with a right to produce from a common source of supply ought to have a fair and reasonable opportunity to produce his or her fair share of oil or gas. That right should not be improperly defeated through the negligent or intentional actions of another party, nor should one be deprived of that right by the state without due process and just compensation.⁷⁴

Unitization and spacing requirements designate a common source of supply and, with it, a co-tenancy among the interest holders within that unit. Each interest holder has the rights associated with co-tenancy.⁷⁵ In a majority of jurisdictions, including Pennsylvania, a co-tenancy interest in the hydrocarbons of the unit means each operating interest holder has a claim to their share of anything extracted from the unit.⁷⁶ Generally, each operator's fair share of what is extracted from the well or wells on that unit is determined in proportion to the acreage owned by each operator.

Protection of these correlative rights requires a consolidation, or pooling of interests, in a given spacing unit. The idea is that production from permitted wells should be shared proportionately with all other interest holders in the unit, because that well is drawing from a source of supply common to all those in the unit. Each interest owner's right to extract is substituted with a right to a share in what is extracted. The cost of extraction, therefore, must also be shared. The following section discusses a brief history of efforts to conserve oil and gas, as well as Pennsylvania's approach to conservation laws and the protection of correlative rights.

III. Pennsylvania's Approach to Oil and Gas Conservation Law: Past and Present

In the early stages of the oil and gas industry, the slow pace of development limited the need for regulation. However, by the 1920s, when the rate of discovery and production outpaced both market infrastructure and government regulation, leaders in the industry became concerned.⁷⁷ Without regulation, wasteful practices, including the release of gas directly into the air, were pervasive.⁷⁸ States were concerned about the loss of the natural resources needed to

in Dealing With Uncooperative Owners, 7 J. ENERGY L. & POL'Y 255 (1986) [hereinafter Kramer].

66. Railroad Commission of Texas: About RRC, <http://www.rrc.state.tx.us/> (last visited Sept. 18, 2011).

67. KRAMER & MARTIN, *supra* note 56, §3.02; see also Robert E. Hardwicke, *Oil-Well Spacing Regulations and Protection of Property Rights in Texas*, 31 TEX. L. REV. 99 (1952). Current regulations have expanded these distances to 467 feet from neighboring property lines and 1,200 feet from other completed wells. 16 TEX. ADMIN. CODE §3.37(a)(1) (2011).

68. OKLA. ADMIN. CODE §165:10-1-21.

69. TEX. ADMIN. CODE §3.37(a)(2).

70. TEX. ADMIN. CODE §3.38(b)(2)(A).

71. OKLA. ADMIN. CODE §165:10-1-22(d).

72. *Id.*

73. *Id.*

74. KRAMER & MARTIN, *supra* note 56, §5.01.

75. See, e.g., *Prairie Oil and Gas Co. v. Allen*, 2 F.2d 566 (8th Cir. 1924).

76. Kramer, 7 J. ENERGY L. & POL'Y, at 255 n.3.

77. LAWRENCE R. ALLEY, A SUMMARY OF THE BACKGROUND, ORGANIZATION PURPOSES, AND FUNCTIONS OF THE INTERSTATE COMPACT TO CONSERVE OIL AND GAS (1969).

78. *Id.*

power growing industries,⁷⁹ and private companies were troubled by the instability of prices.⁸⁰

This led to support from both the public and private sectors for increased government regulation. After a number of years of debate over the appropriate body of government to regulate the industry,⁸¹ as well as the appropriate purpose of the regulation,⁸² the Interstate Oil and Gas Conservation Compact (Compact) was finally agreed upon in Dallas, Texas, in February 1935. The U.S. Congress⁸³ approved the Compact in August of that same year.⁸⁴

Six states agreed to the final language of the Compact, which stated:

The Commission shall have the power to recommend the coordination of the exercise of the police powers of several states within their several jurisdictions to promote the maximum recovery from the petroleum reserves of the said states and to recommend measures for the maximum ultimate recovery of oil and gas.⁸⁵

These states included Colorado, Illinois, Kansas, New Mexico, Oklahoma, and Texas.⁸⁶

The mission of the Compact is stated simply in Article II of the Compact's charter: "the purpose of this Compact is to conserve oil and gas by prevention of physical waste thereof from any cause."⁸⁷ By signing the Compact, member states agreed to work toward this common purpose through the exercise of their police powers to pass conservation legislation in their state.⁸⁸ Since its inception, more and more states, regardless of their oil and gas production levels, have joined the Compact and send representatives to sit on its commission each year. Pennsylvania joined in 1941.⁸⁹ Today, more than 30 member states and a number

of international affiliates have agreed to work toward the goal⁹⁰ of conserving oil and gas.⁹¹

Pennsylvania has integrated the terms of the Compact directly into its statutes,⁹² making the governor of the commonwealth its representative on the commission.⁹³ The governor is charged with performing "all the powers and duties enjoined by such Compact,"⁹⁴ yet any regulation the Compact's commission deems necessary to conserve oil and gas must also be considered necessary by the Commonwealth's General Assembly, meaning the actual regulations are to be passed by the state legislature, not the Compact's commission.⁹⁵

The commonwealth effectuates its commitment to the Compact in Title 58, Chapter 7, of its statute, entitled Oil and Gas Conservation Law.⁹⁶ Perhaps the most direct statutory language to this effect is in §404, which reads simply: "Waste of oil and gas is prohibited."⁹⁷ The chapter contains a number of conservation procedures for issuing well permits,⁹⁸ spacing requirements,⁹⁹ and even a provision for compelling the integration of interests within spacing units.¹⁰⁰ It should be noted that Pennsylvania's current "spacing" regulation, contained in §407 of the Oil and Gas Conservation Law, is not of the same specificity as those of other states¹⁰¹ and, in fact, reads more like a unitization statute.¹⁰²

Quite significantly, however, the Oil and Gas Conservation Law does not apply to formations above the Onondaga Horizon,¹⁰³ meaning it does not apply to the Marcellus Shale. Any provisions pursuant to the Compact are therefore inapplicable to wells drilled to the Marcellus. As previously mentioned, the majority of permits being issued at this time are for wells drilled to the Marcellus Shale.

For the purposes of this Article, the most significant portion of Pennsylvania's current Oil and Gas Conservation Law is §408, entitled "Integration of Interests in Spacing Units."¹⁰⁴ It is a compulsory pooling statute. With apparently just one exception, it has not been the subject of litigation in Pennsylvania.¹⁰⁵ It will be analyzed below,

79. *Id.*

80. Gerald D. Nash, *Oil in the West: Reflections on the Historiography of an Unexplored Field*, 39:2 PAC. HIST. REV. 197 (May 1970).

81. There was disagreement over whether this regulation was a federal or state responsibility. In a speech given in November 1934, U.S. Secretary of the Interior Harold Ickes suggested the solution to the problems of the oil and gas industry was federal regulation and called for a declaration of the industry as a public utility. The U.S. House of Representatives Committee on Interstate and Foreign Commerce disagreed, however. In a report released just a month after Secretary Ickes' speech, the committee suggested states enter into compacts, with the approval of the U.S. Congress, to regulate the industry, recognizing that individual states were ill-equipped to do so alone. ALLEY, *supra* note 77, at 2.

82. Some states, led by the governor of Oklahoma, believed the Compact's main purpose should be price control, to be achieved by estimating the demand for oil and gas, and then allocating production accordingly to each state. Other states, led by the governor of Texas, believed the main purpose should be preventing physical waste of the resource and that the Compact should have no role in the fixing of prices for oil and gas. ALLEY, *supra* note 77, at 1.

83. The Compact Clause of Article I §10 of the U.S. Constitution prohibits the formation of agreements among states without the consent of Congress. U.S. CONST. art. I, §10, cl. 3; see also Felix Frankfurter & James M. Landis, *The Compact Clause of the Constitution—A Study in Interstate Adjustments*, 34 YALE L.J. 685, 694 (1925).

84. *Id.*

85. *Id.*

86. *Id.* at 3.

87. *Id.*; see also Interstate Oil and Gas Compact, *About Us: Charter*, <http://www.iogcc.state.ok.us/charter> (last visited Sept. 17, 2011) [hereinafter IOGC Charter].

88. ALLEY, *supra* note 77, at 3.

89. *Id.*

90. Notably, today's Compact specifically states that its purpose is not to regulate the price of oil and gas. IOGC Charter, *supra* note 87.

91. *Id.*; IOGC Charter *supra* note 87.

92. The Interstate Conservation Compact is codified in 58 PA. CONS. STAT. §192 (2010).

93. 58 PA. CONS. STAT. §193.

94. *Id.* §194.

95. *Id.* §195.

96. *Id.* §401.

97. 58 PA. CONS. STAT. §404.

98. *Id.* §406.

99. *Id.* §407.

100. *Id.* §408.

101. OKLA. STAT. ANN. tit. 52, §87.1 (West 2011).

102. For the purposes of the statute proposed in this Article, revised statutes on unitization and spacing requirements would provide a helpful foundation for defining the creation of the units, and thus provide more clarity and predictability as to whose interests are likely to be included in such compulsory pooling statutes. Because the scope of this Article is limited to pooling, we have not addressed those specific statutory inadequacies here.

103. 58 PA. CONS. STAT. §§403(b)(1), 402(6).

104. *Id.* §408.

105. Appeals of Pennzoil Co. & Westrans Petroleum, Inc., 69 Pa. D. & C.2d 122 (1974).

following a discussion of other states' approaches to compulsory pooling. As mentioned, because the Oil and Gas Conservation Law, and §408 within it, is limited to the Onondaga Horizon and below, as currently written, it does not apply to the Marcellus Shale.

IV. Voluntary and Compulsory Pooling: Generally¹⁰⁶

Pooling allows distinct ownership interests within a drilling unit to be converted into a common property interest for the purposes of extraction of oil and gas.¹⁰⁷ Pooling may be accomplished by a voluntary agreement among interest owners or by a pooling order issued by a state conservation agency. Compulsory pooling generally involves the joining together of small or irregular tracts for the purpose of having sufficient acreage and spacing to meet the standard set by the relevant state spacing and unit requirements.¹⁰⁸ The state orders that separate interest owners combine their property for common development, drilling, and production. In all but a few of the oil and gas producing states, pooling can be involuntarily ordered by the state upon an application of one or more of the interest owners under the authority of the state's pooling law.

A. History of Pooling: A Conservation Tool

Pooling has been utilized in the United States for nearly 80 years. New Mexico,¹⁰⁹ and Oklahoma¹¹⁰ were among the first states to enact compulsory pooling legislation. New Mexico's provision provided for the unitization of fields and for the compulsory pooling of mineral interests.¹¹¹ Oklahoma established a drilling-unit system that spaced wells and declared that if there were two or more interest owners within a unit, their interests would be pooled on a surface acreage basis.¹¹² Soon after the enactment of the Oklahoma pooling provision, the U.S. Supreme Court upheld its constitutionality in *Patterson v. Stanolind Oil & Gas Co.*¹¹³ The Court in *Patterson* found that the police power of the state to prevent waste is "beyond successful contradiction" and that the police power extends to the protection of owners of a common source of oil and gas. Oil and gas states have taken a variety of approaches to compulsory pooling. Significantly, all of the major oil and

gas producing-states, with the exception of California and Kansas, have a compulsory pooling statute.¹¹⁴

B. Introduction to a Pooling Statute: North Dakota

The following North Dakota statute will be used for an explanation of the basic elements of a compulsory pooling statute¹¹⁵:

1. When two or more separately owned tracts are embraced within a spacing unit, or when there are separately owned interests in all or a part of the spacing unit, then the owners and royalty owners thereof may pool their interests for the development and operation of the spacing unit. In the absence of voluntary pooling, the commission upon the application of any interested person shall enter an order pooling all interests in the spacing unit for the development and operations thereof. Each such pooling order must be made after notice and hearing, and must be upon terms and conditions that are just and reasonable, and that afford to the owner of each tract or interest in the spacing unit the opportunity to recover or receive, without unnecessary expense, that owner's just and equitable share. Operations incident to the drilling of a well upon any portion of a spacing unit covered by a pooling order must be deemed, for all purposes, the conduct of such operations upon each separately owned tract in the drilling unit by the several owners thereof. That portion of the production allocated to each tract included in a spacing unit covered by a pooling order must, when produced, be deemed for all purposes to have been produced from such tract by a well drilled thereon. For the purposes of this section and section 38-08-10, any unleased mineral interest pooled by virtue of this section before August 1, 2009, is entitled to a cost-free royalty interest equal to the acreage weighted average royalty interest of the leased tracts within the spacing unit, but in no event may the royalty interest of an unleased tract be less than a one-eighth interest. An unleased mineral interest pooled after July 31, 2009, is entitled to a cost-free royalty interest equal to the acreage weighted average royalty interest of the leased tracts within the spacing unit or, at the operator's election, a cost-free royalty interest of sixteen percent. The remainder of the unleased interest must be treated as a lessee or cost-bearing interest.

2. Each such pooling order must make provision for the drilling and operation of a well on the spacing unit, and for the payment of the reasonable actual cost thereof by the owners of interests in the spacing unit, plus a reasonable charge for supervision. In the event of any dispute as to such costs, the commission shall determine the proper costs. If one or more of the owners shall drill and operate, or pay the expenses of drilling and operating the well for

106. Prof. Bruce M. Kramer is known throughout the United States as the foremost legal expert on pooling and unitization. His work has been influential to many and has provided the authors of this Article with a critical understanding of compulsory pooling in the oil and gas context. Much of what follows in Parts IV and V of this Article is based on Professor Kramer's thorough and concise scholarship on pooling, which we gratefully acknowledge here and throughout our work.

107. *Nunez v. Wainoco Oil & Gas Co.*, 488 So. 2d 955, 961-62 (La. 1986).

108. KRAMER & MARTIN, *supra* note 56, §6.01.

109. Bruce M. Kramer, *Pooling for Horizontal Wells: Can They Teach an Old Dog New Tricks?*, 55 ROCKY MTN. MIN. L. INST. 8-1, §8.01[2] (2009).

110. *Id.*

111. *Id.*

112. KRAMER & MARTIN, *supra* note 56, §§3.02[1], 10.02.

113. 1938 Okla. 138, 182 Okla. 155, 77 P.2d 83, *appeal dismissed*, 305 U.S. 576 (1939).

114. KRAMER & MARTIN, *supra* note 56, §3.02.

115. Professor Kramer utilizes the North Dakota statute in his treatise *The Law of Pooling and Unitization* as an example of an efficient and effective pooling statute. We follow suit here.

the benefit of others, then, the owner or owners so drilling or operating shall, upon complying with the terms of section 38-08-10, have a lien on the share of production from the spacing unit accruing to the interest of each of the other owners for the payment of the owner's or owners' proportionate share of such expenses. All the oil and gas subject to the lien must be marketed and sold and the proceeds applied in payment of the expenses secured by such lien as provided for in section 38-08-10.¹¹⁶

The North Dakota statute provides the basic elements of a compulsory pooling statute:

Most compulsory pooling statutes have the following four elements in common: (1) they presuppose the existence of an established drilling or spacing unit, (2) they permit the owners of separate tracts to voluntarily pool their interests, (3) they require notice and public hearing before pooling is ordered and (4) they embody the proposition that each interest owner will be entitled to his just and equitable share of production.¹¹⁷

North Dakota, like most states with a pooling regime, separates the pooling powers and the spacing or drilling unit powers; as a result, there is no automatic pooling of the interests when the state creates spacing or drilling units.¹¹⁸ The state therefore encourages interest owners to voluntarily pool. A voluntary, market-based arrangement is clearly the ideal resolution. In situations where such a solution is out of reach, it is critical that the state have the ability to step in to protect the interests of all parties, ensure efficient extraction, and limit surface disturbance. If a voluntary deal cannot be struck, interested parties may petition for a pooling order.¹¹⁹

Frequently, the following problem presents itself: an operator applies for a pooling order from the state conservation agency. Within the unit, there are property owners or mineral interest owners who have not entered into a lease agreement governing their proposed share of royalties should their mineral interests produce gas. They either (1) do not consent to the development of their mineral interests, or (2) they are holding out for economic reasons, due to environmental concerns, or other reasons. Generally, a working interest owner is an oil and gas company that has acquired the mineral rights to a piece of property via a lease for further development. A nonconsenting, unleased mineral owner is a landowner who has not entered into an oil and gas lease. Many states provide that royalty owners will receive a straight acreage-based royalty.¹²⁰ Sharing the costs of production under a pooling order is a sensitive and difficult area of pooling law, and there are a variety of options for dealing with the problem. The con-

cerns of working interest owners and nonleased mineral interest owners will be addressed below.

C. Cost-Sharing Under a Pooling Order

Drilling for oil and gas is a risky and costly business. It is particularly costly if a horizontal well using hydraulic fracturing techniques is involved. Under a compulsory pooling order, owners have been placed in a unit and forced to pool their interests by the state conservation agency. The well may be a "gusher," and everyone in the unit will be eager to share in the profits, or the well may be a "dry hole,"¹²¹ where all of the money spent on drilling has produced zero revenue. It is unlikely that other unit interest holders will be rushing forward to "share" in the losses.

The risky nature of drilling and the sensitivity of cost-sharing are magnified under a pooling order. Legislatures and conservation agencies are charged with the difficult task of balancing the competing interests of operators and nonoperators within the unitized and pooled tracts.¹²² Conservation pooling statutes strive for equity: the owners of pooled mineral interests may share in the benefits of production if they compensate the driller for costs.¹²³

Should a pooling statute require the unwilling party to a pooling order share in all production and speculation costs? Such a rule seems harsh and unfair; especially if the holdout interest owner is a private citizen with little or no knowledge of the industry and therefore of the risk she is undertaking. Should the rule require that the well operator or party seeking the pooling order bear all of the costs of production and to absorb all losses but share their profits in the event of a productive well? Such a rule would seem to encourage holdouts and place an unfair share of the risk on the shoulders of the operator. These problems are addressed in various ways by state compulsory pooling statutes discussed below.

Generally, pooling statutes provide that an election can be made by the party being pooled prior to the drilling of the well.¹²⁴ The pooled working interest owner or unleased owner will have the option to share in the risk or to "ride out" drilling in exchange for compensating the operator for a share of the production costs. There are three primary approaches taken when dealing with the cost-sharing problem in the wake of a pooling order.¹²⁵ A fourth approach is provided by Oklahoma.

116. N.D. CENT. CODE ANN., §38-08-08 (West 2009).

117. KRAMER & MARTIN, *supra* note 56, §10.01; see generally John W. Gee, *Comparative Study of Compulsory Pooling Enforcement Against Owners of Divided Interests in the Spaced Tract*, 3 ROCKY MTN. MIN. L. INST. 241, 242-46 (1956).

118. KRAMER & MARTIN, *supra* note 56, §6.01.

119. *Id.*

120. *Id.*

121. A "dry hole" is a well that does not produce in paying quantities.

122. KRAMER & MARTIN, *supra* note 56, §12.01.

123. *Id.*

124. *Id.*

125. *Id.* §12.02.

V. Compulsory Pooling: Three General Approaches From Around the United States

A. The Nonconsenting Working Interest Owner

1. “Free Ride” Statutes

Essentially, under a “free ride” compulsory pooling regime, the nonconsenting interest owner is “carried” as to his proportionate share of expenses during the time the well is being drilled.¹²⁶ If the well is successful, the holdout is only responsible for his share of the costs of production.¹²⁷ If the well is a “dry hole,” the holdout owes nothing at all.¹²⁸ The compulsory unit is treated as a single operation, and “each pooled working interest owner has a right to an undivided share of production less the non-operator’s proportionate share of production.”¹²⁹ In other words, the operator drills the well at its exclusive risk, while no risk is borne by the pooled interest owners. Therefore, even if the well turns out to be unsuccessful, the pooled interest owners bear none of the costs of drilling. The problem with provisions such as this is that they encourage nonconsenting interest owners to hold out of voluntary pooling agreements and to await the forced pooling order that will leave them without a share of the risk in the event of a dry hole or failed drilling operation. Among the states that allow the nonoperator a free ride are Alaska, Arizona, Indiana, and Missouri.¹³⁰ Other states have attempted to eliminate the free ride.

2. Risk-Penalty Approach

The risk-penalty approach seeks to eliminate a holdout’s free ride and to compensate the operator for drilling costs. As a result of the risk penalty hanging over their heads, holdouts are more likely to cut a voluntary deal with the operator and other interest holders.¹³¹ In multiple states, the conservation agency will provide the holdout with an opportunity to (1) negotiate a deal with the operator, or (2) put up cash or collateral for a share of drilling costs in advance of drilling.¹³² If the holdout fails to do so, “the owner will be treated as a carried interest subject to a risk penalty.”¹³³ If the operator successfully strikes oil or gas; it may withhold the holdout’s share of costs and the additional sum identified by statute as the risk penalty. The risk penalty assessed may be determined precisely by the language of the statute, or it may be left to a determination by the conservation agency.¹³⁴ Accordingly, some states allow for discretion by the conversation agency, and others do

not. A large group of states utilize this approach, including Alabama, Colorado, Louisiana, Michigan, Mississippi, Montana, Nebraska, Nevada, New Mexico, New York, Texas, Utah, and Wyoming.¹³⁵

3. Surrender of Working Interest

Mineral interest holders who cannot or do not want to pay costs upfront or as the well is drilled and who do not want to be subject to a risk penalty may elect “to surrender their working interest to the operator drilling the well in exchange for a bonus payment, a royalty interest, or some combination of the two.”¹³⁶ Under this approach, the nonconsenting owner assigns their working interests over to the drilling party, much the same way they would if they were to sign a lease, except that under the compulsory pooling statute, the administrative body has the authority to decide the terms of the agreement. A number of states offer this approach, including Oklahoma, which uses the surrender of working interest as one of three options, described below.¹³⁷

4. Oklahoma’s Options Approach

Oklahoma has developed an approach to cost-sharing that is different from many states and is distinguished from other schemes by the flexibility it allows the Oklahoma Corporate Commission (the state conservation agency) in providing pooled nonoperating interest owners a variety of options. Like most other state pooling statutes, Oklahoma requires pooling on a fair and equitable basis and provides that pooling orders “shall be upon such terms and conditions as are just and reasonable and will afford to the owner of such tract in the unit the opportunity to recover or receive without unnecessary expense his just and fair share of the oil and gas.”¹³⁸ Section 87.1(e) also provides that the pooling order issued by the commission will provide for the sharing of costs of development “which will be limited to the actual expenditures required for such purposes not in excess of what are reasonable, including a reasonable charge for supervision.”¹³⁹ The Corporate Commission provides three basic options for nonoperators: (1) the nonoperator may participate in the cost of drilling and completing the well; (2) may surrender (assign) her working interest and accept a royalty payment and possibly a bonus payment as compensation; or (3) may be treated as a carried interest, bear no risk, and be subject to a risk penalty.¹⁴⁰

Option one allows a nonoperator to voluntarily pool under the authority of a compulsory pooling option issued by the commission. In effect, this is a “second chance” at voluntary pooling. Under this option, the nonoperator may

126. Kramer, *supra* note 65, at 262-63.

127. *Id.*

128. *Id.*

129. KRAMER & MARTIN, *supra* note 56, §12.02.

130. *Id.*

131. Kramer, *supra* note 65, at 264.

132. KRAMER & MARTIN, *supra* note 56, §12.02.

133. *Id.*

134. *Id.*

135. *Id.*

136. Bruce M. Kramer, *Pooling for Horizontal Wells: Can They Teach an Old Dog New Tricks?*, 55 ROCKY MTN. MIN. L. INST. 8-1, §8.04[2] (2009).

137. OKLA. STAT. ANN. tit. 52, §87.1(e) (West 2011).

138. *Id.*

139. *Id.*

140. KRAMER & MARTIN, *supra* note 56, §12.03.

pay his share of costs of developing and drilling the well. Option two provides the owner of the pooled nonoperating working interest the option of assigning or “surrendering” the working interest to the operator.¹⁴¹ In exchange, the nonoperator receives a royalty and/or a bonus, just as a traditional lessor of a mineral interest would. The working interest owner/nonoperator who decides not to bear its share of the drilling costs upfront, in effect decides to forgo a working interest share of production from the well.¹⁴² In other words, the nonoperator will receive a flat royalty (for example 1/8 of production) and a bonus in exchange for a proportional share of production based on acreage owned. The Corporate Commission may also provide a third option, in which the working interest can be carried subject to a risk penalty. Other states that provide the nonoperator an election like Oklahoma include: Arkansas, Idaho, Illinois, South Dakota, and West Virginia.¹⁴³

The Oklahoma “options” approach makes a great deal of sense when applied to a working interest owner that has been unitized and pooled with other working interest owners. A working interest is acquired via an oil and gas lease from the original owner of the mineral rights under a tract of land. Generally, working interest owners are gas and oil companies or speculators that have acquired the leasehold mineral rights from the lessor and are familiar with the industry. These entities are well-equipped to weigh their options and to select the approach that aligns best with their interests. In other situations, the owner of the mineral rights may not be the working interest owner. The owner of the rights may be a property owner that has not leased her mineral rights. In other words, no interests have been carved out from the property. A compulsory pooling order must also address the needs of the owner of unleased interests.

B. Treatment of Unleased Interests

An unleased interest owner is an individual or entity that has not assigned any mineral interest from their property. Accordingly, such an interest owner will be treated differently within the three approaches described above. A handful of states treat the unleased interest owner as a 1/8 royalty interest.¹⁴⁴ Utah provides a royalty equal to the average of the acreage-weighted royalties in the unit.¹⁴⁵ Essentially, the unleased and force pooled owner will be given a royalty equal to the average landowner’s, effective prior to the drilling of the well, and will remain in effect until the costs of the well have been recovered by the operator and consenting owners. After costs have been paid, the unleased owner is treated as having an 8/8 working interest.¹⁴⁶

Louisiana takes another approach: the unleased owner is not subject to a risk penalty¹⁴⁷ but does have to bear its share of costs, which will be deducted from production.¹⁴⁸ As a result, the unleased owner is given a free ride, but must bear its share of production out of its 8/8 working interest.

Colorado provides yet another approach, in which the unleased nonconsenting owner is given a royalty interest of 1/8 until the consenting owners recover costs out of the nonconsenting owners proportionate 7/8 share of production.¹⁴⁹ After the recovery of costs, the unleased nonconsenting owner shall then own its proportionate 8/8 share of the well.¹⁵⁰

C. Section 408: Pennsylvania’s Compulsory Pooling Statute

Pennsylvania’s compulsory pooling statute contains a number of the provisions mentioned above. Specifically, it permits voluntary “integration,” or pooling, of interests.¹⁵¹ When agreements cannot be reached voluntarily, it gives the “commission”¹⁵² the authority to order the integration of “all tracts or interests in the spacing unit for the development and operation thereof and for sharing of production therefrom.”¹⁵³ The statute goes on to require the commission to make their determination based on “terms and conditions that are just and reasonable” following proper notice and a public hearing.

Part (b) addresses the effective co-tenancy created by the spacing order for the purposes of extending leases past their primary term and for production. The statute makes clear that if drilling activity that would extend the primary term of a lease occurs in one portion of the pool, it is deemed to occur in any and all tracts included in the pooling order. The same can be said for production. If production occurs from any portion of the pool, it is considered to have come from any and all tracts included in the pool.¹⁵⁴

Part (c) requires the commission to specify who will be drilling and, “shall make provision for the payment by all those who elect to participate therein of the reasonable actual cost thereof, plus a reasonable charge for interest on past due accounts.”¹⁵⁵ The statute also makes accommodations, however, for interest holders within the unit that “do not elect to participate in the risk and cost of the drilling and operation.”¹⁵⁶ Section 408(c) gives those interest holders who choose not to participate a choice between surrendering their leasehold interest in exchange for “reasonable

141. *Id.* §12.02.

142. *Id.*

143. *Id.*

144. ARK. CODE ANN. tit. 15-72-305 (2011); 225 ILL. COMP. STAT. 725/22.2(g) (2011); KY. REV. STAT. ANN. §353.510(17) (West 2011).

145. UTAH CODE ANN. §40-6-6.5(6) & (8) (LexisNexis 2011).

146. *Id.*

147. LA. REV. STAT. ANN. 30:10(A)(2)(e) (2011).

148. *Id.* at 30:10(A)(3).

149. COLO. REV. STAT. §34-60-116(7)(c) (2011).

150. *Id.*

151. 58 PA. CONS. STAT. §408(a).

152. When the Oil and Gas Conservation Act was enacted, it established the Oil and Gas Conservation Commission to carry out its provisions. The Commission was abolished in 1971. Today, the authority to enforce the provisions of the act lies with the Department of Environmental Protection. See 71 PA. CONS. STAT. §510-103(a); 71 PA. CONS. STAT. §1340.503(a).

153. *Id.*

154. 58 PA. CONS. STAT. §408(b).

155. *Id.* §408(c).

156. *Id.*

consideration” or being carried with a risk penalty. If the interest holder chooses to surrender its working interest, and the reasonable consideration cannot be agreed upon, it is up to the commission to decide the terms, provided they are “just and reasonable.”¹⁵⁷ This consideration usually consists of some combination of bonus payment and royalty interest. Should the interest holder elect to have its portion of the costs carried until the well is completed, that interest holder will receive 1/8 of production free and clear. The remaining 7/8 will be paid to the operator who carried its share until the nonparticipating interest holder’s share of costs is repaid twice over. This means there is a 200% risk penalty for those who elect to abstain from sharing the costs, and risk, of the drilling from the start. Once they have paid the 200% risk penalty out of their portion of production, the interest holder receives a full 8/8 of its share of production.

Our suggestion for Pennsylvania’s approach to a compulsory pooling statute, discussed below, includes some aspects of §408 of the Oil and Gas Conservation Law as it is written, with some adjustments. We have taken what we believe to be the best aspects of pooling statutes from other states and incorporated them into §408. Rather than adopting an entirely new pooling law that applies to the Marcellus Shale, it would be more practical to expand the entire Oil and Gas Conservation Law, which was originally intended to fulfill Pennsylvania’s commitment to the Interstate Oil and Gas Commission, so that it applies to all horizons now known to contain hydrocarbons, extractable with the newest technology.

VI. Our Suggestion for Pennsylvania

A. *Ex Ante Concerns*

The commonwealth’s pooling statute must include the following basic elements. Above all else, the intent of a pooling order must be to provide each interested owner within the unit the opportunity to recover or receive their “just and equitable share” of the resource.¹⁵⁸ This provision serves to protect each interest owner’s correlative rights and is therefore essential. Without this provision, a forced pooling order could rise to the level of an abuse of state power.

Prior to a pooling order, the parties must have an opportunity to voluntarily come to an agreement. As a result, the statute must provide that where two or more separately owned tracts have been combined within a unit, the interest owners within the unit may voluntarily pool their interests for the development and production of gas. If negotiations and the marketplace cannot determine a deal between the parties, the Pennsylvania Bureau of Oil and Gas of the Department of Environmental Protection (Department) may step in and force-pool the unitized interests for the

purposes of development and production. Allowing the Department discretion in making the decision to pool provides the opportunity for the Department to consider the specific circumstances presented by each application and decide whether the applications are proper. To this end, the proposed pooling statute must provide the following *ex ante* provisions: the pooling order should only be granted if: (1) any interested party in the unit may petition the commission for a pooling order¹⁵⁹; (2) all interested parties are provided proper notice of a hearing at least sixty days in advance¹⁶⁰; and (3) a public hearing is held before the commission. These three provisions will ensure a fair and equitable application process. Any interested person in the unit should be able to seek a forced pooling order to allow nonoperators to assert their rights and to ensure a “just and equitable” division of the resources. The 60-day prehearing notice period will allow for all parties to secure counsel and adequately prepare for the pooling hearing. The hearing itself will ensure a just and equitable consideration of the concerns of all interested parties contemplated in the pooling order. Its public nature will provide transparency and accountability to the actions of the Department. It will also enable parties considering applying for a pooling order to understand the process. Accessibility of the terms of pooling orders will also ensure predictability and likely facilitate voluntary pooling by informing interested parties of the likely outcome of a pooling order. An effective, efficient, and fair pooling statute will provide for an equitable division of cost-sharing for two distinct groups of interest owners: (1) the nonconsenting working interest owner; and (2) the unleased interest owner.

B. *The Nonconsenting Working Interest Owner*

Cost-sharing is an essential part of the compulsory pooling process, because drilling for gas is risky and expensive. This is particularly true in the Marcellus where a horizontally drilled and “hydro-fracked” well is extremely costly.¹⁶¹ As discussed above, legislators and the conservation commission face a difficult task when balancing the competing interests of operator and nonoperators under a pooling order. Pennsylvania’s pooling statute must therefore allow for a forced pooled nonoperator to share in the benefits of production, while recognizing that the operator and well driller assume additional risk for which they should be compensated. As discussed above, the common-law rules on co-tenant working interest owners cause the operator to bear all of the risk of the drilling operation. When the

157. *Id.*

158. This or similar language can be found in a variety of state pooling statutes, including: Arkansas, Colorado, North Dakota, Oklahoma, and Utah, among others.

159. 58 PA. CONS. STAT. §408(c). The current integration statute §408(a) only allows an “operator” in the unit to petition the commission. While the statute defines “operator” as “any owner of the right to develop, operate, and produce oil and gas from the pool,” we are choosing not to use this term, as it can be misleading, indicating only those with an *operating interest* may petition. 58 PA. CONS. STAT. §402(7).

160. 58 PA. CONS. STAT. §408(a) provides for both of these provisions, but only allows for a 15-day notice period prior to a hearing. It is our position that 15 days is an inadequate period for a party to obtain counsel and prepare for the hearing. We, instead, propose a 60-day notice requirement.

161. See Kargbo et al., *supra* note 31.

state steps in to join working interests, it must recognize the risk inherent in Marcellus Shale drilling operations. A cost-sharing determination becomes necessary when a nonoperator that has been force-pooled does not or cannot pay its proportional share of drilling and production costs prior to production. Working interest owners are generally oil and gas companies or land speculators that have acquired the mineral rights and own them under the terms of an oil and gas lease.

The three primary approaches (free ride, risk penalty, and surrender of working interest) may be used separately or in combination with one another. Uniquely, in Oklahoma, the nonoperator may be given the option to select between the alternatives provided at the discretion of the conservation commission.¹⁶² We believe that this “options” approach is the most appropriate for Pennsylvania, because it encourages voluntary pooling of interests, and it allows for flexibility and for fact-specific determinations of what is just and reasonable under a pooling order by the commission.

The free-ride option will not achieve the goals of conservation regulation efficiently or effectively. A statute of this kind discourages voluntary pooling and encourages holdouts. Further, an operator would be discouraged from seeking a compulsory pooling order, because it could only result in an assignment of 100% of the risk. This in turn could lead to increased drilling, surface disturbance, and waste.

The risk-penalty approach seeks to prevent free rides and the backwards incentives that accompany the free ride: it allows the nonoperating interest to be carried, but it compensates the operator for the risk of drilling a nonproducing well by imposing a penalty payment on the nonoperator’s share of production. As discussed above, a risk penalty is either set by statute or determined at the discretion of the commission. A risk-penalty assessment is a necessary and functional tool that should be utilized by the commission if needed, but it should not be the only option afforded a nonoperator.

Under the Oklahoma “options” approach, the commission may provide three options to a nonoperator working interest owner. In choosing the first option, the nonoperator may participate in the cost of drilling and completing the well. Under the second option, she may surrender her working interest in exchange for a specified bonus and royalty payment. If a nonoperator fails to elect to participate in cost-bearing, she will be deemed to have chosen to surrender her working interest, accept compensation for the working interest, and forego her working interest, should the well prove productive. The third option available is that the nonoperator is designated as a carried interest, bears no risk of an unproductive well, but is subject to a risk penalty. Providing these “options” allows the flexibility and choice

necessary for working interest owners to reap a just and equitable share of production. This structure also enables the operator to mitigate risk by acquiring the nonoperator’s working interest or be compensated for an increased share of the risk she chooses to bear.

First and foremost, if the nonoperator is able and willing to share in the costs of production, a compulsory pooling order under this approach allows her to do so by agreeing to share in costs upfront. This option serves as a “second chance” at voluntary pooling. Of course, this option is only available to a working interest owner who is able to provide extensive financing. Frequently, a working interest is owned and has been acquired by an oil and gas company. This structure will encourage voluntary pooling agreements, the terms of which will be dictated by marketplace conditions and will be effective in situations where the nonoperator is an oil and gas company. Presumably, a nonoperator in this position has extensive knowledge of the industry and is therefore well-equipped to select the approach that best aligns with her interests.

Alternatively, the nonoperator may choose to surrender her working interest to the operator and receive a royalty and/or a bonus in exchange for the surrender of her working interest. This allows the nonoperator to minimize risk, while reaping profit from potential production. The beauty of the options approach is that, even after a pooling order is issued, a choice is provided. These are fact-specific decisions based on industry knowledge a working interest owner is likely to have. Surrender of the working interest may be permanent or for a limited period of time, determined at the discretion of the Department. Accordingly, this is the best approach for a Pennsylvania pooling statute. Pooled orders are not issued exclusively to working interest owners and, as a result, a compulsory pooling order must also address the needs of an unleased interest owner.

C. *Treatment of Unleased Interests*

An unleased interest owner is an individual or entity that has not carved out or assigned the mineral rights from her property. An individual in this position may be a private landowner and, accordingly, must be treated differently than a working interest owner. An entity in this position has not carved out any rights from their property interests and is therefore entitled to a greater share of production. In order to ensure that the unleased interest owner garners a “just and equitable” share of production, we propose that Pennsylvania apply the Colorado approach.

Colorado’s pooling statute provides that an unleased nonconsenting owner under a pooling order be given a royalty interest of 1/8 that is effective until the consenting owners recover costs out of the nonconsenting owner’s

162. As discussed above, Oklahoma has a highly developed system of providing nonoperators with options. Several other states, including Arkansas, Idaho, Illinois, South Dakota, and West Virginia, also provide some degree of options to nonoperators subject to a compulsory pooling order.

proportionate¹⁶³ 7/8 share of production.¹⁶⁴ After costs have been met, including the payment of a 200% risk penalty, the unleased nonconsenting owner shall regain its full 8/8 proportionate share of production.¹⁶⁵ The unleased nonconsenting interest owner is only force-pooled after the Department has received evidence establishing that the unleased owner has received a reasonable offer for a lease.¹⁶⁶ The reasonable offer must reflect prevailing market rates.¹⁶⁷ First and foremost, this provision encourages voluntary pooling. This division of costs is clearly just and equitable, because it allows the unleased owner to profit while helping to cover costs. Further, once costs are met, the unleased interest owner's share of production reverts to reflect its full and undivided interest in the gas rights.

D. Proposed Language for Pennsylvania's Compulsory Pooling Statute

(1) When two or more separately owned tracts are embraced within an established drilling unit, or when there are separately owned interests in all or part of the drilling unit, the owners of these interests may voluntarily pool their interests for the development, operation and production of the drilling unit, including sharing in the costs thereof.

(2) Where a voluntary agreement cannot be reached, and where one such separate owner has drilled or proposes to drill a well on said unit to the common source of supply, the Department, to avoid the drilling of unnecessary wells or to protect correlative rights, may, upon proper application from an interest holder, enter an order pooling all interests in the drilling unit for the development and operation thereof.

(3) All orders requiring such pooling shall be made after proper notice and hearing, and shall be upon such terms and conditions that are just and reasonable and will afford to the owner of such tract in the unit the opportunity to recover or receive, without unnecessary expense, the interest owner's just and equitable share of the oil and gas. All operations, including, but not limited to, the commencement, drilling, or operation of a well upon any portion of a drilling unit for which a pooling order has been entered, shall be deemed to have taken place upon each separately owned tracts embraced in the drilling unit. The portion of production allocated to the owner of each tract or interests included in a well spacing unit formed by a pooling order shall, when produced, be considered as if produced

by such owner from the separately owned tract or interest by a well drilled thereon.

(4) A pooling order shall not be made until a full public hearing before the Department has taken place. All owners of interests embraced in the drilling unit shall be given proper notice of the hearing. The owner who applies for the compulsory pooling order (Applicant) shall give notice to all owners whose addresses are known or could be known through the exercise of due diligence, at least sixty (60) days prior to the hearing by mail, using certified mail. The applicant shall also give notice by publication at least sixty (60) days prior to the hearing in the *Pennsylvania Bulletin*, and by one publication, at least sixty (60) days prior to the date of the hearing, in some newspaper published in the county, or in each county, if there be more than one, in which the lands embraced within the drilling unit are situated. The Department shall list the time and date of all pending hearings on its website. The applicant shall file proof of publication and an affidavit of mailing with the Department prior to the hearing.

(5) Such pooling order shall make definite provisions for the payment of cost of development and operation, which shall be limited to the actual expenditures required for such purpose not in excess of what are reasonable, including a reasonable charge for supervision. In the event of any dispute relative to such costs, the Department shall determine the proper costs after due notice to interested parties and a hearing thereon. The Department is authorized to provide that the interest owners not drilling the well in the drilling unit may select from the following cost sharing options:

(a) Share in Costs from the Outset: Interest owner pays their share of the costs of drilling, equipping, and operating the well as the costs are incurred.

(b) Risk Penalty: Interest owner may have their portion of the costs of drilling, equipping, and operating the well carried by other interest owners until the production stage, but will be charged a risk penalty of two hundred percent (200%) of their share of costs.

(c) Surrender of Working Interest: Interest owner may surrender his or her working interest in the well in exchange for reasonable consideration. This consideration may be a combination of a bonus payment and royalty interest.

(6) Unleased Interest Holders: For the purpose of this section, the owner of interests in and under an unleased tract of land shall be regarded as a lessee to the extent of a seven-eighths (7/8) interest in and to said interests and a lessor to the extent of the remaining one-eighth (1/8) interests therein.

(a) The unleased owner shall have the costs of drilling, equipping, and operating the well carried by other interest owners in the pool until the production stage, but will be charged a risk penalty of two hundred per-

163. A forced pooled owner's proportionate share of production is generally determined by the share of the unit in acres she owns. For example, if the nonoperator has been compulsory-pooled and owns 50% of the acres in the unit, she is entitled to a 50% share of production from the well, subject to the conditions of the pooling order, of course.

164. COLO. REV. STAT. §34-60-116(7)(c).

165. *Id.*

166. *Id.*

167. *Id.*

cent (200%) of their share of costs. This risk penalty is to be paid from seven-eighths (7/8) of the carried interest owner's share of production. The carried interest owner will receive one-eighth (1/8) of their share of production, free and clear, until the party or parties who carried said interest owner's share of costs have been repaid twice over. After recovery of such costs, the nonconsenting owner shall then own his proportionate eight-eighths (8/8) share of the well, surface facilities, and production and then be liable for further costs as if he had originally agreed to the drilling of the well.

(b) No order pooling an unleased nonconsenting interest owner shall be entered by the commission over protest of such owner until the commission shall have received evidence that such unleased interest owner shall have been tendered a reasonable offer to lease upon terms no less favorable than those currently prevailing in the area at the time application for such order is made and that such unleased mineral owner shall have been furnished in writing such owner's share of the estimated drilling and completion cost of the well, the location and objective depth of the well, and the estimated date of initiation of the well.

VII. Conclusion

Depending on whom you ask, the commonwealth of Pennsylvania is either in the midst of a full-blown gas boom or in the throes of one. Without question, the development of natural gas has the potential to bring prosperity to the commonwealth and along with it the risk of environmental damage. Much will depend on how we proceed with development. Will we ensure via regulation, legislation, and responsible corporate behavior that the development of our precious natural resources will be just and equitable? Will we preserve the environment for future generations of Pennsylvanians? These questions remain unanswered; but we must do our best to answer both in the affirmative. Compulsory pooling is an essential part of the regulatory scheme that should be developed in an effort to get to "yes."

Compulsory pooling must be conducted under the authority of the Department of Environmental Protection in order to ensure a "just and equitable" division of resources. This will protect correlative rights and ensure the efficient extraction of the natural gas. Interested parties must be given every opportunity to voluntarily pool their interests. If voluntary pooling cannot be achieved,

fair notice and a hearing must be provided so that all parties may be heard.

The "Oklahoma options" approach will provide a second chance at voluntary cost-sharing and provide the non-operator with the opportunity to assign its mineral interest in exchange for a royalty and/or a bonus. Alternatively, the nonoperators may elect to be carried during development and to pay a risk penalty in exchange for a free ride. The nonoperators are provided with a choice of options and are free to balance his or her interests, opting for what each believes to be the best approach for his or her unique situation. Further, the Department is given the discretion to issue pooling orders that are flexible and specifically tailored for each set of unique circumstances.

The Colorado statute and §408 of the Pennsylvania Oil and Gas Act provide the foundation for our suggestions regarding the unleased interest owner. Such an owner is provided with the opportunity to voluntarily pool their interests. The unleased interest owner is only compelled to pool after having turned down a reasonable offer, made in good faith by the applicant, to lease the mineral interests of the unleased interest owner. If compelled to pool, the unleased owner will be required to share in the costs, subject to a risk penalty. However, once costs are met, the unleased owner will enjoy its full share of production. In addition to recognizing the unleased owner's undiminished property interest, this provision ensures an equitable division of costs and production.

In many ways, the commonwealth is in a fortunate position. Pennsylvania has the opportunity to learn from the experiences of other states. For the last century, states have been experimenting with and developing the legal mechanisms necessary to ensure the efficient, just, and fair development of natural gas. Further, existing oil and gas legislation in place in Pennsylvania can serve as a foundation for these new laws. Although the Oil and Gas Act does not currently apply to the Marcellus Shale, it can be modified and applied by an act of the legislature. Accordingly, we have presented what we believe to be the best and most essential provisions of a compulsory pooling statute, combining elements of statutes from around the country with the commonwealth's existing legislation. We believe that a pooling statute is an essential part of a necessary regulatory scheme and will help to ensure the just, equitable, and environmentally sound development of the Marcellus Shale in Pennsylvania.