

What a Short, Strange Trip It's Been: Moving Forward After Five Years of Marcellus Development

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I. Background

Legal and policy issues surrounding the extraction of natural gas from the Marcellus Shale Formation are at the forefront of public dialogue in Pennsylvania today. Depending on one's individual perspective, Marcellus Shale natural gas drilling may connote thoughts of regional economic development, energy independence, personal wealth, fractured landscapes, or polluted waters.¹ Friends and foes of drilling alike have devoted extensive resources to advocate for the establishment of policies in support of their respective points of view.² As a result of this

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¹ Two recent documentary films have focused on different aspects of Marcellus Shale drilling to reach disparate conclusions about the desirability of developing this shale play. *See* GAS ODYSSEY (Red Dragon, Inc. 2010) (highlighting the economic benefits offered by Marcellus Shale development); *see also* GASLAND (New Video Group 2010) (highlighting the environmental risks posed by hydraulic fracturing).

² The Marcellus Shale Coalition was founded in 2008 and is comprised of various companies involved with Marcellus Shale development. This organization conducts advocacy and educational activities in support of the industry. According to the organization's website, "members of the coalition work with our partners across the region to address issues with regulators, local, county, state and federal government officials and communities about

increased focus on drilling activities, Pennsylvanians hear about the purported positive and negative impacts associated with Marcellus Shale natural gas drilling on an ongoing basis from a variety of sources.³

Despite its high profile, Marcellus Shale extraction has a practical history that is barely five years old.⁴ Even within this brief time period, little attention was paid to Marcellus Shale during its first two years of development. In the past three years, however, a number of legal issues have been addressed at all levels of government—local, state, and federal—and in all three branches of government—legislative, executive, and judicial—that have begun to set the course for the future of this resource within the Commonwealth. This legal activity to date is a

all aspects of producing clean-burning, job-creating natural gas from the Marcellus Shale.” *About the Marcellus Shale Coalition*, MARCELLUSCOALITION.ORG, <http://marcelluscoalition.org/about/>. See also Robert Swift, *Site Tracks Shale Industry Campaign Spending*, SCRANTON TIMES TRIBUNE, Sept. 20, 2010, available at <http://thetimes-tribune.com/news/site-tracks-shale-industry-campaign-spending-1.1021505#> (listing major political campaign contributions). There also have been strong advocacy efforts from groups seeking to restrict or prohibit Marcellus Shale drilling. See Tom Barnes, *Groups Rally for Marcellus Shale Gas Drilling Restrictions*, PITTSBURGH POST GAZETTE, Sept. 22, 2010, available at <http://www.post-gazette.com/pg/10265/1089281-454.stm> (reporting on rally at state Capitol by dozens of environmental groups including Clean Water Action, the Sierra Club, the Gas Accountability Project, the Delaware Riverkeeper Network, and Penn Environment).

³ See Press Release, Marcellus Shale Coalition, Farming the Marcellus: Natural Gas Industry Partners with Ag. Community at PA Farm Show (Jan. 13, 2011), available at <http://marcelluscoalition.org/2011/01/1546/> (describing industry outreach efforts to the nearly 500,000 attendees at the 95th Annual Pennsylvania Farm Show); see also Andrew Bergman, *Students Join Gas Drilling Protest*, PITT NEWS, Nov. 3, 2010, available at <http://pittnews.com/newsstory/students-join-gas-drilling-protest/> (describing a protest in Pittsburgh organized to coincide with a major industry conference); Press Release, Cabot Oil and Gas Corp., Cabot Oil & Gas Corporation Hosts Family Event for Susquehanna County Residents (Aug. 14, 2010), available at http://www.cabotog.com/pdfs/Family_Picnic_8-14-10.pdf?p=17879 (inviting general public to a community picnic); Elwin Green, *Ads Say Range Resources is a Responsible Driller*, PITTSBURGH POST GAZETTE, Oct. 13, 2010, available at <http://www.post-gazette.com/pg/10286/1094669-28.stm> (describing a public relations campaign consisting of radio and television advertisements, roadside billboards, and a website); Joel Kirkland, *Concerns Spread Over Environmental Costs of Producing Shale Gas*, N.Y. TIMES, July 9, 2010, available at <http://www.nytimes.com/cwire/2010/07/09/09climatewire-concerns-spread-over-environmental-costs-of-36415.html?pagewanted=all> (describing public debate in Pennsylvania following a contamination event and an industrial accident).

⁴ Natural gas from the Marcellus Shale Formation began to be extracted from a Washington County, Pennsylvania, well in 2005. See *infra* Part I.B.

precursor to more extensive modification and refinement of Pennsylvania oil and gas law that likely will occur in the coming years as Marcellus Shale development continues to progress.

This article will review the background of this resource development in Pennsylvania⁵ and discuss the many legal issues that have been raised in the short history of Marcellus Shale extraction.⁶ This article also will consider some of the legal questions that need to be examined as Pennsylvania law is modernized in accordance with the current realities of Marcellus Shale drilling.⁷ Finally, this article will offer thoughts on the overall manner in which state policymakers should approach this topic to properly manage drilling-related activities so that Pennsylvanians realize the maximum benefits offered by Marcellus Shale natural gas while simultaneously minimizing any adverse impacts.⁸

A. Origins of Pennsylvania’s Natural Gas Industry

Due to its expansive size and projected amount of recoverable gas, the Marcellus Shale Formation has been referred to as “The Saudi Arabia of Natural Gas.”⁹ With its geographic location atop this shale play and its early Marcellus developmental activities, Pennsylvania has

⁵ See *infra* Part I.

⁶ See *infra* Part II.

⁷ See *infra* Part III.

⁸ See *infra* Part IV.

⁹ GASLAND (New Video Group 2010) (Director Josh Fox stated, “My land was on top of a formation called the Marcellus Shale, and it was the Saudi Arabia of natural gas.”); see also Tom Infield, *Corbett Refuses to Return Petro Donation*, PHILA. INQUIRER, June 30, 2010, available at http://articles.philly.com/2010-06-30/news/24963031_1_tom-corbett-natural-gas-marcellus-shale (Then-gubernatorial candidate Tom Corbett stated, “We’re sitting on top of Saudi Arabia when it comes to natural gas”); but see *Map: Natural Gas Shale Basin Locations in the United States*, PICKENSPLAN.COM, <http://www.pickensplan.com/news/2010/04/07/map-natural-gas-shale-basin-locations-in-the-united-states/> (Apr. 7, 2010) (T. Boone Pickens referred to the United States as “the Saudi Arabia of Natural Gas”).

been thrust into a national and international spotlight.¹⁰ This, however, is not the first time that Pennsylvania's natural gas industry has been the subject of international attention. Going back to the early days of the industry, the drilling of the Haymaker well in Murrysville, Westmoreland County, Pennsylvania, in 1878 ushered in a new era in the development of natural gas resources.¹¹

Looking to capitalize on the oil boom that was occurring in Western Pennsylvania as a result of the Drake oil well, Michael and Obediah Haymaker began to drill a well in an effort to strike oil.¹² The Haymaker brothers selected their drilling site near a location where they had observed gas escaping from the earth as they believed that this gas indicated a nearby oil reserve.¹³ Following a lengthy drilling process and with the eventual assistance of an outside financier, the Haymaker well struck gas at a depth of 1,400 feet in an explosive event on November 3, 1878.¹⁴ As a result of the initial penetration of the gas seam, sound reverberations could be heard as far away as fifteen miles from the well and the ground shook for months

¹⁰ See Bill Newman, *International Players Vie to Invest in Marcellus Shale Projects*, USA INBOUND ACQUISITIONS & INVESTMENTS BLOG, (May 20, 2010, 9:16 AM) <http://www.usainbounddeals.com/2010/05/articles/deals-developments/international-players-vie-to-invest-in-marcellus-shale-projects/> (describing international investment in Marcellus Shale assets).

¹¹ CHARLES A. WHITESHOT, *THE OIL-WELL DRILLER: A HISTORY OF THE WORLD'S GREATEST ENTERPRISE, THE OIL INDUSTRY* 791, 840 (1905) (detailing the early history of Pennsylvania gas fields). The first commercial natural gas well is recognized as having been drilled by William Aaron Hart in Fredonia, New York, in 1825. This well provided lighting for two shops, two stores, and one mill. Eileen and Gary Lash, *Kicking Down the Well: The True Story of How the Natural Gas Industry Began – Here in Fredonia*, DUNKIRK OBSERVER, Sept. 19, 2010, available at <http://www.observertoday.com/page/content.detail/id/545533/-Kicking-down-the-well-.html?nav=5060>.

¹² PEOPLES NATURAL GAS CO., *THE VISION AND WILL TO SUCCEED: A CENTENNIAL HISTORY OF THE PEOPLES NATURAL GAS COMPANY* 7-8 (1985).

¹³ *Id.* at 7.

¹⁴ Following a year of drilling, the Haymakers had dug the well to a depth of 400 feet, but they had not yet reached oil. H.J. Brunot provided the Haymakers with funding to enable the continuation of drilling. *Id.* at 8.

afterwards.¹⁵ Natural gas poured from the ground at a rate estimated to be thirty to forty million cubic feet per day.¹⁶ With no ability to control the well, the gas simply escaped into the air.¹⁷ Three years later, in 1881, visitors carrying lanterns ignited the gas plume creating a second explosive event.¹⁸ After this explosion, the resulting flame burned at a height of one hundred feet for over eighteen months and, in the process, became an international tourist attraction.¹⁹

In January of 1883, Pittsburgh became the first major city to be supplied with natural gas as the Penn Fuel Gas Company constructed a pipeline from the Haymaker well to the city.²⁰ Within a short time, natural gas had become “king” to Pittsburgh’s growing manufacturing base.²¹ As natural gas replaced coal, the city’s air quality improved and industry thrived.²² By 1885, Pittsburgh had undergone such a rapid energy transformation that “[e]very steel and iron mill, glass factory, and manufactories generally of any consequence, besides many private

¹⁵ Michael Haymaker described the event as follows: “Without the slightest warning there was a terrific roar and rumble that was heard 15 miles away. Every piece of rigging went sky high whirling around like so much paper caught in a gust of wind. But, instead of oil, we had struck gas. It was being shot out under such enormous pressure that it continued to shake the ground and roar for months rattling windows for miles around.” *Id.*

¹⁶ *Id.*

¹⁷ The equivalent of approximately one thousand tons of coal per day was wasted for a five-year period. STATE GEOLOGIST, ANNUAL REPORT OF THE GEOLOGICAL SURVEY OF PENNSYLVANIA FOR 1885 38 (1886).

¹⁸ PEOPLES NATURAL GAS CO., *supra* note 12, at 8. The fire on September 18, 1881, destroyed a lampblack works that was located at the site of the gas well. JOHN N. BOUCHER, HISTORY OF WESTMORELAND COUNTY PENNSYLVANIA 550 (1906).

¹⁹ PEOPLES NATURAL GAS CO., *supra* note 12, at 8. *See also* BOUCHER, *supra* note 18 at 550 (“The well was said to be the largest in the world. Its flaming fire issuing from the earth could be seen at night a distance of eight or ten miles, and its roaring sound was distinctly heard for five or six miles.”).

²⁰ PEOPLES NATURAL GAS CO., *supra* note 12, at 9.

²¹ *Id.* at 15.

²² *Id.* at 17. *See also* WILLIAM J. HARTFORD, THE SUCCESSFUL AMERICAN: A MAGAZINE 344 (1900) (crediting accessibility to, and the use of, natural gas as providing Pittsburgh with “world-wide prominence as a manufacturing center”).

dwellings, [depended] upon gas for fuel.”²³ Led by the early production from the Murrysville gas field, the natural gas industries of Pennsylvania and the nation were operating in full stride.²⁴

B. Initial Development of the Marcellus Shale Formation

At the outset of the 20th century, Pennsylvania remained at the center of the nation’s natural gas industry, but production from Pennsylvania’s gas wells peaked in 1906.²⁵ Despite a relative decline in overall gas production, the drilling of natural gas wells has continued throughout Western Pennsylvania in the more than 125 years since the drilling of the Haymaker well.²⁶ While these Pennsylvania wells have targeted several geological formations, the majority have been drilled to extract gas from sandstone formations.²⁷ With the continued production from these numerous sandstone wells, Pennsylvania ranked sixteenth nationally in total natural gas production in the early years of the 21st century.²⁸ Then, albeit without the explosive flair of

²³ Editorial, *Value of Natural Gas, Its Use Clarifies the Atmosphere at Pittsburg*, N.Y. TIMES, Oct. 17, 1885, at 6.

²⁴ WHITESHOT, *supra* note 11, at 840 (detailing the early history of Pennsylvania gas fields).

²⁵ PEOPLES NATURAL GAS CO., *supra* note 12, at 19. In 1900, the natural gas produced in Pennsylvania was valued at \$10,215,412. This represented 43% of the total value of all natural gas produced in the United States during that year. WHITESHOT, *supra* note 11, at 849. Pennsylvania also accounted for 37% of the total number of active wells and 42% of the total miles of pipelines in place within the United States as of December 31, 1901. *Id.* at 851.

²⁶ See *Public Hearing on Local Impacts of Marcellus Shale Drilling Before Senate Majority Policy Comm.*, 191st Sess. (Pa. Jan. 26, 2011) (statement of David E. Callahan, Vice President of the Marcellus Shale Coalition), available at <http://senatorerickson.com/policy/2011/012611/callahan.pdf> (estimating that “350,000 oil and gas wells have been drilled in Pennsylvania”).

²⁷ See John A. Harper, *The Marcellus Shale – An Old “New” Gas Reservoir in Pennsylvania*, 38 PA. GEOLOGY, Spring 2008, at 6 (“[T]he sandstone-rich portion of the Upper Devonian . . . has been the ‘bread and butter’ of the oil and gas industry in this state for 150 years.”).

²⁸ United States Energy Information Administration, *Natural Gas Gross Withdrawals and Production*, available at http://www.eia.gov/dnav/ng/ng_prod_sum_a_EPG0_FGW_mmcf_a.htm. In 2005, Pennsylvania produced a total volume of 168,501 MMcf of natural gas. *Id.* With this amount of natural gas production, Pennsylvania trailed Texas, Alaska, Wyoming, New Mexico, Oklahoma, Louisiana, Colorado, Kansas, California, Alabama, Utah, Michigan, West Virginia, Arkansas, and Mississippi. *Id.* By 2009, Pennsylvania’s natural gas production had increased by 63% to 273,869 MMcf resulting in it moving ahead of Alabama, Michigan, and West Virginia in annual production. *Id.* Despite its relatively low position in natural gas production, Pennsylvania was the site of 11% of the nation’s producing gas wells in 2005. *Id.* This was the third highest total in the nation behind Texas and West Virginia. *Id.* By 2009, Pennsylvania had moved ahead of West Virginia into the second position in this category. *Id.*

the Haymaker well, the drilling of another gas well put Pennsylvania on a trajectory to once again be the focus of international attention.

In 2003, Range Resources drilled a gas well, permitted as Renz #1, on a Mount Pleasant Township farm in Washington County.²⁹ Although Marcellus Shale had not been the target of the well, the prospects for recovery from this formation appeared to be promising based upon the initial exploratory activities.³⁰ Through the use of experimental technologies, Range Resources began to extract gas from a vertical well through the Marcellus Shale layer at this site in 2005.³¹

Scientists and industry personnel have known about the potential of the Marcellus Shale Formation for many years, but the practical technologies then in existence did not allow for the efficient extraction of gas from this tightly-held shale play.³² This lack of technical capacity began to change as the exploration activities advanced in the Fort Worth Basin of the Barnett Shale Formation, which underlies a fourteen-county area surrounding Fort Worth, Texas.³³ Extensive development of the Barnett Shale began in the late 1990s through the utilization of

²⁹ The permit for the drilling of Renz #1 was issued by the Pennsylvania Department of Environmental Protection on April 18, 2003. *Facility Search*, PENNSYLVANIA'S ENVIRONMENTAL FACILITY APPLICATION COMPLIANCE TRACKING SYSTEM, http://www.ahs2.dep.state.pa.us/eFACTSWeb/criteria_facility.aspx (search "Facility Name" for "Renz 1," then select the facility name in the search results to view permit information).

³⁰ Harper, *supra* note 27, at 9.

³¹ Renz #1 yielded 5,524.21 Mcf of natural gas during a thirty-one days of production in 2005. The well was in continuous production from 2006 through 2010 with annual production of 44,017.58 Mcf in 2006, 32,927 Mcf in 2007, 25,740.04 Mcf in 2008, and 20,397.49 Mcf in 2009. From July 1, 2009, to June 30, 2010, the well produced 21,726.76 Mcf of natural gas. From July 1, 2010, to December 31, 2010, it produced 9,798 Mcf of natural gas. *PA DEP Oil & Gas Reporting Website – Production Reports – By Operator*, PA. DEPT. OF ENVTL. PROT., <https://www.paoilandgasreporting.state.pa.us/publicreports/Modules/Production/ProductionByOperator.aspx> (search "Operator Name" for "Range Resources Appalachia" and select the year).

³² See Harper, *supra* note 27, at 2 ("Marcellus has been a known gas reservoir for more than 75 years").

³³ See JEFF HAYDEN & DAVE PURSELL, PICKERING ENERGY PARTNERS, INC., *THE BARNETT SHALE: VISITORS GUIDE TO THE HOTTEST GAS PLAY IN THE US 11* (Oct. 2005) (showing that most of the initial exploration within the Fort Worth Basin has occurred within a three-county core area consisting of Wise, Denton, and Tarrant Counties).

two essential technologies: hydraulic fracturing and horizontal drilling.³⁴ While these technologies had been utilized previously in other settings,³⁵ they were successfully adapted to the extraction of shale gas in the early development of the Barnett Shale.³⁶ As a result of these advances, exploration activities began in other United States shale plays such as the Haynesville Shale in Louisiana, the Fayetteville Shale in Arkansas, the Woodford Shale in Oklahoma, and the Marcellus Shale in the Appalachian Basin.³⁷

C. Dramatic Expansion of Marcellus Shale Development

Following the drilling of the Renz #1 well, the number of Marcellus wells drilled in Pennsylvania each year began to increase at an exponential rate—two wells were drilled in 2005, eleven in 2006, thirty-four in 2007, 210 in 2008, 768 in 2009, and 1,454 in 2010.³⁸ Thus, by the

³⁴ *Id.* See also Kathy Shirley, *Barnett Shale Living Up to Potential*, EXPLORER (July 2002) (identifying a test well drilled by Mitchell Energy in 1981 as providing the origins for current development of the Barnett Shale).

³⁵ See Carl T. Montgomery and Michael B. Smith, *Hydraulic Fracturing: History of an Enduring Technology*, J. PETROLEUM TECH., Dec. 2010, at 26, 27 (dating the use of hydraulic fracturing to 1947 when Stanolind Oil stimulated a Kansas limestone gas well using a mixture of napalm and sand). See also Harper, *supra* note 27, at 10 (dating the first use of horizontal drilling to 1929 although the practice did not become widely used until the 1980s).

³⁶ See HAYDEN & PURSELL, *supra* note 33, at 11 (crediting light sand fracs and horizontal drilling with driving Barnett Shale development); see also J. DANIEL ARTHUR ET AL., ALL CONSULTING, AN OVERVIEW OF MODERN SHALE GAS DEVELOPMENT IN THE UNITED STATES 6 (2008) (reporting that “the first horizontal well in the Barnett” Shale “was drilled in 1992”); Elizabeth Dotson, Comment, *Drilling a Hole in the Water Supply: Regulation of Injection Wells in Texas*, 10 TEX. TECH ADMIN. L.J. 267, 274 (Fall 2008) (reporting that a hydraulic fracturing process known as a slick water frac was first performed in the Barnett Shale in 1997).

³⁷ See generally, NAT’L ENERGY TECH. LAB., U.S. DEP’T OF ENERGY, MODERN SHALE GAS DEVELOPMENT IN THE UNITED STATES: A PRIMER 16-24 (2009) (describing the geologic property and developmental activities in the major U.S. shale plays). There are at least twenty-six shale plays with developmental prospects in the United States. See *id.* at 8 (showing map of U.S. shale basins).

³⁸ See Bureau of Oil and Gas Management, Year to Date Workload Report, *available at* <http://www.dep.state.pa.us/dep/deputate/minres/oilgas/2009%20Year%20End%20Report-WEBSITE.pdf> (providing data for the years 2005 through 2009) and Bureau of Oil and Gas Management, 2010 Wells Drilled by County, <http://www.dep.state.pa.us/dep/deputate/minres/oilgas/2010%20Wells%20Drilled%20by%20County.htm> (providing data for 2010).

end of 2010, a total of approximately 2,500 Marcellus wells had been drilled in Pennsylvania.³⁹ Marcellus drilling activities also have expanded natural gas extraction out of the traditional gas fields of Western Pennsylvania into areas without a drilling history in Northcentral and Northeastern Pennsylvania. As the distribution of Marcellus wells drilled in 2010 demonstrates, two distinct areas in opposite corners of the state have become centers of Marcellus activities. Bradford County, located in Pennsylvania's Northern Tier, and the five adjacent counties accounted for 889 of the 1,454 wells.⁴⁰ Washington and Greene Counties, located in the southwestern corner of the state, accounted for a further 219 wells drilled.⁴¹ The remaining 346 wells were dispersed generally in the counties between the two primary areas of concentration.⁴² In total, thirty-two of Pennsylvania's sixty-seven counties had at least one Marcellus well drilled in 2010.⁴³

³⁹ Any compilation of Marcellus well data must be viewed as an estimate as there are internal inconsistencies among various reports prepared by the Bureau of Oil and Gas Management. *Compare* Bureau of Oil and Gas Management, Year to Date Workload Report, <http://www.dep.state.pa.us/dep/deputate/minres/oilgas/2009%20Year%20End%20Report-WEBSITE.pdf> (reporting 768 Marcellus wells drilled in 2009) *with* Bureau of Oil and Gas Management, 2009 Wells Drilled by County, <http://www.dep.state.pa.us/dep/deputate/minres/oilgas/2009%20Wells%20Drilled%20by%20County.htm> (reporting 763 Marcellus wells drilled in 2009) *and* Bureau of Oil and Gas Management, 2009 Wells Drilled by Operator, <http://www.dep.state.pa.us/dep/deputate/minres/oilgas/2009%20Wells%20Drilled%20by%20Operator.htm> (reporting 764 Marcellus wells drilled in 2009).

⁴⁰ In 2010, there were 386 Marcellus wells drilled in Bradford County, 266 drilled Tioga County, 107 drilled in Lycoming County, 92 drilled in Susquehanna County, 23 in Sullivan County, and 15 in Wyoming County. Bureau of Oil and Gas Management, 2010 Wells Drilled by County, *supra* note 38.

⁴¹ In 2010, there were 139 and eighty Marcellus wells drilled in Washington County and Greene County, respectively. *Id.*

⁴² *Id.*

⁴³ *Id.* A thirty-third county, Lackawanna County, was the site of a Marcellus well drilled in 2009. Bureau of Oil and Gas Management, *supra* note 39.

The original Marcellus drilling company, Range Resources Appalachia, LLC, has been joined by more than seventy other companies in exploration activities within Pennsylvania.⁴⁴ Chesapeake Appalachia, LLC, has been the most active company in the shale play with over 900 permitted Marcellus wells while at least fourteen additional companies each have permitted over one hundred Marcellus wells.⁴⁵ Most of the involved companies have limited their drilling activities to either the Northern Tier or to Southwestern Pennsylvania with many primarily operating within a single county. For example, Chesapeake Appalachia, LLC, and Talisman Energy USA, Inc., have focused their drilling activities on Bradford County; East Resources Management, LLC, has focused on Tioga County; Cabot Oil and Gas Corporation has focused on Susquehanna County; and Range Resources Appalachia, LLC, has focused on Washington County.⁴⁶

The Marcellus Shale is a particularly attractive shale play to energy companies for several reasons. The size of the Marcellus Basin is significantly larger and the estimated amount of technically recoverable reserves is greater than the other United States shale plays currently under development.⁴⁷ The Marcellus Shale underlies 95,000 square miles, which is four times

⁴⁴ Bureau of Oil and Gas Management, Marcellus Active Operators Oil & Gas Operators List, http://www.dep.state.pa.us/dep/deputate/minres/oilgas/new_forms/marcellus/Reports/MarcellusActiveOperators.htm

⁴⁵ *Id.*

⁴⁶ See Amy Keth & Amy Kaylor, Marcellus Shale Development in Pennsylvania 16 (2010), available at <http://web.clarion.edu/SBDC/Forms/2010-06-21MarcellusFacts.pdf> (compiling data from the Pennsylvania Department of Environmental Protection).

⁴⁷ See NAT'L ENERGY TECH. LAB, *supra* note 37, at 17 (comparing the estimated basin area and technically recoverable reserves for the major U.S. shale plays). In early 2008, two notable geosciences professors estimated the Marcellus Shale to contain fifty Tcf of technically recoverable reserves. Terry Engelder and Gary G. Lash, *Marcellus Shale Play's Vast Resource Potential Creating Stir in Appalachia*, AM. OIL & GAS REP., Mar. 2008, at 76, 87. As more production data from Marcellus wells became available, Professor Engelder later opined that there was "a 50 percent probability (P-50) that the Marcellus will ultimately yield 489 Tcf." Terry Engelder, *Marcellus*

larger than the combined size of the Barnett, Fayetteville, and Haynesville Shale Formations.⁴⁸ Additionally, the early production data demonstrate that the Marcellus is a very productive formation relative to the other major shale plays. In a recent comparison between wells of a similar age in the Marcellus and Barnett Shale Formations, an average well in the most productive county in the Marcellus Shale Formation—Bradford County, Pennsylvania—was twice as productive as an average well in the most productive county in the Barnett Shale Formation—Tarrant County, Texas.⁴⁹ Furthermore, the break-even market price for Marcellus production has been calculated to be lower than that for production in the Barnett, Fayetteville, Haynesville and Woodford Shale Formations.⁵⁰ Finally, the proximity of the Marcellus Shale to the cold weather population centers in the Northeastern United States greatly reduces the cost to transport gas from the well to the market.⁵¹

2008: *Report Card on the Breakout Year for Gas Production in the Appalachian Basin*, FORT WORTH BASIN OIL & GAS MAG., Aug. 2009, at 18, 22, available at <http://www.fwbog.com/index.php?page=article&article=144>.

⁴⁸ The Barnett Shale Formation underlies 5000 square miles, while the Haynesville and Fayetteville Shale Formations each underlie 9000 square miles. NAT'L ENERGY TECH. LAB, *supra* note 37, at 17.

⁴⁹ Will Brackett, Marcellus Shale Well Production Analysis 17 (2010), available at <http://www.barnettshalenews.com/documents/2010/Marcellus%20Production%20Data%20Oct%202010.pdf>. During the study period, eighty-four Bradford County wells produced an average of 3436 Mcf per day while Tarrant County wells of a similar age produced an average of 1630 Mcf per day. *Id.* See also Will Brackett, *In This Week's Issue – Event Recaps, more Regulatory Updates*, POWELL BARNETT SHALE NEWSLETTER, OCT. 18, 2010, at 9 (discussing conference where comparative data was presented); Will Brackett, *In This Week's Issue – PA Marcellus Shale Production Data Research*, POWELL BARNETT SHALE NEWSLETTER, Sept. 13, 2010, at 5-6 (discussing the initial release of Marcellus production data by the Pennsylvania Department of Environmental Protection).

⁵⁰ Ross Schweitzer and H. Ilkin Bilgesu, *Economics of Marcellus Shale Well and Fracture Design Completions*, WORLD OIL, Mar. 2010, at D-87.

⁵¹ See ROBERT A. VARGO AND KENNETH L. FRYE JR., THE CENTER FOR RURAL PENNSYLVANIA, AN EXAMINATION OF PENNSYLVANIA'S OIL AND GAS INDUSTRY 12 (2005) available at http://www.rural.palegislature.us/Oil_Gas_Industry.pdf (describing lower transportation costs as a competitive advantage possessed by Pennsylvania).

The economic attributes of the Marcellus Shale play have generated strong interest from major international companies, leading to a substantial amount of merger and acquisition activity. Leading companies in the energy market sector such as StatoilHydro (Norway),⁵² Exxon Mobil Corp. (United States),⁵³ Mitsui & Co. Ltd. (Japan),⁵⁴ Reliance Industries Ltd. (India),⁵⁵ the BG Group (United Kingdom),⁵⁶ Royal Dutch Shell (The Netherlands),⁵⁷ and Chevron Corp. (United States)⁵⁸ each have acquired business interests in the Marcellus Shale.

⁵² On November 25, 2008, Chesapeake Energy announced a joint venture with StatoilHydro whereby StatoilHydro acquired a 32.5% interest in Chesapeake Energy's 1.8 million Marcellus Shale acres in a \$3.375 billion cash and drilling carry transaction. Press Release, Chesapeake Energy Corp., Chesapeake Energy Corporation Announces Closing of Marcellus Shale Joint Venture with StatoilHydro (Nov. 25, 2008), *available at* <http://www.chk.com/News/Articles/Pages/1229883.aspx>.

⁵³ On December 14, 2009, Exxon Mobil announced its planned acquisition of XTO Energy in a \$41 billion stock transaction. Press Release, Exxon Mobil Corp., Exxon Mobil Corporation and XTO Energy Inc. Announce Agreement (Dec. 14, 2009), *available at* http://www.exxonmobil.com/Corporate/Files/news_release_20091214.pdf.

⁵⁴ On February 16, 2010, Mitsui & Co. announced that it had agreed to enter into a joint venture with Anadarko Petroleum whereby Mitsui will acquire a 32.5% interest in Anadarko's 715,000 Marcellus Shale acres in a \$1.4 billion drilling carry transaction. Press Release, Mitsui & Co. Ltd., Participation in the Shale Gas Projects in Pennsylvania (Feb. 16, 2010), *available at* http://www.mitsui.co.jp/en/release/2010/1190155_3894.html.

⁵⁵ On April 23, 2010, Reliance Industries announced a joint venture with Atlas Energy whereby Reliance acquired a 40% interest in 300,000 Marcellus Shale acres held by Atlas in a \$1.7 billion cash and drilling carry transaction. Press Release, Reliance Indus. Ltd., Reliance Industries Announces Closing of Marcellus Shale Joint Venture with Atlas Energy (April 23, 2010), *available at* <http://www.ril.com/downloads/pdf/PR23042010.pdf>.

⁵⁶ On May 10, 2010, BG Group announced a joint venture with EXCO Resources whereby BG Group acquired a 50% interest in Exco Resources' 654,000 Marcellus Shale acres in a \$950 million cash and drilling carry transaction. Press Release, BG Group, BG Group Announces U.S. Appalachian Basin Joint Venture with EXCO (May 10, 2010), *available at* <http://www.bg-group.com/MediaCentre/PressArchive/2010/Pages/10May2010.aspx>.

⁵⁷ On May 28, 2010, Royal Dutch Shell announced its agreement to acquire subsidiaries owning nearly all of East Resources' business interests in a \$4.7 billion cash transaction. East Resources held 650,000 acres within the Marcellus Shale play. Press Release, Royal Dutch Shell, Royal Dutch Shell PLC Acquires New Positions in U.S. Tight Gas (May 28, 2010), *available at* http://www.shell.com/home/content/media/news_and_media_releases/2010/shell_acquires_new_positions_us_tight_gas_28052010.html.

⁵⁸ On November 9, 2010, Chevron announced its planned acquisition of Atlas Energy in a \$4.3 billion cash and debt assumption transaction. Atlas Energy held 486,000 acres within the Marcellus Shale play. Chevron will assume Atlas Energy's role in the joint venture entered into between Atlas Energy and Reliance Industries. Press Release, Chevron Corp., Chevron Announces Agreement to Acquire Atlas Energy (Nov. 9, 2010), *available at* http://www.chevron.com/chevron/pressreleases/article/11092010_chevronannouncesagreementtoacquireatlasenergy.news.

Closer to home, the extensive developmental activities have had a number of impacts upon the largely rural communities within Pennsylvania's Marcellus Region. On the positive side, the natural gas industry has spurred economic activity in affected communities.⁵⁹ Landowners have received income from lease bonuses and royalty payments⁶⁰ and new jobs have been created.⁶¹ Additionally, the residential real estate market has strengthened due to the increased demand for housing,⁶² commercial real estate is in great demand,⁶³ and the short-term lodging industry is booming.⁶⁴

On the negative side, local residents have been subjected to increased traffic, degraded roads and bridges, and a perceived decline in the overall quality of life as a result of continuous industrial operations.⁶⁵ Some residents have suffered through pollution of their water supplies or fear such pollution, and the demands upon local services including emergency management, law enforcement, and social services have increased.⁶⁶ There also are negative corollaries to some of

⁵⁹ See, e.g., *Local Impacts of Marcellus Shale Drilling Before the S. Majority Policy Comm.*, supra note 26, available at <http://senatorerickson.com/policy/2011/012611/coolidge.pdf> (statement of Erick Coolidge, Chairman, Tioga County Commissioners) (acknowledging that "local businesses are doing much better than they had in recent years, . . . and unemployment in our area has dropped").

⁶⁰ See *id.*, (amendment to testimony by Doug McLinko, Commissioner, Bradford County) (Bradford County residents have received "over 1 billion dollars in royalty payments" from Chesapeake Energy).

⁶¹ See *id.*, (statement of Doug McLinko, Commissioner, Bradford County) ("Bradford County led the state with 2500 new jobs created last year").

⁶² See *id.* (statement of Doug McLinko, Commissioner, Bradford County) (Bradford County has "private investors planning large housing projects both in rentals and new home construction").

⁶³ See *id.* (statement of Doug McLinko, Commissioner, Bradford County) (noting that "[o]ffice space is at a premium" in Bradford County).

⁶⁴ See *id.* (statement of Doug McLinko, Commissioner, Bradford County) (noting that new hotels are fully occupied upon completion).

⁶⁵ See *Public Hearing on Local Impacts of Marcellus Shale Drilling Before Senate Majority Policy Comm.*, supra note 26 (statement of Douglas E. Hill, Executive Director, County Commissioners Association of Pennsylvania) ("The most visible impact is on township roads and county bridges). See also *id.* (statement of Erick Coolidge, Chairman, Tioga County Commissioners) (noting that Tioga County communities have been forever changed).

⁶⁶ See *id.* (statement of Douglas E. Hill, Executive Director, County Commissioners Association of Pennsylvania).

the positive impacts of natural gas drilling as some long-time residents struggle to obtain affordable housing in light of the robust real estate market and the tourism industry endures a lack of available short-term lodging.⁶⁷

The increased developmental activity also has had a tremendous impact on legal practice within the affected communities.⁶⁸ In the pre-Marcellus era, the number of Pennsylvania attorneys with experience in oil and gas law issues was small and concentrated in the geographic areas with a history of oil and gas drilling. Due to intense client demand for assistance in the leasing process, the bar—particularly in the Northern Tier—was forced to gain competence quickly on oil and gas law issues.⁶⁹ A new cadre of attorneys with experience in oil and gas law has developed to represent clients in diverse areas to include leasing, title work, estate planning, wealth management, litigation, and municipal law.⁷⁰

II. Development of Legal Issues Related to Marcellus Shale Since 2008

Early Marcellus Shale developmental activities have raised a number of legal issues. These varied legal issues include the relationship between the parties to a leasing transaction, impacts upon the surface estate, protection against potential environmental degradation, municipal regulation, the development of industry infrastructure, application of the Pennsylvania

⁶⁷ See *id.* (statement of Erick Coolidge, Chairman, Tioga County Commissioners).

⁶⁸ See Cliff White, *Natural Gas is Buried Treasure*, CENTRE DAILY TIMES, Feb. 11, 2011, available at <http://www.centredaily.com/2011/02/10/2512357/natural-gas-is-buried-treasure.html> (interviewing Philipsburg attorney David Mason whose former general law practice is now 80% devoted to Marcellus issues).

⁶⁹ See *Public Hearing on Marcellus Shale Before House of Representatives Environmental Resources and Energy Comm.*, (Pa. Apr. 15, 2009) (statement of Ross H. Pifer), available at http://law.psu.edu/_file/aglaw/Public_Hearing_on_Marcellus_Shale_Legal_Issues_Impacting_Landowners_April_15_2009.pdf (“[M]any attorneys who had no prior experience with oil and gas law were being called upon by clients for representation in the review and negotiation of lease agreements.”).

⁷⁰ See Kermit L. Rader, *Protecting Clients from Going Bust in the Gas Boom*, PA. LAWYER, July/Aug. 2010, at 30, 35 (“The legal issues related to gas drilling in the Marcellus Shale span a wide range and involve multiple specialties”).

Oil and Gas Act, the development of public resources, and the propriety of a state severance tax. Some of these issues have been addressed contractually through lease agreements between energy companies and landowners while many more of the legal issues have been addressed at all levels of government by court opinions, legislation, and regulatory actions. An overview of these major legal developments related to Marcellus Shale issues from 2008 through 2010 will be considered in turn below.⁷¹

A. Leasing Activity

To conduct natural gas extraction activities, an energy company must hold legal rights to the natural gas property interests that are the subject of the extraction efforts. Generally, these rights are granted by the landowner pursuant to the terms of an oil and gas lease agreement. As most of the natural gas rights within the Marcellus Shale Formation in Pennsylvania are privately owned, energy companies must deal extensively with private landowners in the lease acquisition process.⁷² While there is some minimal state oversight in this process,⁷³ nearly all of the details of the leasing transaction, including the payment terms, are the product of negotiation on the open market.⁷⁴

⁷¹ See generally Ross H. Pifer, *Drake Meets Marcellus: A Review of Pennsylvania Case Law upon the Sesquicentennial of the United States Oil and Gas Industry*, 6 Tex. J. OIL, GAS & ENERGY L. 48 (2010-11) (providing a thorough discussion of the oil and gas law issues decided by state and federal courts in Pennsylvania from January 1, 2009, through June 30, 2010).

⁷² See Tom Zeller Jr., *Governor Bans New Gas Wells on State Land*, N.Y. TIMES, Oct. 26, 2010, <http://green.blogs.nytimes.com/2010/10/26/pennsylvania-governor-bans-fracking-in-state-forests/?scp=1-b&sq=&st=nyt> (stating that most natural gas drilling in Pennsylvania occurs on private land).

⁷³ See 58 PA. STAT. ANN. § 33 (West 2010) (mandating that an oil and gas lease “shall not be valid” unless such lease guarantees the payment of at least a one-eighth royalty).

⁷⁴ See *Public Hearing on Marcellus Shale Before House of Representatives Environmental Resources and Energy Comm.*, *supra* note 69, at 3 (statement of Ross H. Pifer) (“[T]he lease agreement governs nearly all aspects of the relationship between the landowner and the energy company”).

The lease acquisition process normally is initiated by an energy company presenting a landowner with a standard oil and lease agreement.⁷⁵ The process also can be initiated in a similar fashion by a land speculator who intends to assign the executed lease agreement to an energy company at a later time.⁷⁶ An executed oil and gas lease agreement may or may not be the product of a true negotiation between the parties as some landowners will sign the standard agreement as presented while others will obtain legal counsel to amend the agreement through the preparation of lease addenda.

1. Activity within the Lease Market

Although natural gas from the Marcellus Shale Formation was first extracted in 2005, there was little public attention on the topic until early 2008 when lease rates began to increase dramatically in Pennsylvania's Northern Tier. Prior to 2008, landowners typically received a lease bonus ranging from \$1 to \$225 per acre in exchange for executing a gas lease.⁷⁷ The lease market in the Northern Tier then began a rapid ascent with lease bonuses rising to approximately \$2,500 by April of 2008 and continuing upward from that point.⁷⁸ By the summer of 2008, energy companies with the capability of drilling Marcellus wells were becoming involved more

⁷⁵ See Krista Weidner, *Natural Gas Exploration: A Landowner's Guide to Leasing Land in Pennsylvania*, PENN STATE COOP. EXTENSION, 4-5 (2008), <http://pubs.cas.psu.edu/freepubs/pdfs/ua448.pdf>.

⁷⁶ See *id.* (explaining the leasing process).

⁷⁷ See *Kropa v. Cabot Oil & Gas Corp.*, 716 F. Supp. 2d 375, 377 (M.D. Pa. 2010) (Susquehanna County landowner paid \$25 per acre in March 2006). See also *Julia v. Elexco Land Servs., Inc.*, No. 3:09-CV-590, 2010 WL 1904245, at *1 (M.D. Pa. May 11, 2010) (Susquehanna County landowner paid \$50 in May 2007); *Price v. Elexco Land Servs., Inc.*, No. 3:09-CV-433, 2009 WL 2045135, at *1 (M.D. Pa. July 9, 2009) (Susquehanna County landowner paid \$100 per acre in October 2007); *Stone v. Elexco Land Servs., Inc.*, No. 3:09-CV-264, 2009 WL 1515251, at *1 (M.D. Pa. June 1, 2009) (Susquehanna County landowner paid \$225 per acre in November 2007); Peter Applebome, *Gas Drillers in Race for Hearts and Land*, N.Y. TIMES, June 29, 2008, at A23 (farmers would lease gas rights for \$1 per acre a few years prior to 2008).

⁷⁸ See Clifford Krauss, *There's Gas in Those Hills*, N.Y. TIMES, Apr. 8, 2008, at C1 (describing the leasing process as a "feeding frenzy"); see also Peter Applebome, *Gas Drillers in Race for Hearts and Land*, N.Y. TIMES, June 29, 2008, at A25 (describing the rise in the lease market in the Southern Tier of New York during 2008).

directly with landowners in the leasing process, supplanting many of the land companies and speculators who had obtained early leases from landowners at low market rates.⁷⁹ The lease market in much of Western Pennsylvania also experienced an increase beginning in early 2008, but at a slower, more gradual pace.⁸⁰ With its history of drilling, wide-spread lease solicitation activities were not as prevalent in Western Pennsylvania because significant acreage was held by production from gas wells drilled into sandstone formations.

In the fall of 2008, the national credit markets collapsed, and, as a result, the Pennsylvania lease market largely came to a halt.⁸¹ Some companies withdrew outstanding lease offers and utilized available options to avoid making bonus payments on many leases that had been executed by landowners during the summer.⁸² The cessation of leasing activity proved to be a temporary condition, and renewed interest in the leasing market began in September 2009 when the Friendsville Group, a large landowners group in Susquehanna, Bradford, and Broome (New York) Counties, announced that it had negotiated a lease with Fortuna Energy for 35,000 acres with a lease bonus payment of \$5,500 per acre.⁸³ Following this reinvigoration of the lease market, leasing continued in the Northern Tier, but on a more targeted basis, as companies

⁷⁹ See James Loewenstein, *Local Gas Rush in Bradford County*, TOWANDA DAILY REV., Oct. 3, 2008 (Chesapeake Energy had recorded 2,018 out of the 3,644 gas leases that were recorded in Bradford County during the first nine months of 2008).

⁸⁰ *Extension Works for the Landowner*, PENN ST. COOP. EXTENSION, <http://extension.psu.edu/naturalgas/success-stories/extension-works-for-the-landowner> (describing the increases in the amounts offered to a Clearfield County landowner over a nine month period from \$50 per acre in January to \$800 in May to \$1,500 in October).

⁸¹ See, e.g., *Valentino v. Range Res. – Appalachia, LLC*, No. 09-1615, 2010 WL 2034550, at *3 (W.D. Pa. May 21, 2010) (energy company noted “the drastic drop in oil and gas prices, the downturn of the U.S. economy and the resulting effects on the credit markets” as reasons why it no longer wished to execute the lease agreement).

⁸² See *Company Rescinds Gas Lease Offers in Pa. and New York*, TOWANDA DAILY REV., Oct. 3, 2008 (reporting that Chesapeake Energy was revoking and rescinding gas lease offers).

⁸³ Eric Hrin, *Gas-lease Agreement is ‘Very Good Deal,’* TOWANDA DAILY REV., Sept. 14, 2009.

sought to fill gaps in their leaseholds.⁸⁴ Leasing activity also has continued in Western Pennsylvania with a recent expansion into counties that were originally believed to have less productive Marcellus Shale properties. This change could be due to a relative exhaustion of available land for leasing in higher profile Marcellus areas or due to increasing awareness of, and interest in, the deeper Utica Shale Formation.⁸⁵

2. Litigation Arising from Rise and Fall of the Lease Market

As the lease market began its initial rise in the Northern Tier in early 2008, there was great dissatisfaction among many landowners who had signed leases providing for lower payment terms during the previous months or years.⁸⁶ In an attempt to take advantage of the higher lease market, many of these landowners with early leases filed legal actions seeking to terminate their leases. In total, there were nearly one hundred lawsuits filed in state and federal courts, putting the validity of thousands of leases at issue. Almost all of these cases involved leases that remained in the initial primary term where no drilling operations had been commenced on the subject property.

Although some landowners sought to terminate their leases on the basis of fraudulent inducement or an untimely tender of the lease bonus payment,⁸⁷ landowners most frequently

⁸⁴ James Loewenstein, *Chesapeake to Hold Lease-Signing Event in Wysox Township*, TOWANDA DAILY REV., Mar. 17, 2010 (describing offer by Chesapeake Energy to pay a lease bonus of \$5,000 with a 20% royalty to targeted landowners).

⁸⁵ Kathy Mellott, *Delayed Boom: Local Shale Drilling Activity Lags – For Now*, JOHNSTOWN TRIB. DEM., Dec. 12, 2010 (describing areas of Western Pennsylvania as holding interest for the Utica Shale Formation).

⁸⁶ Mireya Navarro, *At Odds Over Land, Money and Gas*, N.Y. TIMES, Nov. 28, 2009, at A14 (describing the feelings of a Southern Tier New York landowner who received a lease bonus of \$25 per acre).

⁸⁷ See *Kropa*, 716 F. Supp. 2d 375 (asserting fraudulent inducement); see also *Julia v. Elexco Land Servs., Inc.*, No. 3:09-CV-590, 2010 WL 1904245, at *3 (M.D. Pa. May 11, 2010) (asserting fraudulent inducement); *Puza v. Elexco Land Servs., Inc.*, No. 3:09-CV-589, 2010 WL 1791150, at *2 (M.D. Pa. May 3, 2010) (asserting fraudulent inducement); *Carey v. New Penn Exploration, LLC*, No. 3:09-CV-188, 2010 WL 1754440, at *2 (M.D. Pa. Apr. 28, 2010) (asserting fraudulent inducement); *Cabot Oil & Gas Corp. v. Jordan*, 698 F. Supp. 2d 474 (M.D. Pa. 2010)

asserted the argument that these leases violated Pennsylvania's guaranteed minimum royalty statute.⁸⁸ According to Pennsylvania law, a lease is not valid unless it guarantees that the lessor receive a royalty payment of at least 12.5%.⁸⁹ In these lawsuits, the landowners alleged that lease provisions authorizing the deduction of post-production costs from the royalty payments had the potential to bring the landowners' royalty payments below this one-eighth threshold. As such, the landowners argued that the leases were invalid because they did not guarantee the statutorily-mandated minimum royalty.⁹⁰ In a case of first impression, the Pennsylvania Supreme Court rejected this argument, ruling that the parties were free to contract that post-production costs could be deducted from royalty payments.⁹¹ Such an arrangement did not violate Pennsylvania's minimum royalty statute.⁹²

When the lease market stalled as a result of problems with the national credit markets in the fall of 2008, the goals of landowners in lease litigation changed. Landowners who believed that they had entered into lease agreements with favorable payment terms sought to enforce the terms of those leases.⁹³ Lease agreements typically provide for the payment of the lease bonus on a delayed basis—normally within 90 to 120 days of lease execution—to allow time for the lessee to perform a title review and to obtain management approval. Following the credit market

(asserting fraudulent inducement); *Price*, 2009 WL 2045135, at *2 (asserting fraudulent inducement); *Stone*, 2009 WL 1515251, at *4 (asserting fraudulent inducement); *Sylvester v. Sw. Energy Prod. Co.*, No. 3:CV-09-1653, 2009 WL 3633835 (M.D. Pa. Nov. 2, 2009) (asserting untimely tender of lease bonus payment).

⁸⁸ See Pifer, *supra* note 71 at 50-53 (providing a review of the guaranteed minimum royalty act litigation).

⁸⁹ 58 PA. STAT. ANN. § 33 (West 2010).

⁹⁰ See Pifer, *supra* note 71 at 51 (providing a review of the guaranteed minimum royalty act litigation).

⁹¹ *Kilmer v. Elexco Land Servs., Inc.*, 990 A.2d 1147, 1158 (Pa. 2010).

⁹² *Id.*

⁹³ See Pifer, *supra* note 71 at 55-57 (providing a review of the management approval litigation).

collapse, some companies exercised this management approval clause in a manner to reject leases and thereby avoid making any required lease bonus payments.⁹⁴ The results of litigation on this issue were mixed with United States District Court for the Middle District of Pennsylvania ruling on two occasions that a company had rejected the lease in compliance with the management approval clause while the United States District Court for the Western District of Pennsylvania ruled that a landowner had alleged sufficient facts supporting management approval to survive a motion to dismiss.⁹⁵

B. Farmland and Forest Land Assessment Act

The Farmland and Forest Land Assessment Act of 1974, also known as Clean and Green, is a voluntary program that provides for eligible land to be assessed at its use value rather than fair market value, normally resulting in lower real estate tax obligations.⁹⁶ Under the statute, a roll-back tax penalty is triggered when enrolled land is used for an ineligible purpose. This penalty requires the landowner to pay up to seven years of the tax benefits received along with interest.⁹⁷ Although Clean and Green is a state program, county assessment offices have authority to make certain administrative determinations, including those pertaining to eligibility and the imposition of roll-back tax penalties⁹⁸

⁹⁴ *See id.*

⁹⁵ *See* Valentino v. Range Res.-Appalachia, LLC, No. 09-1615, 2010 WL 2034550 (W.D. Pa. May 21, 2010) (denying motion to dismiss); *see also* Hollingsworth v. Range Res.-Appalachia, LLC, No. 3:09-CV-838, 2009 WL 3601586 (M.D. Pa. Oct. 28, 2009) (granting motion to dismiss); Lyco Better Homes, Inc. v. Range Res.-Appalachia, LLC, No. 4:09-CV-00249, 2009 U.S. Dist. LEXIS 110425 (M.D. Pa. May 21, 2009) (granting motion to dismiss).

⁹⁶ 72 PA. STAT. ANN. §§ 5490.1–5490.13 (West 1990 & Supp. 2010). The categories of land that are eligible for the program are agricultural use, agricultural reserve, and forest reserve. *Id.* § 5490.3(a).

⁹⁷ *Id.* § 5490.5(a).

⁹⁸ *Id.* § 5490.5(b).

By 2008, many Clean and Green program participants had signed gas leases. As extraction activities began to occur on properties enrolled in the Clean and Green program, a conflict began to arise in the manner of treatment by various county assessment offices. According to a study by the Pennsylvania Department of Agriculture, the state agency charged with administering the program, counties treated, or intended to treat, the impact of natural gas activities on Clean and Green land in several different manners.⁹⁹ In some counties, natural gas activities on Clean and Green land did not trigger any roll-back tax obligation.¹⁰⁰ In other counties, roll-back taxes were assessed when drilling activities occurred, either on the entire enrolled parcel or on a portion of the parcel.¹⁰¹

The divergent treatment of this issue generated a legislative response with the aim of establishing uniform application throughout the state. Legislative hearings were held on July 15, 2008,¹⁰² and May 7, 2009,¹⁰³ and a number of bills were introduced during the 2009-2010 legislative session.¹⁰⁴ Ultimately, legislation to establish uniform application of this issue was passed by both chambers and approved by the governor on October 27, 2010, becoming one of the first pieces of Marcellus-related legislation enacted by the General Assembly.¹⁰⁵ Under the

⁹⁹ *Public Hearing on Clean and Green: PA Farmland and Forest Land Assessment Act of 1974 Before House of Rep. Agric. & Rural Affairs Comm.*, 2008 Leg., Reg. Sess. 17 (2008) (statement of Hon. Dennis Wolff, Pa. Sec. of Agric.).

¹⁰⁰ *Id.* at 22-23 (statement of Holbrook Duer, Chief Counsel, Pa. Dep't of Agric.).

¹⁰¹ *Id.*

¹⁰² *Public Hearing on Clean and Green: PA Farmland and Forest Land Assessment Act of 1974 Before House of Rep. Agric. & Rural Affairs Comm.*, *supra* note 99.

¹⁰³ *Public Hearing In Re: Marcellus Shale, Clean and Green, HB 984, and HB 1394 Before House of Rep. Agric. & Rural Affairs Comm.*, 2009 Leg., Reg. Sess. (May 7, 2009).

¹⁰⁴ H.R. 208, 2009 Leg., Reg. Sess. (2009); H.R. 984, 2009 Leg., Reg. Sess. (2009); H.R. 1394, 2009 Leg., Reg. Sess. (2009); S. 298, 2009 Leg., Reg. Sess. (2010) (enacted).

¹⁰⁵ S. 298, 2009 Leg., Reg. Sess. (2010) (enacted).

terms of this legislation, a roll-back tax is imposed when natural gas operations occur on land enrolled in the Clean and Green program, but only upon the land within “the restored well site and land which is incapable of being immediately used” for eligible purposes upon the filing of the well completion report.¹⁰⁶

C. Use of the Surface Estate where Estates Have Been Severed

While the amendment of the Clean and Green statute evidenced a legislative response to the impacts that natural gas extraction can cause to the surface estate, there have been a number of recent court opinions that also address the surface impacts of natural gas drilling.¹⁰⁷ The most important of these rulings was the Pennsylvania Supreme Court decision in *Belden & Blake Corp. v. Pennsylvania Department of Conservation and Natural Resources*, defining the relationship between the owner of surface rights and the owner of subsurface rights where the natural gas rights have been severed from the surface estate.¹⁰⁸ In that case, the Commonwealth owned the surface estate, but not the underlying rights to oil and gas, within Oil Creek State Park.¹⁰⁹ Belden & Blake held natural gas rights and wished to conduct drilling operations, but the Department would not provide access to the surface estate unless certain conditions were satisfied.¹¹⁰ Belden & Blake successfully challenged the imposition of these conditions, arguing that it held an implied easement to use the surface estate.¹¹¹

¹⁰⁶ 72 PA. STAT. ANN. §§ 5490.6(c.1)(3) (West 2010).

¹⁰⁷ See Pifer, *supra* note 71 at 64-70 (providing a review of surface estate issues litigation).

¹⁰⁸ *Belden & Blake Corp. v. Pa. Dep’t of Conservation and Natural Res.*, 969 A.2d 528 (Pa. 2009).

¹⁰⁹ *Id.* at 529.

¹¹⁰ *Id.*

¹¹¹ *Id.* at 529-530.

The court applied century-old state precedent to find that the holder of the subsurface property interest has the right to make reasonable use of the surface estate where the surface estate and the subsurface estate have been severed.¹¹² If the surface owner believes that the use of the surface estate is exceeding what would be considered as reasonable, then the burden is on the holder of the surface estate to initiate a legal challenge.¹¹³ To address a potential conflict between the surface and sub-surface owners, parties also can negotiate a surface use agreement to define the extent of use of the property.¹¹⁴ The subsurface property owner, however, is under no obligation to negotiate such an agreement.

This manner of resolving the inherent conflict between the owners of competing surface and subsurface property interests in natural gas extraction activities differs from procedures recently established to address this same conflict in coal bed methane extraction activities. On February 1, 2010, legislation was enacted in Pennsylvania to establish a Coal Bed Methane Review Board.¹¹⁵ Through the provisions of this statute, owners of surface estates have a greater ability to determine where wells will be located, and thus, how their property interests will be impacted by extraction activities over the long-term.¹¹⁶

D. Environmental Issues

¹¹² *Id.* at 532.

¹¹³ *Id.* at 532.

¹¹⁴ *See id.* at 533 (ruling that DCNR could seek conditions upon surface access just as any private landowner could).

¹¹⁵ 52 PA. STAT. ANN §§ 30.56d–30.56e (West 2010).

¹¹⁶ The basic provisions of the Act provide a landowner with notification that a coal bed methane well is proposed to be drilled on the surface estate and the opportunity to file objections to the proposed location of a coal bed methane well. If an objection is filed, then a conference will be conducted by the Coal Bed Methane Review Board. If the parties are unable to reach an agreement at the conference, the Board will render a determination that can be appealed to the appropriate Court of Common Pleas. 52 PA. STAT. § 30.56e (2011).

As the number of Marcellus Shale wells on the Pennsylvania landscape has increased, many issues of environmental law have arisen. Due to the large amounts of water necessary for the hydraulic fracturing process, concerns about water quality have been the predominant, but not sole, focus of these legal developments.¹¹⁷

1. Initial Regulatory Response

Although Marcellus drilling activity is different in scope from the traditional shallow sandstone gas wells that have dominated the Pennsylvania industry,¹¹⁸ Marcellus wells were not regulated differently than other Pennsylvania natural gas wells at the outset of the Marcellus era. The issue that led to Marcellus wells receiving specialized treatment from a regulatory perspective involved the sourcing of the large amounts of water required by the hydraulic fracturing process.

The ability to extract natural gas from the Marcellus Shale formation is dependent upon hydraulic fracturing technology, which requires millions of gallons of water per well.¹¹⁹ This level of water use for natural gas extraction in Pennsylvania was new,¹²⁰ and companies began to obtain the large volumes of water necessary for operations from a variety of sources, including

¹¹⁷ See generally Robert E. Beck, *Current Water Issues in Oil and Gas Development and Production: Will Water Control What Energy We Have?*, 49 WASHBURN L.J. 423 (2010) (discussing the relationship between our water resources and natural gas development).

¹¹⁸ See Ross H. Pifer, *The Impact of Drilling on Surface Owner Rights*, Pa. Bar Inst. 2nd Annual Oil & Gas Law Colloquium 101-102 (January 25, 2010) (stating that technologies used in Marcellus well drilling require larger well pad sites, but fewer overall well pad sites).

¹¹⁹ See CHARLES W. ABDALLA & JOY R. DROHAN, PENN STATE COOP. EXTENSION, MARCELLUS EDUCATION FACT SHEET: WATER WITHDRAWALS FOR DEVELOPMENT OF MARCELLUS SHALE GAS IN PENNSYLVANIA 3 (2010) (horizontal Marcellus wells require four to eight million gallons of water); see also NAT'L ENERGY TECH. LAB, *supra* note 37, at 64 (Marcellus wells require 3.8 million gallons of water).

¹²⁰ See R. TIMOTHY WESTON, K&L GATES, DEVELOPMENT OF THE MARCELLUS SHALE – WATER RESOURCE CHALLENGES 1 (describing the water requirements for Marcellus development as “involv[ing] orders of magnitude greater” than traditional oil and gas development).

directly from streams and rivers.¹²¹ The sourcing of water was not addressed specifically within Pennsylvania’s oil and gas statutes and regulations, but the use of water was addressed by other means such as the Clean Streams Law.¹²² On May 30, 2008, Pennsylvania Department of Environmental Protection (DEP) utilized its authority to order that two Marcellus companies suspend drilling operations at two separate well sites because of their failures to obtain the proper permits for water withdrawals.¹²³ Approximately one week later, the Susquehanna River Basin Commission (SRBC) notified twenty-three drilling companies of the requirement to obtain SRBC approval prior to using water from the Susquehanna River Basin for natural gas operations.¹²⁴ These early governmental responses to an issue of specific concern with Marcellus Shale drilling served as a harbinger to an extensive regulatory response over the next few years.

2. State Regulatory Response to Marcellus Drilling

On June 6, 2008, DEP Secretary Kathleen McGinty issued a press release informing the natural gas industry and the general public that DEP would take action to ensure that any economic benefits from Marcellus Shale extraction did not come at the expense of

¹²¹ See Press Release, Pa. Dep’t of Env’tl. Prot., DEP Orders Partial Shutdown of Two Natural Gas Drilling Operations in Lycoming County (May 30, 2008) (citing two companies for withdrawing water from waterways without an appropriate permit).

¹²² 35 PA. STAT. ANN. §§ 691.1–691.1001 (West 2003). Under the authority of the Clean Streams Law, DEP is authorized “to make, adopt, promulgate, and enforce reasonable orders and regulations for the protection of any source of water for present or future supply to the public...” *Id.* § 691.501.

¹²³ DEP relied upon the Clean Streams Law for authority to cite Range Resources, Appalachia, LLC, and Chief Oil and Gas, LLC, for their failures to obtain permits from the Susquehanna River Basin Commission prior to withdrawing water from streams near their respective well sites. Press Release, Pa. Dep’t of Env’tl. Prot., DEP Orders Partial Shutdown of Two Natural Gas Drilling Operations in Lycoming County (May 30, 2008).

¹²⁴ Press Release, Susquehanna River Basin Comm’n, SRBC Notifies 23 Companies that Water Used for Developing Natural Gas Wells in Susquehanna Basin Needs Approval (June 6, 2008).

Pennsylvania's natural resources.¹²⁵ Secretary McGinty also outlined DEP inspection efforts that were underway.¹²⁶ DEP followed this press release with a summit-type conference on June 13, 2008, that was attended by approximately 150 industry personnel from companies involved with Marcellus drilling.¹²⁷ At this summit, Secretary McGinty conveyed a message similar to that in the original press release, and various agencies reviewed Pennsylvania's regulatory framework governing oil and gas operations.¹²⁸ While the press release and summit had little, if any, direct legal significance in and of themselves, they established the tone for further regulation to ensure that Marcellus companies—many of which had no prior experience in Pennsylvania—were responsive to the concerns of the new environment in which they were operating.

(a) Marcellus Permitting Requirements and Fees

DEP has implemented two primary changes to the administrative permitting requirements for Marcellus wells. Pursuant to these changes, Marcellus operators must provide more information to DEP and pay a higher fee to obtain a drilling permit. As of August 23, 2008, Marcellus operators were required to submit to DEP an additional Permit Application Addendum

¹²⁵ Press Release, Pa. Dep't of Env'tl. Prot., Natural Gas Industry Expected to Abide by State Environmental Laws, Regulations (June 6, 2008).

¹²⁶ *Id.*

¹²⁷ Press Release, Pa. Dep't of Env'tl. Prot., Natural Gas Exploration Will Not Come at Natural Resources' Expense, Says DEP Secretary McGinty (June 13, 2008).

¹²⁸ At the summit, Secretary McGinty stated, "This summit provides us an opportunity to come together to ensure the owners and operators of drilling operations – both those that are in state and those from elsewhere – have a clear understanding of our laws and regulations." *Id.*

together with their well permit applications.¹²⁹ This addendum contains information relating to a Water Management Plan as well as a Preparedness, Prevention and Contingency Plan.¹³⁰

DEP also raised the fees associated with obtaining a natural gas permit for the first time since the enactment of the Oil and Gas Act in 1984. The Oil and Gas Act authorizes DEP to charge a fee that “bears a reasonable relationship to the cost of administering” the statute.¹³¹ Effective April 18, 2009, DEP promulgated a new fee structure significantly increasing the permit fees for Marcellus wells.¹³² Under this new schedule, the permit fee is based upon the well depth with a base fee of \$900 and an additional fee of \$100 per 500 feet of depth below 1,500 feet.¹³³ These increased fees were instituted to cover the additional costs for inspections and enforcement proceedings.¹³⁴

(b) Monitoring of Erosion and Sediment Control Plans

Natural gas operators must comply with Pennsylvania’s general erosion and sediment control plan requirements on their well sites.¹³⁵ In accordance with these requirements, the operator must prepare and implement an erosion and sediment control plan where less than five

¹²⁹ 38 Pa. Bull. 4680 (Aug. 23, 2008). The well permit application was amended twice in the subsequent six months. *See* 38 Pa. Bull.5720 (Oct. 11, 2008) (revised to clarify water management plan requirements); *see also* 39 Pa. Bull. 641 (Jan. 31, 2009) (revised to clarify impoundment requirements).

¹³⁰ Form 5500-PM-OG0083, Application Addendum for Marcellus Shale Gas Well Development, Pa. Dep’t of Env’tl. Prot. (Rev. 8/2008).

¹³¹ 58 PA. STAT. ANN. § 601.201(d) (West 1996).

¹³² 39 Pa. Bull. 1982 (Apr. 18, 2009).

¹³³ 25 PA. CODE § 78.19 (2011). The fee schedule was amended subsequently to lower the fees for vertical wells to a base fee of \$250 with an additional fee of \$50 per 50 feet of depth below 2,000 feet. 39 Pa. Bull. 6235 (Oct. 24, 2009).

¹³⁴ 39 Pa. Bull. 1982 (Apr. 18, 2009).

¹³⁵ 25 PA. CODE § 78.53 (2006); *see generally* MICHELE RODGERS ET AL., PENN STATE COOP. EXTENSION, MARCELLUS SHALE: WHAT LOCAL GOVERNMENT OFFICIALS NEED TO KNOW 12-13 (2009) (discussing erosion and stormwater issues).

acres of earth disturbance will take place.¹³⁶ For those sites with five or more acres of earth disturbance, the operator must obtain a permit from DEP.¹³⁷ DEP has authority to delegate specific or general responsibilities for oversight of the erosion and sediment control program to county conservation districts.¹³⁸ While not specifically delegating natural gas oversight responsibilities, DEP has exercised this general delegation authority to all of the sixty-six conservation districts at one of three levels of delegation.¹³⁹

During the first years of the Marcellus era, some county conservation districts were involved with the review and permitting of erosion and sediment control plans for the natural gas industry.¹⁴⁰ This authority exercised by the conservation districts had not been authorized specifically for natural gas operations, but rather was simply one of the many locations and circumstances under which conservation district employees would review erosion and sediment control plan compliance. On March 18, 2009, via a memorandum sent to the sixty-six county conservation districts, DEP withdrew the conservation districts' authority to monitor erosion and sediment control compliance related to Marcellus Shale operations.¹⁴¹ This change was implemented to "improve the efficiency of our resources and maximize[e] the effective delivery

¹³⁶ 25 PA. CODE § 102.4(b) (2010).

¹³⁷ *Id.* § 102.5(c) (2010).

¹³⁸ *Id.* § 102.41(a) (2010).

¹³⁹ *DEP Delegated Programs for County Conservation Districts*, Pa. Dep't of Env'tl. Prot., <http://files.dep.state.pa.us/Water/Watershed%20Management/WatershedPortalFiles/CCD%20Niche/CCD-Delegation.pdf>.

¹⁴⁰ *See Public Hearing on Local Impacts of Marcellus Shale Drilling Before Senate Majority Policy Comm.*, *supra* note 26 (statement of Sandy Thompson, District Manager, McKean County Conservation District) (stating the experience of the county conservation district in issuing permits and reviewing erosion and sediment control plans for the oil and gas industry).

¹⁴¹ Memorandum from Dana Aunks, Acting Deputy Secretary, Water Management, Pa. Dep't Env'tl. Prot., to DEP Regional Directors and County Conservation Districts (Mar. 18, 2009) (on file with author).

of these programs.”¹⁴² Critics of this regulatory shift have argued that a local entity is better suited to regulating this task, that conservation districts already have expertise in this area, and that DEP does not have adequate staffing to handle these duties effectively.¹⁴³

(c) Establishment of Wastewater Standards

The large amount of water used in the hydraulic fracturing process leads directly to the creation of a large volume of wastewater that must be disposed in some manner.¹⁴⁴ In Texas and neighboring states, the primary method of disposing wastewater from the hydraulic fracturing process is reinjection into deep underground injection wells.¹⁴⁵ The geology in Pennsylvania, however, is not suitable for such disposal according to Louis D’Amico, Director of the Independent Oil and Gas Association of Pennsylvania.¹⁴⁶ Thus, treatment and reentry is the

¹⁴² *Id.*

¹⁴³ See Press Release, Delaware Riverkeeper, DEP Rollback of Clean Water Protection (Mar. 31, 2009) (criticism of action by 36 member organizations of the Campaign for Clean Water).

¹⁴⁴ The Pennsylvania State University, *FAQs, Wastewater*, PENN STATE MARCELLUS CENTER FOR OUTREACH AND RESEARCH (MCOR), available at <http://www.marcellus.psu.edu/resources/faq.php#> (2010).

¹⁴⁵ See R. Marcus Cady II, Comment, *Drilling Into the Issues: A Critical Analysis of Urban Drilling’s Legal, Environmental, and Regulatory Implications*, 16 TEX. WESLEYAN L. REV. 127, 142 (stating that there are 152 commercial saltwater disposal wells within Barnett Shale area). In the Fayetteville Shale, there have been reports of multiple earthquakes occurring in proximity to underground injection wells. While researchers at the Arkansas Geological Survey have not established a causal link, they have found “‘strong temporal and spatial’ evidence for a relationship between these quakes and the injection wells.” Campbell Robertson, *A Dot on the Map, Until the Earth Started Shaking*, N.Y. TIMES, Feb. 5, 2011.

¹⁴⁶ Spencer Hunt, *Gas Wells’ Leftovers May Wash into Ohio*, COLUMBUS DISPATCH, Jan. 11, 2010.

most common manner of disposal in Pennsylvania.¹⁴⁷ To minimize the volumes of fluids that require treatment, companies often reuse the wastewater in future hydraulic fracturing jobs.¹⁴⁸

To address concerns about potential pollutants in the treated wastewater that is released into the waters of the Commonwealth, DEP promulgated regulations establishing Total Dissolved Solids (TDS) standards for treated hydraulic fracturing waste fluids.¹⁴⁹ Under the new regulation, a number of requirements have been established to protect drinking water supplies.¹⁵⁰ Well operators must have a wastewater reduction strategy in place by August 22, 2011, and they are prohibited from discharging more than 500 mg/L of TDS on a monthly averaged basis.¹⁵¹

(d) Prevention of Methane Migration – Well Casing Standards

When Marcellus drilling began, the issue of methane migration did not receive much attention among the potential adverse environmental impacts of shale development. In light of the contamination of several water wells in Dimock Township, Susquehanna County, the issue has been elevated to one of the highest priority environmental concerns.¹⁵² Several landowners in Dimock Township have alleged that their water wells were contaminated from methane

¹⁴⁷ DANIEL J. SOEDER & WILLIAM M. KAPPEL, U.S. GEOLOGICAL SURVEY, WATER RESOURCES AND NATURAL GAS PRODUCTION FROM THE MARCELLUS SHALE 5 (May 2009). *See also* Hunt, *supra* note 146 (exploring the possibility of trucking wastewater from Pennsylvania to Ohio for disposal in underground injection wells); Elizabeth Gibson, *Chesapeake Bay, Marcellus Shale Environmental Issues Could Collide at Hearing at Capitol*, HARRISBURG PATRIOT NEWS, Jan. 26, 2011 (describing the disposal of Marcellus drill cuttings in a Cumberland County, Pennsylvania, landfill).

¹⁴⁸ *See* Matt Blauch et al., *Technique Reuses Frac Water in Shale*, Am. Oil & Gas Rep. Sept. 2009, AOGRTechnique reuse.pdf (discussing the reuse of wastewater).

¹⁴⁹ 40 Pa. Bull. 4835 (Aug. 21, 2010).

¹⁵⁰ *But see* Ian Urbina, *Regulation Lax as Gas Wells' Tainted Water Hits Rivers*, N.Y. TIMES, Feb. 26, 2011 (questioning whether state regulators are acting appropriately to address radioactivity in drilling wastewater).

¹⁵¹ 25 PA. CODE § 95.10 (2011).

¹⁵² *See* Abrahm Lustgarten, *Water Problems from Drilling are More Frequent than PA Officials Said*, PROPUBLICA, Jul. 31, 2009, available at <http://www.propublica.org/article/water-problems-from-drilling-are-more-frequent-than-officials-said-731> (discussing methane migration problems in Pennsylvania).

migration as a result of nearby gas wells operated by Cabot Oil and Gas Corporation,¹⁵³ and an investigation by DEP confirmed the Cabot wells as a source of the contamination.¹⁵⁴ In addition to the Dimock cases, there have been numerous other reported instances of methane migration allegedly caused by drilling operations.¹⁵⁵

Methane migration often occurs as a result of a well casing or cementing problem.¹⁵⁶ To minimize the incidence of this occurrence, DEP promulgated new well construction standards.¹⁵⁷ Under these standards, well cementing and well casing requirements have been heightened.¹⁵⁸ Well operators also now are required to prepare and maintain a casing and cementing plan,¹⁵⁹ and they must conduct quarterly inspections to assess the status of the casing and determine if

¹⁵³ *Fiorentino v. Cabot Oil & Gas Corp.*, 09-CV-2284, 2010 WL 4595524 (M.D. Pa. Nov. 15, 2010).

¹⁵⁴ Press Release, Pa. Dep't of Env'tl. Prot., DEP Reaches Agreement with Cabot to Prevent Gas Migration, Restore Water Supplies in Dimock Township (Nov. 4, 2009), *available at* http://www.portal.state.pa.us/portal/server.pt/community/search_articles/14292. DEP later negotiated a settlement whereby Cabot Oil and Gas Corp. agreed to pay a \$4.1 million settlement to the affected residents. Press Release, Pa. Dep't of Env'tl. Prot., Dimock Residents to Share \$4.1 Million, Receive Gas Mitigation Systems Under DEP-Negotiated Settlement with Cabot Oil and Gas (Dec. 16, 2010), *available at* http://www.depweb.state.pa.us/portal/server.pt/community/search_articles/14292.

¹⁵⁵ *See* Lustgarten, *supra* note 152 (discussing methane migration problems in Pennsylvania including some that pre-date the Marcellus era); *see also* Press Release, Pa. Dep't of Env'tl. Prot., DEP Investigating Source of Stray Methane Gas in Bradford County (Sept. 7, 2000) (methane migration “most likely” caused by Chesapeake Energy Marcellus well); Press Release, Pa. Dep't of Env'tl. Prot., DEP Assesses Penalty for 2007 Gas Migration that Forced Evacuations in Erie County (July 8, 2009) (methane migration caused by a shallow well).

¹⁵⁶ DEP Secretary John Hanger addressed the relationship between methane migration and well construction in a May 2010 Press Release. “As we have seen in Dimock, stray gas migrating from improperly constructed wells can build up to explosive levels near and inside homes and can make residential water supplies unusable. The drilling industry is ultimately responsible for ensuring their wells are properly constructed and must use the best casing and cementing practices to ensure that lives and property are protected.” Press Release, Pa. Dep't of Env'tl. Prot., DEP to Drilling Companies: Gas Migration Events are Preventable with Proper Well Construction and Oversight (May 13, 2010).

¹⁵⁷ 41 Pa. Bull. 805 (Feb. 5, 2011).

¹⁵⁸ 25 PA. CODE §§ 78.84–78.85 (2011).

¹⁵⁹ *Id.* § 78.83(a).

evidence of gas escape is present.¹⁶⁰ Additionally, when an operator becomes aware of a potential migration issue, the operator has an obligation to assess the potential hazard and undertake mitigation activities.¹⁶¹

(e) Air Quality Impacts

Water quality has been the primary focus of DEP during the initial years of Marcellus development, but air quality impacts from natural gas drilling have begun to receive consideration. On November 1, 2010, DEP issued a report addressing the short-term air quality impacts from activities in Southwestern Pennsylvania,¹⁶² and on January 31, 2001, a similar report was issued regarding Northeastern Pennsylvania.¹⁶³ In both of these studies, certain natural gas components were found in the air, but not at levels where they posed an air-related threat to human health.¹⁶⁴ DEP plans to conduct a third short-term study in Northcentral Pennsylvania and will then determine if further action is warranted.¹⁶⁵

(f) Enforcement Actions

Since 2008, DEP has been active in the enforcement of various statutory and regulatory violations committed by Marcellus Shale drilling operations. DEP has more than doubled its oil and gas regulatory staff with over one hundred new employees, and it has opened new offices in

¹⁶⁰ *Id.* § 78.88.

¹⁶¹ *Id.* § 78.89.

¹⁶² BUREAU OF AIR QUALITY, PA. DEP'T OF ENVTL PROT, SOUTHWESTERN PENNSYLVANIA MARCELLUS SHALE SHORT-TERM AMBIENT AIR SAMPLING REPORT 1, (2010) www.dep.state.pa.us/dep/deputate/airwaste/.../Marcellus_SW_11-01-10.pdf.

¹⁶³ *Id.*

¹⁶⁴ *Id.* at 23.

¹⁶⁵ *Id.*

Williamsport and Scranton.¹⁶⁶ The most frequently committed violations include problems with erosion and sediment control plans, faulty pollution prevention, improper construction of wastewater impoundments, discharge of industrial waste, and violations of Pennsylvania's Clean Streams Law.¹⁶⁷ The two specific enforcement actions that have generated the most attention are those involving the alleged contamination of water wells in Dimock Township by Cabot Oil & Gas Corporation¹⁶⁸ and the blowout at an EOG Resources well in Clearfield County on June 3, 2010.¹⁶⁹ Other enforcement actions have resulted from various incidents such as wastewater spills,¹⁷⁰ diesel fuel spills,¹⁷¹ hydraulic fracturing fluid discharges,¹⁷² operation of a fracking

¹⁶⁶ DEP hired thirty-seven employees and opened a Williamsport office in 2009. DEP hired sixty-eight employees and opened a Scranton office in 2010. PA. DEP'T OF ENVTL. PROT., MARCELLUS SHALE: TOUGH REGULATIONS, GREATER ENFORCEMENT (2010) <http://wbcitizensvoice.com/pdfs/CV03DEPRELEASE.pdf>.

¹⁶⁷ The Pennsylvania Land Trust summarized DEP data regarding violations from January 1, 2008, through August 20, 2010. According to this summary, there were 1,614 violations committed by 45 different Marcellus companies. Of these violations, 1,056 were deemed to have the most potential for damage to the environment. The highest offending companies were Chesapeake Appalachia, LLC, with 149 violations at 190 wells; Chief Oil & Gas, LLC, with 110 violations at 63 wells; East Resources Mgt., LLC, with 106 violations at 26 wells; and Talisman Energy USA, Inc., with 104 violations at 181 wells. Conserveland.org, *Marcellus Shale Drillers in Pennsylvania Amass 1614 Violations since 2008*, PA. LAND TRUST ASS'N, Oct. 1, 2010, <http://conserveland.org/violationsrpt>.

¹⁶⁸ See Press Release, Pa. Dep't of Env'tl. Prot., DEP Reaches Agreement with Cabot to Prevent Gas Migration, Restore Water Supplies in Dimock Township (Nov. 4, 2009) (initial civil penalty of \$120,000 assessed against Cabot Oil & Gas Corp.).

¹⁶⁹ See Press Release, Pa. Dep't of Env'tl. Prot., Independent Report Faults Clearfield County Gas Well Operators for June 3 Blowout: DEP Outlines Proper Procedures for All Marcellus Drilling Firms (July 13, 2010), <http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=12818&typeid=1> (collective \$400,000 fines imposed upon drilling company and its contractor following blowout that allowed wastewater and natural gas to escape into the air for sixteen hours).

¹⁷⁰ See Press Release, Pa. Dep't of Env'tl. Prot., DEP Fines Atlas Resources for Drilling Wastewater Spill in Washington County (Aug. 17, 2010) (imposing \$97,350 fine "for allowing used hydraulic fracturing fluids to overflow a wastewater pit and contaminate a high-quality watershed").

¹⁷¹ See Press Release, Pa. Dep't of Env'tl. Prot., DEP Fines Talisman Energy USA Inc. \$24,608 for Bradford County Diesel Fuel Spill (Jan. 6, 2011).

¹⁷² See Press Release, Pa. Dep't of Env'tl. Prot., DEP Investigating Marcellus Shale Natural Gas Well Control Incident in Tioga County (Jan. 25, 2011).

water transfer station without a permit,¹⁷³ construction of an impoundment on a wetland,¹⁷⁴ and failure to post well ownership information.¹⁷⁵

DEP has not been the only state agency involved in enforcement proceedings related to violations committed by Marcellus drilling companies. The Department of Agriculture issued a quarantine order upon twenty-eight cattle in Tioga County after receiving evidence that the cattle may have consumed drilling wastewater.¹⁷⁶ Additionally, the Pennsylvania State Police cited a large number of wastewater haulers, in conjunction with DEP, during “Operation Fracnet.”¹⁷⁷

3. Federal Regulatory Response to Marcellus Drilling

While most of the environmental regulatory activities relating to Marcellus Shale development in Pennsylvania have been accomplished by state agencies, federal entities also have been active. The Susquehanna River Basin Commission (SRBC), the Delaware River Basin Commission (DRBC), and the U.S. Environmental Protection Agency (EPA) each have undertaken a role in the regulation of Marcellus Shale activities.

(a) The Role of the River Basin Commissions

¹⁷³ See Press Release, Pa. Dep’t of Env’tl. Prot., DEP Fines Stallion Oilfield Services \$6,500 for Illegally Transferring Fracking Water in Lycoming County (Apr. 23, 2010).

¹⁷⁴ See Press Release, Pa. Dep’t of Env’tl. Prot., DEP Fines Seneca Resources Corp. \$40,000 for Violations at Marcellus Operation in Tioga County (Oct. 7, 2010).

¹⁷⁵ See Press Release, Pa. Dep’t of Environmental Protection, DEP Fines Energy Inc. \$3,500 for Well Drilling Violations in Bradford County (Feb. 1, 2010) (imposing \$3,500 fine for minor reporting violation and the discharge of flow-back fluids into a drainage ditch).

¹⁷⁶ See Press Release, Pa. Dep’t of Env’tl. Prot., Cattle from Tioga County Farm Quarantined After Coming in Contact with Natural Gas Drilling Wastewater (July 1, 2010) (describing the incident in which twenty-eight cattle had access to a pool of flowback fluid that had leaked from a holding pond)..

¹⁷⁷ See Press Release, Pa. Dep’t of Env’tl. Prot., Three-Quarters of Drilling Wastewater Haulers Cited, 207 Trucks Placed Out of Service During Latest State Police, DEP ‘Operation FRACNET’ (Nov. 9, 2010) (showcasing the collaborative three-day enforcement effort that resulted in the Pennsylvania State Police issuing over 1,057 traffic citations and taking 207 trucks out of service while DEP issued sixty-five notices of violation).

The respective river basin commissions for the Susquehanna¹⁷⁸ and Delaware Rivers¹⁷⁹ are federal entities with regulatory authority over certain activities within their interstate basins. Both entities have been actively involved in the regulation of Marcellus drilling activities, but they have approached the issue differently. As a result of this differing treatment, Marcellus Shale drilling activities have flourished in the Susquehanna River Basin while drilling effectively has been stopped within the Delaware River Basin.

SRBC's regulatory authority generally is limited to issues involving water quantity, and therefore, its regulation of natural gas drilling addresses water withdrawals and the consumptive use of water within the basin.¹⁸⁰ In October 2008, SRBC eliminated its standard threshold requirement and required all natural gas wells targeting shale formations to obtain a water withdrawal permit prior to commencing operations.¹⁸¹ A subsequent Final Rule adopted an Approval by Rule process for the grant of permits. This Approval by Rule process was applicable to all natural gas consumptive uses, not just for waters obtained from public water supply systems.¹⁸² On September 29, 2009, the process was amended slightly to allow, under

¹⁷⁸ The Susquehanna River Basin Compact, which created the Susquehanna River Basin Commission, was signed into law on December 24, 1970. *See* Susquehanna River Basin Compact, Pub. L. 91-575, 84 Stat. 1509 (1970). The SRBC is comprised of the governor or a designee from each member state (New York, Maryland, and Pennsylvania) and one member appointed by the president. *See Id.* § 2.2 (May 1972), http://www.srbc.net/about/srbc_compact.pdf.

¹⁷⁹ The Delaware River Basin Compact, which created the Delaware River Basin Commission, was signed into law on November 2, 1961. Delaware River Basin Compact, Pub. L. No. 87-328, 75 Stat. 688 (1961). The DRBC is comprised of the governor from each member state (New York, Pennsylvania, Delaware, and New Jersey) and the Commander of the United States Army Corps of Engineers. *Id.* § 2.2 (Nov. 2, 1961), <http://www.state.nj.us/drbc/regs/compa.pdf>.

¹⁸⁰ *See* Review and Approval of Projects, 75 Fed. Reg. 60,617, 60,618 (Oct. 1, 2010) (responding to commenter who sought greater SRBC involvement in the regulation of natural gas drilling operations).

¹⁸¹ This change was implemented pursuant to a Notice of Determination issued on August 14, 2008. Susquehanna River Basin Comm'n, Notice of Determination for Natural Gas Well Development (Aug. 14, 2008). This Notice was followed by a Final Rule incorporating the change. Review and Approval of Projects, 73 Fed. Reg. 78,618 (Dec. 23, 2008).

¹⁸² Review and Approval of Projects, 73 Fed. Reg. at 78,618.

some circumstances, for companies to transfer a regulatory water use approval.¹⁸³ With this change, a company can utilize water from a withdrawal site that has been approved for use by a different company if the applicable agreement between the companies is registered with SRBC.¹⁸⁴

DRBC's regulatory authority is broader than that of SRBC to include issues of water quality as well as water quantity. To date, DRBC has exercised its regulatory authority in such a manner as to create a de facto ban on Marcellus drilling within the basin. The efforts of Stone Energy Corporation (Stone) demonstrate the practical application of this drilling ban. Stone sought to drill a Marcellus well in 2008, and on June 6, 2008, DRBC informed Stone that a water withdrawal permit was required.¹⁸⁵ Two years later, on July 14, 2010, DRBC approved Stone's water withdrawal request, but Stone cannot actually withdraw any water until DRBC also approves the well pad for which the water would be utilized.¹⁸⁶ Prior to its grant of Stone's water withdrawal request, DRBC announced that it would not review any applications for well pad approvals until it adopted new regulations.¹⁸⁷ On December 9, 2010, DRBC published a draft regulation to govern natural gas operations in the basin.¹⁸⁸ If implemented in its current form, the regulation would add a new Article 7 to DRBC's Water Quality Regulations to address

¹⁸³ Review and Approval of Projects, 74 Fed. Reg. 49,809, 49,811-12 (Sept. 29, 2009).

¹⁸⁴ *Id.*

¹⁸⁵ Press Release, Delaware River Basin Comm'n, DRBC Notifies Company that Water Used for Developing Natural Gas Wells in Delaware River Basin Needs Approval (June 9, 2008).

¹⁸⁶ Over 1,700 written comments were submitted to DRBC regarding Stone's application. Press Release, Delaware River Basin Comm'n, DRBC Approves Stone Energy Water Withdrawal (July 15, 2010).

¹⁸⁷ Press Release, Delaware River Basin Comm'n, DRBC Will Review Natural Gas Well Pad Projects after Adoption of New Regulations (May 6, 2010).

¹⁸⁸ Proposed Amendments to the Water Quality Regulations, Water Code and Comprehensive Plan to Provide for Regulation of Natural Gas Developmental Projects, 76 Fed. Reg. 295 (Jan. 4, 2011).

water withdrawals, the siting of well pads, and the disposal of wastewater.¹⁸⁹ The comment period for this proposed rule closed on April 15, 2011.¹⁹⁰

(b) EPA Regulation of Hydraulic Fracturing

Under present law, EPA does not exercise regulatory oversight over the hydraulic fracturing process. The federal Safe Drinking Water Act provides a specific exclusion for “the underground injection of fluids or propping agents (other than diesel fuels) pursuant to hydraulic fracturing operations related to oil, gas, or geothermal production activities.”¹⁹¹ This exclusion has been the subject of scrutiny both in the federal legislature as well as in the public arena.¹⁹² During the 2009-2010 legislative session, so-called FRAC Acts that would have brought hydraulic fracturing within the coverage of the Safe Drinking Water Act were introduced within both chambers of Congress.¹⁹³ Although this legislation was not enacted by the end of the session, the fate of the exclusion continues to be the subject of advocacy efforts by those on both sides of the issue.¹⁹⁴

¹⁸⁹ *Id.*

¹⁹⁰ Press Release, Delaware River Basin Comm’n, DRBC Extends Comment Period on Draft Natural Development Gas [sic] Regulations (Mar. 2, 2011).

¹⁹¹ 42 U.S.C. § 300h(d)(1) (2006).

¹⁹² See Editorial, *The Halliburton Loophole*, N.Y. TIMES, Nov. 3, 2009, at A28 (asserting that the hydraulic fracturing exemption from the Safe Drinking Water Act debilitates the EPA’s ability to effectively protect public water supplies).

¹⁹³ H.R. 2766, 111th Cong. (2009). S. 1215, 111th Cong. (2009). See also Robert Jochen, *Fracturing Responsibility and Awareness of Chemicals (FRAC) Act: S. 1215 and H.R. 2766* (Jan. 25, 2010), available at http://law.psu.edu/_file/aglaw/Natural_Gas/National_Gas_Legislation_FRAC_Act.pdf. (summarizing the provisions of the legislative proposals).

¹⁹⁴ E.g. Mike Soraghan, *Oil and Gas Group Urges Oscar Judges to Steer Clear of ‘Gasland,’* N.Y. TIMES, Feb. 1, 2011, available at <http://www.nytimes.com/gwire/2011/02/01/01greenwire-ioil-and-gas-group-urges-oscar-judges-to-steer-99256.html> (describing letter sent by Energy in Depth to the Academy of Motion Picture Arts and Sciences).

At the request of the United States House of Representatives, EPA has initiated a study to investigate the potential environmental and public health impacts posed by the hydraulic fracturing process.¹⁹⁵ EPA held informational meetings at four locations throughout the nation during the summer of 2010 to explain the goals of the study and to receive public comments.¹⁹⁶ On February 7, 2011, EPA published a draft plan outlining the manner in which it intends to conduct the hydraulic fracturing study.¹⁹⁷ According to this draft plan, EPA will utilize retrospective case studies, prospective case studies, and generalized scenario evaluations to determine whether hydraulic fracturing adversely impacts water resources.¹⁹⁸

4. Environmental Litigation

In addition to the regulatory developments addressing environmental issues, there also has been some noteworthy environmental litigation.¹⁹⁹ One such case arose from the alleged water contamination due to methane migration in Dimock Township. In *Fiorentino v. Cabot Oil & Gas Corporation*, sixty-three residents who executed natural gas leases with Cabot alleged that they had been damaged as a result of Cabot's natural gas operations.²⁰⁰ Cabot sought to dismiss the Plaintiffs' claims that were asserted under the Hazardous Sites Cleanup Act, under

¹⁹⁵ See Science Advisory Board Staff Office; Notification of a Public Meeting of the Science Advisory Board; Environmental Engineering Committee Augmented for the Evaluation and Comment on EPA's Proposed Research Approach for Studying the Potential Relationships Between Hydraulic Fracturing and Drinking Water Resources, 75 Fed. Reg. 13,125 (Mar. 18, 2010) (indicating that the U.S. House of Representatives urged EPA to conduct the hydraulic fracturing study in its Fiscal Year 2010 Appropriation Conference Committee Directive to EPA).

¹⁹⁶ See Informational Public Meetings for Hydraulic Fracturing Research Study, 75 Fed. Reg. 35,023 (June 21, 2010) (listing the proposed locations and dates for the public meetings).

¹⁹⁷ OFFICE OF RESEARCH AND DEV., U.S. ENVTL. PROT. AGENCY, DRAFT PLAN TO STUDY THE POTENTIAL IMPACTS OF HYDRAULIC FRACTURING ON DRINKING WATER RESOURCES (2011).

¹⁹⁸ *Id.* at vii-viii.

¹⁹⁹ See Pifer, *supra* note 71 at 66-68 (providing a review of litigation addressing the application of the National Environmental Policy Act to natural gas drilling operations in the Allegheny National Forest).

²⁰⁰ *Fiorentino v. Cabot Oil & Gas Corp.*, No. 09-cv-2284, 2010 WL 4595524, at *2 (M.D. Pa. Nov. 15, 2010).

the theory of strict liability, and for medical monitoring, but the court denied the motion to dismiss.²⁰¹ With respect to the strict liability claim, the court deferred a ruling on whether natural gas operations were abnormally dangerous activities until the record in the case became more developed.²⁰² In so doing, the court refused to automatically apply existing Pennsylvania precedent that the operation of a gas pipeline was not an abnormally dangerous activity.²⁰³

E. Municipal Regulation of Drilling Activities

Pursuant to section 602 of the Oil and Gas Act, municipalities have some ability to regulate oil and gas drilling operations, but there are limitations on this ability.²⁰⁴ Municipalities can regulate such activities only through authority granted under the Municipalities Planning Code or the Flood Plain Management Act.²⁰⁵ Even when they act under one of these defined statutes, however, they cannot regulate features of oil and gas operations that are regulated by the Oil and Gas Act and they cannot regulate to accomplish the same purposes as set forth in the Oil and Gas Act.²⁰⁶

In February 2009, the Pennsylvania Supreme Court addressed the permissible extent of municipal regulation in the companion cases of *Huntley & Huntley, Inc. v. Borough of Oakmont*

²⁰¹ *Id.* at *4—6, 9.

²⁰² *Id.* at *5.

²⁰³ *Id.*

²⁰⁴ 58 PA. CONS. STAT. ANN. § 601.602 (West 1996). *See* Pifer, *supra* note 71 at 59-64 (providing a review of litigation addressing the extent to which municipalities can regulate oil and gas operations).

²⁰⁵ § 601.602.

²⁰⁶ *Id.*

and *Range Resources – Appalachia, LLC v. Salem Township*.²⁰⁷ In these rulings, the Supreme Court authorized the use of a zoning ordinance to restrict drilling in a residential district while striking down a regulatory approach that was characterized by the court as a “comprehensive regulatory scheme.”²⁰⁸ A subsequent ruling by the Commonwealth Court, in *Penneco Oil Company, Inc. v. County of Fayette*, interpreted these Supreme Court opinions as permitting a municipality to impose zoning restrictions upon oil and gas operations in industrial, airport, and residential zoning districts.²⁰⁹

F. Development of Infrastructure – Pipelines

As the number of Marcellus wells in Pennsylvania increases, the need for a more extensive pipeline infrastructure will increase correspondingly. Under Pennsylvania law, energy companies do not have the right of eminent domain in assembling their gathering lines so companies must negotiate with landowners to obtain the appropriate authority to lay pipelines.²¹⁰ A petition has been filed with the Pennsylvania Public Utility Commission (PUC) that could change the manner in which companies can acquire pipeline rights.

²⁰⁷ See *Huntley & Huntley, Inc. v. Borough of Oakmont*, 964 A.2d 855, 866 (Pa. 2009) (ruling that municipal ordinance had not been preempted by Oil and Gas Act). See also *Range Resources-Appalachia, LLC v. Salem Twp.*, 964 A.2d 869, 870 (Pa. 2009) (ruling that municipal ordinance had been preempted by Oil and Gas Act).

²⁰⁸ See *Huntley*, 964 A.2d at 864-65 (noting that the purposes of the zoning ordinance were different than the stated purposes of the Oil and Gas Act). See also *Range Resources*, 964 A.2d at 877 (noting that the ordinance regulated features of oil and gas operations through various requirements that overlapped with – and in some instances were more restrictive than – Oil and Gas Act amendments).

²⁰⁹ See *Penneco Oil Co., LLC v. County of Fayette*, 4 A.3d 733 (Pa. 2010) (concluding “that the provisions of the Zoning Ordinance do not reflect an attempt by Fayette County to enact a comprehensive regulatory scheme relative to the oil and gas development within the county but instead reflect traditional zoning regulations that identify which uses are permitted in different areas of the locality”).

²¹⁰ See 66 PA. CONS. STAT. ANN. § 102 (West 2000) (defining a public utility as not including “[a]ny producer of natural gas not engaged in distributing such gas directly to the public for compensation”); see also DAVE MESSERSMITH, PENN STATE COOPERATIVE EXTENSION, MARCELLUS EDUCATION FACT SHEET: NEGOTIATING PIPELINE RIGHTS-OF-WAY IN PENNSYLVANIA (2010) (addressing areas of concern for landowners); but see 15 U.S.C. § 717f(h) (2009) (authorizing the power of eminent domain under federal law for the installation of transmission pipelines if Federal Energy Regulatory Commission has issued a certificate of public convenience and necessity).

In January 2010, Laser Marcellus Gathering Company, LLC (Laser Marcellus), applied to the PUC for a certificate of public convenience seeking status as a public utility.²¹¹ Laser Marcellus intends to construct a thirty-three mile gathering pipeline in Susquehanna County.²¹² If its application to the PUC is approved, Laser Marcellus then will have the power of eminent domain to acquire the rights necessary to construct this pipeline.²¹³ On November 22, 2010, an administrative law judge issued a Recommended Decision opining that Laser Marcellus had not satisfied the requirements to be considered as a public utility.²¹⁴ Following the issuance of this Recommended Decision, the case awaits a final determination by the PUC.

G. Amendment of the Pennsylvania Oil and Gas Act

The Oil and Gas Act, enacted on December 19, 1984, is the primary statute regulating oil and gas activities in Pennsylvania.²¹⁵ During the past legislative session, many bills were introduced within both chambers of the Pennsylvania General Assembly to amend this statute.²¹⁶ These bills addressed various topics including enhanced water protection,²¹⁷ compensation for

²¹¹ 40 Pa. Bull. 687 (Jan. 30, 2010).

²¹² Recommended Decision at 11, Application of Laser Northeast Gathering Company, LLC, for Approval to Begin to Offer, Render, Furnish, or Supply Natural Gas Gathering and Transporting or Conveying Service by Pipeline to the Public in Certain Townships of Susquehanna County, Pennsylvania, No. A-2010-2153371 (Pa. Public Util. Comm'n Nov. 22, 2010).

²¹³ See 15 PA. CONS. STAT. ANN. § 1511 (West 1995) (describing power of eminent domain held by public utility corporations).

²¹⁴ Recommended Decision at 95, Application of Laser Northeast Gathering Company, LLC, for Approval to Begin to Offer, Render, Furnish, or Supply Natural Gas Gathering and Transporting or Conveying Service by Pipeline to the Public in Certain Townships of Susquehanna County, Pennsylvania, No. A-2010-2153371 (Pa. Public Util. Comm'n Nov. 22, 2010).

²¹⁵ See 58 PA. STAT. ANN. §§ 601.101 – 601.605 (West 1996 & Supp. 2010).

²¹⁶ See generally Ross H. Pifer & Steven P. Trialonas, *Marcellus Shale in the Pennsylvania General Assembly: Legislative Activity from the 2009-2010 Session*, 13 DUQ. BUS. L.J. (forthcoming 2011) (reviewing legislative activity related to oil and gas issues).

²¹⁷ See H.R. 1205 (Pa. 2009).

damages to the surface estate,²¹⁸ monitoring of hydraulic fracturing fluids,²¹⁹ disposal of wastewater,²²⁰ well locational restrictions,²²¹ and well plugging.²²² Despite this activity, only one bill amending the Oil and Gas Act was enacted during the 2009-2010 legislative session. On March 22, 2010, legislation was enacted to increase the reporting requirements for Marcellus wells and to provide for publication of Marcellus production data.²²³ The new law requires companies to report production from Marcellus wells on a semi-annual basis and mandates that DEP publish this data on its Web site.²²⁴

H. Development of Public Resources

The first lease of the Commonwealth's oil and gas interests beneath state forest land was executed in 1947.²²⁵ Since that time, the Commonwealth has leased a total of 700,000 acres of state forest and state park land for oil and gas development.²²⁶ The statutory authority for the Department of Conservation and Natural Resources (DCNR) to enter into these leases is contained within the Conservation and Natural Resources Act.²²⁷ The most recent DCNR lease

²¹⁸ See H.R. 473, 2009-2010 Reg. Sess. (Pa. 2009).

²¹⁹ See H.R. 2213, 2009-2010 Reg. Sess. (Pa. 2010).

²²⁰ See H.R. 2694, 2009-2010 Reg. Sess. (Pa. 2010).

²²¹ See S. 1452, 2009-2010 Reg. Sess. (Pa. 2010).

²²² See H.R. 808, 2009-2010 Reg. Sess. (Pa. 2009).

²²³ S. 297, 2009-2010 Reg. Sess. (Pa. 2009) (enacted).

²²⁴ 58 PA. STAT. ANN. § 601.212(a) (West 1996).

²²⁵ BUREAU OF FORESTRY, PA. DEP'T OF CONSERVATION AND NATURAL RESOURCES, OIL & GAS POSITION STATEMENT (Apr. 1, 2008), available at http://www.dcnr.state.pa.us/forestry/O&G/Oil_Gas_position.pdf.

²²⁶ Commonwealth of Pennsylvania, Exec. Order No. 2010-05, Leasing of State Forest Land and State Park Land for Oil and Gas Development (Oct. 26, 2010) (800,000 acres of Commonwealth-owned oil and gas interests in state forests and state parks within the Marcellus Region remain unleased).

²²⁷ 71 PA. STAT. ANN. § 1340.302(a)(6) (Supp. 2010).

offering was held on January 12, 2010, at which time oil and gas leases on six parcels containing approximately 32,000 acres of state forest land were made available for public bidding.²²⁸ On October 26, 2010, Governor Edward G. Rendell issued an Executive Order putting a moratorium on any further oil and gas leasing by DCNR.²²⁹

I. Severance Tax

One of the most heated topics during the past legislative session was the debate over whether or not to enact a severance tax upon natural gas extraction in Pennsylvania.²³⁰ Proponents of a severance tax argue that Pennsylvania stands virtually alone in its failure to impose a severance tax and that such a tax could help to offset the additional costs incurred as a result of industry activities.²³¹ Opponents of the tax argue that instituting it will make Pennsylvania less competitive during a time when the state needs to be courting this economic

²²⁸ Bureau of Forestry, Notice to Bidders January 12, 2010 Oil and Gas Lease Sale (Nov. 9, 2009). This lease sale yielded over \$128 million for an average lease price of \$4019 per acre. Pa. Dep't of Conservation and Natural Resources, Results of FY09-10 Oil and Gas Lease Offering, <http://www.dcnr.state.pa.us/forestry/gasleasebidders.aspx>. In the prior DCNR lease sale on September 3, 2008, eighteen parcels containing over 74,000 acres were made available for public bidding. This lease sale yielded over \$168 million for an average lease price of \$2275 per acre. Pa. Dep't of Conservation and Natural Resources, September 3, 2009 Oil & Gas Lease Sale, http://www.dcnr.state.pa.us/forestry/o&g/2008_OG_Sale.pdf.

²²⁹ Commonwealth of Pennsylvania Exec. Order No. 2010-05, Leasing of State Forest Land and State Park Land for Oil and Gas Development (Oct. 26, 2010).

²³⁰ See Tom Barnes, *Gov. Rendell Pushes for Shale Gas Tax*, PITTSBURGH POST-GAZETTE., Aug. 28, 2010 (Lt. Gov. Joe Scarnati accusing Gov. Rendell of “want[ing] to punish the industry” through the implementation of a severance tax); see also Tom Barnes, *Rendell Halts Natural Gas Drilling*, PITTSBURGH POST-GAZETTE., Oct. 27, 2010 (Gov. Rendell accusing Senate Republicans of “failing to negotiate in good faith”).

²³¹ See MICHAEL WOOD & SHARON WARD, PA. BUDGET AND POLICY CENTER, RESPONSIBLE GROWTH: PROTECTING THE PUBLIC INTEREST WITH A NATURAL GAS SEVERANCE TAX (Apr. 2009) (advocating for the imposition of a severance tax), available at <http://www.pennbpc.org/sites/pennbpc.org/files/Responsible%20Growth%20-%20PA%20Severance%20Tax.pdf>.

engine and that Pennsylvania already taxes companies at a high rate through the corporate net income tax.²³²

During the deliberations for the 2010-2011 annual state budget, Governor Rendell and legislative leaders reached a tentative agreement to institute a severance tax on the extraction of Marcellus Shale natural gas by January 2011. This tentative agreement was included in the budget legislation, but details on the specific terms of the tax were not determined.²³³ The bill stated merely that there was an intention to pass legislation by October 1, 2010.²³⁴ No such legislation was enacted, and thus, the debate on the propriety of a severance tax continues.

III. Legal Issues on the Horizon

While many legal issues have been addressed in the past three years, Pennsylvania faces many more questions that will require legal action as activities related to Marcellus Shale extraction continue to advance in the coming years. Some of the legal issues on the horizon are identifiable based upon current circumstances. For example, many of the topics that have been addressed thus far are not yet finally resolved and will require further legislative or administrative action. Other legal issues on the horizon will be brought on by new developments or practices within the industry and cannot be ascertained with reasonable foresight. Still more legal issues on the horizon may be dependent upon the new political environment in Harrisburg

²³² See C.J. Marshall, *GOP Lt. Gov. Candidate: No Severance Tax for Marcellus Shale*, TOWANDA DAILY REV., Sept. 4, 2010 (reporting on gubernatorial candidate Tom Corbett's position against the enactment of a severance tax).

²³³ S. 1042, 2009-2010 Reg. Sess., at § 4 (Pa. 2010) (enacted) ("It is the intent of the House majority leadership and the Senate majority leadership to pass legislation that raises revenue from the extraction of Marcellus Shale natural gas by October 1, 2010, with an effective date for implementation no later than January 1, 2011. It is the further intent to have revenue raised from the extraction of Marcellus Shale natural gas to be divided by a ratio to be determined by legislation between the Commonwealth, counties and municipalities, and environmental initiatives").

²³⁴ *Id.*

as a result of changes in the Governor's Residence and the House of Representatives.²³⁵ Of the many potential legal issues, three that likely will be the subject of activity in the relative short-term are issues related to the expiration of the primary term of oil and gas leases, compulsory pooling, and the role of municipalities in the overall regulation and development of the resource.

A. The Expiration of the Primary Term

The habendum clause in a natural gas lease agreement establishes the duration of the lease through the application of its primary and secondary terms. The primary term determines the length of time that a lessor has control over oil and gas rights without drilling a well. If no activity takes place prior to the expiration of the primary term, the lease is no longer valid. The landowner is then free to execute another lease agreement with the same company, a different company, or to refrain from executing another lease as he or she sees fit. When drilling does occur during the primary term, however, the lease is converted into the secondary term, which will continue so long as the leasehold contains a producing well.²³⁶ Once a lease agreement has been converted into its secondary term, the leasehold is said to be held by production. In such a case, the landowner normally will receive royalty income from the producing well, but he or she also is bound by the terms of the lease agreement and cannot negotiate another lease until the leasehold ceases production.²³⁷

The length of the primary term in a lease agreement is not regulated in Pennsylvania. It is the product of a negotiated lease agreement between the landowner and the lessee. The

²³⁵ See Editorial, *State of Unrest: The Republicans Take Charge in Pennsylvania*, PITTSBURGH POST-GAZETTE, Nov. 4, 2010 (noting the political climate that led to great electoral changes may "launch a pro-citizen reform agenda").

²³⁶ The language of an individual lease agreement must be reviewed to determine the specific conditions that will cause the commencement and termination of the secondary term.

²³⁷ Based upon the language of an individual lease agreement, the lease may remain in the secondary term even though production has ceased temporarily.

primary term can be as short as one year or shorter, and it can be as long as ten years or longer. Although variation does exist, the typical duration of the primary term in a Pennsylvania Marcellus lease is five years.

Since widespread leasing for Marcellus Shale development began in late 2007, a large number of leases will expire by late 2012 unless drilling activities commence on these leaseholds. Certainly, much drilling already has occurred, and thus, many leases are now held by production. Despite this extensive activity, many more leases remain in their primary terms as there are practical limitations on the number of wells that can be drilled within a defined period of time. These limiting factors include the availability of a drilling rig, a trained workforce, sufficient water supplies, adequate financing, and the presence of required infrastructure.

Marcellus companies have expended significant resources to acquire their leaseholds through the payment of lease bonuses, delay rental payments, and other administrative expenses. This investment will be lost if the lease agreements are allowed to expire. Thus, companies have economic incentives to undertake strategies to ensure that as many leases as possible are converted into their secondary terms.²³⁸

Natural gas lease agreements generally contain a provision authorizing the lessee to pool the leased premises with other parcels to create a drilling unit. The gas company then has the discretion to determine the specific boundaries of the drilling unit. When a drilling unit is established and a well is drilled, all of the landowners within the unit will be treated as though the well is located on their properties and will share in the royalties from the production of said

²³⁸ Companies also can exercise control over leaseholds for a longer duration through the inclusion of a renewal clause in the lease agreement. A renewal clause extends the primary term rather than converting it into the secondary term. An automatic renewal, or renewal at the option of the lessee, clause can have the effect of converting a five-year lease into a ten-year lease, but the exercise of this renewal clause normally requires an additional lease bonus payment.

well on a proportional basis. For example, if the drilling company establishes a 640-acre drilling unit and a landowner owns sixty-four acres within the drilling unit, the landowner will receive royalty payments based upon the ownership of a 10% share in the drilling unit. If the total acreage of that same landowner's parcel, however, is 1000 acres, the entire parcel of 1000 acres will be in a held by production status. Thus, the landowner will not receive royalty payments on 936 of the 1000 acres, but he or she will be precluded from leasing to another company any of the acreage not included in the unit. Through the inclusion of a Pugh Clause in the lease agreement, any acreage not included within a drilling unit can be released upon the termination of the primary term, but most landowners do not have such a clause in their lease agreements.

To effectuate a strategy of converting as much acreage as possible into a held by production status, companies can establish drilling units with gerrymandered boundaries to capture portions of as many leaseholds as possible. All of these leaseholds so included will be held by production. The drilling company may eventually include the remainder of the acreage in these leaseholds within another drilling unit, but it will not be under any time pressure to do so.

Another strategy that can be utilized by companies to convert leases into the secondary terms is to draw extremely large drilling units—again for the purpose of including as many leaseholds as possible within a unit. Many leases authorize the lessee to pool land up to a maximum unit size of 640 acres. To enable the creation of larger drilling units, companies may increase or eliminate the maximum unit size in new leases and may attempt to similarly amend existing leases. Establishing large drilling units creates two potential issues for landowners. First, all of the landowners in a drilling unit will have their land in a held by production status. As such, all landowners – even those who own land a relative distance from the well – will be

unable to execute additional leases and receive potentially large lease bonus payments. Second, there will be a large dilution of royalties so that the landowner who hosts the well will receive a smaller royalty payment while bearing the brunt of the adverse impacts associated with drilling.

In addition to converting land to a held by production status through inclusion in a drilling unit, companies also may seek to extend the primary term of lease agreements through the exercise of the force majeure clause present in most leases. Force majeure clauses generally provide an extension of the primary term when the company is prevented from drilling through some event beyond its control. Some force majeure clauses contain specific provisions to address delays in obtaining permits, the inability to obtain materials, or poor economic conditions. Companies may attempt to interpret these provisions broadly to gain additional time within which to drill wells without paying additional lease bonuses.

The actions of companies in holding land by production through the questionable composition of drilling units or through the questionable invocation of a force majeure clause likely will lead to litigation. Affected landowners may file suit to release portions of their land from a drilling unit on the basis that the company has exercised bad faith in the creation of the unit. Similarly, landowners may call for legislative action to increase the state role in determining the composition of a drilling unit or to implement some measure, such as a statutory Pugh Clause, to prevent companies from holding land through the inclusion of a very small percentage of the land within a drilling unit.

While the state generally has had little involvement with the leasing process, the legislature has acted previously to protect landowner interests.²³⁹ Based upon the present

²³⁹ See e.g., 58 PA. STAT. ANN. § 33 (West 1996) (legislation enacted in 1979 to mandate that leases agreements provide for the payment of a minimum royalty percentage as opposed to a flat rate royalty).

circumstances, the state should once again act for the benefit of landowners. The General Assembly should ensure that the composition of drilling units is determined by geological and technical factors and not used as a pretext to hold leases by production. State approval of proposed drilling units should be mandated. The process for establishing these drilling units should be similar to that for, and perhaps as a part of, the permitting process.²⁴⁰ A company should be required to prepare a plat showing the composition of the unit and to provide a justification for its composition based upon the geological data and the company's developmental plans. Each drilling unit should be limited to the land that will provide the drainage area for one well pad site. Companies should be required to provide formal notification and a copy of the plat to landowners whose land is intended to be included in a drilling unit, and these landowners should have the ability to object to the proposed composition of the unit. By implementing such a procedure, companies will retain the necessary flexibility in establishing drilling units, but landowners will be protected from any misuse of the blanket authority granted in most lease agreements.

B. Compulsory Pooling

As the leasing process unfolds over a specific geographic area, a patchwork quilt is created where individual parcels of land may be leased to different companies while other parcels may remain unleased. Before a company can develop this acreage, it needs to accumulate sufficient leaseholds to gain control over all of the natural gas property interests that will be included in its drilling plans. Since drilling efficiencies often call for multiple wells to be located on a single well pad and possibly for several well pads to be located within close

²⁴⁰ See PA. STAT. ANN. §§ 601.201 – 601.202 (West 1996) (detailing the requirements to obtain a drilling permit and to file an objection to the grant of a permit).

proximity of one another, companies generally seek leases for a large amount of adjacent properties.

A company may be unable to obtain rights to all of the desired properties when a landowner refuses to execute a lease at the offered price. The same issue arises when a landowner executes a lease with a company that refuses to assign the lease to the company holding the predominant leasehold position in the area. If further negotiations are not successful in bringing the desired property or leasehold under the control of the predominant company, the company will need to alter its drilling plans to avoid the specific property or properties. The company may choose to drill wells in close proximity to the hold-out property or properties, but it must ensure that the well bore does not penetrate properties outside its overall leasehold.

By drilling wells that surround, but do not involve, the hold-out property, an island will be created where the gas has not been extracted. Depending upon the size of the hold-out parcel, this island of unrecovered gas may be permanently unrecoverable if it is not economical to drill a well to extract natural gas solely from this single parcel. If the hold-out landowner is philosophically opposed to natural gas drilling, he or she certainly will not be bothered by this fact. If, however, a third party lessee is the hold-out, the landowner will be deprived of the economic benefits that would result from the development of his or her natural gas leasehold. If this hold-out parcel is developed at some point in the future, there likely will be a greater surface impact and environmental impact in the aggregate than if the hold-out parcel had been included as part of the original drilling plan.²⁴¹

²⁴¹ Another option for a company that must alter its drilling plans as a result of one or more hold-outs is to avoid or delay development of the entire area surrounding the hold-out parcels. This eliminates the potential for creating an island of unrecoverable gas, but the neighboring landowners will be denied any economic benefit from the resource development.

The existence of a compulsory pooling statute would provide a mechanism for a company to incorporate any hold-out parcels in its drilling plans. Pennsylvania law presently provides for compulsory pooling, but only in limited circumstances under the authority of the Oil and Gas Conservation Law.²⁴² This law does not apply to wells that are limited to the development of the Marcellus Shale Formation.²⁴³ The issue of compulsory pooling raises many legitimate conflicting interests. Many landowners have likened compulsory pooling to eminent domain where the government is taking their property interests.²⁴⁴ While this is not an accurate comparison, landowners may lose the ability, under a compulsory pooling statute, to make certain decisions as to how their property interests will be utilized.²⁴⁵ Landowners also are concerned that a compulsory pooling statute would adversely affect the lease market as companies may have less incentive to increase compensation to acquire lease rights.²⁴⁶

On the other side of the issue, Pennsylvania is a signatory to the Interstate Oil and Gas Conservation Compact.²⁴⁷ As a member of this compact, the Commonwealth has agreed to enact laws and regulations to ensure that gas is extracted as efficiently as possible and that extraction

²⁴² 58 PA. STAT. ANN. § 408 (West 1996).

²⁴³ See 58 PA. STAT. ANN. § 403(b) (West 1996) (limiting application of Oil and Gas Conservation Law to wells that penetrate the Onondaga horizon or that are drilled deeper than 3,800 feet where the Onondaga horizon has a depth of less than 3,800 feet).

²⁴⁴ See Laura Legere, “*Forced Pooling*” *Legislation for Gas Industry Planned in Pennsylvania*, SCRANTON TIMES TRIB., July 11, 2010 (noting argument that the application of a compulsory pooling statute would be similar to eminent domain).

²⁴⁵ The extent to which the rights of private landowners would be affected by a compulsory pooling statute would depend upon the specific provisions contained within that statute.

²⁴⁶ See Legere, *supra* note 243.

²⁴⁷ See 58 PA. STAT. ANN. § 191 (West 1996) (directing the Governor to execute the interstate compact to conserve oil and gas); see also generally ROBERT M. JOCHEN, THE AGRICULTURAL LAW RESOURCE & REFERENCE CENTER, OIL AND GAS INTERSTATE CONSERVATION COMPACT: 58 PA. STAT. §§ 191-196 (Aug. 2009) (providing an overview of Pennsylvania’s membership in the Interstate Oil and Gas Compact Commission).

processes do not result in a loss of recoverable gas.²⁴⁸ In accordance with this obligation, the state has a policy interest in avoiding the creation of islands where gas cannot be extracted economically in the future.

In the debate over the desirability of a compulsory pooling statute for Marcellus drilling in Pennsylvania, a compromise approach has been proposed. Senator Eugene Yaw (R-Lycoming) has indicated an intention to introduce legislation that would provide for “company to company pooling.”²⁴⁹ Under this proposal, only third-party lessee hold-outs could be compelled into an involuntary pooling arrangement.²⁵⁰ Land owned by those who have chosen not to execute a lease agreement would not be subject to compulsory pooling.²⁵¹ This proposal furthers the state’s objectives in implementing oil and gas conservation principles while largely eliminating the concerns of the landowner community. While the devil is in the details for any legislation, “company to company pooling” appears to strike the appropriate balance among all of the various stakeholders on this issue.

C. Local Role in Overall Regulation and Development

Based upon the plain language of the Oil and Gas Act and Pennsylvania Supreme Court case law, municipalities have some authority to regulate oil and gas operations.²⁵² The precise extent of this authority, however, is not clearly ascertainable. One of the standards that must be

²⁴⁸ See 58 PA. STAT. ANN. § 192 (West 1996) (agreeing under Article III of the Compact to enact and maintain laws that prevent “[t]he drilling, equipping, locating, spacing or operating of a well or wells so as to bring about physical waste of oil or gas or loss in the ultimate recovery thereof”).

²⁴⁹ Memorandum from Sen. Gene Yaw, Co-Sponsorship – Company to Company Pooling, Dec. 17, 2010, *available at* <http://www.legis.state.pa.us/WU01/LI/CSM/2011/0/5967.pdf>.

²⁵⁰ *Id.*

²⁵¹ *Id.*

²⁵² See 58 PA. STAT. ANN. § 601.602 (West 1996). See also *Huntley & Huntley, Inc. v. Borough of Oakmont*, 964 A.2d 855, 856 (Pa. 2009) (ruling that municipal ordinance had not been preempted by Oil and Gas Act).

used to evaluate the propriety of most municipal regulation in the area is that ordinances cannot “impose conditions, requirements or limitations on the same features of oil and gas well operations regulated” by the Oil and Gas Act.²⁵³ The other applicable evaluation standard is that ordinances cannot “impose conditions, requirements or limitations . . . that accomplish the same purposes as set forth” in the Oil and Gas Act.²⁵⁴

What do these standards mean to township supervisors and solicitors who are making honest efforts to determine exactly what can and what cannot be addressed in a township ordinance? A review of the case law thus far provides guidance that some use of zoning authority is permitted.²⁵⁵ Beyond that, municipalities are pretty much on their own to exercise their best judgment and then wait to see if their ordinances survive a court challenge. These vague standards, requiring consideration of what exactly is a feature of the Oil and Gas Act and what exactly is the purpose that will be accomplished by a municipal ordinance, simply do not provide municipalities with sufficient direction on this issue. This lack of clarity discourages some, generally smaller, municipalities from acting for fear of incurring significant expense in a legal defense of their ordinance.

Certainly, many municipalities have not been discouraged in this manner as ordinances regulating oil and gas operations have been plentiful, highlighted by the City of Pittsburgh’s ban on the extraction of natural gas by corporations.²⁵⁶ This proliferation of municipal ordinances

²⁵³ § 601.602.

²⁵⁴ *Id.*

²⁵⁵ See *Huntley*, 964 A.2d at 866 (ruling that zoning restrictions were permissible in an R-1 residential district); see also *Penneco Oil Co., LLC v. County of Fayette*, 4 A.3d 722 (Pa. Commw. Ct. 2010) (ruling that zoning restriction were permissible in residential, industrial, airport districts).

²⁵⁶ See Ordinance Supplementing the Pittsburgh Code, Title Six, Conduct, Article I Regulated Rights and Actions (2010) (“[A]n ordinance to protect the health, safety, and welfare of residents and neighborhoods of Pittsburgh by

combined with the lack of practical standards in the Oil and Gas Act is likely to cause tremendous variability among the content of these ordinances. As a result, Marcellus drilling companies and their corresponding service providers will be required to deal with hundreds of different requirements as they conduct the same activities in different municipalities.

While future court opinions will continue to interpret the extent of authority granted by section 602 of the Oil and Gas Act, judicial resolution of this issue will not provide satisfactory guidance to municipalities. Court opinions address only the specific narrow issue presented, and cases may take years to proceed through the trial and appeal processes.²⁵⁷ Municipalities are being called upon by their citizens to act now, and they need to have clear direction on the proper scope of their regulatory authority. To provide this direction, section 602 should be amended to provide more specific and practical guidance on the topics related to natural gas operations that may be regulated by municipalities. While the General Assembly cannot address every potential topic, municipalities would benefit greatly from added clarity in this statute.

The questions surrounding the municipal role in the development of Marcellus Shale extend beyond the enactment of ordinances regulating industry operations. Local governments are incurring expenses, including those for roads, emergency services, and court services, as a result of developmental activities. Municipal and county governments, however, are limited in their ability to collect revenue directly from natural gas-related activities. As development moves forward, the General Assembly must provide local governmental entities with some funding mechanism to offset the costs that are being imposed upon them. One potential source

banning the commercial extraction of natural gas within the City ... establish[ing] a Bill of Rights for Pittsburgh residents and remov[ing] legal powers from gas extraction corporations within the City”).

²⁵⁷ See, e.g., *Penneco Oil*, 4 A.3d at 724 (Fayette County adopted its zoning ordinance on November 1, 2006 and the Pennsylvania Superior Court ruled on the challenge to its zoning ordinance on July 22, 2010).

of revenue could be created by the imposition of a severance tax or impact fee, the proceeds of which would be funneled to affected municipalities. Another potential source of revenue could be created if legislation was enacted authorizing the imposition of real estate taxes on oil and gas interests. In 2002, the Pennsylvania Supreme Court determined that existing law did not authorize the taxation of these property interests, but this ruling could be corrected with a legislative enactment.²⁵⁸

IV. The Way Forward

The approaches of Pennsylvania's legislative and regulatory bodies to Marcellus Shale development thus far have been to address individual problems or perceived problems on a reactive basis. As an issue has arisen, potential solutions for that issue have been considered and, in some cases, implemented. If Pennsylvania is going to take full advantage of the economic potential of Marcellus Shale development while also minimizing any adverse impacts to the environment, public health, and affected communities, a comprehensive proactive approach must be utilized to replace this individual reactive response. By Executive Order, Governor Tom Corbett has created the Governor's Marcellus Shale Advisory Commission to "develop a comprehensive, strategic proposal for the responsible and environmentally sound development of Marcellus Shale."²⁵⁹ While it is too soon to know what impact this Commission will have on the implementation of policies within Pennsylvania's executive branch of government, Pennsylvania's legislative branch also must take action. Based upon the nature of the issues that need to be considered in the near future, the General Assembly must utilize a

²⁵⁸ See *Indep. Oil & Gas Ass'n of Pa. v. Bd. of Assessment Appeals of Fayette County*, 814 A.2d 180 (Pa. 2002) (ruling that there is no statutory authority to impose real estate taxes on oil and gas interests).

²⁵⁹ Commonwealth of Pennsylvania Exec. Order No. 2011-01, Creation of Governor's Marcellus Shale Advisory Commission (Mar. 8, 2011).

comprehensive proactive approach to the consideration of issues related to Marcellus Shale development.

In the most recent legislative session, there was much attention devoted to the consideration of Marcellus Shale issues. Numerous bills were introduced in both chambers, and hearings were held by a number of different legislative committees. This extensive activity, however, did not necessarily result in the resolution of issues as only two pieces of substantive legislation were enacted. These bills addressed the reporting of Marcellus production data and the imposition of rollback taxes on land enrolled in the Clean and Green program. While the passage of these new statutes resolved important specific issues of concern, it barely scratched the surface of the issues that call for a legislative response. As has been discussed previously, the General Assembly should consider issues related to the establishment of drilling units, compulsory pooling, and the municipal role in natural gas development. Other significant topics that are best addressed by the legislature include a review of existing water protection standards, determination of the state role in regulating pipelines, and thorough consideration of surface owner rights.

To effectuate a comprehensive proactive approach to Marcellus Shale issues, the General Assembly needs to work across party lines, across chamber boundaries, and across committee interests. Several committees within both the Senate and the House of Representatives have responsibilities that will be impacted by Marcellus Shale development. The Environmental Resources & Energy, Local Government, Agriculture & Rural Affairs, Labor & Industry, Commerce, Transportation, and Human Resources Committees are among those committees that have jurisdiction over Marcellus-related issues. Many of these committees have held hearings to provide their members with background and current information on this rapidly emerging topic.

Effective public policy, however, is not served best by having multiple committees in both chambers addressing overlapping issues on an uncoordinated basis.

The General Assembly needs to establish a framework for gathering information, identifying issues, reviewing existing law and regulations, researching comparable laws in other states, and making legislative recommendations on a unified basis. There are different manners in which this goal could be accomplished such as directing the Joint State Government Commission to study the issue or creating a new Joint Marcellus Shale Committee. The specific entity that is chosen or established to coordinate these legislative efforts is not as critical as the work that will be performed and the timeframe in which the entity will perform this work.

This Marcellus Shale working group, task force, or committee should be tasked with conducting hearings and otherwise gathering information to enable it to prepare a report of legislative recommendations within six months of appointment. It should be composed of Representatives and Senators from various committees and should include the membership of, or consultation with, outside experts who have knowledge in specific substantive areas involved with, or impacted by, developmental activities. It should be of a sufficient size to include a diversity of perspectives and expertise, but it should not be so large that it is unable to produce an effective work product. After the report is completed, the General Assembly should strive to consider the recommendations and take any necessary legislative action promptly. By undertaking this process, the General Assembly will ensure that Marcellus Shale legislative issues are addressed in a timely, efficient, and comprehensive manner.

Five years ago, few Pennsylvanians had heard of Marcellus Shale. Today, it is hailed as “a once-in-a-generation energy and economic opportunity for Pennsylvania”²⁶⁰ and also assailed as “[t]he number one threat to public health in Pennsylvania.”²⁶¹ Regardless of one’s view on the positive or negative nature of shale gas extraction, there can be no doubt that the development of the Marcellus Shale Formation will have a tremendous impact in shaping the future of Pennsylvania. The legal developments of the past three years have begun to define the extent and direction of this impact, but there are many more issues that have yet to be resolved. The manner in which these many remaining issues are addressed by state policymakers will shape the future of Marcellus Shale development and ultimately determine the legacy that it will leave to the citizens and environment of Pennsylvania.

²⁶⁰ Press Release, Pennsylvania Environmental Council, Pennsylvania Environmental Council Releases Major Report on Marcellus Shale Drilling (July 13, 2010), *available at* http://www.pecpa.org/sites/pecpa.org/files/downloads/Developing_the_Marcellus_Shale_0.pdf.

²⁶¹ Press Release, Clean Water Action, Marcellus Concerns Dominate Environmental Activism Award (Sept. 24, 2010), *available at* <http://www.cleanwateraction.org/print/1751>.

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