

Winter 2013

Come Shale Away: Navigating the "Business Friendliness" of Regulatory Environments in the Marcellus Shale and Albertan Oil Sands

Jivaji Moré

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Come Shale Away: Navigating the “Business Friendliness” of Regulatory Environments in the Marcellus Shale and Albertan Oil Sands

*By Jivaji Moré**

Abstract: In today’s often-tumultuous economic climate, the appeal of investment in North America’s unconventional fossil fuel “revolution” has remained both consistent and strong. In the United States, countless energy companies have focused on extracting natural gas from deposits of shale rock. In Canada, firms have sought to turn deposits of bituminous “oil sands” into a secure, domestic source of synthetic crude oil. But where, if given a choice between the two countries, might a firm otherwise indifferent to extracting natural gas or oil choose to drill? This Comment attempts to answer this question by analyzing federal, state/provincial, and local/municipal regulatory regimes in Pennsylvania, United States (home of the vast Marcellus Shale play) and Alberta, Canada (home to most of Canada’s oil sands). Ultimately, this Comment isolates three main differences between the regulatory regimes governing these two regions, and concludes that, at least in the near term, regulations in Alberta and the oil sands are more “business friendly” to potential developers than those in Pennsylvania and the Marcellus Shale.

* J.D. Candidate, 2013, Northwestern University School of Law; B.A., Political Science, 2008, Columbia University. Many thanks to my editors for their help and input.

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I. INTRODUCTION

On October 16, 2011, Kinder Morgan, Inc. agreed to purchase rival oil and gas pipeline operator El Paso Corp. for \$38 billion in cash, stock, and

assumed debt.¹ The transaction gave Kinder Morgan access to a variety of pipeline assets, leaving it with a dominant position in North American natural gas distribution, as well as control over the flow of crude oil from Canada to the west coast of the United States.² It was the largest announced merger of 2011—a deal indicative of the appeal and promise of North America’s unconventional fossil fuel resources to investors, even in today’s tumultuous economy.³

Oil and natural gas extracted from shale rock, and crude oil derived from Canada’s “oil sands” are perhaps the unconventional fossil fuels of greatest interest to Kinder Morgan and its peers.⁴ Unlike more traditional forms of oil and natural gas, these unconventional resources are not trapped inside vast underground reservoirs of rock.⁵ Instead, they exist within individual rocks themselves, and must be extracted through processes that can be more difficult and costly than those used to extract conventional oil and gas.⁶ As these techniques have gained economic⁷ and technological⁸ viability in recent years, the development of North American shale and oil sands reserves has exploded. In the eyes of many, North America is

¹ Michael J. De La Merced & Clifford Krauss, *Kinder Morgan to Buy El Paso for \$21.1 Billion*, DEALBOOK (Oct. 16, 2011, 9:53 PM), <http://dealbook.nytimes.com/2011/10/16/kinder-morgan-to-buy-el-paso/>. The deal became effective on May 24, 2012. *Kinder Morgan and El Paso Announce Planned Closing Date of May 24, 2012*, BUS. WIRE (May 10, 2012, 11:20 AM), <http://www.businesswire.com/news/home/20120510006271/en/Kinder-Morgan-El-Paso-Announce-Planned-Closing>.

² De La Merced & Krauss, *supra* note 1.

³ Press Release, Mergermarket, Mergermarket M&A Round-up for Year End 2011, at 3 (Jan. 3, 2012), <http://www.mergermarket.com/pdf/Press-Release-for-Financial-Advisers-Year-End-2011.pdf>.

⁴ See De La Merced & Krauss, *supra* note 1.

⁵ GENE WHITNEY ET AL., CONG. RESEARCH SERV., R40872, U.S. FOSSIL FUEL RESOURCES, TERMINOLOGY, REPORTING, AND SUMMARY 6 (2010), *available at* http://epw.senate.gov/public/index.cfm?FuseAction=Files.view&FileStore_id=04212e22-c1b3-41f2-b0ba-0da5eaead952. Geologically speaking, conventional oil and gas resources migrate from within the “source rock” from which they have originated to underground reservoirs, while unconventional resources remain within the source rock. Press Release, U.S. Geological Survey, USGS Releases First Assessment of Shale Resources in the Utica Shale: 38 Trillion Cubic Feet (Oct. 4, 2012), http://www.usgs.gov/newsroom/article.asp?ID=3419&from=rss_home.

⁶ WHITNEY ET AL., *supra* note 5.

⁷ See DAN WOYNILLOWICZ ET AL., PEMBINA INST., OIL SANDS FEVER: THE ENVIRONMENTAL IMPLICATIONS OF CANADA’S OIL SANDS RUSH 2–3 (2005), *available at* pubs.pembina.org/reports/oilsands72.pdf (discussing the government of Alberta’s campaign to attract drillers to the oil sands). The economic viability of oil sands excavation will be discussed at greater length later in this Comment.

⁸ WHITNEY ET AL., *supra* note 5. For a detailed discussion of the technological advances of shale gas extraction, see *infra* Part II.A.

currently in the midst of an energy “revolution.”⁹

The impacts of this revolution have so far been resounding. North America now holds vast quantities of two of the world’s important fossil fuels.¹⁰ Extraction is still on the rise, and as acquisition activity suggests, the playing field in both the United States and Canada is wide open for future development.¹¹

Further, notwithstanding periodic short-term price changes, both shale gas and oil sands crude are resources for which there is likely to be strong demand.¹² Moreover, both resources are located within North America’s borders and are thus more secure than many of the United States and Canada’s traditional sources for fossil fuels, such as the Middle East and Africa. As Canada’s Prime Minister Stephen Harper recently suggested, there is considerable economic value in having a stake in the democratic world’s largest supply of “ethical oil.”¹³

Finally, and perhaps most importantly, the continued exploitation of North American shale plays and oil sands deposits fuels a strong engine for economic growth. Simply put, the development of these resources creates

⁹ While the term “revolution” has been commonly associated with the recent explosion in shale gas supply, see, e.g., David Brooks, Editorial, *The Shale Gas Revolution*, N.Y. TIMES, Nov. 4, 2011, at A31, available at <http://www.nytimes.com/2011/11/04/opinion/brooks-the-shale-gas-revolution.html>, this Comment contends that the term is equally applicable to the oil sands of Western Canada.

¹⁰ North America holds over 80% of the world’s oil sands reserves, with 53.7 billion barrels of oil in the United States and over 1.6 trillion in Canada. MARC HUMPHRIES ET AL., CONG. RESEARCH SERV., RL34258, NORTH AMERICAN OIL SANDS: HISTORY OF DEVELOPMENT, PROSPECTS FOR THE FUTURE 2–4 (2008), available at www.fas.org/sgp/crs/misc/RL34258.pdf. Meanwhile, the United States and Canada have a combined 55 trillion cubic meters of unconventional natural gas reserves (37 trillion for the United States and 18 trillion for Canada), more than any individual country in the world. See *An Unconventional Bonanza*, ECONOMIST (July 14, 2012), <http://www.economist.com/node/21558432> (displaying this information graphically). As Canada has more oil sands than the United States, and the United States has more unconventional gas than Canada, this Comment generally associates the oil sands with Canada and shale deposits with the United States.

¹¹ See, e.g., Mark Scott, *Energy Deals See an Upswing as Bargains Abound*, DEALBOOK (Oct. 17, 2011, 4:40 PM), <http://dealbook.nytimes.com/2011/10/17/behind-the-surge-in-energy-deals-2/>.

¹² According to the International Energy Agency (an independent organization focused on monitoring world energy trends), world oil consumption is expected to rise by more than 13% between 2010 and 2035. Press Release, Int’l Energy Agency, *The World is Locking Itself into an Unsustainable Energy Future Which Would have Far Reaching Consequences* (Nov. 9, 2011), <http://www.iea.org/newsroomandevents/pressreleases/2011/november/name,20318,en.html>. Global demand for natural gas is also expected to rise during this period. *Id.*

¹³ See Louise Egan, *Canada PM Applauds Job Creation, Defends Oil Sands*, REUTERS (Jan. 7, 2011, 1:46 PM), <http://www.reuters.com/article/2011/01/07/us-economy-harper-idUSTRE7064CT20110107>.

jobs, often in communities where job creation is sorely needed.¹⁴ In total, the shale industry has already created half a million jobs in the United States.¹⁵ Reports suggest that an additional 870,000 shale-industry jobs may be added by 2015.¹⁶ Meanwhile, development of the oil sands has helped Canada recoup the majority of the jobs it lost during the 2009 recession.¹⁷ The job creating potential of shale gas and oil sands activity is not insignificant, especially as North America's economies have entered a "new normal" of higher unemployment, lower standard of living, and minimal growth.¹⁸

This Comment begins with the premise that North America's unconventional fossil fuel revolution should be encouraged. It seeks to identify regulatory hurdles in the United States and Canada that potentially limit fossil-fuel development, and it asks if these hurdles might impact the behavior of a hypothetical energy company otherwise indifferent to exploiting shale deposits or the oil sands.¹⁹

¹⁴ See, e.g., John M. Smith, *The Prodigal Son Returns: Oil and Gas Drillers Return to Pennsylvania with a Vengeance—Are Municipalities Prepared?*, 49 DUQ. L. REV. 1, 4 (2011) (discussing how the explosion of interest in the Marcellus Shale formation has made several landowners "millionaires overnight"); Steve Hargreaves, *Billions of Barrels of Untapped U.S. Oil*, CNN MONEY (Mar. 9, 2011, 4:13 PM), http://money.cnn.com/2011/03/04/news/economy/oil_shale_bakken/index.htm (discussing ability of resource exploitation to prop up local economies in North Dakota's Bakken Shale play); Brooks, *supra* note 9 (mentioning shale drilling's impact on an "economically wounded" western Pennsylvania).

¹⁵ See Brooks, *supra* note 9.

¹⁶ Jim Efstathiou, Jr., *Shale-Gas Drilling to Add 870,000 Jobs by 2015, Report Says*, BLOOMBERG (Dec. 6, 2011, 2:55 PM), <http://www.bloomberg.com/news/2011-12-06/shale-gas-drilling-to-add-870-000-u-s-jobs-by-2015-report-says.html> (discussing an industry-group-commissioned report additionally claiming \$118 billion in economic growth from shale gas in the next four years).

¹⁷ See Mary Anastasia O'Grady, Opinion, *Canada's Oil Sands are a Jobs Gusher*, WALL ST. J. (Sept. 12, 2011, 12:00 AM), <http://online.wsj.com/article/SB10001424053111904836104576560933917369412.html>.

¹⁸ Although now a relatively ubiquitous term for the prognosis of systemic slow growth in the aftermath of the 2007–2009 credit crisis, the idea of the "new normal" was actually developed by fund managers Bill Gross and Mohammed El-Erian. See Peter C. Beller & Michael Maiello, *Pimco's New Normal*, FORBES (Jan. 21, 2010, 1:00 PM), <http://www.forbes.com/forbes/2010/0208/investing-mutual-funds-stocks-pimco-new-normal.html>.

¹⁹ In order to effect this comparison, this Comment assumes that crude oil and natural gas production hold equal appeal to those in the energy sector. This may not necessarily be true in the immediate status quo, as a current glut of American natural gas is driving prices lower and lower, at least in the short term. See *Shale Gas: Boom or Glut?*, ECONOMIST INTELLIGENCE UNIT (Jan. 20, 2012, 4:50 PM), <http://eiuvIEWS.com/index.php/energy/2012/01/20/shale-gas-boom-or-glut/>. However, this glut is not stopping investment in shale gas by energy companies, who are taking a more bullish long-term view with an eye to eventually exporting liquefied natural gas (LNG) to

In developing its analysis, this Comment focuses on the regulatory environments of Alberta, Canada (home to most of North America's oil sands)²⁰ and Pennsylvania, United States (home to the vast Marcellus Shale play).²¹ The first Part of this Comment will provide background information on these regions, their specific resources, and the impacts of oil and gas extraction. Part II will discuss current federal and state/provincial regulatory regimes in Pennsylvania and Alberta. Part III will address differences between these regulatory regimes and discuss their implications for developers. Finally, this Comment will conclude that Alberta's regulatory regime is more favorable to developers than Pennsylvania's regime, and argue that exploitation of the oil sands, at least in the short term, is preferable for a hypothetical, resource-agnostic developer.²²

countries where gas is in higher demand. *Id.* Companies have already begun to receive permission from the U.S. Department of Energy to export LNG, and the United States will likely be a net-exporter of LNG by 2016. See Katarzyna Klimasinska, *U.S. Seen Being a Liquefied Gas Exporter in 2016 on Fracking Gains*, BLOOMBERG (Jan. 23, 2012, 2:28 PM), <http://www.bloomberg.com/news/2012-01-23/u-s-seen-being-liquefied-gas-exporter-in-2016-on-fracking-gains.html>.

²⁰ HUMPHRIES ET AL., *supra* note 10, at 4.

²¹ See Susan L. Sakmar, *The Global Shale Gas Initiative: Will the United States Be the Role Model for the Development of Shale Gas Around the World?*, 33 HOUS. J. INT'L L. 369, 384 (2011).

²² While Alberta is the locus of oil sands extraction in both Canada and North America, HUMPHRIES ET AL., *supra* note 10, at 4, Pennsylvania is not the only location for shale drilling in the United States. See, e.g., U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY OUTLOOK 2012 WITH PROJECTIONS TO 2035, at 58 (2012) [hereinafter USEIA 2012 ENERGY OUTLOOK], available at [http://www.eia.gov/forecasts/aeo/pdf/0383\(2012\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2012).pdf) (listing the reserves of selected domestic shale plays). Nevertheless, according to the U.S. Energy Information Administration's (EIA) 2012 Annual Energy Outlook report, the Marcellus Shale contains more than 140 trillion cubic feet of unproved natural gas reserves—the most of any domestic play listed in the report. *Id.* More than 60% of these gas reserves are located in Pennsylvania. *Id.* at 64. Unproved oil and gas resources are reserves that are estimated to be technically recoverable given current technology but without consideration for economics or existing operating conditions. *Id.* at 56. These reserves become “proved” when they are expected to be produced, given economics and existing operating conditions. *Id.* While the Marcellus Shale may not have the highest proved reserves of gas in the United States (this honor belongs to the Barnett Shale formation), the EIA recently reported that its proved reserves at the start of 2010 were 129 times greater than at their level in 2008—the greatest increase of any principal shale play analyzed by the EIA. U.S. ENERGY INFO. ADMIN., U.S. CRUDE OIL, NATURAL GAS, AND NATURAL GAS LIQUIDS PROVED RESERVES, 2010, at 11 (2012) [hereinafter USEIA CRUDE REPORT], available at <http://www.eia.gov/naturalgas/crudeoilreserves/pdf/uscrudeoil.pdf>. This increase, along with the potential for gains in future natural gas extraction in the Marcellus Shale, inform this Comment's decision to use Pennsylvania and its regulatory environment for its cross-border comparative analysis.

II. BACKGROUND

A. Pennsylvania

Named after a shale-rock outcropping in Marcellus, New York, the Marcellus Shale is an underground formation of shale located about 6,000 feet below parts of Pennsylvania, New York, West Virginia, and Ohio.²³ Geographically, the formation covers approximately 95,000 square miles—territory that includes forty-nine of Pennsylvania’s sixty-seven counties.²⁴ Because it covers approximately two-thirds of Pennsylvania, the Marcellus Shale has typically been associated with the state.²⁵

In a recent report, the U.S. Energy Information Administration estimated that the Marcellus Shale contains over 140 trillion cubic feet of technically recoverable, unproved natural gas.²⁶ Independent estimates suggest that there may be even more recoverable gas than this—perhaps as much as 330 trillion cubic feet.²⁷ Though oil can also be extracted from shale rock, the Marcellus Shale is not known for oil production.²⁸

Extraction of the Marcellus Shale’s natural gas has only been economically viable since 2004.²⁹ Development only began after advances in extraction technology enabled drillers to feasibly break open shale rock and release its natural gas.³⁰ Two technological leaps were particularly useful in this regard.

First, improvements in horizontal drilling technology made natural gas extraction economically viable. Horizontal drilling is critical to shale gas extraction for a variety of reasons:

[H]orizontal drilling increases penetration into the reservoirs because the natural gas exists in horizontal planes. In addition, horizontal drilling enables the drill to access more fractures. Finally, and most

²³ Smith, *supra* note 14, at 4.

²⁴ *Id.*

²⁵ Laura C. Reeder, Note, *Creating a Legal Framework for Regulation of Natural Gas Extraction from the Marcellus Shale Formation*, 34 WM. & MARY ENVTL. L. & POL’Y REV. 999, 1000 (2010).

²⁶ USEIA 2012 ENERGY OUTLOOK, *supra* note 22, at 58. For a definition of “unproved” resources, see *supra* note 12.

²⁷ Kevin Begos, Associated Press, *Reports: Marcellus Reserves Larger Than Expected*, BIG STORY (Oct. 20, 2012, 3:42 PM), <http://bigstory.ap.org/article/reports-marcellus-reserves-larger-expected>.

²⁸ See, e.g., USEIA 2012 ENERGY OUTLOOK, *supra* note 22, at 58 (not listing the Marcellus Shale as an oil-producing shale play); USEIA CRUDE REPORT, *supra* note 22, at 11 (noting that the bulk of total oil discoveries in 2010 came from shale plays in Texas and North Dakota, as well as from offshore sites in the Gulf of Mexico).

²⁹ Smith, *supra* note 14, at 4.

³⁰ *Id.*

importantly from a land use perspective, horizontal drilling enables extraction of natural gas from beneath areas, such as cities, where drilling rigs typically cannot be assembled.³¹

Second, innovations in the area of hydraulic fracturing, or, as it is more commonly called, “fracking,” helped make the release of natural gas from shale rock possible.³² Fracking generally involves injecting liquid through a drill at high pressure into shale rock.³³ This pressure creates fissures in the shale, releasing natural gas that can then be pumped to the surface.³⁴ The specific method of fracking used in the Marcellus Shale—“slick water fracking”—was imported from Texas, where it was utilized successfully in the smaller Barnett Shale play.³⁵ In slick water fracking, large amounts of fresh water, sand, and “either gel or another friction-reducing substance” are pumped underground.³⁶ These substances combat the low permeability of the shale by maximizing the length and height of any fractures made.³⁷ With respect to the non-aqueous components of typical fracking fluid, industry estimates peg mixtures at 90% water, 9.5% sand, and 0.5% chemicals.³⁸

Aboveground, there is an extensive infrastructure devoted to fracking. Fracking operations often contain as many as ten points of underground extraction.³⁹ These points of extraction, called “well pads,” typically contain each the following: wells; diesel-powered drill rigs; large, diesel-powered pumps used for injecting fracking fluid underground; trailers for housing the drilling crew; and “frac” ponds used to hold the fresh water soon to be injected underground and/or already-used fracking fluid.⁴⁰ The frac ponds are particularly enormous—usually several acres in size.⁴¹

Well pads also connect to structures related to the “midstream” transfer and processing of natural gas.⁴² Here, raw material is extracted from the well pads, stripped of its liquid components, and transformed into the natural gas that is later sold to “downstream” distributors.⁴³ Midstream structures connect to pipeline networks that can allow for the inter-state and

³¹ Reeder, *supra* note 25, at 1004.

³² Smith, *supra* note 14, at 4.

³³ Sakmar, *supra* note 21, at 377.

³⁴ *Id.*

³⁵ Reeder, *supra* note 25, at 1004–05.

³⁶ *Id.* at 1005.

³⁷ *Id.*

³⁸ Sakmar, *supra* note 21, at 378.

³⁹ Smith, *supra* note 14, at 7.

⁴⁰ *Id.* at 6.

⁴¹ *Id.*

⁴² *Id.* at 7–8.

⁴³ *Id.*

even cross-continental transfer of gas produced on a well pad.⁴⁴

Shale drilling and the natural gas industry have brought a great deal of economic activity to Pennsylvania. The lure of investment in natural gas extraction, transfer, and processing has brought both strategic and financial buyers to the region.⁴⁵ Foreign companies seeking access to the industry have also descended on the Marcellus Shale.⁴⁶ Further, at a more granular level, shale gas has created thousands of jobs in Pennsylvania.⁴⁷ Counties in which drilling directly occurs saw nonfarm employment grow over 5% between 2009 and 2011—a level far exceeding the growth rate for the rest of Pennsylvania.⁴⁸ Nearby cities servicing the shale gas industry have seen strong gains in employment ancillary to the energy sector.⁴⁹ Depending on the price of natural gas in future years, Wells Fargo estimates that employment in Pennsylvania will increase by between 325,000 and 825,000 jobs by 2020.⁵⁰

Economic benefits notwithstanding, however, shale drilling is not without its hazards and its critics. Fracking operations “generate light, noise, dust, fumes, traffic, and drastic changes to the land, all of which affect the daily lives of the people living in [local Pennsylvania]

⁴⁴ De La Merced & Krauss, *supra* note 1.

⁴⁵ See, e.g., Peter Lattman, *K.K.R.'s Energy Billionaires Club*, DEALBOOK (Nov. 25, 2011, 12:25 PM), <http://dealbook.nytimes.com/2011/11/25/k-k-r-s-energy-billionaires-club/> (discussing a specific investment by private equity firm Kohlberg, Kravis & Roberts); Sakmar, *supra* note 21, at 404 (discussing Exxon's 2009 merger with XTO Energy for purposes of gaining access to well sites and drilling expertise).

⁴⁶ See, e.g., Erich Schwartzel, *Marcellus Shale Development Puts State on Map Internationally*, PITTSBURGH POST-GAZETTE (Mar. 20, 2012), <http://old.post-gazette.com/pg/12080/1218001-334.stm> (discussing current or potential future investments by Norway's Statoil, Germany's Bayer Corp., and British Petroleum); Sakmar, *supra* note 21, at 392 (mentioning a 2010 \$1.7 billion investment in the Marcellus Shale by India's largest private company, Reliance Industries).

⁴⁷ Recent studies by various institutions estimate that the shale gas industry created between 10,000 and 44,000 new jobs in Pennsylvania in 2009. See John L. Micek, *Drilling for Jobs*, MORNING CALL (Apr. 14, 2012), http://articles.mcall.com/2012-04-14/news/mc-pa-marcellus-jobs-boom-20120414_1_natural-gas-marcellus-shale-gas-pipeline.

⁴⁸ JAY BRYSON, TIM QUINLAN & JOE SEYDL, WELLS FARGO LLC ECON. GRP., RECENT PENNSYLVANIA JOB TRENDS: EFFECTS OF SHALE? 4 (2012), https://www.wellsfargo.com/downloads/pdf/com/insights/economics/regional-reports/PennsylvaniaShale_03122012.pdf.

⁴⁹ In the city of Williamsport, for instance, the energy sector has not only been responsible for 40% of employment growth since February 2010, but has also likely affected growth in the City's leisure and hospitality sector, which has been responsible for 35% of employment growth during the same period. *Id.* Pittsburgh has also experienced a similar, albeit less pronounced, effect. *Id.* at 5.

⁵⁰ *Id.* at 9. While this forecast does not isolate jobs created specifically within the energy sector, Wells Fargo conducted its study for the purpose of determining the extent to which the shale gas industry was driving employment growth in Pennsylvania. *Id.* at 6.

communities.”⁵¹ Further, fracking has been associated with significant environmental and public health concerns. Although a 2011 poll indicated that approximately two-thirds of Pennsylvanians viewed the economic benefits of the shale gas industry as outweighing environmental concerns,⁵² these concerns have still fueled significant public outcry.⁵³

At the center of this controversy are the chemicals used in the hydraulic fracturing process. In an extensive report on the environmental impact of the shale gas industry, public interest news group ProPublica identified leaking condensate tanks (tanks used to hold liquid hydrocarbons detached from extracted natural gas) and massive, open-air frac ponds as possible sources of air and groundwater contamination.⁵⁴ ProPublica also reported that people living close to fracking operations have experienced respiratory infections, headaches, nausea, rashes, and “[m]ore rarely,” miscarriages, tumors, cancer, and benzene poisoning.⁵⁵ Nevertheless, ProPublica noted that researchers have not been able to “draw good solid conclusions about whether [fracking] is a public health risk as a whole.”⁵⁶ Similarly, evidence linking fracking chemicals to livestock deaths across Pennsylvania is so far anecdotal.⁵⁷

Whether real or imagined, the threat of contamination has captured the public’s attention. Celebrities have publicly come out against fracking in Pennsylvania and other states.⁵⁸ The Emmy-award-winning documentary

⁵¹ Smith, *supra* note 14, at 9.

⁵² Kris Maher, *New Challenges to Gas Drilling*, WALL ST. J., Sept. 12, 2011, at A3.

⁵³ See, e.g., James Gerken, *Delaware Basin Fracking Decision Delayed*, HUFFINGTON POST (Nov. 23, 2011, 3:41 PM), http://www.huffingtonpost.com/2011/11/23/delaware-river-basin-fracking-decision_n_1108141.html; Sarah Hoye, “Fracking” Protesters Say Jobs Not Worth Environmental Risks, CNN.COM (Sept. 20, 2011, 8:58 AM), http://www.cnn.com/2011/US/09/20/philadelphia.fracking.protests/index.html?hpt=hp_bn1.

⁵⁴ Abraham Lustgarden & Nicholas Kusnetz, *Science Lags as Health Problems Near Gas Fields*, PROPUBLICA (Sept. 16, 2011, 5:35 PM), <http://www.propublica.org/article/science-lags-as-health-problems-emerge-near-gas-fields>. Open-air frac ponds are a particular issue for Pennsylvania, unlike other states (such as Texas), since Pennsylvania does not have limestone-capped subterranean reservoirs that can be used to hold spent fracking fluid. Reeder, *supra* note 25, at 1012.

⁵⁵ Lustgarden & Kusnetz, *supra* note 54.

⁵⁶ *Id.* (quoting Christopher Portier, Director of the U.S. Agency for Toxic Substances and Disease Registry and the National Center for Environmental Health). Part of the reason why there are only anecdotal findings at this stage is because natural gas drilling has only occurred in Pennsylvania in earnest since 2008. *Id.*

⁵⁷ Mike DiPaola, *Fracking’s Toll on Pets, Livestock Chills Farmers*, BLOOMBERG (Feb. 7, 2012, 11:01 PM), <http://www.bloomberg.com/news/2012-02-08/fracking-s-toll-on-pets-livestock-chills-pennsylvania-farmers-commentary.html> (“We don’t know what the chemicals are in a lot of these cases,” says Bamberger. “It gets very frustrating when you start saying: What was in the tissue? What killed these animals exactly?”).

⁵⁸ See, e.g., Mireya Navarro, *Chants, Boos, and Celebrities at a Hearing on Fracking*, N.Y. TIMES (Nov. 30, 2011), <http://green.blogs.nytimes.com/2011/11/30/chants-boos-and->

“GasLand” showed residential tap water located close to shale gas operations catching fire when exposed to an open flame.⁵⁹ The state of New York has even gone so far as to declare a ban on fracking within its borders.⁶⁰ Indeed, supporters of the New York state moratorium point to fracking’s impact on Pennsylvania as evidence for why the ban should stay in place.⁶¹ Ultimately, the public health concern associated with fracking circumscribes the economic promise of shale drilling in Pennsylvania, and undoubtedly informs the scope of federal and state regulations.

B. Alberta

In contrast to the United States, where shale plays are located in multiple states, Canada has oil sands reserves that are almost entirely located within the province of Alberta.⁶² Nevertheless, these reserves are enormous, underlying an area of boreal forests approximately the size of the state of Florida, or 149,000 square kilometers.⁶³ These reserves exist in three main deposits: Peace River, Cold Lake, and Athabasca, which is the largest and most developed of the deposits.⁶⁴ Per a 2010 estimate, the Alberta government claims that the oil sands hold approximately 170 billion barrels of proven crude oil reserves.⁶⁵ This gives Canada the third largest oil reserves in the world, behind only Saudi Arabia and Venezuela.⁶⁶

Despite its connection to crude oil, the term “oil sand” is something of

celebrities-at-a-standoff-on-fracking/ (mentioning appearances by three actors at a recent hearing in New York); Kate Sinding, *Celebrities Speak Out to Keep New York’s Tap Water Safe from Fracking*, SWITCHBOARD: NATURAL RES. DEF. COUNCIL STAFF BLOG (June 8, 2011), http://switchboard.nrdc.org/blogs/ksinding/new_video_celebrities_speak_ou.html (mentioning a new online video about fracking and water quality launched by the Natural Resources Defense Council, which features several famous actors); Gerken, *supra* note 53 (mentioning appearances by Josh Fox, the director of “GasLand,” and actor Mark Ruffalo at a recent anti-shale rally).

⁵⁹ Hoye, *supra* note 53.

⁶⁰ Inae Oh, *New York Fracking Protest Urges Cuomo to Ban Controversial Drilling*, HUFFINGTON POST (Aug. 22, 2012, 5:08 PM), http://www.huffingtonpost.com/2012/08/22/new-york-fracking-protest-cuomo-photos_n_1822575.html.

⁶¹ *See id.*; Mary Esch, Associated Press, *For NY Farmers, Fracking Means Salvation or Ruin*, BIG STORY (May 20, 2012, 1:25 PM), <http://bigstory.ap.org/content/ny-farmers-fracking-means-salvation-or-ruin>.

⁶² WOYNILLOWICZ ET AL., *supra* note 7, at 1.

⁶³ *Id.*

⁶⁴ *Facts and Statistics*, ALTA. ENERGY, <http://www.energy.alberta.ca/oilsands/791.asp> (last visited Oct. 30, 2012).

⁶⁵ WOYNILLOWICZ ET AL., *supra* note 7, at 11.

⁶⁶ *Country Comparison: Oil—Proved Reserves*, CENT. INTELLIGENCE AGENCY, <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2178rank.html> (last visited Feb. 7, 2012).

a misnomer; oil sands are neither really oil, in the conventional sense, nor sand. Rather, oil sands deposits are combinations of sand, water, clay, silt, and crude bitumen.⁶⁷ Crude bitumen is the material relevant to the production of the synthetic crude oil used in automobiles and other industrial contexts.⁶⁸

The history of oil sands development in Alberta began in 1944, when the government of Alberta entered into a joint venture with a private company to build a pilot plant near the city of Fort McMurray.⁶⁹ Commercial production began in the late-1960s, and remained relatively low through the mid-1990s, although the cost of bitumen extraction fell during this period as well.⁷⁰

Starting in the mid-1990s, however, the Alberta government consciously tried to make the oil sands an economically viable resource, convening a task force of oil industry representatives and government officials to study the issue.⁷¹ The government eventually implemented many of the task force's recommendations.⁷² One of the implemented recommendations was a public relations campaign aimed at raising the profile of the oil sands both in Canada and abroad.⁷³ Here, Alberta attempted to improve the public perception of its oil reserves by declaring the sands a "national prize," and by adopting the name "oil sands" instead of the previously used, dirtier sounding "tar sands."⁷⁴

Also implemented were the task force's economic recommendations, aimed at incentivizing development. In 1997, Alberta's provincial government established a generous royalty regime for oil sands developers; the government's Generic Oil Sands Regime promised to collect only 1% of a developer's total revenue until the developer had recovered all of its capital expenses, after which Alberta would collect 25% of the total revenue.⁷⁵ In addition to encouraging initial investments in oil sands extraction, this structure also promoted rapid reinvestment and growth.⁷⁶

Economic incentives also manifested themselves at the federal level through tax policy. Through tax deductions, for instance, the federal government allowed accelerated cost recovery of expenses relating to oil

⁶⁷ See WOYNILLOWICZ ET AL., *supra* note 7, at 11.

⁶⁸ *See id.* at 13–14.

⁶⁹ *Id.* at 2.

⁷⁰ *Id.* at 2–3.

⁷¹ *Id.* at 3.

⁷² *See id.*

⁷³ See WOYNILLOWICZ ET AL., *supra* note 7, at 3.

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ *Id.*

sands extraction, including the cost of oil sands leases and strip mining.⁷⁷ Similar to the effect of Alberta's royalty regime, Canada's accelerated cost recovery provision was aimed at incentivizing developers to continue spending on oil sands projects.⁷⁸

By the mid-2000s, many foreign oil companies had begun moving into the oil sands.⁷⁹ Exposure to the resource increased in the American energy community, spurring heavy demand.⁸⁰ As of 2011, output from the oil sands was pegged at 1.6 million barrels of crude oil per day, with production figures expected to more than double by 2025.⁸¹

The depth of any particular deposit determines the method by which oil sands are extracted and crude bitumen is removed.⁸² Strip mining is typically used to access shallower deposits, usually less than 100 meters from the surface.⁸³ Here, the overburden—trees, soil, and rock irrelevant to mining—is cleared, leaving underlying bituminous ore exposed for removal.⁸⁴ The extracted oil sands are subsequently mixed with hot water and chemically treated to separate the bitumen from the rest of the mixture, referred to as “tailings.”⁸⁵

More common than strip mining is in-situ recovery, which is more appropriate for extracting bitumen at greater depths.⁸⁶ Generally, with in-situ extraction, steam is pumped underground to the oil sands, where it separates bitumen from the rest of the oil sands by reducing the bitumen's

⁷⁷ See Nathan Vanderklippe & Carrie Tait, *Oil Sands Tax Incentives Targeted*, GLOBE & MAIL (Mar. 22, 2011, 7:05 PM), <http://www.theglobeandmail.com/news/politics/budget/business/oil-sands-tax-incentives-targeted/article1952194/page1/>.

⁷⁸ See *id.*

⁷⁹ See, e.g., Sonja Franklin & Eduard Gismatullin, *BP, Husky Energy Agree to Form Oil-Sands Partnerships (Update6)*, BLOOMBERG (Dec. 5, 2007, 4:25 PM), <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=a18oTMnaz4zQ&refer=canada>; In-Soo Nam, *KNOC, Other South Korean Cos to Jointly Develop Canada Oil Sands*, DOW JONES NEWswire (Mar. 16, 2007), http://www.rigzone.com/news/article.asp?a_id=42657 (discussing a 2006 investment by KNOC); *Synenco & Sinopec Enter Deal for Canadian Oil Sands Project*, RIGZONE (May 31, 2005), http://www.rigzone.com/news/article.asp?a_id=22835.

⁸⁰ WOYNILLOWICZ ET AL., *supra* note 7, at 4.

⁸¹ Press Release, Can. Ass'n of Petroleum Producers, *Conventional Production, Oil Sands Projects Underpin Strong Crude Oil Forecast* (June 5, 2012), <http://www.capp.ca/aboutUs/mediaCentre/NewsReleases/Pages/2012-oil-forecast.aspx>.

⁸² See Jason Metcalf, *Waste in the Land of Plenty: An Examination of the Theoretical Implications of Waste on the Alberta Oil Sands Deposit*, 45 ALTA. L. REV. 227, 228 (2007).

⁸³ WOYNILLOWICZ ET AL., *supra* note 7, at 11.

⁸⁴ Metcalf, *supra* note 82.

⁸⁵ *Id.*

⁸⁶ *Id.*

viscosity.⁸⁷ The bitumen is then pumped upwards.⁸⁸ In the most common form of in-situ extraction,⁸⁹ between four and ten pairs of wells extract bitumen at the same time.⁹⁰

As with shale drilling, oil sands infrastructure does not end with extraction. Crude bitumen still must be upgraded to commercially viable, synthetic crude oil.⁹¹ Upgrading proceeds in two steps: first, either coking or hydrocracking for fracturing large bitumen hydrocarbons into smaller pieces, and second, hydrotreating to remove nitrogen and sulfur from the finished product.⁹²

Regardless of the specific method employed, the upgrading of oil sands bitumen into synthetic crude oil is inefficient and resource intensive. All told, two tons of oil sands must be extracted and processed to produce one barrel of synthetic crude oil.⁹³ Further, the bitumen extraction and upgrading process requires energy itself—usually in the form of natural gas.⁹⁴ Though natural gas is relatively clean burning, it was estimated in 2005 that the oil sands sector in Alberta consumed 0.6 billion cubic feet of gas per day.⁹⁵

The energy intensiveness of the oil sands industry is a point of environmental concern. Though the industry has made significant strides in becoming more energy efficient in recent years, “the rapid rate of new development has more than consumed these gains.”⁹⁶ Currently “[o]il-sands crude results in emissions from production and consumption in vehicles that are about [twenty] percent higher than the average emissions of conventional oil production in the U.S.”⁹⁷ These emissions contribute to

⁸⁷ *Id.* at 229.

⁸⁸ There are two common methods of in-situ mining: Cyclic Steam Stimulation (CSS) and Steam Assisted Gravity Drainage (SAGD). *Id.* For CSS, a single well may be used to both heat the oil sands and pump up the separated bitumen. *Id.* For SAGD, two horizontally drilled wells are used, with steam constantly injected in one, and bitumen constantly recovered in the other. *Id.*

⁸⁹ SAGD is the most common form of in-situ extraction. WOYNILLOWICZ ET AL., *supra* note 7, at 12.

⁹⁰ *Id.* at 13.

⁹¹ *Id.* at 14.

⁹² *Id.*

⁹³ *Id.* at 11–12. Further adding to the resource intensiveness of oil sands drilling, one barrel of synthetic crude only fills three-fourths of the gas tank of a common pickup truck. *Id.* at 14.

⁹⁴ *Id.* at 15.

⁹⁵ WOYNILLOWICZ ET AL., *supra* note 7, at 15.

⁹⁶ *Id.* at 19.

⁹⁷ Jeremy van Loon, *Oil-Sands CO2 to Match Conventional in a Decade*, *Suncor CEO Says*, BLOOMBERG (Oct. 5, 2011, 8:10 PM), <http://www.bloomberg.com/news/2011-10-06/oil-sands-co2-to-match-conventional-in-decade-suncor-ceo-says.html>.

Canada's overall greenhouse gas output, which is already well above the levels that the country pledged to maintain when it ratified the Kyoto Protocol (Kyoto) in 2002.⁹⁸ While the oil sands industry alone is not to blame, Alberta produces one-third of all of Canada's greenhouse gas emissions while only having 10% of the country's population.⁹⁹

The oil sands industry has also been linked to other environmental issues. Deforestation is implicated, for instance, as Alberta's oil sands deposits are located below boreal forests that must be leveled in order to allow for strip mining and in-situ recovery.¹⁰⁰ Water pollution is also a concern. Here, the primary culprits are tailings ponds, which hold the slurry of water, fine clay, and silt left over from the bitumen-extraction process.¹⁰¹ Some leftover bitumen also remains in this mixture, and in its post-treatment form this bitumen is toxic to aquatic life and migratory birds.¹⁰² Like frac ponds in the shale context, tailings ponds are very large, collectively covering more than fifty square kilometers in Canada as of 2005.¹⁰³

There is some degree of concern within the scientific community that contamination from tailings ponds will eventually be toxic to humans.¹⁰⁴ However, at least in the status quo, there appears to be little evidence of such direct harm.¹⁰⁵ Rather, the incremental environmental harms stemming from Alberta's oil sands industry can best be described as "death by a thousand cuts."¹⁰⁶

In any event, environmental concerns have not stopped the oil sands industry from becoming successful enough for many to believe that government incentives are no longer needed.¹⁰⁷ Today, there is a great deal

⁹⁸ See Stepan Wood et al., *Whatever Happened to Canadian Environmental Law?*, 37 *ECOLOGY L.Q.* 981, 1008–09 (2010) (discussing how far off Canada is from being able to reduce its greenhouse gas emissions to 6% below their 1990 levels, as it promised under Kyoto).

⁹⁹ Teresa Meadows & Tony Crossman, *A Tale of Two Provinces: Imposing Greenhouse Gas Emissions Constraints Through Law and Policy in Alberta and British Columbia*, 47 *ALTA. L. REV.* 421, 426 (2010).

¹⁰⁰ WOYNILLOWICZ ET AL., *supra* note 7, at 36–37.

¹⁰¹ *Id.* at 30–31.

¹⁰² *Id.* at 31.

¹⁰³ *Id.* at 30.

¹⁰⁴ See David Biello, *Oil-Sands Raise Levels of Cancer-Causing Compounds in Regional Waters*, *SCI. AM.* (Jan. 8, 2013), <http://www.scientificamerican.com/article.cfm?id=oil-sands-raise-levels-of-carcinogens-in-regional-waters>.

¹⁰⁵ The Pembina Institute, a respected research organization and authority on the oil sands, does not list any direct harm to humans in its 2005 report. See *generally id.* at 19–25, 27–52 (noting broader environmental impacts).

¹⁰⁶ *Id.* at 27.

¹⁰⁷ See, e.g., WOYNILLOWICZ ET AL., *supra* note 7, at 59 (arguing that the initial economic

of foreign and domestic merger activity in the oil sands sector.¹⁰⁸ While during the 1970s only two Canadian energy companies operated in the oil sands,¹⁰⁹ today more than 900 firms from the United States alone play some role in Alberta's energy sector.¹¹⁰

Alberta's residents have been the beneficiaries of this rapid growth. As of 2011, the province's oil and gas sector directly employed about 271,000 people, while also supporting "hundreds of thousands of indirect jobs in sectors such as construction, manufacturing[,] and financial services."¹¹¹ This employment boost kept Alberta's unemployment rate for that same year at 5.6%—1.7% lower than Canada's overall unemployment rate.¹¹² Indeed, the oil sands have arguably helped Canada's national economy rebound from the 2007–2009 financial crisis, as the country's focus on energy in part spurred a growth rate higher than that of the United States in 2010 and 2011.¹¹³

Ultimately, both the Prime Minister of Canada¹¹⁴ and Alison Redford, elected premier of Alberta in late 2011, have declared their support for continued oil sands development.¹¹⁵ This support no doubt informs the

subsidies provided at the provincial and state levels "are still in place today although the industry has attained an undeniable level of economic sustainability"); Vanderklippe & Tait, *supra* note 77 ("[T]he [federal] government is of the view that with oil prices where they are, the industry is quite healthy. And it would appear to be their view that corporations don't need the same rapid writeoffs they've had in the past . . .").

¹⁰⁸ See, e.g., Michael J. De La Merced, *Sinopec to Buy Daylight Energy for \$2.1 Billion*, DEALBOOK (Oct. 9, 2011, 6:16 PM), <http://dealbook.nytimes.com/2011/10/09/sinopec-to-buy-daylight-energy-for-2-1-billion/>; Chris V. Nicholson, *Cnooc to Pay \$2.1 Billion for Canadian Oil Sands Firm*, DEALBOOK (July 20, 2011, 7:57 AM), <http://dealbook.nytimes.com/2011/07/20/cnooc-to-pay-2-1-billion-for-canadian-oil-sands-firm/>; Jeremy van Loon, *Canada Shifts Toward China with \$15 Billion Nexen Deal*, BLOOMBERG (July 24, 2012, 12:08 AM), <http://www.bloomberg.com/news/2012-07-23/canada-shifts-toward-china-with-15-billion-nexen-bid.html>.

¹⁰⁹ WOYNILLOWICZ ET AL., *supra* note 7, at 2; *Oil Sands History*, SYNCRUDE CAN. LTD., <http://www.syncrude.ca/users/folder.asp?FolderID=5657> (last visited Jan. 4, 2013).

¹¹⁰ O'Grady, *supra* note 17.

¹¹¹ *Id.*

¹¹² *Id.*

¹¹³ See *id.* (discussing growth rates for the two countries in 2010 and an International Monetary Fund growth rate projection for 2011 that put Canada ahead once more).

¹¹⁴ See Egan, *supra* note 13.

¹¹⁵ See, e.g., Chris Selley, *Alison Redford Brings Conciliatory Oil Sands Pitch to Ontario*, NAT'L POST (Nov. 16, 2011, 7:20 PM) (Can.), <http://fullcomment.nationalpost.com/2011/11/16/chris-selley-alison-redford-brings-conciliatory-oil-sands-pitch-to-ontario/> (discussing Redford giving thanks to the province of Ontario for investing in the oil sands, and coming close to "kiboshing any future carbon capture and storage projects" while speaking to reporters); Dawn Walton, *Western Premiers Push Plan to Showcase Canada as "Energy Powerhouse,"* GLOBE & MAIL <http://www.theglobeandmail.com/news/politics/western-premiers-push-plan-to-showcase->

restrictiveness of regulations that implicate the Canadian oil sands sector.

III. CURRENT REGULATORY REGIMES IN PENNSYLVANIA AND ALBERTA

Overall, the regulatory regimes governing the extraction of natural gas in Pennsylvania and oil in Alberta reflect a concern over the negative health and environmental impacts of each industry on its respective region. These regimes each also consist of a mix of federal, state/provincial, and even sub-state/provincial laws. These laws will be discussed in greater depth below.

A. Pennsylvania

1. Federal Laws

When it comes to regulating the oil and gas industry, the U.S. Environmental Protection Agency (EPA) is the central actor at the federal level. The EPA's enforcement of the Safe Drinking Water Act (SDWA) has the potential to significantly constrain the extraction of shale gas in Pennsylvania.¹¹⁶ The EPA also conducts research on the environmental harms associated with fracking that has the potential to inform its future regulatory position. These issues will be discussed below.

canada-as-energy-powerhouse/article2269984/ (last updated Sept. 6, 2012, 11:02 AM) (discussing Redford's leadership of a coalition consisting of herself and the premiers of Saskatchewan and British Columbia for the purpose of lobbying the federal government to develop a national strategy around showcasing the Canadian energy sector).

¹¹⁶ The EPA also enforces another law that impacts the shale gas industry in Pennsylvania—the Clean Water Act (CWA). MARY TIEMANN ET AL., CONG. RESEARCH SERV., R42333, MARCELLUS SHALE GAS: DEVELOPMENT POTENTIAL AND WATER MANAGEMENT ISSUES AND LAWS 2 (2012), available at <http://www.arcticgas.gov/sites/default/files/documents/12-1-27-crs-marcellus-shale-gas-development-potential-issues-laws.pdf>. However, as it applies to this industry, the CWA appears primarily directed towards regulating the discharge of non-potable wastewater (like spent fracking fluid) into streams and rivers. *Id.* at 20; see also *Regulation of Hydraulic Fracturing Under the Safe Water Drinking Act*, U.S. ENVTL. PROT. AGENCY, http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/wells_hydroreg.cfm (last visited Nov. 26, 2011) [hereinafter *Regulation of Hydraulic Fracturing*]. The facilities that process, clean, and then discharge spent fracking fluid are publicly owned treatment works or private waste treatment facilities that are usually neither owned nor otherwise affiliated with the drillers themselves. TIEMANN ET AL., *supra* note 116, at 19. These facilities are often ill-equipped to properly process spent fracking fluid, but that is typically a non-issue, as many major drillers intend to recycle and re-use at least 90% of the flowback from their fracking operations. *Id.* at 22 (discussing the practices of six drillers that, when combined, hold more than half of all natural gas drilling permits in the state of Pennsylvania). Thus, the CWA does not appear to be a major hurdle for this Comment's hypothetical fossil fuel developer.

i. Safe Drinking Water Act

Through the power granted to it under section 1421 of the SDWA, the EPA can regulate the underground injection of fluid for the purpose of protecting drinking water.¹¹⁷ The ability to create specific regulations for underground injection lies in the hands of either individual states or the EPA itself.¹¹⁸ In Pennsylvania, the EPA has retained primacy in crafting regulations for wells associated with oil and gas production.¹¹⁹ The EPA's minimum permitting standards require drillers to, among other things, submit annual reports, pressure-test infrastructure to maintain well integrity, space wells at least one-fourth of a mile apart, and monitor flow rate and cumulative pressure of underground injection.¹²⁰ Rule violators face both civil and criminal penalties, with the maximum civil penalty in some cases being as high as \$25,000 per day.¹²¹ Finally, individual citizens also have the right to launch civil suits against rule violators (and indeed, even the EPA itself, for a failure to enforce its own rules) under the SDWA.¹²²

Those in the business of extracting unconventional fossil fuels, however, currently have little to fear from SDWA's penalties. Amended by the Energy Policy Act of 2005, section 1421 of the SDWA now mandates that the definition of "underground injection" exclude fluids used in the fracking process other than diesel fuels.¹²³ Thus, fracking as it pertains to shale gas is essentially exempted from the SDWA.¹²⁴

¹¹⁷ 42 U.S.C. § 300h (2011) ("Regulations of the Administrator under this section for State underground injection control programs may not prescribe requirements which interfere with or impede (A) the underground injection of brine or other fluids which are brought to the surface in connection with oil or natural gas production or natural gas storage operations, or (B) any underground injection for the secondary or tertiary recovery of oil or natural gas, *unless such requirements are essential to assure that underground sources of drinking water will not be endangered by such injection.*") (emphasis added); *see also Regulation of Hydraulic Fracturing*, *supra* note 116.

¹¹⁸ 42 U.S.C. § 300h-1.

¹¹⁹ TIEMANN ET AL., *supra* note 115, at 28.

¹²⁰ MARY TIEMANN & ADAM VANN, CONG. RESEARCH SERV., R41760, HYDRAULIC FRACTURING AND SAFE DRINKING WATER ACT ISSUES 12 (2012), *available at* www.nationalaglawcenter.org/assets/crs/R41760.pdf.

¹²¹ 42 U.S.C. § 300h-2.

¹²² *Id.* § 300j-8.

¹²³ Energy Policy Act of 2005, H.R. 6, 109th Cong. § 322 (2005).

¹²⁴ The SDWA's position on fracking appears to be an about-face from the U.S. government's stance from nearly a decade earlier, when the U.S. Court of Appeals for the Eleventh Circuit held that fracking in coal beds for the purposes of extracting methane gas did constitute an activity regulated under the SDWA. *See Legal Envtl. Assistance Found. v. EPA*, 118 F.3d 1467, 1469 (11th Cir. 1997). In *Legal Envtl. Assistance Found.*, the court held that coal-bed fracking was not exempt from the Underground Injection Control (UIC) program established by the EPA pursuant to the SDWA and implemented by the state of Alabama. *Id.*; *see also* Sakmar, *supra* note 21, at 409. Unlike Pennsylvania, Alabama has

The Energy Policy Act of 2005 was no doubt influenced by an EPA report on fracking published a year earlier.¹²⁵ In this report, the EPA analyzed peer-reviewed articles and surveyed numerous government employees and concerned citizens¹²⁶ before concluding that it could find no evidence that fracking in coal beds (for the purpose of releasing and collecting methane gas) contaminated nearby sources of drinking water.¹²⁷ The finding was “roundly criticized” for not completely studying the issue, and for being politically motivated and reviewed by those with conflicts of interest.¹²⁸

More recently, the EPA has begun revisiting the issue of fracking. In response to the growth of fracking in the natural gas sector, the U.S. House of Representatives in 2010 issued a directive to the EPA urging another study on fracking and its impact on drinking water.¹²⁹ The EPA is currently in the process of conducting this study, with a report on interim results due in 2012.¹³⁰ The EPA expects to release a final draft report for public comment and peer review in 2014.¹³¹

In any case, interim EPA actions have not displayed a reformed attitude toward fracking. For instance, in 2011, after it found a link between contaminated groundwater and fracking in Wyoming, the EPA agreed to delay public announcement of this finding at the behest of the state’s government.¹³² This gave opponents of the study time to “coordinate

been granted primacy to enforce the SDWA by the EPA. *See Sakmar, supra* note 21, at 408.

¹²⁵ *See generally* U.S. ENVTL. PROT. AGENCY, EVALUATION OF IMPACTS TO UNDERGROUND SOURCES OF DRINKING WATER BY HYDRAULIC FRACTURING OF COALBED METHANE RESERVOIRS (2004), available at http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/wells_coalbedmethanes_tudy.cfm.

¹²⁶ *See id.* at 2-3 to 2-5 (“EPA researched more than 200 peer-reviewed publications, interviewed approximately 50 employees from industry and state or local government agencies, and communicated with approximately 40 citizens and groups who [were] concerned that CBM production affected their drinking water wells.”).

¹²⁷ Lynn Kerr McKay et al., *Science and the Reasonable Development of Marcellus Shale Natural Gas Resources in Pennsylvania and New York*, 32 ENERGY L.J. 125, 135 (2011) (internal citation omitted).

¹²⁸ *Id.* (internal quotation marks omitted).

¹²⁹ *See* Memorandum from Fred S. Hauchman, Dir., Office of Sci. Policy to Edward Hanlon, Designated Fed. Officer, EPA Sci. Advisory Bd. Staff, Request for Review of the *Draft Plan to Study the Potential Impacts of Hydraulic on Drinking Water Sources* (Feb. 7, 2011), <http://www.epa.gov/hfstudy/SAB-Review-Request-Final-2-8-11.pdf>.

¹³⁰ U.S. ENVTL. PROT. AGENCY, DRAFT PLAN TO STUDY THE POTENTIAL IMPACTS OF HYDRAULIC FRACTURING ON DRINKING WATER SOURCES viii (2011), available at http://www.shalegas.energy.gov/resources/HFStudyPlanDraft_SAB_020711.pdf.

¹³¹ *Id.*

¹³² *See* Mead Gruver, *EPA Fracking Study Announcement Was Delayed by Wyoming Officials*, HUFFINGTON POST (May 3, 2012, 7:35 PM), <http://www.huffingtonpost.com/2012/05/03/epa-fracking-study-wyoming->

[an] all-out press” against its findings,¹³³ which the EPA subsequently agreed to subject to a retest.¹³⁴ Interestingly enough, the EPA also recently found drinking water in Pennsylvania that it had formerly considered contaminated, now safe.¹³⁵ Thus, the final result of Congress’ 2010 directive to the EPA remains to be seen.

ii. Fracturing Responsibility and Awareness of Chemicals Act

Congress has also attempted to act itself for the purpose of regulating the shale gas industry. In 2009, Representative Diana DeGette of Colorado and Senator Robert (Bob) Casey of Pennsylvania introduced the Fracturing Responsibility and Awareness of Chemicals Act (FRAC Act) in the House of Representatives¹³⁶ and Senate, respectively.¹³⁷ The FRAC Act was aimed at revising the SDWA to expressly include fracking fluids in its purview and require natural gas drilling companies to disclose the types of chemicals (but not propriety formulas) used in their fracking fluids.¹³⁸ Ultimately, however, the Act failed to reach the floor of the House before

delayed_n_1475270.html.

¹³³ See *id.*; Mead Gruver, *EPA Fracking Report on Wyoming Water Doesn’t End Debate*, HUFFINGTON POST (Dec. 9, 2011, 4:20 AM), http://www.huffingtonpost.com/2011/12/09/epa-fracking-report-wyoming-water_n_1138482.html (“Sen. James Inhofe called the study ‘not based on sound science but rather on political science. Its findings are premature, given that the Agency has not gone through the necessary peer-review process, and there are still serious outstanding questions regarding EPA’s data and methodology,’ the Oklahoma Republican said.”).

¹³⁴ Daniel Gilbert & Russell Gold, *EPA Backpedals on Fracking Contamination*, WALL ST. J. (Apr. 1, 2012, 1:47 PM), <http://online.wsj.com/article/SB10001424052702303404704577313741463447670.html>. Nevertheless, the EPA’s subsequent retest again established a link between fracking and the contaminated groundwater. See Mark Drajem, *Wyoming Water Tests in Line with EPA Finding on Fracking*, BLOOMBERG BUSINESSWEEK (Oct. 11, 2012), <http://www.businessweek.com/news/2012-10-10/epa-says-test-of-wyoming-water-consistent-with-prior-results>.

¹³⁵ Gilbert & Gold, *supra* note 134.

¹³⁶ See generally Fracturing Responsibility and Awareness of Chemicals Act of 2009, H.R. 2766, 111th Cong. (2009).

¹³⁷ See generally Fracturing Responsibility and Awareness of Chemicals (FRAC) Act, S. 1215, 111th Cong. (2009). Both the Senate and House proposals have been collectively dubbed the “FRAC Act” by the media. See, e.g., Abrahm Lustgarten, *FRAC Act—Congress Introduces Twin Bills to Control Drilling and Protect Drinking Water*, PROPUBLICA (June 9, 2009, 11:31 AM), <http://www.propublica.org/article/frac-act-congress-introduces-bills-to-control-drilling-609>.

¹³⁸ H.R. 2766 § 2; S. 1215 § 2. Although the language of the Senate bill goes beyond its House counterpart by seeking to define “underground injection” as the “subsurface emplacement of fluids by well injection” S. 1215 § 2, both bills have the same general purpose with respect to amending section 1421 of the SDWA. H.R. 2766 § 2; S. 1215 § 2.

the 111th Congress recessed.¹³⁹ The 2010 mid-term election was credited with killing the Bill.¹⁴⁰ Senator Casey and Representative DeGette have reintroduced the FRAC Act in the Senate and House during the 112th Congress,¹⁴¹ but the Bill has not yet passed through the initial steps of the legislative process.¹⁴²

2. State/Local Laws

A number of actors outside the federal government share in the regulation of Pennsylvania's share of the Marcellus Shale: the State of Pennsylvania, local Pennsylvania municipalities, and the Delaware River Basin Commission (DRBC), an entity that has jurisdiction in multiple states. These actors often have differing views on the benefits and drawbacks of shale drilling. Some degree of regulatory uncertainty has been the result.

i. Pennsylvania Oil and Gas Act

Enacted in 1984 and most recently amended in 2012,¹⁴³ the Pennsylvania Oil and Gas Act (Oil and Gas Act) is the linchpin to the State's regulation of the shale gas industry.¹⁴⁴ The Act gives the

¹³⁹ See Sakmar, *supra* note 21, at 410–11.

¹⁴⁰ Joshua B. Pribanic, *EPA Finds Way to Regulate Hydraulic Fracturing*, PUB. HERALD (Apr. 27, 2011), <http://www.publicherald.org/archives/11388/investigative-reports/energy-investigations/>.

¹⁴¹ See Laura Legere, *Casey Reintroduces Natural Gas Bills*, SCRANTON TIMES-TRIBUNE (Mar. 16, 2011), <http://thetimes-tribune.com/news/gas-drilling/casey-reintroduces-natural-gas-bills-1.1119578#axzz1GmGpdvBy>; Benjamin Haas et al., *Fracking Hazards Obscured in Failure to Disclose Wells*, BLOOMBERG (Aug. 14, 2012, 5:26 PM), <http://www.bloomberg.com/news/2012-08-14/fracking-hazards-obscured-in-failure-to-disclose-wells.html>.

¹⁴² See FRAC Act, S. 587, 112th Cong. (2011); Fracturing Responsibility and Awareness of Chemicals Act of 2011, H.R. 1084, 112th Cong. (2011). The initial steps of the legislative process include committee-based deliberation, investigation, and revision of the bill. See *The Legislative Process*, U.S. HOUSE REPRESENTATIVES, http://www.house.gov/content/learn/legislative_process/ (last visited Mar. 24, 2013).

¹⁴³ 58 PA. CONS. STAT. § 3201 (2012). The recent amendments to the Oil and Gas Act will be discussed at length in this Part.

¹⁴⁴ This is not to say, however, that the Oil and Gas Act is the only hurdle for shale developers at the state-law level. The Pennsylvania Hazardous Sites Cleanup Act (HSCA) may also be an option for opponents of fracking. Hazardous Sites Cleanup Act (HSCA), 1988 Pa. Laws 756. In ongoing litigation under the HSCA, for instance, landowners have alleged that Cabot Oil and Gas Corporation “improperly conducted hydrofracturing and other natural gas production activities that allowed the release of methane, natural gas, and other toxins onto [the plaintiffs’] land and into their groundwater.” *Fiorentino v. Cabot Oil & Gas*, 750 F. Supp. 2d 506, 509 (M.D. Pa. 2010). The plaintiffs have so far survived the defendant’s motion to dismiss. *Id.* In denying that motion, the court found that the plaintiffs had brought an actionable claim under section 1115 of the HSCA, which provides that “[a]

Pennsylvania Department of Environmental Protection (DEP) the authority to regulate several areas critical to shale drilling, from permitting requirements¹⁴⁵ and well location restrictions¹⁴⁶ to bonding issues¹⁴⁷ and eventual well plugging.¹⁴⁸ The DEP also has the authority to inspect well sites for the purpose of responding to complaints about water quality and contamination.¹⁴⁹ The Act institutes both civil and criminal penalties for rule violations.¹⁵⁰ The DEP, however, appears to rely only on fines.¹⁵¹ From January 1, 2012 through October 29, 2012, the DEP inspected 326 unique unconventional wells, found 628 rule violations, and issued fines for fewer than thirty of these violations.¹⁵²

Importantly, the Oil and Gas Act claims to supersede any local ordinances that “impose conditions, requirements or limitations on the same features of oil and gas operations regulated by [the Act].”¹⁵³ This provision

person who has experienced or is threatened with personal injury or property damage as a result of a release of a hazardous substance may file a civil action against any person to prevent or abate a violation of this act or of any order, regulation, standard or approval listed under this act.” HSCA § 1115, 1988 Pa. Laws 815.. Nevertheless, the court has yet to rule on the merits of this case, leaving the HSCA largely unproven as a regulatory weapon. This Comment views the Oil and Gas Act as much more of a threat to drillers—enough by itself to give any prospective investor pause.

¹⁴⁵ 58 PA. CONS. STAT. § 3211 (2012).

¹⁴⁶ *Id.* § 3215.

¹⁴⁷ *Id.* § 3225.

¹⁴⁸ *Id.* § 3220.

¹⁴⁹ *Id.* § 3218.

¹⁵⁰ *Id.* §§ 3255–3256.

¹⁵¹ For example, the Oil and Gas Compliance Report, available on the DEP’s website, shows fines as a possible outcome from an inspection, but makes no mention of criminal penalties. *DEP Office of Oil and Gas Management Compliance Report*, PA. DEPT. ENVTL. PROT.,

http://www.depreportingservices.state.pa.us/ReportServer/Pages/ReportViewer.aspx?/Oil_Gas/OG_Compliance (last visited Oct. 29, 2012). Additionally, running this report for all compliance violations in unconventional wells from January 1, 2012, to October 29, 2012, yields only fines for violations, and no criminal penalties. *Id.* (inputting January 1, 2012, and October 29, 2012, as start and end dates for the report, selecting unconventional wells only, selecting inspections with violations only, and running the report).

¹⁵² *Id.* The largest fine levied by the DEP during this period was \$12,500, for overdue drilling records. *Id.* As recently as 2011, however, the DEP levied a fine of over \$1 million to a driller. *See* Press Release, Pa. Dep’t of Env’tl. Prot., DEP Fines Chesapeake Energy More than \$1 Million (May 17, 2011), <http://www.portal.state.pa.us/portal/server.pt/community/newsroom/14287?id=17405&typeid=1>. Here the DEP fined driller Chesapeake Energy for contaminating private water supplies near one of its well pads and experiencing a tank fire at another. *Id.*

¹⁵³ 58 PA. CONS. STAT. § 3302 (2012) (“Except with respect to local ordinances adopted pursuant to the MPC and the . . . Flood Plain Management Act, all local ordinances purporting to regulate oil and gas operations regulated by Chapter 32 (relating to development) are hereby superseded. No local ordinance adopted pursuant to the MPC or

prevents municipal ordinances from accomplishing the same purposes of the Act.¹⁵⁴ However, it also suggests that municipal ordinances can address facets of the shale drilling industry not addressed by the Oil and Gas Act.

This duality in the Oil and Gas Act's supersession clause has been a source of controversy and litigation in Pennsylvania. The Act, for example, does not cover "[p]ractical issues such as noise, fencing, security, traffic, and dust."¹⁵⁵ Nor does it address the ability of municipalities to use zoning restrictions to limit shale gas extraction within their borders.¹⁵⁶ These gaps in the Oil and Gas Act have been filled by local ordinances.¹⁵⁷ These local rules not only have had the effect of limiting shale industry development in specific municipalities, but they also have the potential, collectively, to complicate the shale gas extraction process to the point that the Marcellus Shale becomes less attractive to energy companies relative to other domestic shale plays.¹⁵⁸

the Flood Plain Management Act shall contain provisions which impose conditions, requirements or limitations on the same features of oil and gas operations regulated by Chapter 32 or that accomplish the same purposes as set forth in Chapter 32. The Commonwealth, by this section, preempts and supersedes the regulation of oil and gas operations as provided in this chapter."'). This language is functionally identical to the language of the Oil and Gas Act's supersession provision prior to the Act's amendment in 2012. *See* S. 402, 1984 Reg. Sess. § 602 (as passed by Pa. Senate and House, Nov. 28, 1984) (repealed 2012) ("Except with respect to ordinances adopted pursuant to . . . the Pennsylvania Municipalities Planning Code, and . . . the Flood Plain Management Act, all local ordinances and enactments purporting to regulate oil and gas well operations regulated by this act are hereby superseded. No ordinances or enactments adopted pursuant to the aforementioned acts shall contain provisions which impose conditions, requirements or limitations on the same features of oil and gas well operations regulated by this act or that accomplish the same purposes as set forth in this act. The Commonwealth, by this enactment, hereby preempts and supersedes the regulation of oil and gas wells as herein defined.'). The litigation over the Oil and Gas Act's supersession provision discussed in this Part is based on the Act's pre-2012 language.

¹⁵⁴ *See* 58 PA. CONS. STAT. § 3302 (2012).

¹⁵⁵ Smith, *supra* note 14, at 13.

¹⁵⁶ *See Alerts and Updates: Wiggle Room for Marcellus Gas Drilling, or Potentially Reversible Error?*, DUANE MORRIS LLP (Aug. 10, 2010), http://www.duanemorris.com/alerts/local_regulation_marcellus_shale_drilling_3771.html.

¹⁵⁷ *See* Erich Schwartzel, *Marcellus Shale Driller Fighting South Fayette Ordinance*, PITTSBURGH POST-GAZETTE (Mar. 30, 2012, 3:43 AM), <http://www.post-gazette.com/pg/11229/1167781-503.stm?cmpid=business.xml> ("Throughout Western Pennsylvania, townships have passed ordinances that further regulate drilling beyond state law or take steps to mitigate side effects like road damage or noise control."); Maher, *supra* note 52 ("In the past 18 months, more than 100 Pennsylvania municipalities have enacted ordinances to limit or regulate such drilling. Local officials say such restrictions fall within a town's right to enforce zoning, much in the same way municipalities can prevent a chemical plant or prison from being built in the middle of a residential neighborhood."); Smith, *supra* note 14, at 13.

¹⁵⁸ *See* Maher, *supra* note 52 ("'We want something that's fair and reasonable,' said John

Currently, the ability of municipalities to regulate shale industry development is supported by Pennsylvania courts. In 2009, the Pennsylvania Supreme Court held, in *Huntley & Huntley v. Council of Oakmont*, that a local zoning ordinance preventing a gas driller from operating in a residential area was not preempted by the Oil and Gas Act.¹⁵⁹ Here, the court found that preemption only covered local laws similar to the Oil and Gas Act with respect to the “technical aspects of well functioning and matters ancillary thereto (such as registration, bonding, and well site restoration), rather than the well’s location.”¹⁶⁰ The Oil and Gas Act could not be used to preempt a local law seeking “only to control the location of wells consistent with established zoning principles.”¹⁶¹

The Pennsylvania government’s response to such Oil and Gas Act litigation has been relatively swift. In late 2011, both branches of the Pennsylvania legislature adopted bills seeking to update the Oil and Gas Act.¹⁶² These bills eventually became Act 13, which was signed into law in early 2012.¹⁶³ Act 13 seeks revenue from energy companies in the form of impact fees for individual wells¹⁶⁴ and, importantly, has the effect of restricting the ability of municipalities to implement zoning ordinances

Pinkerton, CEO of Fort Worth-based Range Resources Corp. He said developing the Marcellus is proving more complicated than other shale plays in part because of the greater number of municipalities in a state like Pennsylvania. “It’s like having to have a different drivers (sic) license in every township. You just can’t run a business that way.”)

¹⁵⁹ 964 A.2d 855 (Pa. 2009); Smith, *supra* note 14, at 13–15.

¹⁶⁰ *Huntley & Huntley v. Council of Oakmont*, 964 A.2d 855, 864 (Pa. 2009).

¹⁶¹ Smith, *supra* note 14, at 17. This is to be compared with *Range Resources-Appalachia, L.L.C. v. Salem Twp.*, where a local ordinance establishing a permit fee for oil and gas drilling was struck down under Oil and Gas Act preemption for impermissibly encroaching on the Act’s purposes, “broadly speaking,” of “optimizing oil and gas development, ensuring the safety of the personnel and facilities used in such development, protecting the property rights of neighboring landowners, and preserving the natural environment.” 964 A.2d 869, 876 (Pa. 2009). *Huntley*’s view of Oil and Gas Act preemption was subsequently applied in *Penneco Oil v. County of Fayette*. 4 A.3d 722, 732 (Pa. 2010) (“As in *Huntley*, we conclude that while there may be some overlap between the goals of Fayette County’s Zoning Ordinance and the purposes set forth in the Act, the most salient objectives underlying restrictions on oil and gas drilling in certain zoning districts appears in Fayette County to be those pertaining to preserving the character of residential neighborhoods, as well as each zoning district, and encouraging beneficial and compatible land uses.”).

¹⁶² S. 1100, 2011 Reg. Sess. (Pa. 2011); H.R. 1950, 2011 Reg. Sess. (Pa. 2011).

¹⁶³ See TERI OOMS ET. AL, EVOLUTION OF HB 1950 AND SB 1100—PENNSYLVANIA’S MARCELLUS SHALE IMPACT FEE—AND ASSESSMENT OF HB 1950 (ACT 13), at 1, 3 (2012), available at <http://energy.wilkes.edu/PDFFiles/Act%2013%20Assessment%2003%2019%202012.pdf>.

¹⁶⁴ 58 PA. CONS. STAT. § 2302 (2012). The lowest possible fee (with levels depending on the price of natural gas) for a well in its first year of operation is \$40,000, with fees decreasing as the age of the well increases. *Id.*

against shale drillers.¹⁶⁵

Specifically, under Act 13, Pennsylvania municipalities are granted the right to impose impact fees on any wells operating in their jurisdiction.¹⁶⁶ These impact fees may be paired with municipal zoning ordinances, so long as the ordinances do not infringe on the “reasonable development of oil and gas.”¹⁶⁷ Per section 3304 of the Act, “reasonable development” explicitly authorizes “oil and gas operations—other than activities at impoundment areas, compressor stations, and processing plants—as a permitted use in all zoning districts.”¹⁶⁸ Impoundment areas, compressor stations, and processing plants are also allowed, with the appropriate setbacks from other buildings.¹⁶⁹ If the Pennsylvania Public Utility Commission or a Pennsylvania state court rules that a municipality is unreasonably restricting development, the municipality will be unable to receive any of the impact fee revenue until the ordinance is changed.¹⁷⁰ Nor will a municipality receive any revenue if it refuses to impose an impact fee.¹⁷¹ The ultimate goal, at least in the eyes of Pennsylvania’s Republican Governor, Tom Corbett, is to use the impact fee as leverage for streamlining local laws in the name of encouraging natural gas development and creating more jobs.¹⁷²

Nevertheless, opponents of Act 13 still have hope. In July 2012, an appellate panel of judges for the Commonwealth Court of Pennsylvania voted to enjoin the State from enforcing section 3304 of the Act on federal

¹⁶⁵ See Thomas Y. Au, Op-Ed., *Legislators Would be Wise to Start Over with Marcellus Shale Bill*, PENNLIVE (Dec. 30, 2011, 5:30 AM), http://www.pennlive.com/editorials/index.ssf/2011/12/legislators_would_be_wise_to_s.html; Marc Levy, Associated Press, *GOP Lawmakers Seek Vote on Pa. Drilling Bill*, HUFFINGTON POST (Feb. 5, 2012, 11:54 AM), http://www.huffingtonpost.com/2012/02/05/pennsylvania-natural-gas-drilling-bill_n_1255759.html; Marc Levy, Associated Press, *Pennsylvania Act 13 Provisions Struck Down by Appellate Court*, HUFFINGTON POST (July 26, 2012, 2:19 PM), http://www.huffingtonpost.com/2012/07/26/pennsylvania-act-13-natural-gas_n_1706822.html; Sandy Long, *PA Legislation Could Trade Community Control for Drilling Fees*, RIVER REP. (Nov. 15, 2011), <http://www.riverreporteronline.com/news/14/2011/11/15/pa-legislation-could-trade-community-control-drilling-fees>; Robert Swift, *House, Senate Hammer Out Impact Fee Bills*, CITIZENS VOICE (Feb. 5, 2012), <http://citizensvoice.com/news/house-senate-hammer-out-impact-fee-bills-1.1267318#axzz11VJfiCim>.

¹⁶⁶ 58 PA. CONS. STAT. § 2302(a) (2012).

¹⁶⁷ *Id.* § 3304.

¹⁶⁸ *Id.* § 3304(b)(5).

¹⁶⁹ *Id.* § 3304(b)(6)–(8).

¹⁷⁰ *Id.* § 3308.

¹⁷¹ *Id.* § 2302.

¹⁷² See Long, *supra* note 165 (quoting the Governor as saying: “There are job creators well down the supply chain in the Marcellus Shale industry who are waiting to see if Pennsylvania will enact predicable and uniform standards before making capital investments in the Commonwealth. I do not want to make these job creators, nor these potential capital investments, wait any longer”).

and state constitutional grounds.¹⁷³ Specifically, in *Robinson Twp. v. Commonwealth*, the panel found that section 3304's authorization of oil and gas operations in all zoning districts violated the substantive due process of Pennsylvania municipalities, as "it [did] not protect the interests of neighboring property owners from harm, alter[ed] the character of neighborhoods, and [made] irrational classifications" for what must be included in zoning areas.¹⁷⁴ The ruling was seen as a win for local governance and those opposed to further development of the Marcellus Shale, and as a defeat for the Governor and the energy industry that he appears to support.¹⁷⁵

Predictably, proponents of Act 13 demanded a speedy review of the Commonwealth Court's decision by the Pennsylvania Supreme Court.¹⁷⁶ This review was held on October 17, 2012, with the Supreme Court listening to nearly two hours of arguments both for and against Act 13 in a hearing open to the public.¹⁷⁷ There is no timeline for the court's final ruling, putting the future of the Pennsylvania Oil and Gas Act on hold once again.¹⁷⁸

ii. Delaware River Basin Commission

In contrast to the regulatory flux surrounding the Oil and Gas Act, the policies of the Delaware River Basin Commission (DRBC), a non-federal, interstate regulatory body, are at least for the time being a concrete obstacle to Pennsylvania's shale drillers. Created by the Delaware River Basin Compact of 1961,¹⁷⁹ the DRBC is "a regional body with the force of law" tasked with regulating the portion of the Delaware River system located within the Commission's constituent states of Delaware, New Jersey, New York, and Pennsylvania.¹⁸⁰ There are five commissioners of the DRBC: the

¹⁷³ *Robinson Twp. v. Commonwealth*, 52 A.3d 463 (Pa. Commw. Ct. 2012).

¹⁷⁴ *Id.* at 484. The court went on to state: "If a municipality cannot constitutionally include allowing oil and gas operations, it is no more constitutional just because the Commonwealth requires that it be done." *Id.* at 485.

¹⁷⁵ See Levy, *supra* note 165.

¹⁷⁶ Laura Olson, *Pa. Officials Seek Review of Act 13 Shale Drilling Ruling*, PITTSBURG POST-GAZETTE (Aug. 1, 2012, 12:16 AM), <http://www.post-gazette.com/stories/local/marcellusshale/pa-officials-seek-review-of-act-31-shale-drilling-ruling-647058/>.

¹⁷⁷ Laura Olson, *Justices Hear Opinions on Marcellus Shale Drilling Law*, PITTSBURG POST-GAZETTE (Oct. 18, 2012, 12:04 AM), <http://www.post-gazette.com/stories/local/marcellusshale/justices-hear-opinions-on-marcellus-shale-drilling-law-657952/>.

¹⁷⁸ *Id.*

¹⁷⁹ Delaware River Basin Compact, Pub. L. No. 87-328, 75 Stat. 688 (1961).

¹⁸⁰ *About DRBC*, DEL. RIVER BASIN COMM'N, <http://www.nj.gov/drbc/about/> (last visited Nov. 8, 2012).

governor of each constituent state and the commander of the U.S. Army Corps of Engineers North Atlantic Division, who serves as the federal representative.¹⁸¹ The Delaware River Basin cuts through a wide swath of central Pennsylvania that, importantly, is subject to an ongoing DRBC moratorium on shale drilling.¹⁸²

Specifically, in May 2009, the DRBC banned any new shale gas drilling in the Delaware River Basin without prior Commission approval, while simultaneously announcing that no new approvals would be granted until the Commission had adopted new rules governing approvals.¹⁸³ According to DRBC Executive Director Carol R. Collier, the genesis of the moratorium was a concern with shale drilling's effect on water quality.¹⁸⁴ This concern was no doubt informed by the fact that the Delaware River Basin is responsible for the water supply of over 15 million people, including all of Philadelphia and half of New York City.¹⁸⁵

In this context, the DRBC issued draft fracking regulations in December 2010.¹⁸⁶ However, DRBC commissioners never voted on these regulations, and a continuous flow of public comment and environmental concern has kept votes on subsequent drafts from occurring.¹⁸⁷ The most current DRBC draft regulations would allow for the drilling of a maximum of 300 natural gas wells collectively between all energy companies permitted to operate in the Delaware River Basin.¹⁸⁸ The vote on this draft was postponed indefinitely from its already-delayed date of November 21, 2011, after Delaware Governor Jack Markell announced his intention to join the state of New York in voting against the draft regulations.¹⁸⁹ In postponing the vote, the DRBC claimed that it was allowing "additional time for review by the five commission members."¹⁹⁰ It was an event that

¹⁸¹ *Commissioners*, DEL. RIVER BASIN COMM'N, <http://www.state.nj.us/drbc/about/commissioners/> (last visited Feb. 5, 2012).

¹⁸² *Natural Gas Drilling Index Page*, DEL. RIVER BASIN COMM'N, <http://www.state.nj.us/drbc/programs/natural/> (last visited Feb. 5, 2012).

¹⁸³ McKay et al., *supra* note 127, at 131.

¹⁸⁴ *Id.*

¹⁸⁵ Associated Press, *DRBC Tweaks Proposed Gas Drilling Regulations*, WALL ST. J. (Nov. 8, 2011), <http://online.wsj.com/article/AP7f80ad53e651483eb2130415309ab5cb.html>.

¹⁸⁶ See McKay et al., *supra* note 127, at 131–32.

¹⁸⁷ In postponing its vote over the latest iteration of draft regulations from October 21, 2011 to November 21, 2011, the DRBC noted that it had received 69,000 public submissions and comments. See Amanda Cregan, *Vote Delayed on Drilling Regulations*, PHILLYBURBS.COM (Oct. 9, 2011, 5:00 AM), http://www.phillyburbs.com/my_town/new_hope/vote-delayed-on-drilling-regulations/article_899fa507-e1dd-510a-b5d4-8a10480bf6a1.html.

¹⁸⁸ Associated Press, *supra* note 185.

¹⁸⁹ Gerken, *supra* note 53.

¹⁹⁰ Press Release, Del. River Basin Comm'n, DRBC Postpones November 21 Special

many anti-drilling activists considered a victory.¹⁹¹

B. Alberta

1. Federal Laws

The Canadian Constitution gives the federal and provincial-level governments differing authority when it comes to the oil and gas industry. Specifically, provinces have the exclusive right to regulate their own non-renewable natural resources,¹⁹² while the federal government is responsible for issues relating to “fisheries, shipping, interprovincial trade and commerce, and criminal law.”¹⁹³ Thus, the federal government’s ability to regulate the environmental effects of the oil sands industry is constrained by the Alberta provincial government’s constitutional authority.

i. Kyoto Protocol

Despite its constitutional constraints, the Canadian federal government could have, at least in theory, reigned in the oil sands industry by regulating greenhouse gas emissions pursuant to its obligations under the Kyoto Protocol. Specifically, pursuant to Kyoto, Canada pledged to reduce its greenhouse gas emissions to at least 6% below their 1990 levels by 2012.¹⁹⁴ However, with compliance by the end of 2012 looking increasing impossible given its emissions output, Canada in late 2011 announced it was pulling out of the agreement, thereby limiting its impetus to regulate the oil sands even further.¹⁹⁵

Meeting: New Meeting Date Still to be Determined (Nov. 18, 2011), http://www.nj.gov/drbc/home/newsroom/news/approved/20111118_newsrel_naturalgas.html.

¹⁹¹ Gerken, *supra* note 53.

¹⁹² Constitution Act, 1867, 30 & 31 Vict., c. 92A (U.K.), *reprinted in* R.S.C. 1985, app. II, no. 5 (Can.) (“In each province, the legislature may exclusively make laws in relation to (a) exploration for non-renewable resources in the province; (b) development, conservation and management of non-renewable resources and forestry resources in the province, including laws in relation to the rate of primary production therefrom; and (c) development, conservation and management of sites and facilities in the province for the generation and production of electrical energy.”).

¹⁹³ OFFICE OF THE AUDITOR GEN. OF CAN., 2011 OCTOBER REPORT OF THE COMMISSIONER OF THE ENVIRONMENT AND SUSTAINABLE DEVELOPMENT 63 (2011), *available at* http://www.oag-bvg.gc.ca/internet/docs/parl_cesd_201110_02_e.pdf; *see also* Constitution Act c. 91.

¹⁹⁴ Wood et al., *supra* note 98.

¹⁹⁵ Ian Austen, *Canada Announces Exit From Kyoto Climate Treaty*, N.Y. TIMES, Dec. 13, 2011, at A15 (“Canada could meet its commitment only through extreme measures, like pulling all motor vehicles from its roads and shutting heat off to every building in the country.”); *see also* Wood et al., *supra* note 98.

The decision to abandon Kyoto came as a surprise to few, as in the short term the Canadian government saved itself from at least \$6 billion in fines it would have accrued for non-compliance.¹⁹⁶ Further, the move reflected the long-held, anti-Kyoto stance of the country's Conservative Party, which currently controls the federal government.¹⁹⁷ Indeed, ever since coming into power in 2006, current Prime Minister Stephen Harper's government has been "overtly hostile" to Kyoto, instituting only "soft" pro-Kyoto measures such as a Green Infrastructure Fund targeted at funding public transit and other similar ventures.¹⁹⁸

Underlying the Harper administration's attitude toward Kyoto and its relationship to the oil sands is the concept of "ethical oil."¹⁹⁹ This concept essentially posits that the oil produced in democratic countries such as Canada is morally preferable to "conflict oil" produced in countries with poor human rights records.²⁰⁰ The Canadian government planned to invoke the "ethical oil" concept at a meeting of the Conference of the Parties, the governing body of the Convention on Biological Diversity,²⁰¹ in order to justify Canada's heightened emissions.²⁰² This suggests that there may be

¹⁹⁶ \$6 billion is the low estimate for the amount Canada would have owed, per the Pembina Institute; the high estimate, per the Minister of the Environment Peter Kent, is \$14 billion. Austen, *supra* note 195.

¹⁹⁷ Kyoto was ratified under the rule of the opposing Liberal Party. *Id.*

¹⁹⁸ Wood et al., *supra* note 98, at 1010. The Green Infrastructure Fund was created in 2009 and, per the Canadian government, is designed to support projects that "promote cleaner air, reduced greenhouse gas emissions and cleaner water." *Green Infrastructure Fund*, INFRASTRUCTURE CAN., <http://www.infrastructure.gc.ca/prog/gif-fiv-eng.html> (last visited Nov. 15, 2012). For reference, it should also be noted that the Liberal governments, before current Prime Minister Harper, "were very slow to develop climate change policies and failed to implement any significant measures before they lost office in 2006." Wood et al., *supra* note 98, at 1010.

¹⁹⁹ See Egan, *supra* note 13. The concept of ethical oil was taken from a book recently published by Ezra Levant. See EZRA LEVANT, *ETHICAL OIL: THE CASE FOR CANADA'S OIL SANDS* (2010).

²⁰⁰ Trish Audette, *Canada to Defend Oilsands at Conference; It's All or Nothing in Reducing Emissions, Minister Says*, VICTORIA TIMES COLONIST, Nov. 27, 2011, at A11 (Can.), available at 2011 WLNR 24551024 ("The book essentially compares Canada's human rights record to those of other oil-producing countries, and argues Canada's 'ethical oil' is preferable to 'conflict oil' produced in countries with poor human rights records, such as Sudan, Venezuela, Saudi Arabia or Iran. The argument removes environmental issues, such as greenhouse gas emissions, from the equation, though Levant notes Alberta's data on environmental issues is more transparent than information shared by other countries.").

²⁰¹ *Conference of the Parties (COP)*, CONVENTION ON BIOLOGICAL DIVERSITY, <http://www.cbd.int/cop/> (last visited Nov. 27, 2011).

²⁰² Audette, *supra* note 200. Interestingly, although the author of the book "Ethical Oil" is not affiliated with the government, the government has been so supportive of the concept of ethical oil that there has been some controversy over whether the website www.ethicaloil.org is government-controlled or not. *Id.*

little risk of federal regulation under the guise of emissions control at least in the near future.

ii. Canadian Environmental Assessment Act

Repealed and subsequently re-enacted in mid-2012, the Canadian Environmental Assessment Act (CEAA) gives the federal government a somewhat limited degree of power over oil sands development.²⁰³ Specifically, the purpose of the CEAA is to ensure that certain “designated project[s]” carried out in Canada over which the federal government has authority do not cause “significant adverse environmental effects.”²⁰⁴ These environmental effects are, however, limited to the federal government’s direct authority over fish, other aquatic species, and migratory birds,²⁰⁵ since the federal government has no corresponding constitutional authority to directly regulate non-renewable natural resources.²⁰⁶ Moreover, the federal government cannot review types of projects that have not been “designated” as reviewable by Canada’s Minister of the Environment.²⁰⁷ Current Minister Peter Kent has limited reviewable oil sands projects solely to the creation of new processing plants producing over 10,000 cubic meters of oil per day,²⁰⁸ the expansion of existing processing plants by a production capacity of over 5,000 cubic meters of oil per day,²⁰⁹ and the creation of new mines producing over 10,000 cubic meters of bitumen per day.²¹⁰

Upon its enactment, the new CEAA was seen by environmental groups as more favorable to developers than its predecessor.²¹¹ Beyond noting its limitations for federal regulation of the oil sands sector, critics also focused on new provisions that imposed strict time limits on the environmental assessment process, a contemporaneous change to the Canadian Fisheries

²⁰³ See generally Canadian Environmental Assessment Act, 2012, S.C. 2012, c. 19, s. 52 (Can.); see also Juliet Eilperin, *Canadian Government Overhauling Environmental Rules to Aid Oil Extraction*, WASH. POST (June 3, 2012), http://www.washingtonpost.com/national/health-science/canadian-government-overhauling-environmental-rules-to-aid-oil-extraction/2012/06/03/gJQAYxx2BV_story.html.

²⁰⁴ Canadian Environmental Assessment Act s. 52, art. 4(1)(a).

²⁰⁵ See *id.* art. 5(1)(a)(i)–(iv);

²⁰⁶ See Constitution Act, 1867, 30 & 31 Vict., c. 91, 92A (U.K.), reprinted in R.S.C. 1985, app. II, no. 5 (Can.).

²⁰⁷ Canadian Environmental Assessment Act s. 52, art. 84(a).

²⁰⁸ Regulations Designating Physical Activities, SOR/2012-147, sch., para. 9(a) (Can.).

²⁰⁹ *Id.* para. 12.

²¹⁰ *Id.* para. 9(b).

²¹¹ See, e.g., Eilperin, *supra* note 203; Chris Plecash, *Feds Set to Release CEAA 2012 Regulations*, HILL TIMES, July 16, 2012, at 20, available at http://www.imperialoil.ca/Canada-English/operations_sands_kearl_overview.aspx (last visited Oct. 27, 2012).

Act that narrowed its focus (and thus, the federal government's ability to protect fish via the CEAA) to solely "commercial, recreational and aboriginal fisheries," and a vast reduction in the federal budget for environmental assessments.²¹² While there has been successful pro-environmental litigation in at least one instance under the older iteration of the CEAA,²¹³ it remains to be seen if the newer version of the law will be impacted in a similar manner.

iii. Tax Policy

Federal tax policy presents more of a threat to development than the CEAA. Though, as discussed earlier, the federal government provided accelerated cost recovery starting in the late 1990s to encourage oil sands development, Stephen Harper's Conservative administration has recently indicated a willingness to be less generous with the industry in this regard.²¹⁴

Specifically, the Harper government introduced a proposed budget in early 2011 that reduced the speed with which companies could write off expenses relating to the acquisition of oil sands leases and the development of new oil sands mines.²¹⁵ These rollbacks remained in the 2011 budget and were not removed,²¹⁶ even after Harper's re-election in May 2011.²¹⁷ To pro-drilling sources—such as Alberta's provincial government and the oil sands industry's trade group—such measures risked reducing the financial appeal of oil sands development and moving the sector's tax treatment away from that of the mining industry, its closest analogue.²¹⁸

²¹² Plecash, *supra* note 211.

²¹³ See *Pembina Inst. for Appropriate Dev. v. Can.*, [2008] F.C. 302 (Can.), available at <http://decisions.fct-cf.gc.ca/en/2008/2008fc302/2008fc302.pdf>. In *Pembina Inst. for Appropriate Dev.*, Canada's highest trial court ruled that the federal government must provide a cogent rationale for its conclusion in order to meet CEAA minimum standards for conducting an environmental assessment of an oil sands project. *Id.* para. 78; see also Toby Kruger, Note, *The Canadian Environmental Assessment Act and Global Climate Change: Rethinking Significance*, 47 ALTA. L. REV. 161 (2009). This decision appears to apply to the 2012 version of the CEAA in the sense that both it and the older version of the law have largely identical minimum standards for project review panels. See Canadian Environmental Assessment Act, 2012, S.C. 2012, c. 19, s. 52, art. 43(1)(d) (Can.); Canadian Environmental Assessment Act, S.C. 1992, c. 37, art. 34(c) (Can.) (repealed 2012).

²¹⁴ Vanderklippe & Tait, *supra* note 77.

²¹⁵ *Id.*

²¹⁶ See DEP'T OF FIN. CANADA, THE NEXT PHASE OF CANADA'S ECONOMIC ACTION PLAN: A LOW-TAX PLAN FOR JOBS AND GROWTH 310–12 (2011), available at <http://www.budget.gc.ca/2011/plan/Budget2011-eng.pdf>.

²¹⁷ Jeffrey Jones & Janet Guttman, *Canada Tories to Follow a Tax-Cut, Pro-Business Agenda*, REUTERS (May 3, 2011), <http://www.reuters.com/article/2011/05/03/us-politics-idUSTRE73Q44720110503>.

²¹⁸ Vanderklippe & Tait, *supra* note 77.

At the same time, however, Harper's rollbacks did not appear to be a complete deterrent to companies operating in the oil sands. First, oil sands leases and mines acquired prior to March 22, 2011 were grandfathered in under the previous, more favorable tax regime.²¹⁹ Second, many companies operating in the oil sands were focusing on developing existing leases and mines, and not necessarily on acquiring new assets.²²⁰ Finally, for some companies, tax treatment was not seen as the driving force in oil sands investment, at least relative to the massive potential for future resource development.²²¹

Moreover, rollbacks aside, Harper did not indicate that constraining Canada's oil industry was on his agenda after winning the 2011 federal election.²²² This suggests that the pre-election Harper government seemed, at most, to view the oil sands sector as a mature industry no longer needing tax incentives to encourage investment.²²³ The main calculus in considering the elimination of tax breaks, instead, seemed tied to the possibility of boosting federal tax revenues by nearly C\$3 billion over the next half decade.²²⁴

2. Provincial/Local Laws

Canada's Constitution proclaims that provinces have the exclusive right to regulate their own non-renewable natural resources.²²⁵ However, this preferred status has not resulted in a consistent framework regulating Alberta's oil sands as, much like in Pennsylvania, provincial and municipal interests have often clashed.

i. Resource Licensing

Regulation of oil sands development usually begins and ends with Alberta's provincial government. Municipal governments are not "consulted in any direct way when the provincial government sets its energy policy, establishes land use plans for the province, disposes of rights to develop Crown-owned oil and gas resources, or grants access to the surface of public lands."²²⁶ The provincial government's control over the

²¹⁹ See DEP'T OF FIN. CANADA, *supra* note 216, at 311–12.

²²⁰ Vanderklippe & Tait, *supra* note 77.

²²¹ *Id.*

²²² *Id.*

²²³ *Id.*

²²⁴ *Id.*

²²⁵ Constitution Act, 1867, 30 & 31 Vict., c. 92A (U.K.), reprinted in R.S.C. 1985, app. II, no. 5 (Can.).

²²⁶ Nickie Vlavianos & Chidinma Thompson, *Alberta's Approach to Local Governance in Oil and Gas Development*, 48 ALTA. L. REV. 55, 78 (2010).

resource licensing process is significant, as it owns approximately 97% of Alberta's oil sands mineral rights.²²⁷ In transferring these rights to potential developers, the provincial government traditionally has not been legally required to account for socio-economic or environmental concerns.²²⁸ Indeed, the process by which the provincial government transfers these rights is seemingly devoid of normative factors; instead, the highest bidder for advertised public oil and gas rights wins.²²⁹

In exchange for access to the provincial oil and gas rights, developers pay Alberta "[r]oyalties, bonus bid payments, and rents."²³⁰ This system of royalties illustrates where the royalties of the Alberta government lie when it comes to oil sands development and the environment. As discussed earlier, in 1997 the Alberta government imposed a generous royalty regime on oil sands projects in order to spur development in this sector.²³¹ While royalties for the oil and gas industry overall were increased in 2007, and thus made more punitive, this change was partially rolled back in early 2010.²³² All in all, Alberta's government seemingly viewed an increase in economic activity as being worth a smaller piece of the pie.²³³

ii. Energy Resources Conservation Board

Compared to the provincial government, Alberta's citizens and local governments are likely less disposed toward supporting oil and gas development.²³⁴ Indeed, recently adopted oil and gas procedures for the

²²⁷ *Facts and Statistics*, *supra* note 64.

²²⁸ Vlavianos & Thompson, *supra* note 226.

²²⁹ *Id.* at 67. The only things close to environmental considerations that are taken into account during this process are "any potential surface access restrictions that may be required by law or policy." *Id.* at 68. If, for example, the government is considering selling underground rights below a surface area for which seasonal access is restricted (in order to protect wildlife), the Crown Mineral Disposition Review Committee (CMDRC) has the power to decide not to put these rights up for sale. *Id.* There is no indication that CMDRC has used its power to curb oil sands development, however.

²³⁰ *Id.*

²³¹ WOYNILLOWICZ ET AL., *supra* note 7, at 3–4.

²³² Carrie Tait, *Alberta Revamps Oil and Gas Royalty Regime*, FINANCIALPOST.COM (Mar. 11, 2011, 9:31 PM), <http://www.financialpost.com/news-sectors/energy/story.html?id=2671896>.

²³³ *Id.*

²³⁴ See, e.g., Jenny Christensen, *Alberta's Tar Sands*, REVOLVE MAG. (July 14, 2012), <http://www.revolve-magazine.com/home/2012/07/14/albertas-tar-sands/> (discussing opposition to oil sands development by indigenous groups living in Alberta and local farmers); Samantha Power, *Environmentalism in Alberta?*, PARKLAND POST, Winter 2008, at 7, available at http://parklandinstitute.ca/downloads/posts/pp_2008_winter.pdf (commenting generally on the rise of environmental activism in Alberta, with the oil sands mentioned specifically as an area of concern); *Gov't Calls Green, Native Groups Oilsands "Adversaries,"* CTV NEWS (Jan. 26, 2012), <http://www.ctvnews.ca/gov-t-calls-green-native->

city of Edmonton suggest that this sentiment exists even in Alberta's capital city:

These principles clearly summarize Edmonton's concerns and are indicative of the concerns of other municipalities as well. They are: (a) ensuring the safety of the public, including the minimization and prevention of risks to citizens' health and well-being; (b) enabling the citizens of Edmonton to enjoy the best possible quality of life (social, health, economic, and environmental); (c) minimizing and managing nuisances from oil and gas activities ("including noise, odours, dust, glare, traffic and aesthetic concerns"); (d) ensuring that oil and gas activity does not negatively affect the City's ability to undertake urban development; (e) ensuring that the City's environmental policies (for example, the prevention of pollution) are achieved in conjunction with oil and gas development; (f) ensuring that the development of city infrastructure and oil and gas resources is balanced with protecting health, safety, and the interests of citizens.²³⁵

Accordingly, it seems reasonably clear that municipal interests are not always aligned with those of Alberta's provincial government.

Though opportunities do exist for municipalities to voice their concerns in a legally binding manner, these avenues do not appear to be particularly fruitful. One such avenue deals with the approval of oil and gas projects. Although Alberta has the exclusive power to grant oil and gas rights to private owners, it at times has to take into account the input of outside parties when approving discrete oil and gas projects. Here, the relevant provincial entity is the Energy Resources Conservation Board (ERCB), which has the power to approve projects so long as they benefit not just the project's applicant but also Alberta's residents in general.²³⁶

If a municipality objects to a specific approval, it may call for a public hearing so long as its rights are "directly and adversely" affected by the approval.²³⁷ This requirement, however, has been particularly difficult for municipalities to meet.²³⁸ Moreover, in most cases municipalities will not be entitled to cost recovery when participating in a public hearing, which financially discourages their participation.²³⁹

groups-oilsands-adversaries-1.759162.

²³⁵ Vlavianos & Thompson, *supra* note 226, at 68.

²³⁶ *Id.* at 71.

²³⁷ *Id.* at 72.

²³⁸ *See generally id.* at 72–74 (discussing two recent examples of municipalities being denied standing in ERCB proceedings).

²³⁹ *Id.* at 78.

iii. Municipal Government Act

Another regulatory option, at least in theory, for local governments is Alberta's Municipal Government Act (MGA), which grants municipalities power to exercise control over land use and development within their boundaries.²⁴⁰ However, section 618 of the MGA specifically prohibits municipalities from determining the use of oil and gas wells, batteries, and pipelines within their territories.²⁴¹ This reflects the Alberta legislature's general view that "as the lifeblood of Alberta's economy," oil and gas operations should "not be subjected to local control that might vary from place to place."²⁴²

Section 619 of the MGA gives municipalities some degree of power, allowing local governments to regulate elements of the oil sands industry not explicitly mentioned in section 618.²⁴³ Yet, local government authority is once again severely constrained in application, as municipalities may not regulate an infrastructure item falling under section 619 that the ERCB has previously dealt with in one of its own approvals.²⁴⁴ Thus, the MGA, though seemingly applicable to development within municipalities, is likely to be only a minimal hurdle for oil sands drillers to overcome.

iv. Alberta Land Stewardship Act

The MGA aside, municipalities may also now take advantage of the recently enacted Alberta Land Stewardship Act (ALSA).²⁴⁵ The ALSA grants Alberta's Lieutenant Governor in Council the power to create subdivisions within the province and "regional plans" regulating land use in these areas.²⁴⁶ As of late 2012, the Alberta government has created seven planning areas.²⁴⁷ Although the Lieutenant Governor has "exclusive and final jurisdiction" over the contents of each regional plan,²⁴⁸ he or she may create "regional advisory councils" in each planning area to help with the creation and implementation of the plan.²⁴⁹ Members of a regional advisory council can include, among others, municipal officials.²⁵⁰

²⁴⁰ Alberta Municipal Government Act, R.S.A. 2000, c. M-26, s. 7 (Can.).

²⁴¹ *Id.* s. 618(1)(b)–(c).

²⁴² Vlavianos & Thompson, *supra* note 226, at 79.

²⁴³ *Id.* Parts of the oil sands industry potentially under local purview here include processing plants and, indeed, oil sands mines themselves. *Id.*

²⁴⁴ Alberta Municipal Government Act s. 7, art. 619(4).

²⁴⁵ Alberta Land Stewardship Act, R.S.A. 2009, c. A-26.8 (Can.).

²⁴⁶ *Id.* arts. 3–4.

²⁴⁷ See Alan Harvie & Trent Mercier, *The Alberta Land Stewardship Act and Its Impact on Alberta's Oil and Gas Industry*, 48 ALTA. L. REV. 295, 298 (2010).

²⁴⁸ Alberta Land Stewardship Act s. 13(1).

²⁴⁹ See generally *id.* s. 52.

²⁵⁰ See Harvie & Mercier, *supra* note 247, at 299.

The regional development guidelines created with the help of the Regional Advisory Councils have the force of law in that they must be taken into account by other license-granting bodies within the provincial government.²⁵¹ This means that the provincial government must now make sure that any disposition of oil and gas resources complies with any development restrictions imposed by regional plans.²⁵² Similarly, the ERCB must now take heed of regional plans when approving energy projects.²⁵³ This is a significant change—one that departs from the regulatory regime described above and has the potential to swing the power dynamic in favor of municipalities.

The Lower Athabasca Regional Plan (LARP), the regional plan covering the location of the oil sands, was announced on August 22, 2012, and took effect on September 1, 2012. Though its impact on the province's overall regulatory scheme remains unclear,²⁵⁴ a review of the language of the LARP yields several important details about the province's posture towards the oil sands going forward. First, the LARP is a ten-year plan, with the province reserving the right to update it every five years.²⁵⁵ The LARP's "Strategic Plan" for the future references economic development first, and specifically lists goals such as increasing the yield of oil sands recovery and "optimizing the economic potential of the resource," albeit in "ways that are environmentally sustainable and socially acceptable."²⁵⁶ The LARP's "Vision for the Lower Athabasca Region" echoes its Strategic Plan, mentioning the desire to "support development of the region and its oil sands reserves" before noting the importance of the region's "air, water, land[,] and biodiversity."²⁵⁷

This is not to say that the LARP is devoid of regulatory specifics, however. Rather, the LARP authorizes the government to set legally binding triggers and limits for a variety of chemical compounds for the purpose of maintaining air and water quality.²⁵⁸ The LARP also increases conservation land in the region by more than 1.5 million hectares, protecting approximately 22% of Lower Athabasca, including preexisting

²⁵¹ *Id.* at 303–04.

²⁵² *Id.*

²⁵³ *Id.* at 304.

²⁵⁴ Nathan Vanderklippe, *Alberta Gives Way to Oil Patch in Land Protection Plan for Lower Athabasca*, GLOBE & MAIL (Aug. 22, 2012, 4:18 PM), <http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/alberta-releases-land-protection-plan-for-lower-athabasca/article4493633/>.

²⁵⁵ GOV'T OF ALTA., LOWER ATHABASCA REGIONAL PLAN 2012–2022, at 2 (2012), available at <https://www.landuse.alberta.ca/LandUse%20Documents/Lower%20Athabasca%20Regional%20Plan%202012-2022%20Approved%202012-08.pdf>.

²⁵⁶ *Id.* at 14.

²⁵⁷ *Id.* at 22.

²⁵⁸ *Id.* at 73–78.

conservation land, from any development.²⁵⁹ This land includes 340,000 hectares of presumably viable territory already controlled by oil and gas companies.²⁶⁰ Importantly, the LARP's conservation efforts appear to have gained preliminary support from the influential Pembina Institute, which lauded Alberta's government for its efforts and called the LARP a "promising start" to "responsible oil sands development."²⁶¹

Nevertheless, the energy industry does not appear to be particularly deterred by the LARP.²⁶² For one, the final version of the LARP included an important concession to developers, reducing the amount of economically viable conservation land by more than 31,000 hectares over earlier versions of the Plan.²⁶³ Moreover, much of the land protected by the LARP and its non-binding draft versions is located far from the oil sands' home base of Fort McMurray, in areas with "little or no industrial activity."²⁶⁴ Finally, since the terms of reference for the LARP were released in mid-2009,²⁶⁵ there has been only an uptick in commercial interest in the oil sands, as evidenced by the flurry of recent merger activity discussed earlier.

v. Alberta's Emissions Controls

Finally, Alberta's government has tried to regulate the oil and gas industry through greenhouse gas emissions rules. The foundational elements in Alberta's scheme are the Climate Change and Emissions Management Act (CCEMA),²⁶⁶ the CCEMA's accompanying Specified Gas Emitters Regulation,²⁶⁷ and Alberta's 2008 Climate Change Strategy.²⁶⁸

The Specified Gas Emitters Regulation, enacted in 2007, supplemented the CCEMA by requiring already-existing facilities emitting over 100,000 tonnes of greenhouse gases to both reduce emissions intensity

²⁵⁹ *Id.* at 83–84.

²⁶⁰ Vanderklippe, *supra* note 254. These companies must now negotiate for compensation from the government in exchange for the land. *Id.*

²⁶¹ Press Release, Pembina Inst., Pembina Reacts to Tabling of the Lower Athabasca Regional Plan (Aug. 22, 2012), <http://www.pembina.org/media-release/2368>.

²⁶² Vanderklippe, *supra* note 254; *see also*, Press Release, S. Pac. Res. Corp., Southern Pacific Expects Minimal Impact from Alberta's Draft Lower Athabasca Regional Plan (Apr. 5, 2011), <http://www.reuters.com/article/2011/04/06/idUS37660+06-Apr-2011+MW20110406>.

²⁶³ Vanderklippe, *supra* note 254.

²⁶⁴ Harvie & Mercier, *supra* note 247, at 316.

²⁶⁵ *See id.*

²⁶⁶ Climate Change and Emissions Management Act, R.S.A. 2003, c. C-16.7 (Can.).

²⁶⁷ Specified Gas Emitters Regulation, Alta. Reg. 139/2007 (Can.).

²⁶⁸ GOV'T OF ALTA., ALBERTA'S 2008 CLIMATE CHANGE STRATEGY (2008), *available at* <http://environment.gov.ab.ca/info/library/7894.pdf>.

by 12% in 2007 and maintain reduced emissions in the future.²⁶⁹ Emissions intensity, as opposed to emissions in absolute terms, refers to total emissions created per one unit of production.²⁷⁰ Thus, emissions intensity can theoretically be reduced while overall emissions are actually increased. Regardless, in cases of non-compliance, offenders must buy credits from one of three sources: emitters in the same industry that have reduced emissions by more than the required amount (thus earning the credits), emitters in other industries that have done the same (these credits are technically called “offsets”), or the Alberta government itself, at a rate of C\$15 per non-compliant tonne donated into an Alberta-based technology fund.²⁷¹

Alberta’s 2008 Climate Change Strategy (2008 Strategy) was created in the context of the regulations above, and in response to the strong likelihood that Alberta would not meet its own provincial obligations under the Kyoto Protocol.²⁷² The 2008 Strategy is not legally binding, but is rather an aspirational document aimed at setting the stage for future action.²⁷³ Its primary goal is to mitigate emissions through efficient energy usage, carbon capture and sequestration, and greening energy production.²⁷⁴

Overall, the 2008 Strategy aims to reduce net greenhouse gas emissions by fifty megatonnes by 2020, and by 200 megatonnes over business as usual levels by 2050.²⁷⁵ Carbon capture and sequestration

²⁶⁹ Alta. Reg. 139/2007, s. 3–4.

²⁷⁰ *Id.* s. 1(1)(b).

²⁷¹ Press Release, Gov’t of Alta., Industry Has Three Options for Meeting Emissions Targets (Mar. 8, 2007), <http://alberta.ca/home/NewsFrame.cfm?ReleaseID=/acn/200703/21142336C71FD-D012-F54F-468B7C8FB604858B.html>; *see also* Jodie Hierlmeier, *Greenhouse Gas Regulation 101*, 22 ENVTL. L. CTR. NEWS BRIEF, no. 4, 2007, at 1, 1, available at http://www.elc.ab.ca/Content_Files/Files/NewsBriefs/GreenhouseGasRegulation101.pdf. It should also be noted that the C\$15 per tonne penalty is the practical consequence of non-compliance. Technically, if an emitter misses the required reduction and takes no action at all, the emitter will be fined at a rate of C\$200 per tonne. Alta. Reg. 139/2007, s. 28(1). Thus, for all intents and purposes, the oil and gas industry recognizes the cost of non-compliance to be C\$15 per tonne. *See* Brian Burton, *Alberta Needs Others to Follow*, CALGARY HERALD (Oct. 19, 2011), <http://www.calgaryherald.com/technology/Alberta+needs+others+follow/5563307/story.html>.

²⁷² Meadows & Crossman, *supra* note 99, at 428, 432.

²⁷³ *See* GOV’T OF ALTA., *supra* note 268, at 10 (“This strategy outlines an initial set of key actions to be taken over the next several years. Specific actions will be outlined in a follow-up implementation plan.”).

²⁷⁴ *Id.* at 7.

²⁷⁵ *Id.* While the 2008 Strategy does not define “business as usual,” the government’s position on the term is “a projection of emissions and output that would have occurred in the absence of the regulations.” *Regulatory Framework for Air Emissions*, ENV’T CAN., http://www.ec.gc.ca/doc/media/m_124/p7_eng.htm (last visited Feb. 6, 2012).

technology is a key part of the program's hopes—the 2008 Strategy relies on the technology for 70% of projected greenhouse gas emission reductions by 2050.²⁷⁶

Ultimately, however, the emissions reductions contemplated by the 2008 Strategy do not necessarily present a significant impediment to future oil sands development. The 2008 Strategy, after all, does not itself prohibit current and future oil sands projects; it only sets net reduction targets. Similarly, the CCEMA only requires a reduction in emissions intensity. Thus, the province's ability to meet its projected targets relies just as much on technology and an increase in emissions efficiency as it does on limiting future oil sands development. This increase in efficiency does not appear illusory; the emissions intensity of the oil sands industry fell by 29% between 1990 and 2009, before increasing by 2% between 2009 and 2012.²⁷⁷ The industry is confident that per-barrel greenhouse gas emissions will fall to the level of conventional oil drilling within the next ten to fifteen years.²⁷⁸

IV. DISCUSSION: COMPARING FOSSIL FUEL REGULATION IN PENNSYLVANIA AND ALBERTA

Having addressed many of the major regulatory hurdles to unconventional fossil fuel extraction in Pennsylvania and Alberta, this Comment asks in this Part which of these venues would be more attractive to a hypothetical, resource-agnostic energy company looking for drilling opportunities. To reach a conclusion in this regard, this Comment seeks to differentiate how the regulatory regimes discussed in Part III treat their respective natural resources.

This is not to suggest that Pennsylvania and Alberta's regimes are polar opposites, however. These regulatory regimes are far more similar than they are different. On the whole, it is safe to say that favorable, business-friendly conditions for drilling exist in each region.

The federal governments in the United States and Canada, for instance, are relatively supportive of the unconventional oil and gas industry.²⁷⁹ Federal regulations in both countries generally appear to be tolerant of the

²⁷⁶ Meadows & Crossman, *supra* note 99, at 434.

²⁷⁷ *Oilsands' Emissions Rising*, CBC NEWS (Dec. 16, 2011), <http://www.cbc.ca/news/technology/story/2011/12/16/pol-capp-oil-industry-emissions-report.html> (“The 2010 two percent increase marks a small chink in [the industry's] record.”).

²⁷⁸ van Loon, *supra* note 97.

²⁷⁹ See Egan, *supra* note 13 (discussing Canadian Prime Minister Stephen Harper); Ayesha Rascoe & Edward McAllister, *Obama Backs Shale Drilling*, REUTERS (Jan. 25, 2012), <http://www.reuters.com/article/2012/01/25/us-usa-obama-speech-energy-idUSTRE80006P20120125>.

methods used to extract these fossil fuels from the ground.²⁸⁰ Unconventional fossil fuel extraction also enjoys the support of the state/provincial governments of both regions.²⁸¹

Further, state and provincial governments in both regions are moving to limit the power of municipalities to regulate the oil and gas activities occurring within their borders. In Alberta, local governments have trouble using the Energy Resources Conservation Board (ERCB) to appeal specific oil sands approvals,²⁸² and are essentially barred from using the Municipal Government Act (MGA) to limit development.²⁸³ While the Alberta Land Stewardship Act (ALSA) in theory allows for a regional voice in planning oil sands development, the language of the Lower Athabasca Regional Plan (LARP) still seems to favor the energy sector above all else.²⁸⁴ The situation is similar, albeit more tenuous, in Pennsylvania, where the passage and potential enforcement of Act 13 threatens the progress made by municipal governments via the Pennsylvania Supreme Court's 2009 ruling in *Huntley & Huntley v. Council of Oakmont*. In any case, in both Pennsylvania and Alberta, the local constituencies that are typically most concerned with the negative impact of oil and gas extraction are seeing their authority threatened.²⁸⁵

Nevertheless, regulation is not identical in Pennsylvania and Alberta. Differences in status quo regulatory schemes do exist, as do differences in attitude among certain regulatory actors. This Comment contends that these issues lead to three primary regulatory divergences between the two regions.

²⁸⁰ See *supra* Part III.A.1 (discussing the EPA and fracking); *supra* Part III.B.1 (discussing the Kyoto Protocol and Canada's greenhouse gas output).

²⁸¹ See *supra* notes 162–172 and accompanying text (discussing Pennsylvania's pro-shale gas industry laws); O'Grady, *supra* note 17 (discussing Alberta's support of the oil and gas industry). It should also be noted that Premier Redford's main political opposition, the Wildrose Party, is even more in favor of oil sands development than she is. See Claudia Cattaneo, *Wildrose, Conservatives Pitch Differing Versions of Future Oil Patch*, FIN. POST (Apr. 20, 2012, 6:58 PM), <http://business.financialpost.com/2012/04/20/differing-visions-of-future-oil-patch-in-alberta-election-fight/>.

²⁸² See *supra* notes 236–239 and accompanying text.

²⁸³ See *supra* notes 240–242 and accompanying text.

²⁸⁴ See *supra* notes 254–255 and accompanying text.

²⁸⁵ See, e.g., Christensen, *supra* note 234; Power, *supra* note 234; *Gov't Calls Green, Native Groups Oilsands "Adversaries," supra* note 234; Vlavianos & Thompson, *supra* note 226, at 61–64 (discussing why constituencies at the local or municipal level might seek to limit oil and gas development more than those controlling more "centralized" regulatory powers).

A. There is a Greater Risk of Increased Federal Regulation in the United States than in Canada

Although the federal governments of the United States and Canada seem favorably disposed towards the unconventional fossil fuel industry, there may be greater risk of increased federal control over the extraction process in the United States. The possibility of increased federal control is driven by the actions of two entities: the EPA and U.S. Congress.

The EPA likely has the ability to spur increased federal regulation by finding a concrete link between hydraulic fracturing and water contamination. An initial progress report on its study of the subject is due in late 2012.²⁸⁶ Though many of the EPA's recent actions²⁸⁷ have suggested that it may be pessimistic (or even indifferent) about fracking's relationship with water quality, the Agency's own testing has already begun to establish such a relationship.²⁸⁸ Moreover, in April 2012 the EPA gave notice of its intent to regulate fracking under the Clean Air Act, issuing rules that will be fully implemented by 2015.²⁸⁹ Among other things, oil and gas wells must now have equipment able to capture escaping volatile organic compound emissions.²⁹⁰ While major drillers do not view the EPA's "green completion" requirement as a huge burden,²⁹¹ its mere existence does suggest that the EPA may now be ready to further regulate fracking.

If the EPA does establish a connection between fracking and groundwater contamination, Congress may be inclined to revisit amending the Safe Drinking Water Act (SDWA) through passage of the Fracturing Responsibility and Awareness of Chemicals Act (FRAC Act).²⁹² If the FRAC Act were to pass, its impact on shale gas drillers would likely be significant. The cost of compliance with EPA permitting requirements and inspections could reach as high as \$100,000 per new well drilled.²⁹³

²⁸⁶ U.S. ENVTL. PROT. AGENCY, *supra* note 130.

²⁸⁷ See *supra* notes 132–135 and accompanying text.

²⁸⁸ Drajem, *supra* note 134.

²⁸⁹ U.S. ENVTL. PROT. AGENCY, OVERVIEW OF FINAL AMENDMENTS TO AIR REGULATIONS FOR THE OIL AND NATURAL GAS INDUSTRY: FACT SHEET 1 (Apr. 17, 2012), available at <http://www.epa.gov/airquality/oilandgas/pdfs/20120417fs.pdf>. This is the first time that the EPA has used the Clean Air Act to regulate fracking. *Id.*

²⁹⁰ *Id.*

²⁹¹ Jim Efstathiou Jr., *Drillers Say Costs Manageable from Pending Gas Emissions Rule*, BLOOMBERG (Apr. 17, 2012, 5:00 A.M.), <http://www.bloomberg.com/news/2012-04-17/drillers-say-costs-manageable-from-pending-gas-emissions-rule.html>.

²⁹² Tom Wilber, *Status of the FRAC Act: Gone Today, Here Tomorrow?*, SHALE GAS REV. (Jan. 5, 2012), <http://tomwilber.blogspot.com/2012/01/status-of-frac-act-gone-today-here.html> (commenting on a discussion with a representative for New York Representative Maurice Hinchey, an initial author of the FRAC Act).

²⁹³ TIEMANN & VANN, *supra* note 120, at 27 (citing a U.S. Department of Energy estimate).

Permitting under the SDWA could also duplicate permitting at the state level, wasting a driller's time and resources.²⁹⁴ Finally, the SDWA's citizen suit provision could cause headaches for drillers, as they would be exposed to the threat of "litigation, injunction[,] or other delay tactics" from those opposed to shale drilling.²⁹⁵ Though passage of the FRAC Act is unlikely, the risk of regulation under the SDWA is an outcome a driller may want to avoid if given the choice.

Regardless, the mere existence of the FRAC Act suggests that the chances of increased federal regulation in the United States are higher than those in Canada, which is constrained both politically and constitutionally. Politically, the Harper administration has only made oil sands extraction easier by pulling out of the Kyoto Protocol and generally taking a favorable stance to the oil sands industry in spite of changes to the tax code. Constitutionally, the federal government cannot pass laws that directly regulate non-renewable resources.²⁹⁶ Rather, it is limited to regulating the oil sands under the re-enacted Canadian Environmental Assessment Act (CEAA), which is more favorable to development than its predecessor.²⁹⁷ Thus, at the federal level, drillers are likely to face higher regulatory hurdles in the United States.

B. Restrictive Municipal Regulation is a Greater Threat in Pennsylvania than it is in Alberta

As mentioned previously, provincial regulation in Alberta via the ERCB, MGA, and ALSA places shackles on rulemaking at the local level. Though the LARP created under the ALSA has not had sufficient time to fully impact local communities, its language and general non-interference with land used for oil sands extraction suggests that it is predominately a pro-industry document.²⁹⁸ Moreover, the LARP has gained some degree of support from the influential Pembina Institute.²⁹⁹ This suggests that there actually may be few local objections (at least in the environmental arena) to Alberta's treatment of the oil sands, at least at this point.

Environmental objections to shale drilling in Pennsylvania, on the other hand, are both numerous and fierce.³⁰⁰ Using zoning powers currently supported by the Pennsylvania Supreme Court's decision in *Huntley*,³⁰¹

²⁹⁴ *Id.*

²⁹⁵ *Id.* (quoting an oil and gas industry report).

²⁹⁶ Constitution Act, 1867, 30 & 31 Vict., c. 91 (U.K.), reprinted in R.S.C. 1985, app. II, no. 5 (Can.).

²⁹⁷ See Plecash, *supra* note 211.

²⁹⁸ See *supra* notes 262–65 and accompanying text.

²⁹⁹ Press Release, Pembina Inst., *supra* note 261.

³⁰⁰ See *supra* notes 53–61 and accompanying text.

³⁰¹ *Huntley & Huntley v. Council of Oakmont*, 964 A.2d 855, 864 (Pa. 2009).

municipalities have created local laws that make drilling confusing and potentially unprofitable for shale drillers.³⁰² Though such provisions are perhaps of dubious legality, municipalities have even attempted to enact outright bans of shale drilling within their borders.³⁰³

Of course, many of these regulatory hurdles will disappear if Pennsylvania's Supreme Court reverses *Robinson Twp. v. Commonwealth* and the State is allowed to implement section 3304 of Act 13. This provision, when combined with the impact fees instituted by Act 13, gives the Pennsylvania Oil and Gas Act a carrot-and-stick character that both encourages local governments to drop anti-shale zoning laws in exchange for revenue, and punishes these governments for failing to comply. Though some municipalities will inevitably hold out, the parts of Pennsylvania capable of receiving a great deal of impact fee revenue seem likely to fall in line with the state's pro-drilling agenda.³⁰⁴

³⁰² Maher, *supra* note 52.

³⁰³ A municipal ban on shale drilling would prevent the reasonable development of oil and gas resources and thus violate section 3304 of Act 13. 58 PA. CONS. STAT. § 3304 (2012). If *Robinson Twp.* is upheld, however, the issue of a ban's legality becomes closer. Particularly at issue is section 10603 of the Pennsylvania Municipal Planning Code, which requires that local zoning ordinances "provide for the reasonable development of minerals in each municipality." 53 PA. CONS. STAT. § 10603(i) (2012). Range Resources, a prominent driller in Pennsylvania, has already challenged a municipal ban on these grounds, although this case has yet to be resolved. Andrea Iglar, *South Fayette Challenge to Drilling Rules Heads to Court*, PITTSBURG POST-GAZETTE (Jan. 19, 2012, 5:08 AM), <http://www.post-gazette.com/pg/12019/1204337-55-0.stm?cmpid=marcellusshale.xml>. A similar ban in the city of Pittsburgh has already drawn the ire of Pennsylvania's Public Utilities Commission. Laura Olson & Joe Smydo, *PUC Says Pittsburgh's Ban on Natural Gas Extraction Conflicts with State Law*, PITTSBURG POST-GAZETTE (Sep. 11, 2012, 2:37 PM), <http://www.post-gazette.com/stories/local/neighborhoods-city/puc-says-pittsburghs-ban-on-natural-gas-extraction-conflicts-with-state-law-652858/#ixzz26CWnyggO>.

Nevertheless, moratoriums remain a threat to drillers. In 2011, referendums to ban drilling appeared on ballots in State College, Peters Township, and Warren. Janice Crompton, *Bid to Ban Drilling in Peters is Defeated; Voters in State College Succeed*, PITTSBURG POST-GAZETTE (Nov. 9, 2011, 12:35 AM), <http://www.post-gazette.com/pg/11313/1188498-503.stm>. The referendum passed in State College, though this region is less relevant to current Marcellus Shale drillers due to its proximity to the lower-lying Utica Shale play, which is being developed mainly in Ohio. See *Utica Shale Oil Play Update*, SEEKING ALPHA (Sept. 8, 2011), <http://seekingalpha.com/article/292408-utica-shale-oil-play-update>. The referendums in Peters Township and Warren failed, primarily due to public concern over the economic ramifications of such measures. Crompton, *supra* note 303.

³⁰⁴ See, e.g., Laura Olson, *Pa. Could Withhold South Fayette's Impact Fee Revenue*, PITTSBURG POST-GAZETTE (Oct. 19, 2012, 12:17 AM), <http://www.post-gazette.com/stories/local/marcellusshale/pa-could-withhold-south-fayettes-impact-fee-revenue-658235/>. While South Fayette is willing to forgo about \$2,700 in impact fee revenue for the sake of maintaining tight regulations, it remains to be seen if other municipalities are willing to sacrifice checks from the state government at least one-hundred

Nevertheless, Pennsylvania drillers cannot yet count on a predictable, business-friendly regulatory environment paid for by Act 13 impact fees. Instead, entrants into the region must deal with a status quo of inconsistent local regulation, as well as a ban on drilling throughout much of central Pennsylvania courtesy of the Delaware River Basin Commission (DRBC). Much like the Pennsylvania Supreme Court's pending decision in *Robinson Twp.*, there is no set timeline for a vote on the DRBC's draft regulations.³⁰⁵ This puts drilling in Pennsylvania in a true state of flux—a situation that is likely less attractive to a resource-agnostic developer than the prospect of drilling in Alberta.

C. Worst-Case Regulatory Scenarios: Outright Drilling Ban in
Pennsylvania vs. Emissions Limits in Alberta

The DRBC's moratorium on drilling and the pending appeal in *Robinson Twp.* illustrate the dangerous potential endgame for drillers in the Marcellus Shale. In the worst-case scenario for these drillers, the DRBC ban would continue indefinitely, and *Robinson Twp.* would be upheld. The very possibility of gas drilling in many parts of Pennsylvania would then be imperiled by either the DRBC moratorium or municipalities that once again have the license to use zoning laws to severely limit fracking within their borders. In other words, the worst-case scenario would be a reversion to, and most likely an extension of, the state's current regulatory uncertainty.

As a general matter, no such risk exists in Alberta. While the LARP reserves 340,000 hectares (or 3,400 square kilometers) of commercially viable oil sands for conservation,³⁰⁶ this is only a small percentage of the 149,000 square kilometers of oil sands located in Alberta.³⁰⁷ For all intents and purposes, the most stringent limitation of the daily extraction and processing of oil sands are greenhouse gas emissions intensity limits set by the Alberta Specified Gas Emitters Regulation. If a driller has exceeded its emissions intensity limit under this law, it in theory will at least have to partially stop drilling.

However, because this law regulates emissions intensity and not absolute emissions, drillers can continue increasing oil sands extraction output so long as they emit greenhouse gasses more efficiently.³⁰⁸ Currently, the oil sands industry is confident in its ability to increase this efficiency.³⁰⁹ This suggests that on some level the Specified Gas Emitters

times that size. *Id.*

³⁰⁵ Gerken, *supra* note 53.

³⁰⁶ Vanderklippe, *supra* note 254.

³⁰⁷ WOYNILLOWICZ ET AL., *supra* note 7, at 1.

³⁰⁸ See *supra* notes 269–278 and accompanying text.

³⁰⁹ van Loon, *supra* note 97.

Regulation is no real barrier to oil sands extraction at all.

Moreover, even if drillers fail to comply with the Specified Gas Emitters Regulation's emissions intensity targets, they can still continue to emit as much greenhouse gas as they want. All they have to do to compensate for these emissions is buy credits or pay a C\$15 fine for each non-compliant tonne of greenhouse gas emitted.³¹⁰ A fine of this size does not appear to be a deterrent to continued oil sands extraction.³¹¹ Nor is the fine high enough to incentivize drillers to lower emissions through an investment in the carbon capture and sequestration technology favored by the Alberta 2008 Strategy.³¹² Further, there is no indication that the fee will ever increase, as Alberta does not appear inclined to antagonize the oil sands industry thriving within its borders.³¹³

V. CONCLUSION

Ultimately, this Comment concludes that a hypothetical energy company indifferent to investing in Alberta's oil sands or Pennsylvania's shale would be better served by choosing the former, based solely on the relative business friendliness of its federal, provincial, and local regulatory scheme. Alberta's business friendliness relative to Pennsylvania manifests itself in three primary ways.

First, there is less risk of increased federal regulation of unconventional fossil fuel extraction in Canada, compared to the United States. Second, Alberta's current provincial laws leave less room for potentially unfavorable local-government rulemaking than do the state laws of Pennsylvania. Finally, there is little risk of an outright ban on oil sands extraction in Canada, while the risk of a ban is higher in Pennsylvania. For all intents and purposes, the regulation with the most potential to shut down Alberta's oil sands operations—the Specified Gas Emitters Regulation—is not much of a threat to development. Thus, an energy company looking to invest in North America's unconventional fossil fuel revolution would be well served to invest in Alberta and its oil sands.

This is not to say that Pennsylvania is overtly hostile to investment in the status quo, however. Despite the regulatory uncertainty surrounding the EPA's study of fracking and water quality, the DRBC's ban on fracking in central Pennsylvania, and the conflict between municipal zoning ordinances and the state's support for the oil and gas industry, drillers continue to flood the region. Yet, when given a choice to invest in Pennsylvania or Alberta

³¹⁰ See Press Release, Gov't of Alta., *supra* note 271.

³¹¹ Kazi Stastna, *Kyoto Exit Leaves Climate Fight Up to Provinces*, CBC NEWS (Dec. 29, 2011, 3:19 PM), <http://www.cbc.ca/news/canada/story/2011/12/16/f-climate-provinces.html>.

³¹² Burton, *supra* note 271.

³¹³ *Id.*

with all other issues held equal, one cannot ignore this uncertainty and its potential implications for development. Perhaps Pennsylvania will become more attractive when the EPA releases its final study on fracking, or when Pennsylvania's Supreme Court decides the fate of Act 13. For now, however, Alberta appears to be the safer, more business friendly option.