
Let's Not Frack This Up: State-Based Solutions for the Regulation of Hydraulic Fracturing and the Disposal of Flowback Water

*“To stay experimentation in things social and economic is a grave responsibility. Denial of the right to experiment may be fraught with serious consequences to the nation. It is one of the happy incidents of the federal system that a single courageous state may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country.”*¹

I. INTRODUCTION

Hydraulic fracturing—also known as fracking or hydrofracking—is a highly controversial process used for the extraction of oil and natural gas.² To date, regulation at the federal level—by Congress and the EPA—has failed to set clear standards for use of the technique.³ Many proponents of fracking applaud the positive economic impacts, job creation, and a future of American energy independence that are associated with its use across the United States.⁴ There are, however, a number of areas of environmental concern associated with hydraulic fracturing.⁵

1. *New State Ice Co. v. Liebmann*, 285 U.S. 262, 311 (1932) (Brandeis, J., dissenting).

2. See David Giller, Notes and Comments, *Implied Preemption and Its Effect on Local Hydrofracking Bans in New York*, 21 J.L. & POL’Y 631, 638-43 (2013) (acknowledging deep divide concerning positive economic and negative environmental fracking consequences); see also Akiah C. Highsmith, Note, *Is It Tomorrow, or Just the End of Time? Why You Shouldn’t Be Worried About Fracking and the EPA Should Keep It That Way*, 7 APPALACHIAN NAT. RESOURCES L.J. 157, 172 (2012-2013) (arguing Environmental Protection Agency (EPA) and federal government best suited to tackle fracking regulation); *Natural Gas Extraction—Hydraulic Fracturing*, EPA, <http://www2.epa.gov/hydraulicfracturing> (last updated Oct. 2, 2014), archived at <http://perma.cc/8SG9-FM52> [hereinafter *Natural Gas Extraction*] (outlining balance between environmental protection and economic benefits of fracking).

3. See David B. Spence, *Federalism, Regulatory Lags, and the Political Economy of Energy Production*, 161 U. PA. L. REV. 431, 447-49 (2013) (discussing lack of oil and natural gas regulation by federal government). Professor Spence also clarifies that most environmental regulation “is of more recent vintage” and that the bulk of federal regulation was passed in the 1970s. See *id.* at 448-49.

4. See *id.* at 431 (recognizing growth of hydraulic fracturing’s role in growing domestic energy supplies); William Yukstas, Note, *Managing Fractions: The Role of Local Government in Regulating Unconventional Natural Gas Resources—Recommendations for New York*, 11 CARDOZO PUB. L. POL’Y & ETHICS J. 563, 578-79 (2013) (discussing socioeconomic benefits of fracking and possibility for bringing states out of recession).

5. See NATHAN RICHARDSON ET AL., *THE STATE OF STATE SHALE GAS REGULATION* 4-5 (2013), available at http://rff.org/rff/documents/RFF-Rpt-StateofStateRegs_Report.pdf, archived at <http://perma.cc/R9QK-N5HC> (describing environmental risks associated with fracking for water supplies, air quality, and local

Due to exemptions created through the 2005 Energy Policy Act, hydraulic fracturing remains largely free from most federal environmental regulations, including the Safe Drinking Water Act (SDWA).⁶ As a result of this gap in regulation, each state enacted its own laws to confront the issue, and there is now discussion over the constitutionality of restrictions on the transport and disposal of the wastewater, or flowback water, that is created after the fracking process is completed.⁷

Despite the federal standstill on fracking legislation, state and local governments can take a proactive role in changing the dialogue surrounding fracking regulation.⁸ For the time being, it appears that significant federal guidance will not be given on the topic.⁹ An outright ban on hydraulic fracturing within a state would likely survive most constitutional challenges under the Dormant Commerce Clause of the U.S. Constitution.¹⁰ States that wish to take a more measured approach, however, can socialize waste disposal sites and limit the possible effects of pollution within state borders without resorting to statewide bans on hydraulic fracturing.¹¹

communities). Despite these risks, the federal government and EPA have yet to release a full report on the environmental impacts surrounding fracking. See Yukstas, *supra* note 4, at 582-83. A final report was due out in 2014 but has been further pushed back to 2016. See Trisha Marczak, *EPA Pushes Back Fracking Impact Study to 2016*, MINTPRESS NEWS (June 20, 2013), <http://www.mintpressnews.com/epa-pushes-back-fracking-impact-study-to-2016/>, archived at <http://perma.cc/H7PX-8G98>. As a result of the EPA's delays in releasing a comprehensive study, some scientists believe that, in the future, we will find out that the majority of our groundwater has been polluted. See *id.*

6. See *infra* Part II.C (discussing exempt status of hydraulic fracturing at federal level).

7. See, e.g., OHIO REV. CODE ANN. § 1509.22(C)(1) (West 2014) (restricting discharge of wastewater into bodies of water); VT. STAT. ANN. tit. 29, § 571 (West 2014) (prohibiting hydraulic fracturing and collection, storage, and treatment of wastewater in Vermont); 25 PA. CODE § 78.56(a) (2014) (requiring all operators properly contain flowback water from moment it originates). In 2012, Vermont became the first state in the United States to completely ban fracking for oil and gas. See Carl Etnier, *Vermont First State in Nation To Ban Fracking for Oil and Gas*, VTDIGGER (May 4, 2012), <http://vtdigger.org/2012/05/04/vermont-first-state-in-nation-to-ban-fracking-for-oil-and-gas/>, archived at <http://perma.cc/MP98-8GBX>. While the ban was passed in the state's House of Representatives by a vote of 103-36, some lawmakers still had concerns about whether this kind of widespread ban could attract challenges to the bill's constitutionality under the Commerce or Supremacy clauses of the U.S. Constitution. See *id.*; see also *infra* Part II.D (discussing different state regulatory approaches for fracking).

8. See Emily C. Powers, Notes and Comments, *Fracking and Federalism: Support for an Adaptive Approach That Avoids the Tragedy of the Regulatory Commons*, 19 J.L. & POL'Y 913, 916-17 (2011) (supporting adaptive federalism approach to regulation through vertical checks and balances); Yukstas, *supra* note 4, at 595 (advocating necessity of strong role for local government in establishing regulatory system in New York).

9. See Matt Willie, Comment, *Hydraulic Fracturing and "Spotty" Regulation: Why the Federal Government Should Let States Control Unconventional Onshore Drilling*, 2011 BYU L. REV. 1743, 1751 (2011) (arguing Congress's passage of Energy Policy Act largely ended federal regulation). Willie states that: "Since Congress passed the [Energy Policy] Act, fracking has remained almost entirely state-regulated." See *id.*

10. See Eric Michel, Student Note, *Discrimination in the Marcellus Shale: The Dormant Commerce Clause and Hydraulic Fracturing Waste Disposal*, 88 CHI.-KENT L. REV. 213, 243 (2012) (predicting Supreme Court likely hold statutes constitutional if out-of-state actors treated equally).

11. See James Hinshaw, Note, *The Dormant Commerce Clause After Garcia: An Application to the*

This Note will first outline the hydraulic fracturing process, including how it works, its growth in the United States, and the environmental concerns associated with the extraction practice.¹² The federal regulation of fracking and current proposed legislation are discussed in Part II.C.¹³ Part II.D explores the different economic and environmental pressures that states are encountering within their borders and how they are regulating the fracking process.¹⁴ Part II.E focuses on a brief overview of the Commerce Clause, Dormant Commerce Clause, and market-participant exception, with a particular focus on the disposal of fracking waste.¹⁵

The analysis in Part III.A then discusses the federal government's failure to take a clear stance on hydraulic fracturing and the growing necessity for local solutions to environmental protection.¹⁶ Part III.B recognizes the potential constitutional barriers to a state-based approach to managing the fracking process and the disposal of fracking waste fluid.¹⁷ Lastly, Part III.C suggests that states and localities that wish to limit the disposal of fracking waste within state borders can do so without the federal government through various policies.¹⁸ These policies include statewide bans on fracking, enacting local zoning ordinances, or creating state-owned disposal sites to control waste from out-of-state operations, while managing in-state wastewater disposal in a responsible manner.¹⁹

II. HISTORY

A. The Process of Hydraulic Fracturing

The process of hydraulic fracturing involves the injection of pressurized fluids—generally a mix of water, sand, and chemicals—deep in the ground to fracture rock and create openings that allow gas to flow into production wells.²⁰ This natural gas extraction process has its roots in the nineteenth century, but drilling companies first used the process in the 1930s.²¹ Unlike conventional

Interstate Commerce of Sanitary Landfill Space, 67 IND. L.J. 511, 523-25 (1992) (interpreting market-participant exception alternative as avoiding definition of garbage as commerce).

12. See *infra* Part II.A-B.

13. See *infra* Part II.C.

14. See *infra* Part II.D.

15. See *infra* Part II.E.

16. See *infra* Part III.A.

17. See *infra* Part III.B.

18. See *infra* Part III.C.

19. See *infra* Part III.C.

20. See Yukstas, *supra* note 4, at 566-570 (describing steps involved in hydrofracking process). Before the fracking itself, an operator must choose where drilling will take place. See *id.* at 569. Once the site is chosen, drilling begins and generally extends to a depth anywhere between 4000 and 8000 feet. See *id.* Horizontal wells are then drilled an additional 3000 to 5000 feet. See *id.* at 569-70.

21. See Carl T. Montgomery & Michael B. Smith, *Hydraulic Fracturing: History of an Enduring Technology*, J. PETROLEUM TECH., Dec. 2010, at 26, 27 (describing development and first uses of hydraulic

natural gas production, where wells are drilled into permeable or semipermeable rock formations, using fracking enables drillers to access unconventional natural gas that would otherwise be unavailable for extraction.²² This technological advancement for extracting unconventional natural gas resulted in a rapid spread of natural gas drilling operations across the United States.²³

There are three major components involved in a fracking operation once the initial construction of the well is complete.²⁴ First, pump trucks inject a pad of fracking fluid into the subject well.²⁵ Next, propping agents, or proppants, are injected into the well along with the fracking fluid.²⁶ The third stage of the process involves bringing the fracking fluid back above ground, leaving the proppants beneath the surface, and allowing for the subsequent extraction of natural gas from these unconventional rock formations.²⁷ This fluid, also known as wastewater or flowback water, often contains high levels of total dissolved solids (TDS), naturally occurring radioactive materials, fracking fluid additives, and metals.²⁸

fracturing).

22. See INT'L ENERGY AGENCY, GOLDEN RULES FOR A GOLDEN AGE OF GAS: WORLD ENERGY OUTLOOK SPECIAL REPORT ON UNCONVENTIONAL GAS 19 (2012), available at http://www.worldenergyoutlook.org/media/weowebiste/2012/goldenrules/weo2012_goldenrulesreport.pdf, archived at <http://perma.cc/7MCV-RH3V> (outlining different kinds of natural gas and challenges involved with extraction). Unconventional resources are less concentrated, and thus, are more difficult to extract from the earth than conventional resources. See *id.* Higher energy demands worldwide have resulted in a move towards exploration of shale formations in the United States, such as the Marcellus, Barnett, Haynesville, and Bossier formations. See Montgomery & Smith, *supra* note 21, at 32 (arguing fracking important for continual energy production).

23. See U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-12-732, OIL AND GAS: INFORMATION ON SHALE RESOURCES, DEVELOPMENT, AND ENVIRONMENTAL AND PUBLIC HEALTH RISKS 25 (2012), available at <http://www.gao.gov/assets/650/647791.pdf>, archived at <http://perma.cc/ZP6J-CDZY> (noting impressive growth in shale gas development in United States); see also *Natural Gas Extraction*, *supra* note 2 (describing greater natural gas access as result of horizontal drilling practices). A reported fourfold growth in the production of shale gas occurred between 2007 and 2011, from 1.6 to about 7.2 trillion cubic feet per year. See U.S. GOV'T ACCOUNTABILITY OFFICE, *supra*.

24. See *supra* note 20 and accompanying text (describing necessary steps involved in construction of drilling wells).

25. Joe Schremmer, Comment, *Avoidable "Fraccident": An Argument Against Strict Liability for Hydraulic Fracturing*, 60 U. KAN. L. REV. 1215, 1219-20 (2012) (describing first step in hydraulic fracturing process). This "frac fluid" is a viscous gel that is over ninety percent water; the remaining ten percent being a mixture of various chemical polymers. See *id.* at 1219. This pad is injected at such a high rate and speed that it causes the rock formation to crack. See *id.* The exact chemicals used in a fracking operation vary considerably, and there is wide concern about the possible negative effects that such chemicals may have on both human health and the environment. See *id.* at 1219-20; see also Powers, *supra* note 8, at 924 (discussing concern over possible pollution caused by fracking fluid to groundwater).

26. See Schremmer, *supra* note 25, at 1220 (explaining use and purpose of proppants). In essence, proppants help keep the fractures open permanently. See *id.* Sand and ceramic beads are some of the most common types of proppants. See *id.*; see also INT'L ENERGY AGENCY, *supra* note 22, at 26 (describing how proppants help keep fractures open, allowing gas to escape rock formations).

27. See Schremmer, *supra* note 25, at 1220 (noting approximately eighty percent of fracking fluid recovered from underground).

28. See *Natural Gas Extraction*, *supra* note 2 (listing typical contents of flowback water). The additives

Supporters of hydraulic fracturing applaud the economic advances that this technique has on drilling communities and the American economy as a whole.²⁹ Increased tax revenue, American energy independence, and job creation are just some of the cited improvements that fracking contributes to the economy.³⁰ Others, however, are concerned that the long-term economic and social benefits are not as impressive as experts originally anticipated.³¹ While a state is able to profit from these emerging drilling operations, the benefits at the local level can often be short-term and can have detrimental effects once drilling is completed in the area.³²

B. Fracking and Concerns Over Its Environmental Impact

Despite the debate surrounding the socioeconomic benefits and pitfalls associated with fracking practices, the real environmental impacts of the

and chemicals used in the fracking process are what often concern scientists and those who oppose hydraulic fracturing. See Willie, *supra* note 9, at 1758-59 (explaining concerns surrounding use of fracking fluids in drilling). Arguably, the central concern with the use of these mixed fluids is they may enter into sources of drinking water. See *id.* at 1759.

29. See Adam Garmezy, Teaching Supplements, *Balancing Hydraulic Fracturing's Environmental and Economic Impacts: The Need for a Comprehensive Federal Baseline and the Provision of Local Rights*, 23 DUKE ENVTL. L. & POL'Y F. 405, 425 (2013) (questioning stimulus potential for economically-depressed communities). Once a hydraulically fractured well becomes operational, there are a number of jobs that are created, which are linked to drilling in the area. See *id.*; see also Spence, *supra* note 3, at 431 (discussing forecast of lower energy prices due to fracking); Elizabeth Royte, *This Is Your Town on Fracking*, ONEARTH (June 13, 2013), <http://www.onearth.org/articles/2013/07/fracking-boom-brings-pollution-health-problems-drunken-driving-and-other-problems-t>, archived at <http://perma.cc/EMD7-ENLW> (describing economic benefits of hydraulic fracturing in North Dakota).

30. See Powers, *supra* note 8, at 927 (estimating royalties of approximately \$180,000 per acre per year in New York state); Yukstas, *supra* note 4, at 577-78 (recognizing potential of securing American energy independence through hydraulically fractured natural gas); Royte, *supra* note 29 (citing \$2.24 billion generated from fracking in state and local taxes in North Dakota).

31. See INT'L ENERGY AGENCY, *supra* note 22, at 29 fig. 1.4 (illustrating coalbed methane techniques and possible environmental hazards); Powers, *supra* note 8, at 928-29 (discussing possible financial tax detriment as result of fracking); Royte, *supra* note 29 (highlighting negative social impacts of fracking on North Dakota communities); Peter Rugh, *Inside Fracking's 'Man Camps', Where Sex, Drugs, and Gonorrhea Run Rampant*, MOTHERBOARD (Oct. 18, 2013), <http://motherboard.vice.com/blog/inside-frackings-man-camps-where-sex-drugs-and-gonorrhea-run-rampant>, archived at <http://perma.cc/L9GQ-RZ4L> (explaining increases in prostitution and sexually transmitted diseases stem from fracking). Royte explored how, despite the low unemployment rate and heightened tax revenue in North Dakota, there is now increased air pollution, job-site accidents, drunk-driving, and reports of sexual assault. See Royte, *supra* note 29; see also Garmezy, *supra* note 29, at 425-26 (calling benefits associated with hydrofracking overstated). Garmezy addresses the fact that a large number of those who sell land used for fracking are able to then relocate, leaving the possible detrimental environmental impacts to be felt by their neighbors who did not benefit from the sale of land at all. See Garmezy, *supra* note 29, at 426.

32. See Garmezy, *supra* note 29, at 425-26 (noting amplified nature of socioeconomic benefits of fracking). Those who often benefit quickly and directly from these drilling operations are the landowners who sell plots of their land and can afford to relocate. See *id.* at 426. As a result, this minority of landowners are able to benefit and leave the future environmental concerns for their neighbors and communities to address once they have already left the area. See *id.* at 426; see also Yukstas, *supra* note 4, at 572 (revealing unexpected declines in gas production of wells in Marcellus Shale region).

technique remain unclear.³³ In general, courts have refused to go so far as to hold drilling companies strictly liable for any harm that occurs during the hydrofracking process.³⁴ The EPA, however, has addressed some known, well-established risks associated with natural gas extraction that potentially impact the surrounding environment.³⁵

One primary source of environmental concern is the effect hydraulic fracturing may have on the contamination of groundwater and aquifers.³⁶ In 2004, the EPA conducted a study that found that the injection of fracking fluids into coalbed methane wells posed “little or no threat” to underground sources of drinking water.³⁷ More recently, the EPA released a separate preliminary report out of Wyoming, but the investigation was subsequently abandoned.³⁸ Due to the nature of vertical fractures created during the extraction process, however, there are still real fears that some of the chemicals could leak into aquifers located above these hydrocarbon formations.³⁹ Aside from these

33. See *Anschutz Exploration Corp. v. Town of Dryden*, 940 N.Y.S.2d 458, 465 (N.Y. Sup. Ct. 2012) (stating controversial nature of hydrofracking due to possible water contamination), *aff'd sub nom. Norse Energy Corp. v. Town of Dryden*, 964 N.Y.S.2d 714 (N.Y. App. Div. 2013), *aff'd sub nom. Wallach v. Town of Dryden*, 16 N.E.3d 1188 (N.Y. 2014); Spence, *supra* note 3, at 440-41 (discussing variety of environmental impacts caused by fracking); *Natural Gas Extraction*, *supra* note 2 (noting EPA's goal of improving scientific understanding of hydraulic fracturing and protect environmental interests).

34. See *Williams v. Amoco Prod. Co.*, 734 P.2d 1113, 1123 (Kan. 1987) (holding fracking not within Restatement (Second) of Torts' abnormally dangerous category). The Supreme Court of Kansas explored the issue and held that natural gas does not pollute in the same way as oil or chemical discharges. See *id.*; see also Schremmer, *supra* note 25, at 1235-42 (analyzing whether strict liability should apply to fracking). Schremmer analyzed whether a “fault based” standard with a *res ipsa loquitur* rule is better suited towards regulating fracking, as opposed to subjecting it to a strict liability standard. See Schremmer, *supra* note 25, at 1235. But see Neal J. Manor, Notes, “What the Frack?” *Why Hydraulic Fracturing Is Abnormally Dangerous and Whether Courts Should Allow Strict Liability Causes of Action*, 4 KY. J. EQUINE, AGRIC., & NAT. RESOURCES L. 459, 478 (2012) (concluding courts should allow strict liability causes of action against drilling companies).

35. See *Natural Gas Extraction*, *supra* note 2 (advocating for reduction of negative impacts while research ongoing and natural gas industry growing).

36. See *Fiorentino v. Cabot Oil & Gas Corp.*, 750 F. Supp. 2d 506, 509-10 (M.D. Pa. 2010) (outlining complaint alleging Cabot Oil and Gas Corp. polluted local water supply). In that case, residents were concerned that improper drilling by the defendant company had “allowed the release of methane, natural gas, and other toxins onto Plaintiffs’ land and into their groundwater.” See *id.* at 509; see also Powers, *supra* note 8, at 924 (noting possible degradation of waterways from accidental chemical spills or from fracking fluid); *Natural Gas Extraction*, *supra* note 2 (listing contamination of water supplies as potential environmental impact).

37. See Garmezy, *supra* note 29, at 414 (discussing EPA's 2004 findings).

38. See *id.* at 416 (noting water supplies at and below depth used for domestic water supply as contaminated). This is somewhat attributable to the distinctive geographic makeup of this part of Wyoming, but residents were still told not to drink water from wells in the area. See *id.* at 416-17. In the summer of 2011, the EPA decided to hand over the study to the state of Wyoming and abandoned the investigation altogether. See *EPA Abandons Fracking Study in Pavilion, Wyoming Following Similar Closed Investigations*, HUFFINGTON POST (July 3, 2013), http://www.huffingtonpost.com/2013/07/03/epa-fracking-study-pavilion-wyoming_n_3542365.html, archived at <http://perma.cc/N7DU-YXNK> (discussing industry and environmental perspectives on abrupt end to EPA investigation). Some scientists are concerned that the EPA is simply disengaging from scientific research that may cast a negative light on the environmental consequences of fracking. See *id.*

39. See Powers, *supra* note 8, at 925 (recognizing possibility of water contamination through seismic

contamination fears, there is also a tremendous amount of water used in each fracking operation.⁴⁰ This kind of heightened water usage, during typically brief drilling operations, can have significant negative effects on local water supplies and the surrounding environment.⁴¹

The disposal of flowback water used during the fracking process is one of the most troubling aspects of any frack job.⁴² Once this fluid is back above ground, there are a limited number of disposal solutions available.⁴³ Among these are the injection of the flowback water into underground injection wells that store the flowback water permanently, discharging it to either public or commercial treatment plants, or recycling the flowback water for use in subsequent hydraulic fracturing operations.⁴⁴

Drilling wells and subsequent fracking activities have also been linked with increased air pollution, greenhouse gas emissions, and seismic activity.⁴⁵ In addition, there are secondary environmental impacts caused by drilling, sometimes referred to as “neighborhood character issues.”⁴⁶ These social

activity). Subsurface activity created by fracking has raised the question of whether earthquakes could induce further fractures and allow for contamination of aquifers and, subsequently, other waterways. *See id.*

40. *See* INT’L ENERGY AGENCY, *supra* note 22, at 30-31 (discussing large amounts of water required during hydraulic fracturing process for extraction). Each well that is hydraulically fractured can use anywhere between one and five million gallons of water. *See id.* at 30. Other estimates place the number closer to between four and eight million gallons. *See* Garmezy, *supra* note 29, at 419 (estimating water usage involved in hydraulic fracturing). *But see* Jesse Jenkins, *Energy Facts: How Much Water Does Fracking for Shale Gas Consume?*, THE ENERGY COLLECTIVE (Apr. 6, 2013), <http://theenergycollective.com/jessejenkins/205481/friday-energy-facts-how-much-water-does-fracking-shale-gas-consume>, archived at <http://perma.cc/6H8H-RMM3> (opining fracking water usage less prevalent comparatively nationwide than other industries). Jenkins reported that while fracking accounted for 0.3 percent of water usage in the United States in 2011, water usage by golf courses accounted for approximately 0.5 percent. *See id.* In addition, new recycling techniques of the used water—or flowback water—have reduced the amount of water needed during the process. *See id.*

41. *See* Garmezy, *supra* note 29, at 420 (noting possible detrimental effects of increased water usage in several different areas of concern). These concerns include recreational activities dependent on water, a decrease in groundwater supplies, and a reduction in stream flow. *See id.* This kind of reduction in stream flow could lead to further negative impacts like drought and the degradation of natural habitats nearby. *See id.*

42. *See* Curtis A. Moore, *Existing Authorities in the United States for Responding to Global Warming*, 40 ENVTL. L. REP. NEWS & ANALYSIS 10,185, 10,208 (2010) (arguing many reported spill incidents allowed chemical leaks into water supply). These kinds of accidents—which are not directly linked to drilling, but rather, to “leaky tanks, trucks and waste pits”—create concern that chemicals could reach available water supply sources. *See id.*; *see also* Spence, *supra* note 3, at 443 (suggesting concern over contaminants often present in wastewater); Powers, *supra* note 8, at 925 (listing risks involved with fracking waste disposal).

43. *See* Michel, *supra* note 10, at 220 (discussing limited options available for disposal of flowback water).

44. *See id.*

45. *See* Ctr. for Biological Diversity v. Bureau of Land Mgmt., 937 F. Supp. 2d 1140, 1145 (N.D. Cal. 2013) (citing air quality concerns as one of many environmental risks of fracking); INT’L ENERGY AGENCY, *supra* note 22, at 28 (discussing risks for air pollution due to increased number of wells in natural gas production); Montgomery & Smith, *supra* note 21, at 41 (recognizing risks of small earthquakes when wells penetrate large natural fault lines); Garmezy, *supra* note 29, at 420-21 (citing larger greenhouse gas emission footprint of methane connected to fracking operations).

46. Spence, *supra* note 3, at 480-81 (noting variety of local, social impacts stemming from hydraulic fracturing); *see also* Yukstas, *supra* note 4, at 577 (acknowledging traditional local sources of economic

impacts are less direct but can nevertheless present serious long-term consequences for localities affected by hydraulic fracturing.⁴⁷ Thus, although an American energy future built around natural gas production presents an opportunity for economic growth and security, the possible negative effects of drilling at the local and national level are apparent.⁴⁸ Due to the often immediate and direct effect that fracking can have at the local level, there is a greater fear that these communities will struggle to benefit from many of the long-term benefits of unconventional natural gas production.⁴⁹

C. Federal Regulation: The Energy Policy Act of 2005 and Congress's Inaction

Beginning in the 1960s, Congress began to enact a string of statutes, which had the broad policy objective of protecting public resources such as air, water, and human health.⁵⁰ The majority of these federal initiatives are part of a more “cooperative” scheme, which involves individual states meeting minimum requirements and subsequently implementing each state’s respective state-based programs.⁵¹ More recently, however, Congress passed the Energy Policy Act of 2005.⁵² While this piece of legislation was largely seen as an attempt to combat increasing energy problems, it also contained important exceptions for hydraulic fracturing from key federal programs, like the Clean Drinking Water Act (CDWA).⁵³ This exemption is often referred to as the “Halliburton

revenue, like tourism, likely affected by fracking).

47. See John R. Nolon, *Shifting Paradigms Transform Environmental and Land Use Law: The Emergence of the Law of Sustainable Development*, 24 *FORDHAM ENVTL. L. REV.* 242, 264 (2013) (emphasizing states’ and localities’ difficulties in controlling local impacts of fracking); Yukstas, *supra* note 4, at 596 (hypothesizing greatest social disruptions from fracking occur at localized level).

48. See Yukstas, *supra* note 4, at 573-81 (providing extensive cost-benefit analysis of Marcellus Shale fracking at local and national level).

49. See *id.* at 580-81 (suggesting local governments more susceptible to negative impacts of fracking).

50. See, e.g., Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, 86 Stat. 816 (codified as amended in scattered sections of 33 U.S.C.) (creating primary federal safeguard for protection against water pollution in United States); Safe Drinking Water Act of 1974, Pub. L. No. 93-523, 88 Stat. 1660 (codified as amended in scattered sections of 42 U.S.C.) (enacting key legislation for control and regulation of America’s drinking water); Clean Air Act, Pub. L. No. 88-206, 77 Stat. 392 (1963) (codified as amended in scattered sections of 42 U.S.C.) (providing assistance and encouragement for execution of air pollution prevention and control programs).

51. See Powers, *supra* note 8, at 930-31 (explaining states may implement more stringent regulations but must meet baseline requirements); see also *infra* Part II.D (discussing various states’ responses in fracking regulation).

52. See Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (codified as amended in scattered sections of 7 U.S.C., 10 U.S.C., 15 U.S.C., 16 U.S.C., 22 U.S.C., 22 U.S.C., 26 U.S.C., 30 U.S.C., 40 U.S.C., and 42 U.S.C.) (creating string of tax incentives and loan guarantees for energy companies).

53. See Spence, *supra* note 3, at 449-50 (clarifying “underground injection” as excluding hydraulic fracturing operations). As a result of this exemption, fracking operators do not require underground-injection-well permits that are usually required by law under the Safe Drinking Water Act (SDWA). See *id.* at 449-50. The exemption does not, however, include the injection of wastewater that remains after operations have taken place. See *id.* at 450. See generally EPA, EXEMPTION OF OIL AND GAS EXPLORATION AND PRODUCTION

loophole,” because it allows companies that drill for oil and natural gas to escape further regulation for fracking operations.⁵⁴

At the time of this Note, a proposed bill in Congress—the Fracturing Responsibility and Awareness of Chemicals Act (FRAC)—remains inactive, with many predicting it has little chance of success.⁵⁵ The EPA also commenced a study, originally scheduled for release in 2014, to research the impact of fracking on drinking water.⁵⁶ This past year, however, the EPA pushed the release date back two years, to 2016.⁵⁷

In addition, on May 9, 2014, the EPA released an Advanced Notice of Proposed Rulemaking and began seeking public comment on new changes to federal fracking regulation.⁵⁸ The EPA sought comments on types of chemicals that should be disclosed during the fracking process under the Toxic Substances Control Act (TSCA), as well as the approaches that might be used in obtaining this information.⁵⁹ There is still no guarantee, however, on whether this consideration by the EPA will lead to the creation of any new, formal regulation at the federal level.⁶⁰

D. State Regulation of Hydraulic Fracturing

Each state must decide how to regulate the fracking process in a localized

WASTES FROM FEDERAL HAZARDOUS WASTE REGULATIONS (2002), available at <http://www.epa.gov/osw/nhaz/industrial/special/oil/oil-gas.pdf>, archived at <http://perma.cc/UGB5-7DCY> (outlining and discussing exemptions for oil and gas from federal regulation).

54. See Powers, *supra* note 8, at 938 (discussing suspicion surrounding loophole in Energy Policy Act). Under Section 322 of the Act, fracking is exempt from the SDWA, which helps protect public water supplies from both underground injection and disposal of hazardous waste. See *id.* at 939. Fracking also remains exempt from the Resource Conservation and Recovery Act (RCRA), which is responsible for overseeing the storage and disposal of this kind of waste. See *id.* at 940 (discussing repercussions of Halliburton loophole for environmental regulation of fracking).

55. See Fracturing Responsibility and Awareness of Chemicals Act of 2013, H.R. 1921, 113th Cong. (2013) (advocating for amendment of SDWA to appeal fracking exemptions). On June 11, 2013, the bill was sent to a congressional committee to determine whether it would go on to the next stage. See *S. 1135 (113th): FRAC Act*, GOVTRACK.US, <https://www.govtrack.us/congress/bills/113/s1135> (last visited Jan. 7, 2014), archived at <https://perma.cc/VEP5-HW9T> (advocating for repeal of exemption for hydraulic fracturing in SDWA). The bill died with the closing of the 113th Congress. See *id.*

56. See *EPA's Study of Hydraulic Fracturing for Oil and Gas and Its Potential Impact on Drinking Water Resources*, EPA, <http://www2.epa.gov/hfstudy> (last updated Dec. 23, 2014), archived at <https://perma.cc/TH3C-MKWL> (announcing goal to release draft report of study in 2014).

57. See Marczak, *supra* note 5 (noting EPA's decision to push back release of fracking study until 2016).

58. See Hydraulic Fracturing Chemicals and Mixtures, 79 Fed. Reg. 28,664 (May 19, 2014) (outlining new proposed rulemaking for fracking regulation by EPA). The Federal Register published this notice on May 19, 2014. See *id.* at 28,664. The opportunity to comment was extended to September 18, 2014. See Hydraulic Fracturing Chemicals and Mixtures; Extension of Comment Period, 79 Fed. Reg. 40,703 (July 14, 2014).

59. See 79 Fed. Reg. at 28,664 (announcing EPA seeking comments from stakeholders).

60. See Valerie Volcovici, *U.S. Considers Fracking Fluid Disclosure Rules*, REUTERS (May 9, 2014), <http://www.reuters.com/article/2014/05/09/us-usa-fracking-epa-idUSBREA480FS20140509>, archived at <http://perma.cc/38VL-DFST> (discussing potential of further federal regulation as result of EPA notice and comment investigation).

way because there is no comprehensive regulation at the federal level.⁶¹ As a result, the level of regulation varies; some states have full bans, while others merely have reporting requirements or even no regulation at all.⁶² At one end of the spectrum lies Vermont, which passed legislation that completely banned hydraulic fracturing.⁶³ Other states, such as Ohio, however, have attempted to regulate the disposal of flowback water specifically and the manner in which that waste is disposed of within state borders.⁶⁴

New York presents another unique example of statewide regulation of fracking.⁶⁵ Currently, there is a moratorium in place that has halted fracking in the state since 2008.⁶⁶ Although many groups are urging Governor Andrew Cuomo to institute an outright ban on the practice, he has yet to take a stronger position on the issue.⁶⁷

Lastly, Pennsylvania also followed a different regulatory approach to fracking in the previous few decades.⁶⁸ In particular, there was no set regulatory framework in place before hydraulic fracturing began within the

61. See Spence, *supra* note 3, at 453-55 (comparing approaches taken by Texas, Pennsylvania, and New York); see also Manor, *supra* note 34, at 468 (explaining difficulty of instituting regulations in Texas). Similar to Pennsylvania, Texas has struggled to balance the needs of business operations with those of environmentalists. See Spence, *supra* note 3, at 453-55; Manor, *supra* note 34, at 468.

62. See Spence, *supra* note 3, at 455 (describing different options available for state regulation). Spence states the rules in Texas on the construction of drilling wells are more specific than those in New York and Pennsylvania, which are broader in nature. See *id.* One similarity between these three states, however, is they all demand that cement casings be sufficient to prevent gas from escaping into the ground and the water that surrounds the drilling area. See *id.* A comparison of the current regulatory frameworks across states that have hydraulic fracturing operations demonstrate that there is not a clear trend toward any one form of regulation. See Jason Schumacher & Jennifer Morrissey, *The Legal Landscape of "Fracking": The Oil and Gas Industry's Game-Changing Technique Is Its Biggest Hurdle*, 17 TEX. REV. L. & POL. 239, 280-300 (2013) (outlining variety of approaches taken by eleven different states in fracking regulation). Some states vest the power to regulate oil and gas drilling with their respective environmental protection agencies. See *id.* at 294 (describing role of West Virginia Department of Environmental Protection's regulation of oil and gas industry). Other states, like Maryland, have taken a more cautious approach and are investigating the "risks to public health, safety, the environment, and natural resources" before enacting clear guidelines on hydrofracking. See *id.* at 293. A large number of states have also opted to enact disclosure policies, mandating drilling companies disclose the chemicals and any additives used during the drilling process. See *id.* at 299 (outlining similarity of Wyoming and Texas chemical disclosure policies).

63. See VT. STAT. ANN. tit. 29, § 571 (West 2014) (prohibiting hydraulic fracturing, as well as collection, storage, and treatment of wastewater within Vermont); Etnier, *supra* note 7 (discussing overwhelming support for fracking ban in Vermont).

64. See OHIO REV. CODE ANN. § 1509.22(C)(1) (West 2014); see also Michel, *supra* note 10, at 238-39 (explaining Ohio's attempt at limiting incoming waste through disposal fee system).

65. See Spence, *supra* note 3, at 436 (using New York as one of several states in case study analysis).

66. See Mary Esch, *New York Energy Plan High on Renewables, Mum on Fracking*, HUFFINGTON POST (Jan. 9, 2014), http://www.huffingtonpost.com/2014/01/09/new-york-energy-plan-renewables-fracking_n_4570057.html, archived at <http://perma.cc/XX8G-2HH5> (explaining history of fracking moratorium in New York state).

67. See *id.* (discussing governor's apparent reluctance to address fracking directly). Governor Cuomo stated he was still waiting for the health commissioner and other state officials to complete a review of the health and environmental concerns associated with hydraulic fracturing. See *id.*

68. See Yukstas, *supra* note 4, at 584-85 (discussing fracking regulation in Pennsylvania).

state.⁶⁹ A previous statute, the Oil and Gas Act of 1984, failed to address many issues important to local communities, such as “noise, fencing, security, traffic, and dust.”⁷⁰ As a result, in 2013, the Pennsylvania Legislature passed Act Thirteen, which hoped to address much of the uncertainty that surrounded fracking in the state.⁷¹ Despite provisions that could limit the use of local ordinances and zoning to curb fracking, the Act was ultimately found to be unconstitutional in part by the Pennsylvania Supreme Court.⁷²

As all of these approaches suggest, there is a lack of consensus at the state level on how to tackle hydraulic fracturing regulation.⁷³ Many argue that this uncertainty follows from equal levels of inaction and indecision from Congress and the federal government.⁷⁴

E. The Commerce Clause, Dormant Commerce Clause, and the Market-Participant Exception

With the growth of hydraulic fracturing across the country, there is also a growing debate surrounding the constitutionality of some fracking regulations.⁷⁵ In particular, some have begun to discuss potential issues concerning the Dormant Commerce Clause.⁷⁶ This section will briefly outline the constitutional backgrounds of both the Commerce Clause and Dormant Commerce Clause, and more specifically, how they apply to the disposal of waste and fracking fluid.⁷⁷

1. The Commerce Clause

Under Article I, Section 8 of the U.S. Constitution, Congress has the

69. *See id.* (noting unique situation faced by Pennsylvania because question of fracking remained unanswered at state level).

70. *Id.* (explaining deficiencies of original Oil and Gas Act in Pennsylvania).

71. *See id.* at 588 (discussing Pennsylvania’s passing of Act Thirteen and its impact). The Act updated regulations for gas wells and drilling, imposed “impact fees” on all of these unconventional types of drilling wells, and stated that local governments “shall allow for the reasonable development of oil and gas resources.” *See* 2012 Pa. Laws 87, 95, 177 (codified at 58 PA. CONS. STAT. ANN. §§ 3304, 3501).

72. *See* *Robinson Twp. v. Commonwealth*, 83 A.3d 901, 978 (Pa. 2013) (holding provision regarding zoning ordinances violated Environmental Rights Amendment).

73. *See* Yukstas, *supra* note 4, at 581-83 (discussing deference to states and unwillingness of federal government to substantially regulate hydraulic fracturing).

74. *See supra* Part II.C (outlining problems and setbacks in federal regulation of hydraulic fracturing).

75. *See* Michel, *supra* note 10, at 235-37 (considering constitutionality of Ohio two-tier fee arrangement for disposal of wastewater). Michel argues that absent a ban on fracking within the state in question’s borders, the U.S. Constitution prohibits discriminating against fracking waste that comes from out-of-state. *See id.* at 235-37, 243.

76. *See id.* at 234-43 (discussing interstate waste transport and constitutionality of Ohio waste disposal regulations).

77. *See infra* Part II.E.1-2 (discussing history of Commerce and Dormant Commerce clauses in connection with hydraulic fracturing).

authority to regulate commerce “among the several States.”⁷⁸ The Supreme Court’s interpretation of the Commerce Clause has expanded the meaning of “commerce” and has thus widened Congress’s jurisdiction under the clause.⁷⁹ In *National League of Cities v. Usery*,⁸⁰ the Court held that states were not subject to federal regulation in areas that were the traditional domain of state governance, referring to the federalist structure envisioned in the Constitution.⁸¹ This line of thinking changed, however, when the Supreme Court explicitly overruled the Tenth Amendment view of state sovereignty under the Commerce Clause.⁸² More specifically, the Court in *Garcia v. San Antonio Metropolitan Transit Authority*⁸³ held that the structure of the federal government itself helps to protect states’ rights to operate independently of the federal system.⁸⁴

Another important aspect of Commerce Clause jurisprudence is the use of rational basis review.⁸⁵ The standard is not whether the activity in question substantially affects interstate commerce, but rather whether Congress has a rational basis for believing that it substantially affects interstate commerce.⁸⁶ In addition, the Supreme Court made a further delineation in its Commerce Clause analysis in *United States v. Lopez*,⁸⁷ by choosing to treat economic and

78. U.S. CONST. art. I, § 8, cl. 3.

79. See *United States v. Lopez*, 514 U.S. 549, 584 (1995) (Thomas, J., concurring) (expressing belief Supreme Court expanded beyond original meaning of Commerce Clause). Justice Thomas stated that although he joined in the majority opinion, he wrote

separately to observe that our case law has drifted far from the original understanding of the Commerce Clause. . . . [W]e ought to temper our Commerce Clause jurisprudence in a manner that both makes sense of our more recent case law and is more faithful to the original understanding of that Clause.

Id.

80. 426 U.S. 833 (1976), *overruled by* *Garcia v. San Antonio Metro. Transit Auth.*, 469 U.S. 528 (1985).

81. See *id.* at 855 (holding certain services within traditional realm of state governance); Hinshaw, *supra* note 11, at 515 (discussing reasoning behind holding in *National League of Cities*).

82. See *Garcia v. San Antonio Metro. Transit Auth.*, 469 U.S. 528, 550 (1985) (holding not Court’s role to determine conceptions of state sovereignty under Commerce Clause).

83. 469 U.S. 528 (1985).

84. See *id.* at 551 (noting Framers’ decision to include state representation in both executive and legislative government); see also Hinshaw, *supra* note 11, at 517 (describing Court’s decision to overrule Tenth Amendment as “affirmative limit” on Commerce Clause). As a result, after *Garcia*, states were left to use the national political processes—such as electing representatives in Congress—as a way to serve the states’ best interests. See Hinshaw, *supra* note 11, at 517.

85. See David G. Wille, *The Commerce Clause: A Time for Reevaluation*, 70 TUL. L. REV. 1069, 1088 (1996) (defining rational basis review and demonstrating judiciary’s role in protecting states’ sovereignty).

86. See *Heart of Atlanta Motel, Inc. v. United States*, 379 U.S. 241, 258-59 (1964) (applying rational basis rule to Commerce Clause analysis). If Congress had a rational basis for finding that the regulation in question affected interstate commerce, then courts must ask whether the means used were “reasonable and appropriate.” *Id.* at 258.

87. 514 U.S. 549 (1995).

noneconomic activity differently.⁸⁸ In *Gonzales v. Raich*,⁸⁹ the Court elaborated on the economic versus noneconomic distinction, and it held that the growth of marijuana in one's home was distinguishable from the regulation of firearms near schools and could be regulated as an economic activity under the Commerce Clause.⁹⁰

2. *The Dormant Commerce Clause, Waste Disposal, and the Market-Participant Exception*

Although the Commerce Clause contains only affirmative language concerning Congress's power to regulate among states, it is now understood to imply a negative aspect that also denies states the ability to discriminate against or burden out-of-state actors in a way that would affect interstate commerce.⁹¹ In general, there is a two-step analysis for resolving Dormant Commerce Clause issues.⁹² A regulation is considered discriminatory if it treats out-of-state actors differently than in-state actors.⁹³ If the law or regulation in question is discriminatory on its face there is a high presumption of unconstitutionality.⁹⁴ If the law is facially neutral, however, then the balancing test established in *Pike v. Bruce Church, Inc.*⁹⁵ applies and there is a greater

88. *See id.* at 560-61 (creating distinction between economic and noneconomic activity under Commerce Clause jurisprudence).

89. 545 U.S. 1 (2005).

90. *See id.* at 17, 23-24 (clarifying Court's power to regulate local activities with substantial effect on interstate commerce). The Court went on to state that if the "'total incidence' of a practice poses a threat to a national market, [Congress] may regulate the entire class." *See id.* at 17. The *Gonzales* Court ultimately concluded that the case at hand was more analogous to home-grown wheat and held that, "Congress had a rational basis for concluding that leaving home-consumed marijuana outside federal control would similarly affect price and market conditions." *Id.* at 18-19.

91. *See* H.P. Hood & Sons, Inc. v. Du Mond, 336 U.S. 525, 537-38 (1949) (rejecting view of states as isolated economic actors). The Court held unconstitutional a restriction prohibiting a Massachusetts company from constructing a processing facility in New York, and it held that the restriction limited the flow of milk from one state to another. *See id.* at 526, 544-45. The policy was deemed protectionist, and the Court interpreted this kind of restriction as going against the intent of the Framers, who viewed the nation as one economic unit. *See id.* "What is ultimate is the principle that one state in its dealings with another may not place itself in a position of economic isolation." *Baldwin v. G.A.F. Seelig, Inc.*, 294 U.S. 511, 527 (1935). *But see* *Lewis v. BT Inv. Managers, Inc.*, 447 U.S. 27, 36 (1980) (explaining limit on state sovereignty not absolute when lacking federal legislation and concerning police powers).

92. *See* JASON J. CZARNEZKI, STATES AS MARKET PARTICIPANTS IN THE U.S. AND THE EU?: PUBLIC PURCHASING AND THE ENVIRONMENT 14 (2013), available at http://www.sieps.se/sites/default/files/2013_2.pdf, archived at <http://perma.cc/N8AY-K9WB> (describing two-part test courts use to determine whether laws or regulations violate Dormant Commerce Clause).

93. *See id.* (outlining first part of Dormant Commerce Clause analysis).

94. *See id.* at 14-15. (explaining when laws considered per se invalid). When asking this first question, courts must consider whether the law in question "overtly discriminates against out-of-state economic interests." *Id.* at 14. When this facial discrimination is present, the Supreme Court has a rule of near per se invalidity. *See id.* at 14-15. *But see* *Maine v. Taylor*, 477 U.S. 131, 132 (1986) (holding facially discriminatory law as constitutional because no other way to achieve legitimate state goals).

95. 397 U.S. 137 (1970).

chance the law will be found constitutional.⁹⁶

The Supreme Court considered the Dormant Commerce Clause question for cases involving the disposal of waste, and it classified garbage as an article of commerce.⁹⁷ The Court also held that a ban on the importation of any solid or liquid waste from out-of-state was unconstitutional because there was no rational basis for the decision to treat some waste differently than other waste.⁹⁸ More recently, the Supreme Court again considered a waste-related Dormant Commerce Clause issue in *United Haulers Association, Inc. v. Oneida-Herkimer Solid Waste Management Authority*.⁹⁹ In that case, the Court distinguished its holding from an earlier case, *C & A Carbone, Inc. v. Town of Clarkstown*,¹⁰⁰ and demonstrated that public entities would be treated differently than private actors under the Dormant Commerce Clause.¹⁰¹ Likewise, scholars have predicted that when it comes to hydrofracking practices, many states' attempts to regulate and restrict flowback waste from being disposed of within their borders will be held unconstitutional in the future.¹⁰²

Closely related to the holding in *United Haulers Ass'n, Inc.* is the market-participant exception.¹⁰³ This exception allows a state to restrict interstate trade

96. See *id.* at 142 (stating general rule for validity of state statutes affecting interstate commerce). Thus, the regulation will only be seen as unconstitutional if the burden it imposes on out-of-state actors is clearly excessive in relation to the presumed local benefits it looks to achieve. See *id.*

97. See *C & A Carbone, Inc. v. Town of Clarkstown*, 511 U.S. 383, 391 (1994) (classifying service of processing and disposal of waste as commerce). The Court also denied that Clarkstown could defend the flow control ordinance by claiming it was steering waste from out-of-town disposal sites, out of fear of the possible environmental effects. See *id.* at 393. According to the Court, to act in this way would extend the town's police powers "beyond its jurisdictional bounds." *Id.*

98. See *City of Philadelphia v. New Jersey*, 437 U.S. 617, 623-24, 629 (1978) (questioning whether prohibiting importation of waste originating out-of-state protectionist or involved legitimate local concerns); see also Steven Ferrey, *Follow the Money! Article I and Article VI Constitutional Barriers to Renewable Energy in the U.S. Future*, 17 VA. J.L. & TECH. 89, 105 (2012) (arguing constitutional barriers not "wholly avoided" when states address renewable energy issues).

99. 550 U.S. 330, 342 (2007) (holding flow ordinance by public facility not violating Dormant Commerce Clause).

100. 511 U.S. 383 (1994).

101. See *United Haulers Ass'n, Inc.*, 550 U.S. at 342 (discussing compelling reasons for treating public and private actors differently). Public entities, unlike private ones, are vested with the responsibility of protecting the health, safety, and welfare of its citizens, and the states should, therefore, be treated differently. See *id.* Laws favoring local government may be geared towards a number of different legitimate goals that are unrelated to the economic protectionism that the Dormant Commerce Clause and the Framers wished to prevent. See *id.* at 342-43.

102. See Schumacher & Morrissey, *supra* note 62, at 291 (discussing proposed legislation in New Jersey aimed at restricting out-of-state waste from entering state's borders). The New Jersey Governor, however, did not sign the legislation aimed at restricting hydraulic fracturing, and the moratorium in New Jersey was lifted. See *id.* at 291-92.

103. See *Hughes v. Alexandria Scrap Corp.*, 426 U.S. 794, 810 (1976) (establishing market-participant exception for first time). The Court stated: "Nothing in the purposes animating the Commerce Clause prohibits a State, in the absence of congressional action, from participating in the market and exercising the right to favor its own citizens over others." *Id.* (internal footnote omitted); see also *Reeves, Inc. v. Stake*, 447

if it is acting as a purchaser or seller—a market participant—rather than a regulator.¹⁰⁴ In *Reeves, Inc. v. Stake*,¹⁰⁵ the Court further discussed the importance of state sovereignty in this arena.¹⁰⁶ As a result, while a state can act independently when it acts as a market participant, it cannot impose limits beyond the market in which it is actually participating.¹⁰⁷

The market-participant exception allows states to exercise or create “more rigorous or creative environmental protection legislation” than that in place by the federal government.¹⁰⁸ Problems arise with the use and application of the market-participant exception because what constitutes market regulation versus market participation remains unclear, especially in the area of energy regulation.¹⁰⁹ In particular, there is a fear that if the market-participant exception is not used responsibly, it could encourage neighboring states to retaliate or negatively impact trade relations with the state that has enacted the law in question.¹¹⁰ There are options to ensure that this method of state action can be used responsibly, however, and that legislation can avoid being found unconstitutional.¹¹¹

U.S. 429, 436 (1980) (holding no reason to believe Commerce Clause required further justification for state as market participant). The Court continued that it viewed the “State ‘as guardian and trustee for its people.’” *Reeves, Inc.*, 447 U.S. at 438 (quoting *Heim v. McCall*, 239 U.S. 175, 191 (1915)).

104. See CZARNEZKI, *supra* note 92, at 10-11 (defining general concept of market-participant exception under Commerce Clause).

105. 447 U.S. 429 (1980).

106. See *id.* at 439 (interpreting state propriety activities as “burdened with the same restrictions imposed on private market participants.”) When the state is acting as a market participant, it should be freely able to exercise independent judgment and determine the parties with whom it wishes to deal. See *id.* at 438-39.

107. See S.-Cent. Timber Dev., Inc. v. Wunnicke, 467 U.S. 82, 97-98 (1984) (holding Alaska not exempt under market-participant exception because state acted beyond scope of particular market).

108. See CZARNEZKI, *supra* note 92, at 10 (introducing market-participant exception as route for states exercising environmental federalism). Professor Czarneski illustrates the opportunities the market-participant exception presents through the example of states that provide incentives or require that products be purchased within a defined geographic area. See *id.* at 11. This view, however, still recognizes that these regulations could be subject to constitutional challenges under the Dormant Commerce Clause. See *id.* An area where the exception could prove to be useful is in regards to the encouragement of buying locally produced foods and supporting environmentally conscious goods or services. See *id.* at 17.

109. See *id.* at 19 (explaining uncertainty involved in application of market-participant exception).

110. See *id.* at 20 (elaborating on possible retaliatory action of neighboring states when exception utilized); see also Dan T. Coenen, *The Impact of the Garcia Decision on the Market-Participant Exception to the Dormant Commerce Clause*, 1995 U. ILL. L. REV. 727, 729 (1995) (explaining retaliatory measures and rivalry Dormant Commerce Clause intended to eliminate); Kingsley S. Osei, *The Best of Both Worlds: Reciprocal Preference and Punitive Retaliation in Public Contracts*, 40 PUB. CONT. L.J. 715, 716 (2011) (describing retaliatory practices involved in bidding situations favoring residents over out-of-state bidders).

111. See CZARNEZKI, *supra* note 92, at 24 (advocating state must demonstrate its role as mere player in market). Despite concerns, laws and regulations regarding environmental protection have been successful under the market-participant exception because Dormant Commerce Clause analysis does not apply. See *id.* at 25.

III. ANALYSIS

A. Federal Regulation and Its Failure to Adequately Address Fracking

At the present time, regulation of fracking at the federal level remains practically nonexistent.¹¹² This inaction from Congress forced states to try to regulate the practice individually.¹¹³ Perhaps most worrisome is the exemption from federal regulation of most of the activity that surrounds fracking, through the Energy Policy Act.¹¹⁴ The lack of action from the EPA—the federal agency entrusted with protecting human health and the environment—adds to the frustration felt by many opponents of fracking.¹¹⁵ Many scholars and analysts believe this suggests that a localized and individualized regulatory scheme is a more realistic and pragmatic approach to addressing such a contested industry practice.¹¹⁶

Efforts by the EPA to produce concrete data and answer public concerns about the safety of hydraulic fracturing have also been unsuccessful.¹¹⁷ Due to the continuous pushback surrounding the process of making any concrete findings on the environmental impacts of fracking, many in the scientific community are also concerned that the EPA will be unwilling to push for any further regulation at the federal level.¹¹⁸ The fact that this inaction is coming from a federal agency entrusted with making such health and safety

112. See *supra* Part II.C (outlining inaction of both federal government and EPA); see also Yukstas, *supra* note 4, at 583 (arguing federal government unwilling to enact any comprehensive nationwide regulation); cf. Highsmith, *supra* note 2, at 172-73 (stating EPA has “technical knowledge and expertise” necessary to adequately tackle fracking regulation). Highsmith further argues that the EPA is the agency best suited to address questions of safety and human health nationwide. See Highsmith, *supra* note 2, at 173.

113. See *supra* note 62 and accompanying text (describing current variety in state regulation because of lack of federal oversight).

114. See Powers, *supra* note 8, at 938-39 (addressing suspicion behind Halliburton loophole created by Energy Policy Act). The successful lobbying efforts of the oil and gas industry are credited for creating this exemption, which removed most federal oversight from fracking. See *id.* at 939-40.

115. See Garmezy, *supra* note 29, at 408 (reiterating doubts over legislature’s “true motivation” for passing Energy Policy Act). Within a few weeks of taking office, President George W. Bush created the National Energy Policy Development Group, and its recommendations “were greatly influenced, [and] often directly drafted, by [the oil and gas] industry.” *Id.* (alterations in original).

116. See Yukstas, *supra* note 4, at 596-97 (arguing local communities should play strong role in regulatory system of New York gas exploration); see also *infra* Part III.C (urging states and localities to take reins in fracking regulation).

117. See *supra* notes 4-5 (discussing inability of both Congress and EPA to make determinative findings on hydraulic fracturing). The fact that the EPA study on fracking has been delayed by another two years concerns many scientists and advocates of additional regulation. See *supra* notes 4-5.

118. See Marczak, *supra* note 5 (discussing possibility EPA study’s late release means less after industry expansion). Scientists argue that the delayed release could really be “too little, too late.” *Id.* But see Garmezy, *supra* note 29, at 428-29 (asserting argument for state-controlled fracking regulation misguided). Garmezy argues that despite concerns surrounding the Halliburton loophole, the federal government still has a strong history of enacting “sweeping environmental regulations.” *Id.* at 429 (listing various successful federal regulatory schemes).

determinations makes subsequent action by Congress all the more unlikely.¹¹⁹ If the federal government and the EPA are unwilling to release a clear statement and stance on the future of fracking, no national guidance will emerge.¹²⁰ For these reasons, those who wish to further restrict or regulate fracking should pursue regulation at the state or municipal levels.¹²¹

B. Constitutional Barriers to Fracking Regulation and Waste Disposal

At the state level, the Dormant Commerce Clause's barriers may prevent further setbacks in productive regulation of hydraulic fracturing.¹²² This doctrine suggests that if a state permits fracking and the disposal of wastewater within its own borders, the Constitution would prohibit placing any discriminatory burdens or restrictions on out-of-state actors who wish to operate within that state.¹²³ The Supreme Court recently decided two analogous cases that involved the disposal of more traditional waste—such as the kind put in landfills—which suggests that the flowback and wastewater created by fracking would be treated similarly.¹²⁴ In this sense, attempts by states to restrict flowback water waste from being disposed of within each state's borders could encounter substantial constitutional challenges.¹²⁵ Thus, scholars have advocated for treating fracking as a separate issue and not

119. See Powers, *supra* note 8, at 939-40 (explaining further government action unlikely). Powers argues that given the makeup of applicable laws and the lobbying pressure that the oil industry placed on Congress, regulation is unlikely to occur in the near future. See *id.* at 938-40.

120. See Manor, *supra* note 34, at 465-66 (explaining failure of FRAC Act to go forward in Congress and EPA's delay of study). The FRAC Act remained in committee at the close of the 113th Congress, and thus, the act has died. See *S. 1135 (113th): FRAC Act*, *supra* note 55.

121. See *infra* Part III.C (arguing certain local regulation options most realistic for fracking regulation and wastewater disposal).

122. See Ferrey, *supra* note 98, at 105 (noting Supreme Court reluctant to recognize discriminatory actions in environmental regulation). Ferrey discusses that statutes designed to favor local interests over those of out-of-state actors are generally deemed to be *per se* invalid. See *id.* The Supreme Court made a similar argument in *City of Philadelphia*, holding there was "no basis to distinguish out-of-state waste from domestic waste" when determining the harms caused after its disposal in landfill sites. See *City of Philadelphia v. New Jersey*, 437 U.S. 617, 629 (1978) (holding state statute prohibiting importation of out-of-state waste violates Commerce Clause); see also Michel, *supra* note 10, at 215 (discussing constitutional Commerce Clause issues related to Ohio's two-tier disposal fee system). But see *City of Philadelphia*, 437 U.S. at 628 (contrasting unconstitutional provisions of statute with certain legitimate quarantine laws).

123. See Michel, *supra* note 10, at 234-35 (analyzing current Supreme Court views on application of Dormant Commerce Clause). This is further strengthened by the fact that even Chief Justice Roberts—a strong supporter of states' rights—authored a majority opinion in which he supported the current two-tier Dormant Commerce Clause analysis already in place. See *id.*

124. See *United Haulers Ass'n, Inc. v. Oneida-Herkimer Solid Waste Mgmt. Auth.*, 550 U.S. 330, 335, 343 (2007) (considering public flow-control ordinances in New York); *C & A Carbone, Inc. v. Town of Clarkstown*, 511 U.S. 383, 383, 391 (1994) (considering private flow-control ordinances). Although each case came to a different result, the *United Haulers Ass'n, Inc.* Court clarified that this was due to the distinction between public and private actors. See *United Haulers Ass'n, Inc.*, 550 U.S. at 343.

125. See Michel, *supra* note 10, at 242-44 (comparing possible discriminatory fracking policies to twentieth century protectionism).

grouping it within the same analysis that would apply to traditional waste disposal.¹²⁶ It seems more likely, however, that the Supreme Court would be careful not to send such a strong message on a contentious national issue like fracking.¹²⁷

C. Localized and State Based Solutions: The Market-Participant Exception

Although the EPA and the federal government have largely failed to take any substantial steps toward creating an integrated regulatory framework, this does not mean federal action is not the preferred way to create meaningful legislation.¹²⁸ In this regard, this Note does not argue that a federal approach to fracking regulation would not be more efficient or effective; in fact, this author would make such an argument if a federal regulatory framework could practically be accomplished in the near future.¹²⁹ Instead, this Note argues there is an immediate need that the federal government has proven too stubborn and ill-equipped to address; and, one practical way to regulate hydrofracking in the near future will likely be accomplished through state or local action.¹³⁰

Despite the obvious benefits to wider and broader regulation at the national level that might be more effective, states, local governments, and communities are ultimately the jurisdiction most impacted by the environmental, social, and health risks of hydrofracking.¹³¹ At the local level, citizens and municipalities are most directly affected, and thus, local governments have the ability to use the powers each already possesses to effectively operate within the makeup of

126. *Cf. id.* at 240-41 (arguing Constitution does not protect against creating these types of economic barriers between states).

127. *See id.* at 237-38 (arguing these types of facially discriminatory regulations likely fail Dormant Commerce Clause scrutiny). Despite the fact that a state's interest in protecting itself from environmental damage is a legitimate concern, there is ultimately "no justification" for this kind of regulation to treat local, in-state waste differently from out-of-state waste. *See id.* (explaining why two-tier disposal fee system fails constitutional scrutiny).

128. *See* Highsmith, *supra* note 2, at 172 (arguing EPA and federal government better suited to adequately address fracking). As Highsmith argues, this kind of wide-reaching regulation nationwide would be preferable because it would send a clear message to ordinary Americans and drilling companies alike. *See id.* (explaining both industry and public benefit from clear regulation).

129. *See supra* Part II.C (discussing trouble faced by federal government in regulating fracking).

130. *See* Yukstas, *supra* note 4, at 595-97 (advocating for approach of local regulation and governance for fracking in New York and Pennsylvania). Pennsylvania is a unique case because it "allowed unconventional gas drilling to take root in the state without having a real regulatory framework in place." *Id.* at 585. Nevertheless, the Pennsylvania Supreme Court considered whether zoning ordinances enacted by local governments were preempted by the former Pennsylvania Oil and Gas Act. *See id.* at 586. The court held that localities were permitted to "apply zoning laws to regulate gas drilling." *Id.* at 587.

131. *See id.* at 596-97 (describing effects of fracking in towns where drilling takes place); *see also* Royte, *supra* note 29 (arguing multitude of social implications caused by natural gas drilling operations). Many of the impacts Royte discusses are indirect and not often associated with unconventional natural gas exploration—such as prostitution and drunk driving—but have been seen in towns throughout the country since the fracking boom took off in 2006. *See* Royte, *supra* note 29 (explaining effects of fracking on small towns).

our federal system.¹³² By concentrating on what can be achieved at a more localized level, the national burdens and setbacks become less daunting.¹³³

Short of total statewide bans or moratoriums, the market-participant exception presents a practical approach for states that wish to impose initial regulations or restrictions on the disposal of flowback water created during the fracking process.¹³⁴ Under this kind of regulation, a state can choose to operate a public disposal facility in order to prevent out-of-state waste being treated within its borders.¹³⁵ The Supreme Court's decisions in *Hughes v. Alexandria Scrap Corp.*¹³⁶ and *Reeves, Inc.* clearly create the market-participant exception.¹³⁷ In the analysis of whether action falls within the boundaries of the market-participant exception, one factor that courts consider is "whether the program is consistent with the values of federalism, local experimentation, and responsiveness to local concerns."¹³⁸ The regulation of fracking and the protection of a state's natural environment and human health are all legitimate local concerns that warrant inclusion in this doctrine.¹³⁹ This would allow for states to take a middle-of-the-road approach by limiting the amount of potentially dangerous waste entering states' borders, but it would also avoid a complete ban on fracking.¹⁴⁰ Both of these options present the opportunity for states and localities to lead the way in fracking regulation at a time when Congress and the EPA remain unable to do so.¹⁴¹

132. See Yukstas, *supra* note 4, at 596 (arguing use of local government as integral to federal system). Yukstas argues that, through local zoning laws and ordinances, localities will be able to engage with drilling companies prior to drilling and thereby provide an additional safeguard against the harmful effects the extraction process may cause. See *id.* at 597.

133. See *id.* at 604 (asserting ability of communities to overcome challenges and potentially work with drilling companies).

134. See *supra* Part II.D-E (discussing market-participant exception as one approach different states' follow to regulate fracking).

135. See *supra* note 11 and accompanying text (arguing market-participant exception as alternative in *City of Philadelphia*).

136. 426 U.S. 794 (1976).

137. See *Reeves, Inc., v. Stake*, 447 U.S. 429, 437 (1980); *Hughes v. Alexandria Scrap Corp.*, 426 U.S. 794, 810 (1976); see also CZARNEZKI, *supra* note 92, at 10-12, 17-26 (discussing establishment and contours of market-participant exception).

138. See *id.* at 20 (listing different factors courts tend to consider in market-participant exception arguments).

139. See *supra* notes 31-32 and accompanying text (showing fracking economic benefits outweighed by drawbacks of local and social detriments). Considering the importance of local health that could be affected by pollution of local water supplies as well as the disruption of social communities and land use, the local dangers appear even clearer. See *supra* notes 30-31 and accompanying text. These concerns were addressed by the Pennsylvania Supreme Court when it recognized that drilling, and hydraulic fracturing in general, affect local communities in unique ways. See *Robinson Twp. v. Commonwealth*, 83 A.3d 901, 980 (Pa. 2013) (explaining difficulty created by Act Thirteen in legislation's disparate impacts on communities). Pennsylvania's highest court explained that Act Thirteen "exacerbates the problem by offering minimal statewide protections while disabling local government from mitigating the impact of oil and gas development at a local level." See *id.*

140. See *supra* note 34 and accompanying text (discussing benefits possible through regulation of fracking at local level).

141. See *supra* note 34 and accompanying text.

IV. CONCLUSION

The current and future trends in the regulation of hydraulic fracturing remain unclear. From an environmental and health policy standpoint, there are many questions that remain unanswered, including the effects that drilling could have on the nation's water supplies and its natural environment. To date, both Congress and the EPA have proven unable to adequately set the stage for comprehensive guidance at the federal level. As a result, states are forming various regulatory frameworks, ranging from outright bans to minimal regulation.

Due to the variety in regulations—when attempting to regulate fracking, the disposal of fracking waste, or flowback water—each state has found it difficult to balance its own interests in protecting the environment and citizens' health with the limitations of the Dormant Commerce Clause. While a clear message from the federal government creating one standard for the entire nation is desirable, it is also unlikely at this time. Each state can, however, continue regulating to the best of its ability through state-based measures. These include instituting a form of an outright ban on fracking, enacting moratoriums until further research and facts are discovered, and utilizing the market-participant exception through state-owned waste disposal facilities. This realistic and more localized approach to fracking regulation would allow a state to exercise its rights and powers, while also avoiding constitutional challenges to its decisions.

Alexander T. Maur