

FRACKING AND THE NIMBY SYNDROME

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With the pro-fossil fuel disposition of the Trump administration, the momentum surrounding the recent rebound in fracking operations in the United States is likely to be sustained. Thorny questions about fracking will also remain and retain considerable force. The Not in My Backyard (NIMBY) phenomenon predates shale oil and gas development, but because of the potential for inflicting tremendous damage on residential property values, the extraction of these natural resources through hydraulic fracturing presents a new theater for NIMBY protests. This Article examines the adverse effects of shale gas development in residential areas and how the inveterate tension among home owners, residents, and energy companies can be resolved. The Article proposes resolving the conflicts pertaining to property value diminution and deleterious impact on quality of life by introducing a mix of public policy and private tools, consisting of limited purpose agreements and disruption payments. This approach ensures that the benefits of shale gas development are retained while its inconveniences are given the desired attention.

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INTRODUCTION

The United States produces a large portion of the natural gas it uses from conventional reservoirs, which are desired for their porosity and permeability.¹ However, there are also, in a number of states, enormous oil and natural gas resources in unconventional reservoirs that are hardly permeable, such as shale oil, tight oil, shale gas, tight gas, and coalbed methane, and thus are not accessible or recoverable through conventional production methods and techniques.² These natural gas deposits abound in many places, including the Barnett Shale region in Fort Worth, Texas, the Haynesville Shale region that cuts across East Texas and Louisiana, the Marcellus Shale region that encompasses Pennsylvania, West Virginia, Ohio, and New York,³ and the

¹ See Monika Ehrman, *The Next Great Compromise: A Comprehensive Response to Opposition Against Shale Gas Development Using Hydraulic Fracturing in the United States*, 46 TEX. TECH. L. REV. 423, 430 (2014) (“In traditional petroleum geology and engineering, sandstones are considered high-quality reservoir rocks with high porosity and high permeability, while shales are considered high-quality seal rocks with low porosity and low permeability.”); see also Phillip E. Norvell, *Prelude to the Future of Shale Gas Development: Well Spacing and Integration for the Fayetteville Shale in Arkansas*, 49 WASHBURN L.J. 457, 473 (2010) (“A conventional oil and gas reservoir is characterized by adequate porosity, permeability, and reservoir energy, which drives the oil and gas in the reservoir to the well bore.”); see generally Dianne Rahm, *Regulating Hydraulic Fracturing in Shale Gas Plays: The Case of Texas*, 39 ENERGY POL’Y 2974 (2011).

² See Michael Binnion, *How the Technical Differences Between Shale Gas and Conventional Gas Projects Lead to a New Business Model Being Required to Be Successful*, 31 MARINE & PETROLEUM GEOLOGY 5 (2012) (discussing “the extremely low permeability of shale”); see also Zou Caineng et al., *Geological Characteristics and Resource Potential of Shale Gas in China*, 37 PETROLEUM EXPLORATION & DEV. 641, 641 (2010); Rahm, *supra* note 1, at 2974–75.

³ 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, 382–85 (2011).

Bakken Shale region that includes North Dakota and Montana.⁴

Production from these unconventional reservoirs has been made possible through hydraulic fracturing, a practice commonly referred to as “fracking.”⁵ Because of the growing interest in developing energy alternatives to oil, the fact that natural gas is significantly cleaner than coal, the gradual reduction and increased difficulty of developing conventional natural gas resources, the concern about reliability of energy supplies from volatile regions of the world, and the advancements in natural gas extraction technologies,⁶ the United States is poised to meet a substantial portion of its domestic energy and export needs by developing its unconventional natural gas deposits.⁷ Indeed, the United States has become a net exporter of natural gas.⁸ It appears that we are now

⁴ See Daniel Johnston, *Changing Fiscal Landscape 2008–2017*, 10 J. WORLD ENERGY L. & BUS. 415, 419 (2017); Matthew T. Wansley, *Regulation of Emerging Risks*, 69 VAND. L. REV. 401, 454 (2016).

⁵ This article adopts the approach to the definition of fracking applied by Environment Texas Research and Policy Center.

[W]hen we refer to the impacts of “fracking,” we include impacts resulting from all the activities needed to bring a well into production using hydraulic fracturing, to operate that well, and to deliver the gas or oil produced from that well to market. The oil and gas industry often uses a more restrictive definition of “fracking” that includes only the actual moment in the extraction process when rock is fractured

RUMPLER ET AL., ENV’T AM. RESOURCES & POL’Y CTR., THE COSTS OF FRACKING: THE PRICE TAG OF DIRTY DRILLING’S ENVIRONMENTAL DAMAGE 3 (2012).

⁶ See Da Young Kim, *A Lesson from the Shale Revolution in the United States, Canada, and China*, 29 GEO. INT’L ENVTL. L. REV. 747, 761 (2017) (“In the United States, given its long history of energy dependence and concerns about energy security, the advent of fracking received a fairly warm welcome.”); Thomas W. Merrill & David M. Schizer, *The Shale Oil and Gas Revolution, Hydraulic Fracturing, and Water Contamination: A Regulatory Strategy*, 98 MINN. L. REV. 145, 161–64 (2013).

⁷ See Zhao Xingang et al., *Focus on the Development of Shale Gas in China—Based on SWOT Analysis*, 21 RENEWABLE & SUSTAINABLE ENERGY REVS. 603, 604 (2013); see also Steffen Jenner & Alberto J. Lamadrid, *Shale Gas vs. Coal: Policy Implications from Environmental Impact Comparisons of Shale Gas, Conventional Gas, and Coal on Air, Water, and Land in the United States*, 53 ENERGY POL’Y 442, 443 (2013); Coral Davenport, *Coal Is on the Way Out at Electric Utilities, No Matter What Trump Says*, N.Y. TIMES (Apr. 5, 2017), <https://www.nytimes.com/2017/04/05/business/dealbook/coal-utilities-regulation-trump.html>. (“With or without the Clean Power Plan, power companies say, coal is simply no longer the fuel of choice for keeping the lights on in America—and they do not expect it to make a comeback. Cheaper natural gas and renewable sources like wind and solar power have replaced it.”).

⁸ See Naureen S. Malik, *U.S. Becomes a Net Gas Exporter for the First Time in*

being ushered into a natural gas era, with natural gas poised to become the largest source of energy globally by 2050.⁹ Shale gas development through hydraulic fracturing is an important factor in this equation.¹⁰

Hydraulic fracturing was first developed in the United States in the 1860s.¹¹ Over time, it underwent significant improvements, leading to the birth of modern fracking in the 1940s.¹² Thus, modern fracking has been in use in the United States for almost seventy years.¹³ The most modern form of this technology was created in the 1990s.¹⁴ Natural gas fracking is a gas drilling and extraction process that consists of injecting fluid into a well to cause the fracture of subsurface formations and consequent escape of natural gas into a production channel.¹⁵ Until the more recent modernization of this technological process, and its economic viability, huge volumes of natural gas remained untapped.¹⁶ Texas pioneered the use of hydraulic fracturing in horizontal wells in the United States in the 1990s as a means of forcing out the last vestiges of gas from old wells in the Barnett Shale.¹⁷

Hydraulic fracturing has been viewed as both a savior and a

60 Years, BLOOMBERG (Jan. 10, 2018), <https://www.bloomberg.com/news/articles/2018-01-10/u-s-became-a-net-gas-exporter-for-the-first-time-in-60-years>.

⁹ See Irina Slav, *Is Big Oil Prepared for the Natural Gas Era?*, OILPRICE.COM, (Sept. 4, 2017, 11:00 AM CDT), <http://oilprice.com/Energy/Crude-Oil/Is-Big-Oil-Prepared-For-The-Natural-Gas-Era.html>. (“By 2034, natural gas will overtake oil as the main source of energy, and by 2050 it will be the single largest such source globally, satisfying 27 percent of demand.”) (last visited Sept. 17, 2017).

¹⁰ See Changjian Wang et al., *Is China Really Ready for Shale Gas Revolution—Re-evaluating Shale Gas Challenges*, 39 ENVTL. SCI. & POL’Y 49, 49–50 (2014).

¹¹ See John Manfreda, *The Real History of Fracking*, OILPRICE.COM, (Apr. 13, 2015, 4:10 PM), <http://oilprice.com/Energy/Crude-Oil/The-Real-History-Of-Fracking.html>.

¹² See *id.*

¹³ See *id.*

¹⁴ See *id.*

¹⁵ See DeSheng Hu & Shenqing Xu, *Opportunity, Challenges and Policy Choices for China on the Development of Shale Gas*, 60 ENERGY POL’Y 21, 22 (2013).

¹⁶ See Caleb Madere, *Covert Capture: Hydraulic Fracturing and Subsurface Trespass in Louisiana*, 75 LA. L. REV. 865, 868–69 (2015).

¹⁷ See Thomas W. Merrill, *Four Questions About Fracking*, 63 CASE W. RES. L. REV. 971, 973 (2013); see also Norvell, *supra* note 1, at 457 (“The Barnett Shale play in Texas is the first modern shale gas development and the progenitor of the present shale-gas boom in the United States.”); Binnion, *supra* note 2, at 4.

villain.¹⁸ On the positive front, it has been associated with a number of social, economic, and energy benefits including increased energy security, revitalization of communities hosting fracking operations, growth in employment, increased tax revenues and enhanced economic activity through low energy prices.¹⁹ On the other hand, it has generated substantial fears as concerns about earthquakes and pollution of water aquifers mingle with constraints on property rights and potential diminution of housing values.²⁰ These housing challenges can overwhelm current and potential home owners.²¹ On the other hand, fracking could also

¹⁸ See, e.g., Qiang Wang et al., *Natural Gas from Shale Formation—The Evolution, Evidences and Challenges of Shale Gas Revolution in United States*, 30 RENEWABLE & SUSTAINABLE ENERGY REVS. 1, 1 (2014).

¹⁹ See, e.g., Zheng Wan, Tao Huang & Brian Craig, *Barriers to the Development of China's Shale Gas Industry*, 84 J. OF CLEANER PROD. 818, 818 (2014) (stating that shale gas production is a way to minimize dependence on foreign energy imports and the negative consequences of such reliance); see also Thomas C. Kinnaman, *The Economic Impact of Shale Gas Extraction: A Review of Existing Studies*, 70 ECOLOGICAL ECON. 1243, 1243 (2014); Sylvia Pfeifer, *Finds that Form a Bedrock of Hope*, FIN. TIMES (April 22, 2012), <https://www.ft.com/content/e04264c8-8a2e-11e1-a0c8-00144feab49a>.

²⁰ See generally Avner Vengosh et al., *The Effects of Shale Gas Exploration and Hydraulic Fracturing on the Quality of Water Resources in the United States*, 7 PROCEDIA EARTH & PLANETARY SCI. 863 (2013); see also Frank Asche et al., *Gas Versus Oil Prices: The Impact of Shale Gas*, 47 ENERGY POL'Y 117, 119 (2012) (“Relevant issues are whether the water and chemicals used in production can migrate to drinking water, and whether produced water can be handled acceptably to avoid pollution. Whether adequate geological separation exists between sub-surface fracture zones and adjacent drinking water reservoirs is another question.”); Ellie Bastian, *Drilling and Community Consent: How Oil and Gas Boards Can Address the Public Health Threats Posed by Fracking*, 102 MINN. L. REV. 343, 344 (2017) (“Fracking and its associated wastewaters have been blamed for causing earthquakes, polluting the air, and polluting ground and surface water.”); Lawrence G. Cetrulo, *The Effects of Fracking*, in 4 TOXIC TORTS LITIGATION GUIDE § 44:6 (2017–2018 ed.) (“The residents surrounding fracking sites suffered damages to their property value as well. Fracking can devalue property in a variety of different ways such as: contaminating underground water; losing control of above-ground land use due to leasing off underground rights; and lowering the quality of life for the surrounding area from air pollution, truck traffic, and noise.”).

²¹ See RUMPLER ET AL., *supra* note 5.

Fracking can reduce the value of nearby properties as a result of both actual pollution and the stigma that may come from proximity to industrial operations and the potential for future impacts. A 2010 study in Texas concluded that homes valued at more than \$250,000 and within 1,000 feet of a well site saw their values decrease by 3 to 14 percent—there was no discernible impact on property values beyond that distance or for lower-priced houses. . . . Even where impacts on sales values are difficult to establish, chronic conditions caused by

lead to a rise in some property values, with increased demand for housing by new workers who move into an area to work on oil and gas operations.²²

To examine some of these concerns more closely, I conducted a focus group in April 2013 of residential property owners in the Dallas-Fort Worth-Arlington area who were targeted for hydraulic fracturing underneath their homes. This area had recorded a sharp increase in urban drilling.²³ Participants, numbering about a dozen men and women, spoke of three major concerns: interference with property freedom, limitation on ability to hold out when negotiations are orchestrated, and the Not in My Backyard (NIMBY) syndrome. While a separate article focuses on the first two concerns, this Article focuses on the third concern relating to the NIMBY phenomenon. This Article argues that fracking raises

fracking—such as odor, traffic, noise, concerns about pollution of the air and water, earthquake concerns and visual impacts—may adversely affect residents’ use and enjoyment of their homes. Properties on and near locations where fracking is taking place may also be more difficult to finance and insure, potentially affecting their value. Mortgage lenders and insurers have recently taken steps to protect themselves from fracking-related risks. Several mortgage lenders have begun to require extensive buffer zones around homes on land with gas leases before issuing a new mortgage or to refuse to issue new mortgages on land with natural gas leases.

Id. at 30 (citations omitted).

²² See Benjamin E. Apple, *Mapping Fracking: An Analysis of Law, Power, and Regional Distribution in the United States*, 38 HARV. ENVTL. L. REV. 217, 239 (2014); Jennifer Reingold, Will America’s Boomtown Bust? A Report from the Heart of North Dakota’s Fracking Country, FORTUNE (Mar. 1, 2015), <http://fortune.com/north-dakota-fracking/>.

²³ See Bryn D. Meredith, *Regulatory Takings of Mineral Interests and the “Parcel as a Whole”*, 61 INST. ON OIL & GAS L. 1 (2010) (“In Tarrant County alone, a county with almost 1.7 million in estimated population, the number of gas wells has quadrupled in recent years, reaching 1,176 as of February, 2008.”); see also Ernest E. Smith, *The Growing Demand For Oil and Gas and the Potential Impact Upon Rural Land*, 4 TEX. J. OIL GAS & ENERGY L. 1 (2008–2009) (stating that “[m]uch of the current gas boom is centered on the Barnett Shale in urban and exurban areas in and around population centers such as Fort Worth” and further noting that “most of the current controversy over disruptions caused by natural gas development has arisen in suburban areas where homeowners have found themselves unexpectedly faced with near-by drilling and proposals for pipelines across residential areas. . . .”); Pilita Clark, *Fightback Against the Frack Attack*, FIN. TIMES (April 25, 2012), <https://www.ft.com/content/608ba6ec-8e00-11e1-b9ae-00144feab49a> (“The number of horizontally drilled wells producing gas in Texas’s Barnett Shale alone, the most developed U.S. shale area, jumped from fewer than 400 in 2004 to more than 10,000 in 2010. . . .”).

legitimate NIMBY concerns that should be addressed in a manner that fairly distributes the benefits and burdens of shale gas development across society. With appropriate policy interventions, such as disruption payments, shale gas development can proceed in a manner that caters to the needs of mineral owners, surface owners, energy developers, and energy consumers. Accordingly, this Article advocates the adoption of a system of disruption payments in every area in which fracking is employed as a technique for developing shale gas resources. Where public policy responses are slow, business interests should introduce these payments voluntarily, in collaboration with property owners. In addition, shale gas developers should borrow a leaf from the books of residential or commercial real estate developers and use limited purpose agreements to protect against potential diminution of property values. Aside from the benefits that would accrue to the immediate stakeholders, this approach has the added benefit of softening opposition to fracking in places within and outside the United States contemplating the development of their shale gas deposits. Finally, this approach spreads the costs of fracking operations beyond the immediate vicinity of drilling activities.²⁴

This Article is organized as follows. Part I provides a synoptic review of the “shale revolution,” delving into its early history and modern implications. Part II discusses the NIMBY phenomenon (a property-related environmental concern), its presence in various industrial contexts and its manifestation in opposition to shale gas projects. Part III presents and responds to the views of focus group participants on the impact of shale gas development on peaceful enjoyment of private property and residential home values in communities hosting or near fracking operations. Part IV introduces some policy suggestions that may be explored to improve the outcomes for residents and property owners that face the negative impact of fracking: economically, aesthetically, and otherwise. These suggestions include the use of disruption payments as a tool to make fracking fairer to residents of areas hosting fracking operations, and the deployment of the limited purpose agreement as a vehicle for arriving at mutually beneficial negotiation outcomes. The Article concludes by noting that with

²⁴ See generally Mark Squillace, *Managing Unconventional Oil and Gas Development as if Communities Mattered*, 40 VT. L. REV. 525, 552–54 (2016) (outlining the environmental impact of fracking in residential areas).

the recent rebound in fracking activities, following a slow down due to lower oil and gas prices experienced in the past few years, the need for these changes is more dire than ever before.

I. SHALE REVOLUTION

Not too long ago, a concern in the United States was whether there would be sufficient oil production to meet domestic needs.²⁵ Most recently, this concern shifted to whether it was desirable for the United States to start exporting oil and gas produced in the country.²⁶ The ban on the export of U.S. crude oil was lifted in December 2015,²⁷ and today, the United States is about to shake the global oil and gas export market.²⁸ This dramatic turnabout resulted from a number of factors, the most prominent of which is the shale revolution.²⁹ The fusion of the techniques of hydraulic

²⁵ See, e.g., Peter K. Reilly & Christopher S. Heroux, *When Should Interests in Oil and Gas Be Considered Securities?: A Case for the Industry Deal*, 34 S. TEX. L. REV. 37, 38 (1993) (“Total oil imports have increased dramatically since 1985. Over the past few years, domestic reserves have been decreasing at an alarming rate. It is not inconceivable that we could encounter a national crisis similar to those seen in 1973 and 1979, when relatively minor interruptions in supply created internal havoc.”).

²⁶ See Timothy Gardner, *Boehner Wants to End the US Oil Export Ban*, BUS. INSIDER (Jul. 29, 2015, 11:48 PM), <http://www.businessinsider.com/boehner-wants-to-end-the-us-oil-export-ban-2015-7>; Hu & Xu, *supra* note 15, at 21 (stating that the U.S. was poised to become “a net natural gas exporter by 2035” because of increase in shale gas production); see also Catherine Traywick & Sheela Tobben, *China Surpasses Canada as Top Buyer of US Crude*, BLOOMBERG (Apr. 4, 2017, 11:00 PM), <https://www.bloomberg.com/news/articles/2017-04-04/china-surpasses-canada-as-top-u-s-crude-buyer-amid-record-sales> (discussing how crude exports by the U.S. have been growing recently).

²⁷ Angela Kao, *Talk is Cheap, So is Oil: Where Do We Go Now that We’ve Lifted the U.S. Crude Oil Export Ban*, 39 HOUS. J. INT’L L. 723, 732 (2017); A. Chase Snodgrass, *Do U.S. LNG Export Laws, Regulations, And Practices Violate International Free Trade Obligations*, 38 ENERGY L.J. 241, 246 (2017).

²⁸ See Clyde Russell, *U.S. Crude Exports to Asia May Shake up Global Oil Pricing*, REUTERS (Sept. 26, 2017, 12:25 PM), <https://www.reuters.com/article/us-column-russell-crude-asia/u-s-crude-exports-to-asia-may-shake-up-global-oil-pricing-russell-idUSKCN1C12HJ> (analyzing the import of a ten-fold increase in US shale oil exports to Asia in the first eight months of 2017 compared to the same period in the previous year).

²⁹ See Anas Alhajji, *US Tight Oil and Gas and its Global Impact*, 10 J. WORLD ENERGY L. & BUS. 404, 411 (2017) (discussing how fracking-associated production and export of U.S. oil and gas are changing global markets); Jinsok Sung, *The Impact of US LNG Exports and the Prospects for Price-Competitiveness in the East Asian Market*, 10 J. WORLD ENERGY L. & BUS. 316, 316 (2017) (“The shale revolution in the USA has greatly affected international LNG market participants for dramatically different reasons.”). Other important

fracturing and horizontal drilling has unlocked vast quantities of previously inaccessible deposits of oil and gas, largely in shale rock formations.³⁰

Shale gas production in the United States commenced in 1821.³¹ Yet for many years, vast quantities of oil and gas in shale and tight rock formations were considered unreachable. By combining available techniques, these resources are now being extracted, spurring a range of activities in a number of states. One commentator describes this journey as follows:

America has been fracking oil wells since right around the time of the Civil War. That said, modern oil well fracking didn't start taking shape until the 1940s, and it wasn't until the 1990s when it was combined with horizontal drilling to unleash the shale gas boom. The industry eventually transferred those two techniques into oil drilling when Continental Resources . . . drilled the first commercially successful well in the North Dakota Bakken. The industry has since taken that combo to other U.S. states, enabling the country to unlock a treasure trove of shale oil resources.³²

This conjoining of traditional hydraulic fracturing, horizontal drilling, and high-volume injection of fluids led to the coinage of the term “hydrofracking.” The combination of horizontal drilling and hydraulic fracturing significantly increases the extent of drilling and the volume of fracking fluid required. The amalgamation of these techniques is attractive largely because of

factors include reduced consumption and efficient use of energy as a result of technological breakthroughs and government incentives.

³⁰ In discussing the success of the shale revolution, one should not lose sight of the vast variety of factors that made it possible. See Shangbin Chen et al., *Shale Gas Reservoir Characterisation: A Typical Case in the Southern Sichuan Basin of China*, 36 ENERGY 6609, 6609 (2011) (“This success has resulted through a combination of scientific study, engineering innovation, new technology and, in some cases, persistence and risk taking.”).

³¹ See Alexander Hartwig & Hans-Martin Schulz, *Applying Classical Shale Gas Evaluation Concepts to Germany—Part I: The Basin and Slope Deposits of the Stassfurt Carbonate (Ca₂, Zechstein, Upper Permian) in Bradenburg*, 70 CHEMIE DER ERDE 77, 77 (2010); see also Caineng et al., *supra* note 2, at 642 (“The 1st shale gas well was drilled in the Devonian Dunkirk shale in the Appalachian Basin in 1821.”); Richard C. Selley, *UK Shale Gas: The Story so Far*, 31 MARINE & PETROLEUM GEOLOGY 100, 100 (2012) (“In 1821 shale gas was produced from a natural seepage in the Appalachian Mountains at Fredonia, New York.”).

³² Matthew DiLallo, *Which US States Produce the Most Shale Oil?*, THE MOTLEY FOOL (March 25, 2017), <https://www.fool.com/investing/2017/03/25/which-us-states-produce-the-most-shale-oil.aspx>.

its ability to significantly minimize surface disturbance.³³ Through horizontal drilling, subsurface deposits of gas are accessible while utilizing fewer surface perforations than would be practicable under conventional drilling.³⁴ Apart from the Barnett and Haynesville formations that are connected to Texas, the hydrofracking process has also been deployed extensively in other parts of the country, including North Dakota, Pennsylvania, and West Virginia.³⁵

This surprising revolution³⁶ has been accompanied by a number of thorny legal and policy issues, implicating such areas as tort liability, property rights, and international relations.³⁷ Hydraulic fracturing has tremendous potential to alter the economic and energy trajectory of the United States and the globe.³⁸ It promises to revitalize local, state, and national

³³ See Emily C. Powers, *Fracking and Federalism: Support for an Adaptive Approach That Avoids the Tragedy of the Regulatory Commons*, 19 J. L. & POL'Y 913, 921 (2011).

³⁴ See *id.*

³⁵ See Sakmar, *supra* note 3, at 383; see also Inessa Abayev, *Hydraulic Fracturing Wastewater: Making the Case for Treating the Environmentally Condemned*, 24 FORDHAM ENVTL. L. REV. 275 (2012) ("Hydrofracking now occurs across Shale formations within different regions of the country from Colorado to West Virginia."); Jessica Owley & Collin Doane, *Exploiting Conservation Lands: Can Hydrofracking be Consistent with Conservation Easements?*, 66 U. KAN. L. REV. 93, 104 (2017) (discussing the economic impact of hydrofracking in North Dakota).

³⁶ See Francesco Graceva & Peter Zeniewski, *Exploring the Uncertainty Around Potential Shale Gas Development—A Global Energy System Analysis Based on TIAM (TIMES Integrated Assessment Model)*, 57 ENERGY 443, 443 (2013) (stating that shale gas development in the United States was largely unexpected); see also Technical Paper, Robert McIlvaine & Ann James, *Pumps Markets: The Potential of Shale Gas* (on file with author) ("The possibility of economically extracting gas from shale has come as something of a surprise to the energy industry.").

³⁷ See JOHN S. LOWE ET AL., *CASES AND MATERIALS ON OIL AND GAS LAW* 863 (6th ed. 2013); Corey Johnson & Tim Boersma, *Energy (In)security in Poland: The Case of Shale Gas*, 53 ENERGY POL'Y 389, 396 (2013) (discussing the geopolitical component of shale gas production); Leslie Hook, *China Seeks to Emulate U.S. Shale Gas Success*, FIN. TIMES (April 26, 2012) (stating that "[s]hale has become a key area of cooperation for the US and China . . .").

³⁸ See Christopher McGlade et al., *Methods of Estimating Shale Gas Resources—Comparison, Evaluation and Implications*, 59 ENERGY 116, 116 (2013) (discussing shale gas production's present and projected impact on American and global gas markets); see also Alhajji, *supra* note 29, at 405, 411 (exploring the undeniable impact of the shale revolution on international oil and gas trade); Graceva & Zeniewski, *supra* note 36, at 449 ("A further issue often debated is the possibility that the 'shale gas revolution' could induce structural

economies, contribute to energy security by reducing dependence on supplies from unstable and volatile regions of the world, and put substantial amounts of money into the pockets of energy corporations and landowners.³⁹ It is estimated that “oil and gas companies paid more than \$15 million in royalties to Texans across the state in 2012. That doesn’t include initial signing bonuses, which can be enormous. Houston-area oil and gas heir Daniel Harrison III collected \$1 billion in cash in 2013 when Shell Oil Co. leased his 100,000-acre ranch in the Eagle Ford.”⁴⁰ Fracking has been such a huge success in the United States that other countries are gearing up to replicate it.⁴¹ As many countries participate in this journey, shale gas can play a key role in achieving the laudable global goal of sustainable development.⁴² Professor Meghan O’Sullivan of Harvard University’s Kennedy School captured the gains in a recent opinion piece in the New York Times as follows:

Thanks largely to fracking—hydraulic fracturing of rock—the United States is now the largest producer of oil and gas combined in the world. America consumes large quantities of energy, so this expanded production has not yet made the country energy independent. But it has greatly decreased its

changes in global trade, by prompting a redirection of gas flows, penalizing some exporting regions while benefiting others.”).

³⁹ See Benjamin L. McCready, *Like It or Not, You’re Fracked: Why State Preemption of Municipal Bans Are Unjustified in the Fracking Context*, 9 DREXEL L. REV. ONLINE 61, 66–68 (2017) (analyzing the economic and energy gains and pains of fracking); see also Apple, *supra* note 22, at 229–230; Alexander T. Maur, *Let’s Not Frack This Up: State-Based Solutions for the Regulation of Hydraulic Fracturing and the Disposal of Flowback Water*, 48 SUFFOLK U. L. REV. 151, 155 (2015).

⁴⁰ Priscila Mosqueda, *The Holdouts*, TEX. OBSERVER (Feb. 16, 2015), <https://www.texasobserver.org/the-holdouts-three-texas-families-refused-sell-mineral-rights-fracking/>.

⁴¹ See Alan Krupnick et al., *Environmental Risks of Shale Gas Development in China*, 75 ENERGY POL’Y 117, 117 (2014) (“Rapid and low-cost development of shale gas resources in the United States and its concomitant effects on reducing natural gas prices, stimulating industrial activity from natural gas users and replacing coal with natural gas to generate electricity, have many countries in the world looking to the development of their own shale gas resources.”); see also Juan Roberto Lozano Maya, *The United States Experience as a Reference of Success for Shale Gas Development: The Case of Mexico*, 62 ENERGY POL’Y 70, 70–71 (2013).

⁴² See Zheng Wan & Brian Craig, *Reflections on China—US Energy Cooperation: Overcoming Differences to Advance Collaboration*, 27 UTIL. POL’Y 93, 94, 97 (2013).

dependence on foreign energy: About a decade ago, the United States imported nearly two-thirds of the oil it consumed; that percentage is now closer to one-fifth. America is now the largest exporter of refined petroleum products and, in the past year, has also become an exporter of crude oil and liquefied natural gas. The benefits of this surge in production go well beyond cheaper gasoline, an improved trade balance and a stronger economy. The boom has also improved the country's sources of soft power, in part by underscoring America's enduring edge in innovation and ingenuity. The new output has forced changes in the structure of energy markets in ways that are favorable to the United States. American producers of oil from shale rock have introduced a new business model to the scene: Small investments in exploration and production can bring oil to the market quickly. This weakens OPEC, by making it more difficult for its production cuts to result in sustained increases in oil prices. For the first time in more than a century, the market determines the price of oil with much less influence from any cartel, commission or band of big oil companies. . . . The energy boom has also weakened many of America's competitors, particularly Russia, by both decreasing its revenues and reducing its ability to use its energy resources as a political cudgel. The boom also expands opportunities for the United States to forge new partnerships. For instance, given China's growing dependence, and America's waning reliance, on Middle Eastern oil, Beijing may be more likely to work with the United States to stabilize that part of the world. Such changes put America in a stronger position to reinforce the international order.⁴³

However, fracking also presents enormous implications for the environment, democracy, and the protection of individual property rights.⁴⁴ Drilling could pollute underground water aquifers as

⁴³ Meghan L. O'Sullivan, *How Trump Can Harness the U.S. Energy Boom*, N.Y. TIMES (Sept. 15, 2017), <https://www.nytimes.com/2017/09/15/opinion/trump-energy-boom.html>.

⁴⁴ See Christopher J. Hilson, *Litigation Against Fracking Bans and Moratoriums in the United States: Exit, Voice and Loyalty*, 40 WM. & MARY ENVTL. L. & POL'Y REV. 745, 746-47 (2016); Saby Ghoshray, *Charting the Future Trajectory for Fracking Regulation: From Environmental Democracy to Cooperative Federalism*, 38 T. MARSHALL L. REV. 199 (2013); Jinsheng Wang, David Ryan & Edward J. Anthony, *Reducing the Greenhouse Gas Footprint of Shale Gas*, 39 ENERGY POL'Y 8196 (2011) (discussing the environmental impact of methane, the principal component of shale gas, as a more powerful greenhouse gas than carbon dioxide); Rebecca W. Watson & Jennifer Cadena, *Anti-Fracking Initiatives: Power to the People or More of the Same?*, 28 NAT.

methane gas seeps through shoddy cement jobs in drilled wells and subsequently migrates into drinking water.⁴⁵ It should be noted, however, that this is not necessarily a fracking issue, as shoddy cement jobs on conventional (non-fracked) wells have the same risks. The use of chemicals, mixed with sand to pierce the shale rock, generate concern due to perceived health and safety risks.⁴⁶ Different parts of the country hosting fracking operations are already witnessing these worrisome scenarios as efforts advance toward the development of the huge shale gas deposits in various states.⁴⁷

Small tract mineral owners face a number of irksome circumstances as well, ranging from the imposition of unwanted development near their residences to the risk of stealth expropriation of gas underneath their land as larger developers take advantage of existing laws to drill without accommodating their interests.⁴⁸ As a result, affected or interested property owners and residents in areas undergoing or considering shale gas development have engaged in acts of resistance, some of which are founded on the NIMBY phenomenon discussed below.

II. NOT IN MY BACKYARD (NIMBY) PHENOMENON

It has become a commonplace reaction of residents in areas identified as host communities for potential industrial and controversial non-industrial projects to resist the projects they deem undesirable. This long-standing practice has also been used

RESOURCES & ENV'T 44 (2014).

⁴⁵ See Blake A. Watson, *Fracking and Cracking: Strict Liability for Earthquake Damage Due to Wastewater Injection and Hydraulic Fracturing*, 11 TEX. J. OIL GAS & ENERGY L. 1, 12 n.65 (2016); see also Elizabeth Ann Glass Geltman, *Drilling for Common Ground: How Public Opinion Tracks Experts in the Debate over Federal Regulation of Shale Oil & Gas Extraction*, 35 VA. ENVTL. L.J. 59, 113 (2016).

⁴⁶ See Danielle Quinn, *A Fracking Fragile Issue: Courts Continue to Tiptoe around Subsurface Trespass Claims*, 27 VILL. ENVTL. L.J. 1, 30 (2016); Merrill & Schizer, *supra* note 6, at 192–94 (2013) (stating that methane has been observed to be present in water wells but noting that a causal link has not been established between methane contamination in water wells and fracking).

⁴⁷ See Brian G. Rahm & Susan J. Riha, *Toward Strategic Management of Shale Gas Development: Regional, Collective Impacts on Water Resources*, 17 ENVTL. SCI. & POL'Y 12, 12–13 (2012).

⁴⁸ See Brady Paul Behrens, *Rule 37 Exceptions and Small Mineral Tracts in Urban Areas: An Argument for Incorporating Compulsory Pooling into Special Field Rules in Texas*, 44 TEX. TECH. L. REV. 1053, 1077 (2012).

to confront fracking operations. Opponents of fracking anchor their resistance on a number of factors, including the perceived possible impact of fracking on the residential environment. Section A of this Part introduces the environmental concerns that fuel NIMBY resistance in communities facing fracking operations, while Section B closely examines the NIMBY syndrome.

A. *NIMBY and Environmental Concerns*

NIMBY objections are a subset of environmental objections to fracking.⁴⁹ Generally, environmental opposition to fracking involves two separate complaints: first, the perceived risk of pollution and other environmental consequences from fracking, and second, the NIMBY syndrome, in which residents resist efforts to site environmentally-destructive or undesirable industrial activities in their own community or neighborhood. Regarding the first complaint, fracking has been assailed for precipitating or exacerbating a host of environmental problems. Critics, commentators, and concerned citizens link fracking to earthquakes.⁵⁰ Water contamination is also an issue that generates panic.⁵¹ This species of concerns was not a dominant theme at the

⁴⁹ See Alastair R. Lucas & Donald N. Zillman, *Breaking (Not So) Bad: A Look at the World's Energy Prospects as of July 2014*, 60 ROCKY MTN. MIN. L. FOUND. 18-1, 18-25 (2014) ("Public sentiment towards unconventional development is divided. The environmental objections include both NIMBY objections to the immediate negative impacts of fracking on the surrounding territory and broader objections that enhanced supplies of oil and natural gas threaten the development of renewable energy sources or nuclear power.").

⁵⁰ See David Bulgarelli, *Quaking the Foundation: Fracking-Induced Earthquakes and What to Do About Them*, 2017 U. ILL. J.L. TECH. & POL'Y 229 (2017); Monika U. Ehrman, *Earthquakes in the Oilpatch: The Regulatory and Legal Issues Arising out of Oil and Gas Operation Induced Seismicity*, 33 GA. ST. U. L. REV. 609 (2017); Kate Konschnik, *Regulating Stability: State Compensation Funds For Induced Seismicity*, 29 GEO. ENVTL. L. REV. 227 (2017).

⁵¹ See Joseph Belza, *Inverse Condemnation and Fracking Disasters: Government Liability for the Environmental Consequences of Hydraulic Fracturing Under a Constitutional Takings Theory*, 44 B.C. ENVTL. AFF. L. REV. 55 (2017); Lynda L. Butler, *Property as a Management Institution*, 82 BROOK. L. REV. 1215, 1271 n.298 (2017); Matthew Jokajty, *Insuring Fracking Risk: Can Conventional Insurance Tools Manage Unconventional Risk?*, 27 NAT. RESOURCES & ENV'T 3, 3 (2013) ("Most notably is the fear that these operations could contaminate drinking water supplies with either the fluid used in fracking operations or even with natural gas—the flaming taps so vividly displayed in the movie *Gasland*."); Alexander T. Maur, *Let's Not Frack This Up: State-Based Solutions for the Regulation of Hydraulic Fracturing and the Disposal of*

focus group and so will not receive significant attention in this Article.⁵² Suffice it to say, however, that it is in the interest of all concerned parties to pay close attention to the environmental concerns associated with fracking. Recognition of environmental concerns and identification and implementation of proactive measures to address them are necessary for continued and peaceful development of mineral resources in urban and suburban settings.⁵³ However, this Part is focused primarily on the NIMBY phenomenon, which was featured prominently during the focus group. Section B below examines the NIMBY syndrome generally, while Section C specifically scrutinizes the NIMBY discussion in the context of fracking.

B. *A Close Examination of the NIMBY Syndrome*

While the term NIMBY may be of a relatively recent vintage, community resistance to unwanted development projects is a long-standing phenomenon.⁵⁴ The NIMBY problem “is a conflict endemic to all democracies—and to any system of government that permits localities to express and exert political opposition.”⁵⁵

The NIMBY phenomenon has been described by a number of

Flowback Water, 48 SUFFOLK U. L. REV. 151, 156–57 (2015); Blake Watson, *Hydraulic Fracturing and Tort Litigation*, 31 PROB. & PROP. 10, 11 (2017).

⁵² See generally Ciprian N. Radavoi, *Fenceline Communities and Environmentally Damaging Projects: An Asymptotically Evolving Right to Veto*, 29 TUL. ENVTL. L.J. 1 (2015) (discussing environment-based NIMBY opposition, especially in the context of international extractive projects).

⁵³ See Thomas L. Friedman, *Get It Right on Gas*, N.Y. TIMES (August 5, 2012), <http://www.nytimes.com/2012/08/05/opinion/sunday/friedman-get-it-right-on-gas.html>.

⁵⁴ See IVAN L. LONDON ET AL., BE AFRAID. BE VERY AFRAID: DEALING WITH PUBLIC PERCEPTIONS OF RISK IN OIL AND GAS DEVELOPMENT, 26-1, 26-29 (2015) (“The NIMBY concept is not new.”); Juliana Maantay, *Zoning Law, Health, And Environmental Justice: What’s The Connection?*, 30 J.L. MED. & ETHICS 572, 583 (2002) (“It has been frequently documented that at least as far back as the 1930s communities fought, and occasionally succeeded in stopping (or relocating elsewhere before construction started), such proposals as expressways, sewage treatment plants, and low-income housing projects that they were convinced would ruin their neighborhoods.”); Lamy Moosa, “*The Energy Capital Of The East Coast?*”: *Lessons Virginia Can Learn from Cape Wind Failure And European Success in Offshore Wind Energy*, 39 WM. & MARY ENVTL. L. & POL’Y REV. 713, 732 (2015) (“The NIMBY attitude is not a new phenomenon.”).

⁵⁵ Barak D. Richman & Christopher Boerner, *A Transaction Cost Economizing Approach to Regulation: Understanding the NIMBY Problem and Improving Regulatory Responses*, 23 YALE J. ON REG. 29, 32 (2006).

commentators as embracing a host of features, notably: opposition to a project's location to preserve economic, aesthetic, and other benefits, and to prevent environmental degradation, criminal activity, or other societal harm, with or without a scientific or factual basis for the objection.⁵⁶ In a nutshell, it "is a term used to describe the reaction of local homeowners who object to further development within their community, fearing that such development might reduce the market value of their homes or change the character of the community."⁵⁷ NIMBY resistance has been evident in several industrial operations.⁵⁸ It has surfaced in a

⁵⁶ See Daniel R. Mandelker, *Zoning Barriers to Manufactured Housing*, 48 URB. LAW. 233, 237 (2016) ("Studies show, however, either that there is no basis for these objections, or that they are irrelevant to zoning regulation."); Benjamin L. Meersman, *You Can't Hear Me Now: The Ambiguous Language of the Telecommunications Act of 1996's Tower Siting Provision*, 39 J. CORP. L. 437, 441 (2014).

NIMBY opposition occurs when citizens of a particular geographic area want to receive the benefits of particular industry infrastructure, but do not want the physical location of such infrastructure in their immediate neighborhoods and communities. Reasons for the NIMBY argument include a potential devaluation of property, health and environmental concerns, and, often, the effect on aesthetic value, regardless of whether reliable data or proof exists.

Id.; see also Michael Kling, *Zoned Out: Assisted-Living Facilities and Zoning*, 10 ELDER L.J. 187, 196 (2002) (stating that common NIMBY "reactions generally fall into four categories: safety, economics, density, and neighborhood appearance."); Susan Lorde Martin, *Wind Farms and NIMBYs: Generating Conflict, Reducing Litigation*, 20 FORDHAM ENVTL. L. REV. 427, 466 (2010) (discussing NIMBY protests on the basis of aesthetics); Crystal Ndidi Ibe, *Feeding the Homeless: The Criminalization of a Humanitarian Act*, 41 T. MARSHALL L. REV. ONLINE 24 (2015) (discussing objection to a church-run homeless feeding location by neighboring residents who were concerned about crime and safety).

⁵⁷ Patricia E. Salkin & Ashira Pelman Ostrow, *Cooperative Federalism and Wind: A New Framework for Achieving Sustainability*, 37 HOFSTRA L. REV. 1049, 1052 (2009); see also Stanley E. Cox, *Garbage In, Garbage Out: Court Confusion About the Dormant Commerce Clause*, 50 OKLA. L. REV. 155, 168 n.35 (1997) (citing numerous sources and various definitions offered by them); Desiree C. Hensley, *Out in the Cold: The Failure of Tenant Enforcement of the Low-Income Housing Tax Credit*, 82 U. CIN. L. REV. 1079, 1087 (2014) ("Placing housing designed for use by the poor in higher-income areas often causes an outcry by the people who live there, referred to as the "NIMBY" (Not In My Back Yard) syndrome.").

⁵⁸ See Michael Burger, *"It's Not Easy Being Green": Local Initiatives, Preemption Problems, and the Market Participant Exception*, 78 U. CIN. L. REV. 835, 855 (2010) (stating that the NIMBY phenomenon is "typical in siting hazardous waste disposal sites and transportation routes, and other locally undesirable land uses (LULUs)."); Jason Schumacher & Jennifer Morrissey, *The Legal Landscape of "Fracking": The Oil and Gas Industry's Game-Changing*

wide range of projects, “including airports, prisons, sports stadiums, power plants, halfway houses, and low-income housing projects.”⁵⁹

NIMBY campaigns are likely to arise in communities where the residents are well-informed and eager to engage the political process to achieve their objective of keeping unwanted projects from being sited in their neighborhoods.⁶⁰ In some cases, the rural poor may oppose industrial projects in order to preserve their way of life, while some affluent urban and suburban communities may welcome or tolerate some projects to enhance their economic wellbeing.⁶¹ Some NIMBY campaigns end successfully, and news of such successful campaigns would only spur hopes of similar success in other communities.⁶²

Technique is its Biggest Hurdle, 17 TEX. REV. L. & POL. 239, 252 (2013) (stating that NIMBY issues “typically arise when heavy industry abuts residential areas.”). Apart from industrial projects, NIMBY-ism also arises in other contexts, such as siting of social service facilities, including corrections, medical or mental health facilities. See Christian C. Hagen-Frederiksen, *Beyond Fracking: How Robinson Township Alters Pennsylvania Municipal Zoning Rights*, 34 J.L. & COM. 375, 388–89 (2016).

⁵⁹ Richman & Boerner, *supra* note 55, at 37; see also David W. Hughes, *When NIMBYs Attack: The Heights to Which Communities Will Climb to Prevent the Siting of Wireless Towers*, 23 J. CORP. L. 469, 482–83 (1998); Christina A. Lee, *Taliaferro v. Darby Township Zoning Board: Pretextual Recognition of § 1983 Standing to Mitigate Failure To Recognize Standing Under § 1981*, 41 U.C. DAVIS L. REV. 741, 747 n.20 (2007) (noting various definitions of NIMBY to include projects considered unpleasant to the neighborhood as well as projects which engender local opposition but which some of the neighbors may not view as unwanted); Patricia Suter, *The Siting System: Theory and Reality*, 1 ALB. L. ENVTL. OUTLOOK J. 24, 24 (1995).

⁶⁰ See Hanna Chandoo, *With Liberty, Justice, and Contamination For All: The Unequal Distribution of Groundwater Pollution in California*, 36 WHITTIER L. REV. 307, 311 (2015); Shannon M. Roesler, *Federalism and Local Environmental Regulation*, 48 U.C. DAVIS L. REV. 1111, 1144 (2015) (stating when local communities, because of NIMBY-ism, exclude unwanted facilities “these facilities often end up in low-income and minority communities, presenting environmental justice concerns.”); Marc L. Roark, *Homelessness at the Cathedral*, 80 MO. L. REV. 53, 110 (2015) (“‘Not in My Backyard’ (‘NIMBY’) rhetoric, often tends to flow from self-appointed leaders (usually homeowners) who often have greater access, more resources, and better political inroads to advance a particular view.”); David B. Spence, *Federalism, Regulatory Lags, and the Political Economy of Energy Production*, 161 U. PA. L. REV. 431, 481 (2013) [hereinafter Spence, *Federalism*] (“In urban and presumably wealthier areas, fracking can provoke opposition from better-funded and more-sophisticated NIMBY (‘not in my backyard’) groups.”).

⁶¹ See David B. Spence, *The Political Economy of Local Vetoes*, 93 TEX. L. REV. 351, 378 n.129 (2014) [hereinafter Spence, *Political Economy*].

⁶² See Spence, *Federalism*, *supra* note 60, at 481 (“When fracking meets

Although the sobriquet “NIMBY” has apparently morphed into a pejorative appellation, NIMBY campaigns present some benefits, including drawing attention to negative facets of a project and inviting a reconsideration that could result in improved or optimal outcomes.⁶³ However, it is not without its own problems.⁶⁴ The NIMBY veto can come with enormous costs.⁶⁵ The prominent problem is that resorting to NIMBY could result in the termination or prevention of worthwhile projects.⁶⁶ A veritable challenge presented by NIMBY campaigns is that while the fear expressed about a project may be real, the concerns are often exaggerated,

political resistance, elected local government leaders may respond with ordinances banning or restricting fracking. The City Council of Pittsburgh passed an ordinance banning fracking within the city limits in late 2010, 239 and other communities within the Marcellus Shale and beyond have taken similar actions.”) (citations omitted).

⁶³ See Donna R. Christie, *Lead, Follow, or Be Left Behind: The Case for Comprehensive Ocean Policy and Planning for Florida*, 44 STETSON L. REV. 335, 354 n.128 (2015) (stating that NIMBY “is a generally pejorative term used to describe individuals that oppose development that may benefit the larger community at the expense of local property interests”); John D. Echeverria, *The Costs of Koontz*, 39 VT. L. REV. 573, 604 (2015) (arguing in favor of homeowners who seek to keep away negative externalities from their neighborhood and objecting to the use of the term NIMBY to describe them, viewing it as a pejorative); Hannah Treppa, *Not a Huge Fan: Detering the Implementation of Wind Turbines in the Great Lakes*, 93 U. DET. MERCY L. REV. 321, 339–41 (2016).

⁶⁴ See Alice Kaswan, *Distributive Justice and the Environment*, 81 N.C. L. REV. 1031, 1088 (2003) (“Communities who cry NIMBY are often considered selfish, short-sighted, and an obstacle to providing needed social services and other necessary but undesirable land uses.”); see also Steve P. Calandrillo et al., *Making “Smart Growth” Smarter*, 83 GEO. WASH. L. REV. 829, 872–874 (2015); Gregory D. Eriksen, *Breaking Wind, Fixing Wind: Facilitating Wind Energy Development in New York State*, 60 SYRACUSE L. REV. 189, 197 (2009); Clifford Rechtchaffen et al., ENVIRONMENTAL JUSTICE: LAW, POLICY & REGULATION 76–77, 98–99, 167–69 (2d ed. 2009) (presenting excerpts that discuss the “NIMBY problem” or the negative effects of the NIMBY phenomenon).

⁶⁵ See Michael Lewyn, *Deny, Deny, Deny*, 44 REAL EST. L.J. 558, 558 (2016) (“Academic economists often assert that the NIMBY veto raises housing prices, based on the law of supply and demand: less housing supply means higher housing prices.”); Michael Lewyn, *The Roots of Expensive Zoning*, 45 REAL EST. L.J. 256, 261 (2016) (discussing how NIMBY power has increased over the years thereby affecting development and availability of housing) [hereinafter Lewyn, *Zoning*].

⁶⁶ See Hannah J. Wiseman, *Disaggregating Preemption in Energy Law*, 40 HARV. ENVTL. L. REV. 293, 315 (2016) (addressing the point that NIMBY concerns could stymie needed development); see also A. Mechele Dickerson, *Revitalizing Urban Cities: Linking the Past to the Present*, 46 U. MEM. L. REV. 973, 985–86 (2016); Ashira Pelman Ostrow, *Grid Governance: The Role of a National Network Coordinator*, 35 CARDOZO L. REV. 1993, 2022–23 (2014).

and a project may be scuttled when its termination is not necessarily warranted.⁶⁷ Affluent and politically savvy communities are able to utilize those campaigns to promote their own interest, ensuring continued protection of their property values and scenery,⁶⁸ even when society at large loses and more lives are imperiled.⁶⁹ Some scholars capture the frustration in the following words: “Under ordinary political conditions, necessary reforms and changes can be bogged down by gridlock, regulatory capture, or destructive ‘NIMBY-ism.’ Neighborhoods can remain blighted or . . . ‘unbuilt because of disagreement over who will

⁶⁷ See David B. Spence, *Responsible Shale Gas Production: Moral Outrage vs. Cool Analysis*, 25 *FORDHAM ENVTL. L. REV.* 141, 183 (2013); see also Warren L. Ratliff, *The De-Evolution of Environmental Organization*, 17 *J. LAND RESOURCES & ENVTL. L.* 45, 67 (1997) (stating that threats posed by opposed projects are often overestimated).

⁶⁸ See Matthew J. McGowan, *Location, Location, Mis-Location: How Local Land Use Restrictions Are Dulling Halfway Housing’s Criminal Rehabilitation Potential*, 48 *URB. LAW.* 329, 347–49 (2016); see also Catherine Durkin, *The Exclusionary Effect of “Mansionization”: Area Variances Undermine Efforts to Achieve Housing Affordability*, 55 *CATH. U. L. REV.* 439, 449 n.81 (2006); Peter Johnsen, *Public Utility Zoning Post-Robinson Township: A Constitutional End-Around or Infrastructure Imperative?*, 8 *DREXEL L. REV. ONLINE* 41, 68 (2015) (“The downside of this outcome, of course, is that the concerns of a regimented minority may impede sustainable, worthwhile development.”); Ashira Pelman Ostrow, *Land Law Federalism*, 61 *EMORY L.J.* 1397, 1412 (2012) (“Where the local land-use process is dominated by NIMBY sentiment (as is the case in many elite suburban communities), local residents have the economic incentive and legal authority to exclude undesirable developments, without regard for the impact on regional or national land-use priorities.”).

⁶⁹ See Rich Pepper, *Batteries and State Law: A Glimpse of the Future in the Lone Star State*, 16 *N.C. J.L. & TECH. ON.* 269, 288 (2015) (“Not-In-My-Backyard (‘NIMBY’) attitudes thus prevent transmission capacity from keeping up with new generation capacity. This hurts not only the state in which the decision was made, but also the entire surrounding region using the same grid.”); Camille Rorer, *Can You See Me Now? The Struggle Between Cellular Towers and NIMBY*, 19 *J. NAT. RESOURCES & ENVTL. L.* 213, 214 (2004) (“Although one can easily sympathize with the concerns of the individuals who are forced to be in close proximity to the cell towers, one problem with NIMBY is that it can prevent the placement of enough towers to ensure health, safety, and cellular communication for the community at large.”); Lawrence Susskind & Ryan Cook, *The Cost of Contentiousness: A Status Report on Offshore Wind in the Eastern United States*, 33 *VA. ENVTL. L.J.* 204, 248 (2015) (describing how NIMBY opposition led to the cancellation of offshore wind projects that state agencies in New York attempted to pursue with a private developer); Peter P. Swire, *The Race to Laxity and the Race to Undesirability: Explaining Failures in Competition Among Jurisdictions in Environmental Law*, 14 *YALE J. ON REG.* 67, 71 (1996) (“NIMBY effects can be so powerful that they prevent the siting of facilities even where the total benefits exceed the total costs.”).

bear the immediate costs of solving the problem.”⁷⁰ Moreover, in some cases, even the protesting community might lose out if the project is not executed.⁷¹

C. Fracking and the NIMBY Syndrome

Energy projects, regardless of type or stripe, tend to be magnets for NIMBY resistance.⁷² Not surprisingly, therefore, the NIMBY syndrome has made its way into fracking decisions, such as site selection.⁷³ Fracking has started attracting NIMBY-based lawsuits in some places, including Texas, Pennsylvania, and Arkansas.⁷⁴ Fracking’s impact on a neighborhood spans multiple phases of the exploration and production processes, ranging from

⁷⁰ Daniel E. Rauch & David Schleicher, *Like Uber, but for Local Government Law: The Future of Local Regulation of the Sharing Economy*, 76 OHIO ST. L.J. 901, 947 (2015).

⁷¹ See Mark Wilson, *Organizational Sustainability: A Self-Help Housing Corporation’s Recipe for Success*, 40 REAL EST. REV. J. 5 (2011) (“In truth, properly maintained affordable housing developments designed and built with sensitivity to the architectural and aesthetic standards desired by the community, may even increase property values and enhance community stability.”).

⁷² David A. Lewis, *Identifying and Avoiding Conflicts Between Historic Preservation and the Development of Renewable Energy*, 22 N.Y.U. ENVTL. L.J. 274, 279 (2015) (noting that conventional power projects, such as coal and nuclear power plants, and renewable energy projects are often viewed as unwelcome neighbors); Daniel A. Lyons, *Federalism and the Rise of Renewable Energy: Preserving State and Local Voices in the Green Energy Revolution*, 64 CASE W. RES. L. REV. 1619, 1634 (2014) (“Although some communities welcome the investment, jobs, and lease payments that wind farms bring to a local community, these projects often face significant hurdles and fierce opposition.”).

⁷³ See Erik Lange, *Local Control of Emerging Energy Sources: A Due Process Challenge to Disparate Treatment by States*, 64 CASE W. RES. L. REV. 619, 686 (2013) (stating that neighbors of fracking sites have NIMBY concerns); Schumacher & Morrissey, *supra* note 58, at 243 (stating that among the major issues facing fracking are those “stemming from balancing state economic development with NIMBY (‘not in my back yard’) opposition to that development”); Jesse J. Richardson, Jr., *Local Regulation of Hydraulic Fracturing*, 117 W. VA. L. REV. 593, 605 (2014) (analogizing opposition of hydraulic fracturing by nearby residents to NIMBY opposition to cellular towers); see generally Joshua P. Fershee, *Facts, Fiction, and Perception in Hydraulic Fracturing: Illuminating Act 13 and Robinson Township v. Commonwealth of Pennsylvania*, 116 W. VA. L. REV. 819 (2014).

⁷⁴ See LEWIS BASS & THOMAS PARKER REDICK, PRODUCTS LIABILITY: DESIGN AND MANUFACTURING DEFECTS § 24:14 (2017) (“Litigation over environmental impacts, including property damage, has been filed and will continue to be filed, as the fracking industry attracts negative attention and becomes the latest ‘not in my backyard’ (NIMBY) phenomenon to attract litigation.”).

preparation of the drilling site, “completion of the fracking job,” and production of the oil and gas.⁷⁵ Fracking activities also generate noise and orchestrate social disruption.⁷⁶ Activities related to fracking, including the operation of trucks and other heavy equipment, building of new roads, and construction of drill pads and gathering lines “affect the immediate area and effect air emissions, odors, noise, spill risk, land use, wildlife, and the general life styles of these communities.”⁷⁷

Communities hosting or near fracking operations are understandably concerned about the impact of fracking on their way of life. Indeed, oil and gas operations present an attractive atmosphere for the NIMBY phenomenon for a variety of reasons.⁷⁸ Residents of communities hosting petroleum exploration and development projects may rightly view themselves as bearing the burden of providing a needed resource, while the benefits are enjoyed by numerous people in diverse places.⁷⁹ Further, the neighbors’ concerns go beyond aesthetics to include risks associated with the oil and gas industry.⁸⁰ Moreover, the oil industry endures a bad reputation and public image,⁸¹ making it easier for communities to distance themselves from it either because they share those opinions of the industry or would not want to be identified with an industry laboring under that negative perception.

When a segment of the population in a particular area would be the prime beneficiary of a project in that area, neighbors who would not receive any or nearly the same level of benefits, while bearing a sizeable amount of burden from the development, are likely to oppose the project using the NIMBY argument as a tool. This scenario plays out particularly well in the case of fracking: “Other land owners watch neighbors uncover incredible riches, but sit frustrated on land without extractable shale; neighbors can bear the burdens of construction and development without being able to

⁷⁵ Spence, *Federalism*, *supra* note 60, at 480.

⁷⁶ *See id.* at 481.

⁷⁷ Joseph P. Tomain, *Shale Gas and Clean Energy Policy*, 63 CASE W. RES. L. REV. 1187, 1211 (2013).

⁷⁸ *See* London et al., *supra* note 54, at 26–30.

⁷⁹ *See id.*

⁸⁰ *Id.*

⁸¹ *See id.*; Asche et al., *supra* note 20, at 119; Ruud Weijermars, *Economic Appraisal of Shale Gas Plays in Continental Europe*, 106 APPLIED ENERGY 100, 109 (2013) (referencing the “fear of negative press from shale gas critics”).

cash in on the profits.”⁸²

Similarly, the NIMBY syndrome is further complicated by the possible separation of surface and mineral ownership, which is a feature of the U.S. oil and gas legal regime.⁸³ Where surface and mineral estates are held by different owners, surface owners who would receive minimal or no benefit from oil and gas production are not likely to be enamored of the development of the minerals, with the attendant negative effects on their property.⁸⁴ This problem is exacerbated in residential cases, where economic and psychological ties to a person’s home, coupled with safety and environmental concerns, would propel surface owners toward NIMBY-ism.⁸⁵

As stated in Section B of this Part, NIMBY protests may sideline projects that could have real benefits to the subject community. This outcome can be observed in fracking projects.

⁸² Geltman, *supra* note 45, at 62.

⁸³ See ALEXANDRA B. KLASS & HANNAH J. WISEMAN, ENERGY LAW 54 (2017) (“[T]he mineral portion of a property may be severed from the surface and sold separately, and minerals in many states have been severed from the surface.”).

⁸⁴ See Bradford C. Berge, *Access and Surface Use Within Units and Communitized Areas*, in FEDERAL ONSHORE OIL & GAS POOLING AND UNITIZATION 13-1–13-2 (Rocky Mtn. Min. L. Found. 2014):

Landowners naturally believe that they own their land, and they don’t always welcome to [sic] drilling crews, lease operators, rigs, wells and equipment, with open arms. . . . Surface owners, and particularly those who have no mineral rights, may not see a benefit in roads or pipelines across their land, particularly when the roads and equipment are for operations on adjoining or nearby land.

Id.; Victoria M. Scozzaro, *Home-Rule Hope: A Community Guide to Keeping Hydraulic Fracturing Off Local Property*, 18 VT. J. ENVTL. L. 84, 86 (2016).

⁸⁵ See Michael N. Widener, *Land Use Consultations Advancing Therapeutic Jurisprudence: Ripe for Clinical Trials*, 18 CARDOZO J. CONFLICT RESOL. 85, 91 n.28 (2016); Michael J. Mazzone, *Changing Times Bring Conflict With Surface Owners*, AM. OIL & GAS REP. (Dec. 2011), <http://www.aogr.com/web-exclusives/exclusive-story/changing-times-bring-conflict-with-surface-owners> (discussing disruption engendered by the separation of surface and mineral ownership and highlighting challenges encountered in a neighborhood where a landowner that chooses to lease his land experiences near-violent attacks from neighbors opposed to the lease); See generally Steven J. Eagle, *Wireless Telecommunications, Infrastructure Security, And The NIMBY Problem*, 54 CATH. U. L. REV. 445, 455 (2005) (“The NIMBY (not in my back yard) syndrome reflects the fact that owner-occupied housing is the most valuable asset that the vast majority of people ever will own and their rational belief that deterioration in the neighborhood will affect its value.”); Joshua P. Fershee & S. Alex Shay, *Horizontal Drilling, Vertical Problems: Property Law Challenges from the Marcellus Shale Boom*, 49 J. MARSHALL L. REV. 413, 417–18 (2015).

For instance, while fracking may diminish property values in some places, it is also the case that the prospect of fracking can increase land values in the area.⁸⁶ The benefits extend to other properties and businesses beyond lands that contain oil and gas deposits, such as hotels and restaurants.⁸⁷ Indeed, the expectation of a ban or moratorium on fracking can hurt land values in areas sitting on shale gas.⁸⁸

In general, more affluent communities with high property values would object to fracking and therefore reject lease offers by oil and gas companies.⁸⁹ However, while some communities, particularly in urban and suburban areas, may be averse to the siting of fracking projects in their area, other communities may welcome the projects, particularly considering that some of these communities, especially those in the rural areas, tend to be resource-based economies.⁹⁰ Such economies would be more welcoming of resource development projects,⁹¹ and because their

⁸⁶ See Geltman, *supra* note 45, at 62 (“Some subsistence farmers and poor rural dwellers sitting above energy rich shale watch the price of previously low-value land skyrocket.”).

⁸⁷ See Lucija Muehlenbachs et al., *The Housing Market Impacts of Shale Gas Development*, 105 AM. ECON. REV. 3633, 3656–57 (2015) (finding that shale gas development can have both detrimental and beneficial effects on home values); see also Geltman, *supra* note 45, at 62–63 (“Oil and gas extraction from shale is a heavy industry involving extensive use of machinery that can negatively impact activities and adjacent property uses like bed and breakfasts, luxury resorts, and camps.”).

⁸⁸ See ALAN J. KRUPNICK & ISABEL ECHARTE, RESOURCES FOR THE FUTURE, HOUSING MARKET IMPACTS OF UNCONVENTIONAL OIL AND GAS DEVELOPMENT 15 (2017) (“Analyzing properties within 5 miles of the [New York] border from 2006 to 2012 (during which the state announced a moratorium on fracking), the authors [of one study] found a 23 percent drop in housing prices following the announcement of the moratorium. The authors argue that this large result reflects a change in expectations of the potential for income from shale leases and royalties following the moratorium.”).

⁸⁹ See Rosalie D. Morgan, *What The Frack?: An Empirical Analysis of The Effect of Regulation on Hydraulic Fracturing*, 16 QUINNIPIAC HEALTH L.J. 77, 108 (2013) (“As property values increase, the incentive for a property owner to enter a lease for a well site will likely diminish. This phenomenon is explained through the Not in My Backyard (NIMBY) principle.”).

⁹⁰ See Adam Garnezy, *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, 436–37 (2013); Emily C. Powers, *Fracking and Federalism: Support for an Adaptive Approach that Avoids the Tragedy of the Regulatory Commons*, 19 J.L. & POL’Y 913, 946 n.204 (2011) (noting that the bulk of production through fracking would occur in rural areas).

⁹¹ In essence, lack of familiarity with oil and gas development could spur

populations are less dense, the consequences of additional air or water pollution from fracking would be less dire.⁹² In that situation, the quantity of oil and gas produced and made available for societal use is not necessarily diminished.⁹³ Yet it raises a separate set of problems when opposed projects, in response to NIMBY protests, are moved from affluent neighborhoods to low income, less politically sophisticated and vulnerable communities who then face all the negative consequences of these projects.⁹⁴ Unlike their more prosperous counterparts, many members of these communities feel trapped,⁹⁵ unable to afford the costs of relocation.⁹⁶ The next Part examines the NIMBY-based objections

NIMBY-ism, while the opposite result is also likely where residents have long been exposed to oil and gas operations. See Olga Schenk et al., *Unconventional Gas Development in the U.S. States: Exploring the Variation*, 5 EUR. J. RISK REG. 436, 453 (2014) (“Indeed, the increase of opposition toward fracking in parts of Colorado may be related to the growth of residents who recently moved to Colorado from other states where oil and gas development is not prevalent or familiar.”).

⁹² See Garmezy, *supra* note 90, at 436–37.

⁹³ See *id.* at 437.

⁹⁴ See Leslie Ann Coleman, *It’s the Thought that Counts: The Intent Requirement in Environmental Racism Claims*, 25 ST. MARY’S L.J. 447, 476–78 (1993); Michael B. Gerrard, *The Victims of NIMBY*, 21 FORDHAM URB. L.J. 495, 495–96 (1994); Jordan Jackson, *No E-Wasteland for Electronic Waste Disposal: Effective Legislation to Protect Communities Surrounding Landfills*, 18 J. GENDER RACE & JUST. 499, 519–20 (2016); Alice Kaswan, *Environmental Justice: Bridging the Gap Between Environmental Laws and “Justice”*, 47 AM. U. L. REV. 221, 272 (1997) (restating the contention of environmental justice scholars that the result of NIMBY campaigns “is that the environmentally undesirable facilities that white and affluent residents have successfully resisted are instead sited in poor or minority neighborhoods. These neighborhoods have fewer financial or professional resources to oppose the facilities in question and may not be accustomed to organizing around environmental principles”).

⁹⁵ See Amanda Skalski, *Regulating Hydraulic Fracturing in Michigan: The Protection of Our Waters and Our People Hits Another Roadblock*, 14 J.L. SOC’Y 277, 300–01 (2013); see also Richard V. Hout et al., *Report of the Subcommittee on Land Use and Solid Waste*, 23 URB. LAW 753, 756 (1991) (“The public is genuinely concerned about impact of pollution on the quality of life, and its effect on property values. The public is also concerned by increased efforts to exploit political weaknesses such as efforts to site disposal facilities in poor areas.”) (citations omitted); Rebecca Ewing, *Pipeline Companies Target Small Farmers and Use Eminent Domain for Private Gain*, 38 N.C. CENT. L. REV. 125, 135 (2016) (“[M]arginalized communities often are forced to bear the burden of projects that most property owners would reject, since they lack the resources to fight such unwanted uses of their lands.”).

⁹⁶ . See Vicki Been, *Locally Undesirable Land Uses in Minority Neighborhoods: Disproportionate Siting or Market Dynamics?*, 103 YALE L.J. 1383, 1388 (1994) (stating that “an undesirable land use may cause *those who*

of some residents in the Dallas-Fort Worth- Arlington area.

III. FOCUS GROUP PARTICIPANTS AND THE NIMBY SYNDROME

As the foregoing discussion in Part I reveals, suburban and urban residents resist the use of fracking to produce oil and gas in their neighborhood, the same way they resist the siting of other unsightly or potentially harmful industrial projects in their area.⁹⁷ The NIMBY posture stems from residents' concerns about "increases in traffic volume, dust, and noise" resulting from drilling of wells and fracking for shale gas.⁹⁸ Community members may also not want fracking operations in their area because they are concerned that fracking may lead to unwanted seismic activity and earthquakes.⁹⁹ NIMBY may also be driven by questions about the effect of the proposed activity on property values.¹⁰⁰ Residents opposed to fracking view it as a catalyst for a drop in home prices in the area that shale gas is produced.¹⁰¹ Focus group participants expressed particular concerns they have with fracking, as discussed in this Part.

A. Mineral Owners' Complaint

Gary Hogan, a leading local activist who heads a non-profit organization kicked off discussions at the focus group by highlighting, among other things, the environmental concerns of residents regarding fracking in their neighborhood. He made the following observation:

can afford to move to become dissatisfied and leave the neighborhood" (emphasis added)); Lynn E. Blais, *Environmental Racism Reconsidered*, 75 N.C. L. REV. 75, 118–120 (1996) (discussing non-economic factors, such as racial discrimination, that constrain the ability of some residents to move out of locations hosting undesirable industrial facilities).

⁹⁷ See Part II Section C, *supra*; see also LEWIS BASS & THOMAS PARKER REDICK, PRODUCTS LIABILITY: DESIGN AND MANUFACTURING DEFECTS 2d §§ 24:14 (identifying fracking as "the latest 'not in my backyard' (NIMBY) phenomenon to attract litigation").

⁹⁸ See Lange, *supra* note 73, at 687.

⁹⁹ See *id.*

¹⁰⁰ See Johnsen, *supra* note 69, at 49.

¹⁰¹ See Kevin J. Lynch, *Regulation of Fracking Is Not a Taking of Private Property*, 84 U. CIN. L. REV. 39, 45 (2016); Alex Ritchie, *Fracking in Louisiana: The Missing Process/Land Use Distinction in State Preemption and Opportunities for Local Participation*, 76 LA. L. REV. 809, 810 (2016) ("Particularly in urban or suburban areas, voters may also perceive drilling and fracking as a threat to property values, aesthetics, and lifestyles.").

From about 2005 to 2008, I have been called out and have worked with different neighborhood groups throughout Fort Worth trying to deal with and address the issues of leasing. Do you want to lease? Do you not want to lease? And if we're going to do this in a dense, populated area, how are we going to do this so it isn't going to impact people's property values, their quality of life. . .all those sorts of issues. And of course that went on from 'what about air quality?' 'What about water quality?' 'What about water sustainability in our area?'¹⁰²

A retired lawyer in the focus group, Ben Procter, took umbrage at the disposition of the oil and gas companies toward respect for the privacy of property owners and their ability to enjoy their property with minimal distraction from oil and gas operations. Referring to the practices of a particular energy company that had come into their neighborhood, he said:

[T]hey had a lease for people to sign that looked like it had come right out the ranch country. It was called Producers 88. I found out about what a Producers 88 lease is. The first paragraph of the lease was long: 7 or 8 sentences were what you would call a run-on sentence. It just went on and on and on. And in the first sentence, it took away the surface rights of anybody signing the lease. Meaning that if you were in a suburb or in the city, they were able to put tanks, run lines, and even drill right on the surface of your property. They were droves of people in my neighborhood signing the lease because of the \$300-\$400 dollars and they didn't even read the lease. It was right at the top and very clear. The landman would say "oh we would never do that. It's going to be in a drill site half a mile away. You'll never see or hear it." But in the very first paragraph of the lease, it explicitly took all surface rights away from them. It didn't mean they didn't own the surface, it meant whatever the company wanted to do, and they could come in and do it. And so based on that, I started talking to a few people around the neighborhood and I said "we can't let this happen. They could put a well right here." We have some large, a semi-rural neighborhood in which you have houses that may have half an acre or an acre associated with them. And they could line up 10 to 12 people in the block and decide to put a drilling rig right there. And they would have a right because all these

¹⁰² Transcript, Emeka Duruigbo, Professor, Tex. S. Univ., Focus Group on Fracking (Apr. 5, 2013) [hereinafter Duruigbo, Focus Group Transcript] (on file with author).

people would have signed.¹⁰³

It is not unusual for the law and the parties' contract to grant the lessee an easement to use the surface estate to assess and produce minerals.¹⁰⁴ However, in a residential area, prudence counsels the adoption of cautionary measures and methods that limit interaction with residential structures. The law has also devised a mechanism for handling some of the conflicts between surface use and mineral development in the form of the Accommodation Doctrine.¹⁰⁵ Under this doctrine, a mineral owner or lessee is required to accommodate a surface owner's preexisting use of the surface if there are reasonable alternatives on the leased premises that the lessee could adopt instead of disturbing the prior use.¹⁰⁶ While the application of the doctrine in Texas is restricted to reasonable alternatives within the leased premises, a lessee need not so restrict itself. That is, a lessee may choose to accommodate a surface owner's pre-existing use by employing reasonable alternatives that exist outside of the leased premises, such as using a water well in an adjoining property, even though doing so may end up imposing additional costs on the lessee.

Another focus group participant, Dianna Flanigan, expressed a similar concern about allowing such consequential industrial operations in the neighborhood, influenced by her experience in her younger days living outside of Texas. She put the concern in the following manner:

I moved to the neighborhood I live in because it's quiet and we have a canal and it runs into a dam and it's just a lovely place to live. Except with all the drilling. I grew up in Louisiana and I saw firsthand what messes the oil company leaves. For example, Oil City, Louisiana is a horrible place to even visit after you see the damage the oil fields have left from 50 to 60 years ago. The whole city smells like sulfur and there's no telling what has been dumped there and other places in

¹⁰³ *Id.*

¹⁰⁴ OWEN L. ANDERSON ET AL., *OIL GAS LAW AND TAXATION* 199 (4th ed. 2017) ("In addition to the various easements to enter the leased land to do things, [the lease granting clause] includes the right to produce and take oil and gas from the leased land.").

¹⁰⁵ *See, e.g.,* *Hunt Oil Co. v. Kerbaugh*, 283 N.W.2d 131 (N.D. 1979); *Getty Oil Co. v. Jones*, 470 S.W.2d 618 (Tex. 1971).

¹⁰⁶ *See* *Sun Oil Co. v. Whitaker*, 483 S.W.2d 808, 812 (Tex. 1972) (discussing application when "there are reasonable alternative methods that may be employed by the lessee . . ."); *Getty Oil Co.*, 470 S.W.2d at 618.

Louisiana. So I try to get some of my neighbors and told them, we don't really need to do this. What advantages is it to us? Do we really need the 20 dollars we're going to get each month? Aren't you concerned about what it's going to do the value? Nobody is interested. They didn't care what it does to the water or anything. Anyway, so I felt mad that they threw our mineral rights away.¹⁰⁷

Greg Hughes, a focus group participant who has a professional background as a systems engineer in the aeronautical industry, raised safety concerns, contrasting the safety expectations of gas drilling companies with requirements for aircraft manufacturers.¹⁰⁸ Mr. Hughes repeated these sentiments in a later interview granted to a Texas newspaper, which reported: "Hughes isn't against oil and gas development or even fracking. His position reflects his professional interest in risk reduction: He believes the industry hasn't tried hard enough to make fracking safe in densely populated areas."¹⁰⁹

The NIMBY-based objections at the focus group reflect the general attitude of many Texas residents confronted with the choice of allowing the intrusion that comes with fracking close to their homes or retaining their lifestyles and avoiding such disturbance at a significant economic cost.¹¹⁰

¹⁰⁷ Duruigbo, Focus Group Transcript, *supra* note 102.

¹⁰⁸ *See id.*

¹⁰⁹ Mosqueda, *supra* note 40.

¹¹⁰ *See* Richard J. Roddewig & W. James Hughes, *Underbalanced Drilling: Can it Solve the Economic, Environmental and Regulatory Taking Problems Associated with Fracking?*, 49 J. MARSHALL L. REV. 511 (2015);

In suburban areas of Dallas and some other Texas cities, the central concern of neighborhood groups is often the "aesthetics" of fracking operations and the land use conflicts created by "industrialized" oil and gas operations in or adjacent to residential neighborhoods. Oil and gas leases and/or deeds separating the mineral estate from the surface estate created decades ago often established the right to drill and extract in areas later zoned for residential use. Odors, truck traffic, noise, and lights—oil and gas drilling often proceeds all day and night—have been a principal cause of opposition in many Texas locales. For example in Denton, Texas, which enacted a ban on fracking in November of 2014, the Houston Chronicle reported the root cause as follows: What set off residents in Denton, more than anything else, was wells drilled too close to homes and a city park. They objected to the noise and the smells and the traffic congestion that comes with drilling projects. In many ways, this is the ultimate NIMBY case.

Id. at 527 (citations omitted).

B. *Response to Complaints*

The fear of fracking and NIMBY-fueled objections have ignited a push for local legislation to ban the technique or severely regulate its application in some places.¹¹¹ In some of these places, renewable energy projects may receive favorable treatment by regulators and scholars even in the face of NIMBY opposition to these projects.¹¹² On the other hand, fracking may get better treatment in some places than renewable energy, such as wind. For example, Ohio preempted local government control of fracking but left sufficient room for local governments to control wind-power generation.¹¹³ The economics of significant tax dollars flowing into the state treasury may explain this development. An obvious explanation for the anti-fracking differential standards would be that the proponents and residents are more comfortable with renewable energy, while they have little sympathy for continued production of fossil fuels on environmental grounds. Viewed from that perspective, it would appear that the problem is less with NIMBY and more about opposition to carbon-based energy policy. Interestingly, that point provides a basis for fracking proponents to defeat NIMBY-framed policy objections since the case for continued reliance on natural gas is strong, even among those who favor a transition to renewable energy, based on the understanding that the transition may take a few decades to fully materialize.¹¹⁴

NIMBY concerns should not be dismissed with a wave of the hand.¹¹⁵ Where the threat is credible and backed by convincing

¹¹¹ See Lange, *supra* note 73, at 687; see generally Kristen van de Biezenbos, *Where Oil is King*, 85 FORDHAM L. REV. 1631 (2017) (discussing limits on fracking by many cities and towns through local bans, moratoria and regulation); Christopher J. Hilson, *Litigation Against Fracking Bans and Moratoriums in the United States: Exit, Voice and Loyalty*, 40 WM. & MARY ENVTL. L. & POL'Y REV. 745 (2016).

¹¹² See Uma Outka, *Intrastate Preemption in the Shifting Energy Sector*, 86 U. COLO. L. REV. 927, 980–81 (2015).

¹¹³ See Lange, *supra* note 73, at 687 (stating that the “NIMBY concerns associated with fracking and wind turbines do not support drastically different preemptive approaches that states like Ohio have taken between the two sources”).

¹¹⁴ See Janie Castle, *Change Comes to Appalachia: How Appalachia Can Prepare for Coming Carbon Regulation*, 3 APPALACHIAN NAT. RESOURCES L.J. 145, 161 (2008–09); Richard J. Pierce, Jr., *Natural Gas: A Long Bridge to a Promising Destination*, 32 UTAH ENVTL. L. REV. 245, 245 (2012).

¹¹⁵ See Sean F. Nolon, *Negotiating the Wind: A Framework to Engage Citizens in Siting Wind Turbines*, 12 CARDOZO J. CONFLICT RESOL. 327, 331 (2011) (arguing against “[s]imply dismissing citizen opposition as self-

evidence, a project should not proceed at all, and if it must proceed, it should not be in a neighborhood that makes the danger most probable. Regardless of the setting, securing the community's buy-in is critical.¹¹⁶ Where the concern is with housing values, adequate tools such as home equity insurance and housing partnerships can be developed and deployed to protect property owners from loss of value of their assets.¹¹⁷ It is possible to devise a mutually beneficial system in which virtually everybody benefits from important projects, including those focused on mineral development.¹¹⁸ For instance, considerably increasing the royalty offers for developing the neighborhoods beyond what is normally offered in places where NIMBY-ism would lead to a socially inefficient outcome should be considered.¹¹⁹ Each NIMBY

interested, NIMBY whiners . . .”).

¹¹⁶ See Rachael E. Salcido, *Rationing Environmental Law in a Time Of Climate Change*, 46 LOY. U. CHI. L.J. 617, 665–66 (2015) (“Following the rationale that securing buy-in and support would pave the way to speedier project siting, developers were caught off guard at local resistance to projects that met agreed-upon best practices.”).

¹¹⁷ See William A. Fischel, *Voting, Risk Aversion, and the NIMBY Syndrome: A Comment on Robert Nelson's "Privatizing the Neighborhood,"* 7 GEO. MASON L. REV. 881, 886–90 (1999) [hereinafter Fischel, *Risk Aversion*] (discussing the applicability of home equity insurance and housing partnerships).

¹¹⁸ See Michael Baram, *A New Social Contract for Governing Industrial Risk in the Community*, 56 JURIMETRICS J. 223, 235 (2016) (advancing the argument for developing a mutually beneficial outcome in the presence of NIMBY opposition); Nathaniel L. Foote, *Not in My Backyard: Unconventional Gas Development and Local Land Use in Pennsylvania and Alberta, Canada*, 3 PENN ST. J. L. & INT'L AFF. 235, 238 (2015) (discussing and recommending the province of Alberta, Canada's collaborative approach to land use policy as an effective tool for avoiding NIMBY resistance to oil and gas development); Steven P. Frank, *Yes in My Backyard: Developers, Government and Communities Working Together Through Development Agreements and Community Benefit Agreements*, 42 IND. L. REV. 227, 229 (2009) (proposing the use of development agreements in combination with community benefit agreements); Ashira Pelman Ostrow, *Process Preemption In Federal Siting Regimes*, 48 HARV. J. ON LEGIS. 289, 298–99 (2011) (discussing the need to arrive at solutions to NIMBY problems by weighing the costs and benefits to various interested parties); see generally Stephanie M. Gurgol, *Won't You Be My Neighbor? Ensuring Productive Land Use Through Enforceable Community Benefits Agreements*, 46 U. TOL. L. REV. 473 (2015) (advocating the use of community benefit agreements while also examining alternative tools such as enterprise zones and tax increment financing).

¹¹⁹ See Michael Wheeler, *Negotiating NIMBYs: Learning From The Failure Of The Massachusetts Siting Law*, 11 YALE J. ON REG. 241, 251–52 (1994); but see Patrick O'Hara, *The N.I.M.B.Y. Syndrome Meets The Preemption Doctrine: Federal Preemption of State and Local Restrictions on the Siting of Hazardous Waste Disposal Facilities*, 53 LA. L. REV. 229, 231 (1992) (noting that NIMBY

situation is different and what works for the siting of airports, waste disposal facilities, or prisons may not work for the location of oil wells.¹²⁰ The key point remains that if neighbors can ‘cut into a deal’ through adequate compensation that allows them to capture some of the gains of new development, there is an increased likelihood of winning them over and removing the tendency to embark or continue on a NIMBY campaign.¹²¹ This point is accentuated by the fact that even in the midst of NIMBY protests, it is not uncommon to find that some members of the community are in support of the project, often because of the anticipated gains from locating the project in the area, including job opportunities and increased tax revenue.¹²² Besides, while

agitation may persist even in the face of higher compensation); Richman & Boerner, *supra* note 55, at 33 (referencing some scholars’ belief “that the NIMBY challenge can be overcome, and community opposition can be pacified by finding the right price to pay nearby residents” and countering that while the approach is appealing, it has not “achieved an admirable record of success”).

¹²⁰ See Barak D. Richman, *Mandating Negotiations to Solve the NIMBY Problem: A Creative Regulatory Response*, 20 UCLA J. ENVTL. L. & POL’Y 223, 236 (2001–02); see also Noah M. Kazis, *Public Actors, Private Law: Local Governments’ Use of Covenants to Regulate Land Use*, 124 YALE L.J. 1790, 1817 (2015) (advocating the use of land covenants by local governments as “a welcome tool for governments to fight back against NIMBY-ism”); Richman & Boerner, *supra* note 55, at 35 (observing that “NIMBY problems vary according to the facility to be sited and thus demand different regulatory solutions”); Margo Schlanger, *Stealth Advocacy Can (Sometimes) Change The World*, 113 MICH. L. REV. 897, 912 (2015) (evaluating the use of a stealth approach to prevent, curtail or manage NIMBY-like opposition to the siting of group homes, by keeping opponents in the dark about a project until it is completed or operating, thereby depriving them of opportunity to mount opposition to it).

¹²¹ See Fischel, *Risk Aversion*, *supra* note 117, at 891; Tim Sime, *Our Final Burial Grounds: EPA’s CAP Program Fails to Solve the Hazardous Waste Disposal Capacity Crisis*, 4 DICK. J. ENVTL. L. & POL’Y 49, 53 (1994) (attributing lack of success in diminishing NIMBY conflicts to “the market’s failure to truly compensate members of the local community for the losses they have sustained”); Kristen Underhill, *When Extrinsic Incentives Displace Intrinsic Motivation: Designing Legal Carrots and Sticks to Confront the Challenge of Motivational Crowding-Out*, 33 YALE J. ON REG. 213, 261 (2016) (analyzing “the greater willingness of citizens to receive public goods, such as parks and bike trails, instead of cash as compensation for accepting NIMBY projects; the exchange is perceived as an opportunity to strengthen the community in exchange for a ‘civic sacrifice’”).

¹²² See Greenberger, *supra* note 56, at 96; Ann Harrington, *Battling “NIMBY” in Reno, Nevada: A Developer Perspective*, 40 REAL EST. REV. J. 57 (2011) (discussing how a proposed senior affordable housing project overcame NIMBY objections and received local government approval because it was considered beneficial to the town’s economy and only a relatively small number of people protested formally); Hout, *supra* note 96, at 756 (“The promise of

NIMBY protestors may object to a project because of anticipated negative impact on local property values,¹²³ the project may end up enhancing property values and promoting community stability if properly designed and executed.¹²⁴

It should also be noted that oil and gas companies are introducing and adopting industry best practices into fracking while stakeholders encourage further refinement of these practices.¹²⁵ Steps in that direction would further allay the fears or alleviate the concerns of residential owners about the consequences of oil and gas development in their area through fracking.

As has been proposed in other different contexts, what is needed is a “framework [that] encourages cooperative negotiations and discourages strategic or spiteful behavior, thus enhancing the possibility that parties will reach a cooperative agreement . . . independent of their bargaining over property rights.”¹²⁶ Suitable

jobs and money are often more than a poor community can resist. By way of example, a large municipal solid waste incinerator recently sited in Robbins, Illinois, will produce revenues almost five times greater than the village’s total current municipal budget.”); Douglas Laycock & Luke W. Goodrich, *RLUIPA: Necessary, Modest, and Under-Enforced*, 39 *FORDHAM URB. L.J.* 1021, 1032 (2012) (articulating the point that many residents who expect to benefit through jobs, shopping and increased tax revenue from some projects, such as movie theaters, grocery stores and Walmart stores would support the projects, even in the face of NIMBY opposition, while for some other projects such as churches, many residents would not be as welcoming because they see little benefit from a new church coming into their neighborhood as they would be less likely to attend the church due the fact that they already have a church they attend or are not interested in attending any church); Lewyn, *Zoning*, *supra* note 65, at 261 (explaining that NIMBY proponents are able to stop development of housing even in pro-development communities by utilizing available administrative processes at various levels of government).

¹²³ See Dickerson, *supra* note 66, at 985 n.43 (“Homeowners in upper-income neighborhoods also fight attempts to place socially useful but undesirable properties like half-way housing, homeless shelters, and group homes in their neighborhoods because of concerns that those properties may depress the values of their homes.”). McGowan, *supra* note 68, at 330 (describing the NIMBY concept as “the ever-present influence of nearby landowners opposing any institution or facility that might depress property values”).

¹²⁴ See Mark Wilson, *Organizational Sustainability: A Self-Help Housing Corporation’s Recipe for Success*, 40 *REAL EST. REV. J.* 37 (2011) (“In truth, properly maintained affordable housing developments designed and built with sensitivity to the architectural and aesthetic standards desired by the community, may even increase property values and enhance community stability.”).

¹²⁵ See Dennis C. Stickley, *Expanding Best Practice: The Conundrum of Hydraulic Fracturing*, 12 *WYO. L. REV.* 321, 333 (2012).

¹²⁶ Elizabeth S. Scott, *Pluralism, Parental Preference, and Child Custody*, 80

options may be explored to assuage NIMBY agitation, break holdouts, resume negotiations, and bring transactions to more acceptable and amicable conclusions.¹²⁷

IV. NEW POLICY DIRECTIONS

There are a number of legislative and non-legislative approaches and tools that may be considered by various states to improve the current legal and economic environment for developing oil and gas resources in residential areas. The objective is to arrive at endpoints that yield benefits to the mineral owners, oil and gas operators, and society as a whole.¹²⁸ This part identifies two such options, namely disruption payments and limited purpose agreements for consideration by policy makers and the various stakeholders in the oil and gas industry.

A. *Disruption Payments*

There are two major types of disruption payments. One type requires payment by the company involved to persons affected by its disruptive activity. This approach is applicable in North Dakota, Montana, and Wyoming. Another type of disruption payment requires payment by the government, out of tax funds, for

CAL. L. REV. 615, 652 (1992) (discussing parental rights and child custody).

¹²⁷ See Brandon Gerstle, *Giving Landowners the Power: A Democratic Approach for Assembling Transmission Corridors*, 29 J. ENVTL. L. & LITIG. 535, 558 n.141 (2014) (discussing reduction of landowner holdout through public participation and lessening of conflicts through negotiations); Damon Y. Smith, *Participatory Planning and Procedural Protections: The Case for Deeper Public Participation in Urban Redevelopment*, 29 ST. LOUIS U. PUB. L. REV. 243, 246 (2009) (proposing “a participatory planning process that strikes a balance between those who argue for elimination of eminent domain, for economic development purposes, and the overuse and abuse of eminent domain powers that have plagued urban communities for decades”).

¹²⁸ Patricia Nelson Limerick outlines some steps that can be taken to ensure this outcome:

Four principal activities hold the greatest promise for providing a resolution to many current conflicts over subsurface mineral development: 1) fair and open negotiation between surface owners and mineral developers; 2) the adoption of technology that is minimally disruptive of the surface and of water resources, even if that technology might entail greater initial expense; 3) the most careful consideration of remediation and restoration, and the costs and commitments required to do this right; and 4) experimentation with a new, more engaging, and congenial form of public communication on energy issues

Patricia Nelson Limerick, *Changing Winds*, in 2008 ROCKY MTN. MIN. L. FOUND. 1, 1 (2008).

disruption caused by the industry. Corporate and political leaders have proposed these two approaches in the United Kingdom in anticipation of shale gas development.¹²⁹ A third type of disruption payment could include the formation of a hybrid arrangement that consists of a combination of company and government contributions to a fund dedicated to making payments to those whose lives have been disrupted by a particular development, such as fracking.

In 1980, North Dakota passed the state's Oil and Gas Production Damage Compensation Act,¹³⁰ leading a commentator to observe that the state was "emerging as a trend-setter in the area of surface owner protection."¹³¹ Under the statute, a surface owner is entitled to damage and disruption payments for lost land value, lost use of and access to surface owner's land or lost value of improvements caused by drilling operations.¹³² The statute provided that "[t]he amount of damages may be determined by any formula mutually agreeable between the surface owner and the mineral developer."¹³³ The purpose of the payments is "to

¹²⁹ See Emily Gosden, *Fracking: Communities May Miss Out on Cash Payments*, THE TELEGRAPH ONLINE, (Mar. 10, 2015, 8:00 PM), <http://www.telegraph.co.uk/news/earth/energy/fracking/11462840/Fracking-communities-may-miss-out-on-cash-payments.html>; John Kemp, *Britain's Fracking Communities Eye US-Style Payouts*, REUTERS (Aug. 15, 2013), <https://uk.reuters.com/article/column-britain-fracking/column-britains-fracking-communities-eye-us-style-payouts-kemp-idUKL6N0GG1TF20130815>; REMSOL LTD., *A BLUEPRINT FOR SHALE GAS COMMUNITY BENEFITS* (2016); Alan Tovey, *Ineos Offers £2.5bn to Communities Disrupted by Shale Gas*, THE TELEGRAPH ONLINE (Sept. 28, 2014), <http://www.telegraph.co.uk/finance/newsbysector/energy/oilandgas/11126668/Ineos-offers-2.5bn-to-communities-disrupted-by-shale-gas.html> (discussing proposals by energy companies to make payments to homeowners and landowners affected by anticipated shale gas development); Adam Vaughan, *Community Benefits No 'Game-Changer' for Fracking, Says IGas Boss*, THE GUARDIAN (Dec. 19, 2013), <https://www.theguardian.com/environment/2013/dec/19/fracking-shale-gas-benefits>; Tim Worstall, *Theresa May Solves the UK Fracking Problem with Royalty Share to Households*, FORBES (Aug. 7, 2016), <https://www.forbes.com/sites/tim-worstall/2016/08/07/theresa-may-solves-the-uk-fracking-problem-with-royalty-share-to-households/#4869204a48c5>.

¹³⁰ See N.D. CENT. CODE §§ 38-11.1-01 to 38-11.1-10 (1980).

¹³¹ Paul F. Hultin, *Recent Developments in Statutory and Judicial Accommodation Between Surface and Mineral Owners*, 28 MIN. L. INST. 18 (1982). For an excellent discussion of surface damage statutes passed in other states prior to and subsequent to the North Dakota statute, see Ronald W. Polston, *Surface Rights of Mineral Owners: What Happens When Judges Make Laws and Nobody Listens?*, 63 N.D. L. REV. 41 (1987).

¹³² See N. D. CENT. CODE § 38-11.1-04.

¹³³ *Id.*

compensate the surface owner for damage and disruption,” and flowing from that, the provision prohibits the surface owner from reserving or assigning such compensation apart from the surface estate except to a tenant of the surface estate.¹³⁴ Movement in this direction continued with the passage of a similar law in Montana—the Montana Surface Owner Damage and Disruption Compensation Statute in 1981.¹³⁵ In *Murphy v. Amoco Production Co.*,¹³⁶ the Court of Appeals for the Eighth Circuit upheld the constitutionality of North Dakota “Oil and Gas Production Damage Compensation” law as, *inter alia*, a valid exercise of the police power of the state.¹³⁷

It appears that these statutes provide protection and relief for surface owners in whose estate the disruption occurred, but not owners of neighboring surface estates.¹³⁸ The system of disruption payments advocated by this Article would be structured to protect everybody in the neighborhood whose use of property is disrupted because of oil and gas operations, regardless of whether drilling operations caused damage on their land. In 2016, the British Prime Minister, Theresa May, proposed such a system of disruption payments in which people living in neighborhoods where fracking is approved would see a percentage of profits from fracking, potentially up to £10,000, paid directly to them.¹³⁹ The government would pay the money by devoting ten percent of tax revenues from fracking into the scheme.¹⁴⁰ This approach of direct payments to individuals and local communities departs from initial

¹³⁴ *See id.*

¹³⁵ *See* MONT. CODE ANN. §§ 82-10-501 to 82-10-511. (1981); WYO. STAT. ANN. § 30-5-405 (2005).

¹³⁶ *See* *Murphy v. Amoco Prod. Co.*, 729 F.2d 552 (8th Cir. 1984).

¹³⁷ *Id.* at 554–60; *see also* *Kartch v. EOG Resources, Inc.*, 2010 WL 4260103, *2–3 (D.N.D. 2010).

¹³⁸ *See* Memorandum in Support re Motion for Summary Judgment for the Defendant, *Monson v. Zenergy, Inc.*, 2010 WL 5623337 (D.N.D.) (“First, Plaintiffs contend they are entitled to damage and disruption payments under N.D.C.C. § 38-11.1-04. However, the plain language and legislative history of that Section confirms that it provides a remedy only for the owner of the surface estate where the drilling operations that caused damage or disruption occurred, not neighboring surface owners or tenants.”).

¹³⁹ *See* Caroline Wheeler, *Are You in Line for £10,000 Government Payout for Fracking Disruption?*, SUNDAY EXPRESS ONLINE (Aug. 8, 2016) [hereinafter Wheeler, *Fracking Disruption*], <http://www.express.co.uk/news/uk/697345/House-holds-communities-fracking-shale-gas-payout-profit-share-Theresa-May>.

¹⁴⁰ *See id.*

plans to make the payments to local authorities for use in development spending projects in line with local priorities, including local infrastructure and skills training.¹⁴¹ Because the payments would be based on tax revenues from fracking, which in turn depends on government approval, commencement of production and profitability of the operation, it would take years before the money starts getting to the beneficiaries.¹⁴²

A recent example from Boulder, Colorado is instructive. In March 2017, Boulder County adopted new oil and gas regulations, which revised regulations adopted in 2012.¹⁴³ One of the high points of the new regulations is a provision on disruption payments, which would be made “to surrounding occupants of residential structures who are affected by drilling activities.”¹⁴⁴ Where applicable, an oil and gas company could be required to pay residents living within a mile radius from a drill site a sufficient amount of money to relocate temporarily and pay rent during the months when oil and gas drilling and completion activities take place.¹⁴⁵ The amount to be paid will vary, based on proximity, with those residing closer to the drill site getting more money than those living farther from it.¹⁴⁶ The payments will be made on a monthly basis and the recipients are free to stay in their houses and keep the money or move temporarily.¹⁴⁷ The provision underscores the importance of timely receipt of the funds by stating that “[a]ny required disruption payments must be made at least sixty (60) days before commencement of well construction.”¹⁴⁸

Disruption payments serve a number of useful purposes. They can play the role of convenience agent that helps absorb the

¹⁴¹ *See id.*

¹⁴² *See* Mance & Clark, *supra* note 142.

¹⁴³ *See Boulder County Adopts the Strongest Set of Regulations on Oil and Gas Development in the State of Colorado*, BOULDER COUNTY (Mar. 23, 2017), <https://www.bouldercounty.org/news/boulder-county-adopts-strongest-set-of-regulations-on-oil-and-gas-development-in-the-state-of-colorado/>.

¹⁴⁴ *Id.*

¹⁴⁵ *See* Jackie Fortier, *Boulder County Adopts New Oil and Gas Regulations*, COYOTE GULCH BLOG (Mar. 27, 2017), <https://coyotegulch.blog/2017/03/27/boulder-county-adopts-new-oil-and-gas-regulations/>.

¹⁴⁶ *See id.*

¹⁴⁷ *See id.*

¹⁴⁸ Boulder, Colorado, Boulder County Land Use Code art. XII § 701(D)(3) (2017).

inconvenience of oil and gas production.¹⁴⁹ They also help ensure that energy companies internalize some of the consequences of their economic activity, instead of externalizing it to others.¹⁵⁰ In addition, the payments can become a tool for economic regeneration or growth in the oil producing areas. For individual recipients, it becomes a source of capital and the money received can be deployed to other productive uses.¹⁵¹ Prime Minister May articulates the point this way: “It’s about making sure people personally benefit from economic decisions, not just councils, and putting people back in control of their lives.”¹⁵² The multiplicity of economic activities from the injection of fresh capital and budding of entrepreneurial activities can transform local economies. It has been observed that in the UK, where households in some parts of the country could receive up to £10,000, that these payments could turn “northern towns such as Blackpool into the UK equivalents of oil-rich communities in the Middle East.”¹⁵³ Disruption payments may also be structured to compensate for the reduction in property values and the inability to sell homes that residents may experience as a result of fracking in the neighborhood. These benefits, singly or collectively, would also galvanize acceptance of oil and gas production and thus serve as an effective negotiation tool, constraining holdout behavior and curtailing NIMBY-ism.¹⁵⁴

¹⁴⁹ See John Fryar, *New Boulder County Oil and Gas Rules Subject Drillers to “Disruption Payments” to Disturbed Neighbors*, DENVER POST (Mar. 24, 2017), <http://www.denverpost.com/2017/03/24/new-boulder-county-oil-and-gas-rules/> (“The [Boulder County] regulations include a required system of “disruption payments” to surrounding residents to cover the costs if they have to temporarily move to a rental property elsewhere while fracking or drilling is underway near their homes.”).

¹⁵⁰ See Kate Phillips, *What is the True Cost of Hydraulic Fracturing? Incorporating Negative Externalities into the Cost of America’s Latest Energy Alternative*, 2 J. STUDENT RES. ENVTL. SCI. APPALACHIAN 40, 41 (2012) (discussing the negative externalities of shale gas production through hydraulic fracturing and arguing that the costs of this production method that are borne by tax payers should be factored in when calculating the true cost of electricity generated by using gas produced from unconventional fields).

¹⁵¹ See Wheeler, *Fracking Disruption*, *supra* note 139 (stating that the UK Prime Minister “insists the new scheme is about rebalancing the economy in favour of ordinary people.”).

¹⁵² *Id.* (quoting UK Prime Minister, Mrs. Theresa May).

¹⁵³ *Id.*

¹⁵⁴ See Mance & Clark, *supra* note 142 (“Cash payments are seen as a simple way of winning support for fracking and new housing, both of which are opposed in parts of the UK.”).

Proposed and existing disruption payment systems have been assailed on a number of grounds. They are viewed as an inadequate safeguard against the dangers of oil and gas development, particularly through fracking. Commenting on the Boulder regulations, one observer stated: “Families will be able to take their children and pets and leave their family home to go somewhere safe, and when it’s all over return to their poisoned and disrupted home to resume life for free, or partly free.”¹⁵⁵ This criticism ignores the fact that the payments do not pretend to be an alternative to adequate health, safety, and environmental standards that should be in place to protect the people from fracking operations. They are not a replacement tool, but an aid to ease the burden on the people affected by fracking.

Another criticism considers these payments as a bribe to secure the consent and cooperation of surface owners or other stakeholders who would ordinarily be opposed to fracking.¹⁵⁶ One reporter offers an apt response: “One person’s bribe is another’s compensation.”¹⁵⁷ Perhaps campaigners will eventually succeed in banning fracking everywhere in the world. Until that dream becomes a reality, those affected cannot afford to let idealism rule while their immediate problems from fracking are compounded. Instead of facing the disruption silently or being trapped in it, affected persons will be afforded an opportunity to move to a more hospitable place during the disruptive period, or otherwise use the money to compensate for their loss of utility from the disruption.

A related point of criticism is that the disruption payments may be insufficient to compensate for the magnitude of loss that may be experienced by property owners in neighborhoods where drilling takes place. For instance, the UK proposal includes the creation of a shale wealth fund into which ten percent of tax receipts from fracking would be paid. The government would then distribute a maximum of £10 million to residents in each oil producing community. For a community of one thousand residents,

¹⁵⁵ Stuart Paul, *Wake Up, Boulder County, To Effects of Fracking*, BOULDER DAILY CAMERA, (Mar. 22, 2017, 7:20 PM), http://www.dailycamera.com/letters/ci_30872832/stuart-paul-wake-up-boulder-county-effects-fracking.

¹⁵⁶ See Wheeler, *Fracking Disruption*, *supra* note 139 (“Critics will say the proposal is an attempt to buy off opposition in communities affected by fracking.”).

¹⁵⁷ *Households Could Get Fracking Payments Under Government Plans*, BBC (Aug. 7, 2016), <http://www.bbc.com/news/uk-37000975> (last visited April 9, 2017).

that means each person can receive up to £10,000.¹⁵⁸ However, this payment is for the lifetime of the resource, which could be up to twenty-five years, translating into a payment of about £400 per household per year.¹⁵⁹ An acceptable payout deal is one in which residents receive an amount that is equal to the value of their home, plus any difference between the old and new homes of similar specifications and an additional amount as moving expenses. Thus, the compensation should go beyond the hassle of temporary relocation to the burden of permanent relocation.

While a deal of this nature may still be rejected by those who are attached to a particular neighborhood for emotional and other reasons and would not want to move, it is possible that the deal would be acceptable to many people who reside in areas where the fracking technique would be deployed. The bigger question becomes whether gas companies would be willing or able to make such payments, or if society would be prepared to pay higher energy prices if the companies choose to make the payments and shift the costs to consumers. Besides, a counter-argument may be presented that the negative impact of fracking on residential home values may be exaggerated because fracking is not the dangerous bogeyman it has been made out to be by environmental and political activists,¹⁶⁰ and so disruption payments tied to this exaggerated impact would be too high. While there is some merit in the counter-argument, the reality is that housing values are driven, in part, by perceptions.¹⁶¹ So long as future home owners buy into the perception that fracking is dangerous, it will affect their decision on whether to move into a neighborhood in which fracking is taking place and the amount they would offer to purchase a home in that neighborhood.

The structure of disruption payments may also provide a ground for attack. The proposal in the UK would make payments from oil and gas revenues. The result is that those affected by the disruption do not receive any payments for years after the signing of the leases and commencement of drilling operations. Worse

¹⁵⁸ See Wheeler, *Fracking Disruption*, *supra* note 139.

¹⁵⁹ See Mance & Clark, *supra* note 142.

¹⁶⁰ See Kevin Begos, *Experts: Some Fracking Critics Use Bad Science*, ASSOCIATED PRESS (Jul. 23, 2012), <http://bigstory.ap.org/article/experts-some-fracking-critics-use-bad-science>.

¹⁶¹ See Nadav Shoked, *The Community Aspect of Private Ownership*, 38 FLA. ST. U. L. REV. 759, 799 (2011).

still, if the well is not productive, no payments will be made, as no revenues will be received. This arrangement effectively and involuntarily converts affected residents into risk-bearers who share the risk of oil and gas production with energy companies. Some people will consider this outcome as neither palatable nor acceptable. Boulder County's approach of payment prior to commencement of well construction strikes the right note.¹⁶²

Another criticism of disruption payments for fracking operations is that it singles out one industry for punishment. According to this criticism, many other commercial, industrial, and public works activities can also be disruptive, yet the actors are not required to make any payments to those affected. To the proponents of this view, there is hardly any justification for exempting road construction companies from a requirement to make disruptive payments while such a duty is imposed on fracking firms. This is a formidable point. A direct response would be that it is a good argument for inclusion of other entities, not an exclusion of oil and gas companies. For instance, payments are made to train operators in the United Kingdom for disruption to the rail network that is out of their control, resulting in train delays and cancellations.¹⁶³ Train passengers in turn receive compensation if the rail company delays or cancels their trip.¹⁶⁴ Also, some airline passengers in the European Union are entitled to disruption payments if their flights are delayed for three hours or more in getting to their final destination.¹⁶⁵ The airlines would escape responsibility if the delays were due to extraordinary circumstances.¹⁶⁶

A close examination of the merits of disruption payments and the objections to them leaves one with the conclusion that there is

¹⁶² See Boulder, Colorado, Boulder County Land Use Code art. XII § 701(D)(3) (2017).

¹⁶³ See Ashley Kirk & Tom Ough, *640 Train Journeys Cancelled Daily in Britain*, THE TELEGRAPH (Nov. 17, 2016), <http://www.telegraph.co.uk/news/2016/11/17/is-yours-the-rail-network-which-has-cancelled-the-most-trains-in/> (showing that rail companies paid out £45 million in compensation to delayed passengers in England and Wales during the past year while receiving £105 million from Network Rail for unplanned disruption).

¹⁶⁴ See *id.*; see also *Passenger Rights to Refunds & Compensation*, NATIONAL RAIL, http://www.nationalrail.co.uk/times_fares/ticket_types/72098.aspx (last visited Feb. 4, 2018).

¹⁶⁵ See Barry O'Halloran, *Airline Ruling Clears Way for Payout*, IRISH TIMES (Sept. 18, 2015), <https://www.highbeam.com/doc/1P2-38748441.html>.

¹⁶⁶ See *id.*

a sound basis for using them. Energy companies may propose them as they try to win the hearts and minds of prospective lessees. The Railroad Commission of Texas and conservation agencies in other states could recommend the practice to energy companies or draw attention to these payments to residential areas on the verge of deciding on gas development in their neighborhood. Most importantly, Texas and other states that have sizable shale gas deposits and want to allow or continue fracking in residential areas should pass legislation creating a system of disruption payments.

While additional details can be worked out, at a minimum, an ideal system will consist of the following components:

1. Payment to all residential households in a neighborhood where fracking is slated to take place to cover the cost of temporary relocation while drilling and well completion activities are taking place. The residents will have a choice of keeping the money or using it to rent temporary accommodations. The payments will be made to surface owners or owners of both surface and mineral interests. As an incentive for dealing with holdouts, it may also be extended to owners of mineral interests, who do not own surface interests.
2. The temporary relocation payment will be made prior to the commencement of construction and drilling.
3. Where financial resources permit, an expanded version of disruption payments may be approved to pay for people to move out of the neighborhood permanently. Those who choose to move will receive the value of their home plus the differential cost of acquiring a similar property in a similar neighborhood within the state. Home owners will be required to list the property for sale for a certain period, and if the property does not sell within the stipulated period, the home owner will receive a payment for the value of the house plus the difference. If the property sells, the home owner will receive an additional check for the difference, including expenses incurred in selling the house.
4. The permanent relocation payment will be paid within one year of commencement of production from any property in the area. That way, it is established that fracking will be a feature of the neighborhood for some time, with possible consequences for home values. It also allows for an opportunity for the energy company

and the state to earn or receive some revenue from the project before embarking on a large financial undertaking.

5. The permanent relocation cost will be borne by the energy company. However, the state should consider involving the rest of the citizens either through contribution of state funds to subsidize these payments, provision of tax credits to energy companies, or by sensitizing citizens to the fact that they would be contributing indirectly through increased energy costs. Oil and gas are global commodities.¹⁶⁷ So, energy costs may rise if an oil and gas company can simply no longer drill and produce oil and gas profitably. However, the country will simply import oil and gas from overseas unless the price of oil and gas gets so high that domestic producers can profitably produce oil and gas even with the burden of disruption payments.¹⁶⁸
6. The energy company will negotiate with the citizens on the amount to be paid for the relocation payments. To cut down on transaction costs, the company may negotiate with the leaders of homeowners associations or some appointed representative of the whole neighborhood.
7. Where the parties do not agree on the value to be attached to the temporary or permanent disruption, a court may set the value. This method would be similar to the approach adopted in corporate law for mergers, acquisitions, and sale of assets in which dissenting shareholders are provided an appraisal remedy.¹⁶⁹

Another tool that can improve the negotiation landscape and cater to the interests of prospective lessors and lessees is a limited purpose agreement, which can be adapted from other areas in which it has been used and applied to this context to promote mutually beneficial shale gas production. This tool is discussed

¹⁶⁷ See generally John L. Keffer, *Gas-To-Energy: Structuring Downstream Projects*, ROCKY MTN. MIN. L. FOUND. (2001) (“Natural gas is challenging oil, both as a global commodity and as the primary business of major energy companies.”).

¹⁶⁸ The early history of the U.S. oil and gas industry provides valuable lessons in this regard.

¹⁶⁹ See STEPHEN M. BAINBRIDGE ET AL., *BUSINESS ASSOCIATIONS: CASES AND MATERIALS ON AGENCY, PARTNERSHIPS, LLCs, AND CORPORATIONS* 729–30 (10th ed. 2018).

below.

B. *Limited Purpose Agreements*

In view of the NIMBY-based opposition to fracking, it is expected that parties to proposed fracking projects will engage in some level of negotiation. To ensure that the negotiation proceeds smoothly, some steps and tools may need to be in place. A potentially useful tool in that regard is a limited purpose agreement. This agreement may be signed between the oil and gas company and all potential lessors or home owners that may be affected by the development project. These parties should utilize limited purpose agreements to arrive at a quick, acceptable conclusion to their negotiations. Oil and gas companies may also be more proactive and include the essence of the limited purpose agreement as a clause in the oil and gas lease that they present to potential lessors.

Without doubt, a limited purpose agreement is a worthy option for consideration in seeking to achieve fruitful negotiations.¹⁷⁰ As its name suggests, a limited purpose agreement is an agreement designed with a narrowly tailored objective in view. Limited purpose arrangements exist in various forms and settings. For instance, a joint venture is often defined as a limited purpose arrangement utilized to accomplish some defined goals of the co-adventurers.¹⁷¹ A limited purpose agreement can address NIMBY objections in a way that does not create immediate obligations. The agreement could “contain contingent liability provisions—including perhaps insurance contracts or escrowed funds—adequate to cover specified categories of” concerns and demands.¹⁷²

An agreement of this nature was used by Bloomingdales’ parent company as it faced NIMBY protests when it wanted to

¹⁷⁰ See Frederick R. Anderson, *Negotiation and Informal Agency Action: The Case of Superfund*, 1985 DUKE L.J. 261, 358 (1985).

¹⁷¹ See ROBERT W. HAMILTON ET AL., *THE LAW OF BUSINESS ORGANIZATIONS: CASES, MATERIALS, AND PROBLEMS* 75 (12th ed. 2014) (“The modern view . . . treats a joint venture simply as a general partnership that has a limited purpose.”); ROBERT A. RAGAZZO & FRANCES S. FENDLER, *CLOSELY HELD BUSINESS ORGANIZATIONS: CASES, MATERIALS, AND PROBLEMS* 181 (2d ed. 2012); Emeka Duruigbo, *Community Equity Participation in African Petroleum Ventures: Path to Economic Growth?*, 35 N.C. CENT. L. REV. 111, 114 (2013).

¹⁷² Anderson, *supra* note 170, at 358.

construct the White Flint Mall, in suburban Montgomery County, Maryland.¹⁷³ The company agreed to erect a berm to protect the surrounding residential neighborhood and to indemnify some of the local homeowners should there be a drop in property values.¹⁷⁴ These agreements allowed negotiations with local residents to continue over the design of the mall, and the proposal eventually went unopposed by local citizens.¹⁷⁵

A major challenge with this proposal is that energy companies may be reluctant to initiate negotiations for such agreements, due to expected high transaction costs of assembling hundreds of small mineral owners for concrete discussions and effective negotiations.¹⁷⁶ On the other hand, collective action problems may militate against small mineral owners organizing themselves into a negotiating bloc to achieve the most beneficial outcome.¹⁷⁷ In view of these constraints, it may be worthwhile for state regulators or conservation agencies to require the adoption of this technique by potential lessees and lessors. A template may be developed with the collaboration of government agencies, non-governmental organizations and industry groups that may be adapted for, or tailored to, particular needs.¹⁷⁸ This approach would accomplish the intended result of profitable oil and gas development without generating unnecessary bad blood between parties that may be locked into what could turn out to be a long-term commercial relationship. Accordingly, notwithstanding the financial costs, energy companies should be proactive and consider adopting the

¹⁷³ See *id.* at 358 n.365.

¹⁷⁴ See *id.*

¹⁷⁵ See *id.*; see also MALCOLM D. RIVKIN, *NEGOTIATED DEVELOPMENT: A BREAKTHROUGH IN ENVIRONMENTAL CONTROVERSIES* 7–14 (1977).

¹⁷⁶ See Abraham Bell, *Private Takings*, 76 U. CHI. L. REV. 517, 552 (2009) (discussing one solution the law has devised to overcome the impediment posed by high transaction costs to resource development); Paula C. Murray & Frank B. Cross, *The Case for a Texas Compulsory Unitization Statute*, 23 ST. MARY'S L.J. 1099, 1113 (1992) (stating that transaction costs are increased when a negotiation involves numerous rights owners).

¹⁷⁷ See David B. Spence, *Corporate Social Responsibility in the Shale Patch?*, 21 LEWIS & CLARK L. REV. 387, 415–16 n.165 (2017) [hereinafter Spence, *Shale Patch*].

¹⁷⁸ Such collaborative approach in developing a template or handbook was employed recently by the U.S. Department of Commerce and the African Legal Support Facility in relation to international power purchase agreements. See generally U.S. DEPT. OF COMMERCE, *UNDERSTANDING POWER PURCHASE AGREEMENTS* (2014).

limited purpose agreement, even in the absence of legislation. Such a stance will likely yield large payoffs through improved relations and a legitimate social license to operate.¹⁷⁹

CONCLUSION

The sustained success of shale gas operations in the United States requires the cooperation of mineral owners, home owners, host communities, energy companies, and policy makers. Affected persons are likely to withhold cooperation if they believe that energy production in their neighborhood would leave their interests shortchanged and their lives or livelihoods imperiled in the process of developing these natural resources. Existing laws favor mineral development in a way that many people in residential areas find discomfiting. The apprehension of home owners and residents sometimes is misplaced and their concerns are exaggerated, but a balanced approach that recognizes legitimate fears and seeks to address them for mutually beneficial outcomes is essential. This Article has set out to accomplish the goal of elucidating the key issues regarding the impact of fracking on people in residential areas, including owners and occupants of homes in those places, and proposing some solutions to mitigate the impact.

In particular, this Article recommends the use of limited purpose agreements to promote mutually beneficial negotiation outcomes, and makes a special case for disruption payments which can be used to compensate residents and assuage fears or feelings of ill-will while preventing NIMBY-based objections. The expectation is that we can have responsible shale gas production that maximizes the interests of all sides, minimizes conflicts, and galvanizes economic development that in turn translates to social progress.

¹⁷⁹ For the benefits or importance of a social license to operate, see Duruigbo, *supra* note 171, at 146; *see also* Spence, *Shale Patch*, *supra* note 177, at 409 (stating that some corporate social responsibility spending embarked upon by some energy companies “can be explained as attempts to address some of the specific effects of the shale boom, or as long term investments aiming to improve the business environment for producers in the shale regions”).