Transporting Oil and Gas: U.S. Infrastructure Challenges

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I. Introduction

This Article explores the history and geography of oil and natural gas to help explain why U.S. regulation of the infrastructure for transporting these two similar types of energy resources to markets developed so differently. Notably, while interstate natural gas pipelines are reviewed and permitted at the federal level by the Federal Energy Regulatory Commission ("FERC"), interstate oil pipelines are reviewed and permitted almost exclusively at the state level. This Article traces how these regulatory differences, along with differences in the physical properties of the two energy resources, have resulted in very different energy transportation infrastructures and challenges for each resource.

This Article considers whether changes in the regulatory regimes for oil or natural gas transportation are now warranted to promote more effective cross-country transportation of new sources of shale oil and gas made available by hydraulic fracturing technologies. It concludes that the regulatory siting regime for oil pipelines at the state level and gas pipelines at the federal level are both sufficient in their respective arenas to facilitate construction of new oil and gas pipelines when market forces allow. It also concludes, however, that the economic and physical realities of today's onshore oil and gas transportation systems have resulted in (1) excessive flaring of natural gas in some areas of the country due to lack of infrastructure and (2) too much oil traveling by rail, instead of by pipeline, leading to unacceptable accidents and safety risks. Both of these problems require additional regulations at the state and federal levels to create a national onshore oil and gas transportation

system that reflects the significant changes that have occurred in the scale and geography of today's oil and natural gas production and use.

This Article starts from the premise that the nation's oil and gas transportation infrastructure has historically been invisible to the public at large. While the public generally knows that oil and gas are produced from oil wells and gas wells, until recently, there was much less general knowledge about how these energy resources make their way to heat our homes, fuel our cars, and light our lights. Most Americans know that oil and gas travel primarily through pipelines, but they may not know where these pipelines are, who owns them, or how they operate. Indeed, Americans often pay little attention at all to the nation's energy infrastructure until they face a nearby pipeline leak, rail accident, or other natural or man-made disaster.

Recent oil and natural gas transportation accidents resulting in deaths and significant environmental damage have brought new attention to both the existence and the limitations of U.S. oil and gas transportation systems. For instance, the Enbridge oil pipeline spill in 2010 that released nearly 820,000 gallons of crude oil into a tributary of the Kalamazoo River in Michigan, and the 2010 natural gas pipeline explosion in San Bruno, California that killed eight people and injured many more, raised new questions regarding the vulnerability of the nation's energy transportation infrastructure.[1] Moreover, the July 2013 deadly runaway oil train in Quebec, Canada, which carried tanker cars full of crude oil from the now-booming North Dakota Bakken shale region, cast a spotlight on the previously little-known fact that massive volumes of oil are now traveling by train instead of by pipeline for the first time in decades.[2] The crash highlighted how the shale oil and gas "revolution"[3] brought about by hydraulic fracturing and directional drilling has created an abundance of energy resources in new locations, and the need to transport those resources across the country. Indeed, in the past year, rail became the primary means of transporting oil from the newly-crowned number two oil-producing state in the country

1. *See, e.g.*, PAUL W. PARFOMAK, CONG. RESEARCH SERV., R41536, KEEPING AMERICA'S PIPELINES SAFE AND SECURE: KEY ISSUES FOR CONGRESS 3 (2013); Dan Frosch, *Pipeline Spills Stir New Criticism of Keystone Plan*, N.Y. TIMES (Apr. 2, 2013), http://www.nytimes.com/2013/04/03/us/pipeline-spills-stir-new-criticism-of-keystone-proposal.html (reporting on a major spill from Exxon Mobil's Pegasus Pipeline in Arkansas carrying heavy crude from Western Canada, raising questions about the proposed Keystone XL Pipeline designed to carry similar materials, and citing concerns over the lack of sufficient regulation of pipelines).

2. *See, e.g.*, Matthew Daly, *Quebec Explosion Highlights Risk of Oil Transport*, ASSOCIATED PRESS (July 8, 2013, 6:40 PM), http://www.apnewsarchive.com/2013/Quebec_explosion_highlights_risk_of_oil_transport/id-1a969d0b7b9b44ceb51650ccd69f4a42.

3. For discussion of the various legal and policy issues surrounding hydraulic fracturing and the rapid rise of U.S. oil and gas production, see 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 (2013); Symposium, *The Law and Policy of Hydraulic Fracturing: Addressing the Issues of the Natural Gas Boom*, 63 CASE W. RES. L. REV. 965 (2013).

because developers did not build existing pipeline networks with North Dakota in mind as a major player in oil production.[4]

The regulatory regimes governing oil transportation and gas transportation differ radically from each other for reasons that are not always obvious. For instance, the federal government, through FERC, exercises virtually exclusive control over the siting and approval of interstate natural gas pipelines. By contrast, states exercise nearly exclusive control over the siting and approval of interstate oil pipelines. Also, because of the difficulty and cost of transforming natural gas into liquid form, natural gas is transported to markets almost exclusively by pipelines. By contrast, oil has historically been transported domestically and internationally by rail, truck, and ship, as well as by pipeline. These differences in means of transportation and regulation of that transportation arose in part because of the physical properties of each resource but also because each regulatory system developed during different political and economic times and in response to different constellations of actors, assumptions regarding the scarcity or availability of the resource in question, the role of federal and state governments in regulating energy transportation, and varying concerns over monopoly power.

This Article attempts to address the questions of who, what, where, when, why, and how with regard to onshore oil and gas transportation infrastructure. These inquiries are important not just as a historical matter. Exploring these questions is an opportunity to examine not only the history of the infrastructure itself but the history of government authority over that infrastructure, and whether that regulatory framework is adequate in light of recent changes in new energy development technologies and market forces in the oil and gas industries. Today, hydraulic fracturing allows massive development of oil and natural gas in parts of the country that were not major oil and gas producers. This means producers cannot easily access the existing oil and gas pipeline networks that the industry built in prior decades from traditional production sites to the consuming market in the case of gas, and to coastal refineries in the case of oil. Is the regulatory structure that was put in place decades ago to build pipelines under very different political and economic conditions still sufficient to govern the siting and building of expansions needed today? This question touches on critical issues subject to significant debate in the United States: the impacts of technological

4. *See* Merrill & Shizer, *supra* note 3, at 155; Amy Dalrymple, *ND Oil Relies on Rail*, PRAIRIE BUS. (July 9, 2013, 8:11 AM), www.prairiebizmag.com/event/article/id/15186 (reporting that "675,000 barrels of Bakken crude leaves North Dakota rail facilities" every day, which is 15 times the amount shipped three years ago, and that "[75%] of oil produced in North Dakota leaves by rail, in part due to a lack of pipelines and also because producers have found access to premium prices by shipping to refineries not served by North Dakota-linked pipelines"); Scott Haggett et al., *Analysis: Quebec Rail Disaster Shines Critical Light on Oil-by-Rail Boom*, REUTERS (July 7, 2013, 6:59 PM), http://www.reuters.com/article/2013/07/07/us-train-rail-analysis-idUSBRE9660KZ20130707 (discussing the boom in rail shipments of oil in the prior year and raising questions on how the Quebec disaster may impact debates over the Keystone XL Pipeline).

innovations like hydraulic fracturing, the role of government in supporting and developing those innovations and regulating the environmental externalities that arise from them, federalism debates over the proper level of government to regulate development and approve new energy infrastructure, the use of eminent domain in building new energy transportation infrastructure, and the changing economics and politics of energy.

Ultimately, this Article concludes that the regulatory siting regimes for oil pipelines at the state level and gas pipelines at the federal level have, at least until now, both been sufficient in their respective arenas to facilitate construction of new oil and gas pipelines when market forces allow. In other words, government siting requirements and eminent domain laws do not appear to act as major obstacles to necessary infrastructure expansion at either the state level for interstate oil pipelines or at the federal level for interstate natural gas pipelines. This is in large part because oil has physical properties that allow it to be transported by multiple means: rail, pipeline, barge, and ship. Thus, even when states put roadblocks in the way of certain interstate pipelines, the availability of alternative means of transport renders these roadblocks less of an impediment to transporting oil. By contrast, because of its physical properties, natural gas depends on interstate pipelines for transportation to markets. Thus, in the 1930s and 1940s, Congress created a federal siting and eminent domain procedure for interstate natural gas pipelines that preempts state law. This federal system is critical to transporting natural gas effectively even while the lack of such a system for transporting oil has not historically been a problem. The main caveat to this conclusion is that public opposition to oil pipelines is growing in many regions of the country because of environmental, health, and safety concerns associated with both the production and transport of oil. Whether these developments will cause some states with fairly lax or nonexistent pipeline siting laws to revise those laws remains to be seen.

But the adequacy of each energy resource's siting regime to facilitate new interstate oil and gas pipelines when market demand is present does not end the inquiry. The question remains whether the U.S. energy transportation infrastructure as a whole is sufficient to address the abundance of oil and gas resources brought about by hydraulic fracturing. The answer to that question appears to be no. What is lacking at the present time are sufficient regulatory and economic incentives under state or federal environmental laws to ensure that necessary infrastructure is built in oil-rich areas like North Dakota to capture the natural gas produced with oil. In the absence of such incentives, producers flare large amounts of natural gas into the atmosphere because of its relatively low market value as compared to oil and because producing areas lack gathering pipelines or other localized collection systems. Such practices have resulted in significant physical and economic waste and air pollution. What is also lacking is a full assessment of the costs and benefits of transporting oil by rail rather than by pipeline. Such an assessment must take

place quickly as market actors make major investments in rail infrastructure to transport oil from new production areas to refineries.

It is important to note that this Article does not attempt to address the relative environmental benefits and harms associated with these new sources of fossil fuels as opposed to transitioning more quickly to renewable sources of energy such as wind and solar. While this is a critical issue U.S. policymakers must face now and in the future, we save these questions for future work.

Part II of this Article considers the U.S. oil transportation network. It describes how producers first transported oil from production sites to refineries and end users and details the history of the early battles among teamsters, rail interests, and pipelines. It then discusses the rise of government regulation of the oil pipeline industry and why the states remained the primary regulators of interstate oil pipeline siting and eminent domain. It next turns to modern concerns associated with the oil pipeline network. These include the role of the Keystone XL Pipeline and how hydraulic fracturing has radically altered our assumptions regarding domestic oil supplies. Finally, it considers the various state approaches to siting and the use of eminent domain to build new oil pipelines as well as current challenges in extracting and transporting vast new sources of oil in parts of the country, like North Dakota, that are far removed from the historic centers of U.S. oil production and the oil transportation network.

Part III focuses on the natural gas transportation network. It explores how that energy resource developed in the United States and the reasons why Congress transferred authority over the siting and permitting of natural gas pipelines from the states to the federal government in the 1930s. It examines how hydraulic fracturing exploded long-held assumptions regarding supply, demand, and price with regard to natural gas. It then considers current issues surrounding the need for new pipeline infrastructure and liquefied natural gas ("LNG") terminals for export, the problems of natural gas flaring that arise from inadequate pipeline infrastructure, and whether the current regulatory framework is well-positioned to address these issues.

Part IV then considers the benefits and drawbacks associated with the current regulatory structure for oil and natural gas transportation more holistically. Given the current demands placed on existing infrastructure to accommodate massive new sources of energy, it is helpful to compare and contrast these two regulatory systems. With regard to oil pipelines, state siting and eminent domain requirements are generally not particularly stringent; oil is a high-value, international commodity, and states have not placed significant barriers in the way of building such pipelines in recent years, putting aside the Keystone XL Pipeline, which has given rise to unique environmental and political issues. More important, there have always been, and continue to be, alternative means of transporting oil, particularly by rail. Thus, even though there has been some lag in building the pipelines needed to transport oil from North Dakota and other areas of new production, rail

has been able to pick up the slack until new pipelines come on line. What is not clear is the nature of the additional safety risks associated with transporting so much oil by rail rather than by pipeline.

As for interstate natural gas pipelines, Congress created federal siting and eminent domain authority to override states and individuals that were blocking efforts to build interstate natural gas pipelines in the 1930s and 1940s. Such pipelines became critical to the national economy when cities and industry switched from reliance on manufactured gas, which could be generated through the combustion of coal transported by truck or train, to natural gas, which could only be transported by pipeline. This federal system is proving helpful to current efforts to build the pipelines producers need to transport new sources of natural gas to population centers. However, additional regulation or incentives at the state or federal level are necessary to address inadequate natural gas transportation infrastructure in areas where the dominant resource produced is oil rather than gas. Indeed, the lack of natural gas pipelines in some areas—most notably, North Dakota—has resulted in significant flaring of natural gas from oil wells rather than capturing and selling that energy resource along with the oil. As a result, additional state or federal regulation is necessary to prevent physical and economic waste of natural gas resources and to minimize the environmental impacts of that waste.

II. THE OIL TRANSPORTATION NETWORK: HISTORY, REGULATION, AND CURRENT CHALLENGES

This Part provides a history of the oil industry with a focus on how that history influences the regulation of the industry and more particularly, the regulation of the network of interstate pipelines and railways that transport crude oil and oil products to distribution points around the country. It tracks the development of this transportation infrastructure system from its early years in Pennsylvania, to the oil boom in Texas, to the most recent oil boom in North Dakota. It explains how states, rather than the federal government, have come to be the primary regulators of interstate pipeline siting and eminent domain and explores the impact of state authority on new pipeline infrastructure, including the Keystone XL Pipeline.

A. HISTORY OF OIL USE, PRODUCTION, DISTRIBUTION, AND REGULATION

1. Early Oil Production, Transportation, and Pipeline Regulation

Although many textbooks cite Edward Drake's 1859 oil strike in Titusville, Pennsylvania, as the first major development in the modern petroleum industry, that discovery was not the first, nor was it the first time

people recognized oil's utility and potential economic value.[5] In 1543, Spanish explorers found oil floating on the water's surface on the Texas coast near the present-day city of Port Arthur, and reported using it to caulk their boats.[6] Records from the 18th and 19th centuries indicate that indigenous peoples and European missionaries identified and used oil springs in what is now western New York.[7] By the late 1700s, oil was a recorded object of commerce, sold by the gallon, keg, and bottle.[8]

The expansion of the petroleum industry occurred only once a steady supply of oil could reach refiners and consumers.[9] The first reliable petroleum supply was developed in the "Oil Region" of northwestern Pennsylvania, beginning with Drake's well at Titusville in 1859. By the end of 1860 there were 74 oil wells along nearby Oil Creek, a tributary to the Allegheny River, and it was estimated that a total of 200,000 barrels of oil had been produced up to that point.[10] The major markets for petroleum products were located in urban areas in the United States and Europe, whereas drilling and production of the raw material occurred in relatively remote areas of Pennsylvania. Thus, transportation was a key factor in turning petroleum into a valuable commodity.[11]

The closest railroad to the 1859 Titusville oil strike was 25 miles away, accessible only by wagon trail in good weather conditions.[12] Wagon and horse teams—their drivers referred to as "teamsters"—offered oil transport at $2.50 to $4.00 per barrel and could average five to six barrels per trip between well and railroad.[13] Prior to 1862, 6000 teams worked in the Oil Region, hauling

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5. PAUL H. GIDDENS, THE EARLY PETROLEUM INDUSTRY 1–17 (1974); s*ee also* HAROLD F. WILLIAMSON & ARNOLD R. DAUM, THE AMERICAN PETROLEUM INDUSTRY: THE AGE OF ILLUMINATION 1859–1899, at 4 (1959) (describing an "ancient industry" in bitumen in Mesopotamia, where asphaltic bitumen was used in construction, craft, and medicine).

6. Mary G. Ramos, *Oil and Texas: A Cultural History*, TEX. ALMANAC, http://www.texasalmanac.com/topics/business/oil-and-texas-cultural-history.

7. GIDDENS, *supra* note 5, at 1–3.

8. *Id.* at 11. Despite its recognized potential as a lubricant and illuminant, the only real trade in oil before 1850 was for medicinal purposes. WILLIAMSON & DAUM, *supra* note 5, at 12. Production of kerosene for use as an illuminant was by far the most profitable activity in the petroleum industry until the beginning of the 20th century, but demand existed for other petroleum byproducts such as napthas, gasoline, fuel oil, and waxes. *Id.* at 232–51.

9. *See* GIDDENS, *supra* note 5, at 60–61 (explaining that without a reliable, sufficient supply of petroleum, the new industry could not have supplanted coal oil's stable and profitable position).

10. *Id.* at 75.

11. Transportation from wells to rails and then to national and international markets was considered more difficult and costly than production. *See* ARTHUR MENZIES JOHNSON, THE DEVELOPMENT OF AMERICAN PETROLEUM PIPELINES: A STUDY IN PRIVATE ENTERPRISE AND PUBLIC POLICY, 1862–1906, at 2 (1956).

12. 1 ROBERT L. BRADLEY, JR., OIL, GAS, AND GOVERNMENT: THE U.S. EXPERIENCE 596 (1996).

13. *Id.* at 596 n.3. Transporting oil between wellheads and rail stations cost oil producers more than the longer shipping distances between rail stations and refineries in major cities. GIDDENS, *supra* note 5, at 103.

oil from dispersed wellheads to rail depots in Corry, Union City, and Garland, Pennsylvania.[14] Teams labored seven days a week, with trains of wagons sometimes extending a mile or more from rail stations.[15] Available roads were poor: huge mud holes formed in wet weather and leaky oil barrels led to mud and oil slurries forming on the roads.[16] Hairless horses were a common sight,[17] as were dead horses that had been overworked or abandoned along with broken wagons in deep mud holes.[18] Heavy horse and oil losses were associated with this shipping method.[19] Teamsters demanded and received high prices until water, rail, and pipeline options began to challenge teamster dominance in oil transport.[20]

By 1850, more than 80 city water systems and 50 gas distribution systems had shown that liquids and gas could be transported via pipeline.[21] Petroleum pipelines developed as a complementary technology alongside railroads, but eventually became a transport method that would challenge railroad dominance in long-distance oil shipping.[22] The first pipelines in the Oil Region were local "gathering" lines that collected oil and transported it across short distances.[23] Gathering lines were initially proposed in Pennsylvania in 1860 and 1861, but teamster saboteurs, lack of capital due to the Civil War, and a state legislature unwilling to grant pipeline charters in the face of angry

14. GIDDENS, *supra* note 5, at 101. Giddens reports that Union Mills (near Harrisburg in central Pennsylvania) was a rail destination for oil at the time, but it is more likely he intended to include Union *City*, a locality very close to Corry and Garland in the Oil Region.

15. *Id.* at 102.

16. *Id.*

17. Constant contact with oil reportedly destroyed horses' hair and capillary glands. *Id.*

18. *Id.* at 102–03.

19. 1 BRADLEY, *supra* note 12, at 596 n.3.

20. Though water transport for oil has decreased as pipeline and rail use increases, water carriers such as tankers and barges remain important to the petroleum industry. As of 2009, water carriers moved 23.1% of all crude oil and refined products transported in the United States. U.S. DEP'T OF TRANSP., NATIONAL TRANSPORTATION STATISTICS 96 tbl.1-61 (2014), *available at* http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_statistics/html/table_01_61.html (last visited Jan. 20, 2015). Moreover, with insufficient pipeline capacity to meet new oil shale production, water transport, along with rail, increased significantly in 2013 to 2014. *See* Tom Fowler, *Oil Boom Increases Barge Operators' Fortunes*, WALL ST. J. (Feb. 2, 2014, 7:26 PM), http://online.wsj.com/news/articles/SB10001424052702304851104579359002529714962 (reporting on the tenfold increase in using barges to transport crude oil to refineries between 2012 and 2013).

21. WILLIAMSON & DAUM, *supra* note 5, at 183.

22. JOHNSON, *supra* note 11, at 2; *see also* GEORGE S. WOLBERT, JR., U.S. OIL PIPE LINES 3 (1979) (explaining that railroads initially benefited from pipeline development because pipelines increased the quantities of crude oil that could reach railroads, which would then carry the oil longer distances to refineries in Pittsburgh, Cleveland, and the East Coast).

23. JOHNSON, *supra* note 11, at 1–2.

teamster constituents thwarted development.[24] Yet just a few months after it denied an 1861 pipeline proposal, oil producers and railroads convinced the Pennsylvania legislature to change course and grant the Oil Creek Transportation Company the first pipeline charter.[25] When the company failed to act immediately on its new authorization, small, unincorporated pipelines attempted to fill the gap, but largely failed due to mechanical problems and sabotage.[26] An oil buyer built the first successful pipeline in the Oil Creek area in 1865, completed it despite teamster attacks on the line, and found the 32,000-foot line could transport about 80 barrels of oil in an hour.[27] The pipeline and its builder had been the object of derision,[28] but when the line proved reliable and profitable, other pipelines soon appeared.[29] By 1867, it cost 50 cents to ship a barrel of oil via pipeline, down from the $1.50 teamsters charged in 1864.[30] Pipeline companies maintained rates just low enough to drive teamsters out of business.[31] Pipelines also started offering storage, which allowed producers to manipulate prices by withholding oil from the market.[32]

Pipeline companies and oil producers twice attempted and failed to get a law passed in Pennsylvania to grant pipelines the eminent domain power that the railroads enjoyed.[33] The railroads successfully blocked such efforts until a railroad price-setting scheme was revealed, angering the public and shifting opinion in favor of pipelines.[34] When a bill was passed in Pennsylvania in 1872, the influential vice president of the Pennsylvania Railroad was successful in limiting pipeline eminent domain to eight counties in the Oil Region, excluding Allegheny County (where Pittsburgh refineries were

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24. 1 BRADLEY, *supra* note 12, at 597; *see also id.* at 624 (critiquing pipeline charters' restrictive capitalization requirements); JOHNSON, *supra* note 11, at 4–5 (discussing early proposals and noting legislative difficulties).

25. 1 BRADLEY, *supra* note 12, at 609.

26. *Id.* at 609–10. The first pipelines were small; for example, one connected a well to an on-site refinery, stretching 800 to 1000 feet; a second was constructed in 1863 from the same land parcel to another refinery two miles away; and a three-mile-long gathering line was constructed in the same year. GIDDENS, *supra* note 5, at 142. The shortest line worked best, while the latter two suffered from leaky joints, poor pipe quality, and faulty machinery. *Id.*

27. GIDDENS, *supra* note 5, at 143–44; JOHNSON, *supra* note 11, at 7–8; Samuel T. Pees, *1865, The Van Syckel Pipeline*, OIL HISTORY, http://www.petroleumhistory.org/OilHistory/pages/Pipelines/van_syckel.html (last visited Jan. 20, 2015).

28. GIDDENS, *supra* note 5, at 143.

29. *See* JOHNSON, *supra* note 11, at 8–9. The Warren Oil Company and the Pennsylvania Tubing Transportation Company built pipelines from the oil-field boomtown of Pithole to towns along the Allegheny River, permitting subsequent river transport to Pittsburgh. *Id.* at 9.

30. *Id.* at 6, 10.

31. GIDDENS, *supra* note 5, at 145. Over 1500 teamsters left the Oil Region boomtown of Pithole in a single week. *Id.*

32. *See* JOHNSON, *supra* note 11, at 11.

33. 1 BRADLEY, *supra* note 12, at 610–11 (internal quotation marks omitted).

34. *Id.* at 611.

located),[35] and mandating that no pipeline could be constructed within five miles of the state line for the purpose of exporting oil out of state.[36] Railroads defeated pipeline efforts to establish statewide eminent domain in Pennsylvania until 1883.[37] A few years prior, in 1872, the Ohio legislature passed a law granting the power of eminent domain to all pipelines acting as common carriers,[38] and New York passed a similar law in 1878.[39] Despite limited use of eminent domain, total pipeline mileage in the Oil Region (including gathering lines) reached 2000 miles in 1872 and 4000 miles in 1874.[40]

In 1879 the Tidewater Pipe Line Company completed a 115-mile-long, 6-inch-wide crude pipeline connecting oil production from Coryville in the Oil Region to Williamsport, Pennsylvania, where the crude oil was transferred to tank cars and carried by rail to New York.[41] The Tidewater Pipeline was the first pipeline to compete with railroads in long-distance transport, and its route was established entirely through private transactions, without the benefit of eminent domain.[42] This development placed the powerful and well-integrated Standard Oil Company at a disadvantage, because independent refiners using Tidewater's services were able to acquire crude oil at much lower rates than Standard's affiliated refineries could.[43]

In an effort to achieve similar cost savings, Standard Oil built the National Transit Pipe Line System, consisting of first, one, and then two, 6-inch lines laid parallel to one another from Olean, New York, to Saddle River, New Jersey.[44] The first line was completed in 1881, and in the same year, the Tidewater pipeline was extended from Williamsport to reach Philadelphia

35. *Id.*

36. JOHNSON, *supra* note 11, at 21–22.

37. 1 BRADLEY, *supra* note 12, at 616.

38. *Id.* at 612. A method of transport (i.e., railroad, motor vehicle, or pipeline) that offers its services to the public for hire is a common carrier, and such a carrier must provide service indiscriminately to any entity that reasonably requests it. *See* Belle Fourche Pipeline Co., 28 FERC ¶¶ 61,150, 61,281 (1984) (discussing the establishment of "the duty of a common carrier to 'receive, carry and deliver goods'" upon reasonable request).

39. ARTHUR M. JOHNSON, PETROLEUM PIPELINES AND PUBLIC POLICY, 1906–1959, at 21 (1967).

40. WILLIAMSON & DAUM, *supra* note 5, at 399. Standard Oil built some portion of its pipelines without using eminent domain to secure right-of-way. *See* WOLBERT, *supra* note 22, at 4–12.

41. WOLBERT, *supra* note 22, at 4.

42. 1 BRADLEY, *supra* note 12, at 614.

43. *See* WOLBERT, *supra* note 22, at 4–5. Standard Oil's refineries were generally located in population centers served by rail and water, such as Cleveland, New York City, Baltimore, and Philadelphia. JOHNSON, *supra* note 39, at 4.

44. JOHNSON, *supra* note 11, at 104; WOLBERT, *supra* note 22, at 5 & n.42. The method of laying two or more parallel pipes along a single pipeline route to expand capacity was referred to as "looping." ENERGY INFO. ADMIN., DELIVERABILITY ON THE INTERSTATE NATURAL GAS PIPELINE SYSTEM 145 (1998), *available at* ftp://ftp.eia.doe.gov/pub/oil_gas/natural_gas/analysis_publications/deliverability/pdf/deliver.pdf (defining "looping" in the context of natural gas pipelines, a practice that occurs on gas pipelines today).

refineries.[45] The Tidewater was eventually extended to Bayonne, New Jersey (just southwest of New York City) in 1888, but by that time Standard Oil had acquired the independent refineries that had previously done business with Tidewater, forcing the pipeline company into an agreement with Standard Oil.[46] Independent producers in the Pennsylvania Oil Region collaborated with independent inland refiners in an attempt to overcome discriminatory railroad rates.[47] They formed the United States Pipe Line Company in 1892 and completed a 180-mile crude oil pipeline from the northwestern Pennsylvania fields to Wilkes-Barre, Pennsylvania, and another pipeline carrying refined products to Wilkes-Barre from independent refiners located in the Oil Region of western Pennsylvania—an even more important technological development.[48] These developments exemplify numerous efforts throughout the Appalachian Field[49] to situate, expand, and improve transportation infrastructure to carry oil and petroleum products from the most productive fields to refineries and end users at the most advantageous prices.

2. Industry Expansion and the Rise of Federal Regulation of Oil Pipelines

Industry continued to expand oil production and associated pipelines at the turn of the 20th century. The concentrated market power of a few firms, together with infrastructure limitations that persisted despite pipeline expansion, encouraged major changes in government oversight of pipelines. By 1895, the oil industry had developed producing wells in the Mid-Continent field in Kansas and Oklahoma (Indian Territory at the time), but early independent producers could not afford to build the long-distance pipelines necessary to transport the oil to distant markets, and rail rates were prohibitively expensive.[50] Two small producers in the region had 150,000 barrels in storage, wells producing 1800 additional barrels on a daily basis, and no transportation options. They approached Standard Oil with their

45. WOLBERT, *supra* note 22, at 5.

46. *Id.* The loss of business caused Tidewater Pipe Line Company to enter an agreement with Standard Oil, whereby Standard would use 88.5% of the newly extended pipeline's capacity. *Id.*

47. *Id.* at 8.

48. *Id.* Pipelines had only been used to transport refined products short distances from refineries to rail transfer points. *Id.* The new product line to Wilkes-Barre had a 2000 barrels per day (bpd) capacity and was able to transport three different grades of kerosene with minimal intermixing of the grades. *Id.* at 9.

49. The Appalachian Field refers to an oil-producing area encompassing portions of Tennessee, Kentucky, West Virginia, Ohio, Pennsylvania, and New York. The "Oil Region" of northwestern Pennsylvania is found within the larger Appalachian Field.

50. JOHNSON, *supra* note 39, at 17. The Mid-Continent field had been discovered in 1892, but was only drawing local attention at the time. *Id.* By 1906, several 12-inch diameter lines had been built though 8-inch lines were the norm. *Id.* at 18; *see also* WOLBERT, *supra* note 22, at 11–12. A 460-mile crude pipeline was built from eastern Kansas to Indiana to connect to Standard's Whiting refinery and its pipelines running east. WOLBERT, *supra* not 22, at 10.

dilemma and Standard purchased their leases, setting off an "oil fever" in the Mid-Continent field.[51]

Before 1900 almost all crude oil production occurred in the Appalachian and Lima-Indiana fields,[52] but trends quickly shifted as the oil industry exploited new areas. The 1901 "Spindletop" strike near Beaumont, Texas, which spurted oil more than 100 feet high for over a week, sparked intense land speculation.[53] The well produced 75,000 to 100,000 barrels per day, commencing a Texas oil boom that continues today.[54] Producers discovered other oil-rich areas in Texas soon after Spindletop and built new pipelines to connect the region to coastal refinery towns and Houston within a few years.[55] The Beaumont strike location allowed new entrants to compete with older, dominant oil companies because producers could ship crude and petroleum products by water.[56] California also had important oil fields that, as of 1905, were producing more oil than those in any other state.[57] Most crude oil produced in California was shipped long distances by rail or water, the state's pipeline operators were not common carriers, and its pipeline infrastructure was intrastate in nature.[58]

By 1900 there were 6800 miles of crude oil pipelines in the United States, and approximately 90% of the investment in those miles had come from companies affiliated with Standard Oil.[59] By this time the major oil companies were fully integrated and engaged in all phases of the oil business—production, transportation, marketing, and refining.[60] As of 1904, Standard Oil had acquired producing affiliates that churned out 9 million barrels of crude in that year, while Standard's pipelines carried 28 million of the 30

51. JOHNSON, *supra* note 39, at 17–18.

52. JOHNSON, *supra* note 11, at 211.

53. Robert Wooster & Christine Moor Sanders, *Spindletop Oilfield*, TEX. ST. HIST. ASS'N (June 15, 2010), http://www.tshaonline.org/handbook/online/articles/dos03.

54. Texas produced over 920 million barrels of oil in 2013. *See Petroleum & Other Liquids: Crude Oil Production*, U.S. ENERGY INFO. ADMIN., http://www.eia.gov/dnav/pet/pet_crd_crpdn_adc_mbbl_a.htm (set period-unit in interactive graph to "Annual-Thousand Barrels") (last visited Jan. 20, 2015). In the 1950s, late-1960s, and 1970s, Texas regularly produced over a billion barrels of oil annually. *See Crude Oil Production and Well Counts (since 1935)*, RAILROAD COMMISSION OF TEX., http://www.rrc.state.tx.us/oil-gas/research-and-statistics/production-data/historical-production-data/crude-oil-production-and-well-counts-since-1935/ (last visited Jan. 20, 2015).

55. WOLBERT, *supra* note 22, at 10–11.

56. JOHNSON, *supra* note 39, at 14–15. Gulf Oil, Sun Oil, and The Texas Oil Company (Texaco) formed and competed with Standard Oil. WOLBERT, *supra* note 22, at 11. Gulf and Texaco built pipelines from Oklahoma fields to their Sabine, Texas-area refineries, representing just a few of the pipelines connecting the Mid-Continent field to refineries at points south and east. *Id.* at 12.

57. JOHNSON, *supra* note 11, at 211.

58. WOLBERT, *supra* note 22, at 11.

59. JOHNSON, *supra* note 39, at 3.

60. *Id.* at 7.

million total barrels that were transported out of U.S. oil fields in 1904.[61] Other producers and refiners—particularly independent ones—sought legal change to counter Standard Oil's power.[62] They thought Standard's advantages could be countered if all pipelines had the power of eminent domain and were forced to be common carriers.[63]

Refineries in Kansas complained to Congress that they were unable to ship crude out of the state due to the monopolistic practices of Standard Oil and the railroads.[64] The precursor to the Federal Trade Commission investigated their complaints, and Congress launched an investigation into the price disparity between Kansas crude and petroleum products derived from it.[65] This ultimately resulted in the enactment of the Hepburn Act of 1906, which expanded Interstate Commerce Commission ("ICC") authority to include interstate oil pipelines and made pipelines common carriers, thus "mandat[ing] just and reasonable rates, nondiscriminatory treatment of shippers, and ICC approval of filed rate tariffs."[66]

Interstate pipeline companies developed several techniques to avoid common carrier designation after passage of the Hepburn Act. For one, pipelines' high rates and minimum-tender requirements prevented use by unaffiliated shippers.[67] Another pipeline company tactic was to piece together segments of intrastate pipelines in order to disclaim identity as a pipeline engaging in interstate commerce.[68] Producers continued to complain about the lack of market options for their oil, and in 1912, the ICC held a hearing

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61. *Id.* at 11. For an analysis of some of the reasons why Standard Oil was able to obtain control over the oil production and distribution industry, see George L. Priest, *Rethinking the Economic Basis of the Standard Oil Refining Monopoly: Dominance Against Competing Cartels*, 85 S. CAL. L. REV. 499, 542–57 (2012).

62. JOHNSON, *supra* note 39, at vii.

63. *Id.* at 20. Pipelines had the power of eminent domain in ten states by 1906, including in California, Colorado, Indiana, Kentucky, New York, Ohio, Pennsylvania, Texas, West Virginia, and Wyoming. *Id.* at 21 n.1.

64. *Id.* at 23.

65. *Id.*

66. Elisabeth R. Myers, *Oil*, *in* ENERGY LAW AND TRANSACTIONS § 3.06[2] (David J. Muchow & William A. Mogel eds., 2013); *see also* JOHNSON, *supra* note 39, at 23–26 (discussing the federal investigation of the oil industry in 1905).

67. JOHNSON, *supra* note 39, at 53. On the other hand, these tender requirements could also be viewed as what was necessary to keep pipelines full, running at capacity, and thus operating at their most efficient per barrel cost. *Id.* at 47. But requirements did have the effect of hampering competition from smaller refiners who could not refine or store such large quantities of crude oil. *Id.*

68. For example, Standard Oil organized the Oklahoma Pipe Line Company to build and operate a pipeline across Oklahoma; Prairie Oil & Gas—a Standard Oil affiliate in Kansas—constructed and operated a pipeline across Arkansas, which had no common carrier requirement; and Standard Oil of Louisiana operated a final pipeline segment across that state. JOHNSON, *supra* note 39, at 41–42. Segments were under separate ownership, and ownership of the oil was transferred at each state border crossing. *Id.* The pipeline ran from the Glenn Pool field near Tulsa to Baton Rouge. *Id.* at 41.

when 13 interstate oil pipeline companies failed to file tariffs after the ICC ordered a group of 60 of them to do so.[69] Pipeline companies argued that their private investments should not be turned into common carriers by statute.[70] The ICC ordered the 13 companies in violation to file rates, prompting the pipelines' appeal to the short-lived Commerce Court, which in turn issued an injunction halting the ICC's order.[71] The ICC appealed to the Supreme Court, which granted certiorari to hear *United States v. Ohio Oil Co.* along with additional related cases, now referred to collectively as *The Pipe Line Cases*.[72]

In *Ohio Oil Co.*, the U.S. Supreme Court held that Standard Oil and its subsidiaries violated the Interstate Commerce Act ("ICA") by refusing to carry oil for the public unless the oil was first sold to Standard Oil on its own terms[73] and that the ICA did not violate the Fifth Amendment.[74] *Ohio Oil Co.* followed a 1911 Supreme Court decision, which held "that the Standard Oil Company of New Jersey and its subsidiary companies constitute a combination in restraint of interstate commerce, and that they have attempted to monopolize and have monopolized parts of such commerce."[75] That decision resulted in Standard Oil's division into multiple affiliates.[76] "Ten [new] common-carrier pipeline companies and three partially or wholly integrated oil companies owning pipelines [as part of their integrated operations] were separated from Standard Oil Company (New Jersey)."[77]

3. 20th Century Oil Pipeline Expansions

The Supreme Court's decisions, which diffused market power in the industry, coupled with increased demand for gasoline in the transportation sector, led to new oil transportation infrastructure as well as new legal challenges. The public had long valued petroleum as a source of refined illuminants, but oil's combustible qualities were increasingly appreciated by

69. *Id.* at 74.

70. *Id.* Standard Oil argued that it had not availed itself of eminent domain, nor had it ever acted as a common carrier, and thus refused to acknowledge the new law applied to its pipelines. *Id.*

71. *Id.* at 77–78.

72. *See generally* United States v. Ohio Oil Co., 234 U.S. 548 (1914).

73. *Id.* at 560 (finding that the Hepburn Act's "evident purpose was to bring within [the ICA's] scope pipe lines that, although not technically common carriers, yet were carrying all oil offered, if only the offerers would sell at their price"); *id.* at 561 ("The whole case is that the appellees, if they carry, must do it in a way that they do not like. There is no taking and it does not become necessary to consider how far Congress could subject them to pecuniary loss without compensation in order to accomplish the end in view.").

74. *Id.* at 561.

75. Standard Oil Co. of N.J. v. United States, 221 U.S. 1, 82 (1911) (Harlan, J., concurring).

76. JOHNSON, *supra* note 39, at 54.

77. *Id.* at 65.

the start of the 20th century. Gasoline demand rose as kerosene use decreased, making gasoline the leading refined petroleum product by 1919.[78]

Throughout the 1920s refineries located closer to producing areas and further from markets relied on railroads to carry gasoline to consumers.[79] Railroads charged extremely high prices, and so refiners located in the Mid-Continent field joined in an effort to build a gasoline pipeline in the late 1920s.[80] By 1940, pipelines carried 283 million barrel-miles of crude and 23.7 million barrel-miles of refined products.[81] Gasoline marketing became very competitive, which encouraged companies to integrate and become as self-sufficient as possible in production and transportation, which resulted in the construction, acquisition, and expansion of pipeline networks by companies that did their refining and marketing far from the oil fields.[82] A pattern developed nationally, with crude oil pipelines emanating from interior areas in Texas, Louisiana, Oklahoma, and New Mexico, carrying oil south and north to refineries in the Gulf Coast and the Midwest.[83]

Despite the expansion of pipelines from producing areas to refineries in the early part of the 20th century, as late as 1940, almost all of the petroleum consumed on the East Coast was transported by tanker ship in coastal waters.[84] These tankers quickly became targets for German submarines in World War II. Shortly after the attack on Pearl Harbor, large numbers of German U-boats arrived on the East Coast and less than six months into the conflict they had sunk 55 tankers.[85] U-boat attacks reduced tanker deliveries to one-fifth the level of pre-war shipments.[86] Just before the war began, two pipeline companies attempted to build major oil pipeline networks between Florida

78. *Oil History Timeline*, OIL 150, http://www.oil150.com/about-oil/timeline/ (last visited Jan. 20, 2015). In 1914, the U.S. refined 1.5 billion gallons of gasoline and over 1.9 billion gallons of kerosene. In 1916, over 2 billion gallons of gasoline and less than 1.5 billion gallons kerosene were refined. JOHNSON, *supra* note 39, at 252.

79. WOLBERT, *supra* note 22, at 15.

80. *Id.*

81. *Id.* at 19. "One barrel, transported one mile, equals one barrel-mile." *See Safe Pipelines FAQs*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., U.S. DEP'T OF TRANSP. (Aug. 29, 2007), http://www.phmsa.dot.gov/portal/site/PHMSA/menuitem.ebdc7a8a7e39f2e55cf2031050248aoc/?vgnextoid=2c6924cc45ea4110VgnVCM1000009ed07898RCRD&vgnextchannel=f7280665b91ac010VgnVCM1000008049a8c0RCRD&vgnextfmt=print; *see also* Comment, *Public Control of Petroleum Pipe Lines*, 51 YALE L.J. 1338, 1338 & n.2 (1942) ("The strategic position of pipe lines in the petroleum industry derives partly from the importance of transportation in an industry with widely separated producing, refining, and consuming areas. . . . The three states of Texas, California, and Oklahoma together produced 77% of the total crude oil of the United States in 1937, but consumed only 16% of the gasoline. On the other hand, all states east of Indiana, Kentucky, Tennessee, and Georgia produced 3% of the total crude oil in 1937, but consumed 40% of the gasoline." (citation omitted)).

82. JOHNSON, *supra* note 39, at 143.

83. WOLBERT, *supra* note 22, at 19.

84. JOHNSON, *supra* note 39, at 307–08.

85. WOLBERT, *supra* note 22, at 20.

86. *Id.*

and Tennessee and between Louisiana and North Carolina, with lateral lines branching out to reach various markets in between.[87] Both traveled through Georgia, a state which had no eminent domain law at the time and whose legislature resisted pipeline pressure to pass such a law.[88] Railroads successfully blocked pipeline attempts to gain rights-of-way in Georgia until Congress enacted the Cole Act, which granted interstate pipelines the power of eminent domain in cases where the President determined such pipelines' services were necessary for the national defense.[89] President Roosevelt decided both pipelines were necessary and the two lines were swiftly completed in 1941 and 1942.[90]

Roosevelt determined that a number of other pipelines were necessary, with "Big Inch" and "Little Big Inch" among the most ambitious projects at the time. "Big Inch" was a 24-inch crude line constructed from Longview, Texas, to Phoenixville, Pennsylvania, where it then split and part of its cargo went to New York while the other portion went to Philadelphia.[91] "Little Big Inch" was a 20-inch products pipeline constructed from Beaumont, Texas, to Linden, New Jersey.[92] By the end of the war there were about 150,000 miles of pipeline and average haul distances were 18 miles for gathering lines, 325 miles for crude oil, and 382 miles for products.[93] Federal eminent domain authority for oil pipelines under the Cole Act expired in 1943, and today interstate and intrastate oil pipelines may only obtain eminent domain authority under state law.[94]

After World War II, imports and domestic production increased and pipeline networks expanded to keep pace with demand for petroleum products. A dominant pattern developed, with imports arriving at the Gulf Coast, crude oil being shipped to Midwest refineries, and refined products being shipped north.[95] American demand for petroleum outpaced the growth of domestic oil supplies, and the United States began to import oil by the late

87. *Id.* at 19.

88. *Id.* at 20.

89. *Id.*; *see also* Act of July 30, 1941, Pub. L. No. 77-197, 55 Stat. 610. Most of the Cole Act terminated in 1943 according to its own terms as set out in section 9 of the Act. What remains of the Act is codified in 15 U.S.C. § 715 (2012).

90. WOLBERT, *supra* note 22, at 20; *see also* William A. Mogel, *Ratemaking for Oil Pipelines in the Outer Continental Shelf*, 17 TULSA L.J. 469, 476–77 (1982) (discussing the Cole Act and other legal developments that allowed the pipelines to be built).

91. WOLBERT, *supra* note 22, at 21.

92. *Id.*

93. *Id.* at 22.

94. *See supra* notes 89–90 and accompanying text (discussing the Cole Act); *infra* Part II.D (discussing state eminent domain authority for oil pipelines).

95. This pattern is now reversing as crude is carried to Gulf Coast refineries from booming inland production areas. *See infra* Part II.B.

1940s.[96] Petroleum consumption accounted for about 38% of energy use in 1950 and 45% of energy use by 1975, but due to the 1970s energy crisis it declined to about 40%.[97] In 1973, member states of the Organization of Petroleum Exporting Countries ("OPEC") placed an embargo on oil exports to the United States and other countries supporting Israel in the Arab–Israeli conflict.[98] By the end of that year, the price of a barrel of oil had more than tripled[99] and attention turned to energy security.[100] Since then, the United States has been concerned about dependence on foreign oil, with worries increasing as imports and oil prices generally increased over the 60-year period between 1950 and 2010.[101] Concern regarding the security of oil supplies aided the development of the Trans-Alaska Pipeline System ("TAPS"), an 800-mile, 48-inch pipeline which connects producing wells in Prudhoe Bay with tanker traffic in the all-season port of Valdez, Alaska.[102] Indeed, in passing the Trans-Alaska Pipeline Authorization Act in 1973, Congress found "[t]he early development and delivery of oil and gas from Alaska's North Slope to domestic markets is in the national interest because of growing domestic shortages and increasing dependence upon insecure foreign sources."[103]

U.S. petroleum production peaked in 1970 at 9.6 million barrels per day.[104] A marked decline in domestic production commenced in 1986, but between 2008 and 2012, the trend reversed, with production rising from 5

96. *See* NEELESH NERURKAR, CONG. RESEARCH SERV., R42465, U.S. OIL IMPORTS AND EXPORTS 1 (2012).

97. CARL E. BEHRENS & CAROL GLOVER, CONG. RESEARCH SERV., R40187, U.S. ENERGY: OVERVIEW AND KEY STATISTICS 4 (2012).

98. *See* Ian Ostrander & William R. Lowry, *Oil Crises and Policy Continuity: A History of Failure to Change*, 24 J. POL'Y HIST. 384, 390 (2012).

99. The price per barrel rose from $5 to $16. *Id.*

100. *Id.* at 390–91 ("Media coverage of energy issues changed in volume and in tone. . . . Not surprisingly, public interest also increased dramatically. Although oil prices had leveled off somewhat in the mid-1970s, many people still expressed concern about overall energy issues. As one indicator of that increased awareness, consider the public's answer to the Gallup poll's question as to 'the most important problem facing this country today.' Although not even on the list of problems in 1973, energy ranked number 1 in 1974.").

101. *See* NERURKAR, *supra* note 96, at 1 fig.1. Oil imports dropped sharply in the mid-1970s but increased again in the mid-1980s, and have once again fallen from a peak in 2005. *Id.*

102. *See* ALYESKA PIPELINE SERV. CO., FACTS: TRANS ALASKA PIPELINE SYSTEM (2013), *available at* http://www.alyeska-pipe.com/assets/uploads/pagestructure/NewsCenter_MediaResources_FactSheets_Entries/635078372894251917_2013AlyeskaTAPSFactBook.pdf; THE ALASKA PIPELINE (WGBH Educational Foundation 2006) (transcript available at http://www.pbs.org/wgbh/amex/pipeline/filmmore/pt.html) (discussing the controversy and lawsuits over TAPS as a result of potential adverse environmental impacts from spills).

103. 43 U.S.C. § 1651 (2012); *see also* 61 AM. JUR. 2D *Pipelines* § 8 (2014) ("The Trans-Alaska Pipeline Authorization Act provided the mechanism for accelerated approval of the various permits and grants of rights-of-way required for the construction, operation, and maintenance of the Trans-Alaska oil pipeline system." (citation omitted)).

104. BEHRENS & GLOVER, *supra* note 97, at 9 tbl.4.

million barrels to 6.5 million barrels per day.[105] As detailed in the next Section, "technological advances and relatively high oil prices" have encouraged development of shale and other tight oil formations, which has led to a resurgence in domestic oil production in the United States, placing new pressures on oil transportation infrastructure.[106]

B. Modern Oil Production, Infrastructure, and Transportation

1. Hydraulic Fracturing and 21st Century U.S. Oil Production

After decades of declining domestic petroleum production, the shale oil and gas "revolution" brought about major changes in U.S. oil production. Widespread use of hydraulic fracturing techniques and directional drilling in the late 2000s and early 2010s has completely transformed the U.S. oil industry. This increase in production has brought with it new assessments of the United States' role in global oil markets as well as challenges associated with transporting new oil resources to refineries and markets. The significance of this change is difficult to overstate.

Between 2011 and 2012, U.S. "[c]rude oil production increased by 790,000 barrels per day," which, at the time, was "the largest increase in annual output since the beginning of U.S. commercial crude oil production in 1859."[107] Production from tight oil and shale formations accounted for 35% of total U.S. oil production in 2012.[108] According to the Energy Information Administration ("EIA"), total U.S. crude oil output was forecast to rise 815,000 barrels per day in 2013 to 7.25 million barrels per day,[109] an estimate that was somewhat less than the actual daily production of 7.45 million barrels in 2013.[110] Growth in total U.S. crude oil production is expected to continue until about 2021, after which the EIA projects it will begin to decline.[111] Most of this growth "will come from drilling in tight rock"

105. U.S. Energy Info. Admin., Annual Energy Outlook 2013 with Projections to 2040, at 2 (2013) [hereinafter Annual Energy Outlook 2013], *available at* http://www.eia.gov/forecasts/archive/aeo13/pdf/0383(2013).pdf.

106. *Id.*

107. U.S. Energy Info. Admin., Short-Term Energy Outlook Supplement 1 (2013) [hereinafter Short-Term Energy Outlook Supplement], *available at* http://www.eia.gov/forecasts/steo/special/pdf/2013_sp_02.pdf.

108. U.S. Energy Info. Admin., Annual Energy Outlook 2014 with Projections to 2040, at 2 (2014) [hereinafter Annual Energy Outlook 2014], *available at* http://www.eia.gov/forecasts/aeo/pdf/0383(2014).pdf.

109. Short-Term Energy Outlook Supplement, *supra* note 107, at 1; *see also* Annual Energy Outlook 2013, *supra* note 105, at 2–6.

110. *Crude Oil Production*, U.S. Energy Info. Admin., http://www.eia.gov/dnav/pet/pet_crd_crpdn_adc_mbblpd_a.htm (last visited Jan. 20, 2015).

111. *See generally* Annual Energy Outlook 2014, *supra* note 108. Despite an expected downturn in crude oil prices in 2015—and a corresponding projected decline in drilling activity—the EIA reported in 2014 that "[o]il prices remain high enough to support development [sic] drilling activity in the Bakken, Eagle Ford, Niobrara, and Permian Basin, which contribute

and shale formations in North Dakota and Texas,[112] fueled by improved technologies in horizontal drilling and hydraulic fracturing, which allows recovery of oil (and natural gas, as discussed in Part III) from sources that were not historically viable for production.[113] Currently, the most important basins for oil production growth are: (1) the Williston Basin in North Dakota and Montana, which includes the Bakken Formation; (2) the Western Gulf Basin in southern Texas, which includes the Eagle Ford Formation; and (3) the Permian Basin in western Texas and southeastern New Mexico, which includes the Spraberry and Wolfcamp formations.[114]

Beyond the next decade, oil production in the United States and Canada is expected to increase from 8.3 million barrels in 2010 to 12.7 million barrels in 2035.[115] In the United States alone, EIA projected a greater than 30% increase in oil production "from 5.7 million [barrels per day] in 2011 to 7.5 million [barrels per day] in 2019 and remaining greater than 6 million [barrels per day] through 2040, with production increases stemming from" onshore tight oil and shale formations.[116] Of the almost 6.5 million barrels produced per day in 2012 in the United States, Texas produced 2 million barrels (30% of the total), federal offshore sites accounted for 19% of production with 1.3 million barrels, and North Dakota outpaced California and Alaska for the first time, with nearly 700,000 barrels (10% of total production).[117] The Bakken formation in North Dakota is credited with

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the majority of U.S. oil production growth." *Despite Lower Crude Oil Prices, U.S. Crude Oil Production Expected to Grow in 2015*, U.S. ENERGY INFO. ADMIN. (Dec. 12, 2014), http://www.eia.gov/todayinenergy/detail.cfm?id=19171.

112. SHORT-TERM ENERGY OUTLOOK SUPPLEMENT, *supra* note 107, at 1.

113. *Id.; see also* U.S. DEP'T OF ENERGY, WHY IS SHALE GAS IMPORTANT? 1 (2013), *available at* http://www.energy.gov/sites/prod/files/2013/04/fo/why_is_shale_gas_important.pdf (discussing the impact new technology has had on the supply of shale gas); Hannah Wiseman, *Untested Waters: The Rise of Hydraulic Fracturing in Oil and Gas Production and the Need to Revisit Regulation*, 20 FORDHAM ENVTL. L. REV. 115, 118–21 (2009) (describing new drilling techniques used in unconventional oil and gas production).

114. *See Hydraulic Fracturing*, USGS, http://energy.usgs.gov/OilGas/UnconventionalOilGas/HydraulicFracturing.aspx (last visited Jan. 20, 2015); *National Oil and Gas Assessment*, USGS, http://energy.usgs.gov/OilGas/AssessmentsData/NationalOilGasAssessment.aspx (select areas on map to view information) (last visited Jan. 20, 2015). *See generally* Wiseman, *supra* note 113 (arguing that as resources deplete, extraction is increasing in areas closer to human populations including in Texas, New York, and Pennsylvania).

115. INGAA FOUND., INC., NORTH AMERICAN NATURAL GAS MIDSTREAM INFRASTRUCTURE THROUGH 2035: A SECURE ENERGY FUTURE 12 (2011), *available at* http://www.ingaa.org/File.aspx?id=14911 (discussing the projected 1.7% annual increase in production, mainly from western Canada oil sands and the U.S. Northeastern Rocky Mountains—North Dakota, Montana, Wyoming, and Colorado).

116. Christopher E. Smith, *Crude, Products Plans Push 2013 Construction Sharply Higher*, OIL & GAS J., Feb. 2013, at 80, 81. In its 2014 annual energy report, the EIA projected a reference case in which total U.S. crude production reached 9.6 million barrels per day by 2019, an increase from its 2013 report. ANNUAL ENERGY OUTLOOK 2014, *supra* note 108, at MT-28.

117. *See Petroleum & Other Liquids: Crude Oil Production*, *supra* note 54; *see also* David Shaffer, *Bottleneck Hampers N.D. Oil*, STAR TRIB. (June 3, 2012, 10:52 AM), http://www.startribune.com/

"spur[ring] a U.S. energy renaissance," helping increase U.S. production to 7.56 million barrels per day during one week in July 2013.[118] In November 2013, EIA projected that North Dakota would produce over 1 million barrels per day of oil by December 2013,[119] a threshold the state passed a few months later than expected, in April 2014.[120] These dramatic projected increases in production, along with expected increases in refining capacity, are driving significant expansions in oil transportation infrastructure, as well as significant social and environmental changes.[121]

Natural gas liquids ("NGLs") are an increasingly important byproduct of oil and natural gas production.[122] NGLs are liquid hydrocarbons, such as

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business/156545595.html (noting that the large volume of oil being produced in North Dakota has created a transportation bottleneck in regional pipelines).

118. Dan Murtaugh, *Bakken Crude Weakens to 7-Week Low as Pipeline Restart Expected*, BLOOMBERG (July 24, 2013, 12:16 PM), http://www.bloomberg.com/news/2013-07-24/bakken-crude-weakens-to-7-week-low-as-pipeline-restart-expected.html. *See generally* Alan Riley, Op-Ed., *The Shale Revolution's Shifting Geopolitics*, N.Y. TIMES (Dec. 25, 2012), http://www.nytimes.com/2012/12/26/opinion/global/the-shale-revolutions-shifting-geopolitics.html (discussing the geopolitical importance of U.S. energy self-sufficiency and natural gas as a transportation fuel).

119. *See Bakken Oil Production Forecast to Top 1 Million Barrels Per Day Next Month*, U.S. ENERGY INFO. ADMIN. (Nov. 15, 2013), www.eia.gov/todayinenergy/detail.cfm?id=13811.

120. David Shaffer, *N.D. Oil Production Tops 1 Million-Barrels-a-Day Milestone*, STAR TRIB. (June 17, 2014, 11:08 PM), http://www.startribune.com/business/263507621.html. As of October 2014, North Dakota continued to produce over 1 million barrels of oil per day. *See North Dakota Field Production of Crude Oil*, U.S. ENERGY INFO. ADMIN., http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MCRFPND2&f=M.

121. Christopher J. Barr, *Growing Pains: FERC's Responses to Challenges to the Development of Oil Pipeline Infrastructure*, 28 ENERGY L.J. 43, 48–49 (2007). This argument assumes continuing demand for petroleum as a major energy source; climate change and the problem of greenhouse gas ("GHG") emissions may alter demand for fossil fuels. For a discussion of the range of adverse social impacts arising from the oil boom in North Dakota, see Joshua P. Fershee, *The Oil and Gas Evolution: Learning from the Hydraulic Fracturing Experiences in North Dakota and West Virginia*, 19 TEX. WESLEYAN L. REV. 23, 26–27 (2012) (discussing the rise in public safety concerns, truck traffic, housing shortages, inflation, and gas flaring in western North Dakota); Curt Brown, *Life in the Boom: Cast Adrift on the Ocean of Oil*, STAR TRIB., http://www.startribune.com/local/236894631.html (last visited Jan. 20, 2015) (examining, in Part 5 of a six-part series, how longtime residents of western North Dakota are leaving because of the rise in crime, housing prices, adverse alteration of the landscapes, and fundamental changes in their way of life caused by the oil boom).

122. The U.S. petrochemical industry benefits from a recent trend of increasing domestic production and cheaper NGL prices as it competes with European and Asian petrochemical producers. CHARLES K. EBINGER & GOVINDA AVASARALA, BROOKINGS ENERGY SECURITY INITIATIVE NATURAL GAS TASK FORCE, NATURAL GAS BRIEFING DOCUMENT #1: NATURAL GAS LIQUIDS 8 (2013), *available at* http://www.brookings.edu/~/media/Research/Files/Reports/2013/04/01%20natural%20gas%20ebinger%20avasarala/Natural%20Gas%20Briefing%201%20pdf.pdf. The industry is a major consumer of ethane, which constitutes 40% of NGL production. *Id.* at 10. Ethane is a component of ethylene, which is used in the production of plastics and other goods. *Id.* at 7. NGLs also drive production decisions because they tend to fetch higher prices than dry gas, and thus encourage producers to exploit wet gas plays where they can produce NGLs and dry gas. *Id.* at 10; *see also infra* note 156 and accompanying text (discussing the projected need for enhanced NGL transport infrastructure).

ethane, propane, butane, isobutane, pentane, and natural gasoline that are found in oil and some shale gas plays.[123] Typically, a mix of NGLs is separated from dry gas (methane) at a gas treatment facility, the dry gas is shipped to consumers via pipeline, and the NGL mix is shipped to a fractionation facility where the mix is processed and separated into component NGLs.[124] This method accounts for about 74% of U.S. NGL production, whereas NGLs produced during the crude oil refining process account for 20% of production.[125] U.S. domestic NGL production rose from 1.7 million barrels per day to 2.5 million barrels per day between 2005 and 2012, accounting for 20% of the global market in NGLs as of 2013,[126] and is expected to rise further, to 3.3 million barrels per day by the end of 2015.[127] In 2013, petroleum (including petroleum products and NGLs) accounted for approximately 36% of American energy consumption.[128] Measured by share of overall consumption, petroleum is the single most important energy source in the United States.[129]

2. Existing Oil Pipeline Infrastructure and Future Needs

This rapid increase in domestic oil production has put a significant strain on the U.S. oil transportation network. There are currently more than 2.6 million miles of pipelines (including oil, carbon dioxide, natural gas, and petroleum products pipelines for gathering, transmission, and distribution) in the United States.[130] They are operated by 3000 large and small companies[131] and carry "hundreds of billions of ton miles of liquid petroleum

123. Al Troner, *Through the Looking Glass: NGLs, Condensates and Pentanes Part 1—U.S. Versus the World*, RBN ENERGY LLC (May 15, 2013), http://www.rbnenergy.com/through-the-looking-glass-ngl-condensates-and-pentanes-us-vs-world; *What Are Natural Gas Liquids and How Are They Used?*, U.S. ENERGY INFO. ADMIN. (Apr. 20, 2013), http://www.eia.gov/todayinenergy/detail.cfm?id=5930; *see also* EBINGER & AVASARALA, *supra* note 122, at 6 figs.3 & 4 (showing a map of North American oil and gas plays and current and projected NGL sources).

124. EBINGER & AVASARALA, *supra* note 122, at 7. NGLs are used in a variety of industrial and commercial products and applications, including plastic bags, antifreeze, detergent, barbeques and small stoves, home heating, aerosols, refrigerants, synthetic rubber for tires, polystyrene, gasoline, and lighter fuel. *See What Are Natural Gas Liquids and How Are They Used?*, *supra* note 123.

125. EBINGER & AVASARALA, *supra* note 122, at 5.

126. *Id.* at 4.

127. U.S. ENERGY INFO. ADMIN., SHORT-TERM ENERGY OUTLOOK 6 (2014), http://www.thegulfintelligence.com/uploads/steo_full_dEC.pdf.

128. *See* U.S. ENERGY INFO. ADMIN., DECEMBER 2014 MONTHLY ENERGY REVIEW 7 tbl.1.3 (2014), *available at* http://www.eia.gov/totalenergy/data/monthly/pdf/mer.pdf.

129. *Id.*; *see also* Samuel T. Perkins, *The Oil Industry*, *in* ENERGY LAW AND TRANSACTIONS, *supra* note 66, § 51.01(2) (making the same point by drawing attention to similar statistics from 2007).

130. *General Pipeline FAQs*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN. (Jan. 23, 2013), http://www.phmsa.dot.gov/portal/site/PHMSA/menuitem.ebdc7a8a7e39f2e55cf2031050248aoc/?vgnextoid=a62924cc45ea4110VgnVCM1000009ed07898RCRD&vgnextchannel=f72806655b91ac010VgnVCM1000008049a8c0RCRD.

131. *Pipeline Basics*, U.S. DEP'T OF TRANSP. PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., http://primis.phmsa.dot.gov/comm/PipelineBasics.htm (last visited Jan. 20, 2015).

products each year."[132] As of 2011, there were 183,568 miles of dedicated hazardous liquid pipelines.[133] Generally, separate systems of pipelines transport crude oil and refined petroleum products.[134] Refineries and import terminals ship products to distribution points, and trucks carry products like gasoline and fuel oil the last, shorter distance to homes or service stations.[135] Very few pipelines transport both crude and petroleum products, but product lines can transport multiple different products in a process called "batching."[136]

Although rail served an important role in transporting petroleum in the early and middle parts of the 20th century, pipelines have dominated petroleum and NGL transport in recent decades.[137] In 2008, pipelines carried 71% of all petroleum (including crude oil and petroleum products), compared with 54% in 1990.[138] "Water carriers provided the second-highest level of ton-miles in 2008, [carrying] 16% of crude oil and 27% of petroleum products."[139] Despite the established dominance of pipelines, there is continued demand for even more pipeline capacity in the United States and Canada.[140] With production soaring and refineries and consumers located far

132. *General Pipeline FAQs*, *supra* note 130.

133. *Annual Report Mileage for Hazardous Liquid or Carbon Dioxide Systems*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., http://www.phmsa.dot.gov/portal/site/PHMSA/menuitem.6f23687cf7b00b0f22e4c6962d9c8789/?vgnextoid=d731f5448a359310VgnVCM1000001ecb7898RCRD&vgnextchannel=3b6c03347e4d8210VgnVCM1000001ecb7898RCRD&vgnextfmt=print (last visited Jan. 20, 2015). "Hazardous liquid" includes crude oil, petroleum products, carbon dioxide, and anhydrous ammonia. *Hazardous Liquid Pipelines*, PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., http://www.phmsa.dot.gov/pipeline/liquid (last visited Jan. 20, 2015).

134. Barr, *supra* note 121, at 46. *See generally* AM. PETROLEUM INST., U.S. REFINERIES, CRUDE OIL, AND REFINED PRODUCTS PIPELINES (2013), *available at* http://www.api.org/~/media/Files/Oil-and-Natural-Gas/pipeline/US-Pipeline-Map-API-Website3.pdf.

135. Barr, *supra* note 121, at 46–47.

136. *Id.* at 47 n.16. "Batching" refers to the process of shipping different petroleum products one after the other in the same pipeline. *See Trans Mountain Pipeline System*, KINDER MORGAN, http://www.kindermorgan.com/business/canada/transmountain.cfm (last visited Jan. 20, 2015). Products next to each other in the pipeline may mix, though shipping them in a specific sequence can minimize the problem. *Id.* Mixed products can be re-refined to separate them. *Id.*; *see also What Is Batching?*, PIPELINE 101, http://www.pipeline101.com/how-do-pipelines-work/what-is-batching (last visited Jan. 20, 2015) (modeling how batching in petroleum product pipelines works).

137. *See Petroleum Liquids Pipelines Continue to Increase Transported Volumes*, PIPELINE & GAS J. (Mar. 2011), http://www.pipelineandgasjournal.com/petroleum-liquids-pipelines-continue-increase-transported-volumes (discussing the Association of Oil Pipe Line's ("AOPL") January 2011 Report on Shifts in Petroleum Transportation).

138. *Id.* In 2008 pipelines transported 83% of the crude oil shipped (up from 53% in 1990) and 62% of the petroleum products shipped (up from 56% in 1990). *Id.*

139. *Id.* Railroads and motor carriers are the other transport options in addition to pipelines and water carriers. *Id.*

140. *But see North American Energy Infrastructure Act: Hearing Before the Subcomm. on Energy & Power of the H. Comm. on Energy & Commerce*, 113th Cong. 54–56 (2013) (statement of Paul C.

from producing wells in North Dakota and new shale plays in Texas, the location of existing infrastructure is insufficient to move projected volumes of crude oil and petroleum products without also flaring and wasting natural gas and associated hydrocarbons produced with the crude oil.[141] The Interstate Natural Gas Association of America ("INGAA") Foundation has asserted that "[t]o support the balance of oil supply and demand, an additional five million barrels per day of midstream pipeline capacity is needed to transport increasing oil production over the next 25 years."[142] Such an expansion of the country's oil pipeline grid would "add 19,000 miles of oil pipeline (an average of 800 miles per year) at a capital cost of $1.3 billion per year over the next 25 years or $31.4 billion . . . total."[143] The INGAA predicts that "[a] significant amount of this infrastructure will be built in Canada and in the U.S. Central and Midwest region to transport Canadian bitumen synthetic crude [otherwise known as "oil sands" or "tar sands"] to U.S. refineries."[144]

Numerous new pipelines, pipeline expansions, and pipeline reversals and conversions[145] are underway in what has been characterized as "the

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Blackburn, Att'y & Envtl. Consultant, Blackcreek Envtl. Consulting) (testifying that the current build-out of crude oil pipelines is unwarranted and benefits pipeline companies while costing consumers more as shippers pass along the costs of the higher rates they must pay to pipelines). Mr. Blackburn argues that comprehensive federal permitting is needed for oil pipelines, asserting that interstate oil pipelines benefit from the chaos and confusion created by multiple state jurisdictions and the fact that no one is making a determination of overall need. *See id.* at 54.

141. *See* Barr, *supra* note 121, at 43 (characterizing "substantial, long-term need for additional oil pipeline capacity"); *see also* KEVIN R. PETAK ET AL., ICT INT'L, NORTH AMERICAN MIDSTREAM INFRASTRUCTURE THROUGH 2035—A SECURE ENERGY FUTURE 96–100 (2011), *available at* http://www.ingaa.org/File.aspx?id=14900 (documenting the infrastructure expansions necessary to keep up with production); *infra* Part IV.B for a discussion of gas flaring.

142. INGAA FOUND., INC., *supra* note 115, at 12. "Midstream" refers to transmission pipelines; producing wells are located "upstream" in the petroleum industry and refineries and consumers are located "downstream." *Defining Upstream Oil & Gas*, PUMP SOLUTIONS GROUP, http://www.psgdover.com/en/oil-and-gas/oil-gas-market-overview/oil-gas-upstream (last visited Jan. 20, 2015).

143. INGAA FOUND., INC., *supra* note 115, at 12.

144. *Id.* "Oil Sands," "Tar Sands," and "Oil Sands Bitumen" all refer generally to a mixture of clay and other minerals, water, and bitumen, which is a very dense and highly viscous material with the consistency of cold molasses, that "can be processed into a fuel, because it is a form of crude oil that has undergone degradation over geologic time." *See* JONATHAN L. RAMSEUR ET AL., CONG. RESEARCH SERV., R42611, OIL SANDS AND THE KEYSTONE XL PIPELINE: BACKGROUND AND SELECTED ENVIRONMENTAL ISSUES 3 (2014). Significant deposits of oil sands exist in Alberta, Canada, and are being developed and processed at a rapid rate for export to the United States and other countries. *Id.* at 1. Companies developing oil sands reserves must partially process or dilute the bitumen before it can be transported. *Id.* at 3. The GHG emissions and other adverse environmental effects associated with producing the oil sands have become extremely controversial in the United States and Canada, as has its proposed transport in the Keystone XL Pipeline. *Id.* at 25. These issues are discussed in more detail later in this Part. *See infra* Part II.B.3.

145. *See* Sandy Fielden, *One Way or Another—Gas to Crude Pipeline Conversions*, RBN ENERGY LLC (Apr. 18, 2013), http://www.rbnenergy.com/one-way-or-another-gas-to-crude-pipeline-conversions (discussing recent examples of proposals to convert natural gas pipelines to crude oil pipelines); *see also* Rusty Braziel, *A Time for Gas, a Time for Crude. It's the Season for Pipeline Conversions*, RBN ENERGY

biggest build-out of oil and liquid pipelines since World War II."[146] The United States' northern Great Plains region has been a major focus of the build-out. The North Dakota Pipeline Authority reported that oil production in the Williston Basin—a region including the Bakken and other oil-producing areas in western North Dakota and eastern Montana—exceeded the region's pipeline capacity by about 300,000 barrels of oil per day as of September 2012.[147] Rail is currently filling that transportation gap, carrying a majority of the oil produced in North Dakota.[148] There is also a shortage of gathering pipelines, which collect oil from wellheads and carry it short distances to rail hubs and pipeline terminals.[149] Instead, tank trucks carried over 70% of North Dakota's oil from wellheads to hubs and terminals as of 2013.[150] Among new infrastructure in the region is the 132-mile BakkenLink Pipeline that collects crude from wellheads along its path from the Beaver Lodge pipeline hub northeast of Williston to a rail terminal in Fryburg, North Dakota.[151] Another new project—Enbridge's proposed Sandpiper Pipeline, a 600-mile crude oil line from Beaver Lodge, North Dakota, to Clearbrook, Minnesota, and Superior, Wisconsin—would parallel the company's existing line across North Dakota and into Minnesota.[152] But this pipeline, which Enbridge wanted to complete in 2016, has met resistance in Minnesota. "[T]he state Public Utilities Commission (PUC) unanimously agreed to study a southern route proposed by [the Minnesota Pollution Control Agency] to

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LLC (May 1, 2012), http://www.rbnenergy.com/A-time-for-gas-a-time-for-crude (discussing the economic calculations underlying a decision to convert a natural gas pipeline to crude oil).

146. Kristen Hays, *Insight: Oil Pipeline Crunch Shifts U.S. Shale Race from Drillbits to Valves*, REUTERS (July 30, 2012, 4:44 AM), http://www.reuters.com/article/2012/07/30/us-oil-usa-pipelines-idUSBRE86T02820120730.

147. Phil Davies, *Busting Bottlenecks in the Bakken*, FEDGAZETTE (Apr. 23, 2013), https://www.minneapolisfed.org/publications/fedgazette/busting-bottlenecks-in-the-bakken.

148. Shaffer, *supra* note 120 (reporting that producers shipped 63% of North Dakota's oil by rail in April 2014); *see also* Alison Sider, *Who Wants an Oil Pipeline? Trains Bring in More Money*, WALL ST. J., Mar. 4, 2014, at B1 (reporting that railroads carried almost 75% of the oil produced in North Dakota in December 2013). Canadian Pacific, one of the main railroads carrying Bakken oil, transported 53,500 cars of crude oil in 2012 and projects that it will ship 140,000 to 210,000 carloads by 2016. James MacPherson & Matthew Brown, *U.S. Issues Warning About Risk of N.D. Oil*, STAR TRIB. (Jan. 3, 2014, 1:37 AM), http://www.startribune.com/politics/statelocal/238541671.html; *see also infra* text accompanying notes 158–174 (discussing rail transportation).

149. Davies, *supra* note 147.

150. *Id.* (noting that compared to gathering pipelines, tank trucks are "a cumbersome and expensive method" that severely damages rural roads).

151. Sandy Fielden, *Crude Loves Rock 'n' Rail—Bakken Oil Express, Dakota Plains, BakkenLink, & Savage*, RBN ENERGY LLC, (Mar. 3, 2013), http://www.rbnenergy.com/bakken-oil-express-dakota-plains-bakken-link-and-trenton-railport (reporting on a North Dakota rail terminal that can load 70 million barrels per day and offers 300 million barrels of storage); *see also* Davies, *supra* note 147; BAKKENLINK, http://bakkenlink.com/ (last visited Jan. 20, 2015).

152. David Shaffer, *Major Interest Shown in Planned Sandpiper Crude Oil Pipeline*, STAR TRIB. (Feb. 14, 2014, 8:50 PM), http://www.startribune.com/business/245633161.html (reporting that shippers signed long-term commitments constituting two-thirds of the pipeline's capacity).

avoid the headwaters of the Mississippi River and a large swath of lakes, wetlands and wild rice areas," a process which, according to Enbridge, could delay pipeline construction by three years.[153] Enterprise Products Partners LP planned to build an even larger project—a 1200-mile crude oil pipeline from the Bakken to Cushing, Oklahoma[154]—but declining oil prices in late 2014 contributed to the company's decision to cancel the project.[155] Growth in NGL production also encouraged recent pipeline investment, with NGL pipeline capacity expected to double between 2012 and 2018.[156]

Despite this intensive effort to develop oil transportation infrastructure, pipelines are proving unable to handle the amount of crude oil and associated hazardous liquids that producers wish to move to refineries, fractionaters, industrial and residential customers, and export terminals (excepting crude, the export of which is prohibited by law and allowed only under specific and limited circumstances).[157] Rail transport has benefited from pipeline shortages, as has truck transport.[158] The North Dakota Pipeline Authority estimated that rail transported 60% of the oil produced in the Williston Basin in 2012, up from its 6% share two years earlier,[159] and North Dakota's

153. David Shaffer, *Door Open for New Enbridge Energy Pipeline Route in Northern Minnesota*, STAR TRIB. (Aug. 7, 2014, 10:41 PM), http://www.startribune.com/business/270423631.html.

154. Ernest Scheyder, *Enterprise Products Plans Bakken-to-Cushing Pipeline*, REUTERS (June 24, 2014, 12:32 PM), http://www.reuters.com/article/2014/06/24/enterprise-prodt-pipeline-idUSL2NoP50ZR20140624.

155. Javier E. David, *Bakken Oil Pipeline Project Slammed Shut*, CNBC (Dec. 13, 2014, 11:01 AM), http://www.cnbc.com/id/102265279#.

156. EBINGER & AVASARALA, *supra* note 122, at 12.

157. *See* Energy Policy and Conservation Act, 42 U.S.C. § 6212 (2012) (directing the President to restrict exports of crude oil); NERURKAR, *supra* note 96, at 21–22 (discussing various federal statutes restricting U.S. crude oil exports); Memorandum from Blake Clayton, Adjunct Fellow for Energy, Council on Foreign Relations (July 8, 2013), *available at* http://www.cfr.org/oil/case-allowing-us-crude-oil-exports/p31005 (describing existing limited exceptions to the ban and urging Congress to overturn the ban); *see also* Clifford Krauss, *Energy Secretary Calls Oil Export Ban Dated*, N.Y. TIMES (Dec. 13, 2013), http://www.nytimes.com/2013/12/14/business/energy-environment/energy-secretary-voices-concern-over-dated-oil-export-restrictions.html (reporting on Energy Secretary Moniz's remarks in favor of lifting the ban on exports); Elana Schor, *End of Crude Export Ban Rockets from Inconceivable to Possible*, E&E DAILY (Jan. 7, 2014), http://www.eenews.net/eedaily/2014/01/07/stories/1059992476 (discussing potential easing of the ban and the possibility of allowing crude oil exports and noting the problem of sufficient infrastructure to carry inland crude production to export terminals).

158. *See* Blake Sobczak, *Carriers See "Sustained Demand" for Crude by Rail as Earnings Rise*, E&E ENERGYWIRE (July 23, 2013), http://www.eenews.net/energywire/2013/07/23/stories/1059984873 (reporting increases in rail shipment of crude oil from producing areas that are underserved by pipelines); *see also* Davies, *supra* note 147 (discussing use of trucks in Bakken where gathering lines are lacking). Though costlier than pipelines, trucks (as well as rail) are commonly used to transport heavier NGLs from the Bakken. Trucks and rail cars rarely transport ethane—a lighter NGL—due to its high vapor pressure. NPC N. Am. Res. Dev. Study, *Natural Gas Liquids (NGLs)* 10 (Working Paper No. 1-13, 2011), *available at* http://www.npc.org/Prudent_Development-Topic_Papers/1-13_NGL_Paper.pdf.

159. Davies, *supra* note 147. By the end of 2013 rail carried 69% of North Dakota's oil production. MacPherson & Brown, *supra* note 148.

Department of Mineral Resources projected that rail could carry 90% of the state's crude in 2014.[160] Overall, in the United States railroads carried 46% more crude oil and petroleum products in 2012 than they did in 2011—a difference amounting to about 171,000 rail carloads[161]—and railroad revenue from crude oil shipments rose dramatically between 2008 and 2013, from $25.8 million to $2.15 billion.[162] Rail transportation of oil has surged since 2009, increasing from about 10,000 tank cars in 2009 to an estimated 400,000 cars shipped in 2013.[163] In some cases oil producers' preference for rail has contributed to pipeline project cancellations,[164] whereas in other cases pipeline companies have actively cooperated with the rail industry to facilitate transportation.[165]

160. James MacPherson, *North Dakota Oil Rail Shipments Expected to Spike*, FUELFIX (Dec. 13, 2013, 7:02 AM), http://fuelfix.com/blog/2013/12/13/north-dakota-oil-rail-shipments-expected-to-spike/.

161. *Rail Traffic Reflects More Oil Production, Less Coal-Fired Electricity Generation*, U.S. ENERGY INFO. ADMIN. (Feb. 5, 2103), http://www.eia.gov/todayinenergy/detail.cfm?id=9851.

162. Marcus Stern & Sebastian Jones, *Boom: North America's Explosive Oil-By-Rail Problem*, WEATHER CHANNEL (Dec. 8, 2014), http://stories.weather.com/boom.

163. MacPherson & Brown, *supra* note 148. There has also been a corresponding increase in water transport of oil by barge from production sites to refineries to address the limited pipeline capacity for new oil production. *See, e.g.*, Fowler, *supra* note 20 (reporting on the tenfold increase in the use of barges to transport crude oil to refineries between 2012 and 2013).

164. Davies, *supra* note 147 ("[In] November [2012], Oneok Partners, an Oklahoma-based developer of energy infrastructure, canceled plans to build a $1.8 billion crude oil pipeline from Stanley, N.D., to Cushing because many producers opted to ship by rail instead."); *see also Two Proposed Bakken Lines Canceled over Shippers' Lack of Interest*, E&E ENERGYWIRE (Feb. 6, 2014), http://www.eenews.net/energywire/stories/1059994095 (reporting that Koch Pipeline Company and ONEOK Partners LP both canceled plans for pipelines to carry crude oil from North Dakota, citing shippers' lack of interest and stating that rail is the preferred transportation method because of its flexibility and shorter time commitments).

165. In 2012, Enbridge built a rail hub in Berthold, North Dakota, to connect to BNSF's rail network, "to help ease a bottleneck on its large, nearby pipeline that carries oil eastward through North Dakota into Minnesota. . . . The roughly 70,000 barrels of oil loaded on each unit train bypass the pipeline, headed to oil terminals and refineries all over the country." Chuck Haga, *Explosive Train Derailment Heightens Concerns About Transporting Bakken Crude Oil*, MINNPOST (Jan. 3, 2014), http://www.minnpost.com/politics-policy/2014/01/explosive-train-derailment-heightens-concerns-about-transporting-bakken-crud. Some recognize rail and pipelines as complementary transport modes given the large amount of new U.S. oil production expected. *See* Javier E. David, *In Moving US Oil, 'Flexible' Rail Bests Pipelines*, CNBC (June 24, 2013), http://www.cnbc.com/id/100831924.

Though it is considered less safe[166] and is more expensive[167] than pipeline transportation, rail has been lauded as a flexible transportation option for crude oil and petroleum products because rail infrastructure is already widespread throughout the United States,[168] its use does not require long-term shipping commitments by producers,[169] and using existing rail infrastructure avoids the political opposition that some new pipeline projects face.[170] Oil producers benefit from being able to ship crude to the highest bidder via rail—not just to refineries linked into existing and expanding pipeline networks.[171] It is believed that despite high-profile rail accidents such as those in Lac-Mégantic and North Dakota,[172] and the potentially higher

166. *See* DIANA FURCHTGOTT-ROTH, MANHATTAN INST. FOR POL'Y RESEARCH, PIPELINES ARE SAFEST FOR TRANSPORTATION OF OIL AND GAS 3 (2013), *available at* http://www.manhattan-institute.org/pdf/ib_23.pdf; *see also* PARFOMAK, *supra* note 1, at 2–3 (stating that pipelines cause fewer annual fatalities compared to other product transportation modes, but detailing major pipeline accidents since 1999); Clifford Krauss & Jad Mouawad, *Accidents Surge as Oil Industry Takes the Train*, N.Y. TIMES (Jan. 25, 2014), http://www.nytimes.com/2014/01/26/business/energy-environment/accidents-surge-as-oil-industry-takes-the-train.html (reporting on the massive increase in transport of oil by rail and corresponding increase in major accidents). *But see* James Conca, *Pick Your Poison for Crude—Pipeline, Rail, Truck or Boat*, FORBES (Apr. 26, 2014, 10:35 AM), http://www.forbes.com/sites/jamesconca/2014/04/26/pick-your-poison-for-crude-pipeline-rail-truck-or-boat/ (arguing that defining which transportation method is safest depends on which kinds of damage one considers worst: human death, property destruction, land or water contamination, volume of oil spilled, habitat destruction, or CO_2 emissions); Blake Sobczak, *N.D. Oil Train Explosion Revives Safety Debate*, E&E ENERGYWIRE (Jan. 6, 2014), http://www.eenews.net/energywire/2014/01/06/stories/1059992424 (reporting that the Association of American Railroads claims that stricter reporting requirements make rail appear more dangerous than pipeline transportation).

167. Shipping crude oil by rail costs $10 to $15 per barrel (varying by destination); shipping via pipeline costs $5 per barrel. Davies, *supra* note 147.

168. *See* David, *supra* note 165; *Refinery Receipts of Crude Oil by Rail, Truck, and Barge Continue to Increase*, U.S. ENERGY INFO. ADMIN. (July 17, 2013), http://www.eia.gov/todayinenergy/detail.cfm?id=12131 ("Truck and rail provide an alternative transportation method when pipelines are operating at capacity or when a production area lacks pipeline infrastructure. Both offer greater operational flexibility than pipelines as they make use of existing road and rail infrastructure near producing basins to move crude oil to refineries that may not be accessible by pipelines."); *see also* Davies, *supra* note 147.

169. David, *supra* note 165.

170. *Id.* (quoting one energy company's spokesman lamenting the "horrific political questions" that delay major pipeline projects like Keystone XL).

171. *See* Davies, *supra* note 147. Additionally, refiners enjoy the lower prices associated with inland domestic crude: "The East and West coasts, in particular, turned to rail to tap cheaper U.S. and Canadian crude with no major oil pipelines in operation, or even planned, to move inland crude to those markets." *Factbox—U.S. Crude-by-Rail Projects; 2013 Shipments Up 71 Percent from 2012*, CHI. TRIB. (Jan. 13, 2014), http://articles.chicagotribune.com/2014-01-13/news/sns-rt-usa-cruderail-factbox-20140113_1_bpd-u-s-shale-refinery.

172. One of the worst accidents occurred in 2013 in Lac Mégantic, Quebec, where a train carrying 50,000 barrels of North Dakota crude oil rolled out of control toward the small town and derailed, exploding and leveling the town center, killing over 40 people and injuring many more. *Rail Company Involved in Quebec Explosion Files for Bankruptcy*, N.Y. TIMES (Aug. 7, 2013), http://www.nytimes.com/2013/08/08/business/rail-company-involved-in-quebec-explosion-files-for-bankruptcy.html; *see*

volatility of Bakken crude,[173] oil shipments via rail are unlikely to decline in the near future.[174]

3. The Keystone XL Pipeline

Of the thousands of miles of pipelines currently under construction or being considered in the United States, Keystone XL is one of the best-known and most controversial midstream projects. TransCanada Corporation's proposed Keystone XL Pipeline Project is a 1179-mile oil pipeline from Hardisty, Alberta, to Steele City, Nebraska.[175] The U.S. portion of the pipeline would stretch 875 miles across Montana, South Dakota, and Nebraska, starting at Morgan, Montana, and ending at Steele City, Nebraska, a regional oil hub.[176] It would carry crude oil derived from Canadian oil sands[177] and crude oil produced in the Williston Basin.[178] At Steele City, the proposed pipeline would meet TransCanada's existing Cushing Extension, which carries crude oil from Nebraska to terminals and storage tank "farms" in Cushing, Oklahoma.[179] From Cushing, a new 485-mile Gulf Coast Project and

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also Haggett et al., *supra* note 4; Jacquie McNish & Justin Giovannetti, *Focus of Lac-Mégantic Probe Turns to North Dakota Oil Fields*, GLOBE & MAIL (Aug. 2, 2013, 1:54 AM), http://www.theglobeandmail.com/report-on-business/industry-news/energy-and-resources/focus-of-lac-megantic-probe-turns-to-north-dakota-oil-fields/article13569437/. Other high-profile rail accidents include a derailment and explosion that prompted the evacuation of residents in Casselton, North Dakota in late 2013, Sobczak, *supra* note 166, and another in early 2014 in New Brunswick, Canada that involved crude oil and propane tank cars and caused residents to evacuate their homes. Solarina Ho, *Train Carrying Oil Derails, Catches Fire in New Brunswick, Canada*, CHI. TRIB. (Jan. 7, 2014), http://www.chicagotribune.com/news/sns-rt-us-train-20140107,0,4259578.story.

173. Patrick Rucker, *Bakken Crude May Be More Flammable Than Previously Thought: U.S. Regulator*, REUTERS (Jan. 2, 2014, 7:38 PM), http://www.reuters.com/article/2014/01/03/us-usa-energy-bakken-idUSBREA010ZI20140103; *see also infra* note 526 and accompanying text (discussing disputes over the volatility of Bakken crude oil).

174. Sobczak, *supra* note 158 (citing an EIA projection from July 2013).

175. *About the Project: A Proposed Oil Pipeline from Alberta to Nebraska*, TRANSCANADA, http://keystone-xl.com/about/the-keystone-xl-pipeline-project/ (last visited Jan. 20, 2015).

176. *Keystone XL Pipeline: Factsheet*, U.S. DEP'T OF STATE (Jan. 31, 2014), http://www.state.gov/r/pa/prs/ps/2014/01/221114.htm.

177. RAMSEUR ET AL., *supra* note 144, at 1. For a lengthier discussion of oil sands and a history of its development in the United States and Canada, see generally MARC HUMPHRIES, CONG. RESEARCH SERV., RL34258, NORTH AMERICAN OIL SANDS: HISTORY OF DEVELOPMENT, PROSPECTS FOR THE FUTURE (2008).

178. PAUL W. PARFOMAK ET AL., CONG. RESEARCH SERV., R41668, KEYSTONE XL PIPELINE PROJECT: KEY ISSUES 2, 5 (2013).

179. *Id.* at 5. The Cushing Extension is a 298-mile, 36-inch pipeline that has been in service since February 2011. *Id.* at 2. It is already receiving Canadian crude via the Keystone Mainline, an earlier TransCanada project that "has been in service since June 2010." *Id.* The Mainline is a 30-inch pipeline traversing 1353 miles from Hardisty, Alberta, across Saskatchewan and Manitoba, south through North Dakota, South Dakota, (Steele City) Nebraska, Kansas, and Missouri to refineries in Wood River and Patoka, Illinois. *Id.* at 2. Together the Mainline and the Cushing Extension can deliver 590,000 bpd of Canadian crude oil to U.S. refineries and export terminals. *Id.* at 2.

the new 48-mile Houston Lateral Project will carry crude shipments to Gulf Coast refineries.[180]

The Gulf Coast Pipeline Project and the 875-mile portion of Keystone XL described above were initially part of a single project that TransCanada submitted to the State Department for approval in 2008.[181] The entire project required federal approval in the form of a Presidential Permit because it would cross the U.S.–Canada border.[182] Executive Order 13,337 delegated the President's authority to receive applications for and issue Presidential Permits, placing that power in the Secretary of State.[183] Whether the State Department issues a Presidential Permit turns on its determination that the project would or would not serve the "national interest," a term that is subject to executive branch interpretation.[184] In issuing a Presidential Permit the State Department must comply with the National Environmental Policy Act ("NEPA"), which requires all federal agencies to consider and issue a detailed

180. *The Project: About Gulf Coast Pipeline Project*, TRANSCANADA, http://www.gulf-coast-pipeline.com/about/the-projects/ (last visited Jan. 20, 2015). Construction of the Gulf Coast Pipeline Project began in 2012, was completed in late 2013, and the pipeline began delivering crude oil to Texas refineries in January 2014. *Questions and Answers*, TRANSCANADA, http://www.gulf-coast-pipeline.com/about/questions-answers/ (last visited Jan. 20, 2015); News Release, TransCanada, Gulf Coast Project Begins Delivering Crude Oil to Nederland, Texas (Jan. 22, 2014), *available at* http://transcanada.mwnewsroom.com/Files/95/95a67860-e86f-428c-b13e-2adf4250d471.pdf; *see also About the Project: A Proposed Oil Pipeline from Alberta to Nebraska*, *supra* note 175 (providing a map of Keystone XL and connecting pipelines that would allow additional crude to flow from Alberta to the Gulf Coast).

181. RAMSEUR ET AL., *supra* note 144, at 13. TransCanada's 2008 application and supporting documents are archived on the State Department's website. *Keystone XL Pipeline Project, Archived Documents*, U.S. DEP'T OF STATE, http://keystonepipeline-xl.state.gov/archive/index.htm (last visited Jan. 20, 2015).

182. PARFOMAK ET AL., *supra* note 178, at 5 ("[T]he construction, connection, operation, and maintenance of a pipeline that connects the United States with a foreign country requires executive permission conveyed through a Presidential Permit."). *But see* Lee Terry, *Keystone XL: The Pipeline to Energy Security*, 46 CREIGHTON L. REV. 61, 69 (2012) (arguing that FERC, not the State Department, should have authority over cross-border pipeline permits such as the one TransCanada sought). Interstate pipelines that do not cross an international border are not subject to federal siting regulations unless they cross federal land. *See infra* notes 221–24 and accompanying text (discussing state and federal siting regulations).

183. PARFOMAK ET AL., *supra* note 178, at 6 (citing Exec. Order No. 13,337, 69 Fed. Reg. 25,299 (May 5, 2004); *see also* ADAM VANN ET AL., CONG. RESEARCH SERV., R42124, PROPOSED KEYSTONE XL PIPELINE: LEGAL ISSUES 4 (2012) (commenting on the executive approval needed to build the pipeline).

184. PARFOMAK ET AL., *supra* note 178, at 6. Executive Order 13,337 does not explain what constitutes the "national interest," nor is it defined elsewhere. *Id.* In its final EIS for the 2008 Keystone XL project, the State Department provided a non-exhaustive list of factors it had considered in making national interest determinations for past pipeline proposals. *Id.* at 6. These factors included the proposed projects' impacts on: the environment; the diversity of U.S. crude oil supply; the stability of U.S. oil trading partners; the security of crude oil transportation infrastructure overall; economic benefits associated with pipeline construction and operation; foreign policy objectives, including climate change policy; and the reduction of U.S. fossil fuel reliance. *Id.* (citing U.S. DEP'T OF STATE, FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED KEYSTONE XL PROJECT 1–4 (2011)).

statement (an environmental impact statement ("EIS")) regarding any legislation or major federal action that could have significant adverse environmental effects.[185] In the case of TransCanada's 2008 application and its subsequent 2012 application (discussed later in this Part), the State Department was tasked with completing an EIS to assess the need for Keystone XL, to analyze the environmental impacts of granting TransCanada a Presidential Permit, and to determine the impacts associated with possible alternatives to the proposed pipeline.[186] The EIS analyzed the cumulative impacts of the entire project from the international border crossing in Montana to the endpoint on the Gulf Coast, not just facilities located at the U.S.-Canada border.[187]

In response to TransCanada's 2008 application for a Presidential Permit, the State Department prepared a draft EIS, a supplemental draft EIS, and a final EIS.[188] The State Department released the final EIS in August 2011 at which point a requisite 90-day public review period began, after which the State Department was to make its national interest determination. During the public review period, commenters raised concerns about impacts to the Sand Hills region of Nebraska. Based on evidence regarding the region's sensitive ecosystem, its numerous important wetlands, and the presence of shallow groundwater, in November 2011, the State Department decided it would need additional time to assess "alternative pipeline routes that would avoid the Nebraska Sand Hills."[189] A few days later, TransCanada and the Nebraska Department of Environmental Quality ("DEQ") announced that they had agreed to work together to identify a pipeline route that would avoid the Sand Hills.[190] However, the company and Nebraska did not have the opportunity to complete that work due to a series of events culminating with the State Department's denial of TransCanada's permit application in January 2012.[191] On December 23, 2011, Congress enacted the Temporary Payroll Tax Cut

185. 42 U.S.C. § 4332(2)(C) (2012).

186. PARFOMAK ET AL., *supra* note 178, at 7; *see also Keystone XL Pipeline Project*, U.S. DEP'T OF STATE, http://www.state.gov/e/eb/esc/iec/permit/keystonexl/index.htm (last visited Jan. 20, 2015) (providing links to press briefings, remarks, and reports regarding the first Keystone XL permit application process).

187. *See* PARFOMAK ET AL., *supra* note 178, at 8. Though the proposal included no new pipeline construction in Kansas, it did require construction of two new pump stations in the state, so Kansas was included in the EIS along with Montana, South Dakota, Nebraska, Oklahoma, and Texas. *See, e.g.*, U.S. DEP'T OF STATE, SUPPLEMENTAL DRAFT EIS: KEYSTONE XL PROJECT 3.3.1.1 (2011), *available at* http://keystonepipeline-xl.state.gov/documents/organization/182272.pdf.

188. PARFOMAK ET AL., *supra* note 178, at 10; *see also Keystone XL Pipeline Project*, *supra* note 186.

189. PARFOMAK ET AL., *supra* note 178, at 13 tbl.2; *see also* Press Release, U.S. Dep't of State, Keystone XL Pipeline Project Review Process: Decision to Seek Additional Information (Nov. 10, 2011), *available at* http://www.state.gov/r/pa/prs/ps/2011/11/176964.htm.

190. PARFOMAK ET AL., *supra* note 178, at 1, 13 tbl.2; *see infra* text accompanying notes 242–48 (discussing Nebraska legislation enacted to facilitate the siting of oil pipelines in the state).

191. PARFOMAK ET AL., *supra* note 178, at 1, 13 tbl.2.

Continuation Act of 2011.[192] The legislation required the State Department to approve the Keystone XL project within 60 days of enactment unless the President determined the pipeline was contrary to the national interest.[193] If the President took no action to grant or deny the permit within the 60-day period, "the law provided that the permit [would] be 'in effect by operation of law.'"[194] With President Obama's consent, the State Department declined to issue the permit, stating that it was not possible to make the determination within the deadline Congress imposed.[195]

The Keystone XL project as proposed in 2008 no longer exists. TransCanada separated the southern section of the project, renamed it the Gulf Coast Pipeline Project, and commenced construction on it in 2012.[196] Because it did not cross an international border, that pipeline route did not require a Presidential Permit, and TransCanada was required only to comply with any state regulations regarding oil pipeline siting in the states that it crossed.

In May 2012, TransCanada again applied for a Presidential Permit,[197] this time seeking a permit only to build the altered northern segment of Keystone XL from Morgan, Montana, to Steele City, Nebraska.[198] The new route and permit application triggered a new NEPA process at the State Department.[199] In September 2012, TransCanada submitted its preferred route for the Nebraska portion of the pipeline to the Nebraska DEQ[200] and on January 22, 2013, the Governor of Nebraska approved a new route avoiding the Sand Hills and requested that Nebraska's evaluation of the pipeline be included in the

192. *Id.*

193. *Id.*; *see also* VANN ET AL., *supra* note 183, at 3 ("The North American Energy Security Act (S. 1932), the American Energy Security Act (H.R. 3537), and the Middle Class Tax Relief and Job Creation Act of 2011 (H.R. 3630) also would require the Secretary of State to issue a permit for the project within 60 days of enactment, unless the President publicly determines the project to be not in the national interest. The North American Energy Access Act (H.R. 3548) would transfer permitting authority over Keystone XL from the State Department to the Federal Energy Regulatory Commission (FERC), and would require the commission to issue a permit for the project within 30 days of enactment.").

194. VANN ET AL., *supra* note 183, at 2 (citing Temporary Payroll Tax Cut Continuation Act of 2011, Pub. L. No. 112-78, § 501(b)(3), 125 Stat. 1280, 1290).

195. PARFOMAK ET AL., *supra* note 178, at 1, 13 tbl. 2; *see also Briefing on the Keystone XL Pipeline*, U.S. DEP'T OF STATE (Jan. 18, 2012), http://www.state.gov/r/pa/prs/ps/2012/01/181492.htm.

196. *See supra* note 180 and accompanying text.

197. The full text of the 2012 application and related documents and information can be found at *New Keystone XL Pipeline Application*, U.S. DEP'T OF STATE, http://www.keystonepipeline-xl.state.gov/ (last visited Jan. 20, 2015).

198. *See* RAMSEUR ET AL., *supra* note 144, at 14 fig.6 (depicting Keystone XL as a proposed northern "Steele City Segment" that includes an altered route to avoid Nebraska's Sand Hills and a separate "Gulf Coast Segment" that is already under construction).

199. PARFOMAK ET AL., *supra* note 178, at 8.

200. News Release, TransCanada, TransCanada Listens to Nebraskans; Updated Keystone XL Nebraska Re-Route Reflects Their Feedback (Sept. 5, 2012), *available at* http://www.transcanada.com/6099.html.

State Department's EIS.[201] The State Department issued the final EIS in January 2014, thus allowing the State Department to make a national interest determination.[202] The status of the pipeline remains in limbo, as landowner challenges to the pipeline route through Nebraska are currently unresolved, and Congress has attempted to pass legislation removing executive power to issue a Presidential Permit.[203]

As the delays associated with Keystone XL have continued, however, oil companies have begun to look to the primary alternative means of transporting Canadian oil—rail. In 2013, oil companies announced plans for three large loading terminals in western Canada with the combined capacity of 350,000 barrels a day—equivalent to approximately 40% of the capacity of Keystone XL.[204] But cost overruns, winter weather, and labor shortages in Alberta have hampered progress on projects that would contribute to an estimated 1.1 million barrels per day increase in oil exports even without Keystone XL.[205] Although shipping oil by rail can cost an additional five dollars or more per barrel, until late 2014, the economics were such that a major infrastructure investment of this scale was financially viable.[206] Indeed, in early 2014, according to the U.S. State Department Supplemental EIS for the Keystone XL project, shipping crude by rail was sufficiently viable to support the development of rail projects in the United States for loading oil in production areas and unloading facilities at refineries and terminals.[207] But with the rapid drop in global oil prices in late 2014, many of these assumptions regarding the viability of rail transport for crude oil have come into question.[208]

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201. *See* Letter from Dave Heineman, Governor of Neb., to President Barack Obama and Secretary Hillary Rodham Clinton (Jan. 22, 2013), *available at* http://keystone-xl.com/wp-content/uploads/2012/11/Governor_Pipeline_Approval.pdf.

202. U.S. DEP'T OF STATE, FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT FOR THE KEYSTONE XL PROJECT: EXECUTIVE SUMMARY 9–13 (2014), *available at* http://keystone-xl.com/wp-content/uploads/2012/11/Governor_Pipeline_Approval.pdf; *see also New Keystone XL Pipeline Application*, *supra* note 197.

203. *See* Katie Zezima, *White House: Obama Would Veto Keystone Bill*, WASH. POST (Jan. 6, 2015), http://www.washingtonpost.com/blogs/post-politics/wp/2015/01/06/white-house-obama-would-veto-keystone-bill/.

204. Clifford Krauss, *Looking for a Way Around Keystone XL, Canadian Oil Hits the Rails*, N.Y. TIMES (Oct. 30, 2013), http://www.nytimes.com/2013/10/31/business/energy-environment/looking-for-a-way-around-keystone-xl-canadian-oil-hits-the-rails.html.

205. *Id.*

206. *Id.*

207. U.S. DEP'T OF STATE *supra* note 202, at 9–13; *Factbox—U.S. Crude-by-rail Projects; 2013 Shipments up 71 Percent from 2012*, *supra* note 171 (providing a list of 70 current projects, including company name, type of infrastructure, location (city and state), capacity (bpd), origin of the crude, and project status as of January 13, 2014).

208. *See, e.g.*, JOHN FRITELLI ET AL., CONG. RESEARCH SERV., R43390, U.S. RAIL TRANSPORT FOR CRUDE OIL: BACKGROUND AND ISSUES FOR CONGRESS 4–6 (Dec. 4, 2014) (discussing the economics of transporting oil by rail and the impact of lower oil prices on rail expansion, pipeline construction, and domestic oil production); Susan Carey et al., *Cheaper Oil Lifts Airlines, Other*

C. FEDERAL REGULATION OF OIL PIPELINES

The prior sections detailed the history of U.S. oil production and, more specifically, the history of the oil transportation network. The following sections explore the regulation of that transportation network, particularly oil transportation rates and safety, which are regulated at the federal level, and oil pipeline siting, which is regulated at the state level.

As noted above, Congress extended federal regulatory oversight to oil pipelines in 1906 with the passage of the Hepburn Act.[209] Between 1906 and 1977, oil pipelines were subject to the Interstate Commerce Act ("ICA") and the jurisdiction of the Interstate Commerce Commission ("ICC"), "which issued various decisions defining the parameters of its jurisdiction and establishing ratemaking methodologies."[210] In 1977, Congress created the Federal Energy Regulatory Commission ("FERC"), an independent agency within the U.S. Department of Energy, and transferred regulatory authority over oil pipelines from the ICC to FERC.[211] Today, oil pipelines are the only common carriers governed under the ICA, which exists, "frozen in time," in its 1977 form.[212] Railroads and other industries remained subject to the substantially revised and amended ICA as it continued to evolve under the jurisdiction of the ICC until the Commission was dismantled in 1995, at which point railroads became subject to the Surface Transportation Board ("STB") within the U.S. Department of Transportation ("DOT").[213]

As of 2009, FERC regulated 180 to 200 pipelines[214] carrying crude oil, refined petroleum products, and NGLs.[215] FERC's regulatory work on oil

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Industries, WALL ST. J. (Nov. 7, 2014), http://www.wsj.com/articles/cheaper-oil-lifts-airlines-other-u-s-industries-1415394476; James Crompton & Zachary Harris, *Transport in the US: Winners and Losers of a Continued Decline in Oil Prices*, IBISWORLD (Nov. 19, 2014), http://www.ibisworld.com/media/2014/11/19/transport-us-winners-losers-continued-decline-oil-prices/.

209. *See supra* text accompanying note 66 (discussing the Hepburn Act).

210. JAMES H. MCGREW, FERC: FEDERAL ENERGY REGULATORY COMMISSION 227 (2d ed. 2009).

211. *Id.* (citing the Department of Energy Organization Act, 42 U.S.C. § 7172(b) (recodified as amended 49 U.S.C. § 60502 (2006))); Christopher J. Barr, *Unfinished Business: FERC's Evolving Standard for Capacity Rights on Oil Pipelines*, 32 ENERGY L.J. 563, 564 n.5 (2011) (describing continued application of the 1977 version of ICA to oil pipelines). Barr notes that "[t]he FERC's website on statutes for the oil pipeline industry provides a PDF of the ICA scanned from a paper copy at http://www.ferc.gov/legal/maj-ord-reg/ica.pdf, because that version of the ICA is no longer available on the federal government's online statute resources." *Id.*

212. Steven H. Brose et al., *Regulatory Framework: The Interstate Commerce Act*, *in* ENERGY LAW AND TRANSACTIONS, *supra* note 66, § 85.03[1].

213. *Id.*; *see also* 49 U.S.C. app. §§ 1–2701 (1988), *available at* http://www.ferc.gov/legal/maj-ord-reg/ica.pdf; *Overview of the STB*, SURFACE TRANSP. BOARD, http://www.stb.dot.gov/stb/about/overview.html (last visited Jan. 20, 2015).

214. MCGREW, *supra* note 210, at 228. This figure is undoubtedly larger today given the dramatic increase in pipeline construction that has accompanied the rise of unconventional oil and gas production.

215. Barr, *supra* note 211, at 564. When discussing FERC's authority, this Part refers to these three systems of pipelines generally as "oil pipelines."

pipelines accounts for a small portion of its activities overall. A relatively tiny percentage of FERC's budget is allocated to oil and liquids pipelines; in fiscal year 2012 oil pipeline regulation garnered only 2.5% of the budget.[216] FERC jurisdiction over oil pipelines includes the regulation of rates and terms and conditions of service offered by oil pipelines engaged in interstate commerce.[217] The commission requires oil pipelines to publish tariffs[218] and it audits oil pipelines and collects information from them as necessary for its regulatory activities around ratemaking and service terms and conditions.[219] Under the ICA, FERC does not regulate market entry or exit (i.e., construction, expansion, or abandonment) of oil pipelines.[220]

Unlike natural gas pipelines, which are described in Part III, oil pipelines that do not cross federal lands require no approval from FERC or any other federal agency at any point in their construction or operation.[221] Instead, state and local laws govern the approval of pipeline siting and construction. If a pipeline does cross federal lands, the Bureau of Land Management ("BLM") within the Department of the Interior is responsible for issuing right-of-way permits.[222] The DOT is responsible for pipeline safety regulation, and though most construction and siting issues are left to the states, some stages of construction are subject to DOT authority regarding safety.[223] Oil pipelines must also comply with federal environmental laws, and the Environmental

216. *Id.* at 565 & n.7.

217. *See Regulating Oil Pipelines*, FED. ENERGY REG. COMM'N, http://www.ferc.gov/industries/oil.asp (last visited Jan. 20, 2015); Andrew L. Lyon, Managing Att'y, FERC Office of the General Counsel, Oil Pipeline Regulation Under the Interstate Commerce Act at Energy Bar Ass'n Brown Bag Meeting: Oil Pipelines 101 (Feb. 14, 2012), *available at* www.eba-net.org/sites/default/files/meeting_materials/OilPipelines101.pdf.

218. Barr, *supra* note 121, at 51.

219. MCGREW, *supra* note 210, at 228.

220. *See* Arco Alaska, Inc. v. Fed. Energy Regulatory Comm'n, 89 F.3d 878, 886 (D.C. Cir. 1996); Farmers Union Cent. Exch., Inc. v. Fed. Energy Regulatory Comm'n, 734 F.2d 1486, 1509 n.51 (D.C. Cir. 1984); *see also* Williams Pipe Line Co., 21 FERC ¶¶ 61,260, 61,559 n.217 (1982); Barr, *supra* note 211, at 565 n.10 (describing FERC's limited jurisdiction under the ICA). The ICA is not a consumer protection measure, but was intended to protect producers from monopolistic pipeline operators. KIRK MORGAN, BRACEWELL & GUILIANI, NOT ALL PIPELINES ARE THE SAME: REGULATORY DIFFERENCES IMPACTING OIL VERSUS NATURAL PIPELINE DEVELOPMENT 3 (2012), *available at* http://www.ingaa.org/File.aspx?id=18255. Therefore, FERC has no authority to prevent the abandonment of an oil pipeline, even if it means a locality would be without adequate oil pipeline capacity. *Id.* at 4.

221. *See* Barr, *supra* note 211, at 565 & n.16. Oil pipelines may decide to cease operations, reverse direction of operation, or build a multi-state line without notifying FERC. *Id.* at 565.

222. Mineral Leasing Act of 1920, 30 U.S.C. § 181 (2012).

223. PARFOMAK, *supra* note 1, at 5–8 (discussing DOT jurisdiction and federal laws governing pipeline safety); *Comprehensive Pipeline Safety Laws and Regulations*, ASS'N OF OIL PIPELINES, http://www.aopl.org/safety/safety-rules-regulations/ (last visited Jan. 20, 2015).

Protection Agency ("EPA") has jurisdiction over oil spills from large transportation pipelines.[224]

Though much of the siting, construction, and regulation of oil pipelines falls outside FERC's jurisdiction, FERC does have "exclusive jurisdiction to determine whether pipelines' rates and terms of service are just, reasonable, and not unduly discriminatory," and so it wields major influence over a pipeline operator's ability to earn revenue.[225] Oil pipelines are free to enter and exit the market but once in operation, FERC has exclusive authority over their rates and tariffs, and pipelines cannot be easily moved or converted to other uses if the rates do not provide sufficient revenue for investors.[226] When an oil pipeline project is proposed, the operator does not file a certificate nor is one issued in advance of construction, so historically under the ICA, FERC "did not approve rates and terms and conditions of service" in advance.[227] Further, FERC will not approve rates and service terms that are considered unjust or discriminatory. Pipelines cannot favor or discriminate against similarly situated shippers, "geographic areas, or types of transportation" in setting rates and terms of service.[228]

In order to actually construct an oil pipeline, the pipeline operator must obtain a state permit or certificate, if one is necessary, from all the states through which the pipeline will pass and obtain rights to the land over the pipeline. Unlike natural gas pipelines, discussed in Part III, there is no federal process to obtain a permit for the entire length of the pipeline and no federal eminent domain authority to acquire the land. Thus, different state laws will govern both the siting process and the land acquisition process. These laws are discussed below.

D. STATE REGULATION OF OIL PIPELINES AND EMINENT DOMAIN

Pipeline operators that wish to construct or expand multistate pipelines must adhere to state statutes and regulations—in addition to abiding by the federal regulations governing safety, ratemaking, and capacity allocation discussed earlier in this Part.[229] Different states often require different

224. *Comprehensive Pipeline Safety Laws and Regulations*, *supra* note 223; *Compliance and Enforcement*, ENVTL. PROT. AGENCY (Dec. 8, 2011), http://www.epa.gov/compliance/enforcement/annual-results/eoy2011.pdf.

225. *See* Barr, *supra* note 211, at 565.

226. Barr, *supra* note 121, at 51.

227. MORGAN, *supra* note 220, at 12.

228. Barr, *supra* note 211, at 567.

229. *See supra* Part II.C. States have their own regulations regarding ratemaking, non-discrimination, and allocation for pipelines. A state may regulate rates and terms of service like FERC does, but the state may also regulate additional aspects of pipeline operation. In North Dakota, for instance, any pipeline used to facilitate the purchase or sale of crude petroleum, gas, coal, or carbon dioxide must be a common carrier subject to the jurisdiction of the North Dakota Public Service Commission. N.D. CENT. CODE § 49-19-08 (2013). The Commission holds hearings on and establishes and enforces rates and regulations associated with carriers'

permits, notices, or approvals for pipeline construction and operation, creating challenges for interstate pipelines.[230] Whether interstate or intrastate, oil pipelines must gain the necessary right-of-way to lay pipe, build storage facilities, or expand existing pipelines. Where it cannot acquire a right-of-way through agreements with private landowners, an oil pipeline must rely on eminent domain power to the extent such power exists in a given state.[231] The state siting and eminent domain laws for oil pipelines in all 50 states are detailed in Appendix A, with a few notable states highlighted below.

The issue of eminent domain arises frequently in pipeline and other energy transportation infrastructure cases because, for over a century, most states have delegated eminent domain authority to pipeline companies, electric and gas utilities, and other private companies providing energy and transportation services.[232] States generally convey such authority by defining pipelines, transmission lines, and gas lines as a "public use" under state law. While most pipeline companies are able to obtain necessary easements through voluntary transactions with landowners, the power of eminent domain is an important tool for pipeline companies in their negotiations, and a significant disincentive for landowners to demand excessive compensation for easements or otherwise attempt to oppose the pipeline. Because states differ in their approaches to siting oil pipelines and associated infrastructure, industry analysts often cite gaining rights-of-way as a complicating factor in oil transportation development.[233]

This Subpart highlights various state approaches to oil pipeline siting, construction, and eminent domain authority. Each of the four states

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publication of tariffs, *id.* § 49-19-17, and storage of crude petroleum, coal, and gas by common pipeline carriers within the state. *Id.* § 49-19-13.

230. *See, e.g.*, Mark D. Bingham, *Pipeline Construction and Operation, Authorizations and Regulations: Not Just a Pipe Dream*, *in* OIL AND NATURAL GAS PIPELINES: WELLHEAD TO END USER VOLUME 1995, NUMBER 1, ROCKY MOUNTAIN MINERAL LAW FOUND., 13-8 M 38A ROCKY MTN. MIN. L. INST. 13 n.49 (1995) (citing the Regulation of Oil and Gas Facilities in La Plata County, Colorado, §§ 6.106, 6.107, 6.206 from the year 1988, which "requires county approval prior to construction of any facilities, including wellsite equipment").

231. Eminent domain is the power of government to obtain title to or access to property from private parties without their consent. The Fifth Amendment to the U.S. Constitution recognizes the right of eminent domain but limits it by providing that "nor shall private property be taken for public use, without just compensation." U.S. CONST. amend. V; *see also* Kelo v. City of New London, 545 U.S. 469, 497 (2005) (O'Connor, J., dissenting) ("[T]he Takings Clause presupposes that government can take private property without the owner's consent . . . ."). Virtually all states have similar provisions in their constitutions and states also have enacted statutes governing which entities are entitled to exercise eminent domain authority and the procedures for doing so. *See* Alexandra B. Klass, *Takings and Transmission*, 91 N.C. L. REV. 1079, 1093–96 (2013) (discussing various state approaches to eminent domain, particularly after the *Kelo* decision).

232. *See* Klass, *supra* note 231, at 1082–83, 1094–95.

233. *See* Barr, *supra* note 121, at 44; *see also* MORGAN, *supra* note 220, at 11 (citing lack of federal eminent domain and multiple state regulators as complicating factors in oil pipeline construction).

described below represents a different approach to state approval and eminent domain authority for pipeline construction. Texas, which uses a common carrier approach, provides minimal state oversight of oil pipeline siting and construction. In the past, Nebraska had a similar hands-off approach but, as a result of the Keystone XL Pipeline, has more recently adopted new pipeline siting legislation. Colorado uses a right-of-way approach, based on a statute that its supreme court has only recently interpreted narrowly to exclude eminent domain authority for oil pipelines. And Illinois is an example of a state that uses a certificate of need process with significantly greater state oversight for the review, approval, and grant of eminent domain authority for oil pipelines. As landowners challenge eminent domain authority for interstate pipelines like the Keystone XL Pipeline, the state-by-state patchwork of authority regarding siting and eminent domain for oil pipelines highlights the federalism balance Congress has set in this area and puts it in stark contrast with the congressional decision to federalize the same process for interstate natural gas pipelines.

In Texas, home to a significant number of crude oil and product pipelines,[234] pipeline companies need not obtain any permits prior to pipeline construction.[235] There is no need for the pipeline company to obtain a determination of need for the pipeline or prior approval to construct a pipeline and related facilities from the Texas Railroad Commission, which is the state agency with "primary regulatory authority" over the oil and natural gas industry, pipeline companies, and mining operations.[236] Instead, the pipeline owner or operator determines the pipeline route and all siting issues for both intrastate and interstate pipelines.[237] The pipeline operator must, however, notify the "Railroad Commission's Pipeline Safety Division before beginning construction on a pipeline when the construction involves an intrastate pipeline longer than one mile."[238] With regard to eminent domain authority, state law provides that pipelines transporting oil, oil products, gas, CO_2, and other specified substances are "common carriers"[239] and, as such, have the right to use eminent domain.[240]

234. *See generally* AM. PETROLEUM INST., *supra* note 134.

235. *Pipeline Eminent Domain and Condemnation*, RAILROAD COMMISSION OF TEX., http://www.rrc.state.tx.us/about-us/resource-center/faqs/pipeline-safety-faqs/faq-pipeline-eminent-domain-and-condemnation/ (last visited Jan. 20, 2015).

236. *Railroad Commission Authority and Jurisdiction*, RAILROAD COMMISSION OF TEX., http://www.rrc.state.tx.us/about-us/resource-center/faqs/railroad-commission-authority-and-jurisdiction-faq/ (last visited Jan. 20, 2015).

237. *Pipeline Eminent Domain and Condemnation*, *supra* note 235.

238. *Id.*

239. TEX. NAT. RES. CODE ANN. § 111.002 (West 2011).

240. *Id.* § 111.019; *see also* Crawford Family Farm P'ship v. TransCanada Keystone Pipeline, L.P., 409 S.W.3d 908, 921 (Tex. App. 2013) (affirming trial court decision that TransCanada was authorized to exercise eminent domain authority for Keystone XL Pipeline under Texas law).

In Nebraska, controversy over the Keystone XL Pipeline has resulted in significant changes in the state's oil pipeline siting law. At the time TransCanada applied for a Presidential Permit for the pipeline, "Nebraska did not have any permitting requirements that applied specifically to the construction and operation of oil pipelines."[241] It did, however, have an existing statute granting eminent domain authority to companies unable to agree with landowners on right-of-way acquisition for pipelines transporting or conveying crude oil, petroleum, gases, or other products in interstate commerce or within the state.[242]

In 2011, as a result of the Keystone XL Pipeline, the Nebraska Governor called a special session of the legislature to enact the state's first pipeline siting legislation. That resulted in the Major Oil Pipeline Siting Act, which requires pipelines proposed after November 2011 to file an application with the state Public Service Commission ("PSC") and receive approval prior to construction.[243] The law sets forth the requirements of the application, which include methods to minimize or mitigate the impacts of a potential spill, a description of the proposed route, and a statement of reasons for the route.[244] During the 2012 legislative session, the Governor signed into law LB 1161, which amended the Major Oil Pipeline Siting Act to grant authority to the Nebraska DEQ and the Governor to evaluate and participate in any federal environmental review of a pipeline through Nebraska and then, after review is completed, to approve the pipeline route.[245] If the Governor does not approve the route, then the pipeline company is directed to file an application with the PSC under the existing provisions of the Major Oil Pipeline Siting Act.[246] The legislature also revised the Nebraska eminent domain law to provide that any "major oil pipeline"[247] to be placed in operation after November 2011 must first obtain siting approval from the PSC or the Governor before exercising eminent domain authority.[248]

On January 22, 2013, the Governor wrote to President Obama and Secretary of State Clinton informing them that Nebraska had completed its evaluation of the Keystone XL Pipeline and that he was approving the route

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But see Tex. Rice Land Partners Ltd. v. Denbury Green Pipeline–Tex., LLC, 363 S.W.3d 192, 198 (Tex. 2012) (finding more limited eminent domain authority for CO_2 pipelines).

241. *See* PARFOMAK ET AL., *supra* note 178, at 15.

242. NEB. REV. STAT. § 57-1101 (2010).

243. NEB. REV. STAT. § 57-1405 (Supp. 2012).

244. *Id.*

245. *Id.* § 57-1503.

246. *Id.* §§ 57-1405(1), 57-1503(4).

247. The 2011 legislation defines a "major oil pipeline" as a pipeline larger than six inches in diameter constructed in Nebraska to transport "petroleum, or petroleum components, products, or wastes, including crude oil or any fraction of crude oil, within, through, or across Nebraska," but not including in-field and gathering lines. *Id.* § 57-1404(2).

248. NEB. REV. STAT. § 57-1101 (2010).

pursuant to LB 1161.[249] A group of landowners subsequently challenged the constitutionality of LB 1161, contending that it violates the due process clause of the state constitution by illegally transferring the power to approve the route and grant eminent domain authority from the five elected members of the state PSC to the Governor and the state's DEQ, without any means of judicial review.[250] In a February 2014 decision, a Nebraska district court agreed and invalidated LB 1161,[251] a judgment that the Supreme Court of Nebraska vacated in January 2015.[252] Nebraska's constitution requires that five of the seven justices must find legislation unconstitutional before striking it down as such.[253] Four justices found that the landowners had standing and that LB 1161 was unconstitutional, but the remaining three found the landowners lacked standing, and therefore declined to reach the constitutional question, with the result that the legislation stands by default.[254] Within weeks of the decision, TransCanada commenced eminent domain proceedings to acquire easements from remaining landowners who have so far refused to negotiate, and landowners filed suit to again challenge the constitutionality of LB 1161.[255] As of publication, the constitutionality of LB 1161 remains unresolved.

For its part, Colorado is home to numerous interstate pipelines carrying crude oil, petroleum products, and liquefied petroleum gases ("LPGs").[256] Colorado utilizes a right-of-way approach to pipeline siting, with a statute that provides that:

> Any foreign or domestic corporation organized or chartered for the purpose, among other things, of conducting or maintaining a pipeline for the transmission of power, water, air, or gas for hire to any mine or mining claim or for any manufacturing, milling, mining, or public purpose shall have the right-of-way for the construction, operation, and maintenance of such pipeline for such purpose through any lands without the consent of the owner thereof, if such right-of-way is necessary for the purpose for which said pipeline is used.[257]

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249. Letter from Dave Heineman, *supra* note 201.

250. Second Amended Complaint for Declaratory Judgment ¶13, Thompson v. Heineman, No. CI 12-2060 (Neb. Dist. Ct. Mar. 18, 2013), 2013 WL 7230784.

251. Thompson v. Heineman, No. CI122060, 2014 WL 631609, at *34–35 (Neb. Dist. Ct. Feb. 19, 2014).

252. *See generally* Thompson v. Heineman, 289 Neb. 798 (2015).

253. *Id.* at 3.

254. *Id.* at 4.

255. Reid Wilson, *Keystone XL Company Files Eminent Domain Papers Against Nebraska Landowners*, WASH. POST (Jan. 21, 2015), http://www.washingtonpost.com/blogs/govbeat/wp/2015/01/21/keystone-xl-company-files-eminent-domain-papers-against-nebraska-landowners/.

256. *Colorado State Energy Profile*, U.S. ENERGY INFO. ADMIN., http://www.eia.gov/state/print.cfm?sid=CO (last updated Aug. 21, 2014).

257. COLO. REV. STAT. § 38-4-102 (2013).

A related provision expressly grants eminent domain authority to "pipeline compan[ies]."[258]

In 2012, in *Larson v. Sinclair Transportation Co.*, Sinclair attempted to obtain rights-of-way to "run a second underground gasoline pipeline parallel to [an existing] pipeline" on the Larsons' property allowed under an existing easement.[259] When the parties failed to reach agreement on a new easement for the second pipeline, Sinclair sought to exercise eminent domain authority.[260] On review, the Colorado Supreme Court held that the statute granting eminent domain authority for pipeline rights-of-way did not include oil pipelines but instead was limited to pipelines associated with the transport of power, water, air, or gas.[261] The court noted that "neither the word petroleum nor the word oil is found anywhere in [the statute]," and that it must "construe narrowly" not only condemnation laws in general but in particular those "confer[ing] condemnation power upon private entities."[262] As shown in Appendix A, Colorado is the only state where it is now clear that oil pipelines do not possess eminent domain authority.

Illinois is an example of a state, like many, that requires a certificate of public convenience and necessity or a certificate of need after state review to construct an oil pipeline or exercise eminent domain. In the late 1990s, Lakehead Pipe Line Company, which became Enbridge Energy in 2001,[263] operated a length of pipeline within Illinois that was part of the larger Lakehead system bringing Canadian crude oil and other petroleum liquids to Midwest refineries.[264] The company determined that its existing Illinois pipeline had reached its functional capacity and was insufficient to meet demand for crude shipments. Instead of increasing that pipeline's capacity, the company planned to construct a new pipeline through several rural Illinois counties. When Lakehead sought a certificate from the Illinois Commerce Commission that would allow it to exercise eminent domain to build the pipeline, should it be necessary, the commission found there was no public need for more refined petroleum products, that there was currently an adequate supply of such products, that the pipeline would not result in any positive price effect on the market, and thus there was no public need. It therefore denied Lakehead's application. On appeal in 1998, the Illinois Court of Appeals affirmed the commission's decision, reasoning that the

258. *Id.* § 38-5-105.

259. Larson v. Sinclair Transp. Co., 284 P.3d 42, 43 (Colo. 2012) (en banc).

260. *Id.*

261. *Id.* at 45.

262. *Id.* at 44–45.

263. Press Release, Enbridge Energy Partners, Lakehead Pipe Line Partners Announces Management Transition (May 11, 2001), *available at* http://www.enbridgepartners.com/media-center/News/2001/175079.

264. Lakehead Pipeline Co. v. Ill. Commerce Comm'n, 696 N.E.2d 345, 348 (Ill. App. Ct. 1998).

commission had made adequate findings that there was no regional need for the pipeline but instead only a desire by a private company to deliver more Canadian crude oil to refineries in the Midwest.[265]

The approaches to siting and eminent domain authority for oil pipelines in Texas, Nebraska, Colorado, and Illinois are examples of the variety of laws that can apply to interstate and intrastate oil pipelines throughout the nation. As the United States produces more oil than it has in decades, and in many locations not well served by existing pipeline networks, controversies over siting and eminent domain authority for pipelines will only increase. These controversies may lead to new laws governing the oil pipeline siting and eminent domain processes, as has already occurred in Nebraska. This may slow down the siting process in some places but may also lead to additional regulatory oversight and safety provisions.

E. SUMMARY

The massive increase in domestic oil development in recent years highlights the importance of the pipeline and rail infrastructure necessary to transport these new energy resources. In many ways history is repeating itself, with rail re-emerging as the dominant form of oil transportation in new production areas while new pipelines are under construction. Because of safety and cost concerns associated with transporting oil by rail, the question arises whether the state-by-state regulatory process in place to approve and site interstate pipelines is sufficient to meet demand.

A review of the state siting and eminent domain procedures set forth above and in Appendix A reveals that even though pipeline operators must deal with different standards in different states, most states do not have particularly burdensome approval processes for pipelines. Moreover, virtually all states, except for Colorado, grant eminent domain authority to pipelines by statute. As a result, it is not at all clear that additional federal authority or major changes in state law are needed (or wanted by the oil industry) to site and build the pipelines necessary to transport increased volumes of oil across the country.[266]

Nevertheless, the Keystone XL project and recent pipeline spills have created more landowner and community opposition to pipelines in some

265. *Id.* at 355; *see also* Pliura Intervenors v. Ill. Commerce Comm'n, 942 N.E.2d 576, 584–85 (Ill. App. Ct. 2010) (affirming the state commerce commission's determination of public need for pipeline based in part on regional need for additional oil capacity rather than solely local need).

266. *Cf.* Mark K. Lewis & D. Kirk Morgan II, *An Uneven Playing Field Exists in Oil vs Gas Pipeline Development*, OIL & GAS FIN. J. (Oct. 1, 2011), http://www.ogfj.com/articles/print/volume-8/issue-10/features/an-uneven-playing-field-exists.html (discussing the disadvantages oil pipelines must overcome as compared with natural gas pipelines that have federal siting and eminent-domain authority under the Natural Gas Act). While oil pipelines might find some aspects of expanded federal regulation beneficial—especially federal eminent domain—increased scrutiny in other scenarios might be less welcomed by industry. *See id.*

areas, particularly pipelines proposed to transport Canadian tar sands oil.[267] This may lead to additional regulation of pipelines at the state level, like the experience in Nebraska, which may slow down the process.[268] At this point, however, existing law does not appear to create major barriers to pipeline approvals and, as in the past, rail is there as a backstop to transport this high-value commodity to refineries and markets. What is evident, however, is that regulators and the public are more focused than ever on the potential human health and environmental risks associated with transporting oil by pipeline and by rail. This is particularly true in regions like the upper Midwest, where major new pipelines are being proposed to transport both Canadian tar sands oil and oil from the Bakken shale region. With so many proposed new pipelines under review, some of which will cross scenic and natural areas, public opposition is growing in these regions.[269] As market actors continue the significant expansion of both rail and pipelines for oil transportation, it is critical that regulators consider fully the environmental impacts of this expansion and that the public remains involved in the process.

III. THE NATURAL GAS TRANSPORTATION NETWORK: HISTORY, REGULATION, AND CURRENT CHALLENGES

This Part turns to the production and transportation of natural gas. Unlike interstate oil pipelines, where government regulation remains at the state level, Congress transferred authority over interstate natural gas pipelines to the Federal Power Commission (FERC's predecessor) in the 1930s. As a result, federal law governs the siting and eminent domain authority for interstate natural gas pipelines. As detailed in the sections that follow, the reasons for this significant shift from state authority to federal authority are found in the history of U.S. natural gas development, use, and transportation, which differs significantly from the history of U.S. oil development, use, and

267. *See, e.g.*, Elana Schor, *Oil Sands: Beyond Keystone XL, More Pipelines with More Problems*, E&E GREENWIRE (May 15, 2014), http://www.eenews.net/special_reports/pipeline_politics/stories/1059999654.

268. Examples of other pipeline projects facing opposition include an Enbridge proposal to bring more Canadian tar sands oil to U.S. refineries via its existing expansive pipeline network. *See* Tom Meersman & David Shaffer, *Regulators Approve $160 Million Enbridge Energy Pipeline Upgrade*, STAR TRIB. (Aug. 29, 2014, 12:21 AM), http://www.startribune.com/business/273104851.html (describing a Minnesota Public Utilities Commission decision to permit Enbridge to increase crude shipments on a Minnesota portion of its pipeline network); Elana Schor, *Pipeline Giant Sidesteps KXL-style Permitting Fight*, E&E GREENWIRE (Aug. 22, 2014), http://www.eenews.net/stories/1060004824/print (describing State Department approval that, if granted, would allow Enbridge to increase shipments).

269. *See, e.g.*, David Shaffer, *Opposition Grows as Oil Pipelines Proliferate in Northern Minnesota*, STAR TRIB. (Mar. 15, 2014, 7:48 AM), http://www.startribune.com/local/250421701.html (reporting on increased public opposition to Enbridge's Sandpiper oil pipeline which would bring oil from the Bakken Shale region over 600 miles from western North Dakota to Superior, Wisconsin, through an existing pipeline corridor that already has four pipelines built by other companies).

transportation. These differences are meaningful not only to understand the divergent regulatory regimes for oil and gas transportation, but also for attempting to address contemporary natural gas infrastructure challenges.

A. HISTORY OF NATURAL GAS PRODUCTION, USE, AND TRANSPORT

People have observed natural gas seeps since ancient times.[270] The odorless, colorless, combustible gas emanating from such seeps attained religious and cultural significance in some places and was put to practical use in others.[271] In 1669, a French explorer made the first recorded observation of a "burning spring" in North America, near what is today Bristol Center, New York.[272] Historians credit residents of Fredonia, New York, with being the first to use natural gas for lighting in 1821, though some uncertainty exists as to its initial discovery and use there.[273] In the early 1800s, people knew natural gas springs could produce heat and light, but transportation technology at the time did not permit capturing or redirecting the gas for use elsewhere.[274]

Throughout the 1800s, consumers used manufactured coal gas—also referred to as "town gas," presumably given its affiliation with a particular local gasworks—predominantly for lighting, though people also used it for heating and cooking in the late 1800s until the mid-1900s, when natural gas gradually and then completely displaced it.[275] In the 1840s, major gas wells were discovered in Ohio, but there was little commercial interest in the gas due to transportation problems.[276] By the 1850s, only industries and towns located very close to wells could make use of natural gas.[277] The natural gas industry did not really begin to develop until people discovered large volumes of gas in association with oil in western Pennsylvania beginning with the 1859 Titusville oil strike.[278] Early on, associated natural gas was a nuisance to oil drillers (although we now understand it is necessary for oil pressurization,

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270. *History*, NATURALGAS.ORG, http://naturalgas.org/overview/history/ (last visited Jan. 20, 2015).

271. *Id.* For example, a temple housing the Oracle of Delphi was constructed over a natural gas spring on Greece's Mount Parnassus in about 1000 B.C.E. *Id.* The "eternal fires" that Plutarch observed around 100 to 125 C.E. in what is now Iraq were likely natural gas springs that had been ignited by lightning. *The History of Natural Gas*, U.S. DEP'T OF ENERGY, http://www.fossil.energy.gov/education/energylessons/gas/gas_history.html (last visited Jan. 20, 2015).

272. CHRISTOPHER J. CASTANEDA, INVISIBLE FUEL: MANUFACTURED AND NATURAL GAS IN AMERICA, 1800–2000, at 37 (1999).

273. *Id.* at 39.

274. *Id.* at 38.

275. *Id.* at 3–4. By 1870 kerosene, a refined petroleum product, also took a share of the manufactured gas market because "[i]t posed little danger of asphyxiation, it did not depend upon fixed pipelines, and it burned with a brighter flame." ARLON R. TUSSING & CONNIE C. BARLOW, THE NATURAL GAS INDUSTRY: EVOLUTION, STRUCTURE, AND ECONOMICS 15 (1984).

276. CASTANEDA, *supra* note 272, at 42.

277. *Id.*

278. *Id.* at 4; *see supra* Part II.A.1 (discussing oil discoveries in the Oil Region of Pennsylvania and New York).

allowing oil to flow to the surface).[279] It had little value and could cause "well blow-outs and fires."[280] When found in conjunction with oil, producers often "allowed [natural gas] to escape into the atmosphere."[281] When natural gas deposits were discovered alone they were usually abandoned, with drillers disappointed by the lack of oil.[282]

The first successful natural gas transportation system was constructed in the Pennsylvania Oil Region in 1872.[283] Five and a half miles of wrought iron pipe transported "waste gas" flowing under its own natural pressure from local oil fields to Titusville.[284] Pittsburgh was the first major American city to use natural gas for industrial purposes on a large scale, made possible by the discovery of gas wells in close proximity to the city in the early 1870s.[285] In the 1880s, natural gas companies began forming and developing more gas fields in Pennsylvania, transporting gas to households in nearby municipalities and to local glass and steel plants.[286] By the late 1880s, Pittsburgh had six gas companies transporting gas from 107 regional wells through 500 miles of pipeline—232 miles of which were within Pittsburgh city limits.[287] Local availability of natural gas encouraged industry to begin using gas to manufacture iron, steel, chemical products, and glass.[288] In the late 1800s, drillers discovered Indiana gas fields and demand and production grew tremendously.[289] Gas traveled more than 100 miles by pipeline for the first time in 1891.[290] High production rates led to the fairly rapid depletion of many Indiana gas fields, and customers had to return to manufactured gas

279. CASTANEDA, *supra* note 272, at 42.

280. TUSSING & BARLOW, *supra* note 275, at 26.

281. CASTANEDA, *supra* note 272, at 42. Natural gas is similar to manufactured gas in chemical composition and function but has higher Btu content. Richard J. Pierce, Jr., *Reconstituting the Natural Gas Industry from Wellhead to Burnertip*, 25 ENERGY L.J. 57, 60 (2004). Despite this, most gas was burned off at wellheads hundreds or thousands of miles away from consumers in metropolitan areas. *Id.*

282. CASTANEDA, *supra* note 272, at 42–43.

283. TUSSING & BARLOW, *supra* note 275, at 9; *see supra* Part II.A.1 (discussing the Oil Region in general).

284. CASTANEDA, *supra* note 272, at 44.

285. *Id.* at 44–45. The Pittsburgh inventor George Westinghouse even drilled for gas in his own backyard. *Id.* at 47. In 1883, he discovered a substantial volume of natural gas, purchased a defunct company that had an existing state charter, and leased additional gas fields in western Pennsylvania to ultimately serve about 5500 residential and industrial customers in Pittsburgh by 1887. *Id.*

286. *Id.* at 45.

287. *Id.* at 49.

288. *Id.* Brewers also started using gas when they required heat in the beer-making process, and a Pittsburgh crematory also adopted the use of natural gas. *Id.*

289. *Id.* at 51.

290. TUSSING & BARLOW, *supra* note 275, at 29.

due to lack of natural gas supply.[291] Oklahoma and Kansas fields experienced the same pattern, contributing to the characterization of natural gas as unreliable compared with the manufactured version.[292] Better techniques for estimating natural gas reserves developed in the 1940s and 1950s, but until then uncertainty regarding the extent of gas fields meant investment in infrastructure development was risky.[293]

The years between 1880 and 1910 marked a period of mergers and consolidation as manufactured gas companies, natural gas firms, and electric companies experienced intense competition and then sought stability.[294] In the late 1890s, Standard Oil formed the East Ohio Gas Company to produce and deliver gas to customers in Ohio, and Hope Natural Gas Company acquired gas wells in West Virginia.[295] In 1902 National Transit formed the Connecting Gas Company to transport gas from West Virginia, connecting the Hope and East Ohio companies along with other affiliates of National Transit.[296] It also entered the gas distribution business, and when fields near Pittsburgh began faltering, National Transit installed a compressor station to transport West Virginia gas to the city.[297]

During Congressional debate of the Hepburn Act, some members of Congress thought that the natural gas and oil industries were equally subject to monopolization by powerful interests such as Standard Oil.[298] Some in Congress supported imposing common carrier status on natural gas pipelines in addition to oil pipelines as a way to prevent monopoly, while other senators worried that companies would not build new and needed gas pipelines if the government imposed common carrier requirements on them.[299] Ultimately Congress exempted natural gas pipelines from the Hepburn Act, instead paying close attention to oil pipelines.[300] However, state governments did expand their regulatory reach during this period, partially at the urging of the natural gas industry itself. The public was becoming increasingly dependent on natural gas and manufactured gas, and a number of interested

291. James A. Glass, *The Gas Boom in East Central Indiana*, 96 IND. MAG. HIST. 313, 331–33 (2000); *see also* TUSSING & BARLOW, *supra* note 275, at 10 (noting that the Central Indiana gas deposits were tapped and depleted within two decades, between 1886 and 1907) .

292. CASTANEDA, *supra* note 272, at 51.

293. *See* TUSSING & BARLOW, *supra* note 275, at 10.

294. CASTANEDA, *supra* note 272, at 69.

295. *Id.* at 71.

296. *Id.*

297. *Id.*

298. *Id.*

299. *Id.* at 71–72.

300. *See id.* at 72 (noting the U.S. Department of Justice suit against Standard Oil under the Sherman Antitrust Act). When the Supreme Court ordered Standard's dissolution in 1911, it did not require Standard to spin off its natural gas holdings, so Standard Oil (New Jersey) absorbed National Transit's natural gas infrastructure. *Id.*; *see also supra* text accompanying notes 75–77 (discussing the antitrust suit and 1911 Supreme Court decision against Standard Oil).

parties wished to see more stability in the gas market,[301] so states created their own regulatory commissions to regulate intrastate gas pipelines and their rates.[302] Industry pushed for uniform state rate-regulation to avoid local and municipal regulation, which gas companies believed was overly influenced by small-scale prejudicial interests.[303]

In 1918, natural gas discoveries led to the identification of the huge Panhandle Field in northern Texas and, in 1922, drillers discovered a Kansas well in what would become known as the Hugoton Field, located in the Kansas–Oklahoma–Texas border area (also referred to as the Mid-Continent).[304] As a result of concurrent developments in pipeline technology,[305] gas from these new fields arrived first in Midwest markets and later in Appalachia, where it began to displace declining local production.[306] Between 1927 and 1931, about 12 major gas transportation systems developed, all over 200 miles long.[307]

Until the post-World War II pipeline construction boom, producers flared most natural gas associated with oil and abandoned wells that only produced gas, with the "nonassociated gas simply left in the ground."[308] States passed laws to restrict gas flaring[309] and attempted to limit the volume of gas that producers in their state could sell to interstate pipelines for shipment out of state.[310] Consuming and producing states regularly imposed regulations on pipelines that were inconsistent and designed to benefit the citizens of the state, often to the detriment of citizens elsewhere.[311] The Supreme Court decided three cases in the 1920s that established such state actions as

301. CASTANEDA, *supra* note 272, at 80.

302. *The History of Regulation*, NATURALGAS.ORG, http://naturalgas.org/regulation/history (last visited Jan. 20, 2015). New York and Wisconsin were the first to create state commissions to oversee natural gas distribution. *Id.*

303. CASTANEDA, *supra* note 272, at 80.

304. *Id.* at 84. The combined fields accounted for about 16% of total U.S. reserves in the 1900s. *Id.* At first producers drilled only for oil and vented an estimated one billion cubic feet per day of natural gas, allowing it to escape into the atmosphere. *Id.*

305. Oxyacetylene torches for welding, electric arc welding, seamless pipe, improved compressor technology, better ditching machinery, and development of "thin-walled, high-tensile-strength large diameter pipelines" allowed for long-distance compressed gas shipping in the 1920s. *Id.* at 85.

306. *Id.*

307. TUSSING & BARLOW, *supra* note 275, at 33.

308. *Id.* at 11 (emphasis omitted). In the late 1930s two-thirds of marketable natural gas production was vented, flared, or used in carbon black production. CASTANEDA, *supra* note 272, at 89.

309. TUSSING & BARLOW, *supra* note 275, at 26.

310. Pierce, *supra* note 281, at 61.

311. *Id.* For instance, states attempted to regulate the prices interstate natural gas pipelines could charge end users located in the state. *Id.* at 60.

unconstitutional under the dormant Commerce Clause.[312] These cases made it clear that states may not regulate transportation in interstate commerce or sales of goods for resale in interstate commerce.[313]

During the Depression, shortages and high gas prices, monopoly, and a reliance on manufactured gas characterized the eastern United States while in Texas, Kansas, Oklahoma, and Louisiana, an oversupply of natural gas remained "unconnected to markets."[314] By the late 1920s four public utility holding companies dominated the gas industry, operating as a powerful cartel often referred to as the "Power Trust."[315] Pressure for greater gas industry regulation grew. Approximately 100 Midwestern cities organized the Cities Alliance in the mid-1930s to lobby for federal regulation of the gas industry, which the group believed would assure a more reliable gas supply to U.S. cities.[316] Natural gas consumers, producers, and distributors complained to Congress about unregulated interstate pipelines and their allegedly discriminatory and monopolistic practices.[317] The coal industry—suffering from declining coal consumption since World War I largely due to growth in the gas industry—also advocated for federal regulation of gas in order to drive up prices, and railroads and other supporters joined them.[318]

Interstate gas companies in turn charged that the state of Pennsylvania, coal interests, and railroads blocked competition from gas by refusing to grant rights-of-way to gas pipelines.[319] Congress "direct[ed] the Federal Trade Commission (FTC) to study and report on these allegations," and the FTC found the claims regarding interstate natural gas pipeline practices were

312. *Id.* (citing Pub. Utils. Comm'n of R.I. v. Attleboro Steam & Elec. Co., 273 U.S. 83, 90 (1927) (holding that only Congress, not a state public utilities commission, could regulate rates for gas sold in interstate commerce since "the paramount interest in the interstate business . . . is not local to either state, but is essentially national in character"); Missouri *ex rel.* Barrett v. Kan. Natural Gas Co., 265 U.S. 298, 307 (1924) (holding that a gas company's business, consisting of transporting natural gas from one state to another for sale to intrastate distribution companies, was interstate commerce and as such, not subject to state regulation); Pennsylvania v. West Virginia, 262 U.S. 553, 595 (1923) (holding that it is unconstitutional for "a state wherein natural gas is produced and is a recognized subject of commercial dealings [to] require that in its sale and disposal consumers in that state shall be accorded a preferred right of purchase over consumers in other states")).

313. *See supra* note 312 and accompanying text.

314. CASTANEDA, *supra* note 272, at 104; M. ELIZABETH SANDERS, THE REGULATION OF NATURAL GAS: POLICY AND POLITICS, 1938–1978, at 24–25 (1981). Many pipelines carried less than 50% of their capacity due to lower demand in some markets or because of lack of reliable gas supplies. CASTANEDA, *supra* note 272, at 103. Meanwhile in Texas, trillions of cubic feet of natural gas were allowed to vent as oil drillers continued work, uninterested in associated gas discoveries. *Id.* at 104.

315. CASTANEDA, *supra* note 272, at 89–90. Holding companies could own as many as several hundred gas and electric firms. *Id.* at 104–05.

316. *Id.* at 108.

317. Pierce, *supra* note 281, at 61.

318. CASTANEDA, *supra* note 272, at 111.

319. *Id.*

indeed true.[320] The report showed that four holding companies controlled more than 60% of all natural gas produced in 1934 as well as 58% of U.S. pipelines.[321] The FTC found that 40% of the gas used in the U.S. was shipped in interstate commerce and seven million end users consumed it for various purposes in 34 states.[322] Congress found this level of consolidation in such an indispensable national industry unacceptable.[323]

Several pieces of legislation stemmed from the FTC's report. The Public Utility Holding Company Act of 1935 "forced the dissolution of interstate . . . gas and electric" giants.[324] The Act restricted utilities to being single, locally managed organizations and required them to separate natural gas and electric operations.[325] The FTC's 1935 report recommended that Congress consider making interstate natural gas pipelines "common carriers or public utilities subject to Federal control and regulation as to construction, operation, financing, and matters affecting the purchase, shipment, sale, and distribution of natural gas."[326] Congress attempted to grant a federal agency authority over gas pipelines as common carriers, the same way it had done with oil pipelines in 1906.[327] Natural gas pipelines rejected this effort and pushed for regulation—since it was apparent some sort of regulation was imminent—"that would protect them from competition [via federal intervention] in . . . the transportation and the sale of gas."[328] Congress thus enacted the Natural Gas Act of 1938, which gave the Federal Power Commission ("FPC") authority to regulate sales for resale in interstate commerce, transportation in interstate commerce, and facilities used for such sales and transportation.[329]

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320. Pierce, *supra* note 281, at 61.

321. CASTANEDA, *supra* note 272, at 107.

322. *Id.*

323. Although the FTC report was a galvanizing moment for congressional action on this front, interstate electric and gas company activities had not gone unnoticed. In 1928, Congress directed the FTC to investigate public utility holding companies, and the commission had subsequently reported to Congress on a monthly basis. William A. Mogel & John P. Gregg, *Appropriateness of Imposing Common Carrier Status on Interstate Natural Gas Pipelines*, 25 ENERGY L.J. 21, 36 (2004); *see also supra* text accompanying notes 298–300 (discussing earlier attempts to make interstate gas pipelines common carriers subject to ICC jurisdiction).

324. TUSSING & BARLOW, *supra* note 275, at 32.

325. CASTANEDA, *supra* note 272, at 109–10.

326. Mogel & Gregg, *supra* note 323, at 37 (quoting FED. TRADE COMM'N, NO. 73-A, SUMMARY REPORT ON HOLDING AND OPERATING COMPANIES OF ELECTRIC AND GAS UTILITIES 75 (1935).

327. Pierce, *supra* note 281, at 61–62.

328. *Id.* at 62.

329. *Id.* (observing that the Natural Gas Act gave the FPC power to regulate in areas left open after the Supreme Court prevented states from this sort of regulation in several 1920s cases). Under the new legislation pipeline rates had to be "just, reasonable, and not unduly discriminatory." 15 U.S.C. § 717c(f) (2012). The Act did not include a common carrier requirement, much to the relief of pipeline companies that had lobbied against it. *See* Mogel &

Natural gas pipeline construction was at a "standstill" in the United States from 1932 until World War II.[330] Northeastern market potential was immense, but no major pipelines existed to bring gas to that populous region.[331] Wartime pipeline construction initially connected Gulf Coast gas fields and the northeastern war industry, which was centered in cities of the Appalachian region.[332] A burgeoning war-related labor force lived in new housing near industries and military installations and needed more heat.[333] This growing demand, coupled with declining Appalachian gas fields, resulted in a 55% increase in natural gas production and the construction of pipelines to carry natural gas from southwestern fields to industrial and residential consumers.[334]

After the war, major northeast cities rapidly shed their dependence on manufactured gas as southwestern natural gas arrived via long-distance pipelines.[335] The War Assets Administration was formed to dispose of government property accumulated during the war. Controversy arose regarding whether the government should allow natural gas producers to convert war emergency crude pipelines to natural gas pipelines.[336] A coal workers' strike at the time threatened to affect manufactured gas consumers on the East Coast, and the government agreed to allow conversion of the "Inch Lines" to natural gas.[337] The Texas Eastern Transmission Corporation entered the $143 million winning bid for the pipelines at auction.[338]

Texas Eastern faced an immediate problem, however. Interstate pipelines did not enjoy the power of federal eminent domain, and though it

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Gregg, *supra* note 323, at 40. *See generally* Donald J. Libert, Note, *Legislative History of the Natural Gas Act*, 44 GEO. L.J. 695 (1956) (discussing the passage of the Natural Gas Act in greater detail).

330. TUSSING & BARLOW, *supra* note 275, at 40.

331. CASTANEDA, *supra* note 272, at 114. Estimates at the time indicated that if Northeastern demand for natural gas were met, it would increase total natural gas sales by 25%. *Id.*

332. *Id.* at 119–20 (noting the importance of Pittsburgh, Pennsylvania; Youngstown, Ohio; and Wheeling, West Virginia to the war industry). Manufacturing steel, aluminum, gasoline, synthetic rubber, chemicals, and explosives required natural gas and its byproducts, and gas was also used for industrial and residential heat and power. *Id.* at 120.

333. *Id.* at 119.

334. *Id.*

335. *Id.* at 132.

336. TUSSING & BARLOW, *supra* note 275, at 45. Some worried that an oil company would buy the "Big Inch" and "Little Big Inch" pipelines and fill them with concrete to prevent others from using them. *Id.* Others argued the government should make sure they were converted to gas because 14% of gas production at the time was going to waste via flaring. *Id.* Large oil firms lobbied against keeping the Inch pipelines in crude oil service, maintaining that tankers were more efficient in peacetime. CASTANEDA, *supra* note 272, at 134. On the other hand, small oil companies argued to retain the Inch pipelines in oil service. *Id.* The coal industry opposed conversion to natural gas, citing the threat to eastern coal field jobs. TUSSING & BARLOW, *supra* note 275, at 45. See *supra* Part II.A.3 for a discussion of construction of the "Inch" crude oil war emergency pipelines.

337. TUSSING & BARLOW, *supra* note 275, at 45.

338. *Id.*; *see also* CASTANEDA, *supra* note 272, at 138.

possessed the existing Inch pipelines, the company needed to construct new pipelines into Pennsylvania.[339] State governments, the coal industry, and railroad interests blocked Texas Eastern's efforts to construct new pipelines in Pennsylvania.[340] Landowners in other states also blocked pipeline construction. Natural gas shortages during the winter of 1946–1947, resulting in nearly 50,000 workers being laid off from jobs, made these anti-natural gas interests unpopular,[341] and helped Texas Eastern promote a bill in 1947 providing federal eminent domain for interstate natural gas pipelines.[342] The bill would grant eminent domain to any natural gas pipeline company holding a "certificate of public convenience and necessity" from the FPC under the Natural Gas Act.[343] In addition to consumer dissatisfaction with natural gas supplies, the volume of gas wasted in the fields drew policymakers' attention. In both the Senate and House committee hearings on the eminent domain amendment, Congressmen and witnesses expressed concern regarding the amount of natural gas going to waste in oil fields and looked to new pipeline construction as a solution.[344] Representatives of state and local government and various interested industries testified, with coal, railroad, and manufactured gas interests raising objections to the eminent domain

339. CASTANEDA, *supra* note 272, at 138.

340. *Id.*

341. In House committee hearings, the governors of West Virginia and Kentucky entered statements regarding winter natural gas shortages and resulting industry shutdowns, which also caused people to be out of work. *Amendments to the Natural Gas Act: Hearings on H.R. 2185, H.R. 2235, H.R. 2292, H.R. 2569, and H.R. 2956 Before the H. Comm. on Interstate and Foreign Commerce*, 80th Cong. 46–48 (1947) [hereinafter *Amendments to the Natural Gas Act Hearings*] (statements of Simeon Willis, Governor, Kentucky, and Clarence W. Meadows, Governor, West Virginia). Committee members heard testimony regarding the approximately 49,000 workers laid off during gas shortages, *id.* at 620 (statement of James W. Haley, Attorney, National Coal Association), the rapid depletion of gas storage fields during winter, *id.* at 188 (statement of William A. Dougherty, Attorney), and the industries that could not produce or purchase necessary materials, including a pipeline company that could not expand its capacity because it had reduced its gas deliveries to the company that manufactured the needed pipe. *Id.* at 183–84 (statement of John Siggins, Jr., Chairman, Pennsylvania Public Utility Commission).

342. CASTANEDA, *supra* note 272, at 139.

343. *See* Natural Gas Act, H.R. 2956, 80th Cong. § 7(h) (1st Sess. 1947).

344. *See, e.g.*, *Amendments to the Natural Gas Act Hearings*, *supra* note 341, at 93 (statement of Ernest O. Thompson, Chairman, Railroad Commission of Texas) (reporting that Texas had decreased the proportion of casinghead gas—gas produced in association with oil—it vented from 55% in 1939 to 43% in 1946, meaning that about 1.2 billion cubic feet of gas was still flared or vented that year); *id.* at 622 (statement of Rep. Carson, Ohio) ("I am concerned about the conservation of this natural resource, the gas. It has been flared, as you know, in the South. Billions of cubic feet a day. And we in the North are not getting it. There is something that could be done not only to conserve it but to get it in those territories where it is needed."); *id.* at 107 (statement of John H. Murrell, General Partner and General Manager, DeGolyer & MacNaughton) ("[I]t is my opinion that the greatest conservation action that could be taken today would be . . . the building of a considerable number of new transmission lines so that the large quantities of gas now available could be utilized.").

provision.[345] Natural gas pipelines provided evidence of problems they faced in constructing interstate pipelines, including recalcitrant railroads and stubborn landowners in states where interstate natural gas pipelines did not enjoy eminent domain.[346]

The Senate Committee on Interstate and Foreign Commerce Report noted that the federal eminent domain amendment put interstate natural gas pipelines on the same footing as other power industries regulated by the FPC that have eminent domain, such as dams.[347] The report underscored the importance of enabling pipelines to cross states in which they do not offer any service, based on the pipelines' need to carry gas from fields in one region to distant markets across intervening state territories.[348] The committee found it untenable that states were able to essentially nullify FPC orders (and by association, federal legislative will) by refusing to allow an interstate pipeline with a federal certificate of public convenience and necessity the ability to cross the state.[349] Ultimately the eminent domain bill passed in both chambers with no substantive objection and became law in 1947.[350]

In 1948, Philadelphia became the first major eastern city to commence conversion from manufactured to natural gas and receive gas via long-distance pipelines from the southwest.[351] Between 1950 and 1956, the industry built five pipelines, each over 1000 miles, from the Gulf Coast to northern and eastern markets.[352] As the Panhandle and Hugoton fields of the Mid-Continent continued producing, pipeline companies looped their lines to add capacity and then did so again three or four times by the 1980s.[353] The building boom that commenced after World War II continued for roughly two decades.[354] By the early and mid-1960s, the boom in long-distance

345. *Id.* at 611 (statement of John M. Crimmins, Law Department, Koppers Co., Inc.).

346. *See id.* at 549–52 (statement of David T. Searls, Attorney, Texas Eastern Transmission Corp.).

347. *See* S. REP. NO. 80-429, at 2 (1947) (discussing cases in which the state used its eminent domain power to condemn land for dams).

348. *Id.* at 3.

349. *Id.* at 4.

350. Natural Gas Act Amendment of 1947, Pub. L. No. 80-245, 61 Stat. 459. "Congress chose not to make natural gas pipelines . . . common carriers" at the time. Mogel & Gregg, *supra* note 323, at 41. However, natural gas pipelines seeking a right-of-way across federal lands had to agree to act as common carriers and common purchasers of natural gas. *Id.* The carrier obligation was based on Section 28 of the 1920 Mineral Leasing Act, and the purchaser obligation was based on provisions added to the Act in 1935. *Id.* In 1953 Congress exempted natural gas pipelines from Section 28 of the Mineral Leasing Act, releasing them from the obligation to act as common carriers. *Id.* at 42.

351. CASTANEDA, *supra* note 272, at 139–40. By the late 1950s Philadelphia utilities entirely ceased using manufactured gas. *Id.*

352. TUSSING & BARLOW, *supra* note 275, at 46.

353. *See id.*; *see also supra* note 44 (describing the process of "looping" pipelines).

354. TUSSING & BARLOW, *supra* note 275, at 45–46. In 1930 there were about 250,000 miles of natural gas pipelines, and nearly 2 trillion cubic feet of marketed production. ALFRED M. LEESTON ET AL., THE DYNAMIC NATURAL GAS INDUSTRY 60 (1963). By 1948, there were 346,000

pipeline construction tapered off and "less dramatic projects" dominated.[355] By 1966, natural gas was available in each of the 48 contiguous states.[356] There were not as many clear opportunities to build major pipelines in the 1970s as there were in the post-war boom period. At the same time, gas supplies were also faltering, creating less demand for new pipeline projects in which pipelines could invest to raise their rate bases.[357]

In 1978, Congress passed the Natural Gas Policy Act.[358] The Act provided for deregulation of a portion of U.S. gas producers in stages over an eight-year period.[359] Currently, FERC regulates the transportation and sale of gas intended for resale in interstate commerce; it does not regulate gas producers or marketers, and state utility commissions oversee local distribution companies.[360] The Commission determines whether an interstate gas pipeline may enter or exit the market by building or abandoning pipelines and whether it may expand its existing facilities.[361] FERC also reviews the siting and construction of onshore LNG facilities.[362]

B. MODERN NATURAL GAS DEVELOPMENT AND INFRASTRUCTURE NEEDS

Given the enormous growth in U.S. natural gas production and the accompanying need to connect producing gas wells with markets, attention has recently turned to natural gas transportation infrastructure. As with oil, natural gas has seen a huge surge in production since the late 2000s due to technological changes enabling extraction of hydrocarbons locked in shale formations.[363] Horizontal drilling and hydraulic fracturing have made it

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miles of gas pipelines and fields produced more than 5 trillion cubic feet of marketed natural gas. *Id.* In 1960 natural gas pipelines in the U.S. totaled about 500,000 miles and marketed production reached almost 13 trillion cubic feet. *Id.* "Marketed production" refers to "[g]ross withdrawals less gas used for repressuring, quantities vented and flared, and nonhydrocarbon gases removed in treating or processing operations" and "[i]ncludes all quantities of gas used in field and processing plant operations." *Natural Gas: Definitions, Sources and Explanatory Notes*, U.S. ENERGY INFO. ADMIN., http://www.eia.gov/dnav/ng/TblDefs/ng_prod_whv_tbldef2.asp (last visited Jan. 20, 2015).

355. TUSSING & BARLOW, *supra* note 275, at 55.

356. *Id.*

357. *Id.* at 55–56.

358. Natural Gas Policy Act of 1978, Pub. L. No. 95-621, 92 Stat. 3351 (codified as amended at 15 U.S.C. §§ 3301–3432).

359. Pierce, *supra* note 281, at 67.

360. Natural Gas Act of 1938 § 1, Pub. L. No. 75-688, 52 Stat. 821 (codified as amended at 15 U.S.C. § 717 (2012)); *see also* Pierce, *supra* note 281, at 62.

361. 15 U.S.C. § 717f; *see also* Pierce, *supra* note 281, at 62.

362. 15 U.S.C. § 717b.

363. *See* ROBERT PIROG & MICHAEL RATNER, CONG. RESEARCH SERV., R42814, NATURAL GAS IN THE U.S. ECONOMY: OPPORTUNITIES FOR GROWTH 5 (2012) (noting the rapid increase in U.S. natural gas resources over the period between about 2008 and 2012, due particularly to the growth of shale gas: "[S]hale gas production began coming to the market in 2007 and has been increasing ever since").

economical to tap previously inaccessible oil and gas deposits.[364] Unlike oil, however, transportation options for natural gas are few,[365] and investment in gas infrastructure is lagging in comparison to the levels of capital dedicated to oil and NGL transportation.[366] This Subpart considers the recent growth of natural gas production in the United States due to hydraulic fracturing and the prospects for continued production. It discusses proposals for new transportation infrastructure, the federal pipeline application review process, and the problems associated with gas flaring where existing infrastructure is insufficient to carry gas to end users.

The EIA projected in 2013 that when measured in total Btus produced, "the United States will be the world's top producer of petroleum and natural gas hydrocarbons in 2013, surpassing Russia and Saudi Arabia."[367] U.S. natural gas production is projected to rise by 44% between 2011 and 2040 as a result of shale gas, tight gas, and coalbed methane development,[368] and the EIA expects the United States to "become[] a net exporter of natural gas

364. *Id.* at 9. For a discussion of hydraulic fracturing and horizontal drilling in the oil context, *see supra* Part II.B.1.

365. Natural gas can only be transported by pipeline whereas tankers, trucks, railcars, pipelines, or in the past, horse and wagon teams, can transport oil and its associated products. *See supra* Part II.A. In shale formations that produce "wet gas"—gas that is mixed with natural gas liquids—the gas must be processed before it can move via pipeline. "Wet" natural gas liquids such as propane and butane are removed and shipped separately via pipeline, rail, or truck, and the remaining methane ("dry" gas) must travel via pipeline. Phil Davies, *Dealing with Gas*, FEDGAZETTE, Apr. 2013, at 9, 10, *available at* http://www.minneapolisfed.org/publications/fedgazette/dealing-with-gas; *see also supra* notes 122–24 and accompanying text (regarding NGL production, uses, and transportation). The only existing alternative for natural gas transportation is to ship it as liquefied natural gas (LNG) via tanker and via truck or pipeline over shorter distances. Natural gas is supercooled to a liquid (-260°F or -162.2°C), reducing its volume more than 600 times. FED. ENERGY REGULATORY COMM'N, A GUIDE TO LNG: WHAT ALL CITIZENS SHOULD KNOW 2, *available at* http://www.cheniere.com/resources/citz-guide-lng.pdf (last visited Jan. 20, 2015). The LNG supply chain involves liquefaction of natural gas to convert it to LNG for transport, specialized shipping, and regasification (i.e., warming the LNG to return it a gaseous state) once it has reached its destination. DIV. OF ENERGY MKT. OVERSIGHT, FED. ENERGY REGULATORY COMM'N, ENERGY PRIMER: A HANDBOOK OF ENERGY MARKET BASICS 19 (2012), *available at* http://www.ferc.gov/market-oversight/guide/energy-primer.pdf. The most expensive portions of the process are the liquefaction and shipping stages. Though costs vary widely based on factors like location and shipping distance, the entire LNG process averages $2 to $4 per million Btu. *Id.* On the other hand, if new technologies being developed to cheaply convert natural gas to gasoline, diesel, and jet fuel at the wellhead achieve large-scale production, it could drastically expand the transportation options for natural gas. *See* David R. Baker, *Siluria Turns Natural Gas into Gasoline for $1 Per Gallon*, SFGATE (Aug. 21, 2014, 8:55 AM), http://www.sfgate.com/business/article/Natural-gas-to-1-gasoline-5701521.php.

366. *See, e.g.*, Davies, *supra* note 365 (discussing the differences in levels of investment in transportation infrastructure in North Dakota's Bakken).

367. *U.S. Expected to Be Largest Producer of Petroleum and Natural Gas Hydrocarbons in 2013*, U.S. ENERGY INFO. ADMIN. (Oct. 4. 2013), http://www.eia.gov/todayinenergy/detail.cfm?id=13251 ("Natural gas production has increased by 3 quadrillion Btu [since 2008], with much of this growth coming from the eastern United States.").

368. ANNUAL ENERGY OUTLOOK 2013, *supra* note 105, at 79.

before 2020."[369] In 2011 natural gas surpassed coal as the most-produced fuel in the United States,[370] a change driven largely by growth in shale gas production.[371] Production of shale gas alone is expected to rise from 7.8 Tcf in 2011 to 16.7 Tcf in 2040, representing a 113% increase.[372] Demand for this natural gas has not come from growth of direct residential, commercial, or industrial consumption but instead resulted from a shift to using natural gas in electric power generation.[373] EIA projects that increasing shale gas production will contribute to relatively low natural gas prices, encouraging industrial and power-generating users to increase their natural gas use over the next decade, while residential and commercial use remains constant.[374] If lawmakers and federal regulators decide to allow expanded liquefied natural gas ("LNG") exports, it would likely cause natural gas prices to rise, spurring additional domestic production to meet the demands of an expanded global market.[375] Responding to producer requests to create such an expanded market, the U.S. Department of Energy approved six new LNG export terminals between the end of 2012 and early 2014.[376] Additionally, project sponsors have identified twelve potential export terminal sites in the Gulf of

369. ANNUAL ENERGY OUTLOOK 2014, *supra* note 108, at MT-22.

370. PIROG & RATNER, *supra* note 363, at 3. The EIA attributes natural gas's competitiveness with coal at least in part to the expansion of the pipeline network in recent years, which reduced uncertainty about the availability of gas for electric generation. ANNUAL ENERGY OUTLOOK 2013, *supra* note 105, at 39–40.

371. *See* MICHAEL RATNER & MARY TIEMANN, CONG. RESEARCH SERV., R43148, AN OVERVIEW OF UNCONVENTIONAL OIL AND NATURAL GAS: RESOURCES AND FEDERAL ACTIONS 3–4 (2014).

372. ANNUAL ENERGY OUTLOOK 2013, *supra* note 105, at 148 tbl.A14; *see also id.* at 79. The EIA estimates that shale gas production will constitute 50% of overall gas production in the U.S. in 2040, with growth in coalbed methane increasing after 2035, "when natural gas prices and demand levels are high enough to spur more drilling." *Id.* at 79; *see also* RATNER & TIEMANN, *supra* note 371, at 1 (reiterating that tight gas and coalbed methane have not contributed to the recent rise in U.S. natural gas production as dramatically as has shale gas).

373. INGAA FOUND., INC., *supra* note 115, at 1.

374. ANNUAL ENERGY OUTLOOK 2013, *supra* note 105, at 5. After 2025, the increased demand for natural gas will come mostly from the electric power sector. *Id.*

375. *See* MICHAEL RATNER ET AL., CONG. RESEARCH SERV., R42074, U.S. NATURAL GAS EXPORTS: NEW OPPORTUNITIES, UNCERTAIN OUTCOMES 25 (2013). If the 31 applications filed as of September 2013 for permits to export domestically produced LNG were approved and operational, it would make the United States first in LNG export capacity. *Id.* at 7; *see also* Jenny Mandel, *On Capitol Hill, Parade of U.S. Allies Appeals for Exports*, E&E ENERGYWIRE (Oct. 11, 2013), http://www.eenews.net/energywire/2013/10/11/stories/1059988700 (describing lobbying by Asian, European, and Caribbean diplomats to encourage U.S. lawmakers to expand LNG exports).

376. *Energy Department Conditionally Authorizes Cameron LNG to Export Liquefied Natural Gas*, U.S. DEP'T OF ENERGY (Feb. 11, 2014, 11:15 AM), http://energy.gov/articles/energy-department-conditionally-authorizes-cameron-lng-export-liquefied-natural-gas; *see also* Claudia Assis, *And Cove Point Makes Three . . . LNG Export Terminal Approved*, MARKETWATCH (Sept. 11, 2013, 4:35 PM), http://blogs.marketwatch.com/energy-ticker/2013/09/11/and-cove-point-makes-three-lng-export-terminal-approved (reporting on recent LNG export terminal approvals); Edward Felker, *As LNG Export Approvals Climb, Is a Pause Ahead?*, ENERGY GUARDIAN (Sept. 13, 2013), http://energyguardian.net/lng-export-approvals-climb-pause-ahead (discussing the competing interests of oil and gas producers, the domestic manufacturing sector, and residential consumers in natural gas markets).

Mexico region and fifteen more on the west and east coasts of Canada.[377] Numerous other factors may further influence natural gas markets and production levels, including the development of natural gas passenger vehicles and trucks, new hydraulic fracturing regulations that limit or restrict use of the drilling technique,[378] and potential regulation of hydraulic fracturing at the federal level,[379] among other uncertainties.

EIA statistics show the striking growth of total proved reserves and reserves in individual gas-producing states. In 2013, total natural gas reserves rose 10%, to a domestic record-setting 354 Tcf, while Pennsylvania, West Virginia, and Texas reported the largest net increases.[380] As of 2013, natural gas in shale formations accounted for 45% of total U.S. proved reserves, up from just over 10% in 2008.[381] Natural gas prices are an especially important factor in estimating proved reserves, as higher market prices encourage development in gas fields that would be uneconomical to exploit in less favorable market conditions.[382] Lower natural gas prices on the other hand, like those that dominated in 2012,[383] reduce development of gas reserves.[384] Natural gas prices also exert a strong influence on infrastructure development, with regional price differences influencing location and extent

377. FED. ENERGY REGULATORY COMM'N, DEP'T OF ENERGY, NORTH AMERICAN LNG EXPORT TERMINALS POTENTIAL (Jan. 6, 2015), *available at* http://www.ferc.gov/industries/gas/indus-act/lng/lng-export-potential.pdf.

378. INGAA FOUND., INC., *supra* note 115, at 9.

379. *See, e.g.*, Hydraulic Fracturing Chemicals and Mixtures, 79 Fed. Reg. 28,664, 28,664 (proposed May 19, 2014) (considering what "information . . . should be reported or disclosed for hydraulic fracturing chemical substances and mixtures and the mechanism for obtaining this information"); Pete Kasperowicz, *House Votes to Block Federal Fracking Rules*, HILL (Nov. 20, 2013, 5:41 PM), http://thehill.com/blogs/floor-action/votes/190977-house-votes-to-block-federal-fracking-rules (reporting on the passage of a bill preventing the Department of Interior from enforcing any federal regulation of hydraulic fracturing on federal lands or Indian lands in states that already have rules in place).

380. *U.S. Crude Oil and Natural Gas Proved Reserves*, U.S. ENERGY INFO. ADMIN. (Dec. 19. 2014), *available at* http://www.eia.gov/naturalgas/crudeoilreserves/. Pennsylvania accounted for 43% of the total increase in U.S. reserves, and West Virginia accounted for another 26.5% of total domestic reserves. *Id.*

381. *Id.* at fig.12.

382. *See* Joel Kirkland, *"Mushrooming" Natural Gas Demand to Drive Prices Up*, E&E ENERGYWIRE (Feb. 6, 2014), http://www.eenews.net/energywire/stories/1059994142 (reporting that projected increases in LNG export capacity will help lift U.S. gas prices and increase domestic investment in gas production and infrastructure).

383. PIROG & RATNER, *supra* note 363, at 4 ("A consequence of the rapid increase in natural gas supply is downward pressure on prices. U.S. spot natural gas prices . . . are relatively low compared with domestic prices over the last decade as well as international prices over the last few years."); *see also* Ian Urbina, *New Report by Agency Lowers Estimates of Natural Gas in U.S.*, N.Y. TIMES (Jan. 28, 2012), http://www.nytimes.com/2012/01/29/us/new-data-not-so-sunny-on-us-natural-gas-supply.html (noting "the rock-bottom levels where [the price of natural gas] has lingered since late 2008").

384. *Cf. U.S. Crude Oil and Natural Gas Proved Reserves*, *supra* note 380 (noting the relationship between increasing gas prices and increasing reserves).

of development.[385] Production and consumption of natural gas often occurs in different places, necessitating transportation between gas fields and consumers.[386] Low natural gas prices, however, can discourage transportation investment, leading in some cases to producers wasting accessible gas due to lack of gathering lines[387] and, as noted above, requesting FERC to approve more processing and export facilities for LNG.[388]

There are currently about 2.6 million miles of interstate and intrastate natural gas pipelines in the United States.[389] The Pipeline and Hazardous Materials Safety Administration ("PHMSA") estimates there are almost 200,000 miles of gathering pipelines in the country; these lines collect gas from production areas and transport it to processing facilities where it is then sent to transmission pipelines after the refining process.[390] The most extensive gathering line networks exist in states with a long history of gas production like Oklahoma, Texas, and Louisiana.[391] There are over 400,000 miles of transmission pipelines transporting gas over longer distances to communities and direct users such as factories.[392] Compressor stations are located every 40 to 100 miles on these pipelines to maintain proper pressure, allowing the gas to flow to its destination,[393] which is most often a market in the Midwest or

385. *See* ICF INT'L, NATURAL GAS PIPELINE AND STORAGE INFRASTRUCTURE PROJECTIONS THROUGH 2030, at 8 (2009), *available at* http://www.ingaa.org/File.aspx?id=10509; *see also* Richard Nemec, *Shale-Related Midstream Infrastructure: Where the Action Is!*, PIPELINE & GAS J. (May 2012), http://www.pipelineandgasjournal.com/shale-related-midstream-infrastructure-where-action (reporting that a Houston-based midstream infrastructure company's new project in the Marcellus Shale was "slowed by ever-lower natural gas prices").

386. *See* ICF INT'L, *supra* note 385, at 8.

387. *See, e.g.*, Davies, *supra* note 365, at 11 (noting North Dakota's "'severe shortage' of gathering lines to transport gas to processing plants," and reporting that "[l]ow natural gas prices have discouraged massive investment in dry gas transmission" that would otherwise carry methane—the byproduct of the NGL fractionation process—to end users).

388. *See generally* U.S. DEP'T OF ENERGY, APPLICATIONS RECEIVED BY DOE/FE TO EXPORT DOMESTICALLY PRODUCED LNG FROM THE LOWER-48 STATES (2013), *available at* http://energy.gov/sites/prod/files/2013/08/f2/Summary_of_Export_Applications.pdf (showing 19 projects for exporting LNG to non-free trade agreement countries are currently under review by the Department of Energy); *see also* Charles R. Morris, *The Case Against Natural Gas Exports*, REUTERS (Aug. 19, 2013), http://blogs.reuters.com/great-debate/2013/08/18/the-case-against-natural-gas-exports/ (discussing the competing views on natural gas exports).

389. U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-13-221, PIPELINE PERMITTING: INTERSTATE AND INTRASTATE NATURAL GAS PERMITTING PROCESSES INCLUDE MULTIPLE STEPS, AND TIME FRAMES VARY 4 (2013).

390. *Id.*

391. CTR. FOR CLIMATE & ENERGY SOLUTIONS, LEVERAGING NATURAL GAS TO REDUCE GREENHOUSE GAS EMISSION 78–79 (2013), *available at* http://www.c2es.org/docUploads/leveraging-natural-gas-reduce-ghg-emissions.pdf; *see also U.S. Natural Gas Pipeline Network, 2009*, U.S. ENERGY INFO. ADMIN., http://www.eia.gov/pub/oil_gas/natural_gas/analysis_publications/ngpipeline/ngpipelines_map.html (last visited Jan. 20, 2015) (mapping interstate and intrastate pipelines).

392. U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 389, at 4.

393. *Id.* at 4 n.5.

Northeast.[394] About two million miles of distribution pipelines carry gas from transmission pipelines to end users such as individual households and businesses.[395] Whereas FERC has authority over interstate pipelines, distribution pipelines are outside FERC's jurisdiction since they are usually located entirely within a single state.[396] Gathering lines also fall outside FERC's jurisdiction, not because they are necessarily intrastate infrastructure, but in part as a result of past deregulation of natural gas gathering and production facilities.[397] Regarding siting authority for LNG facilities, Congress preempted state and local authority when it granted FERC authority to site LNG terminals in the Energy Policy Act of 2005 ("EPAct 2005"), although states may exert rights under other applicable statutes such as the Coastal Zone Management Act, the Clean Air Act, and the like.[398]

Though "[t]he United States has the world's most extensive infrastructure for transporting natural gas,"[399] a number of government and industry analyses urge that future infrastructure expansion is necessary. A report prepared for a pipeline trade association estimated "the U.S. and Canada will need 28,900 to 61,900 miles of additional natural gas pipeline by 2030," which "will require an investment of $108 to $163 billion in pipeline assets" and will include new pipeline and compression stations.[400] Increases in shale gas production—and expectations that such production will continue to grow—are driving transportation infrastructure expansion.[401]

394. CTR. FOR CLIMATE & ENERGY SOLUTIONS, *supra* note 391, at 79; *see also* Rusty Braziel, *Upside-Down: Natural Gas Pipeline Backhauls, Reversals and Null Points*, RBN ENERGY LLC (Oct. 7, 2013), http://www.rbnenergy.com/upside-down-natural-gas-pipeline-backhauls-reversal-and-null-points (discussing the high demand for natural gas in the Northeast).

395. CTR. FOR CLIMATE & ENERGY SOLUTIONS, *supra* note 391, at 78.

396. *Id.*; U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 389, at 4–5.

397. 15 U.S.C. § 717b(b) (2012); DIV. OF ENERGY MKT. OVERSIGHT, *supra* note 365, at 18 ("[T]he Wellhead Decontrol Act of 1989, Pub. L. No. 101-60 (1989); 15 U.S.C. § 3431(b)(1)(A), completely removed federal controls on new natural gas, except sales for resale of domestic gas by interstate pipelines, [local distribution companies,] or their affiliates."). *See generally The History of Regulation*, *supra* note 302 (providing a helpful overview of deregulation that occurred in the 1970s and 1980s).

398. Alexandra B. Klass & Elizabeth J. Wilson, *Interstate Transmission Challenges for Renewable Energy: A Federalism Mismatch*, 65 VAND. L. REV. 1801, 1860–61 & n.334 (2012).

399. CTR. FOR CLIMATE & ENERGY SOLUTIONS, *supra* note 391, at 77.

400. ICF INT'L, *supra* note 385, at 3 & n.3. Even in its most conservative growth projection, the ICF report still expected "a significant need for additional pipeline capacity" by 2030 due to potential shifts in the location of natural gas supply and demand. *Id.* at 3.

401. PAUL W. PARFOMAK, CONG. RESEARCH SERV., R43138, INTERSTATE NATURAL GAS PIPELINES: PROCESS AND TIMING OF FERC PERMIT APPLICATION REVIEW 1 (2013) ("The growth in U.S. shale gas production requires the expansion of natural gas pipeline infrastructure at the local level (to extract and gather the gas) and at the national level to transport natural gas from producing regions to consuming markets, typically in other states.").

The location of new unconventional gas sources relative to markets is also driving infrastructure change.[402] Shale gas is being produced outside of areas that already have well-developed transportation networks,[403] in places like West Virginia, Ohio, and Pennsylvania, which were previously natural gas importers, not producers.[404] In some places production is constrained by a lack of transportation infrastructure. In the dry gas region of northeast Pennsylvania,[405] hundreds of wells were drilled but left uncompleted because the area lacked sufficient pipeline capacity.[406] In the Utica/Marcellus region in Ohio, West Virginia, and southwest Pennsylvania, a shortage of natural gas pipelines, NGL processing facilities, and NGL pipelines hampered production of wet and dry gas.[407] Energy analysts predict the Southeast will acquire new importance as an energy-consuming region, accounting for half of the total U.S. increase in demand over the next ten years, while the Northeast (including Pennsylvania) will become a net gas producer.[408] Southeastern states and the central U.S. (including North and South Dakota, Wyoming, Montana, and stretching as far east as Iowa and Missouri) are expected to require the most capital for transmission pipelines and compression facilities between 2011 and 2035.[409]

In addition to brand-new mainline infrastructure, shippers are using existing transmission pipelines by adding lateral pipelines to connect with new gas fields.[410] Pipeline companies are also accepting gas for shipment at new points on their pipelines and reversing existing pipelines in response to

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402. "The new production and consumption patterns will lead to 'substantial reconfiguration and repurposing of the U.S. natural gas pipeline grid.'" Nathanial Gronewold, *U.S. Supply and Demand Will Turn 'Upside Down' in a Decade—Researchers*, E&E ENERGYWIRE (Oct. 9, 2013), http://www.eenews.net/energywire/stories/1059988553.

403. *See* INGAA FOUND., INC., *supra* note 115, at 1–2.

404. CTR. FOR CLIMATE & ENERGY SOLUTIONS, *supra* note 391, at 79; *see also* Mark Clayton, *Natural Gas 'Fracking' Has Flipped US Energy Map, Study Says*, CHRISTIAN SCI. MONITOR (Oct. 9, 2013), http://www.csmonitor.com/Environment/2013/1009/Natural-gas-fracking-has-flipped-US-energy-map-study-says (reporting on the reversal of positions between traditional producers and consumers).

405. *See West Virginia, Southwest Pennsylvania Form an Integrated Natural Gas Production Region*, U.S. ENERGY INFO. ADMIN. (Aug. 23, 2013), http://www.eia.gov/todayinenergy/detail.cfm?id=12671.

406. Housley Carr, *Get Back to Where You Once Belonged—The REX Reversal: Part 2*, RBN ENERGY LLC (Sept. 17, 2013), http://www.rbnenergy.com/get-back-to-where-you-once-belonged-the-REX-reversal-part2.

407. *Id.*

408. Gronewold, *supra* note 402.

409. *See* INGAA FOUND., INC., *supra* note 115, at 8 (showing maps and charts depicting "Regional Gas Infrastructure Capital Requirements for 2011 to 2035").

410. *See, e.g.*, *Expansion Projects*, WILLIAMS, http://co.williams.com/expansionprojects (last visited Jan. 20, 2015) (describing major expansion projects on its existing Transco pipeline from South Texas to New York City). Such projects make it possible for Northeastern gas producers to use existing transmission pipelines like Transco, which previously brought gas to the Northeast from the Gulf region. *See generally* Carr, *supra* note 406.

geographic shifts in production. For instance, the owners of the Rockies Express Pipeline ("REX"), a 1698-mile gas pipeline stretching from Colorado to eastern Ohio that the company built to satisfy west-to-east shipping needs in 2009, reversed a portion of the pipeline to bring Utica and Marcellus gas to Midwest markets while continuing to carry gas from the Rockies eastward.[411]

C. NATURAL-GAS PIPELINE SITING, EMINENT DOMAIN, AND CONSTRUCTION

The new natural gas pipelines described in the prior section are subject to significant federal regulation. Unlike interstate oil pipelines, which are subject only to state siting and eminent domain law, interstate natural gas pipelines (other than gathering lines) require federal approval. Every new or modified pipeline requires a certificate of public convenience and necessity from FERC.[412] Moreover, rapidly growing shale gas production and demand for pipelines to carry it "has increased congressional interest in the role of the federal government in the certification (permitting) of interstate natural gas pipelines."[413]

As of 2007, interstate pipelines carried 81% of the natural gas in the United States to its final destination.[414] A majority of the country's gas thus flows in pipelines subject to FERC's regulation regarding construction, rates, and terms of service. The Government Accountability Office identified three distinct stages in the interstate natural gas pipeline permitting process—pre-filing, application, and post-authorization.[415] In 2002, FERC created a voluntary pre-filing phase in its permitting process "to facilitate and expedite the review of natural gas pipeline projects through early coordination with FERC and cooperating agencies."[416] The concept behind pre-filing is that it

411. *See* Braziel, *supra* note 394; *Rockies Express Pipeline (REX)*, TALLGRASS ENERGY, http://www.tallgrassenergylp.com/pipelines/REX/ (last visited Jan. 20, 2015) (describing its plan to provide shipping services to western and eastern gas production areas as its "Shale to Shining Shale" concept); *see also Non-Binding Open Season "Clarington West Project" East-to-West Transport from Clarington to Points West*, TALLGRASS ENERGY, http://www.tallgrassenergylp.com/Pipelines/REX/E2W/ (last visited Jan. 20, 2015) (describing the company's "open season . . . to solicit interest in additional east-to-west capacity for Appalachian producers to move their gas out of the production basin and into the attractive Midwest markets and interconnects").

412. 15 U.S.C. § 717f(c)(1)(a) (2012) ("No natural-gas company . . . shall engage in the transportation or sale of natural gas, subject to the jurisdiction of the Commission, or undertake the construction or extension of any facilities therefor, or acquire or operate any such facilities or extensions thereof, unless there is in force with respect to such natural-gas company a certificate of public convenience and necessity issued by the Commission authorizing such acts or operations . . . ."); *see also* Minisink Residents for Envtl. Pres. & Safety v. F.E.R.C., 762 F.3d 97 (D.C. Cir. 2014) (explaining the FERC approval process for interstate natural gas pipelines under the Natural Gas Act).

413. PARFOMAK, *supra* note 401, at 1.

414. *See* CTR. FOR CLIMATE & ENERGY SOLUTIONS, *supra* note 391, at 78.

415. U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 389, at 12.

416. *Id.*; *see also* 18 C.F.R. § 157.21 (2014) (describing the pre-filing procedures).

allows stakeholders—whether they are other federal agencies, state and local government, citizens, or interest groups—to get involved earlier, and information is collected earlier so there is more coordination and a shorter overall timeline.[417] Pipeline companies that wish to use the pre-filing process need to initiate it seven to eight months before filing a certificate application[418] and FERC must approve the company's request to pre-file.[419] The next stage involves submitting "an application for a certificate of public convenience and necessity to FERC."[420] In deciding whether to grant or deny an application, "FERC accounts for several factors, including a project's potential impact on pipeline competition, the possibility of overbuilding, subsidization by existing customers, potential environmental impacts, avoiding the unnecessary use of eminent domain, and other considerations."[421]

Section 7 of the NGA gives a pipeline company with a certificate of public convenience and necessity the right to use eminent domain along the entire length of the interstate pipeline, although the Congressional Research Service ("CRS") notes that "eminent domain authority is considered a last resort and is seldom used by developers."[422] If FERC issues a certificate of public convenience and necessity, the pipeline must file an implementation plan with the agency detailing how it will carry out any required environmental mitigation, how many environmental inspectors the company will assign to the project, and what it plans to do if it is not in compliance with mitigation requirements.[423] The pipeline company also needs FERC's written authorization before beginning construction, and the company must file weekly reports to document inspections and compliance until construction is complete.[424]

Between 2000 and 2011, pipeline companies applied for and received FERC approval for more than 16,000 miles of interstate gas pipelines, 14,600 miles of which had been constructed and put in service by 2011.[425] As described above, FERC instituted pre-filing and EPAct 2005 made FERC the lead agency responsible for coordinating federal agency authorizations and compliance with National Environmental Policy Act ("NEPA") during

417. U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 389, at 12.

418. PARFOMAK, *supra* note 401, at 2.

419. U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 389, at 12.

420. *Id.* at 14.

421. PARFOMAK, *supra* note 401, at 3.

422. *Id.* at 6.

423. U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 389, at 22. If FERC denies an application, the applicant or other party to the proceeding may request a rehearing by FERC or file a complaint against the agency. *Id.*

424. *Id.* FERC is also directed to inspect the project on regular basis during construction. *Id.*

425. INGAA FOUND., INC., *supra* note 115, at 8.

pipeline certificate application reviews.[426] In 2012, 67% of applicants with major interstate proposals opted to use pre-filing, and inquiries found that the permitting process is at least consistent—if not speedy—due to FERC's role as lead agency since EPAct 2005.[427] Under EPAct 2005, FERC promulgated regulations requiring all federal agencies involved in an application process to make final certificate-related decisions "no later than 90 days after the commission issues its final environmental document, unless [otherwise] established by federal law."[428] Congress included this authority due to concerns that the lack of coordination—or otherwise inadequate agency action—was delaying energy infrastructure development.[429] A 2012 Executive Order sought "to institutionalize best practices and reduce the amount of time required to make permitting and review decisions for infrastructure projects, including pipelines."[430] Among other aims, the order identifies ways of creating better coordination among federal agencies.[431] A CRS report noted that federal and state agencies have attempted to be responsive to the shale boom, and that over twice as much transmission capacity was added to the U.S. pipeline network in 2008 as in 2007.[432]

While efforts continue to expedite the process for review and approval of interstate gas pipelines in areas of major new gas production, a unique problem arises in areas where the primary resource being developed is oil and natural gas is merely a low-cost byproduct of that production. In such areas that are not well-served by existing gas pipeline infrastructure, particularly in North Dakota, there are insufficient market or regulatory incentives to

426. *See* Energy Policy Act of 2005 § 313(a)–(b), 15 U.S.C. § 717n (2012); PARFOMAK, *supra* note 401, at 3. Environmental laws that may be implicated in the pipeline permitting process include NEPA, the Clean Water Act, the Endangered Species Act, and the National Historic Preservation Act. U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 389, at 5–8. FERC determines the need for an environment assessment or an environmental impact statement under NEPA, or whether an interstate pipeline project can qualify as a categorical exclusion. *Id.* at 5–6. FERC decides whether to approve a proposed interstate pipeline and is then the lead agency on NEPA environmental reviews the plan. *See* 40 C.F.R. § 1501.5(a)–(c) (2014).

427. *See* U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 389, at 12–13.

428. PARFOMAK, *supra* note 401, at 6.

429. *Id.* Congress has again taken up the issue of allegedly inadequate agency action, with the House passing H.R. 1900, the Natural Gas Pipeline Permitting Reform Act, in November 2013. *H.R. 1900—Natural Gas Pipeline Permitting Reform Act*, CONGRESS.GOV, https://www.congress.gov/bill/113th-congress/house-bill/1900 (last visited Jan. 20, 2015). The Act would require FERC to approve or deny a complete application for a pre-filed project within 12 months, and any other agency involved in approving or denying the project would have to do so within 90 days of issuance of the final environmental document, or the project application could automatically go forward. *See* Natural Gas Pipeline Permitting Reform Act, H.R. 1900, 113th Cong. § 2 (2013).

430. U.S. GOV'T ACCOUNTABILITY OFFICE, *supra* note 389, at 30 (citing Exec. Order No. 13,604, 77 Fed. Reg. 18,887 (Mar. 28, 2012)).

431. *Id.* at 30–31.

432. PARFOMAK, *supra* note 401, at 8 & fig.2.

construct the pipelines necessary to capture the massive amounts of gas being produced with high-value oil. The next Subpart discusses this problem.

D. GAS FLARING IN NORTH DAKOTA

With all the economic benefits associated with increased oil production in North Dakota come problems, one of which is the high rate of natural gas flaring from oil wells in the state. Gas makes up 25% of the energy output of any given well in the Bakken, but it comprises only 13% of the total profit from that well.[433] As a percent of total value, crude oil accounted for 87.3% of the value of a barrel of Bakken oil in late 2012, while NGLs made up 8.9% and dry gas (methane) accounted for just 3.7%.[434] In formations rich with oil and wet gas, infrastructure to move oil and NGLs takes precedence.[435] After processing wet gas to remove valuable NGLs, producers are left with methane and little or no means to send it to markets, so they release it into the atmosphere as methane or burn it at the production site (a process referred to as flaring).[436] Dry gas produced in association with oil is likewise flared at the wellhead when transportation infrastructure is unavailable, converting most or all of the methane into CO_2.[437] Like CO_2, methane is a greenhouse

433. Davies, *supra* note 365, at 9.

434. *Id.* at 10. These percentages would change if more gathering lines were available to transport natural gas from well sites, allowing the dry gas to theoretically make up a larger percentage of the total profit from the well. Sufficient gathering line capacity would mean that much more gas is available to the market, potentially driving prices lower and thus maintaining gas's small share of the value of a barrel of Bakken oil.

435. *Id.* at 11; *see supra* note 365 and accompanying text (describing wet versus dry gas).

436. Davies, *supra* note 365, at 10. Flaring is preferable to venting because unburned methane is 20 times as destructive to atmospheric ozone. *Over One-Third of Natural Gas Produced in North Dakota Is Flared or Otherwise Not Marketed*, U.S. ENERGY INFO. ADMIN. (Nov. 23, 2011), http://www.eia.gov/todayinenergy/detail.cfm?id=4030; *see also* Sandy Fielden, *Why Will Bakken Flaring Not Fade Away?*, OIL & GAS FIN. J. (Sept. 10, 2012), http://www.ogfj.com/articles/2012/09/why-will-bakken-flaring-not-fade-away.html.

437. Fielden, *supra* note 436. There is evidence that in some instances the methane is simply vented rather than flared, resulting in the release of pure methane, a much more potent greenhouse gas than CO_2. *See* Jeff Tollefson, *Oil Boom Raises Burning Issues*, NATURE, Mar. 2013, at 290, 290, *available at* http://www.nature.com/polopoly_fs/1.12632!/menu/main/topColumns/topLeftColumn/pdf/495290a.pdf. More information is becoming available regarding methane emissions and oil and natural gas production, though disagreement exists regarding the volume of methane emissions attributable to various stages of the production process. *Compare* Scot M. Miller et al., *Anthropogenic Emissions of Methane in the United States*, 110 PROC. NAT'L ACAD. SCI. 20,018, 20,020 (2013) (finding that GHG emissions associated with oil and gas extraction and processing are higher than estimates in previous studies, including studies from the EPA), *with* Richard A. Lovett, *Study Revises Estimate of Methane Leaks from US Gas Fields*, NATURE (Sept. 16, 2013), http://www.nature.com/news/study-revises-estimate-of-methane-leaks-from-us-gas-fields-1.13748 (discussing an earlier study which found that total methane emissions associated with the whole production process are 10% lower than EPA estimates, but substantially higher than EPA had estimated at the stage where gas is captured and used to operate production equipment at the well site); *see also* A.R. Brandt et. al., *Methane Leaks from North American Natural*

gas, but it is far more potent, having 37 times the radiative force of CO_2.[438] In addition to its contribution to climate change, people express dismay at what they consider a major waste of natural gas, valued at approximately $1 billion per year as of 2012.[439] The North Dakota Pipeline Authority explains that numerous factors contribute to the state's high flaring rates: the size of the Bakken oil field dwarfs the state's existing natural gas gathering infrastructure; North Dakota itself is "rural and remote" with winter conditions that limit the construction season; and the industry does not construct gathering pipelines until after producers complete and test wells to determine how much oil and gas the well will produce.[440] Additionally, North Dakota has not granted the power of eminent domain to gathering lines, and a petroleum industry group reports that pipeline companies regularly face landowner resistance to such projects.[441]

The economics of oil versus natural gas provides a clear picture of why Bakken producers are less interested in building natural gas processing and transportation facilities than oil pipeline infrastructure—which in turn leads to flaring.[442] North Dakota operators flared about 28% of the gas produced

Gas Systems, 343 SCI. 733, 733 (2014) (analyzing the extent and impact of methane leakage in the natural gas industry).

438. *See* CTR. FOR CLIMATE & ENERGY SOLUTIONS, *supra* note 391, at 19; *FAQs to PNAS Paper on Natural Gas*, ENVTL. DEF. FUND, www.edf.org/energy/faqs-pnas-paper-natural-gas (last visited Jan. 20, 2015). "Radiative forcing" refers to the net change in the amount of solar radiation retained in the Earth's atmosphere instead of being reflected back into space. David L. Chandler, *Explained: Radiative Forcing*, MIT NEWS (Mar. 10, 2010), http://web.mit.edu/newsoffice/2010/explained-radforce-0309.html.

439. Mike Lee, *As Gas Continues to Go Up in the Air, N.D. Moves to Tighten Loose Flaring Rules*, E&E ENERGYWIRE (Sept. 10, 2013), http://www.eenews.net/energywire/stories/1059986931 (reporting that "North Dakota's producers burned $1 billion worth of natural gas in 2012, releasing the same amount of greenhouse gases as 1 million cars"); Ernest Scheyder, *Exclusive: Bakken Flaring Burns More than $100 Million a Month*, REUTERS (July 29, 2013, 1:34 AM), http://www.reuters.com/article/2013/07/29/us-bakken-flaring-idUSBRE96S05320130729.

440. *Natural Gas Facts*, N.D. PIPELINE AUTHORITY, http://northdakotapipelines.com/natgasfacts (last visited Jan. 20, 2015).

441. *See* Memorandum from the N.D. Legislative Council to the Energy Dev. & Transmission Comm. 2 (Nov. 2011), *available at* www.legis.nd.gov/files/resource/committee-memorandum.13/9190.01000.pdf; Press Release, N.D. Petroleum Council, Industry to Increase Natural Gas Capture to 85 Percent Within Two Years and 90 Percent in Six Years (Jan. 29, 2014), *available at* http://www.ndoil.org/latest-news/news-release-industry-to-increase-natural-gas-capture-to-85-percent-within-two-years-and-90-percent-in-six-years/; *see also* N.D. INDUS. COMM'N, NDPC FLARING TASK FORCE 14–15 (2014), *available at* http://www.ndoil.org/image/cache/NDPC_flaring_task_force_NDIC_1-29-14_fnlv1.pdf (presenting future gas capture goals).

442. The price of gas is not the only factor influencing the oil and gas industry's decision to build gathering pipelines facilities. For instance, flaring is not as common in neighboring Montana because new well development has been slower there, allowing more time for producers to connect to pipeline networks in the region. Mike Ellerd, *Montana Gas Flaring at 5 Percent*, PETROLEUM NEWS BAKKEN, http://www.petroleumnewsbakken.com/pntruncate/630459450.shtml (last visited Jan. 20, 2015).

in June 2013.[443] That represents a rate reduction from the high of 36% in September 2011, but the total volume of flaring actually increased from 5.7 billion to 8 billion cubic feet over the same time period due to increased production overall.[444] By comparison, Texas—the biggest oil producer in the U.S.—flared just 0.4% of gas produced in the state in 2012.[445] Pipelines are not the only missing piece of the infrastructure puzzle—as of August 2013 more than half the North Dakota gas being flared came from wells that were actually connected to pipelines but lacked compressor stations to force the gas into the lines.[446] Given the difficulty of getting valuable Bakken oil from well to market,[447] along with the low price of natural gas as compared to oil, the lack of investment in adequate natural gas transportation infrastructure is unsurprising.

Recent efforts to reduce flaring in North Dakota include technological developments and alternative uses for associated gas, new infrastructure proposals, lawsuits, proposed changes in tax incentives, and new regulations. Industry has developed technological fixes in response to criticism regarding flaring rates. The Norwegian oil company Statoil has partnered with General Electric in an effort to capture and use dry natural gas produced in the Bakken after the removal of valuable NGLs.[448] The companies estimate that their mobile gas storage units could supply natural gas to drilling rigs, trucks, and other equipment associated with fracking operations, thereby preventing about 20% of the flaring that is currently occurring.[449] BNSF Railway—the major shipper of Bakken crude—will test natural gas as an alternative to diesel to fuel its locomotives, and new fertilizer plants that would use gas as a feedstock are currently in the planning stage.[450]

Oil and gas companies also formed a task force, led by the North Dakota Petroleum Council, to "look for ways to better utilize gas at the wellhead and enhance existing infrastructure and pipelines to transport it for processing

443. *See* Lee, *supra* note 439. North Dakota was flaring gas at the same rate roughly a year later, in May 2014. Rachael Seeley, *North Dakota Flaring Reduction Policy May Impact January Production*, OIL & GAS J. (July 7, 2014), http://www.ogj.com/articles/2014/07/north-dakota-flaring-reduction-policy-may-impact-january-production.html.

444. Lee, *supra* note 439.

445. David Wogans, *North Dakota Flared Off $1 Billion Worth of Natural Gas Last Year*, SCI. AM. (Sept. 12, 2013), http://blogs.scientificamerican.com/plugged-in/2013/09/12/north-dakota-flared-off-1-billion-worth-of-natural-gas-last-year/.

446. Mike Lee, *Road Closures, Flaring Mar Bakken Shale Oil Growth*, E&E ENERGYWIRE (Oct. 16, 2013), http://www.eenews.net/energywire/2013/10/16/stories/1059988875.

447. *See supra* Part II.B.2.

448. Clifford Krauss, *Applying Creativity to a Byproduct of Oil Drilling*, N.Y. TIMES (Dec. 17, 2013), http://www.nytimes.com/2013/12/18/business/energy-environment/applying-creativity-to-a-byproduct-of-oil-drilling-in-north-dakota.html.

449. *Id.*

450. *Id.*

elsewhere."[451] Among other measures, the flaring task force's initial proposal "calls for new regulations on drilling, along with tax breaks and low-interest loans for pipeline construction and, possibly, the right to condemn private property for [gathering] pipelines,"[452] a right that pipelines do not currently enjoy unless they are common carriers operating in the state.[453] The proposal discusses "energy corridors" and pipeline easements that align with existing section boundaries as alternatives to expanding pipeline operators' eminent domain authority, which the task force recognized as a politically difficult option.[454] Critics of the proposal have argued that it relies too much on self-regulation and retains the problematic tax and royalty exemption for gas flared in the first year of well production.[455]

Various new infrastructure proposals coalesce around the need to reduce flaring and transport energy to markets. Two midstream companies announced an agreement to increase gathering capacity on Aux Sable Midstream's pipeline network in the Bakken by mid-2014.[456] A North Dakota company plans to begin construction on a 375-mile natural gas pipeline connecting northwestern North Dakota with upper Midwestern commercial and residential markets if it receives sufficient capacity commitments from shippers during an open season that commenced in early 2014.[457] And Allete

451. Phil Taylor, *N.D. Companies Form Task Force to Reduce Bakken Flaring*, E&E NEWS PM (Oct. 17, 2013), http://www.eenews.net/eenewspm/2013/10/17/stories/1059989014.

452. Mike Lee, *N.D. Oil Drillers Call for Regulation, More Pipes to Reduce Gas Flaring*, E&E ENERGYWIRE (Jan. 30, 2014), http://www.eenews.net/energywire/stories/1059993693. The proposal also recommends that oil drillers be required to submit a gas-capture plan before filing for a drilling permit and calls for North Dakota to incentivize more industrial uses of gas within the state and financially support the construction of pipeline and electric transmission infrastructure. Clifford Krauss, *Industry in North Dakota to Cut Flared Natural Gas*, N.Y. TIMES (Jan. 29, 2014), http://www.nytimes.com/2014/01/30/business/energy-environment/industry-in-north-dakota-promises-to-reduce-flared-natural-gas.html.

453. *See* N.D. CENT. CODE § 49-19-01 (1999); Eckre v. Pub. Serv. Comm'n, 247 N.W.2d 656, 663 (N.D. 1976) (considering the filing and compliance requirements of common carrier pipelines prior to their use of eminent domain).

454. Lee, *supra* note 452. In general, "an energy corridor is defined as a parcel of land (often linear in character) that has been identified through the land use planning process as being a preferred location for existing and future utility rights-of-way, and that is suitable to accommodate one or more rights-of-way which are similar, identical or compatible." *Energy Corridor Basics*, WEST-WIDE ENERGY CORRIDOR PROGRAMMATIC EIS INFO. CENTER, http://corridoreis.anl.gov/guide/basics/ (last visited Jan. 20, 2015). Such a corridor might include electric transmission lines; oil, gas, and other pipelines; pumping stations; compressors; and other facilities. *Id.*

455. *See* Lee, *supra* note 452.

456. *Canadian, U.S. Companies Team Up for Line That Could Reduce N.D. Flaring*, E&E ENERGYWIRE (Sept. 19, 2013), http://www.eenews.net/energywire/2013/09/19/stories/1059987464.

457. Mike Lee, *N.D. Pipeline Proposal Would Help with Gas Flaring*, E&E ENERGYWIRE (Feb. 4, 2014), http://www.eenews.net/energywire/2014/02/04/stories/1059993922 (explaining that the proposed pipeline would end in Minnesota and connect to other markets); *see also* Press Release, WBI Energy Transmission, WBI Energy's Dakota Pipeline Moves Forward (Jan. 30, 2014), *available at* http://www.wbienergy.com/wbienergy/news.

and EmPower North Dakota Commission—an energy policy commission created by the state legislature—announced plans to create an energy corridor along Allete's existing 465-mile electric transmission right-of-way, touting the corridor's future ability to carry oil, natural gas, and wind- and coal-generated electricity to regional and more distant consumers.[458] Governor Dalrymple noted that consolidating transmission in one corridor will "reduce the impacts on landowners."[459]

While the governor touts his state's intent to almost double its oil and gas pipeline capacity by 2016,[460] changes in flaring rates are not occurring quickly enough for some. In late 2013, North Dakota mineral rights holders filed suit against ten oil drillers, seeking damages for millions of dollars in gas royalties lost to flaring.[461] While commentators suggested the suits could incentivize the oil and gas industry to build natural gas transportation infrastructure quicker,[462] a federal district judge dismissed the suits, stating that the plaintiffs must take their grievances to the Industrial Commission, which has authority to hear petitions and resolve disputes regarding flaring and royalty payments.[463]

Until recently, oil drillers in the state could flare gas for 12 months without paying royalties or taxes on the gas, and they were able to seek a further exemption after the first year of production if they could show that "connection . . . to a natural gas gathering [pipeline] is 'economically infeasible.'"[464] Modeling indicated that flaring in the state "[would not] fall

458. *EmPower North Dakota*, N.D. ST. GOV'T, http://www.business.nd.gov/energy/EmPowerNorthDakota (last visited Jan. 20, 2015); *see also* Press Release, N.D. Office of the Governor, Dalrymple, Allete Detail Plans for Integrated Energy Corridor (Sept. 25. 2013), *available at* http://governor.nd.gov/media-center/news/dalrymple-allete-detail-plans-integrated-energy-corridor.

459. Press Release, *supra* note 458.

460. Ernest Scheyder, *North Dakota Aims to Double Pipeline Capacity; Enterprise Helps*, REUTERS (June 24, 2014, 8:59 PM), http://www.reuters.com/article/2014/06/25/us-north-dakota-pipeline-idUSKBNoEZ2VU20140625.

461. *N.D. Mineral Rights Holders Sue Over Flared Gas*, E&E ENERGYWIRE (Oct. 18, 2013), http://www.eenews.net/energywire/2013/10/18/stories/1059989029.

462. *See* Michael L. Krancer & Margaret Anne Hill, *Gas Flaring Suits Could Advance Infrastructure—Or Not*, BLANK ROME LLP (Nov. 14, 2013), http://www.blankrome.com/index.cfm?contentID=37&itemID=3205; Chris Tackett, *Greed Is Good? Lawsuits over Mineral Rights Royalties Could Help Minimize Natural Gas Flaring*, TREEHUGGER (Oct. 22, 2013), http://www.treehugger.com/fossil-fuels/landowners-sue-oil-companies-flaring-gas-not-because-it-hurts-environment-because-they-want-money.html.

463. Mike Lee, *Judge Tosses N.D. Flaring Suits, Says Owners Should Seek Help from State*, E&E ENERGYWIRE (May 19, 2014), http://www.eenews.net/energywire/2014/05/19/stories/1059999737.

464. N.D. ADMIN. CODE § 43-02-03-60.2 (2014); *see also* BRUCE E. HICKS, OIL AND GAS DIV., N.D. INDUS. COMM'N, FULL NOTICE OF INTENT TO ADOPT AND AMEND ADMINISTRATIVE RULES (Aug. 26, 2013), https://www.dmr.nd.gov/oilgas/RuleChanges2014_2013-08-26LCFullNotice.pdf. Flaring regulations vary from state to state. In Pennsylvania gas may be vented or flared as long as it does not jeopardize public health or safety. *See* 25 PA. CODE § 78.73–.74 (2011). Oklahoma does not require operators to obtain a permit to vent or flare gas unless the operator flares or vents 50 mcf

below 5[%] until after 2020," given the state of regulation and oil production.[465] North Dakota's Mineral Resources Director suggested that regulatory changes would be necessary to affect flaring rates in a timely fashion, saying, "[i]t doesn't look like the market gets us far enough, fast enough."[466] The North Dakota Industrial Commission adopted rules in June 2014 that require companies to submit "gas-capture plans [in order to receive] new drilling permits."[467] In their plans, producers "must identify gas-processing plants and proposed connection points for gas lines."[468] A month later the Commission adopted gas capture goals for new *and* existing wells with the intention of meeting the following reduction targets: by October 1, 2014, producers should capture 74% of the associated gas they produce; by January 1, 2015, they should capture 77% of the gas; by January 1, 2016, they should capture 85% of the gas; and by October 1, 2020, they should capture 90% of the gas, with potential for the ultimate capture of 95% of associated gas.[469]

While companies that exceed their specified gas-capture targets are subject to production curtailment, "specific wells, or even entire fields of wells, can exceed gas-flaring goals as long as the owner is compliant on a countywide or statewide basis."[470] The Industrial Commission characterized its order as the next step in "a six-step policy aimed at reducing flaring," as well as a measure that "provides regulatory teeth to the requirement to have a gas capture plan."[471] It remains to be seen if the regulation will reduce total levels of flaring and whether it affects oil production.

This Subpart's focus on North Dakota highlights the problems associated with the lack of sufficient federal or state regulation governing gas flaring, coupled with the lack of existing physical transportation infrastructure. While federal siting and eminent domain authority facilitates the construction of interstate natural gas pipelines when the economic demand is present, it does

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or more per day. *See id.* §165:10-3-15(b) (2011). If it is economically feasible to market the gas an operator must do so, no matter the volume of gas in question. *See* OKLA. ADMIN. CODE §165:10-3-15(b)(1) (2011). Texas allows operators to flare gas for ten days after a well is completed. *See* 16 TEX. ADMIN. CODE 3.32(f)(1)(A) (2014).

465. Mike Lee, *N.D. Leaders Look to Regulation as Flaring Ticks Up*, E&E ENERGYWIRE (Sept. 16, 2013), http://www.eenews.net/energywire/stories/1059987244.

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

467. Chester Dawson, *North Dakota's Latest Fracking Problem*, WALL ST. J. (June 30, 2014, 7:20 PM), http://online.wsj.com/articles/north-dakotas-latest-fracking-problem-1404170442.

468. *Id.*

469. Hearing on Amending the Current Pool Field Rules, Case No. 22058 (Indus. Comm'n of N.D. July 1, 2014) (order amending state's flared gas rules), *available at* https://www.dmr.nd.gov/oilgas/or24665.pdf.

470. Chester Dawson, *North Dakota Regulator Sets New Gas-Flaring Rules*, WALL ST. J. (July 1, 2014, 7:34 PM), http://online.wsj.com/articles/north-dakota-regulator-sets-tough-gas-flaring-rules-1404257684.

471. Press Release, Indus. Comm'n of N.D., NDIC Adopts an Additional Flaring Reduction Policy (July 1, 2014), *available at* http://www.nd.gov/ndic/ic-press/DMR-Flaring140701.pdf.

little to address the problem of insufficient interstate natural gas pipelines and intrastate gathering lines when economic demand is lacking due to low natural gas prices and high oil prices. It is this problem that remains to be addressed.

E. SUMMARY

This Part has illustrated how critical pipeline access is to the natural gas market. Unlike the oil industry, which can transport oil by pipeline, rail, and water, the natural gas industry is much more reliant on interstate pipelines. It was this reliance that led Congress to create nationwide siting and eminent domain authority for natural gas pipelines in the 1930s and 1940s, and to preempt state barriers that might stand in the way of this infrastructure. Today, federal siting authority has facilitated a significant build-out of new pipeline infrastructure to move new sources of shale gas on the East Coast and in Texas. However, low gas prices resulting from this overabundance have created their own infrastructure problems in places like North Dakota, where the primary resource is oil rather than gas, and the low price of gas works as a disincentive to build the infrastructure necessary to capture the gas and sell it. Because of this market failure, new regulations or financial penalties to limit gas flaring may be necessary to address the problem. But the fact remains that the lack of sufficient infrastructure does not appear to be a failure of the siting process in place for interstate natural gas pipelines, although eminent domain authority for gathering lines, which currently does not exist in North Dakota, may be helpful in some circumstances. Instead, it is a market problem coupled with insufficient environmental regulation at both the state and federal level.

IV. MOVING FORWARD: ADDRESSING CURRENT ENERGY TRANSPORTATION CHALLENGES FOR OIL AND NATURAL GAS

A. OIL AND GAS PIPELINE SITING AUTHORITY

Parts II and III explored the history of domestic oil and gas production as well as the development of transportation infrastructure and the regulation of that infrastructure to determine whether the siting regimes in place for oil and natural gas transportation are sufficient to site and construct new infrastructure in light of existing production demands. Perhaps surprisingly, we conclude that the regulatory siting regime for oil pipelines at the state level and gas pipelines at the federal level are both sufficient in their respective arenas to facilitate construction of new oil and gas pipelines when market forces allow. In other words, government siting requirements and eminent domain laws do not appear to act as major obstacles to infrastructure expansion at either the state level for interstate oil pipelines or at the federal level for interstate natural gas pipelines. This is in large part because oil has physical properties that allow producers to transport it by multiple means:

rail, pipeline, barge, and ship. Thus, even when states have put roadblocks in the way of certain interstate pipelines, the availability of alternative means of transport renders these roadblocks less of an impediment to transporting oil.

By contrast, because of its physical properties, natural gas is highly dependent on interstate pipelines for transportation to markets. Thus, in the 1930s and 1940s, Congress created federal siting and eminent domain procedures for interstate natural gas pipelines that preempt state law. This federal system is critical to transporting natural gas effectively even while the lack of such a system for transporting oil does not appear to present problems for pipeline companies. From this, we conclude that despite the significant recent increase in domestic oil and gas production, the regulatory regime in place for transporting both oil and natural gas provides an adequate framework for new pipelines and other infrastructure. But the fact that the regulatory regime is sufficient to allow infrastructure expansion does not necessarily mean that market actors will actually build the infrastructure necessary to address all the concerns associated with onshore transport of oil and gas. The next Subparts address these concerns.

B. GAS FLARING, PHYSICAL WASTE, AND CREATING INCENTIVES FOR NEW INFRASTRUCTURE

As detailed in Parts II and III, recently developed sources of oil and gas have transformed the U.S. energy economy. Many of these major new energy supplies, however, are in parts of the country that do not currently have sufficient energy transportation infrastructure to fully capture these resources and bring them to consumers. Based on the analysis in Part III, it appears that when it comes to natural gas transportation, federal siting and eminent domain authority are adequate to build the new, interstate pipelines necessary to transport natural gas to consumers domestically and abroad. FERC is processing many new requests for natural gas pipeline certificates, there do not seem to be significant delays in the processing, and there are not widespread calls to overhaul the process. Moreover, one-stop siting authority at the federal level and nationwide eminent domain authority makes it more difficult for states to slow down the process or otherwise block pipelines, as had been the case prior to enactment of the Natural Gas Act.

However, major infrastructure and regulatory gaps exist in the context of unconventional natural gas production in newly tapped shale plays that lack the gathering pipeline infrastructure of established production regions. The physical lack of infrastructure coupled with low natural gas prices and the fact that neither state nor federal law prohibits flaring of natural gas in the production of oil in North Dakota has caused producers to flare nearly 30% of gas produced in Bakken oil wells rather than capturing it and transporting it to market. This results in physical and economic waste as well as significant

releases of CO_2 and other harmful greenhouse gas ("GHG") emissions, such as methane.[472]

Thus, additional regulation or incentives to prohibit or at least significantly reduce flaring is necessary in the absence of placing a price on these GHG emissions to force drillers to internalize those costs. Requiring reductions or prohibiting flaring altogether could spur the construction of the transmission pipelines and gathering pipelines that are currently lacking[473] and would further incentivize development of alternative uses for associated natural gas.[474] Dramatically decreasing flaring should be part of a larger nationwide policy effort to contain harmful GHG emissions associated with natural gas production, especially in the context of the EPA's proposed Clean Power Plan Rule,[475] which is expected to increase demand for natural gas for generating electricity.[476] To achieve GHG emission reductions through the use of natural gas in the power-production sector and other sectors, it will be necessary to curb flaring and reduce releases of methane that occur during various stages of natural gas drilling and production.[477]

There is ample precedent for regulating such waste at the state level. As early as the late 1800s, states recognized that venting of natural gas produced in association with oil represented a lost opportunity to make productive use of the gas. In the 1890s, Indiana enacted a statute prohibiting the release of natural gas from oil wells for longer than two days after the well was drilled.

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472. The market value of the natural gas flared in North Dakota in 2012 was estimated at approximately $1 billion. *See supra* note 439 and accompanying text. In addition to the problem of CO_2 emissions from flaring, see *supra* Part III.D, there is evidence that measurable amounts of methane are being released in the Bakken due to producers venting the gas instead of flaring it or as a result of leaks in the production and transportation infrastructure, though methane levels have not yet been quantified. *See generally* Tollefson, *supra* note 437.

473. *See supra* notes 403–09 and accompanying text (listing examples of several U.S. regions in which natural gas transportation infrastructure is lacking). While this Article focuses on flaring in the Bakken, the problem is not limited to North Dakota. Over the past decade, industry applications for permits to vent or flare associated gas produced on federal lands—where gas transportation networks are lacking—have risen 2400%, and Bureau of Land Management data support a private study that found a 135% increase in methane emissions between 2008 and 2013 due to venting and flaring on public lands and waters. Phil Taylor, *Drilling Companies Flood BLM with Proposals to Burn, Vent Gas*, E&E GREENWIRE (Nov. 4, 2014), http://www.eenews.net/greenwire/2014/11/04/stories/1060008351.

474. *See supra* notes 448–50 and accompanying text (providing examples of such possible developments).

475. *See* Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34,830, 34,858 (June 18, 2014) (to be codified at 40 C.F.R. pt. 60).

476. Timothy Cama, *New EPA Rules May Give Natural Gas a Boost*, HILL (June 11, 2014, 6:00 AM), http://thehill.com/policy/energy-environment/208919-new-epa-emissions-limits-may-give-natural-gas-a-boost.

477. *See, e.g.*, Dana R. Caulton et al., *Toward a Better Understanding and Quantification of Methane Emissions from Shale Gas Development*, 111 PROC. NAT'L ACAD. SCI. 6237, 6240 (2014) (reporting that in a study of southwestern Pennsylvania natural gas wells, methane emissions from wells in the drilling phase were "2 or 3 orders of magnitude larger than [EPA] estimates").

At that time, cities in Indiana had become dependent on local sources of natural gas for lighting and heating but, to oil producers in the region, it was merely a waste byproduct. When the state sought to enjoin Ohio Oil Company from violating the statute and wasting gas, Ohio Oil argued that the statute provided only for damages as a remedy, not an injunction. The Indiana Supreme Court disagreed and held that despite the limited remedies in the statute, common law doctrines of waste and nuisance allowed the state to enjoin the release and waste of such an important natural resource.[478]

Several decades later in 1947, when oil and gas production had moved from the Midwest to Texas, the Texas Railroad Commission ordered production in a new oil field to shut down until cycling plants could be brought online to prevent flaring.[479] By 1949, flaring had been greatly reduced based on several legislative acts.[480] Likewise, in 1971 the Alaska Oil and Gas Conservation Commission ("AOGCC") ordered offshore oil platforms operating in Cook Inlet to limit the burning of associated gas to that which was needed for safety purposes.[481] Otherwise, oil producers had to bring the gas ashore to market or reinject it for future use.[482] The year before, Cook Inlet oil production had peaked at 225,000 bpd,[483] while "[9] billion cubic feet of gas was flared" from a single oilfield in the inlet.[484] Mobil Oil challenged the AOGCC's regulations in court, but the Alaska Superior Court found the Commission had acted within its authority to prevent waste.[485]

Thus, there is a history of state legislatures or commissions stepping in to prevent gas flaring and venting from oil wells when oil production first commences in a region and sufficient infrastructure for capturing and selling the gas does not yet exist. These regulations can spur the necessary infrastructure development to capture the gas, thus reducing waste and air emissions and converting gas from a waste byproduct into a valuable commodity. For instance, recent data showed Texas had flared less than 1% of the gas produced from its shale oil wells while North Dakota flared nearly

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478. State v. Ohio Oil Co., 49 N.E. 809, 817 (Ind. 1898). The U.S. Supreme Court ultimately rejected Ohio Oil's takings challenge to the state action. *See* Ohio Oil Co. v. Indiana, 177 U.S. 190, 212 (1900).

479. WILLIAM R. CHILDS, THE TEXAS RAILROAD COMMISSION: UNDERSTANDING REGULATION IN AMERICA TO THE MID-TWENTIETH CENTURY 247 (2005). A cycling plant is a facility in an oilfield that removes liquids from associated natural gas, compresses the gas, and returns it to the ground. *Oilfield Glossary: Cycling Plant*, SCHLUMBERGER, http://www.glossary.oilfield.slb.com (search for term: cycling plant) (last visited Jan. 20, 2015).

480. CHILDS, *supra* note 479, at 248.

481. ALASKA OIL & GAS CONSERVATION COMM'N, AOGCC: 50 YEARS OF SERVICE TO ALASKA 32 (2008), *available at* http://doa.alaska.gov/ogc/WhoWeAre/50th/aogcc50thBooklet.pdf.

482. *Id.*

483. *History–1970's*, ALASKA OIL & GAS ASS'N, http://www.aoga.org/industry/history-1970s (last visited Jan. 20, 2015).

484. ALASKA OIL & GAS CONSERVATION COMM'N, *supra* note 481, at 32.

485. *Id.*

30% of the gas from its oil wells.[486] This disparity highlights the crucial role of transportation infrastructure and the need for regulation, including a potential ban on flaring under most circumstances, to spur the creation of such infrastructure in the absence of adequate market forces.

C. TRANSPORTING OIL BY RAIL: CURRENT CONCERNS

When it comes to oil transportation, despite variations in state law governing the siting of oil pipelines and eminent domain authority for such pipelines, it does not appear that the lack of federal siting authority is a major impediment to creating the new infrastructure necessary to transport new sources of oil to refineries and consumers.[487] In large part, this may be because there have always been alternatives to transporting oil by pipeline. In recent years, rail has once again become a major player in transporting oil across the country. Indeed, it has supplanted interest in new pipelines in places with cheaper inland crude oil such as the Bakken.[488] Instead of agreeing to the longer contractual terms associated with pipeline shipping, refiners can access different types of crude based on changing prices, using rail as flexible, already existing infrastructure.[489]

The existence of multiple transportation options for oil means that the market is better able to adjust to new sources of oil in different locations, resulting in both rail build-out and pipeline build-out, just as it did in the early days of 20th century oil development.[490] The continued high and stable price of oil also makes such pipeline investment economical. This phenomenon holds true for the Keystone XL project, where Canadian oil producers may soon no longer need the pipeline at all, if they are successful in completing planned large-scale rail projects and pipelines that do not cross an international border.[491] Notably, none of this backup infrastructure development requires a Presidential Permit or any other federal approval.

Between 1993 and 2012, PHMSA reports that oil and gas pipelines spilled 2.4 million barrels of hazardous materials, causing "367 deaths, 1465 injuries, and $6.4 billion in property damage."[492] Recent high-profile incidents involving oil and gas production and transportation (whether via rail or pipeline) have drawn attention to safety problems associated with how

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486. *See supra* notes 445, 472 and accompanying text.

487. *See supra* note 266 and accompanying text (concluding that while oil pipeline development is not without difficulty, state siting laws do not appear to be a major barrier to such development).

488. Scheyder, *supra* note 460.

489. *Id.*

490. *See supra* Part II.A.3.

491. *See* Amy Harder, *Is Keystone Still Needed to Transport U.S. Oil?*, NAT'L J. (Aug. 26, 2013), http://www.nationaljournal.com/daily/is-keystone-still-needed-to-transport-u-s-oil-20130826.

492. Tom Burns & Tan Hoang, *Legacy Pipelines*, AM. PLANNING ASS'N (Dec. 2013), http://www.landscapes2.org/pipeline/pdf/LegacyPipelines.pdf.

we procure oil and gas in the United States and Canada.[493] Rail cars carried 10% of the United States' oil as of early 2014, 40 times more than five years earlier.[494] Between 1975 and 2012, U.S. railroads spilled 800,000 gallons of crude, while they spilled more than 1.15 million gallons in 2013 alone.[495] This does not include the 1.5 million gallons that Canadian authorities estimate was spilled in Lac-Mégantic, Quebec, in 2013.[496] After a crude train derailment and fire in Casselton, North Dakota, in late 2013,[497] state politicians from both parties are pushing the Obama Administration to regulate railroad safety more strictly, though this position has placed them somewhat at odds with oil and gas interests in the state.[498]

Three days after the Casselton accident, the U.S. DOT issued a safety alert regarding the potentially higher volatility of Bakken crude given the flammability of natural gas liquids found in it,[499] but the oil industry objected, maintaining that the problem is not the nature of the crude but deficiencies in its transport by railroads.[500] Oil producers argue that track inspection, train speed management, building train tracks to avoid cities, and managing for obstacles like the derailed grain car involved in the Casselton derailment are all more viable alternatives to slowing down oil production.[501] The PHMSA was already considering new rules regarding rail transportation of oil at the time of the Casselton fire,[502] given that a majority of the rail tank cars that

493. The BP Deepwater Horizon disaster is a well-known, production-related incident. Perhaps less well-known is the dubious distinction the oil and gas industry earned in 2012, when fatalities among oil and gas workers reached a new high. Pamela King, *Oil and Gas Deaths Reached Record High in 2012*, E&E ENERGYWIRE (Aug. 23, 2013), http://www.eenews.net/energywire/stories/1059986375.

494. David Shaffer & Kelly Smith, *Oil Train Accidents Force Regulators to Look at Tank Car Safety*, STAR TRIB. (Jan. 9, 2014, 1:29 PM), http://www.startribune.com/business/239194271.html; *see also supra* Part II.B.2 (discussing dramatic growth in oil shipping by rail).

495. Krauss & Mouawad, *supra* note 166 (stating that this figure for 2013 includes the approximately 400,000 gallons that spilled on December 30, 2013 in Casselton, North Dakota).

496. Curtis Tate, *More Oil Spilled from Trains in 2013 Than in Previous 4 Decades, Federal Data Show*, KAN. CITY STAR (Jan. 24, 2014, 12:21 PM), http://www.kansascity.com/news/article336906/More-oil-spilled-from-trains-in-2013-than-in-previous-4-decades-federal-data-show.html.

497. *See supra* note 172 (describing the recent accident in North Dakota among several major recent incidents).

498. Clifford Krauss & Matthew L. Wald, *After Accidents, North Dakota Senators Want Stiffer Rail Safety Rules*, N.Y. TIMES (Jan. 10, 2014), http://www.nytimes.com/2014/01/11/business/energy-environment/north-dakota-senators-want-stronger-rail-safety-rules.html?src=recg.

499. PIPELINE & HAZARDOUS MATERIALS SAFETY ADMIN., U.S. DEP'T OF TRANSP., SAFETY ALERT: PRELIMINARY GUIDANCE FROM OPERATION CLASSIFICATION 1–2 (2014), *available at* http://www.phmsa.dot.gov/pv_obj_cache/pv_obj_id_111F295A99DD05D9B698AE8968F7C1742DC70000/filename/1_2_14%20Rail_Safety_Alert.pdf.

500. Krauss & Wald, *supra* note 498.

501. *Id.*

502. *Id.*; *see also* Krauss & Mouawad, *supra* note 166 ("Safety officials have warned for more than two decades that these cars [being used for crude] were unsuited to carry flammable cargo: their shell can puncture and tears up too easily in a crash.").

currently carry oil in the United States do not meet new tank cars standards for puncture resistance and other safety concerns.[503] Railroads support proposed changes, but oil shippers would pay the price for such upgrades because they—not the railroad—lease or own the tank cars.[504] The oil and gas industry maintains that railroads must do a better job of avoiding accidents.[505]

Several cities have called for stricter safety regulations and other measures to protect against hazardous material accidents on railroads. Chicago Mayor Rahm Emanuel urged other mayors to join him in supporting, among other measures, a federally imposed hazardous materials freight fee on crude oil producers and industrial crude consumers.[506] Proceeds from the fee would be dedicated to funding rail infrastructure upgrades.[507] Rerouting trains around populated areas is one of the nonbinding recommendations the National Transportation Safety Board ("NTSB") issued to the U.S. Federal Railroad Administration ("FRA") and PHMSA, in cooperation with the Transportation Safety Board of Canada, in early 2014.[508] Minneapolis, St. Paul, and Chicago are located along the most direct rail routes between the Bakken and eastern markets, and the Canadian alternative travels through three major Canadian cities.[509] However, rerouting crude oil trains poses potential difficulties. Towns and cities frequently developed around main rail

503. Shaffer & Smith, *supra* note 494. Shipping industry estimates put the cost of retrofitting up to 65,000 older tank cars in the billions of dollars and say the process could take as long a decade. *Id.*

504. *Id.*

505. *Id.*; *see also supra* note 166 (analyzing the comparative safety of rail versus pipelines).

506. Press Release, Office of the Mayor, City of Chi., Mayor Emanuel Calls for Cracking Down on Unsafe Transportation of Hazardous Materials (Jan. 23, 2014), *available at* http://www.cityofchicago.org/content/dam/city/depts/mayor/Press%20Room/Press%20Releases/2014/January/01.23.14Railway.pdf. The mayors of Philadelphia; Madison, Wisconsin; Kansas City, Missouri; Milwaukee; and Peoria, Illinois have expressed support for Emanuel's proposal. *Id.* At the state level, the Minnesota legislature passed a measure in May 2014 that will assess railroad and pipeline fees based on pipeline volumes or track miles. David Shaffer, *Legislature Passes Crude Oil Transport Response Bill*, STAR TRIB. (May 16, 2014, 11:01 PM), http://www.startribune.com/politics/statelocal/259616401.html. Along with funds from taxpayers, the fees will pay for more state rail inspectors, training and equipment for first responders, and upgrades to highway-rail grade crossings. *Id.*

507. Shaffer, *supra* note 506.

508. Press Release, Nat'l Transp. Safety Bd., NTSB Calls for Tougher Standards on Trains Carrying Crude Oil (Jan. 23, 2014), *available at* http://www.ntsb.gov/news/press-releases/Pages/PR20140123.aspx [hereinafter NTSB Press Release] (characterizing the NTSB's coordination with the Transportation Safety Board of Canada as "unprecedented" and explaining that the they issued recommendations jointly "because railroad companies routinely operate crude oil unit trains in both countries and across the U.S–Canada border").

509. Solarina Ho, *Analysis: Oil Trains to Keep Rumbling Through North America's Cities*, REUTERS (Jan. 29, 2014, 3:20 PM), http://www.reuters.com/article/2014/01/29/us-trains-safety-analysis-idUSBREA0S1TJ20140129.

lines.[510] Railroads often maintain tracks in cities to a higher standard, crossings in cities are often safer than their more rural counterparts,[511] and shipping crude on secondary tracks away from population centers can mean longer travel times and more rail miles covered, thus increasing the time during which an accident can occur.[512] One of the innovations that has made rail more competitive with pipelines for transporting oil is the use of 80- to 120-car unit trains, in which each car is a crude-bearing tank car.[513] In a letter to the FRA, the NTSB expressed concern about the use of unit trains that include so many tank cars.[514] While there is the danger associated with routing such massive amounts of crude through populated areas, poorer-quality tracks elsewhere may pose dangers to such large trains as well. Trains may have to go slower on secondary tracks, increasing travel time and fuel use, and chipping away at the cost savings achieved by the use of long unit trains. NTSB Chairwoman Deborah A.P. Hersman said, "If unit trains of flammable liquids are going to be part of our nation's energy future, we need to make sure the hazardous materials classification is accurate, the route is well planned, and the tank cars are as robust as possible."[515]

In addition to rerouting trains where feasible, the NTSB and Transportation Safety Board of Canada also recommended requiring route planning and "develop[ing] an audit program to ensure rail carriers that carry petroleum products have adequate response capabilities to address worst-case discharges of the entire quantity of product carried on a train."[516] Trains that carry hazardous materials at threshold volumes must analyze 27 risk factors for their routes on an annual basis.[517] Trains carrying large quantities of flammable liquids (i.e., crude oil) through populated areas, however, are not

510. *See* Jad Mouawad & Ian Austen, *U.S. and Canada Urge New Safety Rules for Crude Oil Rail Shipments*, N.Y. TIMES (Jan. 23, 2014), http://www.nytimes.com/2014/01/24/business/us-and-canada-urge-new-safety-rules-for-crude-oil-rail-shipments.html.

511. *See* Joan Lowy, *NTSB: Oil Train Crash Risks 'Major Loss of Life'*, ASSOCIATED PRESS (Jan. 23, 2014, 8:44 PM), http://bigstory.ap.org/article/ntsb-oil-train-crash-risks-major-loss-life.

512. Ho, *supra* note 509.

513. *See* Krauss, *supra* note 204 (describing Bakken oil companies' use of 100-car unit trains as a "critical innovation"); Blake Sobczak, *'Virtual Pipeline' Sets Down Tracks Amid KXL Limbo*, E&E ENERGYWIRE (Feb. 3, 2014), http://www.eenews.net/energywire/2014/02/03/stories/1059993894.

514. Letter from Deborah A.P. Hersman, Chairwoman, Nat'l Transp. Safety Bd., to Joseph C. Szabo, Adm'r, Fed. R.R. Admin. (Jan. 23, 2014) [hereinafter Szabo Letter], *available at* http://www.ntsb.gov/doclib/recletters/2014/R-14-001-003.pdf. "The Lac-Mégantic accident demonstrates the destructive effects of large numbers of derailed DOT-111 tank cars containing flammable materials as seen in several recent NTSB accident investigations," including the late-2013 Casselton derailment; a 2012 ethanol train derailment, tank car rupture, and fire in Columbus, Ohio; and three other incidents from 2006 to 2011 involving ethanol and DOT-111 tank cars derailing, catching fire, and in one case causing injuries and a death. *Id.*

515. NTSB Press Release, *supra* note 508 (internal quotation marks omitted).

516. *Id.*

517. Szabo Letter, *supra* note 514, at 6 (citing 49 C.F.R. § 172.820(c) (2012)).

currently subject to these route planning and route selection requirements.[518] While existing regulations require railroads to submit comprehensive emergency response plans to the FRA, there is no accompanying provision for the review and approval of these plans.[519] By comparison, DOT regulations for oil pipelines provide that "an operator may not handle, store, or transport oil in a pipeline unless it has submitted a response plan for PHMSA approval."[520] The NTSB expressed concern that the communities located along rail lines shoulder the burden of responding to rail accidents and noted that it "strongly believes there must be an equivalent level of preparedness across all modes of transportation to respond to major disasters involving releases of flammable liquid petroleum products."[521] The Board lastly recommended that the FRA audit shippers and rail carriers that transport crude oil to ensure they are properly classifying their hazardous freight and have adequate safety and security plans in place.[522] But local officials complain that railroads fail to provide information regarding railcar contents, impeding their ability to plan for and respond effectively to emergencies involving crude oil trains.[523]

The oil industry's interest in continuing to use rail to ship large quantities of crude oil,[524] along with highly visible rail incidents, has drawn the attention of Congress, federal and foreign agencies, and the American public. This has spurred further regulation of crude transportation by rail.[525] In response to the drastic increase in crude shipments by rail coupled with the higher volatility of Bakken crude,[526] the U.S. DOT proposed new rules integrating

518. *Id.* at 7.

519. *Id.* at 9.

520. *Id.*

521. *Id.*

522. *Id.* at 11.

523. Russell Gold, *Oil Trains Hide in Plain Sight*, WALL ST. J. (Dec. 4, 2014), http://www.wsj.com/articles/oil-trains-hide-in-plain-sight-1417663983.

524. *See id.* at 4; *see also* RBN ENERGY LLC, I'VE BEEN WORKING ON THE RAILROAD—CRUDE-BY-RAIL 2014, at 6 (2014), *available at* https://rbnenergy.com/sites/default/files/rbn_crude_by_rail_study_Intro_1401.pdf ("[D]espite starting as a stopgap solution driven by necessity—crude-by-rail rapidly became accepted by producers and refiners as a flexible and competitive compliment to traditional pipeline development.").

525. Brigham A. McCown, a former PHMSA administrator observed, "[t]here was no political pressure to address this issue in the past, but there clearly is now. . . . Producers need to understand that rail-car safety can become an impediment to production." Krauss & Mouawad, *supra* note 166 (internal quotation marks omitted).

526. *See* Blake Sobczak, *Sweeping Oil-by-Rail Announcements Set the Stage for Bakken Battle*, E&E ENERGYWIRE (July 24, 2014), http://www.eenews.net/stories/1060003419/print. A PHMSA study of Bakken crude samples found that Bakken crude "is more volatile than most other types of crude—which correlates to increased ignitability and flammability." *Id.* (internal quotation marks omitted). Further, "Bakken crude's 'light' profile—with its high gas content, low flash point and steep vapor pressure—means 'there is an increased risk of a significant incident involving this material due to the significant volume that is transported, the routes and the

many of the NTSB's recommendations.[527] The rules propose reduced operating speeds, rail routing risk assessment, notification to states through which Bakken rail shipments pass, improved tank car standards, "a classification and testing program for mined gases and liquids and new operational requirements for high-hazard flammable trains (HHFT) that include braking controls and speed restrictions," as well as a proposal to define an "HHFT as a train carrying 20 or more tank carloads of flammable liquids."[528] The rule proposes requiring shippers to retrofit older DOT-111 tank cars or phase out their use for certain flammable liquids.[529] These new rail safety regulations for flammable liquids may dampen some of the excitement about rail as a permanent alternative to oil pipelines.[530] If rail becomes a less attractive option, it could re-engage shippers' interest in committing to new pipeline projects.[531]

Accidents may occur during pipeline transportation as well, whether via gathering lines, transmission pipelines, or distribution lines.[532] Three years after the Kalamazoo, Michigan, pipeline rupture, the federal government has yet to make promised changes to rules governing leak detection and cut-off valves in oil pipelines.[533] In addition to transmission pipelines in operation, there is the problem of older pipelines that are subject to corrosion and

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extremely long distances it is moving by rail.'" *Id.* Industry studies, however, have produced divergent findings regarding the volatility of Bakken crude. *Id.*

527. *See* Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains, 79 Fed. Reg. 45,016 (proposed Aug. 1, 2014).

528. Press Release, U.S. Dep't of Transp., U.S. DOT Announces Comprehensive Proposed Rulemaking for the Safe Transportation of Crude Oil, Flammable Materials (July 23, 2014), *available at* http://www.dot.gov/briefing-room/us-dot-announces-comprehensive-proposed-rule making-safe-transportation-crude-oil. Flammable liquids include crude oil and ethanol. *Id.*

529. *Id.*

530. *See* Sobczak, *supra* note 513; *see also* Blake Sobczak, *DOT Rule Proposal Seeks 'New World Order' for Oil by Rail*, E&E GREENWIRE (July 23, 2014), http://www.eenews.net/stories/106000 3367 (noting responses to the proposed rule from industry and environmental groups).

531. Two new pipelines that would have carried Bakken oil to market were cancelled in the past two years due to insufficient capacity commitments during the pipelines' open seasons. Together they would have offered the capacity to carry 450,000 barrels per day to Illinois and Oklahoma. Kirk Eggleston, *Koch Cancels Bakken Pipeline—Dakota Express Pipeline*, BAKKEN SHALE (Jan. 22, 2014), http://bakkenshale.com/pipeline-midstream-news/koch-cancels-proposed-bakken-pipeline-dakota-express-pipeline/ (reporting on a proposed pipeline that would have carried 250,000 barrels per day); Mike Lee, *Oneok Shares Fall After Bakken Pipeline Canceled*, BLOOMBERG (Nov. 28, 2012, 3:27 PM), http://www.bloomberg.com/news/2012-11-28/oneok-shares-fall-after-bakken-pipeline-canceled.html (reporting on the Oneok pipeline that would have carried 200,000 barrels per day).

532. *See supra* Part I (discussing the Kalamazoo River heavy crude oil spill and San Bruno, California, natural gas pipeline explosion); s*ee also supra* Parts II.C–D (noting circumstances under which federal and/or state safety regulations apply to pipelines).

533. Mark Drajem & Jim Efstathiou Jr., *North Dakota Oil Spill Spotlights Obama Delay on Rules*, BLOOMBERG (Oct. 29, 2013, 3:17 PM), http://www.bloomberg.com/news/2013-10-29/north-dakota-oil-spill-spotlights-obama-delay-on-rules.html.

rupture.[534] Some pipelines were built in rural areas that have since become more urbanized, thus exposing many more people to risk.[535] And on top of these challenges, reversing, repurposing, or resuming operation of existing pipelines poses additional safety risks where the age, material, or construction methods may not be suitable for the new use.[536]

It is certainly true that both pipelines and rail transport for oil pose risks to human health and the environment. This has been true since the early days of oil transport. What has changed in recent years, however, is the significantly increased use of rail in general as well as its use for new types of oil, such as heavy crude derived from Canada's oil sands, which may pose additional risks.[537] Because much of the rail build-out can take place on existing tracks, there is not necessarily a trigger for environmental review or implementation of new safety features to minimize these risks. This stands in contrast to the environmental review that takes place for new natural gas pipelines as part of the FERC certificate process and the federal oversight of oil pipeline safety. Thus, a more comprehensive federal review of the environmental risks and benefits of various forms of oil transportation would be extremely helpful and timely.

V. CONCLUSION

After many decades of concerns about energy independence and high natural gas prices, the shale oil and gas "revolution" has created an abundance of new energy in the United States. But it has been decades since the United States placed a major focus on the infrastructure needed to transport these new resources to refineries, processing facilities, and markets. Moreover, a great deal of this new energy is in locations, like North Dakota, that were not historically centers of energy development and thus are not served by existing energy transportation infrastructure. As efforts are made to create the necessary infrastructure to transport these new sources of oil and gas, this

534. Burns & Hoang, *supra* note 492 (discussing the hazards and uncertainties of the aging U.S. pipeline infrastructure).

535. *Id.*

536. *See* Elizabeth Douglass, *Pipeline Alert from Federal Regulator Is First of Its Kind*, INSIDECLIMATE NEWS (Nov. 17, 2014), http://insideclimatenews.org/news/20141117/pipeline-alert-federal-regulator-first-its-kind (discussing a 2014 PHMSA notice that cautioned the oil and gas industry about such safety risks and suggested tests and precautions the industry should adopt before making changes to a pipeline); *see also supra* note 145 and accompanying text (discussing pipeline reversals and conversions).

537. A recent study found that diluted bitumen does not present greater risks for pipeline rupture or other failure. Press Release, Nat'l Acads., Transporting Diluted Bitumen Through Pipelines Does Not Increase Likelihood of Release, New Report Says (June 25, 2013), *available at* http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=18381. When a spill does occur, however, heavy crude poses different and in some respects more difficult challenges in subsequent cleanup efforts, though this claim is subject to industry dispute. *See, e.g.*, David Sassoon, Op-Ed, *Crude, Dirty and Dangerous*, N.Y. TIMES (Aug. 20, 2012), http://www.nytimes.com/2012/08/21/opinion/the-dangers-of-diluted-bitumen-oil.html.

Article considers how, why, and where the United States and market players created the existing infrastructure that serves as the foundation for the present build-out. This historical review helps explain why Congress left the states in charge of siting interstate oil pipelines while at the same time it completely transferred siting and eminent-domain authority for interstate natural gas pipelines to the federal government. Perhaps surprisingly, both siting regimes appear to be working fairly well. The one-stop shopping with FERC for natural gas pipelines has allowed extensive new construction of natural gas pipelines on the east coast and in Texas to accommodate new sources of shale gas. Likewise, the state-centered process for siting oil pipelines also appears to accommodate sufficient construction of oil pipelines to meet new demand. Most states do not have very onerous siting or eminent domain procedures for oil pipelines, and the high price of oil has led to very favorable market conditions for building those pipelines to transport oil to markets. The increased opposition to oil pipelines in certain regions of the country may result in additional delays for certain pipelines or increased permitting burdens in some states. Nevertheless, the fact that rail is also available to transport oil means that delays in pipeline construction may simply add additional costs to transporting oil rather than block it entirely.

Even apart from the siting process, however, significant energy transportation infrastructure concerns remain. Putting aside the more general environmental issues associated with the rapid increase of oil and gas production in the United States, which are beyond the scope of this Article, there are environmental and land-use concerns associated with the energy transportation network itself. Low natural gas prices mean that in shale oil-rich areas of the country like North Dakota, natural gas is a nuisance product and is often flared rather than captured. Few federal or state environmental regulations prevent flaring, and market conditions are not sufficient to incentivize producers to build pipelines and compressors to capture and sell the gas. Likewise, as rail plays a more central role in transporting oil, questions arise regarding the safety of transporting such significant quantities of oil by rail. These concerns will increase if Canadian oil producers rely heavily on rail to transport Canadian oil sands, whether or not the Keystone XL Pipeline is ever built.

Thus, siting and eminent domain authority are only part of the regulatory landscape that affects energy transportation infrastructure, albeit a very important part. As market players and government actors continue to construct new energy transportation infrastructure, a focus on the history of our existing infrastructure in the context of today's challenges is critical to creating a responsive and responsible energy infrastructure.

APPENDIX: EMINENT DOMAIN AUTHORITY & SITING PROCEDURES FOR OIL PIPELINES

The following survey describes each state's laws pertaining to eminent domain authority, certificate of need determinations, and the siting process for oil pipelines. It does not include any state laws relating to gathering lines.

Alabama:

ALA. CODE § 10A-21-2.05 (LexisNexis 2013) (granting condemnation authority to "electric, power, canal, pipeline companies, and all other companies formed for constructing, operating, or maintaining any work of internal improvement or public utility . . . for the construction or installation of facilities, apparatus, or equipment necessary for the operation of such railways, lines, tunnels, canals, dams, pipelines, excavations, or works."); Johnston v. Ala. Pub. Serv. Comm'n, 252 So. 2d 75 (1971) (determining an oil company's acquisition of rights-of-way by condemnation for construction of a private pipeline to be constitutional); *see also* ALA. CODE § 10A-21-2.04(d) ("No proceeding for condemnation of rights-of-way for transmission lines, cables, or pipelines . . . shall be instituted until the Alabama Public Service Commission shall have issued a certificate on application . . . to the effect that in the opinion of the commission the proposed use would be in furtherance of industrial development by the company or corporation or its privies in this state, the duty and authority being hereby conferred on the commission to hear and set up the application.").

Alaska:

ALASKA STAT. § 42.06.240(a) (2012) ("[A] pipeline carrier, or person that will be a pipeline carrier upon completion of any proposed construction or extension, may not engage in the transportation of oil or gas by pipeline subject to the jurisdiction of the commission, or undertake the construction or extension of any pipeline facilities for that purpose, or acquire or operate any pipeline facilities or extension, unless there is in force with respect to that pipeline carrier a certificate of public convenience and necessity issued by the commission authorizing those acts or operations."); *id.* § 09.55.240(a)(13) (granting eminent domain authority "for the location of pipelines for gathering, transmitting, transporting, storing, or delivering natural or artificial gas or oil or any liquid or gaseous hydrocarbons, including, but not limited to, pumping stations, terminals, storage tanks, or reservoirs, and related installations."); Ostrem v. Alyeska Pipeline Serv. Co., 648 P.2d 986 (Alaska 1982) (holding that pipeline companies, once granted eminent domain power from the state, exercise that authority, but companies that have not initiated eminent domain proceedings are not immune from liability for trespass); *see also* ALASKA STAT. § 38.35.020(a) (requiring oil, products, and natural gas pipelines to acquire right-of-way over state land before building or operating a pipeline); *id.* § 38.35.050 (governing applications for pipeline rights-of-way over state lands); *id.* § 38.35.130 (regarding declaration of taking).

Arizona:

ARIZ. REV. STAT. ANN. § 12-1111(17) (West 2003) (granting eminent domain authorization for "[p]ipe lines to carry petroleum, petroleum products or any other liquid").

Arkansas:

ARK. CODE ANN. § 23-15-101(a) (2002) ("All pipeline companies operating in this state are given the right of eminent domain and are declared to be common carriers, except pipelines operated for conveying natural gas for public utility service."); *id.* § 18-15-1303 ("In the event any company fails . . . to secure the right-of-way by consent, contract, or agreement, then the corporation shall have the right to proceed to procure the condemnation of the property . . . ."); *id.* § 18-15-1302(a)(1) ("Whenever a corporation desires to construct a pipeline or build a logging railway upon or under the lands of individuals, or right-of-way of any railroad, or any turnpike, the corporation, by its agents, shall have the right to enter peacefully upon the lands or rights-of-way and survey, locate, and lay out its pipeline, thereon . . . .").

California:

CAL. PUB. UTIL. CODE § 6231.5(a) (West 2010) ("An applicant for a franchise to build and operate a pipeline system transmitting oil or products thereof shall file with the legislative body of the municipality in which the franchise is desired an application."); *id.* § 6235 ("A franchise granted under this chapter does not become effective until the grantee files written acceptance thereof with the clerk of the granting municipality."); *id.* § 6202 ("The legislative body of any municipality may grant a franchise to any person, firm, or corporation, whether operating under an existing franchise or not . . . to lay and use, pipes and appurtenances for transmitting and distributing oil or products thereof for all purposes . . . under, along, across, or upon the public streets, ways, alleys, and places within the municipality . . . ."); *id.* § 615 ("A pipeline corporation may condemn any property necessary for the construction and maintenance of its pipeline."); *id.* § 610 ("[§ 615] applies only to a corporation or person that is a public utility."); *id.* § 216 ("'Public utility' includes every common carrier . . . pipeline corporation . . . where the service is performed for, or the commodity is delivered to, the public or any portion thereof."); *see also* Shell Cal. Pipeline Co. v. City of Compton, 41 Cal. Rptr. 2d 753 (Cal. Ct. App. 1995) (determining that a public utility oil pipeline corporation that condemned pipeline easements for existing oil product pipelines did not avoid the statutory requirement that common carrier pipelines must establish public service use of property because the statute also granted eminent domain authority to condemn municipal property for pipeline easements);*CEQA Rules*, CAL. PUBLIC UTILITIES COMMISSION, (Oct. 27, 2007), http://www.cpuc.ca.gov/PUC/energy/Environment/ceqa_rules.htm (describing the process applicants must follow to receive authority to complete a pipeline project under the California

Environmental Quality Act, with the California Public Utilities Commision acting as lead agency).

Colorado:

COLO. REV. STAT. § 38-5-105 (2013) ("Such telegraph, telephone, electric light power, gas, or pipeline company or such city or town is vested with the power of eminent domain, and authorized to proceed to obtain rights-of-way for poles, wires, pipes, regulator stations, substations, and systems for such purposes by means thereof."); Larson v. Sinclair Transp. Co., 284 P.3d 42, 43 (Colo. 2012) ("[S]ection 38-5-105 does not grant condemnation authority, either expressly or by clear implication, to companies for the construction of a petroleum pipeline.").

Connecticut:

CONN. GEN. STAT. § 22a-449(b) (2006 & Supp. 2014) ("The commissioner may: (1) License terminals in the state for the loading or unloading of oil or petroleum . . . and shall adopt, in accordance with chapter 54, reasonable regulations in connection therewith for the purposes of identifying terminals subject to licensure and protecting the public health and safety and for preventing the discharge, spillage, uncontrolled loss, seepage or filtration of oil or petroleum or chemical liquids or solid, liquid or gaseous products or hazardous wastes. . . . (3) . . . No person shall commence operation of any such terminal in this state on or after July 1, 1993, without a license issued by the commissioner." (footnote omitted)); *id.* § 16-1(a)(4) (2013 & Supp. 2014) ("'Public service company' includes electric, electric distribution, gas, telephone, pipeline, sewage, water and community antenna television companies and holders of a certificate of cable franchise authority, owning, leasing, maintaining, operating, managing or controlling plants or parts of plants or equipment . . . .").

Delaware:

DEL. CODE ANN. tit. 26, § 1302 (2009) ("In case any corporation mentioned in this chapter desiring to acquire, occupy or use any lands in this State for its corporate use cannot agree with the owner thereof as to the terms and conditions of such acquisition . . . it may acquire, use and hold such lands by condemnation proceeding in the manner prescribed by Chapter 61 of Title 10."); *id.* § 1301(a)(1) (including "every corporation organized for the transportation and storage of oil" among corporations in chapter 13); *id.* § 1301(a)(3) ("The consent of the council, town commissioners or other persons having control over the public roads, highways, streets, avenues and alleys of the county, city, town and district wherein or through which it is contemplated to lay such pipes, mains and conduits beneath such public roads, highways, streets, avenues or alleys shall first and as a condition precedent be obtained before any such public roads, highways, streets, avenues or alleys are disturbed, opened or dug up.").

Florida:

FLA. STAT. § 361.06 (2013) ("Any pipeline company which is or which intends to be a common carrier of petroleum and petroleum products and which is duly incorporated for such purpose under the laws of this state, or which is a foreign corporation and is qualified to do business in this state as a common carrier of petroleum and petroleum products shall have all the rights of eminent domain and all other rights granted to natural gas companies under s. 361.05 for the purpose of acquisition of rights-of-way for the installation, operation, maintenance, repair and replacement of its pipelines and all structures, pumping stations and other installations and works incident thereto."); *id.* (providing that no pipeline company has eminent domain authority over publicly owned or operated property, but "any such pipeline company shall have the right to all necessary permits to install, operate, maintain, repair and replace its pipelines under, along and across such property, subject only to reasonable regulations that may be imposed by the particular authority having jurisdiction of such property"); *id.* § 206.021 (regarding motor fuel in particular, the statute provides: "(1) It is unlawful for any person to engage in business as a private or common carrier of motor fuel within this state or to engage in the business of transporting fuel by pipeline or marine vessel unless he or she is the holder of an unrevoked license issued by the department to engage in such business. (2) To procure such license, a person shall file with the department an application under oath and in such form as the department may prescribe").

Georgia:

GA. CODE ANN. § 22-3-83(a) (Supp. 2014) ("Before exercising the right of eminent domain as authorized in this article, a pipeline company shall first obtain from the commissioner of transportation or the commissioner's designee a certificate of public convenience and necessity that such action by the pipeline company is authorized."); *id.* § 22-3-82(a) (establishing a notice requirement with which pipeline companies must comply, in addition to the certificate of convenience and necessity required in section 22-3-83); *id.* § 22-3-84 (requiring a pipeline company to obtain a permit from the Environmental Protection Division of the Department of Natural Resources before exercising eminent domain authority); *id.* § 22-3-84(c) (instructing the director of the Environmental Protection Division to determine, inter alia, "(1) [w]hether the proposed route of such portion of the pipeline is an environmentally reasonable route . . . [and] (2) [w]hether other corridors of public utilities already in existence may reasonably be used for the siting of such portion of the pipeline").

Hawaii:

HAW. REV. STAT. § 101-4 (2012) ("The right and power of eminent domain is hereby granted to every person, operating a public utility, and engaged in the transportation of passengers or freight or any commodity by rail or bus, or by any other means, or the conveyance or transmission of

telephone messages, or the production, conveyance, transmission, delivery, or furnishing of electricity, power, water, gas, or oil, within the State, as well as to corporations designated in section 101-41."); *id.* § 269-7.5(a) (2007) ("No public utility, as defined in section 269-1, shall commence its business without first having obtained from the commission a certificate of public convenience and necessity."); *id.* § 277-2 ("The department of transportation shall establish, maintain, operate, manage and control energy corridors throughout the State for the purpose of maximizing the utilization of lands available for use in connection with transporting by pipeline or other means, sources of energy including but not limited to oil, its derivatives and natural gas; provided that the utilization of such energy corridors shall be permissive and not mandatory.").

Idaho:

IDAHO CODE ANN. § 7-701 (2010) ("Subject to the provisions of this chapter, the right of eminent domain may be exercised in behalf of the following public uses: . . . (9) Pipe lines . . . for the transportation of crude petroleum or petroleum products; also for tanks, reservoirs, storage, terminal and pumping facilities, telephone, telegraph and power lines necessarily incident to such pipe lines."); *id.* § 62-1101 (2012) ("Any person, company or corporation incorporated or that may hereafter be incorporated under the laws of this state or of any state or territory of the United States, and doing business in this state, for the purpose of owning, controlling or operating any pipeline for the transmission, delivery, furnishing, or distribution of natural, or manufactured, gas for light, heat, or power, or of owning, controlling and operating any pipeline for the transportation, distribution or delivery of crude petroleum, petroleum products, or of owning, controlling and operating any pipeline as defined by section 61-114, Idaho Code, shall have, and is hereby given, the right to construct, maintain, and operate such pipeline upon, along, and over, or under, any and all public roads, streets, and highways . . . ."); *id.* § 62-1102 ("Before exercising the right of way herein and hereby granted, such person, company or corporation shall first apply to the board of county commissioners of the county within which said pipeline, or any part thereof, is located, or to be located, for permission to construct in the manner provided by law, and to acquire a right of way . . . .").

Illinois:

220 ILL. COMP. STAT. 5/15-401(a) (2013) ("No person shall operate as a common carrier by pipeline unless the person possesses a certificate in good standing authorizing it to operate as a common carrier by pipeline. No person shall begin or continue construction of a pipeline or other facility, other than the repair or replacement of an existing pipeline or facility, for use in operations as a common carrier by pipeline unless the person possesses a certificate in good standing."); *id.* § 8-509 ("When necessary for the construction of any alterations, additions, extensions or improvements ordered or authorized under Section 8-406.1, 8-503, or 12-218 of this Act,

any public utility may enter upon, take or damage private property in the manner provided for by the law of eminent domain."); *id.* § 3-105(a) ("'Public utility' means and includes, . . . (3) the conveyance of oil or gas by pipe line."); 735 ILL. COMP. STAT. 30/5-5-5(a) (2009) ("In addition to all other limitations and requirements, a condemning authority may not take or damage property by the exercise of the power of eminent domain unless it is for a public use, as set forth in this Section."); Lakehead Pipeline Co. v. Ill. Commerce Comm'n, 696 N.E.2d 345 (Ill. App. Ct. 1998) (denying an oil pipeline company's petition for a certificate in good standing, required before it could pursue eminent domain authority, pursuant to the Common Carrier by Pipeline Law from the Illinois Commerce Commission).

Indiana:

IND. CODE ANN. § 32-24-4-1(a) (West 2013) ("A person, firm, partnership, limited liability company, or corporation authorized to do business in Indiana and authorized to: (1) furnish, supply, transmit, transport or distribute electrical energy, gas, oil, petroleum . . . to the public or to any town or city . . . may take, acquire, condemn, and appropriate land, real estate, or any interest in the land or real estate to accomplish the essential delivery of services described in subdivisions (1) and (2)."); *see also id.* § 8-1-22.6 (West 2010) (setting out voluntary guidelines for construction of interstate pipelines operating in Indiana).

Iowa:

IOWA CODE ANN. § 479B.4 (2013) ("A pipeline company doing business in this state shall file a verified petition with the board asking for a permit to construct, maintain and operate a new pipeline along, over or across the public or private highways, grounds, waters and streams of any kind of this state."); *id.* § 479B.16 ("A pipeline company granted a pipeline permit shall be vested with the right of eminent domain, to the extent necessary and as prescribed and approved by the board, not exceeding seventy-five feet in width for right-of-way and not exceeding one acre in any one location in addition to right-of-way for the location of pumps, pressure apparatus, or other stations or equipment necessary to the proper operation of its pipeline."). The utilities board may grant a pipeline company more area if the company can demonstrate that more area is needed for the proper functioning of its facilities. *Id.*

Kansas:

KAN. STAT. ANN. § 17-618 (2007) ("Lands may be appropriated for the use of . . . pipeline companies, and for the piping of gas in the same manner as is provided in K.S.A. 26-501 to 26-516, inclusive . . . [of any] pipeline company, gas company, partnership holding a certificate of convenience as a public utility issued by the state corporation commission . . . or to conduct oil in pipes or conduct gas in pipes . . . may obtain such right or the right-of-way for all necessary . . . pipes [that] may be laid, carried or stretched on, through or over any land or lot, or along or upon any stream of water, using so much

of the water thereof as may be needed for any of the purposes aforesaid, or through any street or alley or public ground of any city of the second or third class . . . ."); KAN. STAT. ANN. § 26-501b (Supp. 2013) ("On and after July 1, 2007, the taking of private property by eminent domain for the purpose of selling, leasing, or otherwise transferring such property to any private entity is authorized if the taking is . . . (2) by any public utility, as defined in K.S.A. 66-104, and amendments thereto, gas gathering service, as defined in K.S.A. 55-1,101, and amendments thereto, pipe-line companies . . . operating such agencies for public use in the conveyance of persons or property within this state . . . ."); KAN. STAT. ANN. § 66-104(a) (2002 & Supp. 2013) ("The term 'public utility,' as used in this act, shall be construed to mean every corporation, company, individual, association of persons, their trustees, lessees or receivers, that now or hereafter may own, control, operate or manage, except for private use, any equipment, plant or generating machinery, or any part thereof, for . . . the conveyance of oil and gas through pipelines in or through any part of the state, except pipelines less than 15 miles in length and not operated in connection with or for the general commercial supply of gas or oil . . . ."); KAN. STAT. ANN. § 66-105 (Supp. 2013) ("As used in this act, "common carriers" shall include all freight-line companies, equipment companies, pipe-line companies, and all persons and associations of persons, whether incorporated or not, operating such agencies for public use in the conveyance of persons or property within this state."); KAN. STAT. ANN. § 66-131(a) (2002 & Supp. 2013) ("No . . . common carrier or public utility, including that portion of any municipally owned utility defined as a public utility by K.S.A. 66-104, governed by the provisions of this act shall transact business in the state of Kansas until it shall have obtained a certificate from the corporation commission that public convenience will be promoted by the transaction of said business and permitting said applicants to transact the business of a common carrier or public utility in this state.").

Kentucky:

KY. REV. STAT. ANN. § 278.502 (West 2006) ("Any corporation or partnership organized for the purpose of, and any individual engaged in or proposing to engage in, constructing, maintaining, or operating oil or gas wells or pipelines for transporting or delivering oil or gas, including oil and gas products, in public service may, if it is unable to contract or agree with the owner after a good faith effort to do so, condemn the lands and material or the use and occupation of the lands that are necessary for constructing, maintaining, drilling, utilizing, and operating pipelines . . . . The proceedings for condemnation shall be as provided in the Eminent Domain Act of Kentucky."); *id.* § 416.230 ("A corporation, partnership or individual seeking to condemn lands and material or the use and occupation of lands, under the provisions of KRS 278.502, may file a verified petition in the office of the Circuit Court clerk of the county in which all or the greater portion of the land and material is located. The petition shall state that it is filed under the

provisions of KRS 278.502 and shall be conducted pursuant to the Eminent Domain Act of Kentucky.").

Louisiana:

LA. REV. STAT. ANN. § 45:251(1) (2007) ("'Common carrier' includes all persons engaged in the transportation of petroleum as public utilities and common carriers for hire; or which on proper showing may be legally held a common carrier from the nature of the business conducted, or from the manner in which such business is carried on."); *id.* § 45:254 ("All persons included in the definition of common carrier pipe lines as set forth in R.S. 45:251 have the right of expropriation with authority to expropriate private property under the state expropriation laws for use in its common carrier pipe line business, and have the right to lay, maintain and operate pipe lines . . . over private property thus expropriated, and have the further right to lay, maintain and operate pipe lines along, across, over and under any navigable stream or public highway, street, bridge or other public place, and also have the authority, under the right of expropriation herein conferred, to cross railroads, street railways, and other common carrier pipe lines by expropriating property necessary for the crossing under the expropriation laws of this state."); *id.* § 45:252 ("All pipe lines through which petroleum is conveyed from one point in this state to another point in the state are declared to be common carriers as defined in R.S. 45:251 and are placed under the control of and subject to regulation by the Louisiana Public Service Commission."); *id.* § 19:2 (2014) ("Prior to filing an expropriation suit, an expropriating authority shall attempt in good faith to reach an agreement as to compensation with the owner of the property sought to be taken and comply with all of the requirements of R.S. 19:2.2. If unable to reach an agreement with the owner as to compensation, any of the following may expropriate needed property: . . . (8) [a]ll persons included in the definition of common carrier pipelines as set forth in R.S. 45:251."); Collins Pipeline Co. v. New Orleans East, Inc., 250 So. 2d 29 (La. Ct. App. 1971) (determining that a corporation seeking to transmit petroleum products through a pipeline was not precluded from expropriating land for the pipeline because the pipeline was included in the definition of common carrier pipelines and thus had the right to expropriate private property under state expropriation laws for use in its common carrier pipeline business).

Maine:

Maine grants some oil pipelines eminent domain authority over public property subject to issuance of a permit, but does not expressly address rights of oil pipelines to condemn private property. ME. REV. STAT. tit. 35-A, § 2302 (2013) ("Every corporation organized under the general laws of the State and any public utility owning, controlling, operating or managing any pipeline within or through this State for the transportation as a common carrier for hire of oil, gas, gasoline, petroleum or any other liquids or gases may lay its pipelines and construct and maintain them in, along and under the roads and

streets in any municipality, subject to the conditions and under the restrictions provided in this chapter and chapter 25."); *id.* § 2507 ("No person may lay its pipes or place its wires under the surface of any road or street, or dig up or open the ground in a road or street, until it has obtained a written permit in accordance with section 2503 from the applicable licensing authority."); *id.* § 2501(2) ("Except as otherwise provided, a person may not construct facilities upon and along highways and public roads without applying for and obtaining a written location permit from the applicable licensing authority under section 2503. Included within this requirement is . . . every person that owns, controls, operates or manages any pipeline within or through this State for the transportation as a common carrier for hire of oil, gas, gasoline, petroleum or any other liquids or gases . . . ."). Maine law does not define "public utility" to include petroleum pipelines. *See id.* § 102(13).

Maryland:

MD. CODE, PUB. UTIL. § 5-404(e)(1) (West 2012) ("The right to acquire property under this section may not be exercised unless the oil pipeline corporation, whether or not it is otherwise subject to the jurisdiction of the Commission, first obtains an order from the Commission finding the acquisition to be in the public interest."); *id.* § 5-404(b) ("An oil pipeline corporation that is operating an oil pipeline that existed in the State on or before July 1, 1978, may acquire by condemnation, in accordance with Title 12 of the Real Property Article, any property necessary to: (1) operate those existing oil pipelines and appurtenances; or (2) construct and operate additional oil pipelines and appurtenances along, on, adjacent to, or incidentally deviating not more than 50 feet from the routes followed by the corporation's existing rights-of-way."); *id.* § 5-404(c) ("The right to acquire property under this section may be exercised only in Anne Arundel, Baltimore, Carroll, Cecil, Harford, Howard, Montgomery, and Prince George's counties and Baltimore City.").

Massachusetts:

MASS. GEN. LAWS ch. 164, § 69S (2012) ("Any company may petition the [Energy Facilities Siting Board] for the right to exercise the power of eminent domain with respect to oil pipelines specified and contained in the proposed notice of intention submitted in accordance with section 69J if such company is unable to reach agreement with the owners of land for acquisition of any necessary estate or interest in land."); *id.* § 69K ("Any . . . oil company which proposes to construct or operate facilities in the commonwealth may petition the board for a certificate of environmental impact and public interest with respect to such facility. The board shall consider such petition providing: the . . . oil company is prevented from building a facility because it cannot meet standards imposed by a state or local agency with commercially available equipment or because the processing or granting by a state or local agency of any approval, consent, permit or certificate has been unduly delayed for any

reason . . . ; or the . . . oil company believes there are inconsistencies among resource use permits issued by such state or local agencies; or the . . . oil company believes that a nonregulatory issue or condition has been raised or imposed by such state or local agencies such as but not limited to aesthetics and recreation; or the facility cannot be constructed due to any disapprovals, conditions or denials by a state or local agency or body, except with respect to any lands or interests therein, excluding public ways, owned or managed by any state agency or local government. With respect to the siting of oil facilities, *other than oil pipelines*, this section shall not be construed to override those local zoning by-laws in effect on the date when a notice of intention required by section sixty-nine *I* is filed." (emphasis added)); *see also* 980 MASS. CODE REGS. 6.00 (2014) for regulations governing certification of environmental impact and public need; Providence & Worcester R.R. Co. v. Energy Facilities Siting Bd., 899 N.E.2d 829 (Mass. 2009) (holding that the state Energy Facilities Siting Board was not authorized by statute, which defined "oil facility" as only new pipelines, to grant eminent domain power to a pipeline company acquiring an easement for its already existing pipeline).

Michigan:

MICH. COMP. LAWS ANN. § 483.2 (West 2008) ("For the purpose of acquiring necessary right-of-ways, every such corporation, association or person is hereby granted the right of condemnation by eminent domain, and the use of the highways in this state, for the purpose of transporting petroleum by pipe lines, and the location, laying, constructing, maintaining and operations thereof; and such condemnation proceedings shall be conducted in accordance with the same procedure and in the same manner as is provided by the laws of this state for the condemnation of right-of-ways by railroad companies."); *id.* § 213.52 ("(2) If property is to be acquired by an agency through the exercise of its power of eminent domain, the agency shall commence a condemnation action for that purpose. . . . (3) If a private agency is required by law to secure a certificate of public necessity from the public service commission or other public agency before it may acquire property, the private agency shall not institute judicial proceedings to acquire the property until it has secured the required certificate."); MICH. ADMIN. CODE r. 460.17601(1) (1999) ("An entity listed in this subrule shall file an application with the commission for the necessary authority to do the following: . . . (c) A corporation, association, or person conducting oil pipeline operations within the meaning of the provisions of Act No. 16 of the Public Acts of 1929, being § 483.1 et seq. of the Michigan Compiled Laws, that wants to construct facilities to transport crude oil or petroleum or any crude oil or petroleum products as a common carrier for which approval is required by statute."); Michigan Consol. Gas Co. v. Sohio Petroleum Co., 32 N.W.2d 353 (Mich. 1948) (holding that eminent domain power cannot be granted to an operator involved in a strictly private enterprise, for example, transporting natural gas from the operator's wells to a single purchaser).

Minnesota:

MINN. STAT. § 216G.02(2) (2012) ("A person may not construct a pipeline without a pipeline routing permit issued by the Public Utilities Commission unless the pipeline is exempted from the commission's routing authority under this section or rules adopted under this section. A pipeline requiring a permit may only be constructed on a route designated by the commission."); *id.* § 216G.06 (exempting interstate natural gas pipelines from the permit requirement); *id.* § 117.48 ("The business of transporting crude petroleum, oil, their related products and derivatives including liquefied hydrocarbons, or natural gas by pipeline as a common carrier, is declared to be in the public interest and necessary to the public welfare, and the taking of private property therefor is declared to be for a public use and purpose. . . . To such end [the corporation or association] shall have and enjoy the power of eminent domain . . . . Nothing herein shall be construed as authorizing the taking of any property owned by the state, or any municipal subdivision thereof, or the acquisition of any rights in public waters except after permit, lease, license or authorization issued pursuant to law."); *id.* § 216B.243(2) (providing that "[n]o large energy facility shall be sited or constructed in Minnesota without the issuance of a certificate of need by the commission pursuant to sections 216C.05 to 216C.30 and this section and consistent with the criteria for assessment of need," which the commission shall adopt "to be used in the determination of need for large energy facilities pursuant to this section"); *id.* § 216B.2421(2) ("'Large energy facility' means . . . (4) any pipeline greater than six inches in diameter and having more than 50 miles of its length in Minnesota used for the transportation of coal, crude petroleum or petroleum fuels or oil, or their derivatives . . . .").

Mississippi:

Mississippi does not require an oil pipeline operator to obtain a certificate of need or similar authorization prior to exercising eminent domain authority or commencing construction of an oil pipeline. MISS. CODE ANN. § 11-27-47 (2004) ("All companies . . . or natural gas districts, incorporated or organized for the purpose of building or constructing pipelines and appliances for the conveying and distribution of oil or gas . . . [are] hereby empowered to exercise the right of eminent domain in the manner now provided by law, and to build and construct the said pipelines and appliances along or across highways, waters, railroads, canals and public lands, above or below ground, but not in a manner to be dangerous to persons or property, nor to interfere with the common use of such roads, waters, railroads, canals and public lands."); MISS. CODE ANN. § 11-27-48 (Supp. 2013) ("No entity empowered under the laws of the State of Mississippi to exercise the power of eminent domain shall be required, as a condition precedent to exercising such power, to obtain from the applicable regulatory agency, whether the Mississippi Public Service Commission or the Federal Energy Regulatory Commission, or any successor agency, any of the following:

(a) A determination that the entity qualifies as one to which the Legislature has granted the power of eminent domain; (b) A determination that the entity has complied with state law in invoking the statutory power of eminent domain; or (c) A certificate of public convenience and necessity for the particular taking in question."); Ohio Oil Co. v. Fowler, 100 So.2d 128 (Miss. 1958) (holding that an oil company proposing to operate a common carrier pipeline was a company organized to construct pipelines for conveying oil for the purpose of exercising condemnation authority).

Missouri:

MO. ANN. STAT. § 523.010(1) (2000 & Supp. 2013) ("In case land, or other property, is sought to be appropriated by . . . any oil, pipeline or gas corporation engaged in the business of transporting or carrying oil . . . by means of pipes or pipelines laid underneath the surface of the ground . . . such corporation may apply to the circuit court of the county of this state where such land or any part thereof lies . . . ."); MO. ANN. STAT. § 523.262(2) (Supp. 2013) ("A private utility company, public utility, rural electric cooperative, municipally owned utility, pipeline, railroad or common carrier shall have the power of eminent domain as may be granted pursuant to the provisions of other sections of the revised statutes of Missouri."); Philips Pipe Line Co. v. Brandstetter, 263 S.W.2d 880 (Mo. Ct. App. 1954) (determining that "public use" in the context of a company transporting oil by pipeline and seeking to condemn private property means accepting the trade of the general public rather than choosing to limit clientele served).

Montana:

MONT. CODE ANN. § 69-13-101(1) (2013) ("A person, firm, corporation, limited partnership, joint-stock association, or association is a common carrier if it engages in: (a) owning, operating, or managing any pipeline or any part of any pipeline within the state for the transportation of crude petroleum . . . or the products of crude petroleum . . . to or for the public for hire or engaging in the business of transporting crude petroleum . . . [or] (d) owning, operating, or managing or participating in ownership, operation, or management, under lease, contract of purchase, agreement to buy or sell, or other agreement or arrangement of any kind whatsoever, any pipeline or any part of any pipeline for the transportation from any oil field . . . or place of production within this state to any distributing, refining, or marketing center or reshipping point within this state of crude petroleum . . . or the products of crude petroleum . . . ."); *id.* § 69-13-102(1) ("It is declared that the operation of pipelines to which this chapter applies for the transportation of crude petroleum . . . or the products of crude petroleum . . . , in connection with the purchase or purchase and sale of crude petroleum . . . or the products of crude petroleum, is a business in which the public is interested and is subject to regulation by law. The business of purchasing or of purchasing and selling crude petroleum . . . or the products of crude petroleum . . . , using in connection with that business a pipeline of the class subject to this chapter to

transport the crude petroleum . . . or the products of crude petroleum, may not be conducted unless the pipeline used in connection with that business is a common carrier within the purview of this chapter and subject to the jurisdiction conferred upon the commission."); *id.* § 69-13-104 ("Every person, firm . . . or association of any kind mentioned in this chapter that has filed with the commission its acceptance of the provisions of this chapter has the power of eminent domain. In the exercise of the power of eminent domain, the entity may enter upon and condemn the land, rights-of-way, easements, and property of any person or corporation necessary for the construction, maintenance, or authorization of the entity's common carrier pipeline."); *id.* § 70-30-102(20) (including common carrier pipelines—as defined in § 69-13-104—within the definition of public uses for which eminent domain authority may be exercised).

Nebraska:

NEB. REV. STAT. ANN. § 57-1404(2) (LexisNexis 2010) (defining a "major oil pipeline" as "a pipeline which is larger than six inches in inside diameter and which is constructed in Nebraska for the transportation of petroleum, or petroleum components, products, or wastes, including crude oil or any fraction of crude oil, within, through, or across Nebraska, but does not include in-field and gathering lines"); *id.* § 57-1405(1) ("If a pipeline carrier proposes to construct a major oil pipeline to be placed in operation in Nebraska after November 23, 2011, and the pipeline carrier has submitted a route for an oil pipeline within, through, or across Nebraska but the route is not approved by the Governor pursuant to section 57-1503, the pipeline carrier shall file an application with the commission and receive approval pursuant to section 57-1408 prior to beginning construction of the major oil pipeline within Nebraska."); *id.* § 57-1101 ("Any person engaged in, and any company, corporation, or association formed or created for the purpose of, transporting or conveying crude oil, petroleum, gases, or other products thereof . . . and desiring or requiring a right-of-way or other interest in real estate and being unable to agree with the owner or lessee of any . . . property as may be reasonably necessary for the laying, relaying, operation, and maintenance of any such pipeline . . . shall have the right to acquire the same for such purpose through the exercise of the power of eminent domain, except that for any major oil pipeline as defined in section 57-1404 to be placed in operation in the State of Nebraska after November 23, 2011, any such person, company, corporation, or association shall comply with section 57-1503 and receive the approval of the Governor for the route of the pipeline under such section or shall apply for and receive an order approving the application under the Major Oil Pipeline Siting Act, prior to having the rights provided under this section."). Nebraska's major oil pipeline siting laws are now on appeal after being invalidated by a state district court. *See* Order, Thompson v. Heineman, No. CI 12-2060, 2014 WL 631609 (Neb. Dist. Ct., Feb. 19, 2014).

Nevada:

NEV. REV. STAT. § 708.020 (2013) ("Every person, firm, corporation, partnership, joint-stock association or association of any kind whatever . . . [o]wning, operating or managing any pipeline or any part of any pipeline within the State of Nevada for the transportation of crude oil or petroleum to or for the public for hire, or engaged in the business of transporting crude oil or petroleum by pipeline; . . . [o]wning, operating or managing any pipeline or any part of any pipeline for the transportation of crude oil or petroleum to or for the public for hire, which pipeline is constructed or maintained upon, along, over or under any public road or highway, or in favor of whom the right of eminent domain exists; . . . or [o]wning, operating or managing or participating in ownership, operation or management, under lease, contract of purchase, agreement to buy or sell, or other agreement or arrangement of any kind whatever, any pipeline or pipelines, or part of any pipeline, for the transportation from any oil field or place of production within the State of Nevada to any distributing, refining or marketing center, or reshipping point thereof, within this state, of crude oil or petroleum bought of others or owned by others, is hereby declared to be a common carrier and subject to the provisions of this chapter."); *id.* § 708.025 ("It is unlawful for any oil pipeline carrier to operate as a carrier in intrastate commerce within this state without first having obtained a certificate of public convenience and necessity from the Commission."); *id.* § 708.035 (describing the factors the Public Utilities Commission must consider before granting an applicant a certificate of public convenience and necessity); *id.* § 37.010(1) ("Subject to the provisions of this chapter and the limitations in subsections 2 and 3, the right of eminent domain may be exercised in behalf of the following public uses . . . (k) Pipelines for the transportation of crude petroleum, petroleum products or natural gas, whether interstate or intrastate.").

New Hampshire:

N.H. REV. STAT. ANN. § 371:1 (LexisNexis 2008) ("Whenever it is necessary, in order to meet the reasonable requirements of service to the public, that any public utility should construct a line, branch line, extension, pipeline, conduit, line of poles, towers, or wires across the land of another, or should acquire land . . . or other rights for the necessary construction, extension, or improvement of any . . . works owned or operated by such public utility, and it cannot agree with the owners of such land or rights as to the necessity or the price to be paid therefor, such public utility may petition the public utilities commission for such rights and easements or for permission to take such lands or rights as may be needed for said purposes."); *id.* § 362:2(I) ("The term 'public utility' shall include every corporation, company, association, joint stock association, partnership and person, their lessees, trustees or receivers appointed by any court, except municipal corporations and county corporations operating within their corporate limits . . . owning or operating any pipeline, including pumping stations, storage depots and

other facilities, for the transportation, distribution or sale of gas, crude petroleum, refined petroleum products, or combinations of petroleum products . . . ."); *id.* § 371:15 ("Whenever . . . any petroleum pipeline company doing exclusively an interstate business, shall be unable to acquire necessary lands by purchase, lease or otherwise, it may institute condemnation proceedings [as provided in detail in this section]."); *id.* § 162-H:5(I) ("No person shall commence to construct any energy facility within the state unless it has obtained a certificate pursuant to this chapter. . . . Such certificates are required for sizeable changes or additions to existing facilities."); *id.* § 162-H:2(VI)–(VII) ("'Energy' means power, including mechanical power or useful heat derived from any resource, including, but not limited to, oil, coal, and gas. . . . 'Energy facility' means: (a) Any industrial structure that may be used substantially to extract, produce, manufacture, transport or refine sources of energy, including ancillary facilities as may be used or useful in transporting, storing or otherwise providing for the raw materials or products of any such industrial structure. This shall include but not be limited to industrial structures such as oil refineries, gas plants, equipment and associated facilities designed to use any, or a combination of, natural gas, propane gas and liquefied natural gas, which store on site a quantity to provide 7 days of continuous operation at a rate equivalent to the energy requirements of a 30 megawatt electric generating station and its associated facilities, plants for coal conversion, onshore and offshore loading and unloading facilities for energy sources and energy transmission pipelines that are not considered part of a local distribution network.").

New Jersey:

N.J. STAT. ANN. § 48:3-17.6 (West 2009) ("Any of the following types of public utilities now or hereafter organized and existing under and by virtue of any law of this State: electric light, heat and power; canal; gas; pipeline . . . in addition to and not in substitution of whatever other right, power and authority it may have and possess, may, subject to the restrictions as provided hereinafter, take or acquire under the provisions of P.L.1971, c. 361 (C. 20:3-1 et seq.), such property or other interest therein which may be reasonably necessary for the purposes enumerated for each such utility in the succeeding sections hereto."); *id.* § 48:3-17.7 ("Except where a governmental agency having jurisdiction has granted the utility the permission to take or acquire property or any interests for the utility's purposes the power of condemnation shall not be used or enforced by any public utility until and unless such utility shall have applied to the Board of Public Utility Commissioners upon the petition of such utility. . . . The board is hereby authorized and empowered to determine the necessity as aforesaid for the use of the land or other property or interest therein so sought to be condemned . . . ."); *id.* § 48:2-13 ("The term 'public utility' shall include every individual, copartnership, association, corporation or joint stock company . . . that now or hereafter may own, operate, manage or control within this State any . . . oil . . . plant or

equipment for public use, under privileges granted or hereafter to be granted by this State or by any political subdivision thereof."); *id.* § 48:10-1 ("Pipe line companies, associations and corporations may acquire by condemnation land and other property necessary for public use for right of way in the manner prescribed by chapter 1 of the title Eminent Domain (§ 20:1-1 et seq.)."); *id.* § 20:3-48 ("Any reference to Title 20 of the Revised Statutes or to any section or sections thereof or any amendment or supplement thereof in any other statute, in effect on the effective date of this act, shall hereafter be given effect as though reference therein were made to this act or the applicable provisions thereof."). While pipelines that are public utilities must apply to the Board of Public Utility Commissioners before using or enforcing the power of eminent domain, *see* § 48:3-17.7, it appears there may be some pipeline companies that are not public utilities. *Compare* § 48:2-13, *with* § 48:10-1. While those non-public utility companies must follow the condemnation procedures provided in Title 20 of the Revised Statutes, *see* § 20:3-48, they need not petition the Board before exercising the power of eminent domain.

New Mexico:

N.M. STAT. ANN. § 70-3-5(A) (West 2003) ("Any person, firm, association or corporation may exercise the right of eminent domain to take and acquire the necessary right-of-way for the construction, maintenance and operation of pipelines . . . for the purpose of conveyance of petroleum . . . . Such land and right-of-way shall be acquired in the manner provided by the Eminent Domain Code."); *id.* § 70-3-5(B) ("The authorization provided for pursuant to Subsection A of this section for pipelines conveying petroleum, natural gas, carbon dioxide gas and products derived therefrom shall apply to trunk lines, including lines owned or operated by public utilities or interstate pipelines connecting a well or wells under a purchase or conveying contract, and shall not apply to gathering lines other than pipelines owned or operated by public utilities or their affiliates or interstate pipelines or to operators of pipelines whose rates are prescribed or whose operations are licensed by the state corporation commission [public regulation commission] pursuant to Section 70-3-1 or 70-3-2 NMSA 1978."); *id.* § 70-3-13(E) (providing that the public regulation commission may *not* "prescribe the location or routing of any oil, hazardous liquid or gas pipeline facility" in the context of the Pipeline Safety Act); Kennedy v. Yates Petroleum Corp., 725 P.2d 572 (N.M. 1986) (determining that the legislature clearly included a petroleum company that owned a gathering pipeline and did not register as a common carrier prior to exercising the right of eminent domain within the list of entities entitled to eminent domain power).

New York:

N.Y. TRANSP. LAW § 80 (McKinney 1996) ("A pipe line corporation is a corporation organized to construct and operate for public use, wholly within or partly without this state, except in the city of New York, lines of pipe for conveying or transporting therein petroleum, gas, liquids or any products or

property, or, except in such city, to maintain and operate for public use for which such purposes lines of pipe already constructed."); *id.* § 83 ("In case such corporation is unable to agree for the purchase of any real property required for the purposes of its incorporation, and its route in the county in which such real property is situated has been finally located, it shall have the right to acquire title thereto by condemnation . . . ."); *id.* § 82 (providing the process a pipe line corporation must follow "[b]efore commencing the construction of its pipe line in any county, and before commencing any proceeding for the condemnation of real property," but not requiring a certificate of public convenience and necessity); *id.* § 2(6) (including pipeline corporations in the definition of "transportation corporation").

North Carolina:

N.C. GEN. STAT. § 62-190(a) (2013) ("Any pipeline company transporting or conveying natural gas, gasoline, crude oil, coal in suspension, or other fluid substances by pipeline for the public for compensation, and incorporated under the laws of the State, or foreign corporations domesticated under the laws of North Carolina, may exercise the right of eminent domain under the provisions of the Chapter, Eminent Domain, and for the purpose of constructing and maintaining its pipelines and other works shall have all the rights and powers given other corporations by this Chapter and acts amendatory thereof. . . . All such pipeline companies shall be deemed public utilities and shall be subject to regulation under the provisions of this Chapter."); *id.* § 62-3(23) ("'Public utility' means a person, whether organized under the laws of this State or under the laws of any other state or country, now or hereafter owning or operating in this State equipment or facilities for . . . [t]ransporting or conveying gas, crude oil or other fluid substance by pipeline for the public for compensation . . . ."); *id.* § 40A-3(a)(1) ("Corporations, bodies politic or persons have the power of eminent domain for the construction of . . . pipelines or mains originating in North Carolina for the transportation of petroleum products, coal, gas, limestone or minerals. Land condemned for any liquid pipelines shall: Not be less than 50 feet nor more than 100 feet in width . . . ."). Private condemnors must exercise the power of eminent domain according to the procedures of Article 2, Chapter 40A. *Id.*

North Dakota:

N.D. CENT. CODE § 49-19-01 (2014) ("Every person: (1) Owning, operating, or managing any pipeline or any part of any pipeline within this state for the transportation of crude petroleum, gas, coal, or carbon dioxide to or for the public for hire, or engaged in the business of transporting crude petroleum . . . by pipelines; (2) Owning, operating, managing, or participating in the ownership, operation, or management of, under lease, contract of purchase, agreement to buy or sell, or other agreement or arrangement of any kind whatsoever, any pipeline, or any part of any pipeline, for the transportation of crude petroleum, gas, or coal bought from others

from any oil, gas, or coal field or place of production, to any distributing, refining, or marketing center or reshipping point . . . is a common carrier and is subject to the provisions of this chapter as a common pipeline carrier."); *id.* § 49-19-12 ("Every common pipeline carrier which shall have filed with the commission its acceptance of the provisions of this chapter has, subject to chapter 32-15, the right and power of eminent domain in the exercise of which it may enter upon and condemn the land, right of way, easements, and property of any person necessary for the construction, maintenance, or authorization of its pipeline. The manner and method of such condemnation, and the assessment and payment of the damages therefor are the same as is provided by law in the case of railroads."). A pipeline company must be a common carrier *and* obtain a route permit from the Public Service Commission before it constructs a pipeline or exercises its eminent domain authority. *Id.* § 49-22-07(1) ("A utility may not begin construction of an energy conversion facility or transmission facility in the state without first having obtained a certificate of site compatibility or a route permit from the commission pursuant to this chapter."); *id.* § 49-22-03(13) ("'Utility' means any person engaged in and controlling the generation, manufacture, refinement, or transmission of electric energy, gas, liquid hydrocarbons, or liquid hydrocarbon products, including . . . petroleum refinement . . . and the transmission of . . . liquid hydrocarbons, or liquid hydrocarbon products . . . from or to any energy conversion facility."); *id.* § 49-22-03(12) ("'Transmission facility' means . . . (b) A gas or liquid transmission line and associated facilities designed for or capable of transporting coal, gas, liquid hydrocarbons, liquid hydrocarbon products, or carbon dioxide. This subdivision does not apply to: [(1)] An oil or gas pipeline gathering system . . . [or to pipelines less than a minimum designated diameter or length] . . . . For purposes of this chapter, a gathering system includes the pipelines and associated facilities used to collect oil from the lease site to the first pipeline storage site where pressure is increased for further transport . . . ."). Sections 49-22-08 and 40-22-08.1 establish the process of applying for a certificate of site compatibility and a route permit, respectively. Section 49-22-09 provides a noninclusive list of factors the Public Service Commission must consider in evaluating sites, corridors, and route applications. Eckre v. Pub. Service Comm'n, 247 N.W.2d 656 (N.D. 1976) (determining that common carrier pipelines must not only first file an acceptance of statutory provisions prior to using eminent domain but also comply with several other statutory prerequisites to eminent domain authority, including utility franchise statutes and the Energy Conversion and Transmission Facility Siting Act).

Ohio:

OHIO REV. CODE ANN. § 1723.01 (LexisNexis 2009) ("If a company is organized for the purpose of . . . transporting . . . petroleum . . . through tubing, pipes, or conduits . . . then such company may enter upon any private land to examine or survey lines for its tubing, pipes, [and] conduits . . . and

may appropriate so much of such land, or any right or interest therein, as is deemed necessary for the laying down or building of such . . . pipes . . . necessary to the purposes of such companies . . . ."); *id.* § 4905.03(F) (providing that companies subject to the public utilities commission include "[a] pipe-line company, when engaged in the business of transporting natural gas, oil, or coal or its derivatives through pipes or tubing, either wholly or partly within this state, but not when engaged in the business of the transport associated with gathering lines, raw natural gas liquids, or finished product natural gas liquids").

Oklahoma:

OKLA. STAT. ANN. tit. 52, § 52 (West 2011) ("For the purpose of acquiring necessary right-of-way, every such person as defined in this act is hereby granted the right of condemnation by eminent domain, and the use of the highways in this state, for the purpose of transporting petroleum, liquid or liquifiable hydrocarbons and chemicals, except coal, which are transportable by pipeline, and for the location, laying, construction, maintaining and operation thereof."); *id.* § 60 ("Any oil pipeline company, organized under the laws of this state shall have power to exercise the right of eminent domain in like manner as railroad companies for the purpose of securing rights-of-way and sites for pumping stations, storage tanks and depots."); *id.* tit. 66, § 51 ("Every railroad corporation incorporated under this article . . . has power and is authorized to enter upon any land for the purpose of examining and surveying its railroad, and to take, hold and appropriate so much real estate as may be necessary for the location, construction and convenient use of its road . . . ."); French v. Ayres, 207 P.2d 308 (Okla. 1949) (determining that giving an oil pipeline company authority to exercise eminent domain "in like manner as railroad companies" [OKLA. STAT. tit. 52, § 60] relates only to the procedure for exercising eminent domain power and not the quantity of property oil pipelines can acquire by eminent domain); *see also* OKLA. STAT. ANN. tit. 52, § 58 ("Before any corporation, joint-stock company, partnership or person, shall have, possess, enjoy or exercise the right of eminent domain, right-of-way, right to locate, maintain or operate pipelines, fixtures or equipment thereunto belonging, or used in connection therewith . . . every such [entity] shall file in the office of the Corporation Commission a proper and explicit authorized acceptance of the provisions of this article, and the Constitution of this state, and in cases of pipelines a plat showing in detail the points within this state between which, and the route along which, the trunk lines are proposed to be constructed, the intended size and capacity thereof, and the location and capacity of all pumping stations, gate valves, check valves and connections and appliances of all kinds used, or to be used, on said trunk lines . . . ."); *id.* § 67 ("(A) The Corporation Commission shall have the authority to establish a schedule for all state pipeline authorizations with respect to crude oil or refined petroleum product pipeline facilities. . . . (D) Upon application by a qualified applicant, the Commission shall issue an

order authorizing, in whole or in part, the siting, construction, expansion, or operation of a crude oil or refined petroleum product pipeline facility which is located in either interstate or intrastate commerce. . . . (E) If the holder of a Commission order issued pursuant to this section cannot acquire by contract, or is unable to agree with the owner of the property on the amount of compensation to be paid for: (1) The necessary right-of-way to site, construct, operate, and maintain a pipeline or pipelines for the transportation of crude oil or refined petroleum products; and (2) The necessary land or other property for the location of compressor stations, pressure apparatus, or other stations or equipment necessary to the proper operation of such pipeline or pipelines, the holder of the order may acquire the property through the exercise of the right of eminent domain in an Oklahoma court of competent jurisdiction as allowed under the Constitution of the State of Oklahoma.").

Oregon:

OR. REV. STAT. ANN. § 772.510 (West 2003 & Supp. 2014) ("(1) Any pipeline company that is a common carrier and that is regulated as to its rates or practices by the United States or any agency thereof, may enter in the manner provided by ORS 35.220 upon lands within this state outside the boundaries of incorporated cities. . . . (3) These pipeline companies may appropriate and condemn such lands . . . in such width as is reasonably necessary to accomplish their pipeline company purposes, by proceedings for condemnation as prescribed by ORS chapter 35."); OR. REV. STAT. ANN. § 35.220(1) (West 2013) ("[A] condemner may enter upon, examine, survey, conduct tests upon and take samples from any real property that is subject to condemnation by the condemner. A condemner may not enter upon any land under the provisions of this section without first attempting to provide actual notice to the owner or occupant of the property."); OR. REV. STAT. ANN. § 772.520(1) (2003) ("Prior to the filing of any condemnation action under ORS 772.510, the pipeline company shall adopt a resolution showing the approximate route and termini of the proposed pipeline, or the extension or branch of any existing pipeline."); *id.* § 772.520(2) ("A copy of this resolution, certified by the pipeline company, shall be filed in the office of the Secretary of State, in the office of each county clerk of those counties where such pipeline, extension or branch of an existing pipeline is proposed to be constructed, and also in the office of the Public Utility Commission."). Oil pipelines must acquire a site certificate from the Oregon Energy Facility Siting Council before beginning construction. *See* OR. REV. STAT. ANN. § 469.320 (West 2003 & Supp. 2014). Section 469.300 defines "energy facility" as including:

> A pipeline that is: (i) At least six inches in diameter, and five or more miles in length, used for the transportation of crude petroleum or a derivative thereof, liquefied natural gas, a geothermal energy form

> in a liquid state or other fossil energy resource, excluding a pipeline conveying natural or synthetic gas.

Id. § 469.300 Section 469.330 describes applicants' obligation to submit a notice of intent to file an application for a site certificate, among other procedures. Before it may issue a facility site certificate, the Council must find "that the preponderance of the evidence on the record supports" a number of conclusions pertaining to, among other things, the public interest and carbon dioxide emissions standards. *See id.* § 469.503.

Pennsylvania:

66 PA. CONS. STAT. ANN. § 1104 (West 2000) ("Unless its power of eminent domain existed under prior law, no domestic public utility or foreign public utility authorized to do business in this Commonwealth shall exercise any power of eminent domain within this Commonwealth until it shall have received the certificate of public convenience required by section 1101."); *id.* § 1103(a) ("A certificate of public convenience shall be granted by order of the commission, only if the commission shall find or determine that the granting of such certificate is necessary or proper for the service, accommodation, convenience, or safety of the public."); *id.* § 102 (stating that a "public utility" includes "[a]ny person or corporations now or hereafter owning or operating in this Commonwealth equipment or facilities for: . . . (v) Transporting or conveying natural or artificial gas, crude oil, gasoline, or petroleum products, materials for refrigeration, or oxygen or nitrogen, or other fluid substance, by pipeline or conduit, for the public for compensation"); *id.* tit. 75, § 9019(1) ("A person must obtain a diesel fuel transporter's permit in order to import, export or transport within this Commonwealth diesel fuel, other than dyed diesel fuel, via a pipeline or by means of a tank-truck vehicle, railroad tank car or vessel with a capacity of 2,000 gallons or more. The permit application must be filed with the department upon a form prescribed by the department.").

Rhode Island:

R.I. GEN. LAWS § 39-1-31(a) (2006) ("Before exercising any power of condemnation a company shall present a petition to the [public utilities]commission . . . setting forth why it is necessary to acquire it by eminent domain. The commission shall set a time and place for hearing the petition and shall give such notice as the commission deems the circumstances require. If the commission shall determine that the proposed taking is for the benefit of the people of the state . . . it shall issue a certificate authorizing the company to proceed with condemnation."); *id.* § 42-98-4 ("No person shall site, construct, or alter a major energy facility within the state without first obtaining a license from the siting board pursuant to this chapter."); *id.* § 42-98-3(d) ("'Major energy facility' means . . . facilities for the refining of oil, gas, or other petroleum products . . . and facilities associated with the transfer of oil, gas, and coal via pipeline; . . . the board may promulgate regulations to further define 'major energy facility' to the extent

further definition is required to carry out the purpose of this chapter . . . ."); *id.* § 42-98-2(7) ("Before approving the construction, operation and/or alteration of major energy facilities, the [energy facility siting] board shall determine whether cost effective efficiency and conservation opportunities provide an appropriate alternative to the proposed facility."). Section 42-98-8 describes obligations of applicants seeking licenses from the board, and section 42-98-9 provides procedures for review of applications by the board.

South Carolina:

S.C. CODE ANN. § 58-7-10 (1977) ("Subject to the same duties and liabilities, all the rights, powers and privileges conferred upon telegraph and telephone companies under Article 17 of Chapter 9 of this Title are hereby granted to pipeline companies incorporated under the laws of this State or . . . [compliant] foreign corporations."); *id.* § 58-9-2030 (1977 & Supp. 2013) ("Whenever any telegraph or telephone company desires to construct its lines on, over, or under the lands of any person . . . the company may secure the right and privilege by condemnation actions against the condemnees . . . ."); *id.* § 58-9-2020 (1977) ("Any telegraph or telephone company incorporated under the laws of this State and any such company incorporated under the laws of any other state . . . may construct, maintain and operate its line through, upon, over and under any of the public lands of this State, under, over, along and upon any of the highways or public roads of the State, over, through or under any of the waters of this State, on, over and under the lands of any person in this State and along, upon and over the right of way of any railroad or railway company in this State.").

South Dakota:

S.D. CODIFIED LAWS § 49-7-13 (2004) ("Any pipeline companies owning a pipeline which is a common carrier as defined by § 49-7-11 may exercise the right of eminent domain in acquiring right-of-way as prescribed by statute."); *id.* § 49-7-11 ("All pipelines holding themselves out to the general public as engaged in the business of transporting commodities for hire by pipeline are common carriers and are not subject to the provisions of Title 49 except as provided by this chapter and chapter 49-41B."); *id.* § 49-41B-4 ("No utility may begin construction of a facility in the state on or after July 1, 1979, without first having obtained a permit issued with respect to such facility by the Public Utilities Commission pursuant to this chapter."); *id.* § 49-41B-2(12) (2004 & Supp. 2013) (A "[u]tility" is "any person engaged in and controlling the generation or transmission of electric energy and gas or liquid transmission facilities as defined by § 49-41B-2.1 . . . ."); *id.* § 49-41B-2.1 ("For the purposes of this chapter, a transmission facility is . . . [a] gas or liquid transmission line and associated facilities designed for or capable of transporting coal, gas, liquid hydrocarbons, liquid hydrocarbon products, or carbon dioxide, excluding any gas or liquid transmission lines or associated facilities which meet any of the following criteria: (a) Lines or facilities that are used exclusively for distribution or gathering; (b) Steel pipe and

associated facilities that cannot be operated at a hoop stress of twenty percent or more of specified minimum yield strength as defined by 49 CFR 192.3 as of January 1, 2013, or plastic pipe and associated facilities that cannot be operated at a design pressure of fifty percent or more as determined by the formula specified in 49 CFR 192.121 as of January 1, 2013; or (c) Pipe which has nominal diameter of less than four inches and not more than one mile of the entire line is constructed outside of public right-of-way."). Various sections of Chapter 49-41b provide procedures for obtaining such a permit from the Public Utilities Commission.

Tennessee:

TENN. CODE ANN. § 65-22-101 (2004) ("Every corporation organized under the laws of any state of the United States and . . . authorized to store, transport or distribute natural or artificial gas or oil to be used in producing light, heat or mechanical power, for sale to the public generally or to utility corporations for resale to the public generally, and, for any or all of such purposes, authorized to construct and maintain pipelines, is empowered to condemn and take upon paying or securing payment thereof, to purchase or otherwise acquire . . . such lands and interests in lands as may be necessary or advisable for establishing and maintaining its . . . pipelines . . . . If the owner and the corporation cannot agree upon the amount of compensation which should be paid, the taking shall proceed and the damages or compensation to be paid shall be assessed in the manner provided by title 29, chapter 16."); *id.* § 65-4-201(a) ("No public utility shall establish or begin the construction of, or operate any line, plant, or system, or route in or into a municipality or other territory already receiving a like service from another public utility, or establish service therein, without first having obtained from the authority, after written application and hearing, a certificate that the present or future public convenience and necessity require or will require such construction, establishment, and operation, and no person or corporation not at the time a public utility shall commence the construction of any plant, line, system, or route to be operated as a public utility, or the operation of which would constitute the same, or the owner or operator thereof, a public utility as defined by law, without having first obtained, in like manner, a similar certificate . . . ."); *id.* § 65-4-101(6)(A) ("'Public utility' means every individual, copartnership, association, corporation, or joint stock company, its lessees, trustees, or receivers, appointed by any court whatsoever, that own, operate, manage or control, within the state, any interurban electric railway, traction company, all other common carriers, express, gas, electric light, heat, power, water, telephone, telegraph, telecommunications services, or any other like system, plant or equipment, affected by and dedicated to the public use, under privileges, franchises, licenses, or agreements, granted by the state or by any political subdivision thereof."); *id.* § 65-4-203(a) ("The authority shall not grant a certificate for a proposed route, plant, line, or system, or extension thereof, which will be in competition with any other route, plant,

line, or system, unless it shall first determine that the facilities of the existing route, plant, line, or system are inadequate to meet the reasonable needs of the public, or the public utility operating the same refuses or neglects or is unable to or has refused or neglected, after reasonable opportunity after notice, to make such additions and extensions as may reasonably be required under the provisions of this part.").

Texas:

TEX. NAT. RES. CODE ANN. § 111.019(a) (West 2011) ("Common carriers have the right and power of eminent domain."); *id.* § 111.002 ("A person is a common carrier subject to the provisions of this chapter if it: (1) owns, operates, or manages a pipeline or any part of a pipeline in the State of Texas for the transportation of crude petroleum to or for the public for hire, or engages in the business of transporting crude petroleum by pipeline; . . . (4) under lease, contract of purchase, agreement to buy or sell, or other agreement or arrangement of any kind, owns, operates, manages, or participates in ownership, operation, or management of a pipeline or part of a pipeline in the State of Texas for the transportation of crude petroleum, bought of others, from an oil field or place of production within this state to any distributing, refining, or marketing center or reshipping point within this state . . . ."); *id.* § 111.019(b) ("In the exercise of the power of eminent domain granted under the provisions of Subsection (a) of this section, a common carrier may enter on and condemn the land, rights-of-way, easements, and property of any person or corporation necessary for the construction, maintenance, or operation of the common carrier pipeline."); *see also* Tex. Rice Land Partners v. Denbury Green Pipeline-Tex., 363 S.W.3d 192 (Tex. 2012) (distinguishing CO_2 pipelines from oil pipelines and holding that unlike oil pipelines, CO_2 pipelines must affirmatively establish common carrier status to exercise eminent domain).

Utah:

UTAH CODE ANN. § 78B-6-501 (LexisNexis 2012) ("Subject to the provisions of this part, the right of eminent domain may be exercised on behalf of the following public uses . . . (6)(d) gas, oil or coal pipelines, tanks or reservoirs.").

Vermont:

VT. STAT. ANN. tit. 29, § 505 (b) (2008) ("Without limiting its general authority, the board may . . . (8) require certificates of clearance in connection with the transportation or delivery of oil, gas, or product."); *id.* § 503(2) ("'Certificate of clearance' means a permit prescribed by the board for the transportation or the delivery of oil or gas or product.").

Virginia:

VA. CODE ANN. § 56-1 (2012) ("'Public service corporation' or 'public service company' includes gas, pipeline, electric light, heat, power and water supply companies, sewer companies, telephone companies, and all persons authorized to transport passengers or property as a common carrier."); *id.*

§ 56-49 ("[E]ach public service corporation of this Commonwealth organized to conduct a public service business other than a railroad shall have the power . . . (2) To acquire by the exercise of the right of eminent domain any lands or estates or interests therein, sand, earth, gravel, water or other material, structures, rights-of-way, easements or other interests in lands, including lands under water and riparian rights, of any person, which are deemed necessary for the purposes of construction, reconstruction, alteration, straightening, relocation, operation, maintenance, improvement or repair of its lines, facilities or works, and for all its necessary business purposes incidental thereto, for its use in serving the public either directly or indirectly through another public service corporation, including permanent, temporary, continuous, periodical or future use, whenever the corporation cannot agree on the terms of purchase or settlement with any such person because of the incapacity of such person or because of the inability to agree on the compensation to be paid or other terms of settlement or purchase, or because any such person cannot with reasonable diligence be found or is unknown, or is a nonresident of the Commonwealth, or is unable to convey valid title to such property."). Crude oil and petroleum product pipeline companies organized and chartered in Virginia as public service corporations or companies may exercise eminent domain. The Supreme Court of Appeals found that section 56-1 and section 56-49 apply to a pipeline company that transported crude oil and petroleum products as a common carrier. The court held that the company's exercise of eminent domain authority was not conditioned upon its obtaining a certificate of public convenience and necessity from the State Corporation Commission, pursuant to section 56-265.2, which applies only to public utilities according to section 56-265.1(b). Crude oil and petroleum pipelines are not included in the definition of "public utility." Peck Iron & Metal Co. v. Colonial Pipeline Co., 146 S.E.2d 169 (Va. 1966).

Washington:

WASH. REV. CODE ANN. § 80.50.010 (West 2001 & Supp. 2014) (adopting as policy a "recogni[tion of] the pressing need for increased energy facilities"); *id.* § 80.50.030 (establishing an energy facility site evaluation council); *id.* §§ 80.50.40, 80.50.60, 80.50.071, 80.50.100 (explaining the power of the site evaluation council to receive, review applications for new or expanded energy facilities, and refer them to the governor for approval or issue order denying applications); *id.* § 80.50.020(21) (West 2001) (stating that "transmission facility[ies]" subject to the chapter include "[c]rude or refined petroleum or liquid petroleum product transmission pipeline[s] . . . larger than six inches minimum inside diameter between valves for the transmission of these products with a total length of at least fifteen miles"); WASH. ADMIN. CODE § 463-60-010 (2014) (providing applications to the site evaluation council must follow application guidelines found herein); *see also* WASH. REV. CODE ANN. § 81.88.020 (West 2001) ("All corporations having for

one of their principal purposes the construction, maintenance and operation of pipe lines and appurtenances for the conveyance and transportation as common carriers of oils, gas, gasoline and other petroleum products shall be subject to control and regulation by the commission in the same manner and to the same extent as other public service corporations. The power of eminent domain is hereby conferred upon such corporations to be used for acquiring rights of way for common carrier pipe lines and they shall have the right to condemn and appropriate lands and property and interests therein for their use under the same procedure as is provided for the condemnation and appropriation of private property by railway companies . . . ."); *id.* § 81.88.030 ("Every person, copartnership, corporation or other association now or hereafter engaged in the business of producing from natural deposits and/or carrying or transporting natural gas and/or crude oil or petroleum or the products thereof for hire, by pipe lines within this state shall be a common carrier within the meaning and subject to the provisions of this title . . . .").

West Virginia:

W. VA. CODE ANN. § 54-1-2(a) (LexisNexis 2008) ("The public uses for which private property may be taken or damaged are as follows: . . . (3) For constructing, maintaining and operating pipelines, plants, systems and storage facilities for manufacturing gas and for transporting petroleum oil, natural gas, manufactured gas, and all mixtures and combinations thereof, by means of pipes, pressure stations or otherwise. . . ."); *id.* § 24-2-11(a) (LexisNexis 2013) ("A public utility, person or corporation may not begin the construction of any plant, equipment, property or facility for furnishing to the public any of the services enumerated in section one, article two of this chapter, nor apply for, nor obtain any franchise, license or permit from any municipality or other governmental agency, except ordinary extensions of existing systems in the usual course of business, unless and until it shall obtain from the Public Service Commission a certificate of public convenience and necessity authorizing such construction franchise, license or permit."). Section 24-2-1(a) describes the public services requiring a certificate from the PSC:

> The jurisdiction of the commission shall extend to all public utilities in this state and shall include any utility engaged in any of the following public services: Common carriage of passengers or goods, whether by air, railroad, street railroad, motor or otherwise, by express or otherwise, by land, water or air, whether wholly or partly by land, water or air; [and] transportation of oil, gas or water by pipeline . . . .

Id. § 24-2-1(a).

Wisconsin:

WIS. STAT. ANN. § 32.02 (West 2006 & Supp. 2013) ("The following . . . corporations may acquire by condemnation any real estate . . . for the purposes specified[:] . . . (9) Any Wisconsin corporation transmitting gas, oil or related products in pipelines for sale to the public directly or for sale to one or more other corporations furnishing such gas, oil or related products to the public . . . [and] (13) Any corporation licensed to do business in Wisconsin that shall transmit oil or related products including all hydrocarbons which are in a liquid form at the temperature and pressure under which they are transported in pipelines in Wisconsin, and shall maintain terminal or product delivery facilities in Wisconsin, and shall be engaged in interstate or international commerce . . . ."); *id.* § 32.035(4) ("The department shall prepare an agricultural impact statement for each project, except a project under ch. 82 or a project located entirely within the boundaries of a city or village, if the project involves the actual or potential exercise of the powers of eminent domain and if any interest in more than 5 acres of any farm operation may be taken. The department may prepare an agricultural impact statement on a project located entirely within the boundaries of a city, village, or town or involving any interest in 5 or fewer acres of any farm operation if the condemnation would have a significant effect on any farm operation as a whole.").

Wyoming:

WYO. STAT. ANN. § 1-26-814 (2013) ("Whenever any utility or any petroleum or other pipeline company, authorized to do business in this state, has not acquired by gift or purchase any land, real estate or claim required for the construction, maintenance and operation of their facilities and appurtenances or which may be affected by any operation connected with the construction or maintenance of the same, the utility or company has the right of eminent domain and may condemn the easement required by the utility or company."); *id.* § 1-26-816 ("No person shall institute a condemnation proceeding relating to any facility for which a certificate of public necessity and convenience is required until the certificate has been issued."); *id.* § 37-2-205 ("No public utility shall begin construction of a line, plant or system, or of any extension of a line, plant or system without having first obtained from the commission a certificate that the present or future public convenience and necessity require or will require such construction."); *id.* § 37-1-101(a)(vi) ("'Public utility' means and includes every person that owns, operates, leases, controls or has power to operate, lease or control: . . . (G) Any plant, property or equipment for the transportation or conveyance to or for the public of oil or gas by pipeline . . . .").