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A Bridge to Nowhere? Our Energy Transition and the Natural Gas Pipeline Wars

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TABLE OF CONTENTS

I. INTRODUCTION

The nascent "pipeline wars" have supplanted the so-called war against coal. Less than three months into the new administration, Environmental Protection Agency (EPA) Administrator Scott Pruitt declared that "the war on coal is done."[1] True. But it's over because too many factors make steam coal unattractive in energy markets, not because traditional steam coal has an energy future. The decision by many electric utilities to shutter their coal plants and shift instead toward natural gas and renewables counsels consideration of a new conflict. In February 2019, New York University Law School's Guarini Center hosted an event titled "Pipe-

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1. Benjamin Storrow, *Coal, Once King in Texas, Sees Wind as "Real Competitor,"* E&E NEWS (Apr. 14, 2017), https://www.eenews.net/climatewire/2017/04/14/stories/1060053097; *see also* Kevin Bogardus, *Pruitt Touts End of "War on Coal"*, E&E NEWS (May 2, 2017), https://www.eenews.net/stories/1060053927.

line Wars: The Battles Over Gas Infrastructure."[2] The Center observed that "almost every major pipeline project is now a legal battleground between the industry and activist groups."[3] Indeed, as one news source reports:

> [f]rom gas pipelines between Asia and Europe, to the web of infrastructure transporting high-carbon Alberta tar sands oil across North America, to pipes crisscrossing the Niger Delta and traversing the southern highlands of Mexico, local communities, environmentalists, social justice activists and indigenous rights movements—and sometimes armed militants—have been fiercely resisting pipelines.[4]

Protests against new pipeline infrastructure are so intense that the industry is worried about growing threats of vandalism.[5]

Much is at stake. A sufficiently robust and reliable natural gas pipeline infrastructure could supply a new dominant fuel for the electric grid. And we may need that supply. U.S. electric power consumption has remained fairly stable over the past few years, partly due to increased energy efficiency. But our energy consumption has grown since 1950 and electric demand is likely to continue to grow through 2050.[6] This growth could be slow, at roughly 1% annually.[7] Projections suggest that natural gas consumption (for heating as well as electricity) could increase between 18% and 40% from 2015 levels in that time.[8] Natural gas, consequently, could reign as the dominant fuel through 2050 absent countervailing policies.[9] While regions with highly interconnected pipeline systems are less

2. Paul Hartman et al., Symposium at the NYU School of Law Guarini Center on Environmental, Energy, and Land Use Law, Pipeline Wars: The Battles Over Gas Infrastructure Development (Feb. 6, 2019), https://guarinicenter.org/feb-6-2019-pipelines-wars-the-battles-over-gas-pipeline-development/.

3. *Id.* For oil pipelines, the Petroleum Economist similarly reports how, since Keystone XL, "nearly every major pipeline project in the US is a battleground between the industry and activists looking to derail Big Oil." Justin Jacobs, *America's Pipeline Wars*, PETROLEUM ECON. (Nov. 7, 2016), https://www.petroleum-economist.com/articles/midstream-downstream/pipelines/2016/americas-pipeline-wars.

4. Stuart Braun, *Pipeline Wars: Front Line in the Fight Against Climate Change*, DW (Nov. 20, 2018), https://www.dw.com/en/pipeline-wars-front-line-in-the-fight-against-climate-change/a-46334177.

5. *See* Mike Soraghan, *Trump Plan to Jail Protesters: Justice or 'Un-American'?*, E&E NEWS (July 11, 2019), https://www.eenews.net/energywire/2019/07/11/stories/1060722755.

6. ELEC. POWER RESEARCH INST., U.S. NATIONAL ELECTRIFICATION ASSESSMENT 12 (2018) [hereinafter EPRI]. We could experience a significant overall energy consumption decrease, even though electricity use might increase. Some growth is projected to occur from increased penetration from EVs, as well as "[h]eat pumps for space and water heating, along with electric technologies in industry and heavy transportation." *Id.* at ES-7.

7. EIA, ANNUAL ENERGY OUTLOOK 2019: WITH PROJECTIONS TO 2050, at 90 (2019).

8. EPRI, *supra* note 6, at 8.

9. *See infra* notes 114-20 and accompanying text.

vulnerable to supply disruptions, regions such as the northeast are less interconnected and more susceptible to supply disruptions and power outages.[10]

Pipeline infrastructure development parallels the rise in natural gas production. Global pipeline infrastructure growth has tripled since 1996, with much of that growth occurring in North America and with a global average of 25 new pipelines being built every year between 2009 and 2018.[11] Some fear this bubble in investment, like with coal, could burst.[12] "The world," after all, "for which many North American pipelines are being built may no longer exist by the time they are completed."[13] Projects are highly leveraged and cost anywhere from $8 million to upwards of $15 million per mile—with the Mountain Valley Pipeline projected to cost over $5 billion.[14] These projects may need at least a potentially unworkable 30 plus-year period for a sufficient capital repayment and return on investment.[15] Indeed, the same is true for export facilities for Liquefied Natural Gas (LNG) development—we could be facing yet another stranded asset accompanying old coal-fired power plants if we continue to construct new LNG facilities.[16] One report suggests "the scale of the LNG expansion under development is as large or greater

10. *See* NORTH AM. ELEC. RELIABILITY CORP., SPECIAL RELIABILITY ASSESSMENT: POTENTIAL BULK POWER SYSTEM IMPACTS DUE TO SEVERE DISRUPTIONS ON THE NATURAL GAS SYSTEM viii (2017). According to NERC, "many areas in North America could incur power flow and stability issues if they were to experience significant losses of natural gas infrastructure. This accentuates the need for system operators and planners to conduct their own system studies around loss of pipeline infrastructure and to develop contingency plans." *Id.* at 27.

11. TED NACE, LYDIA PLANTE & JAMES BROWNING, PIPELINE BUBBLE: NORTH AMERICA IS BETTING OVER $1 TRILLION ON A RISKY FOSSIL INFRASTRUCTURE BOOM 4 (2019), https://globalenergymonitor.org/wp-content/uploads/2019/04/GFITPipelineBubble_2019_v6.pdf.

12. *Id.* at 3; *see also* Carlos Anchondo, *Natural Gas Facing Same Fate as Coal*, E&E NEWS (Sept. 10, 2019), https://www.eenews.net/stories/1061111699 (describing Rocky Mountain Institute study).

13. NACE, PLANTE & BROWNING, *supra* note 11, at 13. GE, for instance, announced closing a natural gas plant years early as a consequence of the shift toward renewables. David Ferris, *GE Shutters Gas Plant Decades Early As Renewables Surge*, E&E NEWS (June 25, 2019), https://www.eenews.net/stories/1060652109.

14. Niina H. Farah, *Mountain Valley Costs Spike After FERC Order*, E&E NEWS (Oct. 23, 2019), https://www.eenews.net/energywire/2019/10/23/stories/1061349975.

15. NACE, PLANTE & BROWNING, *supra* note 11, at 13. Depreciation may track the economic life of a project, while the physical or average service life might be different. FERC might assume a 35-year natural gas supply, while the latest Energy Information Administration only predicts out to 2050 (a 30-year period), and yet in some proceedings FERC examines need over a 20-year period. Spire STL Pipeline LLC, 164 FERC ¶ 61,085 (2018). The IRS uses different classes of infrastructure and accompanying periods for depreciation, and the Commission requires asset accounting reporting. 18 C.F.R. § 201 (2012).

16. TED NACE, LYDIA PLANTE & JAMES BROWNING, THE NEW GAS BOOM: TRACKING GLOBAL LNG INFRASTRUCTURE 3 (2019), https://globalenergymonitor.org/wp-content/uploads/2019/06/NewGasBoomEmbargo.pdf. One report describing shuttering a coal plant roughly 20 years too early (economically) suggests ratepayers might be shouldered with $1 billion in costs over those two decades. Jeffrey Tomich, *'Stranded Costs' Mount as Coal Vanishes from the Grid*, E&E NEWS (May 29, 2019), https://www.eenews.net/stories/1060419079.

than the expansion of coal-fired power plants, posing a direct challenge to Paris climate goals."[17]

Yet, as the nation builds out its natural gas infrastructure, will this shift toward natural gas be as a bridge fuel, or something more?[18] Even the notion of a "bridge fuel" is problematic, however. The Intergovernmental Panel on Climate Change warns that CO_2 emissions must crest by 2030 and fall to a net zero by 2050 if we hope to limit global climate warming to 1.5°C by the close of the century.[19] Achievement of this goal is almost certain to require long-term reduction in natural gas usage, although the need to eliminate natural gas may be mitigated somewhat by the development of carbon capture and sequestration technology. To limit temperature increases to 1.5°C requires that emissions of greenhouse gases (GHG) will need to decline between 40% and 60% below 2010 levels by 2030 and then reach a net negative by 2050.[20] When, for instance, the House Energy and Commerce Committee held a hearing in July 2019 on decarbonizing the economy by 2050—the widely shared objective—no unanimity surfaced for natural gas' future role.[21] Many believe we will need changes in the transportation sector, renewables, energy efficiency, and new advancements in nuclear energy, and most likely some pathways for carbon capture and removal.[22] A Union of Concerned Scientists' witness testified how "deep cuts" in methane emissions will be "necessary," and likely include retaining natural gas but with accompanying carbon capture and sequestration (CCS).[23] A utility industry representative testified that "fossil fuels must be

17. NACE, PLANTE & BROWNING, *supra* note 16, at 3.

18. A gas trade association affiliated study posits that gas is a destination not a bridge fuel. *See* Jenny Mandel, *Natural Gas Is a Destination Fuel, Not a Bridge—Study*, E&E NEWS (May 8, 2019), https://www.eenews.net/energywire/2019/05/08/stories/1060292999.

19. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, SPECIAL REPORT ON GLOBAL WARMING OF 1.5°C at 95 (Oct. 2018); INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, SUMMARY FOR POLICYMAKERS OF IPCC SPECIAL REPORT ON GLOBAL WARMING OF 1.5°C at 13-14 (Oct. 8, 2018) [hereinafter SUMMARY FOR POLICYMAKERS]. If we cannot achieve this goal, reductions in net emissions must occur to limit warming.

20. SUMMARY FOR POLICYMAKERS, *supra* note 19, at 12.

21. *See* Sean Reilly, *Hearing Starts Dems' March Toward 'Net-Zero' Emissions*, E&E NEWS (July 25, 2019), https://www.eenews.net/stories/1060784811.

22. *See* HOUSE COMM. ON ENERGY & COMMERCE, CHAIRMAN FRANK PALLONE, JR., MEMORANDUM: HEARING ON "BUILDING AMERICA'S CLEAN FUTURE: PATHWAYS TO DECARBONIZE THE ECONOMY" (July 22, 2019), https://energycommerce.house.gov/sites/democrats.energycommerce.house.gov/files/documents/072419%20Briefing%20Memo_ECC%20Hearing_2019.07.24_Deep%20Decarbonization.pdf.

23. *Creating a Climate Resilient America: Hearing Before the House Select Committee on the Climate Crisis*, 116th Cong. 1, 5 (2019) (Statement of Dr. Rachel Cleetus, Policy Director, Climate and Energy Program, Union of Concerned Scientists). Dr. Cleetus added that "[n]atural gas with CCS could be a contributor to a net-zero world." *See* Reilly, *supra* note 21. Deep decarbonization may require some form of carbon capture, and institutional mechanisms capable of allowing it to move forward. *See* Wendy B. Jacobs & Michael Craig, *Legal Pathways to Widespread Carbon Capture and Sequestration*, 47 ENVTL. L. REP. 11022 (2017). "CCS refers to the process of capturing, compressing, transporting, and then injecting compressed CO_2 into underground geologic formations for storage." Tara K. Righetti, *Correlative*

accompanied by robust innovation in carbon capture, utilization and storage in the production and use of fossil fuels."[24] Former Energy Secretary Ernest Moniz's Energy Futures Initiative cautions that continued use of natural gas will require carbon capture, utilization, and storage.[25] A senior fellow at the World Resources Institute similarly observed that, "regardless of whether one believes that CCS technology will be needed for electricity generation, the technology is very likely to be needed for the job of carbon dioxide removal," as well as for reducing emissions from the industrial sector.[26] Of course, not all agree.[27] And still others posit that carbon capture must be accompanied by negative emission technologies and direct air capture (DAC). A Rhodium Group analysis champions DAC and further suggests that the United States "is well-positioned to foster development of DAC with sequestration."[28] Consequently, a deeply decarbonized future will require either effective carbon capture and storage capacity for natural gas plants, as the Rhodium Group and others advocate, or removing natural gas as a fuel source by roughly 2030.

This article chronicles how natural gas has replaced coal as today's energy dilemma. The pipeline wars illustrate landowners' concern with special treatment for industry seeking to condemn lands, while some states and the public object to the Federal Energy Regulatory Commission's (FERC or Commission) approach to approving new pipeline projects, or the Commission's assessment of GHG emissions associated with project development.

Rights and Limited Common Property in the Pore Space: A Response to the Challenge of Subsurface Trespass in Carbon Capture and Sequestration, 47 ENVTL. L. REP. 10420, 10422 (2017).

24. *"Building America's Clean Energy Future: Pathways to Decarbonize the Economy:" Hearing Before the House Subcommittee on Environment and Climate Change*, 116th Cong. 2 (2019) (Statement of Shannon Angielski, Executive Director, Carbon Utilization Research Council). A noted demonstration plant would be Net Power's La Porte, Texas project. *See, e.g.*, James Conca, *Net Zero Natural Gas Plant—The Game Changer*, FORBES (July 31, 2019), https://www.forbes.com/sites/jamesconca/2019/07/31/net-zero-natural-gas-plant-the-game-changer/. CCS can be employed to capture methane during the production process as well. *See, e.g.*, Carbon Capture and Storage, https://www.norskpetroleum.no/en/environment-and-technology/carbon-capture-and-storage/ (Jan 27, 2020) (Norwegian CCS activity).

25. ENERGY FUTURES INITIATIVE, THE GREEN REAL DEAL: A FRAMEWORK FOR ACHIEVING A DEEPLY DECARBONIZED ECONOMY 25 (Aug. 2019).

26. *"Building America's Clean Energy Future: Pathways to Decarbonize the Economy:" Hearing Before the House Subcommittee on Environment and Climate Change*, 116th Cong. 2, 3 (2019) (Statement of Dr. Karl Hausk, World Resources Institute).

27. An upcoming analysis suggests natural gas is not a bridge fuel and we ought to avoid coupling it with CCS. Mark Z. Jacobson, *Evaluation of Coal and Natural Gas With Carbon Capture as Proposed Solutions to Global Warming, Air Pollution, and Energy Security, in* 100% CLEAN, RENEWABLE ENERGY STORAGE FOR EVERYTHING (Cambridge U. Press forthcoming), available at https://web.stanford.edu/group/efmh/jacobson/Articles/I/NatGasVsWWS&coal.pdf.

28. RHODIUM GRP., CAPTURING LEADERSHIP: POLICIES FOR THE US TO ADVANCE DIRECT AIR CAPTURE TECHNOLOGY 7 (May 2019). DAC is one form of carbon capture technology, and it requires binding the CO_2 with a bonding agent and then separating out a pure stream of CO_2. *See generally* Tracy Hester, *Legal Pathways to Negative Emission Technologies and Direct Air Capture of Greenhouse Gases*, 48 ENVTL. L. REP. 10413 (2018).

Part II examines the pipeline wars in their historical context, portraying the rise of natural gas regulation, its increasing dominance as a fuel source, its associated environmental consequences, and the marked differences in how the Obama and Trump administrations have treated natural gas. Part III describes and analyzes three principal matters collectively displaying the challenges confronting the industry: (1) the Commission's approach toward conditionally approving pipelines before states can ensure construction activities will comply with the Clean Water Act (CWA); (2) the Commission's willingness to allow pipeline condemnation proceedings to occur before landowners have an opportunity to thoroughly air their concerns; and (3) FERC's unwillingness to examine the indirect upstream and downstream effects from increased GHG emissions associated with approving a pipeline. This Part also discusses FERC's 2018 Notice of Inquiry, soliciting input on the Commission's pipeline policies. Next, Part IV addresses the principal, looming questions in the pipeline wars: whether and how the Commission ought to reexamine the need for new natural gas pipeline infrastructure. Major energy transitions present major challenges, and the resultant follies from these efforts abound.[29] If we fail to avoid yet another folly, our new natural gas infrastructure could become either a shackle, impeding a zero-carbon energy future, or a bridge to nowhere.

II. MOVING METHANE

A. *Sputtering Natural Gas Regulation*

Modern natural gas regulation is a product of tortured, disjointed—and some may say flailing—efforts.[30] Early in the twentieth century, natural gas escaped into the atmosphere as an unwanted byproduct of oil production.[31] The markets and technology for capturing and transporting that gas had not yet surfaced,[32] leaving oil producers with little incentive to fret about the escaping gas.[33] State rate and

29. *See generally* ROBERT R. NORDHAUS & SAM KALEN, ENERGY FOLLIES: MISSTEPS, FIASCOS, AND SUCCESS OF AMERICA'S ENERGY POLICY (2018) (passim).

30. *See generally id*.

31. *See* ARLON R. TUSSING & BOB TIPPEE, THE NATURAL GAS INDUSTRY: EVOLUTION, STRUCTURE, AND ECONOMICS 79-80 (2d ed. 1995).

32. As one producer averred, "no machinery or process of any kind has ever by the highest skill been devised or known to the world whereby in such a case the oil in such well can be produced and saved, unless at the same time such natural gas as may be in such well is suffered to escape." Ohio Oil Co. v. Indiana, 177 U.S. 190, 199 (1900).

33. TUSSING & TIPPEE, *supra* note 31, at 80. The common law rule of capture, allowing a surface owner to access reserves even when those reserves underlie adjacent property, eventually contributed toward the pressure to develop technology for "long-distance pipelines." *Id.* at 81.

conservation regulation emerged early in the twentieth century,[34] but a regulatory gap surfaced quickly after the Supreme Court held that states lacked the authority to regulate rates for interstate transportation.[35]

Congress responded with the 1938 Natural Gas Act (NGA), establishing the original contours for federal regulation of natural gas in interstate markets.[36] Congress decided to regulate the growing natural gas industry under a public utility model.[37] As Justice Douglas explained, "the 'basic purpose' of this legislation was 'to occupy' the field . . . [in an area where the Court] had held the States might not act."[38]

The NGA delegated to the Federal Power Commission (FPC, now FERC) the authority to establish "just and reasonable" rates for interstate transportation and interstate sales for resale of natural gas.[39] The NGA also gave the FPC power to grant certificates authorizing the sale of natural gas in interstate commerce, the transportation of natural gas in interstate commerce, and the construction and operation of facilities for such sale and transportation.[40] Regulated companies cannot cease operating such facilities or terminate certificated transportation and sales unless granted abandonment by the Commission.[41] Retail sales for ultimate public

34. The Supreme Court rejected claims that state conservation programs denied owners of their Fourteenth Amendment Due Process rights (e.g., taking of their property). Ohio Oil Co. v. Indiana, 177 U.S. 190, 212 (1900). The Court's judgment, however, flowed from its application of the rule of capture: "[t]he proposition, then, which denies the power in the state to regulate by law the manner in which the gas and oil may be appropriated, and thus prevent their destruction, of necessity involves the assertion that there can be no right of ownership in and to the oil and gas before the same have been actually appropriated by being brought into the possession of some particular person." *Id.* at 201.

35. In *Missouri v. Kan. Nat. Gas*, 265 U.S. 298 (1924), the Court held that states lacked regulatory authority over the rates charged by interstate pipelines, precipitating the need for Congress to fill a regulatory gap. That gap later became significant once the Federal Trade Commission issued a scathing roughly 600 page report chronicling the gas industry's monopolistic practices—and encouraging congressional action. *See* Richard J. Pierce, *Reconsidering the Roles of Regulation and Competition in the Natural Gas Industry*, 97 HARV. L. REV. 345, 345 (1983). For a concise history of the NGA, see Donald J. Libert, Note, *Legislative History of the Natural Gas Act*, 44 GEO. L.J. 695 (1956).

36. 15 U.S.C. §§ 717-717z, Pub. L. No. 75-688, 52 Stat. 821 (1938); *see also* Pub. L. No. 83-323, 68 Stat. 36 (1954) (amending NGA to allow states to regulate as a matter of local concern interstate activity if the gas is consumed in the origin state).

37. The public utility model affords the industry a monopoly franchise covering a particular territory in return for acceding to rate regulation and an obligation to serve those in the franchise territory. Common carrier obligations, however, originally attended pipeline rights-of-way under the Mineral Leasing Act, but Congress extinguished that obligation in 1953. Pub. L. No. 253, 67 Stat. 557 (1953).

38. Fed. Power Comm'n v. Hope Nat. Gas, 320 U.S. 591, 609-10 (1944) (citing H. REP. No. 709, 75th Cong., at 2 (1937)).

39. 15 U.S.C. § 717c(a) (2018).

40. The NGA confers jurisdiction on the FPC to regulate, *inter alia*, "the sale in interstate commerce of natural gas for resale for ultimate public consumption . . . ." 15 U.S.C. § 717(b) (2018).

41. Natural Gas Act § 7(b), 15 U.S.C. § 717f(b) (2018).

consumption, and "production and gathering," were specifically exempted from the Commission's jurisdiction.[42]

In June 1954, the Supreme Court infamously interpreted the NGA as tasking the FPC with the authority and obligation to regulate natural gas producers' wholesale sales of natural gas in interstate commerce.[43] This set in motion a chain of events that propelled the FPC on a path of natural gas producer regulation with unforeseen and extraordinarily disruptive consequences for the natural gas industry, the economies of gas-consuming states, and ultimately for U.S. energy security.[44] It triggered interstate natural gas shortages, impractical FPC gas "curtailment" (*i.e.,* shortage management) policies,[45] and eventually congressional intervention with the passage in 1978 of the Natural Gas Policy Act (NGPA).[46] President Carter announced that the NGPA would "give us a new national market, making available new supplies of natural gas, which will be at a lower price than competitive foreign oil."[47] While the NGPA ostensibly resolved interstate natural gas shortages, by the end of the decade the country was finally enjoying a natural gas surplus.[48] The Act removed disincentives to sell gas into the interstate market, and interstate pipelines replenished their depleted gas supplies.[49] But gas once again became less economical by 1986, as oil prices declined considerably.[50] Congress shortly thereafter passed the Wellhead Decontrol Act of 1989 to remove some of the remnants of producer price controls not lifted in the NGPA.[51]

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42. Natural Gas Act §§ 1(b), 4, 5, 7; 15 U.S.C. § 717(b) (2018); *e.g.,* ExxonMobil Gas Mktg. Co. v. FERC, 297 F.3d 1071 (D.C. Cir. 2002) (upholding FERC's approach toward offshore gathering lines).

43. Phillips Petroleum Co. v. Wisconsin, 347 U.S. 672 (1954).

44. *See* NORDHAUS & KALEN, *supra* note 29, at ch. 5. The factors surrounding the *Phillips* decision are fascinating, and those who defended the decision, such as one of Illinois' senators, championed the need to protect residential natural gas consumers against excessive rates. *See* Hon. Paul H. Douglas, *The Case for the Consumer of Natural Gas*, 44 GEO. L.J. 566, 575 (1956).

45. *See generally* Stephen Breyer & Paul W. MacAvoy, *The Natural Gas Shortage and the Regulation of Natural Gas Producers*, 86 HARV. L. REV. 941 (1973). Producer representatives warned in the 1950s that producers would opt to sell gas locally rather than into the regulated interstate market. *See* Rayburn L. Foster, *Natural-Gas Regulation from the Producers' Standpoint*, 44 GEO. L.J. 658, 672-75 (1956). Interstate pipelines consequently would need to spread their fixed costs across fewer sources—forcing increased costs to those customers. *Id.* at 672-73.

46. Natural Gas Policy Act of 1978, Pub. L. No. 95-621, 92 Stat. 3351 (1978). *See generally* Robert R. Nordhaus, *Producer Regulation and the Natural Gas Policy Act of 1978*, 19 NAT. RES. J. 4 (1979).

47. Natural Gas Legislation, 14 Weekly Comp. Pres. Doc. 1452 (Aug. 18, 1978) (remarking on the conference committees' reports on the NGPA).

48. *See* J.P. Smith, *Natural Gas Glut: Experts Agree that Outlook Has Changed Dramatically*, WASH. POST, Oct. 30, 1978, A1.

49. *See* NORDHAUS & KALEN, *supra* note 29, at 90-92.

50. Paul L. Joskow, *Natural Gas: From Shortages to Abundance in the United States*, 103 AMER. ECON. REV.: PAPERS & PROCEEDINGS 338, 339 (2013).

51. Pub. L. No. 101-60, 103 Stat. 157 (1989). Existing NGPA "controls misdirect[ed] scare exploration capital by setting artificially high and low 'ceiling prices' that still cover[ed] about one-third of

This turmoil subsided somewhat as FERC began restructuring the industry. As Judge Stephen Williams, a prominent energy jurist, would later write, "[i]n the Spring of 1985, as Mikhail Gorbachev was assuming the duties of General Secretary and inaugurating *perestroika*, the Federal Energy Regulatory Commission launched its own restructuring of the natural gas industry."[52] The Commission began issuing orders affording interstate pipelines broad, flexible authority to provide various types of transportation services, on the condition the companies would offer those services on a nondiscriminatory, open access basis.[53] As part of this industry restructuring, FERC forced the unbundling of services, with only a limited ability for pipelines to market their own gas; and the Commission provided for blanket pipelines sales certificates, with pre-granted authority for abandonment, a capacity reallocation mechanism, a comparability standard, a confirmation of straight fixed variable rate design, along with transition cost recovery.[54] This effectively transformed the natural gas industry from one where pipelines bought natural gas and then resold it in a bundled transaction that included both gas acquisition costs and pipeline transportation, to a regime where pipelines were primarily transporters of gas produced and sold entirely outside the ambit of price regulation. This transformation resulted in pipeline companies transporting only 21% of their own gas in 1992, down from about 92% in 1984.[55]

Congress facilitated the gas industry's transition by including several gas-related provisions in omnibus energy bills, beginning with the Energy Policy Act of 1992.[56] For example, it relieved independent producers from the Alternative Minimum Tax.[57] It also notably sought to promote unconventional gas development, and it implicitly boosted natural gas in a title on Global Climate Change when it called for developing a least-cost and reduced greenhouse gas energy strategy.[58] The Energy Policy Act of 2005 included additional carrots for the industry, such as streamlining provisions and allowing companies to provide storage at market based rates, while also directing price transparency and strengthening rules

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our nation's total gas supplies," producing "[d]istorted overinvestment in low-flowing but artificially high-priced wells, and underinvestment in more prolific but artificially low-priced wells." Natural Gas Decontrol Act of 1989, Rep. 101-29, 101st Cong., 1st Sess., at 2 (1989).

52. Am. Gas Ass'n v. FERC, 912 F.2d 1496, 1503 (D.C. Cir. 1990).

53. NORDHAUS & KALEN, *supra* note 29, at 93-94.

54. *Id.* at 94; *see also* Donald F. Santa, Jr. & Clifford Sikora, *Open Access and Transition Costs: Will the Electric Industry Transition Track the Natural Gas Industry Restructuring*, 15 ENERGY L.J. 273 (1994).

55. Don Santa & Patricia Beneke, *Federal Natural Gas Policy and the Energy Policy Act of 1992*, 14 ENERGY L.J. 1, 7 (1993).

56. *See* Energy Policy Act of 1992, Pub. L. No. 102-486, 106 Stat. 2776 (1992).

57. *Id.* § 1915.

58. *See id.* §§ 201-02. In Title II, Congress removed barriers to imports and exports of natural gas with countries with Free Trade Agreements, 106 Stat. 2866, and declared the sense of Congress "that natural gas consumers and producers, and the national economy, are best served by a competitive natural gas wellhead market," and in Title XVI it addressed global climate change. 106 Stat. 2999.

against market manipulation.[59] During this time, industrial, residential, and overall natural gas usage increased annually and eventually surpassed coal as the nation's primary source of energy production.[60]

Today, a proposal for an interstate natural gas pipeline must demonstrate to FERC that the line serves the public interest to merit a Certificate of Public Convenience and Necessity (§ 7 Certificate).[61] If a pipeline serves the public convenience and necessity, the NGA directs the Commission to issue a certificate—possibly with conditions.[62] The Commission accepts pre-construction contract commitments (precedent agreements), with shippers committing to use a set percentage of the pipeline's capacity to demonstrate a market need for the natural gas.[63] These commitments generally occur during what is called an open season, when the pipeline advertises its project and solicits from prospective shippers a commitment to use a percentage of the pipeline's capacity. Once shippers commit to enough capacity, companies typically apply for a blanket certificate.[64] This gen-

59. Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594, 688 (2005). In Order Nos. 678 and 678-A, the Commission adopted market-based rates for storage. Order 678, Rate Regulation of Certain Natural Gas Storage Facilities (June 19, 2006) (to be codified at 18 C.F.R. pt. 284); Order on Clarification and Rehearing 678-A, Rate Regulation of Certain Natural Gas Storage Facilities (Nov. 16, 2006) (to be codified at 18 C.F.R. pt. 284).

60. *See* U.S. ENERGY INFO. ADMIN., MONTHLY ENERGY REVIEW AUGUST 2017, at 4, 6 (2017). The 1990s' gas restructuring likely contributed toward the status we presumably now enjoy with our present shale gas revolution and seeming natural gas abundance. It sent clear market signals to producers and afforded incentives for cost-effective new technologies—including more efficient combined cycle gas turbines capable of serving as baseload resources.

61. 15 U.S.C. § 717f(e) (2018).

62. *Id.* FERC typically phrases its obligation as mandatory if it concludes that a project serves the public convenience and necessity, while courts occasionally note the "Commission may issue a certificate" if it so finds. *E.g.*, Myersville Citizens for a Rural Cmty. v. FERC, 783 F.3d 1301, 1307 (D.C. Cir. 2015).

63. *See* Appalachian Voices v. FERC, No. 17-1271, 2019 WL 847199, at *1 (D.C. Cir., Feb. 19, 2019) (allowing a precedent agreement with an affiliated entity); Sierra Club v. FERC, 867 F.3d 1359, 1379 (D.C. Cir. 2017). Precedent agreements are temporary, replaced later by Firm Transportation Service Agreements. FERC may reject terms in a precedent agreement before being approved. *See* Mountain Valley Pipeline, LLC, 161 FERC ¶ 61,043, at paras. 97-106 (2017); Columbia Gas Transmission Corp., 97 FERC ¶ 61,221 (2001) (discussing non-conforming provisions); *see also infra* notes 255-62 (discussing precedent agreements).

64. 18 C.F.R. Parts 157.204 (2018). As FERC explains:

> [u]nder a blanket certificate issued pursuant to section 7(c) of the Natural Gas Act, a natural gas company may undertake a restricted array of routine activities without the need to obtain a case-specific certificate for each individual project. The blanket certificate program provides an administratively efficient means to enable a company to construct, modify, acquire, operate, and abandon a limited set of natural gas facilities, and offer a limited set of services, provided each activity complies with constraints on costs and environmental impacts set forth in the Commission's regulations."

Federal Energy Regulatory Commission, *Blanket Certificates*, INDUSTRIES, https://www.ferc.gov/industries/gas/indus-act/blank-cert.asp (as of March 19, 2019).

erally occurs only after the company engages in extensive pre-filing outreach with interested stakeholders and permitting authorities.[65] A general certificate condition requires documentation of receipt of all applicable federal environmental authorizations before proceeding with construction.[66] Once the Commission issues a § 7 certificate, § 7(h) entitles the certificate holder to acquire the necessary property interests for constructing the approved facilities, including by exercising eminent domain authority.[67]

The regulatory authority over exports and imports of natural gas is split between FERC and the Secretary of Energy. Section 3 of the original NGA delegated authority over both imports and exports of natural gas, or correspondingly liquefied natural gas, to the FPC.[68] Congress instructed the Commission to allow an import or export, "unless, after opportunity for hearing, it finds that the proposed exportation or importation will not be consistent with the public interest."[69] When

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65. *See* Robert Christin et al., *Considering the Public Convenience and Necessity in Pipeline Certificate Cases Under the Natural Gas Act*, 38 ENERGY L.J. 115, 131 (2017).

66. *E.g.*, Spire STL Pipeline L.L.C., 164 FERC 61,085 at App. para. 9 (Aug. 3, 2018) (requiring compliance with environmental conditions, "Spire must receive written authorization from the Director of OEP *before commencing construction of any project facilities*. To obtain such authorization, Spire must file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof)"); *see also* Transcon. Gas Pipe Line Co., 169 FERC ¶ 61,051 at 41, App. B (2019) (requiring compliance with environmental conditions outlined in Appendix B).

67. The company can choose to file a proceeding in either state or federal court:

> When any holder of a certificate of public convenience and necessity cannot acquire by contract, or is unable to agree with the owner of property to the compensation to be paid for, the necessary right-of-way to construct, operate, and maintain a pipe line or pipe lines for the transportation of natural gas, and the necessary land or other property, in addition to right-of-way, for the location of compressor stations, pressure apparatus, or other stations or equipment necessary to the proper operation of such pipe line or pipe lines, it may acquire the same by the exercise of the right of eminent domain in the district court of the United States for the district in which such property may be located, or in the State courts. The practice and procedure in any action or proceeding for that purpose in the district court of the United States shall conform as nearly as may be with the practice and procedure in similar action or proceeding in the courts of the State where the property is situated: *Provided*, That the United States district courts shall only have jurisdiction of cases when the amount claimed by the owner of the property to be condemned exceeds $3,000.

15 U.S.C. § 717f(h) (2018). Congress, consistent with the Commission's recommendation, added this provision in 1947. Pub. L. No. 80-245, 61 Stat. 459 (1947). Congress noted that it granted eminent domain authority to hydroelectric facilities and neglected including a similar provision in the NGA. This then became problematic in states where pipelines could not use condemnation authority. *Amendments to the Natural Gas Act: Hearings on S. 734 and S. 1028 before a Subcommittee of the Committee on Interstate and Foreign Commerce*, 80th Cong., 1st Sess. 4, 11 (Apr. 29, July 1, 1947).

68. 15 U.S.C. § 717(b) (2018), Pub. L. No. 688, 52 Stat. 821, 822 (1938).

69. *Id.* Also, "[t]he Commission" was granted authority to "grant such application, in whole or in part, with such modification and upon such terms and conditions as the Commission may find necessary or appropriate." *Id.* Federal authority over imports in § 3 flows from the Foreign Commerce Clause. *See* Distrigas Corp. v. Fed. Power Comm'n, 495 F.2d 1057, 1062-63 (D.C. Cir. 1974); Border

Congress passed the Department of Energy Organization Act of 1977 and established FERC (replacing the FPC), it transferred § 3 authority to the newly established Secretary of Energy, "unless the Secretary assigns such a function to the Commission."[70] The discussion then surrounding LNG focused on issues surrounding imports.[71] In the 2005 Energy Policy Act, Congress ensured that FERC would exercise exclusive jurisdiction over the siting, construction, expansion, and operation of LNG export and import facilities. Congress incorporated specific provisions designed to streamline the permitting and environmental review processes for such facilities.[72] Congress also directed the Commission to promulgate regulations for complying with the National Environmental Policy Act (NEPA) and to ensure that interested stakeholders would be involved in a pre-filing process for any proposed LNG facility.[73] The Commission responded with rules designed to encourage additional natural gas infrastructure, including LNG terminals.[74]

B. *Methane: The Good, The Bad, The Ugly*

Several years ago, Exelon's CEO John Rowe acknowledged the dethroning of King Coal, as he and other utility CEO's effectively anointed gas as a new bridge fuel to a cleaner energy economy.[75] The shale revolution, after all, fundamentally altered the energy landscape. The combination of hydraulic fracking and horizontal drilling catapulted natural gas to an abundant resource in the U.S.[76] On the production side, however, contamination from fracking quickly surfaced as an initial

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Pipeline Line Co. v. Fed. Power Comm'n, 171 F.2d 149, 1502 (D.C. Cir. 1948). For a discussion of the line between § 3 and § 7 authority, see Sound Energy Solutions, 107 FERC ¶ 61,263 (2004).

70. Department of Energy Organization Act, Pub. L. No. 95-91, 91 Stat. 565, 585 (1977).

71. COMPTROLLER GENERAL, REPORT TO THE CONGRESS: AN EVALUATION OF THE NATIONAL ENERGY PLAN 4.26 (1977). The General Accounting Office believed that Carter's plan under-estimated future natural gas demand, and thus over-estimated the likely amount of LNG imports. *Id.* at 427.

72. Pub. L. No. 109-58, 119 Stat. 594, 685-86 (2005). While Congress vested the Commission with exclusive jurisdiction over the siting, construction, expansion, or operation of LNG facilities, it added a caveat that "nothing in this Act is intended to affect otherwise applicable law related to any Federal agency's authorities or responsibilities related to LNG terminals." *Id.*

73. *Id.* at 689. Congress focused particularly on ensuring that state and local authorities would be consulted on matters involving state and local safety. *Id.* at 687.

74. FERC, FACT SHEET: ENERGY POLICY ACT OF 2005, at 4 (2006), https://www.ferc.gov/legal/fed-sta/epact-fact-sheet.pdf. For a treatment of LNG issues during the period immediately prior to and after the 2005 Act, *see* Shelia Slocum Holis, *Liquefied Natural Gas: "The Big Picture" for Future Development in North America*, 2 ENVTL. & ENERGY L. & POL'Y J. 5 (2007).

75. *Utility CEO Support EPA's New Air-Quality Standards*, THINKPROGRESS (Mar. 8, 2011), https://thinkprogress.org/utility-ceo-support-epas-new-air-quality-standards-9409c7973859/.

76. Richard J. Pierce, *Natural Gas Fracking Addresses All Our Major Problems*, 4 ENERGY & ENVTL. L. 22 (2013).

cause célèbre.[77] Yet, regardless of contamination concerns and the likelihood of increased earthquakes in certain regions, natural gas' abundance, low cost, diminished health risks when compared with coal, and its reduced long-term potency as a GHG made it an attractive fuel source. The years prior to the shale revolution, when writers predicted a high noon for natural gas,[78] morphed into conversations about gas powering the globe.[79]

Natural gas undoubtedly is cleaner than coal, but it too comes at a cost. Natural gas is primarily methane—ranging between 70% to 98% by volume.[80] By late 2017, "the global mean methane concentration was nearly triple that of preindustrial times," having risen dramatically during the 1900s—and while leveling off somewhat recently has experienced another rise since the shale gas boom.[81] Atmospheric anthropogenic methane originates from a variety of sources, such as cows,[82] melting permafrost,[83] and landfills.[84] And while EPA's GHG inventory reports

77. *See generally* Bryan Walsh, *The Gas Dilemma*, TIME, at 41, 42 (Apr, 11, 2011); *see also* Tala Hadavi, *How Fracking Changed America Forever*, CNBC (Jan. 7, 2020), https://www.cnbc.com/2020/01/06/the-impact-of-fracking-on-us-consumers-and-local-communities.html; Pamela King, *A Decade of Fracking Research: What Have We Learned?*, E&E NEWS (July 11, 2018), https://www.eenews.net/stories/1060087955 (summary exposé of the history); Mike Lee, *How a Death in Texas Shaped Gas-Boom Regulation*, E&E NEWS, July 5, 2018 (additional summary).

78. *E.g.,* JULIAN DARLEY, HIGH NOON FOR NATURAL GAS: THE NEW ENERGY CRISIS (2004).

79. *See, e.g.*, Pierce, *supra* note 76, at 6-7; Walsh, *supra* note 77.

80. NORMAN J. HYNE, NONTECHNICAL GUIDE TO PETROLEUM GEOLOGY, EXPLORATION DRILLING & PRODUCTION 10 (2d ed. 2001).

81. A CONSENSUS STUDY REPORT OF THE NATIONAL ACADEMIES OF SCIENCES, IMPROVING CHARACTERIZATION OF ANTHROPOGENIC METHANE EMISSIONS IN THE UNITED STATES 1-2 (2018).

82. *See* Daniel Cusick, *For Climate-Smart Farmers, Carbon Solution is in the Soil*, E&E NEWS (July 1, 2019), https://www.eenews.net/stories/1060681577 (noting that livestock production accounts for roughly 40% of agriculture's contribution toward emissions); *cf.* Jeremy P. Jacobs, *Cow Manure: An Unexpected Climate Solution*, E&E NEWS (May 21, 2019), https://www.eenews.net/greenwire/stories/1060367345.

83. Merritt R. Turetsky et al., *Permafrost Collapse is Accelerating Carbon Release*, 569 NATURE 32 (Apr. 30, 2019); Katey Walter Anthony et al., *21st-Century Modeled Permafrost Carbon Emissions Accelerated by Abrupt Thaw Beneath Lakes*, 2 NATURE COMM. 3262 (2018).

84. *See generally* Ellen M. Gilmer, *Court Orders Agency to Address Landfill Emissions*, E&E NEWS (May 7, 2019), https://www.eenews.net/stories/1060286903; Nina Heikkinen, *White House Sped Review of Methane Rule Delay*, E&E NEWS (Nov. 1, 2018), https://www.eenews.net/stories/1060104929 (discussing landfills).

that methane releases have broadly decreased since 1990,[85] it appears that since 2006, methane releases are rising.[86]

Methane reduction presents an opportunity for arresting rising GHG emissions before 2050. It is, as Professor Steven Ferrey notes, "the second most pernicious warming chemical after CO_2."[87] As the National Academy of Science observes, "[e]ven though" methane "has much lower atmospheric abundance than carbon dioxide," it absorbs 20 to 25 times more energy per unit mass than carbon dioxide does.[88] Its relatively short life-span—some estimates range between 12 and less than 10 years—provides a unique opportunity for reducing present atmospheric GHGs.[89] Although scientists dispute the actual amount of emissions during oil and gas production,[90] the National Academy suggests that approximately 25% of U.S. methane emissions are from natural gas systems—excluding even the end use of the gas.[91]

Methane emissions also contribute toward other environmental and health problems. Ground level ozone, for instance, forms when oxides of nitrogen react

85. EPA, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS 1990-2017 ES-8 (2019). EPA identified enteric fermentation from livestock, natural gas systems, and landfill gas as the three principal sources. *Id.*; *see also* NAT'L ACAD. OF SCIS., IMPROVING CHARACTERIZATION OF ANTHROPOGENIC METHANE EMISSIONS IN THE UNITED STATES 8 (2018) [hereinafter NAS] (using 2015 data: natural gas – 25%, petroleum – 6%, enteric fermentation – 25%, manure management – 10%, rice cultivation – 2%, landfills – 18%, wastewater – 2%, coal mining – 10%).

86. *Id.* at 1-2, 24.

87. Seven Ferrey, *The Second Element, First Priority*, 24 B.U. J. SCI. & TECH. L. 41, 43 (2018).

88. NAS, *supra* note 85, at 21. Although others believe the number is higher, EPA indicates that methane is 25 times more potent over a 100-year period than CO_2. EPA, GLOBAL NON-CO_2 GREENHOUSE GAS EMISSION PROJECTIONS & MITIGATION: 2015-2050 at 4 (Sept. 2019). Steven Ferrey posits that our assumption that CH_4 is only 25 times more potent than CO_2 considerably underestimates its potency. Ferrey, *supra* note 87, at 45-47.

89. NAS, *supra* note 85, at 21 (Reducing methane emissions could have outsized near-term climate change reduction impacts due to its disproportionately large greenhouse effect. But because methane doesn't linger long in the atmosphere, its reduction has fewer long-term benefits.).

90. John Fialka, *Researchers Say Methane Estimates at Gas Wells Were Wrong*, E&E NEWS (May 16, 2019), https://www.eenews.net/stories/1060341025 (describing a report on recent American methane emissions by Xin Lan et. al., *Long-Term Measurements Show Little Evidence for Large Increases in total U.S. Methane Emissions Over the Past Decade*, 46 GEO. RES. LETRS. 49991 (May 2019)). For a comprehensive earlier study by World Resources Institute, *see* JAMES BRADBURY ET AL., CLEARING THE AIR: REDUCING UPSTREAM GREENHOUSE GAS EMISSIONS FROM U.S. NATURAL GAS SYSTEMS (2013).

91. NAS, *supra* note 85, at 29, 52-60 (noting five principal aspects: well sites, gathering and boosting stations, processing plans, transmission facilities, and petroleum production wells). Recent studies suggest that local natural gas distribution systems are releasing more methane than previously thought. *See* Sid Perkins, *Major U.S. Cities Are Leaking Methane at Twice the Rate Previously Believed*, SCI., July 19, 2019 (discussing methane emissions from cities on the US East Coast). And other recent studies suggest we are underestimating the overall level of methane emissions. Chris Mooney, *Methane is a Hard-Hitting Greenhouse Gas. Now Scientists Say We've Dramatically Underestimated How Much We're Emitting*, WASH. POST (Feb. 19, 2020), https://www.washingtonpost.com/climate-environment/2020/02/19/were-vastly-undercounting-methane-emissions-fossil-fuels-scientists-say/.

with volatile organic compounds—such as methane—in the presence of sunlight.[92] This affects air quality, particularly for sensitive populations, and it can adversely affect a range of resources, such as forests, parks, and wildlife.[93]

C. *Diametrically Opposite Political Responses*

Once it initiated efforts to reduce CO_2 emissions from the transportation sector and electric utilities, the Obama Administration addressed methane emissions. It set a goal to reduce emissions from the oil and gas sector 40-plus percent below 2012 levels by 2025.[94] EPA exercised authority under the CAA to regulate methane emissions from new sources in the oil and gas industry.[95] The Bureau of Land Management (BLM) followed with two regulations. The first targeted fracking on public lands.[96] The second was an exercise of BLM authority under the

92. *See Ground-Level Ozone Pollution,* EPA, https://www.epa.gov/ground-level-ozone-pollution/ground-level-ozone-basics#formation (last visited Mar. 30, 2020).

93. Western states in particular must address regional haze from fossil-fuel production and generation. Ground level ozone, for instance, "arrived in force more than a decade ago in [Wyoming's] Jonah and Pinedale gas field." Heather Richards, *Dramatic Ozone Spikes Puzzle Regulators, Locals in Wyoming Gas Field*, TRIBE (Mar. 22, 2019), https://trib.com/business/energy/dramatic-ozone-spikes-puzzle-regulators-locals-in-wyoming-gas-field/article_82837053-a70d-5591-b4a4-e83c24e8565b.html. West Texas residents are impacted by emissions from the Permian Basin. *See* Paul Stinson, *Permian Basin Pollution Lacks Texas Monitoring, Report Claims*, BLOOMBERG ENV'T (May 10, 2019), https://news.bloombergenvironment.com/environment-and-energy/permian-basin-pollution-lacks-texas-monitoring-report-claims; *see also* Mike Lee, *Oil, Gas Emissions Linked to Health Problems-Study*, E&E NEWS (Oct. 18, 2019), https://www.eenews.net/stories/1061308063. EPA's alleged failure to address the health effects from ozone-forming oil and gas industry emissions may trigger a lawsuit designed to tighten regulations. *See* Sean Reilly, *Enviros Threaten to Sue EPA Over Oil and Gas Guidelines*, E&E NEWS (Oct. 23, 2019), https://www.eenews.net/stories/1061357769.

94. Dan Utech, *Administration Takes Historic Action to Reduce Methane Emissions for the Oil and Gas Sector*, OBAMA WHITE HOUSE BLOG (May 12, 2016), https://obamawhitehouse.archives.gov/blog/2016/05/12/administration-takes-historic-action-reduce-methane-emission-oil-and-gas-sector. The four key sectors identified for methane emissions were landfills, coal mines, agriculture, and oil and gas. WHITE HOUSE, CLIMATE ACTION PLAN STRATEGY TO REDUCE METHANE (2014), https://obamawhitehouse.archives.gov/sites/default/files/strategy_to_reduce_methane_emissions_2014-03-28_final.pdf. For natural gas systems, the administration identified "15 percent from processing, 34 percent from transmission and storage, and 20 percent from distribution." *Id.* The administration developed several programs for reducing emissions. *See* DOE, QUADRENNIAL ENERGY REVIEW: ENERGY TRANSMISSION, STORAGE, AND DISTRIBUTION INFRASTRUCTURE S-26 (2015) [hereinafter QER-1]; *see also* Avery Fellow, *Clinton Announces International Coalition to Help Countries Cut Methane, Black Carbon*, E&E NEWS (Feb. 17, 2012), https://www.eenews.net/stories/1059960128.

95. Emission Standards for New, Reconstructed, and Modified Sources, 81 Fed. Reg. 35824 (June 3, 2016); *see also* Source Determination for Certain Emission Units in the Oil and Natural Gas Sector, 81 Fed. Reg. 35622 (June 3, 2016).

96. Hydraulic Fracturing on Federal and Indian Lands, 80 Fed. Reg. 16128 (Mar. 26, 2015). A district court enjoined the rule, Wyoming v. U.S. Dep't of Interior, 2016 WL 3509415 (D. Wyo. 2016), and the Tenth Circuit dismissed an appeal as unripe, Wyoming v. Zinke, 871 F.3d 1133 (10th Cir. 2017), all by the time the Trump administration issued a rescission of the 2015 rule. Rescission of a 2015 Rule, 82 Fed. Reg. 61,924 (Dec. 29, 2017) (rescission of 2015 rule).

Mineral Leasing Act (MLA) and Federal Land Policy and Management Act (FLPMA) to regulate methane venting and flaring on public lands,[97] including the over a billion cubic feet of natural gas being vented or flared in the Permian Basin and Bakken shale formations alone.[98] In 2018, expanding oil production in the Bakken and Permian formations contributed to a 48% increase in flaring nationally.[99] One estimate suggests that the industry emits roughly 13 million metric tons of methane annually—in 2015, this was 60% more methane than EPA reported.[100] The National Academy of Sciences suggests, consequently, that the federal government must develop and implement better tools for measuring, inventorying, and monitoring methane emissions.[101]

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97. Waste Prevention, Production Subject to Royalties, and Resource Conservation, 81 Fed. Reg. 83,008 (Nov. 18, 2016); *see generally* Ellen M. Gilmer, *Critics Hit Up 2 Courts to Block Obama Methane Standards*, E&E NEWS (Apr. 17, 2018), https://www.eenews.net/energywire/2018/04/17/stories/1060079245 (discussing challenges to these Obama-era regulations).

98. *See* Stephen Lee, *States Ask Judge to Restore Obama-Era Natural Gas Waste Rule*, BLOOMBERG ENV'T (June 10, 2019), https://news.bloombergenvironment.com/environment-and-energy/states-ask-judge-to-restore-obama-era-natural-gas-waste-rule. According to the Wilderness Society, operators wasted at least 462 billion cubic feet of gas during President Obama's administration. WILDERNESS SOC'Y, TAXPAYERS FOR COMMON SENSE, THE STATE OF METHANE (2018). For New Mexico, with production almost doubling over the past several years, EDF reports about 1 million metric tons of emissions during 2018, with about three-fourths from Permian Basin. Mike Lee, *Methane Emissions Double Previous Estimates—Study*, E&E NEWS (Apr. 12, 2019), https://www.eenews.net/energywire/2019/04/12/stories/1060154699. Production growth in 2018 led to significant increases in flaring—to levels not experienced for several years. *See* Mike Lee, *Gas Glut Spurs Near-Record Flaring Across Shale States*, E&E NEWS (May 8, 2019), https://www.eenews.net/stories/1060292021; *see also* Jenny Madel, *U.S. Flaring Spiked 48% Last Year – Study*, E&E NEWS (June 14, 2019), https://www.eenews.net/energywire/2019/06/14/stories/1060574675.

99. *See* Madel, *supra* note 98 (noting how one report suggests that more natural gas is "flared in the Permian than is produced from the biggest offshore gas field in the Gulf of Mexico"); *see also* Carlos Anchondo, *Gas Flaring Record Spiked CO2 Emissions in 2019—Report*, E&E NEWS (Feb. 5, 2020), https://www.eenews.net/energywire/stories/1062265397.

100. Ramón A. Alvarez et al., *Assessment of Methane Emissions from the U.S. Oil and Gas Supply Chain*, 36 SCIENCE 186 (2018); *see also* Chelsea Harvey, *Methane From Oil and Gas Sharply Underestimated—Study*, E&E NEWS (Feb. 20, 2020), https://www.eenews.net/climatewire/2020/02/20/stories/1062396511; Carlos Anchondo, *Gas Flare Blips Are World's Biggest Methane Source—Report*, E&E NEWS (Sept. 27, 2019), https://www.eenews.net/stories/1061173321. For a report on venting and flaring with a unique focus on offshore activities, see BUREAU OF SAFETY & ENVTL. ENFORCEMENT, VENTING AND FLARING RESEARCH STUDY REPORT (Jan. 2017) (prepared by the Argonne Venting and Flaring Research Team).

101. NAT'L ACAD. OF SCIS., IMPROVING CHARACTERIZATION OF ANTHROPOGENIC METHANE EMISSIONS IN THE UNITED STATES (2018). Some companies have worked with EDF and agreed on measures to monitor and reduce methane emissions. *See* Jenny Mandel, *Methane Questions Leak to the Surface as Industry Gathers*, E&E NEWS (June 26, 2018), https://www.eenews.net/stories/1060020954; John Fialka, *More Gas is Leaking Than Previously Estimated-Study*, E&E NEWS (June 22, 2018), https://www.eenews.net/climatewire/stories/1060086093/.

Unsurprisingly, the Trump Administration policies favor increased natural gas production, transportation, and export.[102] And they do so as more than just a bridge fuel. Early in the Trump Administration, conversations by administration officials, including the President, typically coalesced around coal and oil rather than natural gas.[103] Recapturing energy markets for coal became justified under the energy dominance umbrella. The Clean Power Plan, consequently, gave way to the proposed Affordable Clean Energy plan;[104] the administration swiftly lifted the Obama federal coal leasing moratorium;[105] it began removing environmental requirements for coal plants under the CWA;[106] it revised the Clean Air Act's New Source Performance Standards to encourage investment in coal technologies other than high cost carbon capture and storage.[107] The administration even unsuccessfully explored whether the Energy Department could entice FERC into deploying a relic provision in the Department of Energy Organization Act to promote coal

102. *See, e.g.*, Jean Chemnick & Scott Waldman, *Trump to Tout Natural Gas as Paris Climate Deadline Looms,* E&E NEWS (Oct. 23, 2019), https://www.eenews.net/climatewire/stories/1061350671; Scott Waldman, *Trump Outlines Environment Plan: More Fracking*, E&E NEWS (Oct. 24, 2019), https://www.eenews.net/climatewire/2019/10/24/stories/1061359091.

103. *See* Tom Randall, *The Cheap Energy Revolution is Here, and Coal Won't Cut It*, BLOOMBERG ENV'T (Apr. 25, 2017), https://www.bloomberg.com/news/articles/2017-04-26/the-cheap-energy-revolution-is-here-and-coal-won-t-cut-it.

104. 84 Fed. Reg. 32,520 (July 8, 2019). Chairman Neil Chatterjee submitted comments on how the proposed replacement of the Clean Power Plan, along with changes to the New Source Performance Standards, were welcome changes. Letter from Office of the Chairman Neil Chatterjee, FERC, to Acting Administrator Wheeler, re: Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Generating Units; Revisions to Emission Guidelines Implementing Regulations; Revisions to New Source Review Program, Docket ID No. EPA-HQ-QAR-2017-0355, Oct. 31, 2018.

105. DEP'T OF THE INTERIOR, SECRETARIAL ORDER NO. 3348, CONCERNING THE FEDERAL COAL MORATORIUM (Mar. 29, 2017).

106. Brady Dennis, *Trump Administration Halts Obama-Era Rule Aimed at Curbing Toxic Wastewater from Coal Plants*, WASH. POST (Apr. 13, 2017), https://www.washingtonpost.com/news/energy-environment/wp/2017/04/13/trump-administration-halts-obama-era-rule-aimed-at-curbing-toxic-wastewater-from-coal-plants/. Administrator Pruitt reportedly commented that "[t]he coal industry was nearly devasted by years of regulatory overreach, [b]ut with new direction from President Trump, we are helping to turn things around for these [coal] miners and for many other hard working Americans." *Id.*

107. 83 Fed. Reg. 65,424 (Dec. 20, 2018); News Release, EPA Proposes 111(b) Revisions to Advance Clean Energy Technology: Proposal Supports President Trump's Energy Dominance Agenda, EPA (Dec. 6, 2018), https://archive.epa.gov/epa/newsreleases/epa-proposes-111b-revisions-advance-clean-energy-technology.html ("The previous administration sought to discourage new coal developments by requiring the use of unproven carbon capture and storage technologies that turned out to be economically prohibitive and limited geographically. By revising the NSPS, EPA will protect the environment while help to provide room for American energy production"). The administration, therefore, appears unlikely to limit GHG emissions from natural gas-fired power plants. Amena H. Saiyid, *EPA Official Says No Need Now to Limit Carbon Dioxide at Gas Plants*, BLOOMBERG ENV'T (Dec. 3, 2019), https://news.bloombergenvironment.com/environment-and-energy/epa-official-says-no-need-now-to-limit-carbon-dioxide-at-gas-plants.

and nuclear energy, by suggesting that the natural gas pipeline system is too susceptible to cyberattacks.[108]

But coal-fired electric generation can no longer compete with natural gas or even renewable energy.[109] With the Solar Investment Tax Credit assumed to expire, renewable generation capacity (primarily solar utility-scale and small-scale PV) is nevertheless expected to grow the most through 2050.[110] Since 2017, the United States has been a net energy exporter due to abundant petroleum and gas production and reduced domestic oil consumption.[111] The Energy Information Administration (EIA) expects this trend to continue through the next several decades.[112] Marketed U.S. natural gas production has grown from 22.4 million cubic feet in 2010 to 32.8 million in 2018,[113] producing downward pressure on prices and a feedback loop incentivizing further coal to gas switching. This is projected to lead to "the largest production increase of all fossil fuels" through 2050.[114] Shale gas production has been growing rapidly and is expected to continue over the next 20 years, precipitating the need for increased pipeline capacity.[115] When *Bloomberg News* reported in April 2019 on Chevron's acquisition of Anadarko, it couched its piece as evidence that big oil ostensibly was transitioning to big gas.[116] In 2018, natural gas usage by electric utilities surpassed coal as the dominant fuel, with the industry producing 35% of electric power from gas, 27% from coal, 19% from nu-

108. *See* Blake Sobczak & Peter Behr, *Pipeline Fears Anchor Trump's Coal, Nuclear Bailout*, E&E NEWS, June 4, 2018; Peter Behr et al., *FERC's Aid to DOE on Grid Threats: Too Far Or Just Right?,* E&E NEWS (Aug. 14, 2018), https://www.eenews.net/energywire/2018/08/14/stories/1060094027.

109. *See generally* TREVOR HOUSER, PETER MARSTERS, COLUMBIA/SIPA CTR. ON GLOBAL ENERGY POLICY, CAN COAL MAKE A COMEBACK? (Apr. 2017); BRETT JORDAN, IAN LANGE, & JOSHUA LINN, RESOURCES FOR THE FUTURE, COAL DEMAND, MARKET FORCES, AND US COAL MINE CLOSURES (Apr. 2018). Legions of articles report on the decline of coal. *See, e.g.*, Benjamin Storrow, *Big, Young Power Plants Are Closing: Is It a New Trend?,* E&E NEWS (Apr. 27, 2017), https://www.eenews.net/stories/1060053677; Dylan Brown, *Production Costs, not Natural Gas, Closed More Mines—Study*, E&E NEWS (Apr. 4, 2018), https://www.eenews.net/eenewspm/stories/1060078177.

110. U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY OUTLOOK 2019 94-95 (Jan. 24, 2019) (hereinafter EIA 2019 OUTLOOK).

111. *Id.* at 14.

112. *Id.*

113. *U.S Natural Gas Marketed Production,* U.S. ENERGY INFO. ADMIN., (Jan. 31, 2020), https://www.eia.gov/dnav/ng/hist/n9050us2a.htm.

114. EIA 2019 OUTLOOK, *supra* note 110, at 69.

115. Mike Lee, "*Shale Gas" Still Upending Industry After 10 Years-Report*, E&E NEWS (June 21, 2018), https://www.eenews.net/energywire/2018/06/21/stories/1060085923. Reportedly, output of shale gas went from, in 2007, 51.7 billion cf/d, to 72.6 billion cf/d in 2017. *Id.* In 2018, experts expected that 15% of the U.S.'s production would be exported. Naureen S. Malik, *America's Gas Exports Seen Jumping to 15 Percent of Output Next Year*, BLOOMBERG ENV'T (Aug. 7, 2018), https://news.bloombergenvironment.com/environment-and-energy/americas-gas-exports-seen-jumping-to-15-percent-of-output-next-year.

116. Christine Buurma & Alix Steel, *Chevron-Anadarko Deal Shows Why Natural Gas is Big Oil's Future*, BLOOMBERG ENV'T (Apr. 12, 2019), https://news.bloombergenvironment.com/environment-and-energy/chevron-anadarko-deal-shows-why-natural-gas-is-big-oils-future.

clear power, and 17% from renewable energy.[117] In the U.S., as in Europe, natural gas even recently surpassed coal as the leader in GHG emissions.[118] EIA, consequently, projects that natural gas will "[remain] the dominant fuel in the electric power sector through 2050."[119] Consumption of natural gas could also increase through 2050 (with marginal growth in the rate of increase in consumption after 2020), although it is not expected to keep pace with increased production.[120] And while a rise in LNG exports may demand additional infrastructure, EIA's typical case projects that exports might stabilize by around 2030.[121]

Almost immediately upon being inaugurated, President Trump issued several Executive Orders designed to promote, in part, energy infrastructure projects. Executive Order 13,766, *Expediting Environmental Reviews and Approvals of High Priority Infrastructure Projects* announced the Administration's policy of streamlining and expediting infrastructure projects, particularly those of a "high priority for the Nation."[122] On March 28, 2017, the White House issued Executive Order 13,783, *Promoting Energy Independence and Economic Growth*, directing that agencies review all their regulations, policies, guidance, and orders to explore where unnecessary obstacles, delays, or costs are hindering the "siting, permitting, production, utilization, transmission, or delivery of energy resources."[123] Then in April 2017, the White House released Executive Order 13,795, *Implementing an America-First Offshore Energy Strategy*, announcing a priority for increasing domestic energy production from federal lands and waters.[124] In the summer of 2017, the President issued yet another order, this time on *Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure*.[125] In March and early April 2018, twelve agencies signed a *Memorandum of Understanding Implementing One Federal Decision Under Executive Order 13807*, which provides an umbrella structure for agencies to explore how to achieve a two year permitting schedule for covered projects and specifically addresses agency engagement with the FERC.[126]

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117. *Power Sector Pushed Domestic U.S. Natural Gas Consumption to New Record in 2018*, U.S. ENERGY INFO. ADMIN. (Mar. 25, 2019), https://www.eia.gov/todayinenergy/detail.php?id=38812.

118. Benjamin Storrow, *Move Over, Coal: Gas Now Emits More CO2 in U.S.*, E&E NEWS (Dec. 9, 2019), https://www.eenews.net/climatewire/2019/12/09/stories/1061760587.

119. EIA 2019 OUTLOOK, *supra* note 110, at 92.

120. *Id.* at 34, 72. Although natural gas consumption increases marginally in the electric sector, it increases more significantly among industrial users—which includes for LNG export. *Id.* at 82.

121. *Id.* at 84-85.

122. Exec. Order No. 13,766, 3 C.F.R. 261 (2018).

123. Exec. Order No. 13,783, 3 C.F.R. 314 (2018).

124. Exec. Order No. 12,795, 3 C.F.R. 340 (2018).

125. Exec. Order No. 13,807, 3 C.F.R. 369 (2018).

126. Nick Sobczyk, *Agencies Sign Agreement to Speed Permitting*, E&E NEWS (Apr. 9, 2018), https://www.eenews.net/stories/1060078515; *see generally* Nick Sobczyk, *'Discussion Draft' Would Make Big Changes to NEPA*, E&E NEWS (Jan. 29, 2018), https://www.eenews.net/stories/1060072251.

In spring 2019, the President issued two additional Executive Orders designed to mute states' role in permitting energy projects and "boost oil and gas."[127] Issued on April 10, 2019, one Executive Order recaptured the President's authority delegated to the Department of State to issue permits for cross-border energy transportation projects, such as those presented by TransCanada's Keystone XL oil pipeline.[128] Ostensibly this move appears designed to shield the approval from judicial review under the Administrative Procedure Act and obviate compliance with NEPA.[129] The other Executive Order describes the federal government's duty to "promote efficient . . . processes" for permitting energy infrastructure projects, both by limiting states' ability to veto or condition projects that might have an effect on water quality, and by directing the development of regulations and guidance that would ensure a two year permitting schedule for new energy infrastructure.[130] It also sparked controversy by further ordering the promulgation of regulations for transporting LNG by rail.[131] As reporter Zach Coleman observed, "[t]he Trump administration's plan to soften methane standards for the oil and gas industry is the first step in a larger effort to dismantle greenhouse gas rules for the booming sector."[132]

But what about the infrastructure necessary to support this boom, and FERC's response?

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127. Ariel Wittenberg & Kelsey Brugger, *Trump's Orders Target States' Rights to Boost Oil and Gas*, E&E NEWS (Apr. 10, 2019), https://www.eenews.net/energywire/stories/1060151873; *see also* Clifford Krauss, *Trump Signs Orders to Speed up Oil and Gas Pipeline Construction*, N.Y. TIMES, Apr. 10, 2019; Kelsey Brugger et al., *What's in Trump's Energy Orders?*, E&E NEWS (Apr. 9, 2019), https://www.eenews.net/energywire/stories/1060150115; Kelsey Brugger et al., *Trump's Energy Orders Spark Partisan and Legal Brawl*, E&E NEWS (Apr. 11, 2019), https://www.eenews.net/stories/1060153471.

128. Exec. Order No. 13,867, 84 Fed. Reg. 15,491 (Apr. 15, 2019). The State Department did retain its authority to receive, process, and make recommendations on applications. *Id.*

129. *See* National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321-37 (2018).

130. Exec. Order No. 13,868, 84 Fed. Reg. 15,495 (Apr. 15, 2019).

131. *See* Jennifer A. Dlouhy, *Trump Plan to Ship Natural Gas by Rail Stokes "Bomb Train" Fears*, BLOOMBERG ENV'T (Apr. 11, 2019), https://www.bloomberg.com/news/articles/2019-04-11/trump-plan-to-ship-natural-gas-by-rail-stokes-bomb-train-fears. One environmental attorney feared a disaster waiting to happen, with trains carrying "extraordinarily flammable and dangerous substance through highly populated areas." *Id.* The industry, however, counters how "[t]his form of liquefied natural gas is already being shipped all around the world all the time, including within the U.S., where it is driven in trucks to storage facilities." Haley Zaremba, *Environmentalists' "Bomb Train" Concerns Are Overblown*, OILPRICE.COM (Apr. 13, 2019), https://oilprice.com/Energy/Natural-Gas/Environmentalists-Bomb-Train-Concerns-Are-Overblown.html. In October 2019, the Administration released its draft proposal for promoting LNG by rail. Mike Lee, *Trump Admin Unveils Rule Greenlighting LNG by Rail*, E&E NEWS (Oct. 21, 2019), https://www.eenews.net/energywire/2019/10/21/stories/1061333429.

132. Zack Coleman, *Trump's Move On Methane Begins Bigger Effort on Potent Gas*, E&E NEWS (Sept. 12, 2018), https://www.eenews.net/climatewire/2018/09/12/stories/1060096615; *see also* Bess Levin, *Trump's "Insane" New Energy Policy Would Put Global Warming on Steroids*, VANITY FAIR (Sept. 11, 2018), https://www.vanityfair.com/news/2018/09/trumps-insane-new-energy-policy-would-put-global-warming-on-steroids.

III. THE NEW PIPELINE WARS

Several issues seem to populate most conversations about FERC and the Department of Energy's (DOE) approach toward promoting natural gas production. Some are merely technical, such as the increasing ability to coordinate natural gas infrastructure with electric power generation.[133] Other issues, however, are more fundamental. The first is how to ensure that state and local communities can participate in ensuring that environmental considerations are not relegated to afterthoughts by FERC's pipeline policies. The second is the escalating war between landowners and pipeline companies over the use of the existing condemnation process. The third area is the public debate at the Commission and the D.C. Circuit over whether the Commission should consider, when issuing a certificate, the incremental effect of increased GHG emissions from both downstream and upstream activities. The Commission even acknowledges aspects of these controversies, issuing in April 2018 a notice of inquiry soliciting public input on not only these contentious issues but an additional question surrounding the Commission's pipeline certificate policy.[134]

A. *State, Local, and Environmental Interests*

Long distance pipelines transport natural gas hundreds—perhaps thousands—of miles, and in doing so naturally attract the attention of an array of local interests. Often this transported gas is destined for markets or consumers far removed from the pipeline route itself, leaving the pipeline certificate applicant with few natural allies. Occasionally, adversaries express concern with ruptures, water crossings, endangered species impacts, effects on historic artifacts and Native American traditional cultural properties,[135] and the increased overall production and consumption of fossil fuels.

At least since the early 1990s, safety concerns have acutely impacted local communities. Early in the morning on March 23, 1994, a "wall of flame" in Edison, N.J. carried ash almost two miles when Texas Eastern Transmission Corp's pipeline ruptured[136] and left roughly 100 injured.[137] New Jersey Senator Bill Brad-

133. *See* MIT, FUTURE OF NATURAL GAS: AN INTERDISCIPLINARY MIT STUDY: EXECUTIVE SUMMARY 15-16 (2011) (discussing interdependence and noting how natural gas' abundance can serve as a bridge with a "safe landing place in a low carbon future"). *See infra* note 264 and accompanying text.

134. Certification of New Interstate National Gas Facilities, 163 FERC ¶ 61,042 (Apr. 19, 2018).

135. The Dakota Access oil pipeline serves as an exemplar of the devastating potential effects on Native American communities and their cultural properties and resources—similar to the effect that developing the Canadian tar sands for the Keystone XL line would have on the First Nations of Canada. *See* Troy A. Eid, *Beyond Dakota Access Pipeline: Energy Development and the Imperative for Meaningful Tribal Consultation*, 95 DEN. L. REV. 593, 599-602 (2018); Mary Kathryn Nagle, *Environmental Justice and Tribal Sovereignty: Lessons from Standing Rock*, 127 YALE L.J. FORUM 667, 678-81 (2018).

136. Richard Pérez-Peña, *Huge Gas Pipeline Explosion Rocks Northeast New Jersey*, N.Y. TIMES (Mar. 24, 1994), https://www.nytimes.com/1994/03/24/nyregion/huge-gas-pipeline-explosion-rocks-northeast-new-jersey.html.

ley blamed a "breakdown in the regulatory and safety program," eliciting calls for reform.[138] Nevertheless, in Appalachia, landslides contributed to at least six explosions in 2018; an explosion of a line north of Boston in 2018 devastated many homes and killed a resident; and in 2019, a gas pipeline ruptured in Kentucky, killing one person and injuring several others.[139] Safety concerns continue to plague the industry, although in October 2019 the Pipeline and Hazardous Materials Safety Administration (PHMSA) finally adopted a more expansive safety program.[140]

The industry must now also confront an escalating chorus of local environmental and land use concerns regarding the perils of new pipeline proposals. For example, proponents of the 678-mile Ruby Pipeline that would transport gas from Wyoming to Oregon embarked on an aggressive campaign to curry favor with affected Wyoming counties.[141] But project construction impacts associated with water-crossings left the project vulnerable to a successful Endangered Species Act (ESA) challenge—albeit only after the project construction was completed![142] In the early 1990s, the 370 mile and $583 million Iroquois Pipeline was set to deliver

137. Robert Hanley, *Edison Ready to Reopen Gas Pipeline*, N.Y. TIMES (Apr. 12, 1994), https://www.nytimes.com/1994/04/12/nyregion/edison-ready-to-reopen-gas-pipeline.html.

138. Clifford J. Levy, *Pipeline Blast Said to Show Flaws in Rules*, N.Y. TIMES (Apr. 20, 1994), https://www.nytimes.com/1994/04/20/nyregion/pipeline-blast-said-to-show-flaws-in-rules.html. Two years later, Congress passed the Pipeline Inspection, Protection, Enforcement, and Safety Act. But even so, five years later, another explosion in Bellingham, Washington killed three people, and Congress responded by strengthening the Act. *See generally* TRANSP. RESEARCH BD., NAT'L ACADS. OF SCI., TRANSMISSION PIPELINES AND LAND USE: A RISK-INFORMED APPROACH—SPECIAL REPORT 281 (2004). And yet 14 years later, with another devastating explosion in San Bruno, California that injured over 50 people and killed 7, Congressman Fred Upton (a prominent energy-focused Republican) observed, "[p]ipelines are the arteries of our Nation's energy infrastructure. Through our hundreds of thousands of miles of pipelines we transport the energy that fuels our economy, heats our homes, and powers our daily lives. Unfortunately, recent accidents have thrust this vital infrastructure into the headlines for the wrong reasons and perhaps highlighted the need for safety reassessments." *Pipeline Safety Oversight and Legis.: Hearing Before the Subcomm. on Energy and Environment of the Comm. on Energy and Commerce*, 111th Cong. 3, Serial No. 111-159 (2010) (statement of Rep. Upton, Member, H. Comm. Energy and Commerce). Since then, Congress has passed the Pipeline Safety, Regulatory Certainty, and Job Creation Act of 2011, Pub. L. No. 112-90, 125 Stat. 1904, as well as the Protecting Our Infrastructure of Pipelines and Enhancing Safety (PIPES) Act of 2016, Pub. L. 114-183, 130 Stat. 154.

139. *See* Mike Soraghan, *Landslides, Explosions Spark Fear in Pipeline Country,* E&E NEWS (June 4, 2019), https://www.eenews.net/stories/1060472727 (discussing the Appalachian region topography and problems associated with constructing lines in that region).

140. Pipeline Safety: Safety of Gas Transmission Pipelines: MAOP Reconfirmation, Expansion of Assessment Requirements, and Other Related Amendments, 84 Fed. Reg. 52,180 (Oct. 1, 2019) (to be codified at 49 C.F.R. pts. 191 and 192); Pipeline Safety: Safety of Hazardous Liquid Pipelines, 84 Fed. Reg. 52,260 (Oct. 1, 2019) (to be codified at 49 C.F.R. pt. 195); Pipeline Safety: Enhanced Emergency Order Procedures, 84 Fed. Reg. 52,015 (Oct. 1, 2019) (to be codified at 49 C.F.R. pt. 190); *see generally* Sara Gosman, *Justifying Safety: The Paradox of Rationality*, 90 TEMPLE L. REV. 155 (2018) (detailing the history of the pipeline safety program).

141. *See* Emilene Ostlind, *More Surprises Flow From Ruby Pipeline*, HIGH COUNTRY NEWS (Sept. 17, 2010), https://www.hcn.org/blogs/goat/more-surprises-flow-from-ruby-pipeline.

142. Ctr. for Biological Diversity v. BLM, 698 F.3d 1101, 1006 n.2 (9th Cir. 2012).

natural gas from the Canadian border to Long Island. Strange bedfellows opposed the pipeline: a group of landowners along the proposed path and energy producers favoring U.S. production.[143] Notwithstanding the community opposition, the project received a § 7 certificate from FERC in 1990 and a CWA permit from the Army Corps the following year.[144] Several years after the pipeline became operational, information surfaced that the company violated environmental laws when constructing through wetlands and streams.[145]

The NGA's savings clause ensures the Act accommodates some of these concerns. Although the NGA occupies the field and generally preempts many state and local requirements,[146] it specifically disclaims preempting the CWA, the CAA, and the Coastal Zone Management Act.[147] Local siting requirements are generally considered preempted by the NGA.[148] In *Dominion Resources*, FERC reaffirmed its

143. Amy Brooke Baker, *Opposition Clogs Gas Pipeline Plan*, CHI. TRIB. (Aug. 14, 1990), https://www.chicagotribune.com/news/ct-xpm-1990-08-14-9003080013-story.html.

144. *Permit Is Issued for Gas Pipeline to Long Island: 370-Mile Project to Run South from Canada,* N.Y. TIMES, Feb. 13, 1991. The CWA § 404 program requires a permit for any discharge of dredged or fill material into jurisdictional waters. 33 U.S.C. §§ 1311, 1344 (2018). Typically, pipelines can rely upon a nationwide permit (NWP) and avoid a lengthier review, public participation, and permitting process. 33 U.S.C. §§ 1311, 1344. States, however, can condition the availability of a NWP in the state by attaching special conditions. The Mountain Valley Pipeline attempted to use a NWP, but it became problematic when the Corps attempted to supplant West Virginia's condition on the availability of the NWP in that state. Sierra Club v. U.S. Army Corps of Eng'rs, 909 F.3d 635 (4th Cir. 2018) (also holding that the state could not waive its special condition).

145. *See* Joseph Berger, *Pipeline Supervisors Charged with Harming Environment*, N.Y. TIMES (Oct. 17, 1996), https://www.nytimes.com/1996/10/17/nyregion/pipeline-supervisors-charged-with-harming-environment.html.

146. *See* Schneidewind v. ANR Pipeline Co., 485 U.S. 293 (1988).

147. 15 U.S.C. § 717b(d) (2018). In 2005, Congress provided a mechanism for expedited judicial review for other required federal or state authorizations. 15 U.S.C. § 717r(d); *e.g.*, Dominion Transmission, Inc. v. Summers, 723 F.3d 238 (D.C. Cir. 2013) (remanding to require Maryland to process air permit). The court later explained *Summers* as avoiding what local requirements might be preempted by FERC's order, noting on remand the only non-preempted requirement was a construction site plan. Myersville Citizens for a Rural Cmty. v. FERC, 783 F.3d 1301, 1318 (D.C. Cir. 2015).

148. *See* Schneidewind, 485 U.S. at 293; Algonquin Gas Transmission, LLC v. Town of Weymouth, 919 F.3d 54 (1st Cir. 2019) (ordinance preempted); Dominion Transmission, Inc. v. Summers, 723 F.3d 238, 243 (D.C. Cir. 2013); *cf.* Del. Riverkeeper Network v. Sec'y Pa. Dept. of Envtl. Prot., 903 F.3d 65 (3d Cir. 2018) (suggesting court might explore application of state constitutional law); Atlantic Coast Pipeline, LLC v. Nelson Cty Bd. of Supervisors, 2020 WL 1151073 (W.D. Va. Mar. 3, 2020) (non-federally approved local regulatory authority preempted). The preemptive effect of the NGA is addressed as well in Fed. Power Comm'n v. So. Cal. Edison Co., 376 U.S. 205 (1964) and Ill. Nat. Gas Co. v. Cent. Ill. Pub. Serv. Co., 315 U.S. 498 (1942). *See supra* note 72 and accompanying text (describing Energy Policy Act 2005 and LNG facilities); Myersville Citizens for a Rural Cmty. v. FERC, 783 F.3d 1301, 1314 (D.C. Cir. 2015); *see also* Sound Energy Solutions, 107 FERC ¶ 61,263, para. 14 (2004) (discussing scope of jurisdiction and preemption). In 1981, DOE ensured that FERC would have authority over siting of LNG facilities, and in 1997 FERC issued § 3 regulations. Order No. 595, 62 Fed. Reg. 20,435 (June 4, 1997). In 1999, FERC issued NEPA filing regulations for LNG facilities. Order No. 603, 64 Fed. Reg. 26,582 (May 14, 1999), *amended* Order No. 603-A, 64 Fed. Reg. 54,537 (Oct. 7, 1999), Order No. 609, 64 Fed. Reg. 57,392 (Oct. 25, 1999); *see generally* Russell Kooi-

practice of encouraging certificate holders to cooperate with local governments, but it did not expressly require cooperation as a condition of a certificate.[149] FERC often avoids opining on whether a particular state program is preempted. Instead, the Commission generally avoids any direct conflict with states by issuing a conditional certificate with a condition requiring, for instance, the receipt of any required environmental clearances before construction may proceed. This ploy initially seemed problematic and invited challenges,[150] while today it is commonly accepted.[151]

Section 401 of the CWA, in particular, remains a principal irritant for the pipeline industry, as some states are testing whether § 401 can become an avenue for examining and potentially halting fossil-fuel development. Section 401 applies to pipeline certificates when an activity "may result in any discharge into the navigable waters."[152] States must be reasonably assured "that the activity will be conducted in a manner which will not violate applicable water quality standards,"[153] and they may attach conditions to a certificate issuance.[154]

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tra, Note, *How FERC Confuses the Role of State and Local Authorities in Regulating Certified Natural Gas Pipelines*, J. ENERGY & ENVTL. L. 59 (Winter 2015).

149. Dominion Transmission, Inc., Order Denying Reh'g, 163 FERC ¶ 61,128, para. 24 (2018); *see also* Mountain Valley Pipeline, LLC, 161 FERC ¶ 61,043, para. 309 (2017) ("Any state or local permits issued with respect to the jurisdictional facilities authorized herein must be consistent with the conditions of this certificate. We encourage cooperation between interstate pipelines and local authorities. However, this does not mean that state and local agencies, through application of state or local laws, may prohibit or unreasonably delay the construction or operation of facilities approved by this Commission.").

150. *See* Oregon v. FERC, 636 F.3d 1203, 1204 (9th Cir. 2011) (issue was being litigated but case dismissed when developer filed for bankruptcy); Del. Dep't of Nat. Res. & Envtl. Control v. FERC 558 F.3d 575, 577 (D.C. Cir. 2009) (because certificate was conditional, and thus arguably no immediate injury, state lacked standing); *see also* Crown Landing LLC, 117 FERC ¶ 61,209 (2006).

151. *E.g.*, Mountain Valley Pipeline, LLC, 163 FERC ¶ 61,197, para. 62 (2018) (order on reh'g), *aff'd* Appalachian Voices v. FERC, 2019 WL 847199 (D.C. Cir., Feb. 19, 2019); *see also* Township of Bordentown v. FERC, 903 F.3d 234, 246 (3d Cir. 2018) ("FERC's practice . . . complies with the plain language of the CWA."); Town of Weymouth v. FERC, No. 17-1135 (D.C. Cir. Dec. 27, 2018) (unpublished) (conditional compliance with the Coastal Zone Management Act); Del. Riverkeeper Network v. Sec'y Pa. Dep't of Envtl. Prot., 870 F.3d 171, 174 (3d Cir. 2017) (reviewing CWA compliance); *Myersville*, 783 F.3d at 1319 (rejecting challenge to conditional certificate); Islander E. Pipeline Co. v. McCarthy, 525 F.3d 141 (2d Cir. 2008); Islander E. Pipeline Co. v. Conn. Dept. of Envtl. Prot., 482 F.3d 79, 84 (2d Cir. 2006). The D.C. Circuit also implicitly upheld this practice when denying an NGO standing in Gunpowder Riverkeeper v. FERC, 807 F.3d 267, 270 (D.C. Cir. 2015).

152. 33 U.S.C. § 1341(a) (2018); *e.g.*, Appalachian Voices v. State Water Control Bd., 912 F.3d 746, 752-59 (2019); Sierra Club v. State Water Bd., 898 F.3d 383, 388 (4th Cir. 2018).

153. 40 C.F.R. § 121.2(a)(3) (2019).

154. PUD No. 1 of Jefferson Cty. v. Wash. Dep't of Ecology, 511 U.S. 700 (1994). Since 2005, challenges to state action or inaction occur before a court of appeals. *See* Channing Jones, *The Natural Gas Act, State Environmental Policy, and the Jurisdiction of the Federal Circuit Courts*, 42 COLUM. J. ENVTL. L. 163 (2016) (suggesting limiting aspects of federal review, although subsequent cases suggest otherwise).

The pipeline industry first exhibited notable concern with the § 401 program during the proposed Iroquois Pipeline.[155] That concern quickly dissipated but has recently returned. Both Washington and New York recently wielded their § 401 authority in a manner some find troublesome.[156] New York Department of Environmental Conservation's (NYDEC) decision denying certification to the Constitution Pipeline became a cause célèbre when the company failed to provide sufficient information regarding alternative routes.[157] New York also objected to FERC's decision to treat the state as having waived its CWA § 401 authority to object to the Millennium Pipeline.[158] The state delayed its review, concluding the applicant had not submitted a complete application.[159] When it finally denied certification, it reasoned that FERC's environmental analysis overlooked the effects from indirect downstream GHG emissions.[160] Because the state received the application over two years earlier on November 23, 2015, FERC concluded the state waived its § 401 certification. The Second Circuit agreed with FERC, construing the plain language of § 401 as being triggered upon "receipt" of a certification request.[161] When, however, the NYDEC tried to persuade FERC that the Northern Access Pipeline needed to furnish additional information before the agency could ensure compliance with § 401, FERC informed the state it ran out of time.[162] New York challenged that decision.[163]

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155. I was personally involved in these issues as a practitioner during this period. *See also* Nat'l Fuel Gas Supply Corp. v. Pub. Serv. Comm'n of N.Y., 894 F.2d 571 (2d Cir. 1990).

156. *See* Ariel Wittenberg, *EPA Curbs State Power to Deny Permits for Climate Concerns*, E&E NEWS (June 7, 2019), https://www.eenews.net/stories/1060510579. Environmental groups pressed Washington Department of Ecology to exercise § 401 authority and review the environmental and climate impacts of a proposed LNG terminal in Tacoma, Washington. Pamela King, *Greens Sue to Block Wash. LNG Permit*, E&E NEWS (July 11, 2019), https://www.eenews.net/energywire/stories/1060722199.

157. Constitution Pipeline Co. v. N.Y. State Dep't of Envtl. Conservation, 868 F.3d 87 (2d Cir. 2017). FERC subsequently concluded the state waived its § 401 authority. Constitution Pipeline Co., 168 FERC ¶ 61,129 (Aug. 28, 2019); *cf.* Niina H. Farah, *Court Halts FERC, N.Y. Fight Over Constitution Pipeline*, E&E NEWS (Apr. 9, 2020), https://www.eenews.net/energywire/2020/04/09/stories/1062823895.

158. N.Y. State Dep't of Envtl. Conservation v. FERC, 884 F.3d 450 (2d Cir. 2018), earlier case Millennium Pipeline Co. v. Seggos, 860 F.3d 696 (D.C. Cir. 2017).

159. 884 F.3d at 454.

160. *Id.*

161. *Id.* at 455-56. New York argued that "requiring state agencies to act on a request within one year will force it to render premature decisions. Among other harms . . . such a requirement may undermine public notice and comment, impede a state from working with the applicant to refile in accordance with its requirements, and prompt applicants to flood the courts of appeal." *Id.* at 456.

162. Nat'l Fuel Gas Supply Corp., 167 FERC ¶ 61,007 (2019). The Second Circuit already vacated and remanded the state certification decision back to the agency. Nat'l Fuel Gas Supply Corp. v. N.Y. State Dept. of Envtl. Conservation, 761 Fed. App'x 68 (2d Cir. Feb. 5, 2019). FERC reaffirmed its approach toward waiver when declaring that New York waived its ability to issue or deny certification for the Constitution Pipeline, relying on *Hoopa Valley Tribe*. Constitution Pipeline Co., 168 FERC ¶ 61,129 (Aug. 28, 2019). The Supreme Court rejected a request to decide whether states waive their

Some interested observers suggest that states are "abusing" their CWA authority.[164] According to the Interstate Natural Gas Association of America (INGAA), the traditional federal/state balance "has been disrupted and some states have viewed Section 401 as a means of determining which interstate pipeline projects are in the public interest and which are not."[165] That concern may be somewhat exaggerated, as even the controversial Atlantic Coast Pipeline received a § 401 certification that survived judicial review.[166] To be sure, the fate of Northern Access is still uncertain, and the Manhattan Institute suggests that blocking Northern Access will contribute to future gas shortages in the region.[167] A senior Republican Senator nevertheless floated legislative language designed to arrest some of these state efforts.[168] The National Conference of State Legislatures, however, expressed concern that such proposals thwart the CWA's model for dual federal-

right to certification if they cooperate with an applicant and allow the applicant the opportunity to withdraw and resubmit a certification request. Cal. Trout v. Hoopa Valley Tribe, 913 F.3d 1099 (D.C. Cir. 2019), *cert. denied*, (Dec. 9, 2019) (No. 19-257).

163. *See* Pamela King, *N.Y. Challenges FERC Approval of Northern Access*, E&E NEWS (May 31, 2019), https://www.eenews.net/stories/1060435951; *see also* Ryan Collins, *New York Denies Gas Pipe Again as Trump Eyes Permit Speedup*, BLOOMBERG ENV'T (Aug. 9, 2019), https://news.bloombergenvironment.com/environment-and-energy/new-york-denies-gas-pipe-again-as-trump-eyes-permit-speedup.

164. *E.g.*, Daren Bakst, *Commentary, States Abusing Federal Provision to Block Critical Projects*, CNSNEWS.COM (Mar. 15, 2019), https://www.cnsnews.com/commentary/daren-bakst/states-abusing-federal-provision-block-critical-projects. In November 2019, Oklahoma's Governor testified at a Senate hearing complaining how some states were abusing their authority. Water Quality Certification Reform Hearing on S. 1087 Before the Senate Env't & Public Works Comm., 116th Cong. 1 (Nov. 19, 2019) (statement of Hon. J. Kevin Stitt, Governor, Oklahoma).

165. Press Release, INGAA, INGAA Statement on EPA Clean Water 401 Guidance (June 7, 2019) (available at https://www.ingaa.org/News/PressReleases/36506.aspx.). In April 2018, the natural gas industry wrote President Trump requesting federal guidance that would limit state authority. *See* Letter from the Nat. Gas Council, to President Donald J. Trump (Apr. 10, 2018) (available at https://www.ingaa.org/File.aspx?id=34275&source=generalSearch.). Other states are exploring the scope of their authority: a Maryland legislator, for instance, asked their state attorney general to assess the constitutionality of proposed changes to that state's water quality certification program for pipelines. Letter from Attorney General of Maryland, to Hon. Charles J. Otto (Feb. 18, 2019) (on file with author); *see generally* Mike Lee, *Bill to Slow Pipeline Permitting Gains Speed in Md.*, E&E NEWS (Mar. 8, 2019), https://www.eenews.net/energywire/2019/03/08/stories/1060123473 (reporting on a Maryland bill that will promote public access for the permitting process).

166. Appalachian Voices v. State Water Control Bd., 912 F.3d 746 (4th Cir. 2019).

167. ROBERT BRYCE, MANHATTAN INST., OUT OF GAS: NEW YORK'S BLOCKED PIPELINES WILL HURT NORTHEAST CONSUMERS (June 25, 2019).

168. *See Barrasso Reintroduces Legislation to Improve Water Quality Certifications, Press Releases*, U.S. SENATE COMM, ON ENV'T AND PUB. WORKS (Apr. 9, 2019), https://www.epw.senate.gov/public/index.cfm/2019/4/barrasso-reintroduces-legislation-to-improve-water-quality-certifications. An interesting student note suggests legislation that would afford states the ability to exercise their authority upon performing a cost/benefit analysis. Jason Bressler, Note, *Blocking Interstate Natural Gas Pipelines: How to Curb Climate Change While Strengthening the Nation's Energy System*, 44 COLUM. J. ENVTL. L. 137 (2019).

ism.[169] President Trump's April 2019 Executive Order 13,868 directed that EPA issue new guidance for state compliance with § 401.[170] EPA responded on June 7, 2019,[171] principally clarifying that states must act within the established or extended (between the agency and the state) timeframe or waive their § 401 authority, and that § 401 and the state conditioning authority under § 401(d) is limited to water quality concerns.[172] Several state attorneys general responded by attacking EPA's guidance and asking for its rescission or revision, informing the agency they will follow prior binding requirements for the certification process.[173] EPA then followed its guidance with proposed regulations.[174] While this feud appears likely to continue throughout this administration, it seems less likely than the challenge by landowners to affect natural gas policymaking too much.

B. *The Pipeline Wars with Landowners*

An industry cherished feature of the NGA is that, once a natural gas company receives a § 7 certificate of public convenience and necessity, it secures a federal right to exercise eminent domain.[175] Typically, eminent domain authority, or the authority to condemn private property upon payment of just compensation, can be exercised only by governmental entities or by those with delegated authority from a governmental authority that enjoys eminent domain power under the Federal or a state constitution. Electric transmission line developers, therefore, lack federal eminent domain authority—a principal problem according to many in that industry. But Congress granted eminent domain authority to private entities for the

169. *See* William T. Pound, Letter to the Honorable Mitch McConnell RE: Protecting States' Authorities Under Section 401 of the Clean Water Act, Nat'l Conf. St. Legislatures (Oct. 3, 2018), http://www.ncsl.org/Portals/1/Documents/standcomm/scnri/CWA_401_CongressFINAL.pdf.

170. Exec. Order No. 13,868, 84 Fed. Reg. 15,495 (Apr. 15, 2019).

171. EPA, CLEAN WATER ACT SECTION 401 GUIDANCE FOR FEDERAL AGENCIES, STATES AND AUTHORIZED TRIBES (2019), https://www.epa.gov/sites/production/files/2019-06/documents/cwa_section_401_guidance.pdf [hereinafter CWA SECTION 401 GUIDANCE]. EPA issued proposed regulations on August 8, 2019. Updating Regulations on Water Quality, 84 Fed. Reg. 44,080 (proposed Aug. 22, 2019).

172. *Id.* Absent regulatory changes, one industry lawyer suggested the guidance will not likely chill state efforts. *See* David Schultz, *EPA Guidance May Not Keep States from Blocking Pipelines*, BLOOMBERG ENV'T (June 11, 2019), https://news.bloombergenvironment.com/us-law-week/epa-guidance-may-not-keep-states-from-blocking-pipelines?context=article-related.

173. Attorneys General of California, Connecticut, Maryland, Maine, Massachusetts, Minnesota, New Jersey, New Mexico, New York, Oregon, Pennsylvania, Rhode Island, Vermont, Washington, and Pennsylvania Department of Environmental Protection, Comment Letter on Clean Water Act Section 401 Guidance for Federal Agencies, States, and Authorized Tribes (July 25, 2019), https://oag.ca.gov/system/files/attachments/press-docs/State%20AG%20Comments%20on%20Section%20401%20Guidance-FINAL%2019-0725.pdf.

174. CWA SECTION 401 GUIDANCE, *supra* note 171; Updating Regulations on Water Quality, 84 Fed. Reg. 44,080.

175. *See supra* note 67 and accompanying text.

construction of interstate pipelines, if the interstate pipeline receives a Certificate of Public and Convenience and Necessity from FERC.[176]

For many interstate natural gas companies, eminent domain authority is a backstop. Companies generally prefer to negotiate with landowners and avoid eminent domain proceedings.[177] As one of the three prerequisites for exercising eminent domain authority, the company must, after all, demonstrate that it attempted to negotiate with the landowner.[178] Kinder Morgan, one of the largest interstate pipeline companies, defends the right of eminent domain as a necessary tool for preventing any single landowner from having the ability to veto a project or hold a project hostage.[179] The company's approach is to secure rights-of-way "on a volun-

176. 15 U.S.C. § 717f(h) (2018); *see supra* note 67. For intrastate pipelines or electric transmission developers, states vary on how they approach affording companies eminent domain authority. And often the use of state eminent domain authority precipitates dialogues about how far such authority should extend. *See* Travis Bubenik, *New Push for Eminent Domain Reform Expected at Texas Legislature*, KUT 90.5-NPR (Jan. 14, 2019), https://www.kut.org/post/new-push-eminent-domain-reform-expected-texas-legislature.

177. In July 2018, the member companies of the Interstate Natural Gas Association of America, the industry's principal trade association, adopted a resolution that they would negotiate in good faith with landowners and exercise their right to eminent domain "only . . . as a means of last resort." INTERSTATE NAT. GAS ASS'N OF AM., COMMITMENTS TO LANDOWNERS (2018). Also, "[t]he Commission has long expressed a preference for minimizing the need for certificate holders to resort to eminent domain to acquire land for a given project." Birckhead v. FERC, 925 F.3d 510, 516 (D.C. Cir. 2019).

178. 15 U.S.C. § 717f(h) (2018). The other two are that the value exceeds $3,000 and that it holds a § 7 certificate. *Id.* A demonstration of good faith negotiations, however, may not be necessary. *See* Maritimes & Northeast Pipeline, LLC v. Decoulos, 146 Fed. App'x 495, 498 (1st Cir. 2005) (not requiring demonstration of good faith); Millennium Pipeline Co. v. Certain Permanent & Temp. Easements, 777 F. Supp.2d 475, 482 (W.D.N.Y. 2011), *aff'd* 552 Fed. App'x 37 (2d Cir. 2014) (same); Columbia Gas Transmission, LLC v. Booth, 2016 WL 7439348, at *4 (N.D. Ohio Dec. 22, 2016) (examining the issue and concluding that majority of modern courts reject inquiry into good faith); Kansas Pipeline Co. v. 200 Foot by 250 Foot Piece of Land, 210 F. Supp.2d 1253, 1256 (D. Kan. 2002) (not required to show good faith); Guardian Pipeline, LLC v. 529.42 Acres of Land, 210 F. Supp.2d 971, 973-4 (N.D. Ill. 2002) ("[The Court is] unaware of any case in which condemnation has been denied or even delayed because of an alleged failure to engage in good faith negotiations."). *But see* Transcon. Gas Pipe Line Corp. v. 118 Acres of Land, 745 F. Supp. 366, 369-70 (E.D. La. 1990) (earlier case involving gas storage implicitly suggesting applying state law imposing a requirement for good faith negotiation, although not finding a good faith violation). Some states require good faith negotiations during eminent domain proceedings, and the NGA provides "[t]he practice and procedure in any action or proceeding for [the] purpose [of exercising eminent domain] . . . shall conform as nearly as may be with the practice and procedure in similar action or proceeding in the courts of the State where the property is situated." 15 U.S.C. § 717f(h). Federal Rule of Civil Procedure 71.1 arguably negates this language, at least in some circuits. *See In re* PennEast Pipeline Co., 2018 WL 6584893 *16 (D.N.J., Dec. 14, 2018); *see also* Transcon. Gas Pipeline Co. v. Permanent Easements for 2.14 Acres, 907 F.3d 725 (3d Cir. 2018), *earlier op*. Transcon. Gas Pipeline Co. v. Permanent Easement for 2.59 Acres, 709 Fed. App'x 109, 111 (3d Cir. 2017). FERC too interprets the NGA as not requiring good faith negotiations. Mountain Valley Pipeline, 163 FERC ¶ 61,197 (2018) (order on reh'g). A showing of diligence in searching for landowners with partial interests may be necessary when a company seeks a default judgment against absentee landowners. *E.g.*, Atlantic Coast Pipeline, LLC v. 2.58 Acres, 2020 WL 291839 (W.D. Va. Jan. 21, 2020).

179. *See* KINDER MORGAN, WHITE PAPER: EMINENT DOMAIN 3 (2015).

tary basis."[180] To be sure, the threat of condemnation serves as a powerful incentive for landowners to negotiate. In a condemnation proceeding, the landowner is entitled to receive only the fair market value for the pipeline easement across the property.[181] During the negotiation process with the pipeline company, therefore, a landowner must gamble on whether the risk of proceeding in court outweighs an offer by the company. According to some private property right advocates, that negotiation process generally lacks the usual trimmings of an equal bargaining process, often affording the landowner only limited ability to secure favorable terms and conditions.[182]

If the negotiation process fails, the condemnation proceeding is limited to adjudicating the fair market value of the easement. The pipeline company typically initiates an eminent domain proceeding in federal district court, although a state forum is available.[183] Generally, federal courts disclaim any authority to examine the terms and conditions of the right-of-way, or the necessity for the right-of-away across that particular landowner's property.[184] Those issues, instead, are reserved exclusively to FERC's jurisdiction and subsequent review by the appropriate United States Court of Appeal.[185] Once the company receives its certificate, therefore, it enjoys the right "to obtain automatically the necessary right of way through eminent domain, with the only issue being the compensation the landowner defendant will receive in return for the easement."[186] The FERC § 7 proceeding, consequently, is where a landowner can raise any concerns about the potential easement across

180. *Id.*

181. *See e.g.*, Mountain Valley Pipeline, LLC v. 1.30 Acres of Land, 2019 WL 4306981 (Sept. 11, 2019) (discussing evidence for fair market value); Mountain Valley Pipeline v. 1.81 Acres of Land, 2019 WL 4007924 (W.D. Va. Aug. 23, 2019) (same). While it should be apparent that federal principles for just compensation apply, the Third Circuit oddly suggested it would incorporate state law as the federal standard—albeit suggesting that federal law is a floor and state law can add damages for consideration. Tenn. Gas Pipeline Co. v. Permanent Easement for 7.053 Acres, 931 F.3d 237 (3d Cir. 2019). *Cf.* UGI Sunbury LLC v. Permanent Easement for 1,7575 Acres, 949 F.3d (3d Cir. 2020) (applying FRE 702 and Daubert standard to exclude stigma damages from just compensation).

182. *See* Jonathan Wood, *Pipelines v. Property Rights*, PERC (Nov. 7, 2017), https://www.perc.org/2017/11/07/pipelines-v-property-rights/.

183. *See supra* note 67 and accompanying text. A state forum may not be available for a pipeline with a conditional certificate and no § 401 certification. *See* Nat'l Fuel Gas Supply Corp. v. Schueckler, 167 A.D.3d 128, 136-37 (S.C. App. D. 2018) (company attempted to use state instance vesting process before obtaining the § 401 certification—which shortly thereafter was denied, and which certification was a condition to the FERC certificate—although FERC later said the state waived its § 401 authority).

184. Williams Nat. Gas Co. v. City of Okla. City, 890 F.2d 255, 264 (10th Cir. 1989).

185. *Id.*; *see also* Kan. Pipeline Co. v. 200 Foot by 250 Foot Piece of Land, 210 F. Supp.2d 1253, 1256 (D. Kan. 2002). In N. Nat. Gas Co. v. Approximately 9117.53 Acres, 2011 WL 2118642, at *3 (D. Kan. May 27, 2011), the court further confirmed that landowners may not raise state claims through a counterclaim in an NGA eminent domain proceeding. If, moreover, a landowner fails to intervene and raise objections during the FERC proceeding, they are precluded from seeking judicial review.

186. Columbia Gas Transmission, LLC v. 1.01 Acres, More or Less, 768 F.3d 300, 304 (3d Cir. 2014).

its property. And when the natural gas company files its § 7 application, the landowner notification process is designed to ensure that landowners become aware of what is down the road.[187]

Pipeline opponents and frustrated landowners are waging battles against this process.[188] Even FERC's Notice of Inquiry (NOI) invited commentary as part of this conversation.[189] Generally, critics decry the process as denying landowners their due process rights and guarantee against having property taken for a public use without just compensation. The libertarian Niskanen Center, for instance, argues that FERC's process for affording notice to landowners is inadequate, too short, and so confusing that it deprives property owners of procedural due process.[190] Its argument proceeds from the correct proposition that objections to a pipeline must be adjudicated in the FERC process, and only intervenors in the agency's process can challenge a FERC decision in a petition for judicial review.[191] It then suggests that inadequate notice and impediments to intervention impose significant and unfair hurdles for many affected landowners.[192] The notice problem is exemplified, it adds, for pipelines like the controversial Mountain Valley Pipeline (MVP) that cross areas where it is likely the landowners are uneducated and less able to appreciate the implications of any notice.[193] Finally, Niskanen posits that FERC's use of tolling orders and conditional certificates violates the Due Process Clause. Tolling orders might delay a landowner's day in court for six months or more; conditional certificates might allow taking a property interest even

187. *See* 18 C.F.R. §§ 157.6(a)(2), (3) (2019), 157.6(d) (landowner notification); 18 C.F.R. § 157.7 (2019) (abbreviated filing under 18 C.F.R. § 385.2011, re electronic media); 18 C.F.R. § 157.21 (2019) (pre-filing requirements, including stakeholder involvement); 18 C.F.R. § 380.15 (2019) (siting and maintenance requirements); FERC, DOE, Revisions to Landowner Notification and Blanket Certificate Regulations, 72 Fed. Reg. 59,939 (Oct. 23, 2007); FERC, BLANKET CERTIFICATE PROGRAM: NOTICE TO LANDOWNERS (2007); *see also* FERC, DOE, Landowner Notification, Expanded Categorical Exclusions, and Other Environmental Filing Requirements, 64 Fed. Reg. 57,374, 57,377 (Oct. 25, 1999) ("The Commission's intent behind the landowner notification requirement was that the applicant should make a good faith effort to serve all affected landowners."). FERC's 2014 Order No. 790 also included a written landowner notification requirement before an interstate natural gas pipeline could conduct minor maintenance and replacement activities.

188. Robert McNamara & David Bookbinder, *Pipeline Builders Abuse Eminent Domain,* WALL ST. J. (July 19, 2018), https://www.wsj.com/articles/pipeline-builders-abuse-eminent-domain-1532039318; *see also* Ilya Somin, *The Growing Battle Over the Use of Eminent Domain to Take Property for Pipelines*, WASH. POST (June 7, 2016), https://www.washingtonpost.com/news/volokh-conspiracy/wp/2016/06/07/the-growing-battle-over-the-use-of-eminent-domain-to-take-property-for-pipelines/.

189. *See infra* note 252 and accompanying text.

190. Niskanen Ctr., Comments in Response to FERC's Notice of Inquiry 83 Fed. Reg. 18,020, Docket No. PL18-1-000 (July 25, 2018).

191. *Id*.

192. *Id.* For instance, the Center suggests that notices to landowners fail to adequately convey that, unless they intervene in the FERC proceeding, they will be unable to challenge any FERC decision. *Id*. at 6.

193. *Id*. at 19.

though the pipeline may ultimately lack eminent domain authority should it fail to satisfy its certificate conditions.[194]

These and similar concerns are now surfacing as litigants hope to enlist the aid of the judiciary in their quest to alter interstate pipelines' use of eminent domain authority. The MVP exemplifies this effort. The MVP is a 42-inch roughly 300-mile line that would carry natural gas from West Virginia to southern Virginia.[195] Landowners along the route participated in the FERC process and objected, fearing it would adversely affect the environment and pose several safety hazards.[196] In response, FERC noted MVP's statement that it would engage in good faith efforts to negotiate with landowners before exercising any eminent domain authority, and further that the company entertained several changes to accommodate route concerns.[197] It then reiterated that the NGA affords eminent domain authority, and the Commission's sole responsibility is merely to determine whether the pipeline is entitled to a Certificate of Public Convenience and Necessity under its policy.[198]

The Commission issued its typical conditional certificate, requiring subsequent receipt of required environmental clearances.[199] With that certificate in hand, MVP then initiated condemnation proceedings in order to secure immediate access to the properties.[200] FERC specifically allows this, reasoning that its conditional certificate "prohibits parties from commencing *construction*, not engaging in eminent domain proceedings, prior to obtaining all permits and satisfying all environmental conditions."[201] Many of the landowners allegedly "first learned they had been sued—and that MVP was seeking to seize part of their land immediately—when they discovered a thick packet with two filings duct-taped to their doors."[202] By allowing the company to proceed with filing a preliminary injunction authorizing immediate access to the property, even before all the environmental clearances had been secured, the landowners claimed that MVP could "bulldoze large swaths

194. *Id*. at 23-32.

195. Mountain Valley Pipeline, LLC, 161 FERC ¶ 61,043, para. 24 (2017) (MVP Order), *on rehearing* Mountain Valley Pipeline, LLC, 163 FERC ¶ 61,197 (2018).

196. *Id*.

197. *Id*.

198. Mountain Valley Pipeline, LLC, 161 FERC ¶ 61,043, para. 60 (2017). The Commission added its certificate decision could suffice as a "public use" determination for purposes of allowing federal eminent domain authority under the Constitution. *Id.* para. 61. The Commission again expressed this view on rehearing. Mountain Valley Pipeline, LLC, 163 FERC ¶ 61,197, paras. 34-39 (2018).

199. Mountain Valley Pipeline, LLC, 161 FERC 61,043, at 105, app. C (2017) (requiring compliance with Appendix C environmental conditions and specifically paragraph 9).

200. *E.g.,* Mountain Valley Pipeline, LLC v. W. Pocahontas Props. Ltd. P'ship, 918 F.3d 353 (4th Cir. 2019); Mountain Valley Pipeline, LLC v. 1.30 Acres of Land, 2019 WL 4306981 (W.D. Va. Sept. 11, 2019) (noting that condemnation issued on March 8, 2018); Mountain Valley Pipeline, LLC v. 1.81 Acres of Land, 2019 WL 4007924 (W.D. Va. Aug. 28, 2019).

201. Mountain Valley Pipeline, LLC, 163 FERC ¶ 61,197, para. 72.

202. Petition for Writ of Certiorari at 8, Givens v. Mountain Valley Pipeline, LLC, No. 19-54 (U.S. July 3, 2019).

of land along the pipeline's route . . . [and] cut down millions of trees, dig out hillsides, and destroy other property in carving a 125-foot-wide clear-cut swath through previously pristine countryside."[203]

Landowners also targeted the practice of allowing a pipeline to take property almost immediately upon the filing of a condemnation proceeding. The Declaration of Taking Act (DTA)[204] allows condemning parties the ability to "quick take" properties upon the filing of a declaration of taking. A declaration filing vests the property interest with the condemning party.[205] Even though the DTA does not apply to proceedings by pipeline companies acting under the authority of the NGA, courts in the Third, Fourth, and Sixth Circuits have allowed the immediate possession of property even "without the benefit of summary judgment."[206] In lieu of the DTA, these courts allow an interstate pipeline company to file a motion for preliminary injunction under FRCPs 71.1 and 65, ostensibly affording a court sufficient information about whether the company enjoys § 7(h) authority. The Third Circuit rejected an argument that, because Congress in the NGA omitted any provision for a quick take of property, this practice violates separation of powers.[207] This is how the process unfolded with the MVP.[208] A certiorari petition asking the Court to resolve whether a court may "issue a preliminary injunction granting immediate possession of property to a pipeline company in a condemnation proceeding under the [NGA]" was recently denied.[209]

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203. *Id.* at 8-9. Financial arrangements require tight pipeline construction schedules, and this pressure may have led to MVP's poor environmental compliance. *See* Mike Lee, *Va. Officials Freeze Work on Mountain Valley*, E&E NEWS (Aug. 5, 2019), https://www.eenews.net/energywire/2019/08/05/stories/1060851223.

204. 40 U.S.C. § 3114 (2018).

205. *Id.*

206. In re PennEast Pipeline Co., 2018 WL 6584893, at *14 (D.N.J., Dec. 14, 2018); *see* Mountain Valley Pipeline, LLC v. Western Pocahontas Props. Ltd. P'ship, 918 F.3d 353 (4th Cir. 2019); Nexus Gas Transmission, LLC v. City of Green, No. 18-2235, 757 Fed. App'x 489 (6th Cir. Dec. 7, 2018) (allowing use of preliminary injunction); *see also* Dominion Energy Transmission, Inc. v. 0.11 Acres of Land, 2019 WL 4781872 (N.D. W. Va. Sept. 30, 2019) (granting preliminary injunction and immediate possession).

207. Transcon. Gas Pipe Line Co. v. Permanent Easements, 907 F.3d 725 (3d Cir. 2018) (Atlantic Sunrise Project); *cf.* East Tenn. Natural Gas, LLC v. 1.28 Acres in Smyth County, VA, 2006 WL 1133874 (W.D. Va. Apr. 26, 2006) (allowing immediate possession through the court's equitable power of issuing preliminary injunction, citing East Tenn. Natural Gas Co. v. Sage, 361 F.3d 808, 828 (4th Cir. 2004)).

208. Mountain Valley Pipeline, LLC v. Easements to Construct, Operate, and Maintain, 2018 WL 648376 (W.D. Va. Jan. 31, 2018) (granting preliminary injunction and immediate possession but conditioned upon company providing sufficient evidence of adequate security for compensation); *see also* Mountain Valley Pipeline, LLC v. 1.30 Acres of Land, 2019 WL 4306981 (W.D. Va. Sept. 11, 2019).

209. Petition for Writ of Certiorari at 8, Givens v. Mountain Valley Pipeline, LLC, (July 3, 2019) (No. 19-54), *cert. denied* (Oct. 7, 2019).

Whether in the MVP proceeding or subsequently, it seems likely that this practice will trigger heightened scrutiny.[210] When, for instance, Transcontinental Gas Pipe Line Company (Transco) received its certificate for the Atlantic Sunrise Project, landowners sought rehearing from FERC.[211] Even before the Commission could resolve the rehearing request, Transco not only obtained its preliminary injunction allowing condemnation, but also received a construction order from FERC that allowed construction activities. The company "broke ground that same day."[212] The landowners lost their due process claim, but Judge Millett nevertheless described this process as "Kafkaesque."[213] Bound by precedent, she lamented, "Circuit precedent gave the Commission the tools it has used to create this administrative quagmire for those who seek to challenge its decisions. In my view, we should put an end to it."[214] She further stated that this entire process "runs roughshod over basic principles of fair process."[215] In their successful request for rehearing, petitioners urged that the court revisit its precedent in light of the current practice, to avoid fostering what it argued is a Fifth Amendment violation.[216]

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210. An attempt to challenge the eminent domain process in district court failed. Berkley v. Mountain Valley Pipeline, L.L.C., 896 F.3d 624 (4th Cir. 2018), cert. denied, 139 S. Ct. 941 (2019). Landowners secured a partial victory, however, when the D.C. Circuit told FERC it had to better explain why precedent agreements for the Nexus pipeline to ship a considerable amount of gas outside the U.S. was in the public interest. City of Oberlin v. FERC, 937 F.3d 599, 607 (D.C. Cir. 2019); *cf.* Town of Weymouth v. FERC, No. 17-1135, slip op. (D.C. Cir. Dec. 27, 2018) (unpublished) (FTA countries can serve public interest).

211. Transcon. Gas Pipeline Co., 161 FERC ¶ 61,250 (2017) (order on reh'g).

212. Allegheny Def. Project v. FERC, 932 F.3d 940, 944-45 (D.C. Cir. 2019) (per curiam).

213. *Id.* at 948 (Millett, J., concurring).

214. *Id.* at 950. Existing precedent merely upheld the use of tolling orders. *Id.* at 951 (citing California Co. v. FPC, 411 F.2d 720 (D.C. Cir. 1969) (per curiam)).

215. *Id*. Judge Millett's opinion provides a good analysis of the problems attendant with the Commission's use of tolling orders, orders that do not automatically stay the Commission's underlying decision and allow the Commission to avoid resolving a rehearing request before a company can condemn land and receive a construction order. Nearly a year passed from the date of the Commission's certificate order for the Nexus pipeline and its rehearing order, enough time for the pipeline to have completed its condemnation proceeding. *City of Oberlin*, 937 F.3d at 603. Similarly, the fight over PennEast Pipeline's ability to condemn state lands, In re PennEast Pipeline Co., 938 F.3d 96 (3d Cir. 2019), occurred before the D.C. Circuit heard oral argument in the challenge to FERC's certificate order. PennEast also asked the Court to review the decision. Niina H. Farah, *PennEast Asks Supreme Court to Review Stand Land Grabs*, E&E NEWS (Feb. 25, 2020), https://www.eenews.net/energywire/2020/02/25/stories/1062439925; *see also* Niina H. Farah, *Groups: Gas Pipeline Ruling Gives States Too Much Power*, E&E NEWS (Mar. 25, 2020) (describing amicus filings), https://www.eenews.net/energywire/stories/1062692321.

216. On December 5, 2019, the D.C. Circuit vacated its earlier opinion and ordered rehearing *en banc*, scheduled for March 2020. Allegheny Def. Project v. FERC, 943 F.3d 496, 497 (D.C. Cir. 2019) (per curiam).

C. *FERC, NEPA, and Climate Change*

The third principal controversy surrounds FERC's role in the climate change debate. FERC historically has struggled with how to address GHG emissions in its decisions. The NGA requires the agency to examine the "public interest," arguably embracing the need to explore whether a project's ostensible contribution toward GHG emissions warrants consideration in FERC's balancing of the pros and cons of a proposed project.[217] NEPA requires that the Commission examine whether a project is a major federal action that significantly affects the quality of the human environment. In doing so it directs, in part, that FERC explore the direct, indirect, and cumulative effects of its decisions[218]—again, arguably embracing the need to explore whether a project's ostensible contribution toward GHG emissions warrants exploration. The State Department's fiasco with the Keystone XL pipeline manifested the urgency of appreciating the GHG effects associated with approving new oil and gas pipelines. When the Council on Environmental Quality prepared its general NEPA guidance for assessing GHG emissions, some commentators believed it would "encourage FERC to take a more Keystone-like approach to their reviews, [and] to ask applicants to look upstream and downstream" to address GHG emissions associated with new oil and gas wells, and to address GHG emissions produced downstream when the natural gas or oil is burned.[219]

The current Republicans on the Commission, though, openly disavow the need to explore how their decisions could affect climate change. FERC Chairman Neil Chatterjee, for instance, commented to then EPA Acting Administrator Wheeler that the Clean Power Plan arguably infringed on FERC's jurisdiction, and that FERC lacks authority to address climate change under the NGA.[220] Chairman Chatterjee's perspective, joined by Republican Commissioner Bernard McNamee, has generated a public feud within the Commission about the agency's approach to analyzing GHG emissions during its pipeline and LNG proceedings—whether under NGA § 7 or NEPA.[221]

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217. FERC's process seemingly tilts the balance away from any holistic analysis of a project's pros and cons, because the Commission may preliminarily pre-determine a project's benefits outweigh its costs even before it has completed an EIS. *See* Fuel Safe Wash. v. FERC, 389 F.3d 1313 (10th Cir. 2004) (making its public benefits determination less than a month after public hearings on the draft EIS).

218. 42 U.S.C. § 4332(c) (2018); 40 C.F.R. §§ 1502.16, 1508.7, 1508.8 (2019).

219. Hannah Northey, *White House NEPA Guidance Could Trigger Change at FERC*, E&E NEWS (Dec. 19, 2014), https://www.eenews.net/stories/1060010881.

220. Letter from Office of the Chairman Neil Chatterjee, FERC, to Acting Administrator Wheeler, re Emission Guidelines for Greenhouse Gas Emissions from Existing Electric Generating Units; Revisions to Emission Guidelines Implementing Regulations; Revisions to New Source Review Program, Docket ID No. EPA-HQ-QAR-2017-0355, Oct. 31, 2018.

221. *See* Rod Kuckro, *McNamee, Glick Clash Over Climate*, E&E NEWS (July 19, 2019), https://www.eenews.net/energywire/2019/07/19/stories/1060757919.

Chairman Chatterjee announced the Commission's latest policy for addressing GHG emissions in a 2018 decision involving the construction and upgrading of compression facilities in New York to accommodate increased natural gas.[222] Responding to questions about the sufficiency of the project's EA or the Commission's § 7 obligations, FERC concluded that its public interest review under the NGA does not include an inquiry into climate change impacts. Next, the Commission reasoned that, because it cannot control either the upstream production of natural gas or its corresponding downstream consumption, NEPA does not require examining the effects of such production and consumption. Ostego argued that FERC should have prepared an Environmental Impact Statement (EIS) and that the Commission had to examine the upstream and downstream impacts of the project.[223] Next, it claimed "that unspecified emerging research regarding the project's impacts upon climate change and health and safety of residents are particularly controversial and require the preparation of an EIS."[224] FERC dispatched this claim rather quickly, suggesting that Ostego conflated controversy over the project with controversy over the impacts.[225] It also disagreed with Ostego that a modification of an existing facility allowed the Commission to revisit the environmental impacts of the existing facility, noting its examination is "limited to the company's proposal."[226]

On upstream and downstream effects, Ostego challenged the Commission's failure to examine cumulative effects from increased GHG emissions.[227] Notably, no party suggested that upstream or downstream impacts could be examined as indirect effects, and the Commission indicated it could not sufficiently predict any indirect upstream or downstream effects.[228] The Commission admitted it had for a time examined both production and downstream effects. It added, though, that such an analysis was unnecessary under NEPA[229] and too generic and specula-

222. Dominion Transmission, Inc., 163 FERC ¶ 61,128 (2018) (order denying rehearing); *see also* 155 FERC ¶ 61,106 (Apr. 28, 2016) (decided prior to Chatterjee being appointed as a commissioner).

223. 163 FERC paras. 61-3; *see also* Dominion Transmission, Inc., 155 FERC ¶ 61,106 (2016) (order issuing certificate).

224. *Id.* para. 18.

225. *Id.* paras. 18-19.

226. *Id.* para. 28.

227. *See generally* Dominion Transmission, Inc., 163 FERC ¶ 61,128, paras. 30-44 (2018).

228. *Id.*

229. Of course, "[c]ourts have found that combustion emissions are an indirect effect of an agency's decision to extract . . . natural resources," Wilderness Workshop v. BLM., 342 F. Supp. 3d 1145, 1155 (D. Colo. 2018), and little difference exists between a decision to allow leasing of natural gas and a decision to approve the ability to transport that gas. *See also* Wildearth Guardians v. Zinke, 368 F. Supp. 3d 41, 66-68 (D.D.C. 2019). One difficulty is distinguishing in a GHG analysis between indirect and cumulative effects. *See* Citizens for a Healthy Cmty. v. BLM, 377 F. Supp. 3d 1223 (D. Colo. 2019); San Juan Citizens All. v. BLM, 326 F. Supp. 3d 1227 (D.N.M. 2018).

tive.[230] It then went further and rejected examining cumulative effects of increased GHG emissions unless those effects are "reasonably foreseeable."[231] In a wordy analysis, crabbed by FERC's narrow focus on a defined geographic area, the Commission indicated it lacked sufficient information to examine either production-related or downstream impacts. "[I]f," the Commission reasoned, it "does not have meaningful information about future power plants, storage facilities, or distribution networks, within the geographic scope of a project-affected resource, then these impacts are not reasonably foreseeable for inclusion in the cumulative impacts analysis."[232] On rehearing, the Commission reiterated it would no longer engage in an upstream and downstream analysis, as it had previously, under the rubric of providing at least upper-bound estimates of what those impacts might be.[233]

Commissioners LaFleur and Glick registered strong objections.[234] Both expressed dismay at the Commission's departure from its recent practice, particularly so soon after it issued its pipeline certificate policy notice of inquiry. And both questioned the Commission's reasoning that indirect downstream impacts are not reasonably foreseeable and causally related to the Commission's decisions. Commissioner Glick forcefully chastised the Commission for violating NEPA and the NGA's public interest standard, as well as attempting to shield itself from examining indirect effects by not asking pipeline applicants for the relevant information.[235]

Other recent orders follow this typical pattern: abdication by the Commission's Republican members and objections by their Democratic colleagues.[236] Most

230. Dominion Transmission, Inc., 163 FERC ¶ 61,128, para. 41 (2018); *cf*. Wildearth Guardians v. BLM, 870 F.3d 1222 (10th Cir. 2017) (rejecting the agency's failure to examine GHG emissions because of alleged availability of substitute coal).

231. Dominion Transmission, Inc., 163 FERC ¶ 61,128, paras. 30-44 (2018).

232. *Id.* para. 34. In paragraphs 37 through 42 of its Order, the Commission justified limiting the geographic scope of its analysis, reasoning that, for upstream effects, "the magnitude of analysis requested by Otsego bears no relationship to the limited magnitude of the New Market Project's 65.4 acres for operation of the facilities" and the Commission lacks sufficient "information regarding the number, location, and timing of wells, roads, gathering lines, and other appurtenant facilities, as well as details about production methods." And for downstream effects, "nothing in the record . . . identifies any specific end use or new incremental load downstream of the New Market Project, much less an end use or new incremental load within the geographic area of where the impacts from the New Market Project will be felt." *Id.* paras. 37-39.

233. *Id*. paras. 55-70. The Commission, however, indicated that it would "continue to analyze upstream and downstream environmental effects when those effects are sufficiently causally connected to and are reasonably foreseeable effects of the proposed action, as contemplated by CEQ's regulations." *Id.* para. 44.

234. 163 FERC ¶ 61,128 (LaFleur, Comm'r, dissenting in part) (Glick, Comm'r, dissenting).

235. *Id.* (Glick, Comm'r, dissenting).

236. The Commission's MVP Order also discussed analyzing GHG emissions. Mountain Valley Pipeline, LLC, 161 FERC ¶ 61,043, paras. 287-296 (2017). It rejected using a social cost of carbon for individual pipeline review, *id.* para. 296, which it did in its DTE Order as well. DTE Midstream Appalachia, LLC, 162 FERC ¶ 61,238, paras. 72-82 (2018). The environmental analysis in the DTE Order

vocal remains Commissioner Glick, who registers objections to the Commission's failure to consider GHG emissions under both the NGA and NEPA.[237] In response, Commissioner McNamee claims the Commission lacks the authority to engage in the climate change debate—a perspective one writer posits is "align[ed] with the conservative legal philosophy of the Federalist Society and FERC general counsel James Dany [now Commissioner], who espouses the theory of the 'humble regulator,' wherein interpreting the law to make policy is to be avoided."[238]

FERC's approach is largely unsustainable under NEPA. Federal courts routinely demand that agencies adequately examine the indirect and cumulative effects from increased GHG emissions, and NEPA documents today invariably include an analysis of GHG emissions, albeit often an insufficient one.[239] A report by the Institute for Policy Integrity explains why NEPA requires examining the reasonably foreseeable direct and indirect upstream and downstream effects of a project, along with a robust alternatives analysis that includes a no additional natural gas option.[240]

FERC initially could be optimistic when the D.C. Circuit rejected petitions for review in two cases alleging an insufficient analysis of increasing natural gas consumption. The court accepted FERC's argument that an insufficient causal

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similarly avoided meaningful discussion: FERC claimed it lacked the ability to determine the incremental impact and thus whether any impact was significant. And it rejected the suggestion that a sufficient causal relationship existed between pipeline approval and upstream GHG emission impacts. *Id*. para. 52.

237. Transcon. Gas Pipe Line Co., 169 FERC ¶ 61,051 (2019) (Glick, Comm'r, dissenting); Nat. Gas Pipeline Co. of America, 169 FERC ¶ 61,050 (2019) (Glick, Comm'r, dissenting); Gulf LNG Liquefaction Co., 168 FERC ¶ 61,020 (2019) (Glick, Comm'r, dissenting); Mountain Valley Pipeline, 163 FERC ¶ 61,197 (2018) (LaFleur, Comm'r, dissenting) (Glick, Comm'r, dissenting) (order on reh'g). At a conference, Commissioner Glick opined he was against scrubbing climate change from the Commission's orders. Edward Klump, *Glick on Pipelines, Electricity, and the Climate 'Scrub'*, E&E NEWS (Sept. 27, 2019), https://www.eenews.net/energywire/2019/09/27/stories/1061174425.

238. Rod Kuckro, *McNamee, Glick Clash Over Climate*, E&E NEWS (July 19, 2019), https://www.eenews.net/energywire/2019/07/19/stories/1060757919.

239. *E.g.*, Wildearth Guardians v. BLM, 870 F.3d 1222 (10th Cir. 2017); San Juan Citizens All. v. BLM, 2018 WL 2994406 (D.N.M. 2018); AquaAlliance v. U.S. Bureau of Reclamation, 287 F. Supp. 3d 969, 1032 (E.D. Cal. 2018); High Country Conservation Advocates v. U.S. Forest Serv., 2018 WL 3804099 (D. Colo. 2018); W. Org. of Res. Councils v. BLM, 2018 WL 1475470 (D. Mont. 2018); Mont. Envtl. Info. Ctr. v. U.S. Office of Surface Mining, 274 F. Supp. 3d 1074 (D. Mont. 2017), *amended in part, affirmed in part*, 2017 WL 5047901 (D. Mont. 2017); Ctr. for Biological Diversity v. BLM, 2017 WL 3667700 (D. Nev. 2017); *see generally* Michael Berger & Jessica Wentz, *Downstream and Upstream Emissions Analysis: The Proper Scope of NEPA Review*, 41 HARV. ENVTL. L. REV. 109 (2017); Arnold W. Reitze, *Dealing with Climate Change Under the National Environmental Policy Act* (University of Utah College of Law Research Paper No. 320, 2019). *But cf.* James W. Coleman, *Beyond the Pipeline Wars: Reforming Environmental Assessment of Energy Transport Infrastructure*, 2018 UTAH L. REV. 119, 150-52, 162-63 (2018) (questioning need for upstream and downstream analyses).

240. JAYNI HEIN, JASON SCHWARTZ & AVI ZEVIN, PIPELINE APPROVALS AND GREENHOUSE GAS EMISSIONS 12-19 (2019), https://policyintegrity.org/files/publications/Pipeline_Approvals_and_GHG_Emissions.pdf.

connection existed between *its* decision authorizing the redesign of an LNG facility in the Gulf Coast and the effects from consuming the exported gas in another country—when the decision to allow the export rested with DOE.[241] The court also dismissed petitioner's claim that the LNG facility would induce more natural gas production downstream by accepting that "[t]he Commission reasonably explained that the asserted linkage was too attenuated to be weighed in its particular NEPA analysis."[242]

But recent pipeline opinions suggest such an analysis is not too attenuated. In *Sierra Club v. FERC*, the D.C. Circuit Court disagreed with FERC's order that the downstream GHG effects from burning the transported gas was not reasonably foreseeable.[243] In remanding FERC's order, the court also asked the Commission to address whether it continued to believe that using a Social Cost of Carbon (SCC) for pipeline decisions was unnecessary.[244] On remand, the Commission reinstated the certificate after it accepted a supplemental EIS, concluding that it could not assess whether the downstream GHG emissions are significant and, consequently, retained its prior analysis.[245] Responding to the court's invitation to address again the efficacy of using an SCC, the Commission further reaffirmed its judgment that SCC is not a productive tool for project level pipeline decisions, primarily because it is not engaged in regional planning for either production or consumption.[246]

FERC shortly thereafter prevailed—but realistically lost—its next major case. In *Birckhead v. FERC*, the court affirmed FERC's failure to consider as indirect effects either the upstream or downstream GHG impacts.[247] Notably, though, the court quoted counsel's oral argument that "there may well be instances in which upstream gas production is both reasonably foreseeable and sufficiently causally connected to a pipeline project to qualify as an indirect effect."[248] Here, however, the court accepted the Commission's judgment that the record lacked sufficient evidence that the particular pipeline was the only way to move the gas in the market (a record lacking information because the question was never asked of the ap-

241. Sierra Club v. FERC, 827 F.3d 36 (D.C. Cir. 2016); *see also* Sierra Club v. FERC, 672 Fed. App'x 38 (D.C. Cir. 2016) (Mem.) (following *Sierra Club v. FERC*, 827 F.3d 36).

242. *Sierra Club*, 827 F.3d at 47; *see also* Sierra Club v. FERC, 672 Fed. App'x 38 (D.C. Cir. 2016) (companion case, with same judgment). In *EarthReports, Inc. v. FERC*, 828 F.3d 949 (D.C. Cir. 2016), the court again relied on *Sierra Club*, 827 F.3d 59, to reject requiring additional analysis of upstream (GHG emissions) and downstream effects (induced production from the Marcellus shale region) from FERC's decision authoring changes to the Cove Point LNG facility. The court also accepted Commission's decision not to use the SCC. *EarthReports*, 828 F.3d at 956.

243. Sierra Club v. FERC, 867 F.3d 1357 (D.C. Cir. 2017).

244. *Id.* at 1375.

245. Florida Southeast Connection, LLC, 162 FERC ¶ 61,233 (2018).

246. *Id.*

247. Birckhead v. FERC, 925 F.3d 510, 517 (D.C. Cir. 2019) (Broad Run Project).

248. *Id.*

plicant). The court distinguished *Sierra Club* by explaining how in that circumstance the destination and use of the natural gas was known—and here they "remain a mystery."[249] The court implicitly chastised the Commission for failing to obtain that missing information and, while upholding FERC's decision, strongly intimated that the Commission must examine downstream GHG emission effects from natural gas combustion.[250]

FERC Commissioners are now divided in a battle over how to address GHG emissions in pipeline orders. But it seems highly likely after *Birckhead* that such an analysis will be required, rather than be allowed to remain shrouded in "mystery" and avoided.[251] Indeed, in a more recent *per curiam* opinion for the Atlantic Sunrise Project, the D.C. Circuit invoked *Sierra Club*, reasoning that "customers' burning of the natural gas that the Project transports will produce greenhouse-gas emissions . . . [and petitioners] are also correct that NEPA required the Commission to consider both the direct and indirect environmental effects of the Project, and that, despite what the Commission argues, the downstream greenhouse-gas emissions are just such an indirect effect."[252]

D. *FERC's Gas Pipeline Policy Notice of Inquiry*

With all this turmoil, the Commission issued a Notice of Inquiry in April 2018, soliciting comments on its policies for certificating new natural gas transportation facilities.[253] The agency's existing policies date back almost two decades,[254] and the dramatic changes in the industry and markets since then prompted FERC's interest in exploring possible changes to its regulatory program. The existing policy reflects decades of practice where the Commission "adopted an economic balancing test that weighs the public benefits of a project against its adverse im-

249. *Id.* at 518.

250. *Id.* at 519-20.

251. The D.C. Circuit recently avoided the question in the challenge to the New Market Project, when several states and the District of Columbia urged the court "to recognize the straightforward principle . . . that projects intended to increase the supply and transportation of natural gas also increase the amount of natural gas produced and consumed, with resulting environmental impacts, including [GHG] emissions that contribute to climate change." Brief for New York et al. as Amicus Curiae Supporting Petitioners at 8-9, Otsego 2000 v. FERC, 767 F. App'x 19 (D.C. Cir. Dec. 12, 2018) (No. 18-1188); *see* Ostego 2000 v. FERC, 767 F. App'x 19 (D.C. Cir. May 9, 2019); *see generally* Pamela King, *D.C. Circuit Won't Revisit FERC Climate Battle*, E&E NEWS (July 23, 2019), https://www.eenews.net/stories/1060775337.

252. Allegheny Def. Project v. FERC, 932 F.3d 940, 945-46 (D.C. Cir. 2019) (per curiam), *vacated, reh'g en banc granted*, 943 F.3d 496 (D.C. Cir. Dec. 5, 2019).

253. *Notice of Inquiry,* Certification of New Interstate Natural Gas Facilities, 83 Fed. Reg. 18,020 (April 25, 2018), 163 FERC ¶ 61,042 (2018) (notice of inquiry).

254. Certification of New Interstate Natural Gas Pipeline Facilities, 88 FERC ¶ 61,277 (1999), *clarified*, 90 FERC ¶ 61,128 (2000), *further clarified*, 92 FERC ¶ 61,094 (2000).

pacts."[255] Benefits are then measured by market demand, illustrated by commitments established in either contracts or precedent agreements.[256] And FERC's policy is principally designed to protect existing customers against cross-subsidization by allocating the risk of new construction on the pipeline and its shareholders.[257]

Shortly after becoming Chairman, now former Charmain Kevin McIntyre announced it was time to take a "fresh look" and examine the "really hard questions."[258] Those "hard" questions elicited over 25,000 comments from interested stakeholders.[259] A host of Non-Governmental Organizations (NGOs) urged the Commission to review its approach for examining upstream and downstream GHG emission effects, and emphasized the importance of a more robust analysis of project need rather than relying almost exclusively on whether and how precedent agreements establish a need for natural gas.[260] Several state attorneys general similarly urged a wider consideration of the public interest that meaningfully explores market need over merely accepting precedent agreements, as well as examining the upstream and downstream GHG emission effects.[261] They also expressed concern with the approach toward eminent domain and how the Commission's use of conditional certificates affects a state's authority to implement CWA § 401.[262] The industry, conversely, generally defended the Commission's existing Certificate Policy and use of precedent agreements.[263] And EPA informed the Commission on available tools for reviewing upstream and downstream GHG emission impacts.[264]

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255. Christin, *supra* note 65, at 116.

256. *Id.* at 117; *see also infra* note 268 and accompanying text.

257. *See* Christin, *supra* note 65, at 124, 128. "Instead of picking winners and losers," it does this by "evaluat[ing] the public convenience and necessity of pipeline construction projects based on the demonstrated willingness of investors to risk capital in the market place." *Id.* at 132.

258. Rod Kuckro & Jenny Mandel, *FERC Tackles First Gas Policy Review Since 1999*, E&E NEWS (Apr. 20, 2018), https://www.eenews.net/stories/1060079613.

259. *See* Ellen M. Gilmer, Sam Mintz & Rod Kuckro, *Commenters Swarm FERC to Push Reform—and Status Quo*, E&E NEWS (July 27, 2018), https://www.eenews.net/energywire/2018/07/27/stories/1060091321.

260. Public Interest Organizations, Comment Letter on Certification of Interstate Natural Gas Facilities, Docket No. PL18-1-000 (July 25, 2018).

261. Attorneys General of Massachusetts, Illinois, Maryland, New Jersey, Rhode Island, Washington, and the District of Columbia, Comment Letter on Certification of Interstate Natural Gas Facilities, Docket No. PL18-1-000 (July 25, 2018).

262. *Id.*

263. *See* Natural Gas Council, Comment Letter on Certification of Interstate Natural Gas Facilities, Docket No. PL18-1-000 (July 25, 2018); Iroquois Gas Transmission System, L.P., Comment Letter on Certification of Interstate Natural Gas Facilities, Docket No. PL18-1-000 (July 25, 2018); Interstate Natural Gas Association of America (INGAA), Comment Letter on Certification of Interstate Natural Gas Facilities, Docket No. PL18-1-000 (July 25, 2018). INGAA's comments exceed 100 pages and defend the existing certification policy.

264. Sam Mintz, *EPA Advises FERC on Measuring Greenhouse Gases*, E&E NEWS (June 22, 2018), https://www.eenews.net/eenewspm/2018/06/22/stories/1060086219. EPA had earlier objected to FERC NEPA documents that ignored indirect effects from downstream natural gas combustion. *E.g.*, Letter

IV. EMBEDDED INFRASTRUCTURE AND POSSIBLY TOO MUCH GAS

The shift away from coal-fired electric generation, coupled with changes in our transportation fuels, can reduce U.S. GHG emissions,[265] but what happens to natural gas as the U.S. moves toward the necessity of a carbon-free economy?

Moving forward, consequently, this last section proffers some suggestions. At the outset, topical issues such as pipeline safety and better coordination between PHMSA and FERC on siting of natural gas lines can be resolved, along with more careful attention by PHMSA toward plugging safety gaps.[266] And conversations surrounding environmental compliance with the construction of new interstate natural gas pipelines must be taken seriously—and we should acknowledge rather than question the states' important role in administering state water quality programs. FERC too should take seriously landowner concerns with the present eminent domain process for interstate natural gas pipelines—and it appears likely that the D.C. Circuit will dictate that it does so.[267] More fundamentally, FERC must, under NEPA and the NGA, acknowledge its role in exploring the GHG emissions associated with new interstate natural gas pipelines. Accordingly, the Commission must further explore the market need over time for natural gas, to avoid a potential stranded asset problem.

To begin with, the debate in a few states surrounding § 401 of the CWA appears likely to remain a peripheral issue. Little suggests that states like New York are abusing their authority, but instead raising relevant issues tied to protecting water quality. Unless the Supreme Court weighs in and concludes that states do not waive their § 401 authority when extending the time for action by requiring a withdrawal and resubmittal of an application, it seems likely that outright denials of certification will follow, prompting pipeline applicants to adjust their behavior. One option promoted by Alex Klass and Jim Rossi would be to involve the state earlier in the pre-filing stages of the pipeline certification process.[268]

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from Kenneth A. Westlake, Chief, NEPA Implementation Section, Office of Enforcement and Compliance Assurance, EPA, to Kimberly D. Bose, Secretary, FERC, Oct. 11, 2016 (on file with author) ("We view FERC's response to our comments as very concerning in light of CEQ's GHG Guidance and request a headquarters level meeting with us to seek a definitive resolution to this matter before you publish a Record of Decision (ROD) and so that you do not continue to take this approach in additional NEPA documents.").

265. Energy related CO_2 rose in 2018 as a result of a warmer than normal summer and colder than normal winter, but EIA expects it will decrease in 2019 as temperatures normalize and more natural gas and renewables are deployed. EIA, SHORT-TERM ENERGY OUTLOOK (Apr. 2019).

266. *See Gosman*, *supra* note 140. The two agencies have negotiated agreements involving PHMSA's ability to issue letters of determination regarding safety for LNG facilities. FERC, Memorandum of Understanding Between the Department of Transportation and the Federal Energy Regulatory Commission Regarding Liquefied Natural Gas Transportation Facilities (Aug. 31, 2018).

267. *See supra* Section III.B.

268. Alexandra B. Klass & Jim Rossi, *Reconstituting the Federalism Battle in Energy Transportation*, 41 HARV. ENVTL. L. REV. 423, 480-81 (2017).

Next, FERC ought to consider remedying the difficulties confronting landowners intervening in the FERC process,[269] and possibly preventing the transfer of property interests until a § 7 certificate is "effective." The Commission's disclaimer that the NGA and the judiciary hold all the cards is tautological[270]—both the NGA and the judiciary are subservient to FERC's decision to award a certificate. The Commission commensurately enjoys capacious authority to determine whether, when, and how a certificate can be considered "effective" for purposes of § 7(h). Indeed, the Commission relies on its discretionary authority to even issue conditional certificates.[271] New York, for instance, urges abandoning conditional certificates as one solution for landowners.[272] Yet FERC, instead, could clarify that a certificate ought to become "effective" for purposes of eminent domain only when all required federal clearances or permits have been obtained. A pipeline company could commence other work, with voluntary agreements to access property, or begin construction on property it owns or controls, but the federal right of eminent domain would not become operative until a certificate is "effective." Many pipeline projects have tight construction schedules (often set by FERC and in precedent agreements with shippers),[273] which contribute toward to the need for

269. This might include FERC reversing its recent policy of becoming less lenient on late interventions. *See* Tenn. Gas Pipeline Co., 162 FERC ¶ 61,167, para. 50 ("we will be less lenient in the grant of late interventions"); *see also* DTE Midstream Appalachia, LLC, 162 FERC ¶ 61,238, at paras. 8-12 (2018) (same). FERC also could explore ways to avoid the trap some litigants confront when they fail to appreciate the significance of raising issues during a proceeding, and then preserving issues by seeking rehearing before proceeding to judicial review. *See* Mountain Valley Pipeline, LLC, 163 FERC ¶ 61,197, at paras. 15-19 (2018) (order on reh'g) (explaining consequences); Atlantic Coast Pipeline, LLC, 164 FERC ¶ 61,100, at para. 12 (2018) (untimely rehearing, and not preserving issues); *see also* Myersville Citizens for a Rural Cmty. v. FERC, 783 F.3d 1301, 1310 (D.C. Cir. 2015) (rejecting a challenge to the absence of precedent agreements because issue was only presented in a footnote on rehearing). Another improvement might be to ensure that intervenors appreciate how, if they wish, to get access to confidential precedent agreements. *Id.* at 13 (noting ways to get access to some privileged and confidential documents). *See* Atlantic Coast Pipeline, LLC, 164 FERC ¶ 61,100 at paras. 15-25 (discussing access to precedent agreements). Since I first drafted this article, the Commission has initiated limited efforts to address some landowner concerns. *See* Niina H. Farah, *FERC Vows Rapid Responses in Eminent Domain Legal Brawl*, E&E NEWS (Feb. 11, 2020); https://www.eenews.net/energywire/2020/02/11/stories/1062319101; Jeremy Dillion, *FERC Reorganizes to Address Landowner Disputes*, E&E NEWS (Feb. 3, 2020) https://www.eenews.net/greenwire/2020/02/03/stories/1062254577.

270. *See supra* notes 201-08 and accompanying text.

271. *See* Mountain Valley Pipeline, LLC, 163 FERC ¶ 61,197, at paras. 80-83.

272. Attorney General of the State of New York, Comment Letter on Certification of Interstate Natural Gas Facilities, Docket No. PL18-1-000 (arguing against conditional certificates).

273. One court observed, when granting summary judgment, that "[c]onstruction timing is critical, and construction delays will result in lost contracts, the inability to comply with FERC requirements, and substantial financial losses that cannot be recouped." Penneast Pipeline Co. v. Permanent Easement of 0.06 Acres in Moore Twn., 2019 WL 4447981 *3 (E.D. Pa. Sept. 17, 2019). Shippers may be loath to sign precedent agreements extending too long the period they will commit. In a FERC proceeding, such as with the MVP, participants will know the identity of the shippers, the maximum daily quantity, as well as the contractual terms. Mountain Valley Pipeline, LLC, 161 FERC ¶ 61,043, at paras. 9-10.

conditional certificates in the first place. A reasonable middle ground, therefore, might allow a certificate applicant to satisfy the terms of its reformulated precedent agreements without risking inappropriately condemning property. Or, conversely, judges could exercise equitable power and reject preliminary injunction motions to obtain quick access to property.[274]

Finally, agencies can take seriously their obligation under NEPA as well as their organic acts, whether the NGA, the MLA, or FLPMA to ensure that all environmental and natural resource issues are thoroughly vetted. The obligation includes analyzing the full life-cycle GHG emissions both upstream and downstream from allowing the construction of a new natural gas pipeline.[275] When necessary or where appropriate, agencies can respond by avoiding, mitigating, or minimizing any adverse effects on the climate, landscape, natural resources, and indigenous populations.[276] The notion that GHG emissions are somewhat beyond the ken of the NGA's "public interest" mandate is dubious. Section 7 of the NGA vests the Commission with broad authority, including the ability to "condition certificates in such manner as the public convenience and necessity may require."[277] Romany Webb's analysis for the Sabin Center aptly demonstrates why NGA § 7 not only authorizes but prescribes a sufficient environmental analysis.[278] Similarly, Harvard's Electricity Law Initiative summarizes the historical understanding surrounding "public convenience and necessity" to explain why the Commission ought to amend its Certificate Policy Statement to ensure a full accounting of the "economic risks and environmental harms of downstream and upstream [GHG] emissions in a certificate proceeding."[279] And several U.S. Senators responded to FERC's

274. *See* Pamela King, *Federal Judge Rejects Md. Eminent Domain Bid*, E&E NEWS (Aug. 22, 2019), https://www.eenews.net/energywire/stories/1061025035. The Fourth Circuit may soon decide whether the court enjoys such equitable power. *See* Niina H. Farah, *Developer Fights Eminent Domain Denial in Md.*, E&E NEWS (Sept. 23, 2019), https://www.eenews.net/stories/1061160131.

275. *See supra* notes 238-46 and accompanying text. This same problem surfaces with electric transmission lines, when agencies occasionally avoid meaningful analysis. *See* Nat'l Parks Conservation Ass'n v. Semonite, 925 F.3d 500 (D.C. Cir. 2019) (court having to address pipeline construction already undertaken without adequate NEPA compliance).

276. Commission staff today generally actively monitor pipeline construction and environmental compliance. *E.g.*, FERC Field Inspection Report, July 11, 2019 (for DTE Midstream Appalachia Birdsboro Pipeline Project), Issuance No. 20190726-3001, available on FERC's E-Library, Docket No. CP17-458-000.

277. Atlantic Refining Co. v. Pub. Serv. Comm'n of N.Y., 360 U.S. 378, 391 (1959); *see also* Fed. Power Comm'n v. Transcon. Gas Pipeline Corp., 365 U.S. 1, 7 (1961) (broad discretionary authority); Fed. Power Comm'n v. Hope Nat. Gas Co., 320 U.S. 591 (1944). New proceedings under § 7 arguably afford FERC broader authority than rate proceedings under §§ 4 and 5 for existing jurisdictional facilities. 15 U.S.C. § 717f(e) (1988).

278. ROMANY M. WEBB, CLIMATE CHANGE, FERC, AND NATURAL GAS PIPELINES: THE LEGAL BASIS FOR CONSIDERING GREENHOUSE GAS EMISSIONS UNDER SECTION 7 OF THE NATURAL GAS ACT (2019).

279. Harvard Electricity Law Initiative, Comment Letter on Certification of New Interstate Natural Gas Facilities, Docket No. PL18-1-000 (July 25, 2018). Another study reviewed this history and

solicitation regarding its Certificate Policy by explaining why FERC ought to employ an SCC in its review of pipeline applications.[280]

As described above, FERC should consider the environmental impacts of both upstream and downstream emissions when deciding whether to grant a § 7 certificate.[281] But while such consideration is surely required and necessary, it is still woefully insufficient. Though not as devastating as coal-fired generation, natural gas-fired generation too is inimical to the long-term health of the planet. Pipeline infrastructure projects precipitate the urgency of addressing whether natural gas (a) should remain part of our energy economy at least through 2050; or (b) should only serve as a bridge fuel, and if so, for how long? It requires careful consideration of the environmental, economic, and technical feasibility of decarbonizing our energy economy between now and 2050. We also must determine whether, with the loss of coal-fired generation, the country has the renewable generation capacity—with battery storage assumed—and transmission capacity to satisfy the projected electric demand if we avoid constructing many of these pipelines. Ideally, we should answer these questions before society either: a) invests billions in infrastructure that might become stranded assets; or b) unduly tilts future decisions toward a continuation of natural gas when it is no longer necessary. Of course, we could instead assume this infrastructure might become a stranded asset and plan accordingly.

While it is well beyond the capacity of this article to examine the role of natural gas and answer either "a" or "b," we presently lack an effective institutional mechanism for having the conversation. Predictive models can inform how much natural gas we have consumed and are likely to need over the next several years (and possibly decades, though with much less certainty).[282] In 2016, natural gas consumption in the U.S. hovered around 75 billion cubic feet per day.[283] That number rose to about 82.1 billion cubic feet per day by 2018, and could increase to 84.6 in 2019, before remaining flat in 2020.[284] An April 2019 study by the Boston

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confirms that "courts have allowed the Commission significant freedom to decide under what circumstances it should issue a certificate for pipeline construction." Christin, *supra* note 65, at 120. In *Minisink Residents for Envtl. Pres. & Safety v. FERC*, 762 F.3d 97, 107 (D.C. Cir. 2014), the court agreed with petitioners "that the Commission was obligated to consider, as part of its certificating process under the NGA, reasonable alternatives to the [proposed] project." Admittedly, the issue there and the alleged inconsistency with *City of Pittsburgh v. Fed. Power Comm'n*, 237 F.2d 741 (D.C. Cir. 1956) involved FERC's treatment of future expansion, but the court emphasized the Commission's "wide discretion." *Minisink*, 762 F.2d at 107-09, 111.

280. Hon. Sheldon Whitehouse, et al., Comment Letter on Certification of New Interstate Natural Gas Facilities, Docket No. PL18-1-000 (July 25, 2018). I agree that FERC ought to employ an SCC, but its utility only becomes meaningful if costs and benefits are considered on a macro level.

281. *See supra* Section III.C.

282. *See* NORDHAUS & KALEN, *supra* note 29, at 226-27.

283. *See* NERA ECONOMIC CONSULTING, MACROECONOMICS OUTCOMES OF MARKET DETERMINED LEVELS OF U.S. LNG EXPORTS 22 (2018).

284. EIA, *supra* note 264 (Short-Term Energy Outlook).

Consulting Group suggests that natural gas demand could taper off, with supply exceeding demand, starting around 2020.[285] But even predicting a year out requires appreciating the role of natural gas pricing for the power sector, weather events affecting residential and commercial use, and how the broader economic outlook will drive industrial use of natural gas.[286]

These variables seem to push the industry toward short-term decisions on pipeline infrastructure. As of 2015, the nation had roughly 2.6 million miles of pipelines, as well as 414 natural gas storage facilities.[287] Since 2016, FERC has approved annually between 30 and 40 pipeline projects.[288] With a typical recourse rate of return on capital for new projects at 14%, investment makes sense.[289] And the D.C. Circuit has indicated it is "ill-equipped to second guess the Commission's expert judgment that 14% ROE with 50/50 equity/debt capital structure" is warranted.[290] If, however, delays and uncertainties occur in the approval process, that investment incentive lessens, and smaller projects in particular might be aban-

285. ALEX DEWAR, DAVID GEE & TOM BAKER, BOSTON CONSULTING GROUP, PREPARING FOR AN ABUNDANCE OF US NATURAL GAS (Apr. 2019); *see* Edward Klump, *Climate, Clean Tech Could Curb Demand for U.S. Gas-Study*, E&E NEWS, Apr. 15, 2019.

286. EIA, *supra* note 264 (Short-Term Energy Outlook).

287. QER-1, *supra* note 94, at S-2. The Energy Department concluded that roughly half of the nation's pipelines had been constructed in the 1950s and 1960s, suggesting that future investment would "range between $2.6 billion and $3.5 billion per year between 2015 and 2030, depending on the overall level of natural gas demand." *Id.* at S-5.

288. *See* Rod Kuckro, *Dominion Cancels Gas Pipeline, Blames FERC*, E&E NEWS (July 1, 2019), https://www.eenews.net/stories/1060678703.

289. For instance, the MVP proposed a capital structure of 60% capital investment, or equity, and 40% debt—at a 6% debt cost and a return on equity (ROE) of 14%, with a weighted average cost of capital at 10.8%. Mountain Valley Pipeline, LLC, 161 FERC ¶ 61,043, paras. 79-84 (2017). The Commission responded that its 14% ROE policy applies "only where the equity component of the capitalization is no more than 50%." *Id.* This is because equity financing costs ratepayers more money: it is more costly than debt financing and debt financing is tax deductible. *Id.* at para. 80 (noting Commission's policy in Fla. Se. Connection, LLC, 154 FERC ¶ 61,080 (2016) (order on reh'g), 165 FERC ¶ 61,160 (2016) (vacated and remanded sub nom)); Sierra Club v. FERC, 867 F.3d 1257). Yet, for the MVP, FERC noted how a 14% recourse ROE would sufficiently incent new market entrants such as the MVP, provided MVP alters its debt/equity ratio. *Id.* at paras 82-84. A recourse rate establishes a likely ceiling, with shippers capable of negotiating a slightly lower rate. It ostensibly avoids a company from overexercising market power. *See* N.C. Utils. Comm'n v. FERC, 761 Fed. App'x 9 (D.C. Cir. Apr. 3, 2019) (challenging recourse rate, dismissed for lack of jurisdiction). FERC further requires that the company file a rate study within 3 years, *e.g.*, Mountain Valley Pipeline, LLC, 161 FERC ¶ 61,043 para. 83 (2017), at which point FERC might initiative a § 5 rate proceeding (unlikely) or the company could submit a § 4 rate change (again unlikely). The Commission appears reticent to change rates even when they may beyond an established zone of reasonableness. *E.g.*, Wy. Interstate Co., 169 FERC ¶ 61,052 (2019) (Glick, Comm'r, dissenting) (questioning FERC's decision not to change rates even though federal tax changes and a Commissioner order suggested rates should be lowered). Although a typical reasonable rate affords a 10.55% ROE at a hypothetical capital structure of 57/43 equity/debt, rates often are part of a "black box" process. FERC, Rate Changes Relating to Federal Income Tax Rate, 84 Fed. Reg. 17,739, 17,744 (Apr. 26, 2019).

290. City of Oberlin v. FERC, 937 F.3d 599, 610 (D.C. Cir. 2019).

doned. For example, Dominion Energy recently announced it was abandoning the Sweden Valley Project, a 5-mile, $48 million project that would have delivered gas to Ohio.[291]

Admittedly, the current Commission evinces little temperament for engaging in a longer-term analysis. Its Certificate Policy Statement, now under review,[292] is designed to elicit information that will allow the Commission to balance the "public benefits against the potential adverse consequences," while affording "appropriate consideration to the enhancement of competitive transportation alternatives, the possibility of overbuilding, subsidization by existing customers, the applicant's responsibility for unsubscribed capacity, the avoidance of unnecessary disruptions of the environment, and the unneeded exercise of eminent domain in evaluating new pipeline construction."[293] But the policy sits on the shoulders of the Commission's assumption that precedent agreements (or similar commitment agreements) reflect public benefits by establishing a market need.[294] The Certificate Policy even acknowledges that transactions involving affiliated entities raise questions—albeit questions not examined by the Commission.[295] The Policy further acknowledges that speculative projects ought to have more evidence of need, but little suggests any robust inquiry to avoid these issues.[296] A cardinal objective, rather, appears to be ensuring that existing customers are not saddled with additional costs.[297] FERC's approach for establishing market need—a corollary for concluding a project serves the public convenience and necessity—is then reviewed deferentially by the courts.[298]

Although former Commissioner Norman Bay expressed a willingness to explore market need more meaningfully,[299] the Commission currently has elected

291. Rod Kuckro, *Dominion Cancels Gas Pipeline, Blames FERC*, E&E NEWS (July 1, 2019), https://www.eenews.net/stories/1060678703. Dominion's letter to FERC indicated its agreements required an in-service firm transportation service date of November 1, 2019, which meant receiving at the latest its FERC certificate by November 10, 2018, which had not even been granted as of the date of Dominion's letter. Mathew R. Bley, Dominion Energy, Letter to FERC, June 28, 2019.

292. *See supra* note 278 and accompanying text.

293. Mountain Valley Pipeline, LLC, 161 FERC ¶ 61,043 (2017), *on reh'g* 163 FERC ¶ 61,197 (2018).

294. *See infra* note 301 and accompanying text.

295. Certification of New Interstate Natural Gas Pipeline Facilities, 88 FERC ¶ 61,227 (1999) (Certificate Policy Statement), *clarified*, 90 FERC ¶ 61,128, *further clarified*, 92 FERC ¶ 61,094 (2000). The earlier more stringent policy required firm commitments for at least 25% of the pipeline's capacity. 88 FERC, ¶ 61,743; *see also* Christin, *supra* note 65, at 124-26 (discussing historical and current policy).

296. 88 FERC ¶ 61,227 (1999), *clarified*, 90 FERC ¶ 61,128, *further clarified*, 92 FERC ¶ 61,094 (2000).

297. *See supra* note 256 and accompanying text.

298. *E.g.,* Myersville Citizens for a Rural Cmty. v. FERC, 783 F.3d 1301, 1311-15 (D.C. Cir. 2015).

299. *See* Separate Statement, National Fuel Gas Supply Corp., 158 FERC ¶ 61,145, paras. 2-3 (2017).

otherwise. The Commission's tendency to avoid any principled inquiry into market need became pronounced in the MVP proceeding. Opponents argued that other projects already provided sufficient capacity, and approval of the MVP would result in over-building.[300] MVP conversely furnished a Wood Mackenzie Study suggesting that natural gas demand would "reach 8.3 billion cubic feet (Bcf) per day by 2030," that this gas would have to come from the Marcellus and Utica formations and, consequently, "would require additional pipeline capacity."[301] The Commission effectively avoided resolving this debate. Instead, it observed that MVP offered precedent agreements for the pipeline's full design capacity. That sufficiently established market demand.[302] Indeed, the Commission expressly opined it would not "examine the need for pipeline infrastructure on a region-wide basis."[303] To do so would require examining uncertain trends in "economic growth, the cost of natural gas, environmental regulations, and legislative and regulatory decisions by the federal government and individual states."[304] State policies for managing their "electric-power fuel source for the next 20 years" is equally too

300. Mountain Valley Pipeline, LLC, 161 FERC ¶ 61,043, paras. 34-43 (2017) (noting reports on need: DOE, NATURAL GAS INFRASTRUCTURE IMPLICATIONS OF INCREASED DEMAND FROM THE ELECTOR SECTOR; SYNAPSE ENERGY ECONOMICS, INC. ARE THE ATLANTIC COAST PIPELINE AND THE MOUNTAIN VALLEY PIPELINE NECESSARY? (2016); and INSTITUTE FOR ENERGY ECONOMICS AND FINANCIAL ANALYSIS, RISKS ASSOCIATED WITH NATURAL GAS EXPANSION IN APPALACHIA (Apr. 2016)). For Mountain Valley's pending proposed 74-mile MVP Southgate project (MVP-Southgate), a more recent Appalachian Voices funded study questioned the market demand in the North Carolina/Virginia region. Andrew M. Ballard, *Need for Mountain Valley Pipeline Extension Questioned*, BLOOMBERG ENV'T (Aug. 1, 2019), https://news.bloombergenvironment.com/environment-and-energy/need-for-mountain-valley-pipeline-extension-questioned.

301. Mountain Valley Pipeline, LLC, 161 FERC ¶ 61,043, para. 39 (2017) (footnotes omitted) (referencing WOOD MACKENZIE, INC., SOUTHEAST U.S. NATURAL GAS MARKET DEMAND IN SUPPORT OF THE MOUNTAIN VALLEY PIPELINE PROJECT (Jan. 2016)). Project opponents noted that the Wood Mackenzie study "relies on data from an unusually cold winter and assumes gas will be flexible to meet the variable needs of generators." *Id.*

302. *Id.* paras. 40-42 (albeit the Commission did take some "pot shots" at the studies). FERC noted how it would not explore the prudence of end user decisions to obtain natural gas, rather state regulators could assess a utility's "ability to recover costs associated with its decision to subscribe for service." *Id.* para. 53. The D.C. Circuit accepts the use of precedent agreements for establishing market demand. *See* Birckhead v. FERC, 925 F.3d 510, 517-18 (D.C. Cir. 2019).

303. Mountain Valley Pipeline, LLC, 161 FERC ¶ 61,043, para. 42 (2017). The Commission echoed this point later, asserting that it has "no way to accurately predict the scale, timing, and location of projects, much less the kind of facilities that will be proposed." *Id.* paras. 138-40.

304. *Id.* para. 42. The Commission expressed little concern that the agreements may have been with affiliated entities, provided there is no evidence of discrimination. Mountain Valley Pipeline, LLC, 163 FERC ¶ 61,197, para. 36 (2018). *See also* Mountain Valley Pipeline, LLC, 161 FERC ¶ 61,043, at paras. 44-45 (2017) (declining to suggest the Commission should exercise additional scrutiny with affiliated precedent agreement transactions, absent evidence of anticompetitive behavior or discrimination); Spire STL Pipeline LLC, 164 FERC ¶ 61,085, para. 24 (2018) (only one agreement and that one with affiliated company for 87.5% of capacity, even when Missouri Public Service Commission expressed concerns); *see generally* Christin, *supra* note 65, at 128 (defending why affiliated transactions are unlikely to be shams).

speculative.[305] And it observed that the EIS for the project suggested that "renewable energy is not a comparable replacement for the transportation of natural gas."[306]

The Commission, with one dissent, similarly approved the controversial 42-inch, 600-mile, $7 billion Atlantic Coast Pipeline (ACP) with marginal analysis of actual need for the natural gas.[307] In authorizing the ACP to use Forest System lands for the right-of-way, the Service observed that the project would "serve the growing energy needs of multiple public utilities and local distribution companies in Virginia and North Carolina."[308] The agency also considered President Trump's energy infrastructure executive orders and the need for timely approvals for such projects.[309] The Commission's rehearing order rejected as untimely a party's new evidence questioning market need, reaffirming its practice to prohibit the introduction of new evidence at rehearing even if, as here, it may question the fundamental viability of a project.[310] The Fourth Circuit faulted several aspects of the project, including faulty compliance with the ESA[311] and inappropriate allowance of the Forest Service rather than the National Park Service to decide whether a right-of-way through the Appalachian Trial is permissible under the National Trails Act.[312] But perhaps more consequential is the muted treatment of market demand. ACP's owner "emphasized the project's role in the transition from coal- to gas-fired power."[313] Yet some Virginia state legislators wrote FERC in July 2019 that recent filings by Dominion Energy suggest that natural gas demand had been overstated, possibly risking having ratepayers shoulder some of the project's large capital costs.[314] The lawmakers wrote that project demand, for then roughly $7.8 billion in

305. Mountain Valley Pipeline, LLC, 161 FERC ¶ 61,043, paras. 42-43 (2017). Elsewhere in its opinion, the Commission invoked *Chevron* deference to suggest its approach toward awarding certificates is broad under a step two analysis. *Id.* para. 60 n. 79.

306. *Id.* at 43.

307. *See* Atlantic Coast Pipeline, LLC, 161 FERC ¶ 61,042 (2017), 164 FERC ¶ 61,100 (2018) (order on reh'g).

308. USDA FOREST SERVICE, RECORD OF DECISION ON THE ATLANTIC COAST PIPELINE PROJECT SPECIAL USE PERMIT/LAND AND RESOURCE MANAGEMENT PLAN AMENDMENTS, 17 (2017).

309. *Id.* at 23.

310. Atlantic Coast Pipeline, LLC, 164 FERC ¶61,100, paras. 17-19 (2018) (order on reh'g).

311. Defenders of Wildlife v. U.S. Dep't of the Interior, 931 F.3d 339 (4th Cir. 2019); Sierra Club v. U.S. Dep't of the Interior, 899 F.3d 260 (4th Cir. 2018). The court subsequently invalidated a state air permit. Friends of Buckingham v. State Air Pollution Control Bd., 947 F.3d 68 (4th Cir. 2020).

312. Cowpasture River Pres. Ass'n v. U.S. Forest Serv., 911 F.3d 150 (4th Cir. 2018), *cert. granted* 140 S. Ct. 36 (Oct. 4, 2019) (Nos. 18-1854 & 1587).

313. Pamela King, *Pipeline Backers Set Stage for Appalachian Trail Fight*, E&E NEWS (June 26, 2019), https://www.eenews.net/energywire/2019/06/26/stories/1060656847.

314. Jeremy Dillon, *Va. Lawmakers Oppose Atlantic Coast Project*, E&E NEWS (July 16, 2019), https://www.eenews.net/eenewspm/2019/07/16/stories/1060748451.

costs, entirely depended upon (96%) affiliated arrangements, and requested that FERC "issue a stop work order and suspend the Certificate" pending a new demand study.[315]

If we wish to avoid crisscrossing the nation with possible stranded assets or tethering us to a fossil fuel longer than necessary, some institutional mechanism must be deployed to engage directly in the inquiry FERC ostensibly disclaims. As the above case studies demonstrate, FERC is not meeting the challenge. Historically, the Federal Power Commission (FERC's predecessor) examined national energy needs to inform policy-level decisions.[316] For hydroelectric development, although largely irrelevant in modern hydroelectric relicensing proceedings,[317] Congress charged the Commission with examining regional planning.[318] Every year the Energy Information Administration provides both long-term and short-term analyses of projected production and demand of energy resources.[319] More recently, the Energy Department engaged in infrastructure assessments—an inquiry FERC could have coordinated with DOE.[320] When assessing the impact of allowing LNG exports, DOE also performed several market-wide inquiries.[321] DOE earlier explored on a macro-level the nation's transmission system and constraints and bottlenecks.[322] DOE's Office of Energy Efficiency & Renewable En-

315. Letter from R. Creigh Deeds, Virginia State Senator, et al., to Kimberly D. Bose, Secretary of FERC (July 11, 2019) (on file with publisher).

316. *E.g.*, FPC, THE 1970 NATIONAL POWER SURVEY: A REPORT BY THE FEDERAL POWER COMMISSION (1970); FPC, NATIONAL POWER SURVEY: A REPORT BY THE FEDERAL POWER COMMISSION (1964). The 1970 report "serve[d] as a general long-range guide rather than a directive or firm plan. It illustrates possible patterns of efficient development based upon assumptions outlined in the report and with the passage of time, modifications to reflect variances from the assumptions will be in order." 1970 FPC REPORT, *supra* at I-iii. During the war, the Commission also compiled information for future demand needs. Philip L. Cantelon, *The Regulatory Dilemma of the Federal Power Commission, 1920-1977*, 4 FED. HIST. J. 61, 69 (2012).

317. *See generally* Sam Kalen, *Essay: Historical Flow of Hydroelectric Regulation: A Brief History*, 53 IDAHO L. REV. 1 (2017).

318. *See* 16 U.S.C. § 797(a) (2006) (examining plans for the use of water resources on a regional basis); 16 U.S.C. § 803(a)(1) (2006) (the Commission may give preference to an applicant's plans that are "best adapted to a comprehensive plan for improving or developing a waterway or waterways"); *see also* 16 U.S.C. § 797(g) (2006) (the Commission also has the authority to examine "the public interest to conserve and utilize the navigation and water-power resources of the region.").

319. *See generally* EIA, https://www.eia.gov.

320. *See* DOE Procedures for Conducting Electric Transmission Congestion Studies, 83 Fed. Reg. 42,647 (Aug. 23, 2018); QER-1, *supra* note 94.

321. DOE Study on Macroeconomic Outcomes of LNG Exports, 83 Fed. Reg. 27,314, 27,315 (June 12, 2018) (describing five studies, and focusing on the 2018 macroeconomic study). A DOE commissioned study concluded, assuming no additional regulatory constraints on LNG exports, that the United States would export roughly between 3.2 and 11.2 trillion cubic feet (Tcf) per year by 2040. NERA, *supra* note 282, at 14.

322. DOE, NATIONAL TRANSMISSION GRID STUDY (2002) (submitted to the White House as part of the National Energy Policy); National Transmission Grid Study 2001, 66 Fed. Reg. 47,460 (Sept. 21, 2001).

ergy (aided by the National Renewable Energy Laboratory) also has examined necessary infrastructure for plug-in electric vehicles.[323] When necessary, moreover, FERC could always enlist the aid of another agency—the State Department, after all, asked DOE to perform a critical analysis to assist the State Department's decision on the Keystone XL oil pipeline.[324] And notably, FERC staff issues reliability reports, examining projected weather and grid capacity and reliability, as well as projected natural gas prices—all factors FERC posits would be necessary to engage in regional-wide planning.[325]

When FERC or DOE anticipate the need to gather information or craft policies to adapt to market changes, they act. After all, without congressional directive, FERC restructured both the natural gas and electric utility industries.[326] FERC and DOE, more indicatively, are working on how to better integrate natural gas systems and the electric grid.[327] Natural gas fired power plants require delivery of the gas, and occasionally during cold weather when gas is diverted toward heating needs or there is an emergency in the system, the power sector is short.[328] Beginning around roughly 2012, as our energy portfolio shifted from coal toward natural gas, the Commission began exploring barriers to effective coordination between electric utilities and natural gas companies.[329] DOE too has been working with the natural gas pipeline industry to develop a computer model capable of assisting in coordination of the electric grid with the gas industry and cybersecurity.[330]

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323. DOE, NATIONAL PLUG-IN ELECTRIC VEHICLE INFRASTRUCTURE ANALYSIS (Sept. 2017).

324. *See* Sam Kalen, *Thirst for Oil and the Keystone XL Pipeline*, 46 CREIGHTON L. REV. 1, 21-22 (2012).

325. FERC, SUMMER 2019 RELIABILITY AND ENERGY MARKET ASSESSMENT (2019); *see also* FERC, WINTER 2018-19 ENERGY MARKET ASSESSMENT (Oct. 2018).

326. *See generally* NORDHAUS & KALEN, *supra* note 29, at 54-97.

327. *See, e.g.*, Order No. 809, Coordination of the Scheduling Processes of Interstate Natural Gas Pipelines and Public Utilities, 151 FERC ¶ 61,049 (2015); *see also* Natalie Karas, *Resilience Proceeding Gives FERC a Chance to Advance Gas-Electric Coordination*, EDF (May 9, 2018), http://blogs.edf.org/energyexchange/2018/05/09/resilience-proceeding-gives-ferc-a-chance-to-advance-gas-electric-coordination/.

328. Jay Apt, Gerad Freeman & Michael Dworkin, *The Natural Gas Grid Needs Better Monitoring*, 34 ISSUES IN SCI. & TECH. 4 (2018) (urging better reporting requirements).

329. Request for Comments of Commissioner Moeller on Coordination Between the Natural Gas and Electricity Markets (Feb. 3, 2012), https://www.ferc.gov/industries/electric/indus-act/electric-coord/moellergaselectricletter.pdf; Standards for Business Practices of Interstate Natural Gas Pipelines; Coordination of the Scheduling Processes of Interstate Natural Gas Pipelines and Public Utilities, 153 FERC ¶ 61,061 (2016); Communication of Operational Information Between Natural Gas Pipelines and Electric Transmission Operators, 145 FERC ¶ 61,134 (2013) (Order 787), 147 FERC ¶ 61,228 (2014) (order on reh'g) (Order No. 787-A).

330. Peter Behr & Jeremy Dillon, *Electricity Chief on Gas, the Grid, and "Real-Time" Models*, E&E NEWS (July 25, 2019), https://www.eenews.net/energywire/stories/1060784981. Electricity moves at the speed of light, while natural gas travels at roughly a little over 20 mph; historically, natural gas operated on daily cycle that started at 10:00am, while electric power generators used a 12 to 12 cycle. Such dis-

The NGA's obligation to consider the public convenience and necessity is surely capacious enough to consider, as the Harvard Electricity Institute and Romany Webb note, project contributions toward climate change, but to support as well any Commission policy of engaging in larger market studies.[331] FERC, after all, describes part of its mission as "[p]romot[ing] the development of safe, reliable, and secure infrastructure that serves the public interest."[332] It recognizes that "the nation's energy infrastructure and energy markets must adapt" to the "significant changes in energy supply," such as "the increased availability of domestic natural gas and the emergence and growth of new energy technologies."[333] It enjoys wide discretion to consider "all factors bearing on the public interest," whether the end use of the gas or the effects of its decision.[334] If, however, FERC eschews critically examining market need, it cannot accomplish its mission. It cannot know whether it is approving projects that serve the public interest today, or into the future as new energy technologies emerge and grow.

This is evident in the Commission's treatment of the Atlantic Coast Pipeline, discussed earlier,[335] as well as the proposed 65-mile interstate Spire STL Pipeline Project (Spire), owned by a new pipeline market entrant with no existing customers. The only committed gas (87.5%) for the Spire project is a 20-year agreement with Spire Missouri.[336] Spire and Spire Missouri are wholly owned by the same entity, Spire, Inc. Both Missouri River Transmission, an existing almost 700-mile pipeline that would connect with Spire, as well as the Missouri Public Service Commission, expressed concerns with the project. Furthermore, protesters are concerned that "Spire's proposed new pipeline is unneeded to meet what is described as flat demand in the St. Louis metropolitan area."[337] Regardless of whether the protesters are correct, FERC shirked its obligation by deploying its Certificate Policy as a shield against any meaningful inquiry. The Commission explored

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crepancies prompted examining daily schedules. *See* Coordination of the Scheduling Processes of Interstate Natural Gas Pipelines and Public Utilities, 151 FERC ¶ 61,049 (2015) (Order No. 809).

331. *See supra* note 277 and accompanying text. To date, the contrary argument rests almost entirely on the two cases discussed by Webb and the Harvard Electricity Institute. *See* NAACP v. Fed. Power Comm'n, 425 U.S. 662, 669-70 (1976); Fed. Power Comm'n v. Transcon. Gas Pipe Line, 365 U.S. 1, 7-8, 19-20, 30-31 (1961); *see also* James Costan, *FERC Should Not Review Pipeline Downstream Climate Impac*t, LAW360 (July 31, 2019), www.law360.com/articles/1183220.

332. FERC, FISCAL YEAR 2018 AGENCY FINANCIAL REPORT i (2018).

333. FERC, STRATEGIC PLAN FY 2018-2022 v (2018).

334. *Transcon. Gas Pipe Line Corp.*, 365 U.S. at 7-8, 23. The *Transcon* Court carefully delineated between the Commission's *wide discretion* to consider *all* factors and its *authority* to regulate certain areas. The Court accepted the Commission's consideration of end use of the gas as well as air pollution and reversed the lower court's (Consolidated Edison Co. v. Fed. Power Comm'n, 271 F.3d 942 (3d Cir. 1959)) holding the Commission lacked power to consider conservation. *Id.* at 30-31.

335. *See supra* notes 165, 299, and accompanying text.

336. Spire STL Pipeline, LLC, 164 FERC ¶ 61,085 (2018).

337. *Id.* para. 18; *see also id.* para. 49.

Spire's anticipated hypothetical cost of gas over a 20 year period,[338] but it blandly applied its Certificate Policy and accepted a singular precedent agreement with an affiliated company without further inquiry.[339] It rejected the need for any market study, unless there is an affirmative showing of anti-competitive behavior or discrimination.[340] The Commission, moreover, disclaimed the appropriateness of examining market need in the alternatives analysis under NEPA.[341] As intervenor Environmental Defense Fund reported after FERC's decision, "[t]he proceeding reveals much about how the agency assesses the legally-required 'market need' for new pipelines when both buyer and seller in the contract used to demonstrate that market need are two different arms of the same company," with the risk "that we could end up with expensive new pipelines that aren't needed."[342]

A significant barrier confronting any macro inquiry by FERC or any other institution on market need is the myriad of actors affecting our energy economy. Some state or local governments remain in pitched battles over allowing any production, regulating well-spacing or fracking, prohibiting flaring, or, as in Colorado, incorporating environmental considerations into new well approvals.[343] Federal land managing agencies, conversely, affect how much production can occur off the nation's public lands—often shifting with the political winds. Then, of course, many pipeline facilities require some form of approval from more than FERC alone, including the PHMSA (for safety),[344] the U.S. Army Corps of Engineers (for CWA permits),[345] or the Bureau of Land Management (for rights of way).[346]

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338. *Id.* para. 54.

339. *Id.* paras. 72-87. Because Spire Missouri is not a jurisdictional entity, no requirement existed for an open season to solicit bids from prospective shippers.

340. *Id.* para. 81. It further added that "we believe that any attempt by the Commission to look behind the precedent agreements in this proceeding might, in fact, interfere with the state regulators' role in determining the prudence of expenditures by the utilities that they regulate." *Id.* para. 87. This was odd, given that the state regulator in the proceeding was asking for additional review.

341. *Id.* paras. 207-17. Dissenting, Commissioner Glick lamented that the Commission had given the application an "anemic review" and "lends credence to the critique that the Commission does not meaningfully review section 7 applications." Spire STL Pipeline, LLC, 164 FERC ¶ 61,085, para. 1 (2018) (Glick, Comm'r, dissenting).

342. Natalie Karas, *FERC Approves Pipeline Despite Concern Over Controversial Business Arrangement*, EDF (Aug. 10, 2018), http://blogs.edf.org/energyexchange/2018/08/10/ferc-approves-pipeline-despite-concern-over-controversial-business-arrangement/. Local farmers recently filed a complaint at FERC alleging that the company is damaging their property and asked that FERC halt construction. Mike Soraghan, *Famers Press FERC to Block Pipeline Launch*, E&E NEWS (Oct. 28, 2019), https://www.eenews.net/energywire/2019/10/28/stories/1061394825. The Commission denied rehearing Spire STL Pipeline LLC, 169 FERC ¶ 61,134 (2019), and the case is pending before the D.C. Circuit. Mike Soraghan, *FERC Approval of Gas Project Challenged in Court*, E&E NEWS (Jan. 23, 2020), https://www.eenews.net/energywire/stories/1062152537.

343. *See* Tara Righetti, *The Incidental Environmental Agency*, UTAH L. REV. (forthcoming 2020).

344. *See supra* note 139.

345. *See supra* note 143.

346. *See* 43 U.S.C. § 1761(a) (1992).

When we next shift from production to consumption, residential and commercial natural gas usage is regulated at the state or local level.[347] Here, programs vary and remain in flux. Some local communities have or are considering precluding natural gas from new construction,[348] while others encourage energy efficient buildings and homes.[349] Furthermore, states are unveiling an array of different climate programs, ranging from renewable portfolio standards[350] to aggressive campaigns to reduce GHG emissions from within their borders. Just a few examples: California's goal is to reach 100% of its electricity from clean energy by 2045; Hawaii too hopes to reach 100% clean energy by 2045;[351] and New Jersey expects to reduce its emissions 80% below 2006 levels by 2050.[352] Even the "poor but fossil-fuel rich state" of New Mexico has targeted a carbon-free grid by 2045.[353] Nevada will require that utilities obtain half their generation from renewable resources, and the state has a goal of having all the state's electric generation carbon-free by 2050.[354] Oregon too may opt for reducing its emissions by 80% below 1990

347. *See generally State and Local Policy Database*, AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, https://database.aceee.org (last visited Mar. 3, 2020).

348. After Berkeley, California "banned the use of natural gas in most new buildings," other California cities considered following suit, along with other cities, such as Philadelphia. Andrew Maykuth, *One City Just Banned New Natural Gas Hookups to Save the Planet: Could Philly Follow Suit?,* PHILA. INQUIRER, July 19, 2019. San Jose next banned new residential hook-ups. *See* Haley Weiss & Anne C. Mulkern, *San Jose Approves Proposal Banning Residential Natural Gas*, E&E NEWS (Sept. 18, 2019), https://www.eenews.net/greenwire/2019/09/18/stories/1061135071. Conversely, Arizona opted to prevent local cities from adopting bans on new natural gas hookups. Carlos Anchondo, *State Preempts Local Bans on Natural Gas Hookups,* E&E NEWS (Feb. 25, 2020), https://www.eenews.net/energywire/stories/1062439547.

349. *See State Policy Program*, AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY, https://aceee.org/sector/state-policy (last visited Mar. 3, 2020). New technologies, such as advanced metering infrastructure, might promote greater efficiency in natural gas usage at the residential and commercial level. *See* ROMANY WEBB, DEPLOYING ADVANCED METERING INFRASTRUCTURE ON THE NATURAL GAS SYSTEM: REGULATORY CHALLENGES AND OPPORTUNITIES (2018).

350. *See U.S. State Electricity Portfolio Standards*, CTR. FOR CLIMATE & ENERGY SOLUTIONS (Nov. 2019), https://www.c2es.org/document/renewable-and-alternate-energy-portfolio-standards/. "As of the end of 2018, 29 states and the District of Columbia had [RPSs]." *Updated Renewable Portfolio Standards Will Lead to More Renewable Electricity Generation*, U.S. ENERGY INFO. ADMIN. (Feb. 27, 2019), https://www.eia.gov/todayinenergy/detail.php?id=38492.

351. H.R. 623, 28th Leg., Reg. Sess. (Haw. 2015).

352. *Climate Change*, N.J DEP'T OF ENVTL. PROT., https://www.nj.gov/dep/climatechange/ (last visited Feb. 24, 2020).

353. Nathan Rott, *In Midst of An Oil Boom, New Mexico Sets Bold New Climate Goals*, NPR (Mar. 13, 2019), https://www.npr.org/2019/03/13/702877664/in-midst-of-an-oil-boom-new-mexico-sets-bold-new-climate-goals.

354. S. 358, 2019 Leg. 80th Sess. (Nev. 2019); Catherine Morehouse, *Nevada Passes Bill for 50% Renewables by 2030, 100% Carbon Free by 2050*, NCEL (Apr. 22, 2019), https://www.ncel.net/2019/04/22/nevada-passes-bill-for-50-renewables-by-2030-100-carbon-free-by-2050/. The City of Las Vegas became committed to only renewable energy for government buildings and infrastructure in 2016. C. Moon Reed, *Climate Change in Nevada Can Be Stopped With Our Help*, L.V. SUN (Mar. 1, 2019), https://lasvegassun.com/news/2019/mar/01/climate-change-in-nevada-can-be-stopped-with-our-h/.

levels by 2050.[355] New York, which openly opposes some new pipeline construction,[356] targets having 70% of its electricity generated from renewables by 2030, and slashing emissions considerably by 2050.[357] A few years earlier, New York even developed a Methane Reduction Plan, proposing to slash methane emissions considerably by 2050 (80% from 1990 levels).[358] Meanwhile, though, other states are considering barriers to renewable generation.[359]

Private sector initiatives further compound planning, as both industry and consumers are altering markets for natural gas.[360] Increasingly, large industrial

355. Cassandra Profita, *Contentious Oregon Climate Plan Takes Lessons From Californa's Mistakes*, NPR (Jun. 6, 2019), https://www.npr.org/2019/06/06/729594169/contentious-oregon-climate-plan-takes-lessons-from-californias-mistakes. Portland has been involved in climate actions since 1993, and is currently working to reduce its emission by 80% from 1990 levels by 2050. CITY OF PORTLAND AND MULTNOMAH CTY. CLIMATE ACTION PLAN SUMMARY, 9, 15 (2015). Oregon's Governor also talks about decarbonizing the state's natural gas grid with renewable natural gas. KATE BROWN & KRISTEN SHEERAN, OREGON CLIMATE AGENDA: A STRONG, INNOVATIVE, INCLUSIVE ECONOMY WHILE ACHIEVING STATE CLIMATE EMISSIONS GOALS 10 (2018).

356. *See* Sam Mintz & Peter Behr, *Top Staffer Plunges FERC Into Trump's Coal, Nuclear Fight,* E&E NEWS (Aug. 9, 2018), https://www.eenews.net/stories/1060093711 (discussing criticism by now former FERC staffer of Governor Cuomo's efforts to block a pipeline).

357. Climate Leadership and Community Protection Act, 2019 N.Y. Laws ch. 106 (statewide GHG emissions are to be reduced by 60% from 1990 levels by 2030, and then to 15% of 1990 levels by 2050). According to a legislator's press release, the bill will "require 70 percent of the electric generation secured by load serving entities regulated by the Public Service Commission to be produced by renewable energy systems by 2030. Additionally, the bill requires that the statewide electrical demand system will be zero emissions by 2040. The measure would spur the procurement of at least nine gigawatts of offshore wind electric generation by 2035, six gigawatts of distributed photovoltaic solar generation by 2025, three gigawatts of statewide energy storage capacity by 2030 and 185 trillion BTUs of end use energy savings below the 2025 energy use forecast." News Release, Assembly Passes Climate Leadership and Community Protection Act, (June 20, 2019) (on file at https://nyassembly.gov/Press/files/20190620.php); *see generally* Michael B. Gerrard & Edward McTiernan, *New Climate Law Will Reshape NY's Key Sectors*, 8 N.Y.L.J. 262 (2019). Also in June 2019, the New York City Council declared a climate emergency. City Council Res. 864 (N.Y.C. 2019).

358. Maxine Joselow, *N.Y.'s Cuomo Announces Emissions-Reduction Plan*, E&E NEWS (May 18, 2017), https://www.eenews.net/energywire/2017/05/18/stories/1060054720. The plan identifies 25 actions, including "formalizing and standardizing the process of reviewing new transmission infrastructure projects, deploying methane detection systems in residential areas, and prioritizing the repair of pipeline leaks." *Id.* Other states, such as California, Colorado, Ohio, Pennsylvania, and Wyoming have taken varying steps toward reducing emissions as well. *Id.*; *see also* Mike Lee, *Pa. Finalizes Emissions Plan for New Gas Wells*, E&E NEWS (June 8, 2018), https://www.eenews.net/energywire/stories/1060083865 (describing program, including the use of Best Available Technology for reducing leaks).

359. *See, e.g.*, Jefferey Tomich, *Strangled Ohio Wind Industry: 'We Don't Want to Give Up',* E&E NEWS (July 12, 2019), https://www.eenews.net/stories/1060727747.

360. *See Beyond Politics: The Private Governance Response to Climate Change*, 48 ENVTL. L. REP. NEWS & ANALYSIS 11049 (2018) (discussing MICHAEL P. VANDENBERGH & JONATHAN M. GILLIGAN, BEYOND POLITICS: THE PRIVATE GOVERNANCE RESPONSE TO CLIMATE CHANGE (Cambridge Univ. Press 2017)); Maria L. Banda, *The Bottom-Up Alternative: The Mitigation Potential of Private Climate Governance*, 42 HARV. ENVTL. L. REV. 325 (2018); Michael P. Vandenbergh, *Keynote: Motivating Private Climate Governance: The Role of the Efficiency Gap*, 71 ARK. L. REV. 349 (2018); Michael P. Vandenbergh & Daniel J. Metzger, *Symposium on Corporate Sustainability in the Era of Shifting*

purchasers are demanding renewably generated electric power.[361] Concurrent with President Trump's early efforts to boost fossil fuels, large industrial customers conversely were exploring direct purchases of renewable energy.[362] Utilities are beginning to propose zero-carbon plans and phaseouts of natural gas.[363] In the transportation sector, the movement toward electric vehicles continues, and current policies are unlikely to hinder planning by the world's automobile manufacturers.[364]

This all renders the task of planning fluid and complex, but it does not justify abandoning it altogether. FERC should engage in planning and a broader assessment of market need, rather than abjectly accepting even dubious precedent agreements. Critically examining need will allow greater consumer engagement by having consumers acknowledge the stranded asset problem and affording them a choice during project inception. State utility commissions could adopt programs enabling consumers who ultimately pay the rates for the natural gas to examine the potential stranded asset problem, and consider accepting the imposition of some cost-adder to ensure the infrastructure remains justified in the long run.[365] National Grid, which serves over 3 million customers in the Northeast and hopes to reduce its carbon emissions by 80% by 2050, recently illustrated how this could be done.[366] In July 2019, the utility sent notices to some customers urging their support for a 23.5-mile Northeast Enhancement Supply Project that would provide

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Federal Policies: Private Governance Responses to Climate Change: The Case of Global Civil Aviation, 30 FORDHAM ENVTL. L. REV. 62 (2018).

361. *E.g.*, Robert Walton, *Target Aims for 100% Renewables by 2030; Walmart Announces Minnesota Solar Deal*, UTILITY DIVE (June 14, 2019), https://www.utilitydive.com/news/target-aims-for-100-renewables-by-2030-walmart-announces-minnesota-solar/556897/. Walmart's goal is to power its operations with 50% renewables by 2025. Emily Holbrook, *Walmart Enters into 46 Power Purchase Agreements to Supply Power to Stores in 5 States*, ENVTL. LEADER (May 14, 2019), https://www.environmentalleader.com/2019/05/walmart-enters-into-46-power-purchase-agreements-to-supply-power-to-stores-in-5-states/.

362. *E.g.*, Jeffrey Tomich, *Corporate America Leads Clean Energy Push in Coal-Reliant Mo.*, E&E NEWS (May 12, 2017), https://www.eenews.net/energywire/2017/05/12/stories/1060054458 (noting Walmart's efforts).

363. General Electric recently announced it would close a natural gas facility years early, replacing it with renewable generation. David Ferris, *GE Shutters Gas Plant Decades Early As Renewables Surge*, E&E NEWS (June 25, 2019), https://www.eenews.net/stories/1060652109. Portland General announced a goal of 80% reduction by 2050. Paul Shukovsky, *Oregon's Largest Electric Utility Seeks Decarbonized Future*, BLOOMBERG ENV'T (July 24, 2019), https://news.bloombergenvironment.com/environment-and-energy/oregons-largest-electric-utility-seeks-decarbonized-future. New Jersey's Public Service Enterprise Group, Inc. announced it would seek zero-carbon by 2050. Edward Klump, *N.J. Power Company Targets 'Net Zero" Carbon by 2050*, E&E NEWS (July 26, 2019), https://www.eenews.net/energywire/stories/1060789619.

364. *See* NORDHAUS & KALEN, *supra* note 29, at 210-12.

365. *See generally* MICHAEL B. GERRARD & JOHN C. DERNBACH, LEGAL PATHWAYS TO DEEP DECARBONIZATION IN THE UNITED STATES ch. 24 (2018).

366. *See* Rod Kuckro, *National Grid Plans to Cut Carbon by 80% by 2050*, E&E NEWS (June 18, 2018), https://www.eenews.net/energywire/2018/06/18/stories/1060084833.

gas to New Yorkers.[367] Project opponents argue that this "massive 1 billion-dollar project is based on fundamentally flawed, unsupported arguments about increasing demand for pipeline gas in National Grid's service area."[368] As New Yorkers brace for the move to a carbon net-zero future by 2050, National Grid could instead directly address both present and future market need and commit to a program for decommissioning or, at least, ensuring that it will become carbon neutral by 2050 and that customers will not shoulder any costs of decommissioning the infrastructure or necessary new technological enhancements that could have been avoided.[369] Of course, another option might be just accepting that our insurance and bankruptcy laws will address adverse consequences of stranded assets—a dubious assumption as the nation witnesses how coal mining bankruptcies are disrupting local communities and employees.[370] Alternatively, the government could intervene with funding.[371]

While this article does not purport to offer the ideal path forward, three observations seem undeniable. To begin with, we must not let the oddity of jurisdictional boundaries presented by overlapping governmental institutions impair our ability to reach deep decarbonization by 2050. That means, second, that expanding our natural gas system infrastructure cannot proceed blindly without any meaningful assessment of present and future need. Finally, any assessment of need must address (a) how we can limit additional infrastructure and avoid a stranded asset

367. *Utilities Asking New York Customers to Back a Gas Pipeline*, BLOOMBERG ENV'T (July 10, 2019), https://news.bloombergenvironment.com/environment-and-energy/utilities-asking-new-york-customers-to-back-a-gas-pipeline?context=search&index=3.

368. 350, FALSE DEMAND: THE CASE AGAINST THE WILLIAMS FRACKED GAS PIPELINE 2 (2019). National Grid was subsequently ordered to deliver gas to New York customers. *See* Bernadette Hogan, *National Grid to Deliver Natural Gas After Cuomo Order*, N.Y. POST (Oct. 11, 2019), https://nypost.com/2019/10/11/national-grid-pledges-to-deliver-natural-gas-after-cuomo-order/; David Iaconangelo, *Utility Warns of Gas Shortages in Cuomo Pipeline Fight*, E&E NEWS (Feb. 26, 2020), https://www.eenews.net/energywire/2020/02/26/stories/1062449229.

369. Christopher Serkin and Michael Vandenbergh proffer what they call prospective grandfathering, establishing up front an amortization period for decommissioning a fossil fuel asset. Christopher Serkin & Michael P. Vandenbergh, *Prospective Grandfathering: Anticipating the Energy Transition Problem*, 102 MINN. L. REV. 1019, 1023-24 (2018).

370. Wyoming had to respond when a Wyoming coal mine closed precipitously. Andrew Grahm, *Bankruptcy, Coal Experts Voice Concerns, Takeaways*, WYOFILE, Oct. 29, 2019; Andrew Graham, *New Wyoming Coal Company Abandons Mines and Miners*, HIGH COUNTRY NEWS, July 8, 2019; *see also* NACE, PLANT, & BROWNING *supra* note 16, at 10; *see generally* Joshua Macey & Jackson Salovaara, *Bankruptcy as Bailout: Coal Company Insolvency and the Erosion of Federal Law*, 71 STAN. L. REV. 879 (2019).

371. Adam Aton, *Inslee Wants Fed to Buy, Decommission Fossil Fuel Assets*, E&E NEWS (June 25, 2019), https://www.eenews.net/climatewire/stories/1060652141/feed (former Presidential candidate Governor Inslee discussing possible government-funded program). State governments could pass securitization bond legislation lowering consumer costs for retiring stranded assets. *See, e.g.*, Herman K. Trabish, *Securitization Fever: Renewables Advocates Seize Wall Street's Innovative Way to End Coal,* UTILITY DIVE (May 28, 2019), https://www.utilitydive.com/news/securitization-fever-renewables-advocates-seize-wall-streets-innovative-w/555089/.

that possibly incentivizes keeping that asset operational longer than necessary, or (b) how we can deploy quickly enough technological tools for allowing natural gas in both the power sector and residential/industrial sectors to become carbon neutral by no later than 2050.

V. CONCLUSION

The disparate battles against pipelines converge to form a mosaic portraying the evolving war against pipelines. Unfortunately, it is war being waged on the wrong turf. For far too long, our energy policy has been marred by such internecine skirmishes. Opponents look for weaknesses: whether a particular pipeline can be impeded by the ESA or the CWA; whether a limitation can be found in federal eminent domain authority; or whether a project can be challenged for lacking a sufficiently robust environmental analysis under NEPA or the NGA. Meanwhile, proponents tout the benefits of natural gas and its accompanying infrastructure, such as its abundance, low cost, and reduced GHGs compared to coal. But rarely do we examine that infrastructure itself—natural gas pipelines and their longevity. To be sure, the necessity of examining that infrastructure is nothing new. Over sixty years ago, one observer lamented that "little attention has been accorded to the thought that we may be overexpanding pipeline capacity."[372] The fear then was that additional infrastructure would incent depleting natural gas reserves that had to be conserved,[373] while today the fear is more ominous—an incentive to rely on a GHG emitting fossil fuel, or saddle our economy with billions in stranded investments. Reliance on natural gas in the southeastern United States, for example, may hinder that region's ability to reach a zero-carbon emission goal by 2050.[374]

Historical energy transitions generally occur during periods when state-created or sanctioned institutional mechanisms surface to address emergent and feasible technologies, market shifts, changes in resource availability, or adverse externalities—smog, acid rain, mercury emissions, or GHGs.[375] Each time we take such a targeted step, we affect more than the target itself—creating a feedback loop that adds complexity to the energy transition.[376] Shortages of interstate natural gas contribute to touting the benefits of the nation's abundant coal resources.[377] Reducing sulfur emissions from eastern coal precipitates either fuel switching or de-

372. Jerome J. McGrath, *Federal Regulation of Producers in Relation to Conservation of Natural Gas*, 44 GEO. L.J. 676, 676-77 (1956).

373. *Id.* at 677.

374. *See* Kristi E. Swartz, *Gas-Heavy Southeast Falling Short on Carbon Goals-Report*, E&E NEWS (Aug. 2, 2019), https://www.eenews.net/energywire/2019/08/02/stories/1060826263.

375. *See supra* Section II.A for a discussion of energy transitions over the past century and the federal legislation and financial incentives that pushed those transitions forward.

376. *See generally* NORDHAUS & KALEN, *supra* note 29 (passim).

377. *Id.* at 142.

veloping western (and other) low sulfur coal resources.[378] Replacing retiring coal-fired electric power capacity with renewable resources may require additional transmission lines, while replacing the lost coal-fired electric generation with natural gas may prompt more pipeline construction.

Today, however, our energy transition is *sui generis*. To begin with, the urgency of reducing or eliminating our carbon economy—or at least our carbon-emitting economy—is pushing states and local communities to act swiftly while Congress and federal agencies act slowly. Whether as subsidies for non-fossil generation, renewable portfolio standards, new climate programs, or other indirect mechanisms for affecting generation resources, states and local communities are changing the face of the national energy grid—both for natural gas and electric transmission. Next, technological advancements are moving faster than regulatory bodies can respond. As this unfolds, our grid will need to expand to accommodate increased capacity from the transportation sector. That may mean ensuring that CO_2 emissions from oil (gasoline) are not shifted from the transportation sector to a natural-gas dependent electric power sector. Battery technology and small modular nuclear reactors are progressing apace as well, all likely to influence dramatically the electric grid of the future—a grid that many hope will be more distributed, with locally generated carbon-free resources. Increased energy efficiency, coupled with declining costs for both wind and solar power, as well as enhancements and potential reduced costs for battery technology, all render the future energy economy fluid. Unpredictable. Added to technological advancements are how institutions and our legal system may hinder advancements, perhaps best illustrated by the present fight over the Commission's approach toward energy storage.[379] Too many variables, therefore, make this energy transition more difficult than those experienced in the past. Our goal is simply a clean energy economy with many technological innovations, market developments, and institutional paths for getting there.

And our problem is that infrastructure, such as natural gas pipelines, attends each of those paths. We nevertheless continue to make decisions without sufficient acknowledgment and inquiry into whether that infrastructure will remain economically and environmental sound and viable for a sufficiently long period, without compromising our flexibility for moving toward a green economy and adjusting with technological, cultural, market, and institutional changes.[380] FERC's policy

378. *See id.* at 157, 159.

379. *See supra* Section II.C for a discussion of the Trump Administration's efforts to lock in legal rules promoting legacy fossil fuels at the expense of more advanced energy technologies.

380. A 2012 report warned the shale revolution might further retard necessary technological advancements in carbon capture. Henry D. Jacoby, Francis M. O'Sullivan & Sergey Paltsev, *The Influence of Shale Gas on U.S. Energy and Environmental Policy*, 1 ECON. ENERGY & ENVTL. POL'Y 27, 50 (2012) ("Under more stringent GHG targets these technologies are needed, but the shale gas delays their market role by up to two decades. Thus in the shale boom there is the risk of stunting these programs altogether. While taking advantage of this gift in the short run, treating gas a 'bridge' to a low-carbon future, it is crucial not to allow the greater ease of the near-term task to erode efforts to prepare a landing at the other end of the bridge.").

toward natural gas pipelines exemplifies this abject willingness to proceed blindly into the future. It decries the utility of examining macro-level questions, captured instead by the ease and allure of examining individual pipeline decisions with hardly any inquiry into present let alone future need. Our environment and economy demand otherwise.