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Todd S. Aagaard

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ENERGY-ENVIRONMENT POLICY ALIGNMENTS

Todd S. Aagaard*

Abstract: Energy law focuses on making energy widely available at reasonable cost, and environmental law focuses on preventing pollution. As a result of these differences in their respective orientations, the two fields often work incoherently and even in conflict. Historically, federal energy law and environmental law have attempted to manage their interrelationships by imposing negative constraints on each other: Energy policies of the Federal Energy Regulatory Commission (FERC) must comply with requirements set forth in environmental statutes, and the Environmental Protection Agency's (EPA's) statutes contain energy-related requirements and exemptions. More recently, however, FERC and EPA have begun developing policies that create beneficial alignments between their respective fields. This Article argues that these policy alignments, which emphasize opportunities for positive synergy rather than negative constraints, offer a promising new direction for the energy-environment relationship. More broadly, policy alignments provide a potentially useful model for managing relationships among other overlapping fields as well.

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INTRODUCTION

Energy and the environment, which have long overlapped, are now converging to an unprecedented extent. Consider the following examples:

- Energy production, energy markets, and energy use are driving many important and difficult environmental issues of our time. Energy-related activities account for 84.3% of anthropogenic greenhouse gas emissions in the United States.¹ Burning coal for heat and power generation produces millions of tons per year of fly ash, bottom ash, and boiler slag, the disposal of which can contaminate land and water.²
- Hydraulic fracturing and horizontal drilling have rapidly transformed the United States' energy economy. Domestic natural gas production from shale gas wells increased from 2.87 trillion cubic feet in 2008 to 11.90 trillion cubic feet in 2013.³ In

1. See U.S. ENVTL. PROT. AGENCY, EPA 430-R-14-003, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990–2012, at 3-1 (2014) [hereinafter INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS]. The data is for 2012.

2. See NAT'L RESEARCH COUNCIL, MANAGING COAL COMBUSTION RESIDUE IN MINES 23, 26 (2006); Shaile Dewani, *Hundreds of Coal Ash Dumps, with Virtually No Regulation*, N.Y. TIMES, Jan. 7, 2009, at A1; Michael Wines & Timothy Williams, *Huge Leak of Coal Ash Slows at North Carolina Power Plant*, N.Y. TIMES, Feb. 7, 2014, at A11.

3. See U.S. Natural Gas Gross Withdrawals and Production, U.S. ENERGY INFO. ADMIN.,

2010, the United States was the world's largest importer of natural gas;⁴ some analysts project that the United States will become a net exporter of natural gas as soon as 2016.⁵ This dramatic escalation of production has implications for pollution issues across all environmental media—air, water, and land—and a range of natural resource issues as well.⁶

- Legal and technical developments in the nation's electricity grid have important ramifications for the development of alternative energy sources and technologies that may reduce the use of fossil fuels and their attendant environmental issues. Traditionally, vertically integrated utilities that generate power at large, centralized, fossil fuel-fired power plants have dominated the electric power industry.⁷ More recently, technical, legal, and economic innovations have enabled and supported the development of more decentralized power services.⁸ Much of this new wave of power services utilizes renewable energy and demand response resources⁹ that can substitute for fossil fuel combustion-based generation, with economic and environmental ramifications.¹⁰

Contrary to the convergence of energy issues and environmental concerns, however, energy law and environmental law have stayed

http://www.eia.gov/dnav/ng/ng_prod_sum_dcu_NUS_a.htm (last visited Oct. 3, 2015).

4. See INT'L ENERGY AGENCY, NATURAL GAS INFORMATION, at V.5 tbl.2 (2012).

5. See Brian Scheid, *LNG Growth to Make US Net Natural Gas Exporter by 2016*, PLATTS MCGRAW HILL FIN. (Jan. 9, 2014, 3:04 PM), <http://www.platts.com/latest-news/natural-gas/washington/lng-growth-to-make-us-net-natural-gas-exporter-21054975>.

6. See Symposium, *Environmental and Social Implications of Hydraulic Fracturing and Gas Drilling in the United States: An Integrative Workshop for the Evaluation of the State of Science and Policy*, 22 DUKE ENVTL. L. & POL'Y F. 245, 250 (2012) (noting that environmental concerns associated with hydraulic fracturing and gas drilling include "water pollution, air pollution, landscape effects, habitat loss, and potential human health effects").

7. See Standardization of Small Generator Interconnection Agreements and Procedures, 70 Fed. Reg. 34,190, 34,191 (June 13, 2005) (to be codified at 18 C.F.R. pt. 35) [hereinafter Order 2006] (stating that "the electric industry was once primarily the domain of vertically integrated utilities generating power at large centralized plants"); Edan Rotenberg, *Energy Efficiency in Regulated and Deregulated Markets*, 24 UCLA J. ENVTL. L. & POL'Y 259, 275–76 (2006) (noting that "centralized fossil fuel burning power plants is . . . the dominant form of electricity generation").

8. See Order 2006, *supra* note 7, at 34,191.

9. Demand response refers to reductions in electric energy consumption in response to an increase in price or to incentive payments. See 18 C.F.R. § 35.28(b)(4) (2014).

10. Cf. Elisabeth Graffy & Steven Kihm, *Does Disruptive Competition Mean A Death Spiral for Electric Utilities?*, 35 ENERGY L.J. 1, 1 (2014) (noting "a wave of innovation in energy markets that manifests as disruptive competition for electric utilities").

separate.¹¹ Existing efforts to manage the energy-environment relationship, focused on merely preventing outright conflicts, have largely failed to reconcile the two fields.¹² This Article argues in favor of an alternative model for bridging the energy-environment divide by creating policy alignments—policies that simultaneously support the objectives of energy law and environmental law. Policy alignments leverage opportunities for positive synergy and offer a promising new direction for the energy-environment relationship.

Energy law and environmental law remain divided because of differences in their respective orientations. Energy law seeks to keep energy costs low. Like other energy agencies, the lead federal energy regulator, the Federal Energy Regulatory Commission (FERC), focuses on economic regulation to make energy widely available to end users at reasonable cost.¹³ For much of the twentieth century, energy policy promoted and benefited from economies of scale in the energy sector, in which increasing energy production leads to decreasing energy prices.¹⁴ Low energy costs therefore depended on increasing energy use, and increasing energy use entailed increasing environmental impacts.¹⁵ Moreover, policies aimed at making energy available and affordable also incentivized the use of coal, a fuel with historically low cost and ready availability but high pollutant emissions.¹⁶ Thus, energy law's goal of

11. See Lincoln L. Davies, *Alternative Energy and the Energy-Environment Disconnect*, 46 IDAHO L. REV. 473, 473, 494 (2010) (describing energy law's and environmental law's "opposing regulatory goals" as a manifestation of an "energy-environment disconnect"); Hari M. Osofsky, *Complex Value Choices at the Environment-Energy Interface*, 3 MICH. J. ENVTL. & ADMIN. L. 261, 269 (2014) (referencing "the energy-environment divide"). At the state level, the divide is somewhat less clear and less stark, although it is present to a significant extent. See generally Michael Dworkin et al., *Revisiting the Environmental Duties of Public Utility Commissions* (2006), 7 VT. J. ENVTL. L. 1 (2006) [hereinafter Dworkin et al., *Revisiting the Environmental Duties*] (cataloging the explicit and implicit authorities of state public utility commissions to incorporate environmental considerations in their decisions); Michael Dworkin et al., *The Environmental Duties of Public Utility Commissions*, 18 PACE ENVTL. L. REV. 325 (2001) [hereinafter Dworkin et al., *Environmental Duties*] (same, five years earlier); Alexandra B. Klass, *Climate Change and the Convergence of Environmental and Energy Law*, 24 FORDHAM ENVTL. L. REV. 180 (2013) (discussing state energy-related climate change policies that are creating energy-environment linkages).

12. See *infra* Part II.

13. See *infra* Part I.A.

14. See JOSEPH P. TOMAIN & RICHARD D. CUDAHY, ENERGY LAW IN A NUTSHELL 378 (2d ed. 2011); Joseph P. Tomain, *The Dominant Model of United States Energy Policy*, 61 U. COLO. L. REV. 355, 374–75 (1990).

15. See, e.g., EFSTATHIOS E. (STATHIS) MICHAELIDES, ALTERNATIVE ENERGY SOURCES 33 (2012) (noting environmental effects of increasing energy production and use).

16. See, e.g., Alan S. Miller, *Energy Policy from Nixon to Clinton: From Grand Provider to*

low energy costs has had the effect of stimulating energy use and production and the environmental harms they cause.

Environmental law has attempted to reduce environmental harms from energy-related activities such as power generation. The lead federal environmental regulator, the Environmental Protection Agency (EPA), focuses on preventing pollution and damage to natural resources.¹⁷ Reducing environmentally harmful emissions and discharges, however, generally costs money. The costs of installing pollution control equipment at a single coal-fired power plant, for example, may exceed \$200 million.¹⁸ Thus, environmental regulations often increase the costs of energy production and use.

This energy-environment divide does not entail a complete separation between the two fields. FERC's energy statutes are subject to environmental requirements, and EPA's environmental statutes contain energy requirements. But this limited cross-incorporation does little to transcend the divide. Instead, it adopts a negative model that attempts to manage energy-environment relationships by using requirements from one field to constrain the other: Environmental requirements constrain FERC,¹⁹ and energy requirements constrain EPA.²⁰ Negative constraints thus, by their very design, place energy and environmental goals in opposition, exacerbating the energy-environment divide. Negative constraints also have limited efficacy because agencies have an incentive to avoid or minimize requirements that attempt to divert them from their core missions. Even when negative constraints are effective, they impede rather than empower agencies.

Against this backdrop of an energy-environment divide, there is a promising alternative model for managing the energy-environment overlap. Within their respective jurisdictions, both FERC and EPA have

Market Facilitator, 25 ENVTL. L. 715, 717 (1995) (noting that federal energy policies under President Carter "sought to pressure utilities and industry to switch from oil and gas to more plentiful and domestically available coal"); see also Alice Kaswan, *Climate Change, the Clean Air Act, and Industrial Pollution*, 30 UCLA J. ENVTL. L. & POL'Y 51, 65 (2012) (noting high pollutant emissions from coal combustion); David B. Spence, *Coal-Fired Power in a Restructured Electricity Market*, 15 DUKE ENVTL. L. & POL'Y F. 187, 214 (2005) (referring to coal as a "historically cheap source of power").

17. See *infra* Part I.B.

18. See George W. Sharp, *Update: What's That Scrubber Going to Cost?*, 151 POWER MAG. 56, 56 (2007) (reporting results of a survey of coal-fired power plants showing scrubber costs "consistently above \$300/kW" for units with an average capacity of 956 MW); see generally Tomain, *supra* note 14, at 366 (stating that environmental and health and safety regulations "raised the cost of doing business" for the coal industry).

19. See *infra* Part II.A.

20. See *infra* Part II.B.

developed some policies that take advantage of circumstances in which energy goals and environmental goals align. These policy alignments involve policies in one field that align with, without directly adopting, the objectives of another field. Policy alignments thus allow each agency to pursue its respective mission and to utilize its specific expertise, but in ways that support the other's policy objectives. Policy alignments create significant opportunities for progress in constructively managing the energy-environment divide. As the energy-environment overlap grows, increasing the interdependence of energy law and environmental law, energy and environmental regulators should identify and exploit opportunities for energy-environment policy alignments.

This Article proceeds in three Parts. Part I explains how traditional energy law and environmental law reflect competing paradigms that create a divide between their respective approaches. Part II examines how federal energy law and environmental law have historically attempted to manage their overlap by imposing negative constraints on each other: FERC's energy policies must comply with requirements set forth in environmental statutes, and EPA's environmental statutes contain energy-related requirements and exemptions. Part III introduces examples of policies that create alignments between energy policies and environmental policies. These energy-environment policy alignments form the basis for an alternative model for managing energy-environment relationships, a model oriented toward creating positive synergy rather than imposing negative constraints. The Article concludes by arguing that the policy alignment model offers a promising new direction for the energy-environment relationship, and potentially for other overlapping regulatory fields as well.²¹

21. Although the energy-environment divide exists under state regulatory regimes as well, this Article focuses on the divide as it is manifested in federal law. Focusing on the single federal system, rather than the diversity of state regimes, keeps the Article more manageable. For example, state environmental policies are a hybrid of programs that implement federal statutes under the cooperative federalism model and elements, sometimes contained within the same programs, created independently by the state. How this dynamic affects the ability of states to create energy-environment policy alignments is an important question deserving of an entire article unto itself. That said, innovative policies that create energy-environment linkages at the federal level are likely to trickle down to state programs. In addition, federal law provides a worthwhile focus because the energy-environment divide is particularly stark under federal law. As other energy scholars have previously shown, some states have taken significant steps toward creating energy-environment linkages, often through legislation. See Dworkin et al., *Revisiting the Environmental Duties*, *supra* note 11; Dworkin et al., *Environmental Duties*, *supra* note 11; Klass, *supra* note 11. Thus, the administrative energy-environment policy alignments examined in this Article have a special efficacy in federal law that may well trickle down to state law, whereas state legislation creating energy-environment linkages is unlikely to induce similar federal innovation.

I. ENERGY LAW AND ENVIRONMENTAL LAW'S COMPETING PARADIGMS

A. *Energy Law*

Federal policies regarding energy production, transmission, distribution, and use sprawl across many areas of law, many statutes, and many different federal agencies. A few examples include the following:

- The Department of Energy establishes energy conservation standards for residential products and commercial and industrial equipment,²² pursuant to the Energy Policy and Conservation Act.²³
- The Secretary of the Interior leases federal lands for the extraction of minerals—including oil, gas, and coal—under the Mineral Leasing Act.²⁴
- The Nuclear Regulatory Commission issues licenses for nuclear power plants,²⁵ pursuant to the Atomic Energy Act.²⁶
- The Mining Safety and Health Administration regulates coal mining to protect miner health and safety,²⁷ pursuant to the Federal Mine Safety and Health Act of 1977²⁸ and the Mine Improvement and New Emergency Response (MINER) Act of 2006.²⁹

Historically, however, the locus of federal regulatory authority over the energy sector has been FERC and, before that, its predecessor agency, the Federal Power Commission.³⁰ FERC's primary legal

22. 10 C.F.R. §§ 429.1–431.442 (2014).

23. Energy Policy and Conservation Act, Pub. L. No. 94-163, 89 Stat. 871 (1975). Although the Energy Policy and Conservation Act initially delegated authority to the Federal Energy Administration, the Department of Energy Organization Act of 1977, Pub. L. No. 95-91, 91 Stat. 565, subsequently created the Department of Energy and transferred the Federal Energy Administration's authority to the Department of Energy. *Id.* § 301(a), 91 Stat. at 577 (codified at 42 U.S.C. § 7151(a)(C) (2012)).

24. 30 U.S.C. §§ 181–287 (2012); *see also* Bruce M. Pendery, *BLM's Retained Rights: How Requiring Environmental Protection Fulfills Oil and Gas Lease Obligations*, 40 ENVTL. L. 599, 602 (2010) (noting that, as of 2008, thirty-nine million acres of federal land were subject to oil and gas leases).

25. 10 C.F.R. §§ 52.0–52.303.

26. 42 U.S.C. §§ 2011–2297h-13.

27. 30 C.F.R. §§ 70.1–90.301 (2014).

28. 30 U.S.C. §§ 801–965.

29. Pub. L. No. 109-236, 120 Stat. 493 (codified at 30 U.S.C. §§ 801–965).

30. The Department of Energy Organization Act of 1977, Pub. L. No. 95-91, 91 Stat. 565, created FERC and transferred most of the Federal Power Commission's authority to FERC. *Id.* § 401(a), 91 Stat. at 582 (codified at 42 U.S.C. § 7171) (creating FERC); *id.* § 402(a), 91 Stat. at 583–84

authority derives from traditional energy statutes such as the Natural Gas Act³¹ and Federal Power Act.³² Congress enacted these statutes to protect consumers from monopolist natural gas companies and electric utilities that could use their market power to charge excessive rates.³³

In the early twentieth century, regulation of the energy sector was primarily a matter of state law. State statutes established public utility commissions—sometimes also called public service commissions or corporation commissions—to regulate sales of natural gas and electricity by public utilities.³⁴ These state statutes, which generally require public utilities to sell energy on terms that are “just and reasonable,” often substantially predated federal energy statutes.³⁵ In the 1920s, however, the Supreme Court held that the Dormant Commerce Clause precludes states from regulating interstate energy activities.³⁶ These Supreme Court decisions created gaps in state regulatory authority over interstate energy activities.

Congress enacted the federal energy statutes in the 1930s to plug the

(codified at 42 U.S.C. § 7172(a)) (transferring various Federal Power Commission authorities to FERC).

31. 15 U.S.C. §§ 717–717z (2012).

32. 16 U.S.C. §§ 791a–828c (2012).

33. See *NAACP v. Fed. Power Comm’n*, 425 U.S. 662, 669–70 (1976) (“In the case of the Power and Gas Acts it is clear that the principal purpose of those Acts was to encourage the orderly development of plentiful supplies of electricity and natural gas at reasonable prices.”); *Fed. Power Comm’n v. Hope Natural Gas Co.*, 320 U.S. 591, 610 (1944) (“The primary aim of this legislation [the Natural Gas Act] was to protect consumers against exploitation at the hands of natural gas companies.”); *Mun. Light Bds. v. Fed. Power Comm’n*, 450 F.2d 1341, 1348 (D.C. Cir. 1971) (“Its [the Federal Power Act’s] primary aim is the protection of consumers from excessive rates and charges.”); *United Distrib. Cos. v. FERC*, 88 F.3d 1105, 1122 (D.C. Cir. 1996) (“Federal regulation of the natural gas industry is thus designed to curb pipelines’ potential monopoly power over gas transportation. The enormous economies of scale involved in the construction of natural gas pipelines tend to make the transportation of gas a natural monopoly.” (footnotes omitted)).

34. See, e.g., *Shawnee Gas & Elec. Co. v. State*, 122 P. 222 (Okla. 1912) (holding that court was without jurisdiction to review an order of the Oklahoma Corporation Commission prescribing a schedule of rates to be charged by a gas utility company).

35. See, e.g., N.Y. PUB. SERV. LAW § 65 (McKinney, Westlaw through 2015 Reg. Session) (requiring “just and reasonable” service and rates for gas and electricity service). The New York legislature originally enacted this provision in 1910. See Act of Jan. 5, 1910, ch. 480, § 65, 1910 N.Y. Laws 1, 59.

36. In *Missouri v. Kansas Natural Gas Co.*, 265 U.S. 298, 307–08 (1924), the Supreme Court held that the interstate transportation of natural gas for sale to distributing companies is interstate commerce protected from state regulation by the Dormant Commerce Clause. See also *Pub. Utils. Comm’n v. Landon*, 249 U.S. 236, 245 (1919). In *Public Utilities Commission v. Atleboro Steam & Electric Co.*, 273 U.S. 83 (1927), the Court applied the rationale of *Kansas Natural Gas* to hold that the Dormant Commerce Clause precludes states from regulating interstate sales of electricity. *Id.* at 89–90.

gaps in state regulatory authority.³⁷ The federal statutes maintain a delicate and difficult balance between state and federal regulatory authority. This balance reflects the fact that regulation of public utilities has long been a core function of state government but the energy sector involves many interstate activities that require a federal role.³⁸

The Federal Power Act originated as the Federal Water Power Act of 1920,³⁹ which created the Federal Power Commission (FPC) as an independent regulatory commission and authorized it to issue licenses for facilities and equipment used to produce hydropower on waterbodies subject to federal jurisdiction over foreign and interstate commerce.⁴⁰ In addition to giving the FPC authority to license hydropower facilities, the 1920 Act also authorized the Commission to regulate electricity sold from such hydropower into interstate or foreign commerce to ensure that “rates charged and the service rendered” for such power are “reasonable, nondiscriminatory, and just to the consumer.”⁴¹ The 1920 Act thus essentially adopted the “just and reasonable” standard from state public utility statutes and applied it to a matter under federal jurisdiction.

In 1935, Congress, acting to plug the gaps in regulatory authority created by Supreme Court decisions limiting state authority over interstate electricity transactions,⁴² amended the Federal Water Power Act to create the Federal Power Act.⁴³ The 1935 legislation added a new subchapter giving the FPC authority to regulate electric utility companies engaged in interstate commerce.⁴⁴ Specifically, the Federal Power Act granted the FPC jurisdiction to regulate “the transmission of electric energy in interstate commerce and the sale of such energy at wholesale in interstate commerce.”⁴⁵ The Act generally excludes generation facilities, local distribution facilities, facilities used only for intrastate transmission of electric power, and facilities for transmission of power used wholly by the transmitter.⁴⁶

37. See *Ark. Elec. Coop. Corp. v. Ark. Pub. Serv. Comm’n*, 461 U.S. 375, 378–79 (1983) (explaining that Congress enacted the Federal Power Act and Natural Gas Act to fill the regulatory gaps created by *Kansas Natural Gas* and *Attleboro*).

38. See *id.* at 377.

39. Federal Water Power Act of 1920, ch. 285, 41 Stat. 1063 (codified at 16 U.S.C. §§ 792–823d (2012)).

40. Federal Water Power Act §§ 1, 4(e), 16 U.S.C. §§ 792, 797(e).

41. *Id.* § 20, 16 U.S.C. § 813.

42. See *supra* notes 37–38 and accompanying text.

43. Federal Power Act, ch. 687, 49 Stat. 803 (1935).

44. 16 U.S.C. §§ 824–824w.

45. Federal Power Act § 201(a), 16 U.S.C. § 824(a).

46. *Id.* § 201(b), 16 U.S.C. § 824(b)(1). These exclusions are not complete. For example, the

In 1977, the Department of Energy Organization Act⁴⁷ created FERC and gave it authority over, among other things, administration and enforcement of the Federal Power Act.⁴⁸ FERC's primary regulatory role under the Federal Power Act is to ensure that wholesale electricity rates are just, reasonable, and not unduly preferential.⁴⁹ The Federal Power Act also gives FERC other responsibilities, such as directing public utilities to interconnect with someone engaged in the transmission or sale of electricity.⁵⁰

In addition to FERC's authority over electric power transmission and wholesale sales under the Federal Power Act, other federal energy statutes give FERC jurisdiction over interstate natural gas and oil transactions. Because later parts of this Article focus on the Federal Power Act,⁵¹ these other energy statutes will receive only brief mention here. The Natural Gas Act, enacted in 1938,⁵² allows FERC to regulate interstate transportation of natural gas, sale in interstate commerce of natural gas for resale, and import or export of natural gas in foreign commerce.⁵³ FERC also regulates interstate oil pipelines, pursuant to the

Federal Power Act gives FERC authority to regulate wholesale rates of electric generating facilities in interstate commerce. *See* *Miss. Indus. v. FERC*, 808 F.2d 1525, 1543–45 (D.C. Cir. 1987), *aff'd*, *Miss. Power & Light Co. v. Mississippi*, 487 U.S. 354 (1988).

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

48. *Id.* § 401(a), 91 Stat. at 582 (codified at 42 U.S.C. § 7151 (2012)) (creating FERC); *id.* § 402(a)(1)(A), (B), (F), (2)(A), 91 Stat. at 583–84 (codified at 42 U.S.C. § 7172(a)(1)(A), (B), (F), (2)(A)) (transferring the FPC's authority under the Federal Power Act to FERC).

49. Federal Power Act § 205(a)–(b), 16 U.S.C. § 824d(a)–(b).

50. *Id.* § 202(b), 16 U.S.C. § 824a(b).

51. *See infra* Part A.

52. Natural Gas Act, ch. 556, 52 Stat. 821 (1938).

53. Natural Gas Act § 1(b), 15 U.S.C. § 717(b) (2012). The Act exempts so-called Hinshaw pipelines—local distribution pipelines within a state that, although they receive gas from interstate pipelines that originate in other states, convey gas for consumption only within the same state. *Id.* § 1(c), 15 U.S.C. § 717(c); *Pub. Utils. Comm'n of Cal. v. FERC*, 143 F.3d 610, 614 (D.C. Cir. 1998). As with the Federal Power Act, Congress originally charged FPC with administering the Natural Gas Act, *see* ch. 556, § 2(9), 52 Stat. at 822, but transferred that responsibility to FERC in 1977. Department of Energy Organization Act of 1977, Pub. L. No. 95-91, § 402(a)(1)(C)–(F), (2)(B), 91 Stat. 565, 583–84 (codified at 42 U.S.C. § 7172(a)(1)(C)–(F), (2)(B)). For natural gas-related activities within its jurisdiction under the Natural Gas Act, FERC issues certificates of public convenience and necessity authorizing companies to transport or sell natural gas, Natural Gas Act § 7(c)–(h), 15 U.S.C. § 717f(c)–(h); *see also* TOMAIN & CUDAHY, *supra* note 14, at 288 (describing the certificate of public convenience and necessity as “a license requirement subjecting a company to federal jurisdiction and allowing the company to operate in interstate commerce”), approves facilities, *see* Natural Gas Act § 3(e), 15 U.S.C. § 717b(e) (authorizing FERC to approve or deny applications for FERC liquid natural gas terminals); *id.* § 7(a)–(b), 15 U.S.C. § 717f(a)–(b) (authorizing FERC to approve the extension, improvement, or abandonment of natural gas facilities within its jurisdiction), and regulates terms of sale and transport to ensure that they are just, reasonable, and not unduly preferential, *see id.* § 3(e), 15 U.S.C. § 717c(f).

Interstate Commerce Act.⁵⁴

B. Environmental Law

EPA is charged with administering, in whole or in part, at least twenty-three separate statutes.⁵⁵ A few of these statutes, however, form the core of the agency's regulatory responsibilities and comprise much of the canon of federal environmental law.⁵⁶ This environmental law canon has a history very different from that of the traditional energy statutes.

Congress enacted the federal energy statutes primarily during the 1930s, and they largely reflected an extension of state public utilities statutes that had existed for decades.⁵⁷ By contrast, the federal environmental statutes Congress enacted in the 1970s represented a dramatic change in environmental regulation that has been called the

54. Interstate Commerce Act of 1887, ch. 104, 24 Stat. 379 (codified as amended in scattered sections of 49 U.S.C.). The original Interstate Commerce Act of 1887 created the Interstate Commerce Commission to regulate interstate and international railroads. *Id.* § 1, 24 Stat. at 379. The Act required all charges for such railroad services to be “reasonable and just,” *id.*, and required railroads to act as common carriers, prohibited from giving undue preferences and required to post fares and schedules. *Id.* §§ 3, 6, 24 Stat. at 380. The Act created the Interstate Commerce Commission to administer and enforce the statute. *Id.* §§ 11, 12, 24 Stat. at 383.

In 1906, Congress enacted the Hepburn Act, Pub. L. No. 59-337, 34 Stat. 584 (1906) (codified as amended in scattered sections of 49 U.S.C.), which amended the Interstate Commerce Act and extended it—and the Commission's jurisdiction—to interstate and international oil pipelines. *Id.* § 1, 34 Stat. at 584. In 1977, the Department of Energy Organization Act, Pub. L. No. 95-91, 91 Stat. 565 (1977) (codified as amended in scattered sections of 3 U.S.C., 5 U.S.C., 7 U.S.C., 12 U.S.C., 15 U.S.C., & 42 U.S.C.), created FERC and gave it authority over oil pipelines under the Interstate Commerce Act. *Id.* § 401(a), 91 Stat. at 582 (codified at 42 U.S.C. § 7171) (creating FERC); *id.* § 402(b), 91 Stat. at 584 (codified at 42 U.S.C. § 7172) (transferring the Interstate Commerce Commission's authority over oil pipelines to FERC). In 1978, Congress repealed the Interstate Commerce Act but retained FERC's existing authority over oil pipelines. Act of Oct. 17, 1978, Pub. L. No. 95-473, § 4(c), 92 Stat. 1337, 1470. This effectively subjects oil pipelines to the version of the Interstate Commerce Act in effect in 1977. *See* Frontier Pipeline Co. v. FERC, 452 F.3d 774, 776 (D.C. Cir. 2006); Exxon Pipeline Co. v. United States, 725 F.2d 1467, 1468 n.1 (D.C. Cir. 1984).

55. *See* *Laws and Executive Orders*, U.S. ENVTL. PROTECTION AGENCY, http://www2.epa.gov/laws-regulations/laws-and-executive-orders?_ga=1.264553807.1962208094.1383849018 (last visited Oct. 3, 2015).

56. *See* Todd S. Aagaard, *Environmental Law Outside the Canon*, 89 IND. L.J. 1239, 1251 (2014). Other statutes that comprise the canon include the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321–4370h, and Endangered Species Act (ESA), 16 U.S.C. §§ 1531–1544 (2012), both of which give EPA some authority but apply more generally throughout the federal government. *See* Aagaard, *supra*, at 1257–59 (classifying NEPA and the ESA as “special cases” within the environmental law canon).

57. *See supra* Part I.A.

Environmental Law Revolution.⁵⁸ These landmarks were enacted in a surge of legislative activity that “appeared to come virtually out of nowhere,” but in fact the seeds of which had been germinating for years.⁵⁹ Longstanding natural resource statutes, such as the National Park Service Organic Act,⁶⁰ embodied a continuing—and growing—concern with conserving natural resources.⁶¹ During the post-World War II years, some segments of the public and influential leaders began focusing on policies to protect public health.⁶² Environmental pollution gained salience, driven by disasters such as air pollution that killed scores of residents of Donora, Pennsylvania, in 1948, and by books such as Rachel Carson’s *Silent Spring*.⁶³ “By the end of the 1960s, a diverse range of constituencies representing previously separate aspects of environmental protection . . . coalesced into a broad movement demanding changes in both the substance and the process of environmental policy.”⁶⁴ With respect to the two most prominent environmental issues—air pollution and water pollution—Congress acted incrementally. As early measures that focused on supporting state regulatory efforts failed to generate results, Congress adopted a series of measures that asserted an increasingly strong and direct federal role.⁶⁵

The Clean Air Act⁶⁶ is the primary federal air pollution statute. Congress enacted the Act in 1970 “to protect and enhance the quality of the Nation’s air resources so as to promote the public health and welfare and the productive capacity of its population.”⁶⁷ As one of the early elements of the set of landmark environmental legislation Congress adopted in the 1970s, the Clean Air Act created a strong federal role in air pollution regulation, following decades of repeated unsuccessful

58. See, e.g., Holly Doremus, *Preserving Citizen Participation in the Era of Reinvention: The Endangered Species Act Example*, 25 *ECOLOGY L.Q.* 707, 717 (1999); Robert L. Fischman, *What Is Natural Resources Law?*, 78 *U. COLO. L. REV.* 717, 720 (2007); J.B. Ruhl, *The Fitness of Law: Using Complexity Theory to Describe the Evolution of Law and Society and Its Practical Meaning for Democracy*, 49 *VAND. L. REV.* 1407, 1459–60 (1996).

59. See RICHARD J. LAZARUS, *THE MAKING OF ENVIRONMENTAL LAW* 49 (2004).

60. 16 U.S.C. §§ 1 to 18f-3.

61. See LAZARUS, *supra* note 59, at 49–50.

62. See *id.* at 50–51.

63. See *id.* at 52, 58–60; cf. RACHEL CARSON, *SILENT SPRING* (1962) (describing adverse environmental impacts of pesticide use).

64. RICHARD N.L. ANDREWS, *MANAGING THE ENVIRONMENT, MANAGING OURSELVES: A HISTORY OF AMERICAN ENVIRONMENTAL POLICY* 202–03 (2d ed. 2006).

65. See *id.* at 203–10; LAZARUS, *supra* note 59, at 52–54.

66. 42 U.S.C. §§ 7401–7671q (2012).

67. Clean Air Act § 101(b)(1), 42 U.S.C. § 7401(b)(1).

attempts to nudge states into taking action against air pollution.⁶⁸ The Act authorizes EPA to regulate air pollutant emissions from both stationary sources,⁶⁹ such as factories and power plants, and mobile sources,⁷⁰ such as cars, trucks, and locomotives.

The Clean Water Act⁷¹ is the primary federal water pollution statute, water pollution's counterpart to the Clean Air Act. Congress enacted the Clean Water Act in 1972 "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."⁷² The Clean Water Act regulates discharges of pollutants into waters of the United States.⁷³ The Act directs EPA to establish effluent limitations on how much pollution can be discharged into waters of the United States.⁷⁴

The Resource Conservation and Recovery Act (RCRA)⁷⁵ regulates the handling of hazardous waste. Congress enacted RCRA in 1976 to "minimiz[e] the dangers of hazardous waste disposal."⁷⁶ RCRA's hallmark "cradle to grave" approach comprehensively regulates hazardous waste from the time that it is generated until it is safely disposed of.⁷⁷ RCRA directs EPA to promulgate standards governing hazardous waste generators,⁷⁸ transporters,⁷⁹ and owners and operators of hazardous waste treatment, storage, and disposal facilities.⁸⁰

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA),⁸¹ also known as the Superfund statute, authorizes the cleanup of environmental contamination and imposes liability for such cleanups.⁸² Congress was moved to enact CERCLA in

68. See generally *Train v. Natural Res. Def. Council, Inc.*, 421 U.S. 60, 63–64 (1975).

69. See, e.g., Clean Air Act §§ 111, 112, 165, 42 U.S.C. §§ 7411, 7412, 7475.

70. *Id.* §§ 202–250, 42 U.S.C. §§ 7521–7590.

71. 33 U.S.C. §§ 1251–1387 (2012).

72. *Id.* § 1251(a).

73. *Id.* § 1311(a) (prohibiting "the discharge of any pollutant by any person"); *id.* § 1362(12) (defining "discharge of a pollutant" to mean "any addition of any pollutant to navigable waters from any point source"); *id.* § 1362(7) (defining "navigable waters" to mean "waters of the United States").

74. *Id.* § 1311. In addition to giving EPA authority to regulate wastewater discharges, the Act authorizes the Army Corps of Engineers to regulate the discharge of dredge or fill material into waters of the United States. *Id.* § 1344.

75. 42 U.S.C. §§ 6901–6992k.

76. H.R. REP. NO. 94-1491, at 11 (1976), *reprinted in* 1976 U.S.C.C.A.N. 6238, 6249.

77. See *Envtl. Def. Fund v. Gorsuch*, 713 F.2d 802, 804 (D.C. Cir. 1983).

78. Resource Conservation and Recovery Act (RCRA) § 3002, 42 U.S.C. § 6922.

79. *Id.* § 3003, 42 U.S.C. § 6923.

80. *Id.* § 3004, 42 U.S.C. § 6924.

81. 42 U.S.C. §§ 9601–9675.

82. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

1980 in response to environmental contamination at the infamous Love Canal and other sites.⁸³ CERCLA and RCRA thus play complementary roles: RCRA regulates hazardous waste handling to prevent environmental contamination, and CERCLA authorizes the cleanup of contamination where it nevertheless has occurred.⁸⁴

C. *Creating the Energy-Environment Divide*

As the preceding examples illustrate, energy statutes and environmental statutes regulate quite differently. They regulate different things: Energy statutes primarily regulate the economic terms of energy-related transactions, whereas environmental statutes primarily regulate pollutant emissions and discharges into the environment. Energy statutes and environmental statutes also regulate for different purposes: Energy statutes regulate primarily to protect consumers' access to affordable energy, whereas environmental statutes regulate primarily to protect public health and the environment.

1. *Economic Regulation and Social Regulation*

To a significant extent, the differences between energy statutes and environmental statutes reflect the distinction between economic regulation and social regulation. Economic regulation and social regulation can be defined by their differing objectives. Economic regulation "intervene[s] directly in market decisions such as pricing, competition, market entry, or exit" to improve the functioning of markets.⁸⁵ Social regulation, by contrast, "protect[s] public interests such as health, safety, the environment, and social cohesion."⁸⁶ Economic

gives EPA "broad power . . . to clean up hazardous waste sites," *Key Tronic Corp. v. United States*, 511 U.S. 809, 814 (1994), and imposes strict liability on anyone who contributes—from generation through disposal—to contamination caused by a "release, or threatened release," of a "hazardous substance," see CERCLA § 107(a), 42 U.S.C. § 9607(a); *B.F. Goodrich Co. v. Murtha*, 958 F.2d 1192, 1198 (2d Cir. 1992).

83. See, e.g., *Niagara Mohawk Power Corp. v. Chevron U.S.A., Inc.*, 596 F.3d 112, 120 n.5 (2d Cir. 2010).

84. See *B.F. Goodrich Co.*, 958 F.2d at 1202 ("RCRA is preventative; CERCLA is curative.").

85. See OECD, *THE OECD REPORT ON REGULATORY REFORM: SYNTHESIS 6* (1997).

86. *Id.*; see also Thomas O. McGarity, *Regulatory Reform in the Reagan Era*, 45 MD. L. REV. 253, 254–55 (1986) ("Economic regulation is concerned with preventing undue economic concentration, regulating natural monopolies, eliminating economic windfalls, ensuring adequate distribution of goods and services, and reducing fraud in economic transactions Social regulation, by contrast, is concerned with reducing health and environmental risks, preserving civil rights and equal opportunity, and generally controlling the extent to which one group of persons enjoys the benefits of a technology or enterprise without sharing in its costs.").

regulation primarily aims at addressing market failures that arise through monopoly and market power; social regulation primarily aims at problems of externalities.⁸⁷

Economic regulation and social regulation differ in regulatory approach as well. Economic regulation tends to regulate on a sector or industry-specific basis, whereas social regulation applies broadly across the economy.⁸⁸ Economic regulation adopts direct market oversight through measures such as price controls and entry/exit controls, whereas social regulation employs regulatory or allocative controls such as a prohibition against certain types of discrimination.⁸⁹

The traditional energy statutes—the Federal Power Act, Natural Gas Act, and Interstate Commerce Act—typify economic regulation. Congress enacted these energy statutes to protect consumers from monopolist natural gas companies and electric utilities that could use their market power to charge excessive rates.⁹⁰ Each statute appoints an agency—formerly the Federal Power Commission and Interstate Commerce Commission, now FERC—to oversee a particular industry (wholesale electric power, interstate natural gas, or interstate oil pipeline) to ensure that consumers receive reliable energy service at reasonable rates.⁹¹

Environmental statutes such as the Clean Air Act, Clean Water Act, RCRA, and CERCLA exemplify social regulation. They take aim at pollution and other environmental impacts, which are examples of classic externalities. Instead of regulating particular industries comprehensively, environmental statutes tend to address a particular problem, such as water pollution, across all industries. Instead of direct market oversight, environmental statutes regulate conduct that generates externalities, such as burning coal that emits air pollution.

2. *Energy-Environment Interrelationships*

Although energy and environmental statutes embody different

87. See Peter H. Schuck, *The Politics of Regulation*, 90 YALE L.J. 702, 711–12 (1981) (reviewing JAMES Q. WILSON, *THE POLITICS OF REGULATION* (1980)). In addition to monopoly power, economic regulation sometimes aims at excessive competition and economic rents. See Joseph P. Tomain & Sidney A. Shapiro, *Analyzing Government Regulation*, 49 ADMIN. L. REV. 377, 403–07 (1997). In addition to externalities, social regulation sometimes aims at the problems of inadequate information, scarcity, and public goods. *Id.* at 407–11.

88. See Schuck, *supra* note 87, at 709.

89. See Tomain & Shapiro, *supra* note 87, at 403, 407.

90. See *supra* note 33.

91. See *supra* notes 48, 53, 54 and accompanying text.

regulatory orientations—energy law toward economic regulation, and environmental law toward social regulation—they overlap substantially in their application due to the environmental effects of energy production, transportation, and use. Laws have intertwined energy use and environmental concerns since at least the thirteenth and fourteenth centuries, when English monarchs attempted to prohibit the burning of coal in London due to poor air quality.⁹²

Environmental considerations affect markets. Indeed, that effect, rooted in the understanding that environmental impacts involve externalities not reflected in the unregulated market, is the basis for regulatory intervention to protect the environment. That the natural gas pipeline has no economic incentive to take into account its effects on wildlife, for example, justifies laws requiring FERC to weigh those environmental effects in deciding whether to authorize the pipeline. Environmental regulation can increase the cost of production for a fuel source, affecting both the market price and quantity of the fuel consumed. Whether this distorts or corrects the market depends on the regulation.

Markets, moreover, affect the environment. Electricity and natural gas rates influence how much electric power and natural gas consumers use. Energy use determines how many natural gas wells are drilled and how much electric power is generated, and consequently how much pollution is emitted with those activities. The relative economic costs of different types of energy also affect what energy sources are used. The balance between coal and natural gas use, for example, which strongly affects air pollutant emissions, depends in significant part on the relative cost of the two fuel types. Low natural gas prices in recent years have substantially reduced air emissions by inducing power companies to use more natural gas and less coal to generate electricity.⁹³ But low natural gas prices could also suppress the development of even cleaner energy sources, such as nuclear and wind.⁹⁴

3. *Energy-Environment Conflicts*

The energy-environment divide harms both energy law and

92. See Peter Brimblecombe & László Makra, *Selections from the History of Environmental Pollution, with Special Attention to Air Pollution. Part 2*: From Medieval Times to the 19th Century*, 23 INT'L J. ENV'T & POLLUTION 351, 355 (2005).

93. *Today in Energy: Energy-Related Carbon Dioxide Emissions Declined in 2012*, U.S. ENERGY INFO. ADMIN. (Apr. 5, 2013), <http://www.eia.gov/todayinenergy/detail.cfm?id=10691#>.

94. See Matthew L. Wald, *The Potential Downside of Natural Gas*, N.Y. TIMES, June 4, 2014, at B3.

environmental law. The mere existence of a divide would not necessarily be problematic. Due to the different orientations of the fields, it seems rational to separate them and for agencies to specialize. The problem is that their differing orientations cause conflicts that impede the effectiveness of each. As noted, energy statutes focus on economic regulation to make energy widely available to end users at reasonable cost,⁹⁵ whereas environmental statutes focus on preventing pollution and damage to natural resources.⁹⁶ The goals lead the two fields to work at cross-purposes, with energy law seeking to keep energy costs low, stimulating energy use and the harms it causes, while environmental law has attempted to reduce environmental harms, and in doing so increases energy costs by regulating emissions from energy production and use.⁹⁷

The energy-environment divide is not only harmful, it is also unnecessary. Although the reasons for conflicts between energy law and environmental law are clear in light of their differing perspectives, the conflicts are not inherent or inevitable. The monopoly power targeted by energy statutes and the externalities targeted by environmental statutes are both forms of market failure because they prevent markets from allocating resources efficiently.⁹⁸ A rational regulatory approach therefore would pursue an efficient market that would be both competitive and would internalize externalities.⁹⁹ To the extent that the two fields conflict, it is because they each pursue their respective goals blind to the goals of the other.

II. NEGATIVE CONSTRAINTS EXACERBATE THE ENERGY-ENVIRONMENT DIVIDE

Part I explained that the differing orientations of energy law and environmental law have created conflicts between the two fields. These conflicts arise in part because each field has its own objectives and does not necessarily consider other objectives. Part II examines the primary

95. See Davies, *supra* note 11, at 483 (“The dominant energy policy paradigm in the United States is ample energy supplies at the cheapest price. Energy law indelibly reflects this.”).

96. See LAZARUS, *supra* note 59, at 1 (“[E]nvironmental law regulates human activity in order to limit ecological impacts that threaten public health and biodiversity.”).

97. See Davies, *supra* note 11, at 495.

98. See U.S. COMPTROLLER GEN., NO. PAD-77-34, GOVERNMENT REGULATORY ACTIVITY: JUSTIFICATIONS, PROCESSES, IMPACTS, AND ALTERNATIVES 6 (1977).

99. Cf. Richard J. Pierce, Jr., *Environmental Regulation, Energy, and Market Entry*, 15 DUKE ENVTL. L. & POL’Y F. 167, 167–68 (2005) (noting that a single normative criterion, allocative efficiency, defines a well-functioning market and that there is no inherent conflict “between pursuit of energy policy goals and environmental regulations”).

mechanism by which energy law and environmental law have attempted to manage their divide. To address conflicts, energy and environmental laws have traditionally adopted requirements that attempt to force agencies to consider the conflicts their policies create. Part II.A explains how environmental statutes impose requirements that apply to FERC's energy programs. Part II.B then explains how EPA's environmental statutes include energy requirements. Part II.C concludes that, although environmental requirements and energy requirements are intended to reconcile energy law and environmental law's divide, they in fact exacerbate it.

A. *Environmental Requirements in Energy Law*

Many of the energy-related activities that FERC licenses, permits, and regulates under its energy statutes have direct environmental effects. Hydropower facilities disrupt rivers and streams that provide habitat for fish and wildlife.¹⁰⁰ Activities associated with building and operating oil and gas pipelines and electricity transmission facilities may emit air pollutants, discharge water pollutants, fill wetlands, affect coastal zones, or fragment habitat.¹⁰¹ These environmental effects trigger the application of federal environmental statutes, including the Clean Air Act,¹⁰² Clean Water Act,¹⁰³ Coastal Zone Management Act,¹⁰⁴ National Environmental Policy Act (NEPA),¹⁰⁵ and Endangered Species Act (ESA).¹⁰⁶ FERC decisions often address the application of these environmental statutes.¹⁰⁷

100. *See, e.g.*, *Nw. Res. Info. Ctr. v. Nw. Power Planning Council*, 35 F.3d 1371, 1375–76 (9th Cir. 1994) (noting that the Columbia River Basin's hydropower system has contributed to the decline of salmon and steelhead populations).

101. *See* *Islander E. Pipeline Co. v. McCarthy*, 525 F.3d 141, 151–52 (2d Cir. 2008) (examining impacts of pipeline construction on shellfish habitat); *Transcon. Gas Pipe Line Corp.*, 98 FERC ¶ 61,027, 61,076 (2002) (noting air emissions from pipeline compressor stations).

102. 42 U.S.C. §§ 7401–7671q (2012).

103. 33 U.S.C. §§ 1251–1387 (2012).

104. 16 U.S.C. §§ 1451–1466 (2012).

105. 42 U.S.C. §§ 4321–4370h.

106. 16 U.S.C. §§ 1531–1544. *See Federal Statutes: Environmental*, FED. ENERGY REG. COMMISSION, <http://www.ferc.gov/legal/fed-sta.asp> (last updated Apr. 14, 2015) (listing the Federal Deepwater Ports Act of 1974, Clean Air Act, Clean Water Act, Coastal Zone Management Act, ESA, Fish and Wildlife Coordination Act, National Environmental Policy Act, National Historic Preservation Act, Rivers and Harbors Act, and Wild and Scenic Rivers Act).

107. *See, e.g.*, *Dominion Transmission, Inc.*, 141 FERC ¶ 61,240 (2012) (addressing application of the Clean Air Act, Clean Water Act, and ESA to construction and operation of natural gas compression, pipeline, and storage facilities); *City of Tacoma, Washington*, 104 FERC ¶ 61,324 (2003) (addressing application of the Clean Water Act, ESA, and CZMA to relicensing of a

Clean Air Act section 176 prohibits federal agencies from supporting, licensing, or permitting any activity that does not conform to an applicable state implementation plan developed to attain air quality at levels below the National Ambient Air Quality Standards.¹⁰⁸ Thus, when FERC licenses or permits an activity that will result in new air pollutant emissions, such as the construction and operation of a natural gas pipeline that will include compressor stations, the agency must determine whether emissions resulting from the activity will cause air pollution problems in the areas in which the emissions occur.¹⁰⁹

Other environmental statutes also contain environmental requirements:

- Under Clean Water Act section 401, an applicant for a federal license or permit to conduct any activity that may result in a discharge into navigable waters must provide the licensing or permitting agency with a certification from the relevant state that the discharge will comply with applicable water quality standards.¹¹⁰ Thus, FERC cannot issue a hydropower license under the Federal Power Act unless it receives a water quality certification (or waiver) from the state.¹¹¹ State water quality

hydroelectric project); Millennium Pipeline Co., 100 FERC ¶ 61,277 (2002) (addressing application of the Clean Water Act, ESA, and CZMA to construction and operation of a natural gas pipeline).

108. 42 U.S.C. § 7506. The Clean Air Act section 109 directs EPA to establish National Ambient Air Quality Standards (NAAQS) at levels sufficient to protect the public health and welfare. *Id.* § 7409. Each state must develop state implementation plans that allow air quality control regions within the state to attain the NAAQS. *Id.* § 7410.

EPA regulations implementing Clean Air Act section 176 require a federal agency to assess, as a threshold matter, whether its actions will result in “direct and indirect emissions” that exceed certain specified thresholds. 40 C.F.R. § 93.153(b)–(c) (2014). If the emissions exceed the threshold, the agency must prepare a conformity determination confirming that emissions from the action comply with all relevant requirements in applicable state implementation plans. *Id.* § 93.158(c).

109. *See, e.g.*, Dominion Transmission, Inc., 142 FERC ¶ 61,179 (2013). FERC decisions addressing compliance with Clean Air Act section 176 have addressed, for example, whether a licensed facility will have indirect effects that may violate the terms of a state implementation plan, such as a natural gas pipeline that may lead to emissions from burning the gas transported through the pipeline. *See S. Coast Air Quality Mgmt. Dist. v. FERC*, 621 F.3d 1085 (9th Cir. 2010) (holding that FERC was not required to account for such emissions because they were not subject to FERC’s control and because the amount of gas the pipeline would carry was uncertain); Sabine Pass Liquefaction, LLC, 139 FERC ¶ 61,039 (2012) (same).

110. 33 U.S.C. § 1341(a)(1), (d) (2012). The requirement is waived if the state does not act on a request for certification within a reasonable period of time, which shall not exceed one year. *See id.*

111. *See* PUD No. 1 of Jefferson Cnty. v. Wash. Dep’t of Ecology, 511 U.S. 700 (1994) (holding that states may condition project certification on any limitations, including minimum flow requirements, necessary to comply with state water quality standards or other appropriate requirements of state law); Jersey Cent. Power & Light Co., 143 FERC ¶ 62,102 (2013) (noting waiver of requirement where state declined to issue certification); Creamer & Noble Energy, Inc., 92 FERC ¶ 62,076 (2000) (dismissing application for hydropower project license where applicant

certifications often include limitations and requirements on the project, which by operation of Clean Water Act section 401 become a condition on FERC's license.¹¹²

- Following a structure similar to the water quality certification under Clean Water Act section 401, the Coastal Zone Management Act (CZMA) requires an applicant for a federal license or permit authorizing any activity that affects land, water use, or natural resource of a coastal zone to certify that the activity is consistent with the applicable state CZMA management program.¹¹³ Thus, when an applicant seeks a FERC license for an activity within a designated coastal zone, such as a hydropower project¹¹⁴ or pipeline,¹¹⁵ the CZMA requires the applicant to obtain a certification of consistency with the applicable state CZMA management plan.
- Pursuant to the ESA, FERC must consult with the Fish and Wildlife Service or National Marine Fisheries Service when the agency receives an application to license a project that may affect an endangered species.¹¹⁶

had failed to procure a state water quality certification).

112. 33 U.S.C. § 1341(d); *see* Pac. Gas & Elec. Co., 132 FERC ¶ 62,101 (2010) (accepting a state temporary water quality certification amendment and incorporating it as a temporary amendment to the project license). In addition to section 401, FERC-approved projects sometimes implicate Clean Water Act section 404, 33 U.S.C. § 1342(a), which requires a permit from the Army Corps of Engineers to discharge dredge or fill material into waters of the United States. *See, e.g.*, Cogeneration, Inc., 76 FERC ¶ 61,193 (1996) (noting that construction of hydropower project required a § 404 permit); Idaho Power Co., 64 FERC ¶ 62,057 (1993) (noting that relocation of boating launch area connected to hydropower project required a § 404 permit).

113. 16 U.S.C. § 1456(c)(3)(A) (2012). The state then has six months to notify the federal agency whether it concurs with or objects to the applicant's certification of consistency; if the state does not respond within six months, its concurrence is presumed. *Id.*

114. *See* Mountain Rhythm Res. v. FERC, 302 F.3d 958, 960 (9th Cir. 2002) (affirming FERC's dismissal of applications for hydropower license under Federal Power Act where applicant failed to apply for county Shoreline Management Act permit).

115. *See* Nw. Pipeline, GP, 145 FERC ¶ 61,013 (2013) (reaffirming FERC's conditional approval of certificate of public convenience and necessity, subject to subsequent CZMA consistency certification from state).

116. *See* 16 U.S.C. § 1536(a)(2) (requiring federal agencies to insure, in consultation with the Fish and Wildlife Service or National Marine Fisheries Service, that their actions are "not likely to jeopardize" endangered or threatened species or to destroy or adversely modify critical habitat of such species); Cal. Dep't of Water Res., 111 FERC ¶ 62,040 (2005) (temporarily waiving hydropower license's minimum stream flow requirements, based on recommendations of Fish and Wildlife Service, to avoid harm to endangered arroyo toads from excessive water releases); Cent. Neb. Pub. Power & Irrigation Dist., 14 FERC ¶ 62,009, 63,017 (1981) (amending hydropower licenses to include conditions agreed upon in consultation with Fish and Wildlife Service to ensure that project did not jeopardize endangered whooping crane or destroy or adversely modify its critical habitat).

- NEPA requires federal agencies to prepare and to release to the public an Environmental Impact Statement (EIS) before taking any major action “significantly affecting the quality of the human environment.”¹¹⁷ FERC generally applies NEPA to its decisions that involve the construction, modification, or operation of physical facilities—for example, authorization to construct a pipeline under the Natural Gas Act, a hydropower license under the Federal Power Act, or authorization for new electric transmission facilities.¹¹⁸
- In addition to the environmental requirements that environmental statutes apply to energy programs, the energy statutes themselves contain some embedded environmental provisions. Like environmental statutes, these environmental provisions embedded in energy statutes operate by imposing environmental requirements on energy programs.¹¹⁹

ESA section 7 requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of federally listed endangered or threatened species, or destroy or adversely modify the designated critical habitat of such species. 16 U.S.C. § 1536(a)(2). When an applicant for a federal license or permit has reason to believe that an endangered or threatened species may be present in the area affected by its project and that the project will likely affect such species, ESA section 7 requires the federal agency to consult with the Fish and Wildlife Service or National Marine Fisheries Service regarding steps that may be necessary to avoid jeopardizing the species. *Id.*

117. 42 U.S.C. § 4332(2)(C) (2012).

118. *See, e.g.*, 18 C.F.R. §§ 380.5, 380.6 (2014) (listing activities that require an EA or EIS). For these types of decisions, FERC orders frequently address the agency’s compliance with NEPA. *See, e.g.*, N. Natural Gas Co., 146 FERC ¶ 61194 (2014); Columbia Gas Transmission, LLC, 146 FERC ¶ 61116 (2014); Columbia Gas Transmission, LLC, 146 FERC ¶ 61075 (2014). The agency’s compliance with NEPA is often contested in litigation challenging FERC orders. *See, e.g.*, S. Coast Air Quality Mgmt. Dist. v. FERC, 621 F.3d 1085, 1092–93 (9th Cir. 2010); Piedmont Env’tl. Council v. FERC, 558 F.3d 304, 315–17 (4th Cir. 2009). With respect to decisions that do not directly involve physical facilities, however, FERC has significantly restricted the scope of its obligations under NEPA by arguing that many of its decisions do not have environmental impacts within NEPA’s purview. *See* 18 C.F.R. § 380.4(a). FERC’s NEPA regulations, for example, state that its decisions approving wholesale electricity rates under the Federal Power Act do not require an EIS. *See id.* § 380.4(a)(15). FERC reasons that (1) its authority to approve “just and reasonable” rates under the Federal Power Act does not allow the agency to consider environmental factors; and (2) the environmental effects of electricity arise from generating facilities over which the agency lacks regulatory authority. *See Monongahela Power Co.*, 39 FERC ¶ 61,350 (1987). FERC’s NEPA regulations codify the agency’s decision in *Monongahela Power Co.* *See* Regulations Implementing National Environmental Policy Act of 1969, 52 Fed. Reg. 47,897, 47,900 (Dec. 17, 1987) (to be codified at 18 C.F.R. pts. 2, 157, 380).

119. *See, e.g.*, Federal Power Act § 4(e), 16 U.S.C. § 797(e) (“In deciding whether to issue any license under this subchapter for any project, the Commission, in addition to the power and development purposes for which licenses are issued, shall give equal consideration to the purposes of energy conservation, the protection, mitigation of damage to, and enhancement of, fish and wildlife (including related spawning grounds and habitat), the protection of recreational

B. *Energy Requirements in Environmental Law*

Part II.A focused on environmental requirements that apply to FERC regulatory programs under the traditional energy statutes. A parallel situation exists within EPA's jurisdiction under environmental statutes, where energy requirements frequently apply. Unlike in FERC's energy statutes, however, where environmental requirements are primarily imposed externally by environmental statutes, energy requirements in EPA's jurisdiction arise internally from within environmental statutes themselves. Each of the major federal environmental statutes contain significant energy requirements.

The Clean Air Act, in authorizing EPA to regulate air pollutant

opportunities, and the preservation of other aspects of environmental quality.”); *id.* § 10(a), 16 U.S.C. § 803(a)(1) (requiring FERC, when issuing a hydropower license, to ensure that the licensed project is “adapted to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce, for the improvement and utilization of water-power development, for the adequate protection, mitigation, and enhancement of fish and wildlife (including related spawning grounds and habitat), and for other beneficial public uses, including irrigation, flood control, water supply, and recreational and other purposes referred to in section 797(e) of this title”); *id.* § 10(i), 16 U.S.C. § 803(j) (“[I]n order to adequately and equitably protect, mitigate damages to, and enhance, fish and wildlife (including related spawning grounds and habitat) affected by the development, operation, and management of the project, each license issued under this subchapter shall include conditions for such protection, mitigation, and enhancement . . . based on recommendations received pursuant to the Fish and Wildlife Coordination Act (16 U.S.C. 661 et seq.) from the National Marine Fisheries Service, the United States Fish and Wildlife Service, and State fish and wildlife agencies.”). This cluster of three related provisions in the Federal Power Act explicitly and specifically requires FERC to incorporate environmental considerations into its decisions regarding hydropower licenses. *See generally* Michael C. Blumm & Viki A. Nadol, *The Decline of the Hydropower Czar and the Rise of Agency Pluralism in Hydroelectric Licensing*, 26 COLUM. J. ENVTL. L. 81 (2001); J.R. DeShazo & Jody Freeman, *Public Agencies as Lobbyists*, 105 COLUM. L. REV. 2217 (2005). The provisions especially emphasize protection of fish and wildlife and require FERC to coordinate with federal and state fish and wildlife agencies to develop conditions to ensure such protection. 16 U.S.C. §§ 797(e), 803(a)(1), 803(j).

In addition to embedded environmental provisions, federal energy statutes contain provisions that apply incidentally to environmentally related actions. For example, Federal Power Act section 204 prohibits public utility companies subject to FERC's jurisdiction from issuing or assuming liability for securities without authorization from FERC. *See* 16 U.S.C. § 824c. Public utilities often issue pollution control bonds to finance capital investments in pollution control. When they do so, they must obtain FERC approval. *See, e.g.*, Allegheny Energy, Inc., 120 FERC ¶ 62,166 (2007); El Paso Elec. Co., 73 FERC ¶ 62,075 (1995). Federal Power Act section 204 applies to many actions by public utilities that do not involve pollution control bonds. *See, e.g.*, Trans Bay Cable LLC, 129 FERC ¶ 62,110 (2009) (authorizing Trans Bay Cable to issue up to \$371 million in securities to fund a transmission project); Sw. Power Pool, Inc., 120 FERC ¶ 61,160, 61,698–99 (2007) (authorizing the Southwest Power Pool to issue up to \$50 million in unsecured promissory notes to fund various capital expenditures). Even with respect to pollution control bonds, nothing about FERC's approval decision gives any weight to the underlying environmental objectives of the bonds.

emissions from stationary sources and mobile sources,¹²⁰ generally does not prescribe particular emissions limits for such sources, but instead directs EPA to establish emissions limits based on pollution control technologies that consider various factors such as emissions, other environmental impacts, and economic costs.¹²¹ The statutory definitions of the control technologies usually include energy as a factor,¹²² often using the term “energy requirements.”¹²³

In addition to references to energy-related factors in the control technologies it prescribes, the Clean Air Act includes provisions that require EPA and FERC to coordinate on energy-related environmental issues. To alleviate the most severe conflicts between pollution control and energy reliability, Clean Air Act section 110(f) allows the President to declare a regional energy emergency that exempts fuel-burning stationary sources of air pollution from some Clean Air Act requirements.¹²⁴ In addition, EPA and FERC have coordinated to

120. See Clean Air Act §§ 101–193, 42 U.S.C. §§ 7401–7515 (stationary sources); *id.* §§ 202–250, 42 U.S.C. §§ 7521–7590 (mobile sources). See generally *supra* notes 66–70 and accompanying text (summarizing the Clean Air Act).

121. See, e.g., Clean Air Act § 169(3), 42 U.S.C. § 7479(3) (directing EPA to determine the “best available control technology” applicable to a new stationary source by considering “energy, environmental, and economic impacts and other costs”); *id.* § 169A(b)(2), (g)(2), 42 U.S.C. § 7491(b)(2), (g)(2) (directing EPA to determine the “best available retrofit technology” applicable to “major stationary source” of an air pollutant that contributes to the impairment of visibility by considering “the costs of compliance, the energy and nonair quality environmental impacts of compliance, any existing pollution control technology in use at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology”); *id.* § 183(b), (e)(1)(A), 42 U.S.C. § 7511b(b), (e)(1)(A) (directing EPA to determine the “best available controls” applicable to certain stationary sources of volatile organic compound or PM-10 emissions by considering “technological and economic feasibility, health, environmental, and energy impacts”); *id.* § 202(a)(3)(i), 42 U.S.C. § 7521(a)(3)(i) (directing EPA to establish emissions standards for new vehicles “which reflect the greatest degree of emission reduction achievable through the application of technology which the Administrator determines will be available for the model year to which such standards apply, giving appropriate consideration to cost, energy, and safety factors associated with the application of such technology”).

122. See, e.g., *id.* § 169(3), 42 U.S.C. § 7479(3) (directing EPA to consider “energy . . . impacts” in determining the “best available control technology” applicable to a new stationary source in a Prevention of Significant Deterioration Area); *id.* § 169A(b)(2), (g)(2), 42 U.S.C. § 7491(b)(2), (g)(2) (directing EPA to consider “energy . . . impacts” in determining the “best available retrofit technology” applicable to “major stationary source” of an air pollutant that contributes to the impairment of visibility).

123. *Id.* § 111(a)(1), 42 U.S.C. § 7411(a)(1) (directing EPA to consider “energy requirements” in establishing standards of performance for new stationary sources); *id.* § 112(d)(2), 42 U.S.C. § 7412(d)(2) (directing EPA to consider “energy requirements” in establishing emissions standards for stationary sources of hazardous air pollutants).

124. *Id.* § 110(f), 42 U.S.C. § 7410(f).

develop policies preventing EPA's Clean Air Act rules from causing reliability problems due to the shutdown of electric generating units that cannot comply with EPA's emissions limits.¹²⁵

Other environmental statutes also contain energy requirements:

- As with the Clean Air Act, the Clean Water Act does not itself establish effluent limits for the pollutant discharges it regulates, but instead directs EPA to establish limits based on pollution control technologies that consider various factors such as effluent reduction benefits, costs, and non-water quality related environmental impacts.¹²⁶ Also as in the Clean Air Act, the statutory definitions of the control technologies usually include

125. *See, e.g.*, Policy Statement on the Commission's Role Regarding the Environmental Protection Agency's Mercury and Air Toxics Standards, 139 FERC ¶ 61,131 (May 17, 2012); Memorandum from Cynthia Giles, Assistant Adm'r of the Office of Enforcement and Compliance Assurance, The Environmental Protection Agency's Enforcement Response Policy for Use of Clean Air Act Section 113(a) Administrative Orders in Relation to Electric Reliability and the Mercury and Air Toxics Standard (Dec. 16, 2011), available at <http://www3.epa.gov/mats/pdfs/EnforcementResponsePolicyforCAA113.pdf>; *see also* Bobby McMahon, *Clark Calls for FERC to Certify EPA Compliance Plan as All Commissioners Back 'Safety Valve.'* INSIDE FERC, Sept. 15, 2014, at 1 (describing discussion among FERC commissioners about employing a similar policy under EPA's proposed Clean Power Plan).

126. *See, e.g.*, Clean Water Act § 304(b)(1)(B), 33 U.S.C. § 1314(b)(1)(B) (2012) (directing EPA to determine the "best practicable control technology" applicable to an existing direct discharger by considering "the total cost of application of technology in relation to the effluent reduction benefits to be achieved from such application, and shall also take into account the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, non-water quality environmental impact (including energy requirements), and such other factors as the Administrator deems appropriate"); *id.* § 304(b)(2)(B), 33 U.S.C. § 1314(b)(2)(B) (directing EPA to determine the "best available technology" applicable to an existing direct discharger of toxic or non-conventional pollutants by considering "the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, the cost of achieving such effluent reduction, non-water quality environmental impact (including energy requirements), and such other factors as the Administrator deems appropriate"); *id.* § 304(b)(4)(B), 33 U.S.C. § 1314(b)(4)(B) (directing EPA to determine the "best conventional pollutant control technology" applicable to an existing direct discharger of conventional pollutants by considering "the reasonableness of the relationship between the costs of attaining a reduction in effluents and the effluent reduction benefits derived, and the comparison of the cost and level of reduction of such pollutants from the discharge from publicly owned treatment works to the cost and level of reduction of such pollutants from a class or category of industrial sources, and shall take into account the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, non-water quality environmental impact (including energy requirements), and such other factors as the Administrator deems appropriate"); *id.* § 306(a)(1), (b)(1)(B), 33 U.S.C. § 1316(a)(1), (b)(1)(B) (directing EPA to determine the "best available demonstrated control technology" for new sources based on consideration of "the cost of achieving such effluent reduction, and any non-water quality, environmental impact and energy requirements").

“energy requirements” as a factor.¹²⁷

- Since 1980, RCRA, which regulates the management of hazardous wastes, has exempted “drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil or natural gas or geothermal energy” from regulation as hazardous wastes.¹²⁸ Congress enacted the exemption based on its concern that regulating such wastes under RCRA “could have a significant economic impact on domestic oil and gas exploration and production activities.”¹²⁹

127. *See, e.g., id.* § 304(b)(1)(B), (b)(2)(B), (b)(43)(B), 33 U.S.C. § 1314(b)(1)(B), (b)(2)(B), (b)(4)(B) (directing EPA to consider “energy requirements” in establishing effluent limitation guidelines for sources and pollutants under the best practicable control technology standard, best available control technology standard, and best conventional pollutant control technology, respectively).

128. RCRA § 3001(b)(2), 42 U.S.C. § 6921(b)(2). Because RCRA’s stringent requirements for managing hazardous waste contrast with the comparatively lenient regulatory requirements for non-hazardous solid waste, *see* Solid Waste Disposal Act §§ 4001–4010, 42 U.S.C. §§ 6941–6949a, much rides on the classification of waste as hazardous or non-hazardous. *See, e.g.,* Am. Chemistry Council v. EPA, 337 F.3d 1060 (D.C. Cir. 2003); Metal Trades, Inc. v. United States, 810 F. Supp. 689 (D.S.C. 1992); Al Tech Specialty Steel Corp. v. EPA, 846 F.2d 158 (2d Cir. 1988); *see also* City of Chicago v. Env’tl. Def. Fund, 511 U.S. 328, 331 (1994) (noting that hazardous wastes are subject to “rigorous safeguards and waste management procedures,” whereas “[n]onhazardous wastes are regulated much more loosely”). RCRA’s definition of hazardous waste cuts broadly, directing EPA to identify wastes as hazardous based on their “toxicity, persistence, and degradability in nature, potential for accumulation in tissue, and other related factors such as flammability, corrosiveness, and other hazardous characteristics.” RCRA § 3001(a), 42 U.S.C. § 6921(a). Pursuant to this authority, EPA has promulgated detailed regulations listing specific wastes as categorically hazardous and identifying characteristics by which to classify additional wastes as hazardous. 40 C.F.R. §§ 261.20–32 (2014).

129. S. REP. NO. 96-172, at 6 (1980), *reprinted in* 1980 U.S.C.C.A.N. 5019, 5025. Congress enacted this Bentsen Amendment, named after Senator Lloyd Bentsen of Texas, as part of the Solid Waste Disposal Act Amendments of 1980, Pub. L. No. 96-482, § 7, 94 Stat. 2334, 2336. The Amendment itself only precluded EPA from regulating exploration and production wastes as hazardous until the agency had studied their effects on human health and the environment, submitted a report to Congress, and made a determination whether regulating such wastes under RCRA was warranted. RCRA §§ 3001(b)(2), 8002(m), 42 U.S.C. §§ 6921(b), 6982(m). EPA issued its report in 1987. *See* U.S. ENVTL. PROT. AGENCY, REPORT TO CONGRESS: MANAGEMENT OF WASTES FROM THE EXPLORATION, DEVELOPMENT, AND PRODUCTION OF CRUDE OIL, NATURAL GAS, AND GEOTHERMAL ENERGY (1987). In 1988, EPA issued a regulatory determination that regulating exploration and production wastes under RCRA is not warranted. Regulatory Determination for Oil and Gas and Geothermal Exploration, Development, and Production Wastes, 53 Fed. Reg. 25,446 (July 6, 1988). Thus, exploration and production wastes remain exempt from RCRA by EPA action. In September 2010, the Natural Resources Defense Council petitioned EPA to regulate exploration and production wastes as hazardous wastes under RCRA. *See* Letter from Amy Mall, Senior Policy Analyst, NRDC, to the Honorable Lisa Jackson, Adm’r, EPA (Sept. 8, 2010), available at http://docs.nrdc.org/energy/files/ene_10091301a.pdf. The EPA, cognizant of the political fallout that would result, seems unlikely to grant the petition. *See* Jeffrey M. Gaba, *Flowback: Federal Regulation of Wastewater from Hydraulic Fracturing*, 39 COLUM. J. ENVTL. L.

- CERCLA, which imposes strict liability on anyone who contributes—from generation through disposal—to contamination caused by a “release, or threatened release,” of a “hazardous substance”¹³⁰—excludes petroleum.¹³¹ CERCLA’s legislative history is infamously sparse and opaque, but Congress appears to have enacted the petroleum exclusion, as with RCRA’s Bentsen Amendment, to avoid economic impacts on the oil and gas industry.¹³²
- The Safe Drinking Water Act (SDWA),¹³³ which directs EPA and states to regulate “underground injection” of contaminants that endanger drinking water sources,¹³⁴ contains two exclusions, both energy-related. The SDWA excludes “underground injection of natural gas for purposes of storage,” and “underground injection of fluids or propping agents (other than diesel fuels) pursuant to hydraulic fracturing operations related to oil, gas, or geothermal production activities.”¹³⁵ The SDWA includes an additional exemption that precludes EPA from issuing regulations that interfere with underground injection of oil and gas production fluids or underground injection for secondary or tertiary recovery of oil or natural gas, unless EPA finds that such regulation would be “essential to assure that underground sources of drinking water will not be endangered by such injection.”¹³⁶

251, 279 n.133 (2014) (opining that “it will be a cold day in hell before EPA elects to list oil and gas wastes as hazardous”).

130. CERCLA § 107(a), 42 U.S.C. § 9607(a)(4); *B.F. Goodrich Co. v. Murtha*, 958 F.2d 1192, 1198 (2d Cir. 1992).

131. CERCLA § 101(14), 42 U.S.C. § 9601(14) (“The term ‘hazardous substance’ . . . does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance under subparagraphs (A) through (F) of this paragraph, and the term does not include natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).”).

132. See Robert B. McKinstry, Jr., *The Role of State “Little Superfunds” in Allocation and Indemnity Actions Under the Comprehensive Environmental Response, Compensation and Liability Act*, 5 VILL. ENVTL. L.J. 83, 98 n.105 (1994) (“CERCLA’s petroleum exclusion cannot be justified by any health or environmental concern. It was probably included as a political expediency to secure the necessary votes from oil producing states.”).

133. 42 U.S.C. §§ 300f to 300j-26.

134. Safe Drinking Water Act (SDWA) § 1421, 42 U.S.C. § 300h. The SDWA prescribes national drinking water regulations that contain maximum contaminant levels to protect public health. *Id.* § 1412, 42 U.S.C. § 300g-1.

135. *Id.* § 1421(d)(1), 42 U.S.C. § 300h(d)(1).

136. *Id.* § 1421(b)(2), 42 U.S.C. § 300h(b)(2).

C. *Exacerbating the Energy-Environment Divide*

This Part's descriptions of environmental requirements that apply to FERC and energy requirements that apply to EPA may on first thought seem to undermine Part I's argument that an energy-environment divide exists. After all, as the examples in this Part show, FERC administers its energy statutes subject to significant environmental responsibilities, and EPA administers its environmental statutes subject to significant energy responsibilities.

The idea of an energy-environment divide was never, however, premised on a complete separation of the two fields. Energy policy and environmental policy have long overlapped in application.¹³⁷ The divide between energy law and environmental law exists not through separation in their application, but by virtue of their conflicting orientations. And this highlights the paradox of these environmental and energy requirements: although the environmental requirements that apply to FERC and the energy requirements that apply to EPA embody an overlap between energy law and environmental law, they actually exacerbate the energy-environment divide.

To see how the overlap of energy law and environmental law tends to exacerbate the energy-environment divide, consider the role of environmental requirements in FERC's energy programs and the role of energy requirements in EPA's environmental programs. In either situation, the applicable environmental requirement or energy requirement acts as a negative constraint on the primary goal of the program. The ESA may, for example, compel FERC to impose limitations on the operation of a hydroelectric project.¹³⁸ Similarly, the Safe Drinking Water Act's exemption for hydraulic fracturing fluids limits EPA's ability to regulate the underground injection of such fluids.¹³⁹

The environmental statutes that apply to FERC impose requirements on FERC, and frame those requirements in the negative as limitations on the agency's authority to pursue its objectives under the Federal Power Act and other energy statutes. This places FERC in the position of a

137. See *supra* note 92 and accompanying text (noting that, during the thirteenth and fourteenth centuries, English monarchs attempted to prohibit burning coal in London due to poor air quality).

138. See, e.g., *Ala. Power Co. v. FERC*, 979 F.2d 1561 (D.C. Cir. 1992) (upholding FERC order requiring public utility, pursuant to ESA, to increase the flow of water in the river below its hydroelectric dam to reduce the dam's impact on endangered tulotoma snails).

139. SDWA § 1421(d)(1), 42 U.S.C. § 300h(d)(1).

regulated entity that must comply with another agency's requirements,¹⁴⁰ rather than in the position of a regulator that creates and enforces the requirements. In other words, environmental statutes make FERC a subject, rather than an agent, of their programs. Imposing negative constraints on energy programs also signals that environmental protection is something different, and apart from, energy policy objectives. Whatever the merits of this structure, it inevitably deepens the operational divide between the energy statutes that empower FERC and the environmental statutes that constrain it.

A similar divide exists between the environmental statutes that empower EPA to regulate and the energy requirements contained within those statutes that constrain the agency's regulatory authority. This structure by its very nature sets energy and the environment in opposition. It also impairs the efficacy of energy requirements and environmental requirements, as agencies generally will be inclined to pursue their primary mission and minimize competing requirements.¹⁴¹

FERC's policies, moreover, have accentuated the divide between its energy and environmental regulatory spheres. The agency interprets great swathes of its economic regulatory authority under the energy statutes to exclude environmental considerations. For example, FERC traditionally has taken the position that the "just and reasonable" standard under the Federal Power Act encompasses solely economic and not environmental considerations.¹⁴² When FERC does acknowledge a role for environmental factors in its decisions, such as when the agency authorizes construction of a new pipeline, it largely shunts its environmental analysis into a separate analysis, often under the rubric of NEPA. Although theoretically it makes sense to consolidate environmental analyses into NEPA's comprehensive framework, in practice this can marginalize environmental factors and emphasize the

140. The environmental statutes that apply to FERC are primarily administered by other agencies—most notably EPA (Clean Air Act, Clean Water Act), but also the Fish and Wildlife Service and National Marine Fisheries Service (ESA) and the National Oceanic and Atmospheric Administration's Office of Ocean and CZMA. NEPA provides the notable exception. Although the White House Council on Environmental Quality coordinates NEPA policy and implementation, administration of the statute is largely left to each agency. See James J. Hoecker, *The NEPA Mandate and Federal Regulation of the Natural Gas Industry*, 13 ENERGY L.J. 265, 275 (1992).

141. See Rachel E. Barkow, *Prosecutorial Administration: Prosecutor Bias and the Department of Justice*, 99 VA. L. REV. 271, 308 (2013); DeShazo & Freeman, *supra* note 119, at 2221.

142. See, e.g., Grand Council of the Crees v. FERC, 198 F.3d 950, 956 (D.C. Cir. 2000) (affirming PSI Energy, Inc., 55 FERC ¶ 61,254, 61,811 (1991), and concluding that "potential siting, health, safety, environmental or archeological problems are beyond the Commission's authority to consider under sections 205 and 206 of the Federal Power Act").

energy-environment divide.¹⁴³ Indeed, as an example of this, FERC often issues one order conditionally approving a new gas pipeline under the Natural Gas Act based on “non-environmental” factors and then a later order finalizing the approval based on subsequent environmental reviews.¹⁴⁴

EPA’s energy requirements seem similarly limited in effect. When issuing regulations pursuant to statutory provisions that include energy requirements, EPA frequently notes that it has considered energy impacts in selecting the appropriate control technology.¹⁴⁵ But EPA seldom, if ever, alters its selection of a control technology based on energy impacts. Thus, the peripheral roles of environmental requirements in energy law and of energy requirements in environmental law exacerbate the energy-environment divide.

III. POLICY ALIGNMENTS BRIDGE THE ENERGY-ENVIRONMENT DIVIDE

This Part proposes the use of a different model, policy alignments, to bridge the energy-environment divide. Part I and Part II portray a somewhat dysfunctional relationship between energy law and environmental law. Energy statutes seem narrow and unresponsive to environmental concerns. Environmental statutes seem ineffectual and marginalized as applied to energy issues. Making matters worse, the overlap between the two fields is managed primarily by requirements that attempt to impose negative environmental requirements on energy programs and negative energy requirements on environmental programs. It seems clear that this existing divide in law departs dramatically from

143. See Bradley C. Karkkainen, *Toward a Smarter NEPA: Monitoring and Managing Government’s Environmental Performance*, 102 COLUM. L. REV. 903, 905 (2002) (noting critiques of “the temporal and functional gulf that separates the ritualized procedures of EIS production from agencies’ real decision making processes”).

144. See, e.g., *Transcon. Gas Pipe Line Corp.*, 100 FERC ¶ 61,311 (2002) (issuing conditional certificate of public convenience and necessity for construction and operation of gas pipeline and associated facilities); *Alliance Pipeline L.P.*, 80 FERC ¶ 61,149 (1997) (same); *Wyo.-Cal. Pipeline Co.*, 45 FERC ¶ 61,353 (1988) (same).

145. See *Promulgation of Air Quality Implementation Plans: Arizona; Regional Haze and Interstate Visibility Transport Federal Implementation Plan*, 79 Fed. Reg. 52,420, 52,443 (Sept. 3, 2014) (to be codified at 40 C.F.R. pt. 52) (concluding that the agency’s proposed option for controlling air emissions from a copper smelter entailed energy requirements that would be “reasonable given the significant emission reductions and associated visibility benefits”); *Effluent Limitations Guidelines and New Source Performance Standards for the Airport Deicing Category*, 77 Fed. Reg. 29,168, 29,196–97 (May 16, 2012) (to be codified at 40 CFR pts. 9, 449) (summarizing the energy requirements associated with regulatory options for controlling water pollutant discharges associated with airport deicing).

the close factual interrelationship that exists between energy and the environment.

Responding to this dysfunction, some scholars have attacked the legal separation between economic regulation and environmental regulation, arguing in favor of merging energy law and environmental law to undo the harmful effects of the environmental-energy divide.¹⁴⁶ It is unclear, however, what a merger would entail, either doctrinally, institutionally, or politically. A full integration of energy and environmental regulation would necessitate significant changes to existing laws, policies, and institutions. Such changes would face enormous obstacles. FERC, for example, has spent decades carefully cabining its regulatory authority to focus on economic regulation, with considerable success in the courts.¹⁴⁷ Broadening FERC's authority to encompass externalities and other market failures, as some have advocated,¹⁴⁸ would fundamentally reorient the agency in ways that would likely generate significant opposition from both inside and outside the agency—and perhaps from courts as well. In light of these problems, it would be beneficial to identify alternative means of addressing the energy-environment divide.

Convergence, however, does not necessarily entail merger into a unified whole. Convergence also can occur through the development of similar and compatible characteristics in systems that otherwise maintain independence, in the process accomplishing reconciliation through alignment rather than merger. An alignment-based strategy could thus bridge the energy-environment divide by aligning federal energy policy and federal environmental policy without merging the regulatory programs of FERC and EPA.¹⁴⁹

146. See, e.g., Amy J. Wildermuth, *The Next Step: The Integration of Energy Law and Environmental Law*, 31 UTAH ENVTL. L. REV. 369, 383–88 (2011) (proposing an integration of energy and environmental law); Davies, *supra* note 11, at 504 (advocating a “marriage” that would result in “a merged body of energy-environmental law”).

147. See *supra* note 142 and accompanying text (noting FERC's position that the “just and reasonable” standard under the Federal Power Act encompasses solely economic and not environmental considerations).

148. See Christopher J. Bateman & James T.B. Tripp, *Toward Greener FERC Regulation of the Power Industry*, 38 HARV. ENVTL. L. REV. 275, 329–30 (2014) (arguing that FERC can issue regulations that internalize externalities from carbon emissions in wholesale electricity sales); Brandon Hofmeister, *Roles for State Energy Regulators in Climate Change Mitigation*, 2 MICH. J. ENVTL. & ADMIN. L. 67, 112 n.199 (2012) (proposing that FERC could reinterpret the Federal Power Act “to include environmental externalities in determining when rates are just and reasonable”); 2 STEVEN WEISSMAN & ROMANY WEBB, ADDRESSING CLIMATE CHANGE WITHOUT LEGISLATION § 3.2 (2014) (contending that Federal Power Act section 205, which authorizes FERC to regulate the rates, terms, and conditions of the wholesale electricity market, gives the agency authority to include a “carbon adder” in wholesale electricity rates).

149. See Klass, *supra* note 11, at 189–200 (examining state initiatives to mitigate climate change

The remainder of this Part explores the use of policy alignments to manage the energy-environment relationship. Part III.A identifies four recent examples of policies FERC has adopted, pursuant to traditional authority over wholesale electric power rates under the Federal Power Act, that align with environmental objectives. Part III.B highlights two examples, one from the 1990s and one very recent, in which EPA, acting pursuant to its authority under the Clean Air Act, adopts policies that align with energy objectives. Part III.C examines the implications of using policy alignments to address the energy-environment divide.

A. *Energy Policies that Align with Environmental Objectives*

When Congress enacted the Federal Power Act in 1935, the electric power industry was dominated by vertically integrated utilities that owned and operated their own power plants, transmission lines, and local distribution systems.¹⁵⁰ Under both the Federal Power Act and state regulation, electric utilities exercised government-protected monopoly power, in exchange for incurring certain obligations with respect to customers in their service areas.¹⁵¹ The utilities' customers paid a single charge that included all the costs associated with providing power—generation, transmission, and distribution.¹⁵² Economies of scale in power generation led utilities to rely on large, centralized power plants.¹⁵³

Dramatic changes spurred by economic, legal, and technological factors have moved the electric power sector away from this traditional model.¹⁵⁴ Rising petroleum prices, inflation, and new environmental

through energy policy, and in doing so highlighting ways in which policies can create linkages between energy law and environmental law without a convergence of the two fields).

150. See *New York v. FERC*, 535 U.S. 1, 5 (2002) (“In 1935, when the FPA became law, most electricity was sold by vertically integrated utilities that had constructed their own power plants, transmission lines, and local delivery systems.”).

151. See Lincoln L. Davies, *Power Forward: The Argument for a National RPS*, 42 CONN. L. REV. 1339, 1349 (2010) (summarizing this “regulatory compact”); Joseph P. Tomain, *The Past and Future of Electricity Regulation*, 32 ENVTL. L. 435, 438 (2002) (“Traditional utilities were immune from competition in their monopoly protected service areas . . .”).

152. See *New York*, 535 U.S. at 5 (noting that electricity sales were “bundled”).

153. See Peter C. Carstensen, *Creating Workably Competitive Wholesale Markets in Energy: Necessary Conditions, Structure, and Conduct*, 1 ENVTL. & ENERGY L. & POL’Y J. 85, 91 (2005) (“In the case of production of electricity, the conventional wisdom up to the 1970s was that there were economies of scale as generation facilities got larger and larger.”); Peter Navarro, *A Guidebook and Research Agenda for Restructuring the Electricity Industry*, 16 ENERGY L.J. 347, 350 (1995) (noting that, for the first fifty years of regulation of the electric power industry, “[u]tilities built ever larger and larger power plants to capture economies of scale”).

154. See *New York*, 535 U.S. at 5 (noting “dramatic changes in the power industry that have

regulations changed the cost structure of electric power generation, upsetting settled expectations of stable rates and economies of scale.¹⁵⁵ The Public Utility Regulatory Policies Act of 1978 (PURPA),¹⁵⁶ which required utilities to purchase power from “qualifying facilities” at rates that turned out to be quite favorable to the facilities,¹⁵⁷ enabled and incentivized independent generators to enter the market.¹⁵⁸ Technological developments allowed the creation of large interstate electric power networks, or “grids,” that have enabled utilities to transmit electricity over long distances at relatively low costs.¹⁵⁹

Although certainly not the only contributor, FERC has been a key driver of the transformation of the electric power industry. In 1996, FERC issued its landmark Order 888, which required public utilities to provide non-discriminatory open access transmission services,¹⁶⁰ effectively breaking utilities’ monopoly control of the interstate transmission market. As the legal basis for Order 888, FERC cited its longstanding authority under Federal Power Act section 206 to ensure that wholesale electric power rates are just, reasonable, and non-discriminatory.¹⁶¹

Since 1996, FERC has continued to take actions aimed at bringing

occurred in recent decades”); Paul L. Joskow, *Restructuring, Competition and Regulatory Reform in the U.S. Electricity Sector*, 11 J. ECON. PERSP. 119, 119 (1997) (noting “dramatic changes” in the electric power sector); Jonas Monast & David Hoppock, *Designing CO₂ Performance Standards for a Transitioning Electricity Sector: A Multi-Benefits Framework*, 44 ENVTL. L. REP. NEWS & ANALYSIS 11068, 11069 (2014) (“A number of market, regulatory, and technological factors occurring in a relatively short time frame are resulting in dramatic changes throughout the electricity sector . . .”).

155. See Navarro, *supra* note 153, at 350; Tomain, *supra* note 151, at 450.

156. Public Utility Regulatory Policies Act of 1978, Pub. L. No. 95-617, 92 Stat. 3117 (codified as amended in scattered sections of 16 U.S.C.).

157. Public Utility Regulatory Policies Act (PURPA) § 210, 16 U.S.C. § 824a-3 (2012).

158. See Navarro, *supra* note 153, at 351; Tomain, *supra* note 151, at 451–53.

159. See, e.g., *New York*, 535 U.S. at 7–8 (describing the development of interconnected electric power networks).

160. Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities, 61 Fed. Reg. 21,540 (May 10, 1996) (to be codified at 18 C.F.R. pts. 35, 385) [hereinafter Order 888].

161. *Id.* at 21,560 (“[W]e conclude that we have ample legal authority—indeed, a responsibility—under section 206 of the FPA [16 U.S.C. § 824e] to order the filing of non-discriminatory open access transmission tariffs if we find such order necessary as a remedy for undue discrimination or anticompetitive effects.”). The Energy Policy Act of 1992 had authorized FERC to issue orders to individual utilities requiring them to provide transmission services to unaffiliated wholesale generators. 16 U.S.C. §§ 824j–824k. With Order 888, FERC applied the rationale for such orders to the entire industry, undertaking “a marketwide remedy for a marketwide problem.” *New York*, 535 U.S. at 14.

competition to wholesale power markets.¹⁶² These legal developments have coincided with other technical and economic innovations that have moved the electric power industry away from vertically integrated monopolies and towards the development of smaller, less centralized power services.¹⁶³ Some of these power services will comprise what has become known as the Smart Grid—“a radically upgraded national electric network” that will “provid[e] consumers with dramatic new ways to make, use, and conserve electricity.”¹⁶⁴ In addition to its economic implications for the power sector,¹⁶⁵ this new wave of power services has potentially significant environmental ramifications.¹⁶⁶ This section summarizes four FERC regulatory initiatives that, although founded on the agency’s traditional economic ratemaking authority under the Federal Power Act, have the potential to produce substantial environmental benefits from the energy sector.

1. *Transmission Planning and Cost Allocation*

Congestion in electricity transmission systems poses a significant and recurring challenge to efforts to maintain an electric grid that meets current and evolving energy needs. Transmission congestion leads to imbalances between supply and demand that increase the price of electricity and threaten grid reliability.¹⁶⁷ These imbalances also can allow transmission owners and generators to exercise market power that undermines competition.¹⁶⁸ In addition, inadequate transmission capacity hinders the development of new renewable energy generation resources. Renewable energy development often depends on transmission

162. See Standardization of Generator Interconnection Agreements and Procedures, 68 Fed. Reg. 49,846, 49,847 (Aug. 19, 2003) (to be codified at 18 C.F.R. pt. 35) [hereinafter Order 2003] (“The Commission continues to work to encourage fully competitive bulk power markets.”).

163. See Order 2006, *supra* note 7, at 34,191 (“Where the electric industry was once primarily the domain of vertically integrated utilities generating power at large centralized plants, advances in technology have created a burgeoning market for small power plants . . .”).

164. Joel B. Eisen, *Smart Regulation and Federalism for the Smart Grid*, 37 HARV. ENVTL. L. REV. 1, 2–3 (2013).

165. See Elisabeth Graffy & Steven Kihm, *Does Disruptive Competition Mean a Death Spiral for Electric Utilities?*, 35 ENERGY L.J. 1, 1 (2014) (noting “a wave of innovation in energy markets that manifests as disruptive competition for electric utilities”).

166. See Order 2006, *supra* note 7, at 34,191 (noting that new technologies “may offer economic, reliability, or environmental benefits”).

167. See U.S. DEP’T OF ENERGY, NATIONAL ELECTRIC TRANSMISSION CONGESTION STUDY vii (2009).

168. See Sandeep Vaheesan, *Market Power in Power Markets: The Filed-Rate Doctrine and Competition in Electricity*, 46 U. MICH. J.L. REFORM 921, 931–32 (2013).

connecting generation-favorable areas, such as the wind corridor that runs north-south through the central United States, to heavily populated metropolitan areas that would use the renewable-generated power.¹⁶⁹

Recognizing the challenge that transmission congestion poses, FERC has acted to induce more effective transmission planning. In 2007, FERC issued Order 890,¹⁷⁰ which required transmission providers to develop a transmission planning process that satisfies nine specified principles.¹⁷¹ FERC hoped that enhanced transmission planning would promote increased competition in wholesale electricity markets, leading to just and reasonable rates.¹⁷²

By 2010, however, FERC concluded that, although Order 890's transmission planning mandate had spurred significant transmission planning efforts, more was needed to ensure that transmission planning would be efficient and cost-effective.¹⁷³ Accordingly, in 2011, FERC issued Order 1000,¹⁷⁴ which has generated considerable excitement¹⁷⁵ as well as controversy¹⁷⁶ and undeniably represents an important

169. See Alexandra B. Klass & Elizabeth J. Wilson, *Interstate Transmission Challenges for Renewable Energy: A Federalism Mismatch*, 65 VAND. L. REV. 1801, 1811–12 (2012).

170. Preventing Undue Discrimination and Preference in Transmission Service, 72 Fed. Reg. 12,266 (Feb. 16, 2007) (to be codified at 18 C.F.R. pts. 35, 37) [hereinafter Order 890].

171. The nine transmission planning principles Order 890 requires are: (1) coordination; (2) openness; (3) transparency; (4) information exchange; (5) comparability; (6) dispute resolution; (7) regional participation; (8) economic planning studies; and (9) cost allocation for new projects. See generally *id.*

172. Order 890, *supra* note 170, at 12,266.

173. See Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, 75 Fed. Reg. 37,884, 37,889 (proposed June 30, 2010) (to be codified at 18 C.F.R. pt. 35).

174. Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, 76 Fed. Reg. 49,842 (Aug. 11, 2011) (to be codified at 18 C.F.R. pt. 35) [hereinafter Order 1000].

175. See Adam James & Whitney Allen, *FERC Order 1000: The Most Exciting Energy Regulation You've Never Heard of*, CLIMATE PROGRESS (Oct. 22, 2012, 11:30 AM), <http://thinkprogress.org/climate/2012/10/22/1059091/ferc-order-1000-the-most-exciting-energy-regulation-youve-never-heard-of/>; Kevin Jones & Colin Beckman, *FERC's Order 1000 Seeks to Overhaul Electricity Transmission Planning and Cost Allocation*, VERMONT LAW TOP 10 ENVIRONMENTAL WATCH LIST 2012, <http://watchlist.vermontlaw.edu/bonus-ferc-transmission-rules/> (describing Order 1000 as “an ambitious new policy that aims to accomplish two sizable goals simultaneously”).

176. Numerous parties, including state regulatory agencies, electric transmission providers, regional transmission organizations, and industry trade associations, petitioned for review of Order 1000 in the D.C. Circuit. In August 2014, the D.C. Circuit unanimously upheld Order 1000 against the petitioners' challenges, holding that Order 1000 is consistent with FERC's authority under the Federal Power Act and that the agency acted reasonably in issuing Order 1000. See *S.C. Pub. Serv. Auth. v. FERC*, 762 F.3d 41 (D.C. Cir. 2014).

development in U.S. energy policy.¹⁷⁷

Order 1000, issued pursuant to Federal Power Act section 206,¹⁷⁸ requires four specific changes to transmission planning and cost allocation: regional transmission planning, elimination of a federal right of first refusal, coordinated interregional transmission planning, and cost allocation. First, Order 1000 strengthens Order 890's requirements for regional transmission planning.¹⁷⁹ Order 1000 requires that regional transmission planning processes must evaluate transmission alternatives at the regional, not just local, level;¹⁸⁰ to give comparable consideration to transmission and non-transmission alternatives;¹⁸¹ and to consider state and federal Public Policy Requirements that affect transmission needs.¹⁸² Second, Order 1000 eliminates a federal right of first refusal to transmission facilities.¹⁸³ Third, Order 1000 requires public utility

177. See Emily Holden, *FERC Hears Slew of Order No. 1000 Complaints*, CQ ROLL CALL (Aug. 22, 2013), available at 2013 WL 4477061 (referring to Order 1000 as a "landmark" regulation); *FERC Order 1000-A Challenge for State PUCs*, 4033 PUR UTIL. REG. NEWS, Aug. 19, 2011, at 1 (same).

178. 16 U.S.C. § 824e (2012). Section 206 empowers FERC to "determine the just and reasonable rate, charge, classification, rule, regulation, practice, or contract" affecting a "rate, charge, or classification" by a public utility for transmission or sale of electricity within FERC's jurisdiction. *Id.*

179. Order 1000, *supra* note 174, at 49,845, 49,854–80.

180. *Id.* at 49,845; see also *id.* at 49,867 (noting that Order 890 allowed regional transmission planning that merely confirmed that local transmission plans within a region did not conflict with each other). FERC noted that examining alternatives at the regional level expands the range of alternatives that can be considered, which can lead transmission providers to identify options that may resolve transmission needs more efficiently or cost-effectively than the narrower range of solutions identified at the local level. *Id.* at 49,856. For example, transmission facilities that span the service territories of multiple local providers may meet transmission needs more efficiently than if each local provider plans and constructs its own facilities. *Id.* at 49,857.

181. *Id.* at 49,869.

182. *Id.* at 49,876. Regional planning must affirmatively consider how Public Policy Requirements may affect future transmission needs, and evaluate solutions for meeting those needs. *Id.* at 49,877. FERC defined Public Policy Requirements broadly to include any regulation that drives transmission needs. *Id.* at 49,878. FERC Order 1000-A subsequently clarified that Public Policy Requirements include local, as well as state and federal, regulations that drive transmission needs. *Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities*, 77 Fed. Reg. 32,184, 32,234 (May 31, 2012) (to be codified 18 C.F.R. pt. 35) [hereinafter Order 1000-A].

183. Order 1000, *supra* note 174, at 49,845. Prior regulations allowed incumbent transmission developers to hold rights of first refusal to construct new transmission facilities within their service territories. *Id.* at 49,880–81. FERC concluded that such rights of first refusal gave an undue preference to incumbent transmission providers over non-incumbent transmission providers, creating barriers to entry that potentially increase the cost of developing new transmission facilities. *Id.* at 49,886. Order 1000 eliminates the right of first refusal only for transmission facilities developed through regional planning; it leaves intact, for example, a public utility's ability to build new transmission facilities within its own retail distribution service territory—provided the facilities

transmission providers to coordinate their transmission planning interregionally.¹⁸⁴ Fourth, Order 1000 requires public utility transmission providers to adopt cost allocation methods for new transmission facilities selected in a regional transmission plan or through interregional transmission planning.¹⁸⁵

Transmission planning, and Order 1000's requirements in particular, have important environmental implications, especially for the development of renewable energy. Renewable energy poses particular challenges for transmission because the best sites for renewable energy projects are often located far from urban and suburban areas, where electricity demand is centered.¹⁸⁶ New transmission facilities are then needed to connect renewable energy projects to population centers.¹⁸⁷ By facilitating transmission planning, especially across broader areas, Order 1000 should reduce the obstacles to renewable energy development.¹⁸⁸ Order 1000 also should make transmission planning more responsive to renewable portfolio standards and state laws that require certain percentages of power to come from renewable energy sources.¹⁸⁹ Renewable portfolio standards are an example of Public Policy Requirements that must be considered in regional transmission planning under Order 1000.¹⁹⁰

Order 1000 also has important ramifications for energy efficiency and demand response. Energy efficiency and demand response, both of

are not submitted for regional cost allocation. *Id.* at 49,887. FERC has subsequently clarified, and to some extent limited, Order 1000's elimination of rights of first refusal. *See* Order 1000-A, *supra* note 182, at 32,249–52.

184. Order 1000, *supra* note 174, at 49,846, 49,900–18. FERC concluded that, just as local transmission planning can neglect more efficient and cost-effective regional alternatives, *see supra* note 180 and accompanying text, regional transmission planning can overlook more efficient and cost-effective interregional alternatives, Order 1000, *supra* note 174, at 49,901. To facilitate interregional planning, Order 1000 requires transmission providers to create interregional planning processes and to exchange data and information across neighboring regions, with the goal of identifying and evaluating potential interregional transmission facilities. *Id.*

185. *Id.* at 49,846. These methods must allocate costs in rough proportion to benefits received—thus, a transmission provider may not allocate costs of a new transmission facility to someone who does not benefit from the facility. *Id.* Benefits of new transmission include, but are not limited to, reliability, cost savings, congestion relief, and meeting Public Policy Requirements. *Id.* at 49,937.

186. *See* Shelley Welton & Michael B. Gerrard, *FERC Order 1000 as a New Tool for Promoting Energy Efficiency and Demand Response*, 42 ENVTL. L. REP. NEWS & ANALYSIS 11,025, 11,026–27 (2012).

187. *Id.* at 11,027.

188. *Id.*

189. Sharon Buccino, *Smart from the Start - Good Planning Promises Sustainable Energy Future*, 27 J. LAND USE & ENVTL. L. 369, 381 (2012).

190. *Id.*; Amy L. Stein, *The Tipping Point of Federalism*, 45 CONN. L. REV. 217, 275 (2012).

which reduce demand for electric power, have the potential to reduce the need for additional transmission facilities.¹⁹¹ Energy efficiency and demand response therefore fall within the category of what Order 1000 refers to as “non-transmission alternatives.”¹⁹² FERC’s direction that regional transmission planning processes must give comparable consideration to transmission and non-transmission alternatives has the potential to stimulate the development of energy efficiency and demand response, with consequential environmental benefits.¹⁹³

Numerous nonprofit environmental advocacy organizations—for example, Conservation Law Foundation, Environmental Defense Fund, Natural Resources Defense Council, Clean Air Council, and Earthjustice—commented during FERC’s rulemaking process for Order 1000.¹⁹⁴ Environmental advocates argued in favor of, for example, including non-transmission alternatives,¹⁹⁵ public participation,¹⁹⁶ and explicit consideration of environmental benefits¹⁹⁷ in transmission planning.

FERC did not cite environmental protection as a direct policy justification for Order 1000, despite the significant environmental implications of the Order and the arguments of environmental advocates citing Order 1000’s beneficial environmental consequences. Instead, FERC hewed closely to the language of Federal Power Act section 206, repeatedly tying its determinations to findings that the transmission planning and cost allocation requirements it was imposing would “ensure that Commission-jurisdictional transmission services are provided at just and reasonable rates and on a basis that is just and reasonable and not unduly discriminatory or preferential.”¹⁹⁸ Environmental policy objectives did, however, provide an indirect policy justification for Order 1000, insofar as Order 1000 effectuates federal and state policies—what it calls Public Policy Requirements—some of which are explicitly environmental.¹⁹⁹ But Order 1000 does not actually

191. Welton & Gerrad, *supra* note 186, at 11,027.

192. Order 1000, *supra* note 174, at 49,869.

193. See Welton & Gerrad, *supra* note 186, at 11,027–28 (noting how Order 1000’s mandate to consider non-transmission alternatives has the potential to stimulate energy efficiency and demand-size measures, but raising questions about whether Order 1000 will effectively place transmission and non-transmission alternatives on equal footing).

194. See Order 1000, *supra* note 174, at 49,865, 49,873, 49,967.

195. See *id.* at 49,865.

196. See *id.* at 49,866.

197. See *id.* at 49,946.

198. *Id.* at 49,842.

199. See Stein, *supra* note 190, at 275 (noting that the term Public Policy Requirements “is broad

adopt or internalize the objectives underlying the Public Policy Requirements—indeed, FERC declined even to define exactly what policy objectives Public Policy Requirements encompass.²⁰⁰ Instead, Order 1000 just accepts those Public Policy Requirements as given.

2. *Demand Response*

Demand response refers to reductions in electric energy consumption—nicknamed “negawatts”—in response to an increase in price or to incentive payments.²⁰¹ These demand reductions can substitute for additional electricity generation that otherwise would be required to meet demand.²⁰² Demand response can include load-shifting measures, which transfer energy usage from relatively high-cost periods to lower-cost periods, and load-reducing measures, which reduce net energy usage.²⁰³ Demand response can be especially useful to help the grid match supply and demand during peak periods, when heavy load stresses the grid and causes wholesale electricity spot prices to spike.²⁰⁴

In recent years, FERC has issued a series of orders that facilitate development and integration of demand response resources into wholesale power markets. Demand response can thus bid into the supply side of wholesale power markets, competing with electricity generation as a means of meeting demand. The two most significant of FERC’s demand response orders, Order 719 (2008)²⁰⁵ and Order 745 (2011),²⁰⁶

enough to encompass a large range of federal interests that can include environmental priorities”). To be clear, Public Policy Requirements include, but are not limited to, environmental policies. Moreover, some Public Policy Requirements, such as renewable energy portfolio standards, may have justifications that include, but are not limited to, environmental protection. *See* Davies, *supra* note 151, at 1358 (noting “wide-ranging rationales” for renewable portfolio standards).

200. Order 1000, *supra* note 174, at 49,878.

201. *See* Richard J. Pierce, Jr., *A Primer on Demand Response and a Critique of FERC Order 745*, 3 GEO. WASH. J. ENERGY & ENVTL. L. 102, 104 (2012) (“Negawatt is a term that is sometimes used to equate a unit of electricity saved to a unit consumed, i.e., a megawatt conserved.”).

202. *See* John C. Hilke, *Comments on Peter Carstensen’s “Creating Workably Competitive Wholesale Markets in Energy,”* 1 ENVTL. & ENERGY L. & POL’Y J. 155, 166 (2005) (noting that demand response “effectively converts many customers into potential suppliers of ‘negawatts’—reduced consumption that can substitute for generation”).

203. *See* BRANDON DAVITO ET AL., *THE SMART GRID AND THE PROMISE OF DEMAND-SIDE MANAGEMENT* 38–39 (2010).

204. *Cf.* FED. ENERGY REGULATORY COMM’N, *ASSESSMENT OF DEMAND RESPONSE & ADVANCED METERING 5* (2008), [hereinafter *ASSESSMENT OF DEMAND RESPONSE*], available at <http://www.ferc.gov/legal/staff-reports/demand-response.pdf> (stating that demand response is “centered on critical hours during a day or year when demand is high or when reserve margins are low”).

205. *Wholesale Competition in Regions with Organized Electric Markets*, 73 Fed. Reg. 64,100 (Oct. 28, 2008) (codified at 18 C.F.R. § 35.28) [hereinafter *Order 719*].

essentially directed wholesale market system operators—Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs)²⁰⁷—to treat demand response resources more like electric power generators.²⁰⁸ In short, Order 719 and Order 745 require RTOs and ISOs to treat megawatts more like megawatts.

Order 719 did not aim exclusively at demand response, but instituted a series of measures, which FERC intended to increase competition in organized wholesale electric power markets.²⁰⁹ Many of the measures, however, either focus specifically on demand response or benefit demand response.²¹⁰ The most important of these measures require RTOs and ISOs to permit demand response resources to bid directly into organized wholesale energy markets²¹¹ and competitive markets for ancillary services.²¹² FERC reasoned that enabling demand response to

206. Demand Response Compensation in Organized Wholesale Energy Markets, 76 Fed. Reg. 16,658 (Mar. 24, 2011) (to be codified at 18 C.F.R. pt. 35) [hereinafter Order 745].

207. RTOs and ISOs regionally coordinate planning, operation, and use of the electric transmission grid. *Guide to Market Oversight: Glossary*, FED. ENERGY REG. COMMISSION, <http://www.ferc.gov/market-oversight/guide/glossary.asp> (last visited Nov. 18, 2015); *see also* 18 C.F.R. § 35.34 (2015) (governing RTOs).

208. In addition to the broad policy directives contained in Order 719 and Order 745, FERC has issued orders regarding the measurement and verification of demand response in organized wholesale power markets. *See* Standards for Business Practices and Communication Protocols for Public Utilities, 78 Fed. Reg. 14,654 (Mar. 7, 2013) (to be codified at 18 C.F.R. pt. 38) [hereinafter Order 676-G]; Standards for Business Practices and Communication Protocols for Public Utilities, 75 Fed. Reg. 20,901 (Apr. 22, 2010) (to be codified at 18 C.F.R. pt. 38) [hereinafter Order 676-F]. FERC also has issued narrower orders addressing demand response in specific markets. *See, e.g.*, Order 719, *supra* note 205, at 64,103; Demand Response Supporters, 145 FERC ¶ 61,162 (2013); Midwest Indep. Transmission Sys. Operator, 137 FERC ¶ 61,212 (2011); PJM Interconnection, 146 FERC ¶ 61,052 (2014).

209. Order 719, *supra* note 205, at 64,100. Order 719 also imposes other requirements on RTOs and ISOs. They must allow demand response resources to specify limits on the number of hours, number of times per day, and amount of electric energy reduction they are bidding in the ancillary services market. 18 C.F.R. § 35.28(g)(1)(i)(B). They may not assess charges on electric power purchasers for reducing their purchases during times of shortage or during periods of load reductions to avoid a shortage. *Id.* § 35.28(g)(1)(ii). They must allow prices to rebalance supply and demand during periods of operating reserve shortage. *Id.* § 35.28(g)(1)(iv). They must provide a Web-based platform for market participants to offer to buy or sell power on a long-term basis. *Id.* § 35.28(g)(2). They must take measures to increase the effectiveness of their Market Monitoring Units. *Id.* § 35.28(g)(3). They must release their offer and bid data. *Id.* § 35.28(g)(5). They must adopt practices and procedures to make their boards of directors responsive to customers and other stakeholders. *Id.* § 35.28(g)(6).

210. *See* Order 719, *supra* note 205, at 64,100 (noting demand response as an area addressed by Order 719).

211. 18 C.F.R. § 35.28(g)(1)(iii). An organized wholesale energy market is a competitive day-ahead and/or real-time market. Order 719, *supra* note 205, at 64,101.

212. 18 C.F.R. § 35.28(g)(1)(i)(A). FERC defines ancillary services as “[t]hose services necessary to support the transmission of electric power from seller to purchaser, given the

participate more effectively in power markets increases competition in those markets, promoting just and reasonable rates.²¹³

Unlike Order 719, Order 745 focuses on demand response, and specifically on the compensation paid to demand response resources that participate in wholesale energy markets. Building on Order 719, which required RTOs and ISOs to allow demand response resources to participate in organized wholesale energy markets, Order 745 requires RTOs and ISOs to pay demand response resources the market price for energy—that is, the same price received by generators selling power into wholesale markets.²¹⁴

Because demand response reduces or redistributes consumption (and therefore generation) of electric power, it has potentially significant environmental effects. Several nonprofit environmental organizations commenting on FERC's proposed rules argued that demand response creates important environmental benefits by displacing fossil fuel-combusting electricity generation, either directly by reducing overall demand²¹⁵ or indirectly by facilitating the integration of variable renewable resources such as wind and solar into the grid.²¹⁶ Some energy law scholars have similarly argued that demand response can “reduc[e] greenhouse gas emissions and the need for constructing new power plants.”²¹⁷

Generator-affiliated commenters, on the other hand, argued that incentivizing demand response would lead power customers to reduce their purchases of grid power by increasing their use of off-grid power, for example from on-site diesel generators. These off-grid power sources

obligations of control areas and transmitting utilities within those control areas, to maintain reliable operations of the interconnected transmission system.” *Guide to Market Oversight: Glossary*, *supra* note 207.

213. Order 719, *supra* note 205, at 64,101.

214. 18 C.F.R. § 35.28(g)(1)(v). See generally Joel Eisen, *Who Regulates the Smart Grid?: FERC's Authority over Demand Response Compensation in Wholesale Electricity Markets*, 4 SAN DIEGO J. CLIMATE & ENERGY L. 69 (2013) Eisen's Article offers legal and policy justifications for Order 745. Richard Pierce, by contrast, has expressed skepticism about Order 745, including its ability to effectively internalize the environmental externalities associated with electric power generation. See Pierce, *supra* note 201, at 107. But see *id.* at 109 (nevertheless concluding that Order 745 “offers the prospect of some marginal improvement in the performance of U.S. electricity markets”).

215. Order 745, *supra* note 206, at 16,664 (noting comments on the uninternalized environmental externalities that result from fossil fuel generated electricity as compared with demand response).

216. See Order 719, *supra* note 205, at 64,104 (“Public Interest Organizations assert that the presence of demand response in these markets will mitigate the exercise of market power and allow large amounts of variable resources (e.g., wind and solar) to be integrated into the grid.”).

217. Eisen, *supra* note 214, at 71.

may produce more emissions than grid power generation.²¹⁸ Some scholars and analysts have expressed a similar concern that demand response may actually increase carbon emissions. This is because demand response, responding to economic incentives, may shift electricity use from high-cost peak load periods to lower-cost off peak periods. But more generation during off peak periods comes from coal-fired power plants, whereas generation during peak load involves more relatively low-emission natural gas plants.²¹⁹

FERC's own analysis has been cautious, referring to "possible environmental benefits" from demand response.²²⁰ FERC notes that "[d]emand response may provide environmental benefits by reducing generation plants' emissions during peak periods," but also that "[r]eductions during peak periods should be balanced against possible emissions increases during off-peak hours, as well as from increased use of on-site generation."²²¹ FERC's Orders 719 and 745 do not ascribe any environmental benefits to demand response.

To some extent, FERC's reticence to consider the environmental implications of demand response may reflect the factual uncertainty over those implications. But FERC's reticence likely also reflects its continuing legal position that the just and reasonable standard does not incorporate environmental considerations.²²² Supportive of this conclusion, FERC exempted Order 719 and Order 745 from NEPA review on the ground that it merely involved "rates and charges for the transmission or sale [of electric energy]."²²³

The overall environmental effect of demand response likely depends

218. Order 745, *supra* note 206, at 16,664 (citing the comment of the Electric Power Supply Association); see also U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-14-73, *ELECTRICITY MARKETS: DEMAND-RESPONSE ACTIVITIES HAVE INCREASED, BUT FERC COULD IMPROVE DATA COLLECTION AND REPORTING EFFORTS* 46 (2014) (noting that "[s]ome consumers may use backup generators . . . to generate electricity to offset some or all of their demand reductions" and that such generators "may be more polluting than the power plants serving the grid").

219. See ELEC. POWER RESEARCH INST., *THE GREEN GRID: ENERGY SAVINGS AND CARBON EMISSIONS REDUCTIONS ENABLED BY A SMART GRID* 6-5 (2008); Sharon B. Jacobs, *Bypassing Federalism and the Administrative Law of Negawatts*, 100 IOWA L. REV. 885, 926-27 (2015); Michael P. Vandenberg & Jim Rossi, *Good for You, Bad for Us: The Financial Disincentive for Net Demand Reduction*, 65 VAND. L. REV. 1527, 1541-43 (2012).

220. See ASSESSMENT OF DEMAND RESPONSE, *supra* note 204, at 6.

221. *Id.*

222. See Regulations Implementing National Environmental Policy Act of 1969, 52 Fed. Reg. 47,897, 47,900 (Dec. 17, 1987) (to be codified at 18 C.F.R. pts. 2, 157, 380); Monongahela Power Co., 39 FERC ¶ 61,350, 62,096-97 (1987).

223. Order 745, *supra* note 206, at 16,677 (citing 18 C.F.R. § 380.4(a)(15)); Wholesale Competition in Regions with Organized Electric Markets, 73 Fed. Reg. 64,100, 64,165 (Oct. 28, 2008) (to be codified at 18 C. F. R. pt. 35) (citing 18 C. F. R. § 380.4(a)(15)).

on the relative balance between load-shifting measures and load-reducing measures.²²⁴ Load-shifting measures are not likely to reduce (and may even increase) energy use and emissions,²²⁵ whereas load-reducing measures reduce energy use and emissions. The available evidence suggests that demand response measures will tend to reduce energy use and emissions.²²⁶ The evidence also indicates that demand response's indirect environmental effects, which operate by facilitating greater integration of renewable energy generation, will have an even greater environmental benefit.²²⁷

Because of the differing impacts of load-shifting versus load-reducing demand response, whether demand response results in environmental benefits depends, to a significant extent, on how it is managed and what forms of demand response are incentivized. Under FERC's interpretation, ratified by the courts, the Federal Power Act gives FERC little, if any, authority to regulate energy transactions. This includes demand response, for the direct purpose of accomplishing environmental objectives.²²⁸ Other federal, state, and local regulators, however, do have that authority. Pursuant to its authority under the Clean Air Act, for example, EPA regulates diesel generators that are sometimes used for on-site generation as part of demand response.²²⁹ Included in these

224. See DAVITO ET AL., *supra* note 203 and accompanying text (explaining how demand response utilizes both load-shifting and load-reducing measures).

225. *But see* Carl Imhoff, *Policies Get Smart*, PUB. UTIL. FORT., June 1, 2008, at 28 (contending that even load-shifting demand response measures can reduce emissions by shifting load from peak periods served by less efficient peaking plants to "shoulder periods" served by more efficient plants).

226. See ELEC. POWER RESEARCH INST., *supra* note 219, at 6-2 to 6-5 (citing results of an assessment of California concluding that demand response technology results in net energy savings and a study modeling New England concluding that demand response reduces emissions of carbon dioxide, nitrogen oxides, and sulfur oxides); NAVIGANT CONSULTING, INC., CARBON DIOXIDE REDUCTIONS FROM DEMAND RESPONSE 1 (2014) (estimating that demand response "can directly reduce CO₂ emissions by more than 1 percent through peak load reductions and provision of ancillary services").

227. See ELEC. POWER RESEARCH INST., *supra* note 219, at 9-2 to 9-3 (estimating that demand response and other Smart Grid infrastructure may reduce U.S. CO₂ emissions by between 18 and 37 million metric tons by 2030); NAVIGANT CONSULTING, INC., *supra* note 226, at 1 (estimating that demand response "can indirectly reduce CO₂ emissions by more than 1 percent through accelerating changes in the fuel mix and increasing renewable penetration").

228. See DAVITO ET AL., *supra* note 203 and accompanying text.

229. See National Emissions Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines, New Source Performance Standards for Stationary Internal Combustion Engines, 78 Fed. Reg. 6674 (Jan. 30, 2013) (to be codified at 40 C.F.R. pts. 60, 63). The 2013 rule's 100-hour limit, with the goal of enabling greater use of generators for demand response to promote grid reliability, relaxed a 2010 rule that limited backup generators to fifteen hours per year as part of a demand response program. *Id.* at 6675. The D.C. Circuit recently vacated this portion of the 2013

regulations are specific limits on the operation of such generators for demand response.²³⁰ Ultimately, demand response appears to have significant potential to reduce air pollutant emissions, if supported by environmental policies that channel demand response toward environmentally beneficial energy usage.

FERC's efforts to expand demand response through wholesale markets hit a significant legal snag in 2014. Five energy industry associations²³¹ petitioned for review of Order 745 in the D.C. Circuit. On May 23, 2014, a divided panel of that court vacated Order 745—holding that it exceeded FERC's jurisdiction over wholesale electric power markets under the Federal Power Act.²³² The panel majority held that demand response, because it involves end users of electricity who are customers in the retail market, is inherently a phenomenon of the retail market and therefore outside of FERC's jurisdiction.²³³ FERC filed a successful petition for certiorari in the Supreme Court, which will hear the case in its October 2015 Term.²³⁴ Even if FERC is unsuccessful in reviving Order 745, it still may find ways to preserve or extend other demand response initiatives, including assisting states in developing robust demand response policies.²³⁵

3. *Energy Storage*

In recent years, FERC has issued several orders relating to energy storage. As with the transmission planning and demand response orders,

rule and remanded it to EPA. *See* Del. Dep't of Nat. Res. & Envtl. Control v. EPA, 785 F.3d 1, 15–18 (D.C. Cir. 2015) (faulting EPA for failing to respond adequately to concerns raised in public comments, relying on faulty evidence, failing to consider limiting the exception to areas not served by organized capacity markets, and not obtaining the views of FERC or the North American Electric Reliability Corporation); *see also infra* note 333.

230. National Emissions Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines, New Source Performance Standards for Stationary Internal Combustion Engines, 78 Fed. Reg. at 6679–81.

231. The five petitioners, aligned with the interests of electric power generators who under Order 745 faced competition from demand response resources bidding into wholesale electric power markets, were the Electric Power Supply Association, American Public Power Association, National Rural Electric Cooperative Association, Old Dominion Electric Cooperative, and Edison Electric Institute. *See Elec. Power Supply Ass'n v. FERC*, 753 F.3d 216 (D.C. Cir. 2014).

232. *See id.* at 224.

233. *Id.* at 221.

234. *See Elec. Power Supply Ass'n*, 753 F.3d 216, *cert. granted sub nom*, *EnerNOC, Inc. v. Elec. Power Supply Ass'n*, 135 S. Ct. 2049 (May 4, 2015).

235. *See, e.g.,* Jasmin Melvin, *As Legal Challenges Drag on, States Must Take up Demand Response Authority, Say Attorneys*, INSIDE FERC, July 21, 2014, at 1 (noting that FERC has other available mechanisms for promoting demand response).

FERC has acted pursuant to its authority under the Federal Power Act to ensure rates in wholesale electricity markets are “just and reasonable.”²³⁶ Also as with the transmission planning and demand response orders, FERC—while maintaining a regulatory rationale rooted in economic regulation—has adopted policies that have very significant environmental impacts and environmental justifications.

Energy storage involves storing previously generated electricity and then releasing it at a later time when it is more useful or valuable to the grid.²³⁷ Energy storage technologies include “batteries, flywheels, electrochemical capacitors, compressed air storage, thermal storage devices and pumped hydroelectric power.”²³⁸ Although some forms of energy storage—primarily pumped hydroelectric power—have been in use for many decades, new technologies have the potential to increase energy storage opportunities dramatically.²³⁹ At the same time, changes to the electric power grid, including the integration of distributed generation resources that generate variable amounts of power, are increasing the value of storage that can release energy at short notice to backup reductions in generation.²⁴⁰

In 2011, FERC issued Order 755,²⁴¹ which requires RTOs and ISOs to compensate frequency regulation in a manner that takes into account its actual value to the grid. Frequency regulation involves a little known,

236. *See, e.g.*, 16 U.S.C. § 824d(a) (2012) (“All rates and charges made, demanded, or received by any public utility for or in connection with the transmission or sale of electric energy subject to the jurisdiction of the Commission, and all rules and regulations affecting or pertaining to such rates or charges shall be just and reasonable, and any such rate or charge that is not just and reasonable is hereby declared to be unlawful.”); *id.* § 824e(a) (directing FERC, when it has found a public utility rate to be “unjust, unreasonable, unduly discriminatory or preferential,” to “determine the just and reasonable rate, charge, classification, rule, regulation, practice, or contract to be thereafter observed and in force, and shall fix the same by order”); *id.* § 824o(d)(2) (“The Commission may approve, by rule or order, a proposed reliability standard or modification to a reliability standard if it determines that the standard is just, reasonable, not unduly discriminatory or preferential, and in the public interest.”).

237. MATTHEW DEAL ET AL., CAL. PUB. UTIL. COMM’N, ELECTRIC ENERGY STORAGE: AN ASSESSMENT OF POTENTIAL BARRIERS AND OPPORTUNITIES 1, 2 (2010), available at <http://www.cpuc.ca.gov/PUC/energy/reports.htm>. *See generally* Amy L. Stein, *Reconsidering Regulatory Uncertainty: Making a Case for Energy Storage*, 41 FLA. ST. U. L. REV. 697, 705–09 (2014) (summarizing energy storage technologies).

238. DEAL ET AL., *supra* note 237, at 3.

239. Stein, *supra* note 237, at 700.

240. *See* PAUL DENHOLM ET AL., NAT’L RENEWABLE ENERGY LAB., TECHNICAL REPORT NO. NREL/TP-6A2-47187, THE ROLE OF ENERGY STORAGE WITH RENEWABLE ELECTRICITY GENERATION 1, 17–18 (2010), available at <http://www.nrel.gov/docs/fy10osti/47187.pdf>; Matthew L. Wald, *Energy Storage Plans Gain Ground in California*, N.Y. TIMES, Dec. 22, 2014, at B10.

241. *See* Frequency Regulation Compensation in the Organized Wholesale Power Markets, 76 Fed. Reg. 67,260 (Oct. 31, 2011) (to be codified at 18 C.F.R. pt. 35) [hereinafter Order 755].

but essential aspect of managing the electrical grid. The nature of electric power is such that electrical grid operators, to maintain reliability, must constantly balance supply and demand with very little variation in frequency.²⁴² This frequency regulation requires quick responses, because both system load and generator output constantly fluctuate.²⁴³ The faster a frequency regulation resource can respond (ramping ability), and the more accurately it can respond, the more valuable the resource to the grid.²⁴⁴ Traditionally, grid operators used small generators, specially designed to respond to a grid operator's automatic generator control signal, for frequency regulation.²⁴⁵ More recently, new resources such as demand response and energy storage can be used for frequency regulation, often with faster ramping ability.²⁴⁶ In 2011, FERC determined that that RTOs and ISOs were not sufficiently accounting for performance in compensating frequency regulation and were not paying a uniform market-clearing price.²⁴⁷ Order 755 accordingly requires RTOs and ISOs to compensate frequency regulation resources with a uniform price paid to all cleared resources plus a performance payment reflecting ramping speed.²⁴⁸

In addition to Order 755, FERC has issued other orders that govern the integration of energy storage into the electrical grid. FERC Order 784²⁴⁹ revised FERC's accounting and reporting requirements to address transactions associated with energy storage operations.²⁵⁰ FERC Order 792²⁵¹ revised FERC's Small Generator Interconnection Procedures and Small Generator Interconnection Agreement to include energy storage.²⁵² Neither Order 784 nor 792 necessarily increases the

242. *Id.* at 67,261.

243. See BRENDAN J. KIRBY, OAK RIDGE NAT'L LAB., NO. TM-2004/291, FREQUENCY REGULATION BASICS AND TRENDS 3 (2004), available at <http://ferc.gov/EventCalendar/Files/20100526085937-Kirby,%20Frequency%20Regulation%20Basics%20and%20Trends.pdf>.

244. Order 755, *supra* note 241, at 67,261.

245. See Kirby, *supra* note 243, at 3.

246. Order 755, *supra* note 241, at 67,261.

247. See *id.* at 67,260.

248. 18 C.F.R. § 35.28(g)(8) (2015).

249. Third-Party Provision of Ancillary Services, Accounting and Financial Reporting for New Electric Storage Technologies, 78 Fed. Reg. 46,178 (July 30, 2013) (to be codified at 18 C.F.R. pts. 35, 101) [hereinafter Order 784].

250. *Id.* at 46,195–99.

251. Small Generator Interconnection Agreements and Procedures, 78 Fed. Reg. 73,240 (Dec. 5, 2013) (to be codified at 18 C.F.R. pt. 35) [hereinafter Order 792].

252. *Id.* at 73,269.

incentives for energy storage, but both Orders attempt to ensure that energy storage resources will have access to power markets under terms and conditions comparable to those that apply to traditional power resources.²⁵³

Environmental advocacy organizations commented in support of each of FERC's energy storage-related orders.²⁵⁴ These environmental commenters attributed their participation to their objective of promoting integration of energy efficiency, demand response, and renewable resources into the electricity grid.²⁵⁵

4. *Standard Interconnection Agreements*

One of the most important legal drivers of innovation in the electric power industry has been FERC's efforts to develop competitive power markets, beginning with Order 888, which is founded on the principle of non-discriminatory open access to transmission services.²⁵⁶ "Interconnection is an element of transmission," FERC concluded.²⁵⁷

FERC thereafter issued Order 2003, which requires utilities to adopt certain standard generator interconnection procedures and an agreement.²⁵⁸ In issuing Order 2003, FERC explained that a competitive transmission market requires "relatively unencumbered entry into the market," that interconnection provides a mechanism for market entry, and that creating a standard set of procedures and agreement for interconnections would facilitate interconnection.²⁵⁹ Order 2003, however, applies only to large generators with capacity greater than twenty megawatts.²⁶⁰

253. *See, e.g.*, Order 784, *supra* note 249, at 46,199.

254. *See* Order 792, *supra* note 251, at 73,277 (listing Public Interest Organizations, which includes numerous environmental groups, and the Union of Concerned Scientists as commenters); Order 784, *supra* note 249, at 46,212 (listing Public Interest Organizations, which includes numerous environmental groups, as commenters); Order 755, *supra* note 241, at 67,285 (listing the Environmental Defense Fund and Public Interest Organizations as commenters).

255. *See, e.g.*, Env'tl. Def. Fund, Comment Letter on Proposed Rulemaking on Frequency Regulation Compensation in the Organized Wholesale Power Markets 1 (May 2, 2011) (commenting on Order 755, *supra* note 241).

256. Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities, 61 Fed. Reg. 21,540 (May 10, 1996) (to be codified at 18 C.F.R. pts. 35 and 385) [hereinafter Order 888]; *see also supra* notes 160–61 and accompanying text.

257. Standardization of Generator Interconnection Agreements and Procedures, 67 Fed. Reg. 22,250, 22,251 (proposed May 2, 2002) (to be codified at 18 C.F.R. pt. 35).

258. Standardization of Generator Interconnection Agreements and Procedures, 68 Fed. Reg. 49,846 (Aug. 19, 2003) (to be codified at 18 C.F.R. pt. 35) [hereinafter Order 2003].

259. *Id.* at 49,848.

260. *Id.* at 49,846. Because they apply to large generators, the procedures are known as the Large

In 2005, FERC issued Order 2006, which sets forth standard interconnection procedures and an agreement for small generators with capacity of twenty megawatts or less.²⁶¹ Since issuing Order 2006, FERC has followed up with Order 792, which amends the small generator procedures to further facilitate interconnection by small generators.²⁶² In support of Order 792, FERC cited the strong growth in small-scale, grid-connected renewable energy generation, driven in part by state renewable portfolio standards, which will create a need for more interconnections.²⁶³ Order 792 also clarified that the definition of a small generation facility under Order 2006 may include energy storage devices.²⁶⁴

B. Environmental Policies that Align with Energy Objectives

Like FERC, EPA has pursued policies that create energy-environment alignments. One of EPA's policies that aligns with energy objectives occurred at Congress's direction in the Clean Air Act Amendments of 1990.²⁶⁵ Another more recent policy, the much-anticipated and wildly controversial Clean Power Plan, occurred at the agency's own initiative.

1. Acid Rain Program's Conservation and Renewable Energy Credits

In the 1980s, television, newspapers, and scientific journals published alarming reports of the problem of acid rain.²⁶⁶ Acidic precipitation

Generator Interconnection Procedures (LGIP). *Id.* at 49,847. FERC initially proposed interconnection procedures that would have applied to all generators, but then severed small generators into a separate rulemaking after concluding that the procedures for large generators would impose unnecessary burdens on small generators. *Id.* at 49,848–49.

261. *See* Order 2006, *supra* note 7. The procedures are known as the Small Generator Interconnection Procedures (SGIP). *Id.* at 34,190.

262. Small Generator Interconnection Agreements and Procedures, 78 Fed. Reg. 73,240 (Dec. 5, 2013) (to be codified at 18 C.F.R. pt. 35) [hereinafter Order 792].

263. *Id.* at 73,245.

264. *Id.* at 73,269.

265. Clean Air Act Amendments of 1990, Pub. L. No. 101-549, 104 Stat. 2399.

266. As EPA has described,

Acid rain is the accepted term which encompasses a complex set of phenomena that begins with fossil fuel emissions, includes the transport and transformation of those emissions through the atmosphere, and ends with the effects of those emissions and their resulting transformation products on the environment The presence of these emissions and their transformation products in the atmosphere contributes to reduced visibility and is suspected of posing a threat to human health at current levels.

Acid Rain Program: Permits, Allowance System, Continuous Emissions Monitoring, and Excess Emissions, 56 Fed. Reg. 63,002, 63,004 (proposed Dec. 3, 1991) (to be codified at 40 C.F.R. pts.

caused by sulfur dioxide emissions from burning fossil fuels was killing trees, fish, and aquatic vegetation.²⁶⁷ A *New York Times* opinion piece labeled acid rain the *Stealthy Destruction from the Sky*.²⁶⁸

The 1990 Clean Air Act Amendments created a regulatory program to address the problem of acid rain.²⁶⁹ The program initiated a cap-and-trade system that mandated reductions in sulfur dioxide emissions, primarily from coal-fired power plants owned by electric utilities, and allowed regulated sources to market their unused emission allowances.²⁷⁰ The program allocated up to 300,000 bonus allowances²⁷¹ for electric utilities that reduced their sulfur dioxide emissions earlier than required by using energy conservation measures or renewable energy sources.²⁷²

To qualify for these special allowances, electric utilities had to meet specified standards.²⁷³ The program was available only to utilities that owned or operated at least one generation unit regulated by the new Acid Rain Program.²⁷⁴ Electric utility companies had to designate the energy conservation measures and renewable energy sources that formed the basis for the allowances they sought.²⁷⁵ They also had to quantify the sulfur dioxide emissions avoided through these measures and sources in

72, 73, 75, 77).

267. Philip H. Abelson, *Acid Rain*, 221 SCIENCE 115, 115 (1983); *Acid Rain Assailed in New Hampshire*, N.Y. TIMES (Mar. 10, 1983), <http://www.nytimes.com/1983/03/10/us/acid-rain-assaile-d-in-new-hampshire.html>; Ronald Kotulak, 'Acid Rain' Means a Dead Lake, 'Acid Rain' Means Pollution, THE DAY (New London, Conn.), Apr. 4, 1982, at D4; *Tapped Out: Vermont's Poor Maple Sap Harvest Linked to Acid Rain*, NBC LEARN, <https://highered.nbclearn.com/portal/site/HigherEd/flatview?cuecard=41184> (last visited Nov. 8, 2015) (providing transcript of NBC News broadcast from Apr. 18, 1987).

268. Maureen Ogden, Op-Ed., *Stealthy Destruction from the Sky*, N.Y. TIMES, May 22, 1983, at NJ34.

269. Clean Air Act §§ 401–416, 42 U.S.C. §§ 7651–7651o (2012).

270. See Ann E. Carlson, *Iterative Federalism and Climate Change*, 103 NW. U. L. REV. 1097, 1144 (2009); Spence, *supra* note 16, at 190.

271. Each allowance authorizes a source to emit one ton of sulfur dioxide. Clean Air Act § 402(3), 42 U.S.C. § 7651a(3).

272. *Id.* § 404(f), 42 U.S.C. § 7651c(f). In addition to the bonus allowances that reward early emissions reductions, utilities can also effectively earn allowances by adopting conservation measures that reduce electric power generation; such conservation measures automatically earn allowances when the utility reduces generation and therefore emissions. See *EPA Pushes 'Nega-Allowances' to Boost DSM as Tool to Cut Acid Rain Emissions*, UTIL. ENV'T REP., Nov. 13, 1992, at 4.

273. Clean Air Act § 404(f)(2)(B), 42 U.S.C. § 7651c(f)(2)(B).

274. 42 U.S.C. § 7651c(f)(2)(B)(v).

275. *Id.* § 7651c(f)(2)(D)(i)(I).

accordance with EPA regulations.²⁷⁶ To qualify for the special allowances, energy conservation or renewable energy measures had to be consistent with a plan for meeting demand “at the lowest system cost.”²⁷⁷ The Secretary of Energy had to certify that adopting energy conservation measures would not reduce the electric utility’s net income.²⁷⁸ The state regulatory authority with jurisdiction over the utility had to certify the accuracy of the utility’s application for special allowances.²⁷⁹

Some of these requirements pertained to the environmental objectives of the Acid Rain Program. Limiting the special allowances to utilities that were part of the Acid Rain Program, requiring the utilities to provide evidence and quantification of reduced energy use, and requiring the utilities to obtain a certification from their state regulatory authorities all helped to ensure that the special allowances were granted for actual emissions reductions.

But other of these requirements pertained to energy policy, not environmental, objectives. The idea of meeting demand “at the lowest system cost” incorporates energy law’s objective of keeping energy costs low—for example, as reflected in the “just and reasonable” standard that pervades energy statutes.²⁸⁰ The requirement that energy conservation measures may not reduce a utility’s net income derives

276. *Id.* § 7651c(f)(2)(D)(i)(II).

277. *Id.* § 7651c(f)(2)(B)(iii).

278. *Id.* § 7651c(f)(2)(B)(iv).

279. *Id.* § 7651c(f)(2)(D).

280. *See supra* Part I.A. To be more specific, “lowest system cost” is associated with the concept of integrated resource planning, which originated in the 1980s. *See* Lesley K. McAllister, *Adaptive Mitigation in the Electric Power Sector*, 2011 BYU L. REV. 2115, 2151 (2011). Integrated resource planning is “a planning and selection process for new energy resources that evaluates the full range of alternatives . . . in order to provide adequate and reliable service to its electric customers at the lowest system cost.” 16 U.S.C. § 2602(19) (2012). This contrasts with more traditional energy approaches, which focused on supply-side alternatives and neglected demand-side measures. *See* McAllister, *supra*, at 2151. Subsequent to the 1990 Clean Air Act Amendments, the Energy Policy Act of 1992 imposed some integrated resource planning requirements on the energy sector. *See* 15 U.S.C. § 3203(b)(3) (2012) (requiring gas utilities to employ integrated resource planning “to provide adequate and reliable service to its gas customers at the lowest system cost”); 16 U.S.C. § 831m-1(b)(1) (requiring the Tennessee Valley Authority to “employ and implement a planning and selection process for new energy resources which evaluates the full range of existing and incremental resources . . . in order to provide adequate and reliable service to electric customers of the Tennessee Valley Authority at the lowest system cost”); *id.* § 2621(d)(7) (requiring electric utilities to employ integrated resource planning); 42 U.S.C. § 7275(2) (defining “integrated resource planning” as “a planning process for new energy resources that evaluates the full range of alternatives . . . in order to provide adequate and reliable service to its electric customers at the lowest system cost”); *id.* § 7276(a) (requiring customers of the Western Area Power Administration “to implement . . . integrated resource planning”).

from concerns that energy conservation, by reducing electric power sales, can undermine utilities' cost recovery structure.²⁸¹

Thus, the Clean Air Act's Conservation and Renewable Energy Credits were as much an energy policy as they were an environmental policy.²⁸² Indeed, the congressional authors of the program argued to the energy sector that their legislation "provides an opportunity" for utilities, state public utility commissions, and utility customers—in addition to environmental interests—to benefit.²⁸³

2. *Clean Power Plan*

EPA's Clean Power Plan is the centerpiece of the agency's efforts to address climate change.²⁸⁴ The problem of anthropogenic climate change looms over all other environmental issues, in terms of the scope of the harms it threatens and the complexities and difficulties of both the problem and potential mitigating responses.²⁸⁵ While Congress has failed

281. See Edward J. Markey & Carlos J. Moorhead, *The Clean Air Act and Bonus Allowances*, PUB. UTIL. FORT., May 15, 1991, at 31, 31–32 (noting that "this element is critical to the successful pursuit of conservation measures because it addresses the revenue loss and other financial penalties traditionally associated with reduced electricity sales"). A similar concern applies to demand response, where FERC has acknowledged the possibility that "dispatching demand response resources may result in an increased cost per unit (\$/MWh) to the remaining wholesale load associated with the decreased amount of load paying the bill." Order 745, *supra* note 206, at 16,659. In Order 745, FERC referred to this as the "billing unit effect." *Id.* To address the billing unit effect in demand response, FERC Order 745 requires RTOs and ISOs to use a "net benefits test," which "ensure[s] that the overall benefit of the reduced LMP that results from dispatching demand response resources exceeds the cost of dispatching and paying LMP to those resources." *Id.* FERC's net benefits test thus performs a function similar to the "net income" test in the Clean Air Act Acid Rain Program. *Id.*

282. See Markey & Moorhead, *supra* note 281, at 31 (hailing the Clean Air Act Amendments of 1990 as "the most important and far-reaching energy legislation considered by the president and Congress in a decade").

283. See *id.* at 33–34.

284. *Clean Power Plan for Existing Power Plants*, U.S. ENVTL. PROTECTION AGENCY (Aug. 20, 2015), <http://www2.epa.gov/cleanpowerplan/clean-power-plan-existing-power-plants> (referring to the Clean Power Plan as "a historic and important step in reducing carbon pollution from power plants that takes real action on climate change").

285. See Richard J. Lazarus, *Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future*, 94 CORNELL L. REV. 1153, 1159–60 (2009) (explaining that climate change is a "super wicked problem" because of its "enormous interdependencies, uncertainties, circularities, and conflicting stakeholders"; because "the longer it takes to address the problem, the harder it will be to do so"; because "those who are in the best position to address the problem . . . [have] the least immediate incentive to act"; and because of "the absence of an existing institutional framework of government with the ability to develop, implement, and maintain the laws necessary to address a problem of climate change's tremendous spatial and temporal scope"); Kelly Levin et al., *Playing It Forward: Path Dependency, Progressive Incrementalism, and the "Super Wicked" Problem of Global Climate Change* 5–8 (June 3, 2010) (unpublished manuscript) (on file with

to take significant action on the issue,²⁸⁶ EPA has moved forward with addressing climate change under its existing statutory authorities, primarily the Clean Air Act.²⁸⁷ Because energy-related activities account for the vast majority of anthropogenic greenhouse gas emissions in the United States,²⁸⁸ they have been the focus of EPA's climate change regulatory initiatives.²⁸⁹

In October 2015, EPA published its Clean Power Plan, which requires states to reduce greenhouse gas emissions from existing fossil fuel-fired electric generating units by thirty percent by 2030.²⁹⁰ EPA promulgated the Clean Power Plan under Clean Air Act section 111(d), which directs the agency to establish a procedure for states to develop standards of performance for certain existing sources of air pollutant emissions.²⁹¹

Section 111 provides that the standards must limit emissions to the extent "achievable through the application of the best system of emission reduction."²⁹² EPA's Plan identifies three categories of strategies—which EPA calls "building blocks"—that can comprise a best system of emission reduction.²⁹³ First, states can improve operation and maintenance and add equipment upgrades that improve the fuel efficiency of existing coal plants.²⁹⁴ Second, states can shift generation

Washington Law Review) (originating the term "super wicked" and applying it to the problem of climate change).

286. See generally Carl Hulse & David M. Herszenhorn, *Democrats Call Off Effort for Climate Bill in Senate*, N.Y. TIMES, July 23, 2010, at A15; Elizabeth Kolbert, *Uncomfortable Climate*, NEW YORKER, Nov. 22, 2010, at 53; Ryan Lizza, *As the World Burns*, NEW YORKER, Oct. 11, 2010, at 70.

287. See *Util. Air Regulatory Grp. v. EPA*, 134 S. Ct. 2427, 2436–38 (2014); *Climate Change: Regulatory Initiatives*, U.S. ENVTL. PROTECTION AGENCY (Sept. 15, 2015), <http://www.epa.gov/climatechange/EPAactivities/regulatory-initiatives.html>.

288. See INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS, *supra* note 1, at 3-1 (reporting that, in 2012, energy-related activities accounted for 84.3% of anthropogenic greenhouse gas emissions in the United States).

289. In addition to the proposed performance standards for existing power plants, other EPA climate change regulation has addressed emissions from vehicles, *see, e.g.*, 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, 77 Fed. Reg. 62,624 (Oct. 15, 2012) (to be codified at 49 C.F.R. pts. 523, 531, 533, 536, 537), and proposed performance standards for new power plants, *see* Standards of Performance for Greenhouse Gas Emissions from New Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 1430 (proposed Jan. 8, 2014) (to be codified at 40 C.F.R. pts. 60, 70, 71, 98).

290. Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. 64,662, 64,663 (Oct. 23, 2015) (to be codified at 40 C.F.R. pt. 60).

291. Clean Air Act § 111(d), 42 U.S.C. § 7411(d) (2012).

292. *Id.* § 111(a)(1), 42 U.S.C. § 111(a)(1).

293. Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. at 64,667.

294. *Id.* at 64,745. The equipment upgrades do not include construction of carbon capture and

from coal plants to existing natural gas-fired power plants.²⁹⁵ Third, states can increase their use of renewable and nuclear power plants.²⁹⁶ States can choose from among these building blocks to meet their state-specific emissions reduction goals.²⁹⁷

In issuing the Plan, EPA acknowledged that it would have important ramifications for the operation of the electric power system, including grid reliability.²⁹⁸ EPA intends for its Plan to “reinforce” efforts that states and utilities are making to modernize their electric power systems.²⁹⁹ EPA developed its proposal with the intent to give states sufficient flexibility to develop carbon reduction plans that also fully satisfy their energy policy goals, such as preserving diversity of fuel sources, maintaining reliability, and providing affordable electricity.³⁰⁰ In furtherance of this goal, EPA undertook extensive consultation with governmental and non-governmental actors from the energy sector, including FERC, state energy regulators, and system operators.³⁰¹

storage technology or converting coal plants to natural gas, both of which EPA concluded would likely be more expensive than other emissions reduction strategies. *Id.* at 64,728.

295. *Id.* at 64,745–47.

296. *Id.* at 64,747–78. EPA’s proposed rule included a fourth building block, improved end-use energy efficiency. Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34,830, 34,858, 34,871–75 (proposed June 18, 2014) (to be codified at 40 C.F.R. pt. 60). EPA had estimated that states could reduce their electricity use by at least 1.5% through energy efficiency measures and had factored emissions reductions through increased end-use energy efficiency into each state’s emissions limitations. *Id.* at 34,872. The final Clean Power Plan allows states to use end-use energy efficiency as a means of meeting their emissions limitations, but does not use end-use energy efficiency as a factor in determining states’ emissions limitations. Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. at 64,673–74.

297. Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 80 Fed. Reg. at 64,665 (“States will have the flexibility to choose from a range of plan approaches and measures, including numerous measures beyond those considered in setting the CO₂ emission performance rates, and this final rule allows and encourages states to adopt the most effective set of solutions for their circumstances, taking account of cost and other considerations.”).

298. *Id.* at 64,663, 63,671.

299. *Id.* at 64,678.

300. *Id.* at 64,679.

301. *Id.* at 64,704–07 (describing EPA meetings with stakeholders). Some difference of opinion exists as to whether EPA’s Plan contains sufficient flexibility in its requirements that it can avoid negatively affecting grid reliability. *Compare id.* at 64,679 (predicting that Plan will “maintain[] the reliability . . . of electricity in the U.S.”), with Bobby McMahon, *FERC, DOE to Coordinate with EPA on Reliability as Commissioners Speak Out on CPP*, INSIDE FERC, Aug. 10, 2015, at 1 (noting concerns, including some from FERC commissioners, that the Clean Power Plans will negatively affect reliability).

C. *Bridging the Energy-Environment Divide*

The policies described in this Part³⁰² represent a distinctive type of energy-environment policy interaction. A *policy alignment* involves policies in one field that align with, without directly adopting, the objectives of another field—for example, energy policies that align with environmental objectives, and environmental policies that align with energy objectives. Policy alignments avoid much of the dysfunctionality of the energy-environment divide that is perpetuated and exacerbated by the more typical energy and environmental policies described earlier in this Article.³⁰³

1. *Key Characteristics*

Energy-environment policy alignments have certain key characteristics that define them as a category and help to distinguish them from other approaches to managing energy-environment interrelationships. Policy alignments simultaneously support the policy objectives of multiple interacting legal fields—here, energy law and environmental law. Energy-environment policy alignments occur when energy policies, while still promoting energy objectives, align with environmental objectives or when environmental policies, while still promoting environmental objectives, align with energy objectives. Policy alignments thus reflect several important insights regarding energy-environment interactions: energy and environmental goals are not necessarily in conflict; energy and environmental goals indeed may be complementary; and energy and environmental policies can aim to leverage complementarity rather than just to manage conflict.

Aligned policies support the objectives of other fields while maintaining their focus on the objectives of their own field. The energy policies discussed in Part III.A derive their authority and objectives from the Federal Power Act. Although the effect of these energy policies is to encourage conditions that yield environmental benefits, they retain their focus on economic regulation to promote efficient energy markets. The environmental policies discussed in Part III.B derive their authority and objectives from the Clean Air Act.³⁰⁴ Although the effect of these

302. *See supra* Part III.A–B.

303. *See supra* Parts III.

304. The Acid Rain Program discussed *supra* in Part III.B.1 did involve a legislative amendment to the Clean Air Act as part of the Clean Air Act Amendments of 1990. But the Acid Rain Program—although innovative in its use of market-based regulatory mechanisms, *see* Jonathan B. Wiener, *Something Borrowed for Something Blue: Legal Transplants and the Evolution of Global*

environmental policies is to encourage conditions that maintain or improve the efficiency of energy markets, they retain their overall primary focus on limiting air pollutant emissions.

Policy alignments thus enable FERC to generate environmental benefits without adopting environmental objectives, and EPA to promote the efficiency of energy markets without adopting energy objectives. In both cases, a modest but significant reframing of the regulatory framework within each field allows the development of complementary policies that create synergistic policy alignments with other fields. Policy alignments do not require either FERC or EPA to depart from its established policy objectives or statutory authorities.

That being said, although policy alignments firmly reside within their respective fields, they also challenge traditional legal categories. FERC's Order 1000,³⁰⁵ for example, is in many respects a typical energy regulation. It was issued by FERC, an energy regulator; is directed at RTOs and ISOs, paragons of the energy sector; under the auspices of the Federal Power Act, a canonical energy statute.³⁰⁶ But by other measures Order 1000 is significantly environmental: Its environmental effects may exceed those of many environmental policies and environmental organizations actively participated in FERC's rulemaking process.³⁰⁷ Similar observations can be made about EPA's proposed Clean Power Plan. It is being developed by EPA, an environmental regulator; is directed at power plants, classic targets of environmental regulation; under the authority of the Clean Air Act, a canonical environmental statute.³⁰⁸ But the effects of the Clean Power Plan on the energy sector are such that it may be one of the most important energy policies in recent history.

Although policy alignments involve overlapping regulatory areas, they differ substantially from the type of intensive interagency effort required in, for example, a joint rulemaking.³⁰⁹ Policy alignments allow each agency to stay within its traditional statutory framework; the

Environmental Law, 27 *ECOLOGY L.Q.* 1295, 1315 (2001)—is very much exemplary of the emissions limitation-based approach to environmental regulation that pervades environmental law. Thus, the Acid Rain Program retained the Clean Air Act's overall structure and objectives.

305. Order 1000, *supra* note 174.

306. *See supra* Part III.A.1.

307. *See supra* notes 194–97 and accompanying text.

308. *See supra* Part III.B.2.

309. *See, e.g.*, Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles, 76 *Fed. Reg.* 57,106 (Sept. 15, 2011) (to be codified at 40 *C.F.R.* pts. 85, 86, 600, 1033, 1036, 1037, 1039, 1065, 1066, 1068) (joint rule of EPA and Department of Transportation).

interdependence of the agencies' policies does not create formally shared regulatory space.³¹⁰ This phenomenon obviates some of the need for formal coordination mechanisms.³¹¹ Policy alignments can instead rely on informal coordination mechanisms, which can be as simple as considering another agency's regulatory activities, without detailed direct communication.³¹² In this way, policy alignments can create law that takes advantages of potential synergies across legal fields without creating complex and potentially burdensome new regulatory bodies or legal regimes.

When more active coordination or interagency supervision is needed, it is available as an option to agencies. Active coordination has advantages—it may allow agencies, for example, to leverage their respective expertise.³¹³ By not requiring active coordination, however, policy alignments allow agencies to tailor the extent of their coordination to the specific circumstances of their interdependence. Most of the policy alignments discussed in this Article, for example, appear not to have involved active collaboration between FERC and EPA, and there is no indication that the policies were weaker as a result. Concerns about the reliability impacts of the Clean Power Plan, however, appear to be leading to more active coordination between FERC and EPA.³¹⁴

310. See Jody Freeman & Jim Rossi, *Agency Coordination in Shared Regulatory Space*, 125 HARV. L. REV. 1131, 1134 (2012) (discussing the “shared regulatory space” created by “fragmented and overlapping delegations of power to administrative agencies”).

311. Cf. *id.* at 1145–51 (discussing “four types of multiple-agency delegations”: “overlapping agency functions,” “related jurisdictional assignments,” “interacting jurisdictional assignments,” and “delegations requiring concurrence”).

312. See Todd S. Aagaard, *Regulatory Overlap, Overlapping Legal Fields, and Statutory Discontinuities*, 29 VA. ENVTL. L.J. 237, 290 (2011); cf. Freeman & Rossi, *supra* note 310, at 1156 (“Informal coordination regularly occurs without any explicit communication between agencies, as where one agency observes what another agency is doing or anticipates another agency’s decisions and adjusts its decisions accordingly to avoid tension or friction.”).

313. See Freeman & Rossi, *supra* note 310, at 1184; Nina A. Mendelson, *Disclosing “Political” Oversight of Agency Decision Making*, 108 MICH. L. REV. 1127, 1135 (2010) (noting benefits of presidential supervision, including coordinating agencies).

314. See, e.g., Letter from Norman C. Bay, Chairman, FERC et al., to Janet G. McCabe, Acting Assistant Adm’r, Office of Air & Radiation, EPA (May 15, 2015), available at <https://www.ferc.gov/media/headlines/2015/ferc-letter-epa.pdf> (noting that FERC held a series of technical conferences regarding the implications of the Clean Power Plan for grid reliability and addressing issues raised at the conferences); Keith Goldberg, *EPA Leaning on FERC to Blunt Clean Power Plan Grid Effect*, LAW360 (Apr. 28, 2015, 3:50 PM), <http://www.law360.com/articles/648711/epa-leaning-on-ferc-to-blunt-clean-power-plan-grid-effect> (noting statements from EPA Administrator Gina McCarthy that EPA worked closely with FERC to address concerns about the effects of the Clean Power Plan on grid reliability). The apparent ability and willingness of EPA and FERC to modulate their extent of collaboration based on the circumstances—for example,

2. *Advantages*

Energy-environment policy alignments provide an alternative to requirements as a means of managing interactions between energy law and environmental law. Although requirements have their benefits, and even may be necessary in some situations, in many circumstances policy alignments exhibit strong advantages over requirements.

Both policy alignments and requirements are means of managing interactions across legal fields and across agency jurisdictions. Requirements manage those interactions by imposing negative constraints—that is, by placing limits on one field to prevent it from interfering with another field. Thus, for example, the Clean Air Act’s conformity requirement prevents FERC’s energy programs—as well as other agencies’ programs—from causing certain deteriorations in air quality.³¹⁵ In doing so, however, the conformity requirement may prevent projects that would advance FERC’s goal of ensuring affordable and ample energy supplies. RCRA’s hydraulic fracturing exclusion similarly prevents EPA’s hazardous waste regulations from interfering with the production of oil and natural gas.³¹⁶ In doing so, however, the exclusion may prevent EPA from taking action against oil and gas practices that threaten human or environmental health.

Policy alignments, by contrast, manage interactions between fields by leveraging opportunities for policies that can simultaneously promote the objectives of both fields, thereby creating interagency synergies. Thus, FERC’s demand response orders utilize a traditional mechanism of energy regulation—rate regulation—to regulate the price paid for demand response services.³¹⁷ In doing so, FERC incentivizes reductions in electricity usage that advance an *energy policy* objective—increasing the economic efficiency and competitiveness of wholesale electric power markets—and also potentially promote the environmental goal of reducing emissions from electric power generation. EPA’s Clean Power Plan will similarly incentivize reductions in unnecessary electricity generation, advancing the agency’s environmental goals while also

collaborating more actively with respect to the Clean Power Plan than for transmission planning—may alleviate concerns that agencies will take advantage of informal coordination to avoid more costly active collaboration mechanisms, such as joint rulemaking, even when more active collaboration would be worthwhile.

315. See *supra* note 108 and accompanying text (discussing Clean Air Act § 176, 42 U.S.C. § 7506 (2012)).

316. See *supra* notes 128–29 (discussing RCRA § 3001(b)(2), 42 U.S.C. § 6921(b)(2)).

317. See *supra* Part III.A.2 (discussing FERC Orders 719 and 745).

promoting more efficient energy markets.³¹⁸ The Power Plan, moreover, utilizes a traditional *environmental policy* mechanism—limiting pollutant emissions—to accomplish its objective.³¹⁹

The energy-environment policy alignments described above³²⁰ are taking advantage of opportunities created by dramatic changes in the energy sector focused in electricity markets. For example, energy technologies such as renewable energy generation, demand response, and energy storage are creating opportunities for energy options that are more economically efficient and less environmentally harmful. The existence of these opportunities creates a space for potential energy-environment policy synergies that FERC and EPA can promote through policy alignments.

The frequent and active participation of environmental organizations in FERC rulemaking proceedings³²¹ suggests that the potential environmental benefits of FERC policies are perceived as real and significant. The mixed reaction of FERC and state energy regulators to EPA's Clean Power Plan, by contrast, may suggest that its potential energy benefits are less clear or more contingent. Alternatively, critiques of the Clean Power Plan coming from some corners of the energy sector may merely indicate that the Plan threatens to disrupt the energy sector, which may in fact enhance efficiency and competition.

Policy alignments, when feasible, provide a model for managing energy-environment interactions that is generally superior to the negative constraints model exemplified by energy requirements and environmental requirements. The negative constraints model applies only in the event of a conflict between energy objectives and environmental objectives and attempts to manage that conflict by imposing limits on each respective field. Policy alignments, by contrast, attempt to direct energy and environmental policies in mutually compatible and even complementary directions—for example, by creating incentives for energy markets to develop in ways that both

318. See *supra* Part III.B.2 (discussing EPA's proposed Clean Power Plan).

319. A skeptic might dispute the distinction between negative constraints and synergies, and argue that the policy alignments outlined in Part III.A–B also operate as negative constraints—for example, that Acid Rain Program's Conservation and Renewable Energy Credits impose limits on electric power. This may be true of emissions limitations generally; emissions limitations constrain the generation of electric power for the sake of environmental benefits. Conservation and renewable energy credits, by contrast, take advantage of ways of generating power that promote both energy objectives and environmental objectives.

320. See *supra* Part III.A–B.

321. See *supra* notes 194–97, 215–16, 254–55 and accompanying text.

increase economic efficiency and reduce pollutant emissions.³²²

3. *Limitations*

Despite their advantage over negative constraints, policy alignments are not superior in every respect. Alignments have limitations that should be considered in designing policies to manage energy-environment interactions.

First, policy alignments only work when interacting objectives can be reconciled. To the extent objectives pose unavoidable conflicts, requirements may be necessary, as a backstop to alignments, to manage those conflicts. Indeed, even the policy alignments described above use requirements to a limited extent. Because demand response can lead to diesel-powered on-site generation with high pollutant emissions, EPA regulations limit the use of diesel generators for demand response.³²³ The Acid Rain program's energy conservation credits also contain requirements that limit the use of energy conservation to ensure that energy conservation programs do not unduly increase electricity rates or undermine a utility's cost recovery structure.³²⁴ Concern about the reliability impacts of the Clean Power Plan³²⁵ may indicate that some energy requirements will be appropriate there as well.

The fact that requirements may sometimes be necessary, however, does not undermine the contributions that policy alignments can make. In fact, requirements and alignments can work together as part of an overall strategy, with alignments leveraging synergies where they can be created, and requirements managing conflicts where they unavoidably occur. This is much better than relying merely on requirements, which have effect only by imposing negative constraints.

Second, policy alignments also can call into question the legitimacy of an agency action because they raise the prospect that an agency's

322. The examples of energy-environment policy alignments offered here are not necessarily ideal or optimal policies. FERC Order 745 has been accused of overcompensating demand response. *See Pierce, supra* note 201, at 108. Order 1000 has been criticized for not requiring cost allocation for non-transmission alternatives. *See Welton & Gerrard, supra* note 186, at 11. EPA's Clean Power Plan has been maligned for allegedly threatening grid reliability. *See McMahon, supra* note 301. Whether or not any of these specific criticisms are accurate, the policies inevitably will fall short of their ambitious objectives in some respect. But no policies are perfect, and none of these criticisms calls into question the general approach of policy alignments as a model for managing the energy-environment relationship. Similar shortcomings may pervade policies that follow the negative constraints model.

323. *See supra* notes 229–30 and accompanying text.

324. *See supra* notes 280–81 and accompanying text.

325. *See supra* note 301.

motives may diverge from its stated objectives. For example, despite FERC's stated justification for Order 1000, which relied exclusively on Federal Power Act section 206's authority to set just and reasonable rates for electricity transmission services,³²⁶ some may suspect that FERC's reliance on section 206 was pretextual, and that the agency issued Order 1000 to promote renewable energy development for environmental reasons, which would be contrary to the agency's proffered rationale for the rule and arguably contrary to FERC's own interpretations of its statutory authority under the Federal Power Act.³²⁷ Remarks by commentators praising Order 1000 for its environmental benefits³²⁸ may stoke such concerns. A lack of transparency and departure from statutory authority are among the graver sins an agency can commit.³²⁹ Transparency begets accountability, which in turn begets legitimacy.³³⁰ Thus, the legitimacy of an agency's action may be called into question if its policy alignments implicate objectives that the agency does not acknowledge and that are outside of the agency's mandate.³³¹

However, rationality—another core dictate for agencies³³²—requires taking into account interactions among regulatory programs. The mere fact that FERC's actions in furtherance of the Federal Power Act's energy policy objectives may also create additional, environmental benefits not endorsed by FERC's statutes but complementary to EPA's regulatory programs should not impugn the legitimacy of FERC's

326. See, e.g., Order 1000, *supra* note 174, at 49,844.

327. See *supra* note 118.

328. See, e.g., James & Allen, *supra* note 175 (opining that Order 1000 represents a “huge step” toward clean energy).

329. See, e.g., *Owner-Operator Indep. Drivers Ass'n, Inc. v. Fed. Motor Carrier Safety Admin.*, 494 F.3d 188, 202 (D.C. Cir. 2007) (vacating agency rule because the agency failed to disclose supporting documents it relied upon to develop the rule); *Michigan v. EPA*, 268 F.3d 1075, 1081 (D.C. Cir. 2001) (noting that a federal agency is “a creature of statute” which has “only those authorities conferred upon it by Congress”).

330. See Louis J. Virelli III, *Science, Politics, and Administrative Legitimacy*, 78 MO. L. REV. 511, 517 (2013).

331. In this respect, *Massachusetts v. EPA*, 549 U.S. 497 (2007), stands as a warning for agencies whose motivations diverge from their statutory mandate. In that case, EPA had denied a rulemaking petition for policy reasons that differed from the standard set forth in the Clean Air Act. *Id.* at 533–34. The Supreme Court set aside EPA's decision, holding that the agency must “exercise discretion within defined statutory limits.” *Id.* at 533. The question of the validity of EPA's action would have become somewhat more complicated, however, had EPA cited reasons tied to the Clean Air Act standard, while acting with other, unacknowledged motivations.

332. See, e.g., *NLRB v. United Food & Commercial Workers*, 484 U.S. 112, 123 (1987) (noting that an agency's statutory construction must be “rational and consistent with the statute”); *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins.*, 463 U.S. 29, 42 (1983) (holding that a court reviewing agency action should inquire, among other things, whether action was rational).

actions. Indeed, taking into account the interaction of overlapping and related regulatory programs allows them to work as a coherent whole. As long as an agency, by considering these impacts, does not contradict congressional directives, it should be valid.³³³

Third, policy alignments introduce greater complexity in policy design. Agencies face numerous challenges in achieving the ambitious policy goals with which they are charged: statutes that grant only limited statutory authority, budgets that restrict resources, and often hostile members of Congress and outside interest groups that exert political pressure. These challenges make it difficult enough for agencies to accomplish their own objectives; asking agencies to consider other agencies' goals may seem like an absurd overreach.

The answer to this concern is that policy alignments may complicate policy design, but they should often generate offsetting benefits that justify the complication.³³⁴ Although asking agencies to consider an expanded and diversified range of objectives in some senses increases the complexity of their mission, it also aligns the programs with the reality of the context in which they operate. Agencies that operate in policy silos, unaware of how their policies interact with other agencies' policies, cannot expect their policies to be effective. Other agencies' objectives are an essential part of the policy context in which agencies

333. That being said, agencies must proceed cautiously in pursuing a policy objective that falls primarily within another agency's mission. The recent case of *Delaware Department of Natural Resources & Environmental Control v. EPA*, 785 F.3d 1 (D.C. Cir. 2015), provides a cautionary tale with regard to agency coordination, or lack thereof, in such situations. The case involved a challenge to an EPA rule under the Clean Air Act regulating emissions from backup diesel generators. *Id.* at 4. The rule allowed backup generators to operate for up to 100 hours per year for emergency demand response to promote grid reliability. *Id.* at 6. Yet EPA had dismissed comments questioning the rule's relationship to grid reliability, noting that such concerns were primarily within FERC's authority. *Id.* at 18. In vacating that portion of the rule, the D.C. Circuit faulted EPA for attempting to "have it both ways" by "simultaneously rely[ing] on reliability concerns and then brush[ing] off comments about those concerns as beyond its purview." *Id.* The court "encourage[d]" EPA, on remand, to consult with FERC about the rule's relationship to grid reliability. *Id.* Read narrowly, *Delaware* merely stands for the rather obvious proposition that an agency should not attempt to disavow responsibility for a policy objective it also cites as the basis for its rule. More broadly, however, the case indicates that courts may be inclined to less deference when an agency regulates to promote a policy objective that lies primarily within another agency's expertise and authority, especially when the agency taking the action has not consulted with the other, expert agency.

334. The benefits of policy alignments to manage interactions across policy objectives likely depends on the intensity of the interactions. In this regard, the energy-environment seems particularly fruitful territory for using policy alignments. Energy and the environment have always interrelated, but they are becoming increasingly interdependent. *See supra* notes 1–10 and accompanying text. The development of a smart grid on the energy side and climate change mitigation policies on the environmental side are creating more opportunities for policy alignments that will allow energy and environmental policies to work in concert rather than at cross-purposes.

operate, and so the effective implementation of agency policy demands policy design that takes into consideration other agencies' objectives. Indeed, urging agencies to consider other agencies' objectives counteracts the tunnel vision that can afflict agencies and lead them to pursue their otherwise legitimate objectives in ways that put them at cross-purposes with broader policy goals³³⁵—the classic problem of energy law, with its sometimes excessive devotion to reducing energy prices. Asking agencies to consider other policy objectives beyond their core mission internalizes tensions among policies; when agencies maintain their blinders, the effects of policy interactions are externalized to the regulated community and beneficiaries.

In addition, agencies already face mandates to consider other agencies' policy objectives, in the form of requirements such as those described in Part II. The question frequently is not, therefore, whether to require agencies to consider other policy goals, but rather how agencies should consider other policy goals. And in this respect, it is not clear that policy alignments are any more difficult or complex than requirements for agencies to consider.

4. *Implications*

Highlighting the contributions that policy alignments can make to develop more coherent energy-environment policies has several implications for scholars, advocates, analysts, and policymakers interested in improving energy and environmental policy.

First, in thinking about ways to manage energy-environment interactions, we should look for opportunities to create policy alignments. The examples described above,³³⁶ which focus on federal energy and environmental regulation of the electric power industry, suggest that energy-environment policy alignments can be both feasible and effective. It remains to be seen whether such opportunities can be replicated in other energy markets.

Perhaps the most promising area for extending energy-environment policy alignments is the natural gas industry. Domestic production of natural gas has boomed in recent years.³³⁷ Natural gas also generates

335. Cf. Samuel J. Rascoff & Richard L. Revesz, *The Biases of Risk Tradeoff Analysis: Towards Parity in Environmental and Health-and-Safety Regulation*, 69 U. CHI. L. REV. 1763, 1767 (2002) (“‘Tunnel vision’ within agencies prevents them from considering ancillary effects . . .”).

336. See *supra* Part III.A–B.

337. See John M. Golden & Hannah J. Wiseman, *The Fracking Revolution: Shale Gas as a Case Study in Innovation Policy*, 64 EMORY L.J. 955, 964–66 (2015).

fewer pollutant emissions than other fossil fuels.³³⁸ As a result, somewhat similar to electricity, natural gas provides the policy context of an industry that is rapidly changing, potentially in ways with significant environmental benefits.

Can FERC align its natural gas regulation with EPA's environmental regulation to create policy synergies? One of the difficulties of pursuing policy synergies with natural gas is that it occupies a heavily contested position in environmental policy.³³⁹ On the one hand, natural gas burns significantly cleaner than coal or oil.³⁴⁰ On the other hand, natural gas still generates emissions, unlike non-fossil-fuel energy sources.³⁴¹

Energy-environment policy alignments in natural gas might also be fruitful at the federal and state levels. One possible example would be stricter state oil and gas conservation laws that would limit flaring or venting natural gas, which would have the effects of avoiding waste—a traditional objective of energy law—and reducing emissions.³⁴²

Second, analyses of the energy-environment divide and arguments in favor of greener energy policies should take into account the subtle, implicit, and indirect ways in which energy law and environmental law already are interacting through policy alignments. These ongoing alignments may somewhat undercut normative arguments for more dramatic steps to integrate energy and environmental law. If, for example, FERC Order 1000 can create something of a system of interstate coordination of transmission needs arising from environmentally inspired state-level Public Policy Requirements such as

338. See *id.* at 967–68.

339. See, e.g., Richard J. Pierce, Jr., *Natural Gas: A Long Bridge to a Promising Destination*, 32 UTAH ENVTL. L. REV. 245 (2012) (arguing that the natural gas boom “will not take the U.S. everywhere we would like to go, [but] it is likely to take the U.S. to a destination that is a major improvement over the status quo, measured with reference to any plausible set of national or international goals”); *Why Move Beyond Natural Gas?*, SIERRA CLUB, <http://content.sierraclub.org/naturalgas/why-move-beyond-natural-gas> (last visited Oct. 2, 2015) (“Fracking for natural gas damages the land, pollutes water and air, and causes illness in surrounding communities. It is also a major threat to our climate. It is clear that we cannot transition from one fossil fuel to another and expect to see major climate benefits.”).

340. See Gary C. Bryner, *The National Energy Policy: Assessing Energy Policy Choices*, 73 U. COLO. L. REV. 341, 405 (2002) (noting that “natural gas is a cleaner fossil fuel than coal or oil”); Hannah Wiseman, *Expanding Regional Renewable Governance*, 35 HARV. ENVTL. L. REV. 477, 490 (2011) (“Natural gas, in contrast to coal and oil, is a cleaner fossil fuel because it emits fewer air pollutants (including greenhouse gases) when burned.”).

341. See Amy L. Stein, *Renewable Energy Through Agency Action*, 84 U. COLO. L. REV. 651, 662–63 (2013).

342. See generally Alexandra B. Klass & Danielle Meinhardt, *Transporting Oil and Gas: U.S. Infrastructure Challenges*, 100 IOWA L. REV. 947, 1014 (2015) (reviewing the problem of natural gas flaring, and potential solutions, from oil wells in North Dakota).

renewable portfolio standards, this may in turn somewhat reduce the comparative advantages of federal-level Public Policy Requirements.³⁴³

Third, at the very least, we should recognize that existing energy-environment policy alignments redefine the normative and descriptive baseline from which arguments for integrating energy law and environmental law should build. For example, arguments for creating national renewable portfolio standards³⁴⁴ should take into account the interstate coordination already underway pursuant to Order 1000, so as to take advantage and account of those efforts and not to undermine them.

Beyond questions of policy design, energy-environment policy alignments—and in particular the development of energy policies that align with environmental objectives without adopting those objectives—should prompt us to broaden our understanding of what constitutes environmental law. In previous work I have argued in favor of defining environmental law as “laws that reflect a consideration of human impacts on the natural environment.”³⁴⁵ I also have argued, however, in favor of giving greater attention to *indirect environmental laws* that, although not adopted for environmental purposes, have important environmental effects.³⁴⁶ FERC policies that are part of energy-environment policy alignments exemplify indirect environmental laws.

Using indirect environmental laws to pursue environmental objectives through energy-environment policy alignments generates advantages over relying solely on environmental statutes to address environmental problems.³⁴⁷ As the energy-environment policy alignments illustrate, indirect environmental laws can work synergistically with environmental statutes.³⁴⁸ Indirect environmental law diversifies and expands the field of environmental law, bringing a broader set of policy tools to bear on environmental problems.³⁴⁹ The policy mechanisms of FERC’s economic regulation—for example, rate setting—differ markedly from EPA’s regulatory mechanisms under its pollution statutes, which

343. See, e.g., Davies, *supra* note 151 (arguing for advantages of federal renewable portfolio standards).

344. See, e.g., *id.* at 1366–75.

345. Todd S. Aagaard, *Environmental Law as a Legal Field: An Inquiry in Legal Taxonomy*, 95 CORNELL L. REV. 221, 263 (2010).

346. *Id.* at 263–64 n.181. See generally Todd S. Aagaard, *Using Non-Environmental Law to Accomplish Environmental Objectives*, 30 J. LAND USE & ENVTL. L. 35 (2014) [hereinafter Aagaard, *Using Non-Environmental Law*].

347. Aagaard, *Using Non-Environmental Law*, *supra* note 346, at 55–59.

348. See *id.* at 55–56.

349. See *id.* at 56.

primarily involve imposing limits on emissions. Indirect environmental law also benefits from its non-environmental connections.³⁵⁰ FERC policies that facilitate the development of renewable energy may reduce pollutant emissions in ways not achievable by emissions limits alone. Finally, indirect environmental laws involve different political dynamics than environmental laws, which in some circumstances may be more constructive than environmental law.³⁵¹

CONCLUSION

Given the extensive overlap between energy and environmental issues, energy regulators and environmental regulators must find some way to manage energy-environment interactions. These interrelationships are tricky to manage, because energy law and environmental law reflect divergent orientations that create tensions. The traditional approach has attempted to manage energy-environment interrelationships by imposing requirements—forms of negative constraints—on each regulator. FERC's energy policies must comply with requirements set forth in environmental statutes, and EPA's environmental statutes contain energy-related requirements and exemptions. But this approach exacerbates, rather than alleviates, tensions between the divergent orientations of energy and environmental law.

Policy alignments provide an innovative and attractive model for a different approach to managing energy-environment relationships. Policy alignments occur when policies within one field, while still promoting the objectives of that field, align with the objectives of another field as well. A string of recent FERC orders and EPA's proposed Clean Power Plan exemplify the ability of policy alignments that effectuate both energy and environmental goals. The results are energy and environmental policies that focus on creating energy-environment synergies, rather than merely trying to avoid conflicts.

The policy alignment model has potential application beyond federal energy and environmental law. Within energy and environmental law, policy alignments may productively manage other areas of jurisdictional overlap, such as the relationship between EPA and the Occupational Safety and Health Administration in regulating occupational health risks.³⁵² The policy alignment model also may provide an effective

350. *See id.* at 56–57.

351. *See id.* at 57–59.

352. *See* Aagaard, *supra* note 312 (describing EPA and OSHA policies within their area of

mechanism for managing federal-state regulatory relationships within energy and environmental law—for example, in the way that FERC’s Order 1000 builds state public policy requirements into federal transmission planning.³⁵³

The policy alignment model also may apply beyond the energy-environment overlap as well. Many other legal fields—for example, antitrust and securities regulation,³⁵⁴ environmental law and bankruptcy,³⁵⁵ and criminal law and immigration law³⁵⁶—intersect, sometimes creating tensions. Where there is tension or conflict, a frequent approach is to arrange the competing paradigms in a hierarchy—securities law trumps antitrust law,³⁵⁷ or bankruptcy trumps environmental law.³⁵⁸ Such an approach is akin to the negative constraints model reviewed and criticized in this Article.³⁵⁹ Although conflicts may sometimes be unavoidable, and where they cannot be avoided must be managed, a model of addressing inter-field relationships that relies primarily or exclusively on negative constraints sells short the possibilities for, and benefits of, reconciling overlapping legal regimes. Hopefully FERC and EPA will continue to develop energy-environment policy alignments, and thereby provide examples for constructively managing energy-environment relationships—and other intersecting fields as well.

jurisdictional overlap that resemble policy alignments).

353. See *supra* note 182 and accompanying text.

354. See, e.g., *Credit Suisse Sec. (USA) LLC v. Billing*, 551 U.S. 264 (2007).

355. See, e.g., *In re Jensen*, 995 F.2d 925 (9th Cir. 1993).

356. See, e.g., *Padilla v. Kentucky*, 559 U.S. 356 (2010).

357. See *Credit Suisse*, 551 U.S. at 285 (holding that federal securities laws implicitly preclude the application of antitrust laws to the alleged conduct of firms that market and distribute newly issued securities).

358. See *Jensen*, 995 F.2d at 931 (holding that state’s claim for hazardous waste cleanup costs was discharged in bankruptcy because state had pre-petition knowledge of debtors’ potential liability).

359. See *supra* Part II.