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A Challenge for Federalism: Achieving National Goals in the Electricity Industry

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A CHALLENGE FOR FEDERALISM

TABLE OF CONTENTS

Introduction.....	
Part I: Primer in Electricity Policy History – The Expanding Role of the Federal Government.....	212
A. The Establishment of State Public Utility Commissions	212
B. The Growth of Electricity and the Emergence of Federal Jurisdiction.....	216
C. Congress Sets National Electricity Policy Goals	224
D. Restructuring of the 1990s and the Growing Powers of FERC..	231
E. Differences Between the States	241
Part II: Current Issues in Electricity Policy – Transmission and Clean Energy	247
A. National Electricity Policies and Goals	247
B. Transmission	250
C. Clean Electricity	261
Conclusion: Maintaining the Federal-State Balance.....	274

INTRODUCTION

Initially, federal legislation respected the established jurisdiction of states over their electricity industries, but those bright-line boundaries have long faded. Congress first asserted its authority over electricity for the purpose of regulating interstate transactions, which were beyond the jurisdictional limits of state commissions. Federal authorities were mostly distinct from the traditional functions of states. However, over the past four decades, Congress and the Federal Energy Regulatory Commission have moved further into the regulatory spaces once reserved for the states in attempt to unify state policies around national goals. Despite repeated federal efforts, state legislation and regulatory choices continue to push the electricity industries of the various states along vastly different paths. In Part I, this paper examines the history of electricity regulation with a focus on the jurisdictional limits of state and federal powers. Part I highlights Congressional grants of new authority to federal agencies as well as assertions of major authority by federal regulators. Part I concludes with an overview of state-by-state electricity industries with a focus on key areas of distinction.

Part II explores national reforms to transmission siting and "clean electricity" generation in light of the history examined in Part I. It concludes that if Congress does pass new legislation in these areas it should appreciate the range of legal and regulatory histories and preferences at the state level. Rather than usurping state authority and imposing nationwide regulatory programs, Congress should follow its own precedent by respecting the decision making authority of states and spurring reform at the state level. Given the complexity of an industry that varies widely around the country, states may be in the best position to allocate the local costs of meeting national goals. Motivating states to reform and granting them flexibility will allow for a variety of regulatory approaches and allow states to develop policies that match their current situations and long-term priorities. Such policy diversity will enable innovation and dampen the effects of mistakes and market failures.

A CHALLENGE FOR FEDERALISM

PART I: PRIMER IN ELECTRICITY POLICY HISTORY – THE EXPANDING ROLE OF THE FEDERAL GOVERNMENT

A. *The Establishment of State Public Utility Commissions*

Electricity regulation by states began in 1907 with the passage of public utility laws in New York and Wisconsin. “[U]tility regulation as it is known today dates from this legislation,”¹ as the basic elements of these 1907 laws were replicated around the country.

Technological innovation in electricity production in the late 19th and early 20th centuries enabled industry consolidation, which led to geographic monopolies, thus creating a rationale for robust government regulation. Although Thomas Edison, who was granted the first electric franchise,² is credited with creating the electricity industry, its modern day structure was established by his one-time secretary, Samuel Insull. Edison’s early generators were only capable of transmitting electricity a few city blocks; therefore his business model relied on small scale and decentralized power plants.³ Only a few years after the opening of Edison’s first generator in New York, new technologies, alternating current (“AC”) transformers and steam turbines allowed for the generation of larger amounts of electricity that could be transmitted around an entire city.⁴ Insull exploited these new technologies and aggressively bought out rival electricity providers who were building duplicative power plants and wiring systems in the hopes of serving the same customers.⁵ By 1907, Insull had control of electricity supply in Chicago.⁶

Chicago and other municipalities around the country had purposely handed out duplicative franchises in the hope that competition in the

¹ Richard F. Hirsh, *Power Loss: The Origins of Deregulation and Restructuring in the American Electric Utility System* 23 (1999) (quoting Ben W. Lewis, *Public Utilities*, in Leverett S. Lyon & Victor Abramson, *Government and Economic Life: Development and Current Issues of American Public Policy* 638 (1940)).

² Robert L. Swartwout, *Current Utility Regulatory Practice from a Historical Perspective*, 32 *Nat. Resources J.* 289, 299 (1992).

³ Hirsh, *supra* note 1, at 14.

⁴ *Id.* at 12.

⁵ *Id.*

⁶ *Id.*

market would protect the public interest.⁷ However, observers at the time concluded that regulation via competition in the nascent electricity industry was futile because competition inevitably led to consolidation and any brief period of competition brought about by duplicative franchises was chaotic and destructive.⁸ Critics of municipal regulation of electric utilities were wary of local officials, who were seen as corrupt, untrained, underfinanced and outmatched by the increasingly powerful utilities.⁹ State regulation, which handed control to a small group of technocrats, was seen as administratively superior to municipal control and matched the progressive ideology of the time.¹⁰

The groundwork and rationale for robust regulation of monopoly utilities by states had already been well established. By the turn of the twentieth century most states had regulatory commissions, but they were weak and their jurisdiction was generally limited to railroads.¹¹ The Supreme Court had previously set out the criteria for public regulation of private property. In *Munn v. Illinois*, the court determined that regulation of private property was permissible "when such regulation becomes necessary for the public good."¹² Elaborating, the Court wrote that when "one devotes his property to a use in which the public has an interest, he, in effect, grants to the public an interest in that use, and must submit to be controlled by the public for the common good, to the extent of the interest he has thus created."¹³ In *Smyth v. Ames*, the Supreme Court held that a company regulated by the state is entitled to "a fair return upon the value of that which it employs for the public convenience."¹⁴

⁷ Swartwout, *supra* note 2, at 299.

⁸ Gregg A. Jarrell, *The Demand for State Regulation of the Electric Utility Industry*, 21 J.L. & Econ. 269, 274 (1978).

⁹ *Id.*; see also William L. Crow, *Legislative Control of Public Utilities in Wisconsin*, 18 Marq. L. Rev. 80, 83-85 (1934), available at

<http://epublications.marquette.edu/mulr/vol18/iss2/2> (listing reasons given by the Wisconsin Railroad Commission in 1925 in favor of state control and against local control, including: local bodies lack accounting expertise, local control is dominated by local concerns and is likely to be biased, and local control would be too costly).

¹⁰ Hirsh, *supra* note 1, at 18.

¹¹ Swartwout, *supra* note 2, at 300.

¹² *Munn v. Illinois*, 94 U.S. 113, 125 (1876).

¹³ *Id.* at 126.

¹⁴ *Smyth v. Ames*, 169 U.S. 466, 547 (1898).

A CHALLENGE FOR FEDERALISM

Wisconsin's 1907 public utility law was premised on the Supreme Court's decision in *Smyth v. Ames* and made two key additions to existing regulatory practices: full rate regulation based on a valuation of the utility's physical property that is "actually used" for the convenience of the public and the grant of "indeterminate" operating permits to utilities. While New York's 1907 law only allowed the commission to regulate the maximum rates charged by the utility, Wisconsin required the commission set the exact rates.¹⁵ Rates could not be "unjust, unreasonable, discriminatory, or preferential."¹⁶ Rates were to be based on the valuation of property "actually used and useful for the convenience of the public" as opposed to ratemaking based on the market value of the firm's stock as New York's law mandated.¹⁷

Under the Wisconsin law, each utility was granted an "indeterminate" permit that guaranteed the privilege of continuing business without competition as long as the utility furnished adequate service at reasonable rates.¹⁸ It also granted municipalities the option to purchase the utility's property located in that municipality for just compensation.¹⁹ The indeterminate permit allowed utilities to more easily raise capital because investors were assured that the franchise would not expire. The threat of municipal takeover was intended to goad the utility into providing adequate service.²⁰

In a 1912 decision holding that a municipality was not allowed to operate a lighting plant in a city where a private utility held an indeterminate permit to provide electric service, the Wisconsin Supreme Court elaborated on the new regulatory structure. The court first observed that the 1907 law was "a most consummate effort of legislative wisdom and a model for similar efforts elsewhere."²¹ It then held that the dominant feature of the utility's franchise is not only that it is "perpetual, subject to the conditions and limitations of the law,--indeterminate as it is

¹⁵ George B. Hudnall, *The Public Service Commission Law of Wisconsin*, Proc. Am. Pol. Sci. Ass'n, Vol. 4, Fourth Annual Meeting 316, 320 (1907).

¹⁶ *Id.* at 319-20.

¹⁷ Hirsh, *supra* note 1, at 22 (quoting Wis. Stat. § 1797m-5 (1917)).

¹⁸ Hudnall, *supra* note 15, at 321-22.

¹⁹ *Id.*

²⁰ Hirsh, *supra* note 1, at 22.

²¹ *Calumet Serv. Co. v. City of Chilton*, 135 N.W. 131, 136 (Wis. 1912).

said,--but shall be subject to such conditions exclusively.”²² In other words, regulation of the utility was under the exclusive jurisdiction of the commission and the municipality could not terminate the arrangement based on factors not enumerated in the public utility law. The court determined that the intention of the legislature was to completely abandon the previous system of municipal utility franchises and harmonize them

by making them referable to a single standard, to wit, the public utility law, and to an ultimate single control to wit, control by the trained impartial State Commission, so as to effect the one supreme purpose, i.e., “the best service practicable at reasonable cost to consumers in all cases and as near a uniform rate for service as varying circumstances and conditions would permit.”²³

The law provided the commission with sweeping powers. Citing the law, the court wrote that the commission “is vested with power and jurisdiction to supervise and regulate every public utility in this state and to do all things necessary and convenient in the exercise of such power and jurisdiction,” and then observed that “there is administrative authority to the limit, including quasi legislative as well as quasi judicial power.”²⁴ With regard to the object of the law, the court quoted from the law, “[e]very public utility is required to furnish reasonably adequate service and facilities. The charge made by any public utility . . . shall be reasonable and just, and every unjust or unreasonable charge for such service is prohibited and declared unlawful.”²⁵

To summarize, the 1907 Wisconsin public utility law gave the state commission exclusive jurisdiction over public utilities. The commission had sweeping administrative authority that included rate-setting powers, as well as quasi-legislative and quasi-judicial powers. Utilities were granted a perpetual geographic monopoly in return for furnishing adequate service. The main goal of the law was to provide the best possible service to customers at a reasonable rate. This “regulatory compact” was a tradeoff

²² *Id.* at 140.

²³ *Id.* at 142.

²⁴ *Id.* at 143.

²⁵ *Id.*

for all parties. Utilities were subjected to wide-ranging regulation by the state commission and in return received a grant of a monopoly franchise. Customers gave up the right to choose a supplier for the assurance that government would guarantee a reasonable price.²⁶ The relationships between regulators, investors, managers and customers required a “sensitive balance” under the “long-standing and common sense standards of justness and reasonableness.”²⁷

By 1920, nearly every state had established a public utility commission with jurisdiction over electricity, and the Wisconsin law was the statute most often used as the model.²⁸ In 1907 John Commons, an economics professor and one of the architects of the Wisconsin law,²⁹ predicted that the newly empowered commission would have unparalleled influence:

Every public utility in the State, except streets, highways, and bridges, is brought within its jurisdiction. It becomes also a local government board, for it regulates towns, villages, and cities in their management of these undertakings. Its authority is great and far-reaching. It employs experts and agents It enters into the daily life of the people more than all other agencies of government combined. This will become more evident as time goes on, for under its control is placed the development of the enormous water power of Wisconsin, which eventually, through electricity, will light the streets and houses and furnish motive power to operate railways, factories, and possibly farms.³⁰

B. *The Growth of Electricity and the Emergence of Federal Jurisdiction*

The electricity industry prospered during the first few decades of the twentieth century. From 1901 to 1932, electric utility generation grew

²⁶ Swartwout, *supra* note 2, at 313.

²⁷ *Id.*

²⁸ *Id.* at 301.

²⁹ Hirsh, *supra* note 1, at 21.

³⁰ John R. Commons, *The Wisconsin Public-Utilities Law*, Am. Rev. Reviews: An Int'l Mag. 221, 224 (Albert Shaw ed., 1907).

at annual average rates of about 12% a year.³¹ Technological improvements led to increased productivity and cheaper prices. In 1905, Insull's largest generator was five megawatts ("MW"), but by 1929 he had installed a 208 MW generator, the largest in the world at the time.³² Efficiency of power plants also increased, from 4% of thermal energy converted to electricity at the turn of the century to almost 20% by 1930.³³ These improved efficiencies and economies of scale led to dramatically lower prices for consumers. In 1900, the price per kilowatt-hour was approximately three dollars (adjusted), but by 1930 the price had fallen by about 80%.³⁴

From its earliest days, the electricity industry was vertically integrated, with a single company producing, transmitting and distributing electricity to end users and performing essential system maintenance functions.³⁵ The state-backed guarantee of a perpetual, geographic monopoly reduced the nature of financial risk for electric utilities, which enabled firms to use their financial and technological muscle to expand.³⁶ The electricity industry was capital intensive,³⁷ and growth was financed by sales of common stock and bonds.³⁸ "Frequently, firms were assembled into holding companies that could be controlled by rather small percentages of stock."³⁹ The emergence of the holding company not only brought large amounts of capital to the industry but also allowed smaller firms to benefit from centralized management and engineering expertise that they could not have afforded on their own.⁴⁰ However, the financial collapse of the 1930s brought the holding company structure under stress

³¹ U.S. Energy Infor. Admin., *History of the U.S. Electric Power Industry, 1882-1991* (2001), http://www.eia.doe.gov/cneaf/electricity/page/electric_kid/append_a.html [hereinafter EIA History].

³² Hirsh, *supra* note 1, at 46.

³³ *Id.* at 57.

³⁴ *Id.* at 49.

³⁵ Sally Hunt, *Making Competition Work in Electricity* 24 (2002).

³⁶ Hirsh, *supra* note 1, at 34.

³⁷ *Id.*

³⁸ Richard J. Gilbert & Edward P. Kahn, *Competition and Institutional Change in U.S. Electric Power Regulation*, in *International Comparisons of Electricity Regulation* 172, 182 (Richard J. Gilbert & Edward P. Kahn, eds., 1996).

³⁹ *Id.*

⁴⁰ Hirsh, *supra* note 1, at 35.

and provided one rationale for Congressional involvement in the regulation of the electricity industry.

Federal involvement in the electricity industry actually began nearly a decade before the financial collapse. The Federal Water Power Act of 1920⁴¹ created the Federal Power Commission (“FPC”), which would later become the Federal Energy Regulatory Commission (“FERC”). The Act granted the FPC jurisdiction over the siting, construction and maintenance of hydroelectric dams on navigable waters. The Act also gave the Commission backstop authority to regulate rates and other matters related to electricity generated by the federally licensed hydroelectric dams if the relevant state had not established a public utility commission with appropriate jurisdiction.⁴²

After the 1920 Act, electricity regulation still remained almost exclusively the purview of the states with the exception of hydroelectricity. However, gaps in the regulatory scheme began to emerge. First, holding companies were expanding into multiple states and were thus beyond the reach of a single state’s agency.⁴³ The financial collapse of the 1930s ultimately provoked Congressional action. The Public Utility Holding Company Act of 1935 (“PUHCA”)⁴⁴ charged the Securities and Exchange Commission with regulating utility holding companies and eliminating their financial abuses. Holding companies

⁴¹ Federal Water Power Act, ch. 285, § 30, 41 Stat. 1077 (1920) (current version at 16 U.S.C. § 791 (2006)).

⁴² Federal Water Power Act, ch. 285, § 19, 41 Stat. 1077, 1083 (1920) (current version at 16 U.S.C. § 812 (2006)).

⁴³ U.S. Energy Info. Admin., Public Utility Holding Company Act of 1935: 1935–1992, 1, 6–7 (Jan. 1993), *available at* <http://tonto.eia.doe.gov/FTP/ROOT/electricity/0563.pdf> [hereinafter PUHCA Analysis] (“In 1924, 74.6% of all electricity generated in the United States was produced by operating companies which were parts of holding companies; by 1930, 90% of all operating companies were controlled by 19 holding companies . . . It was this high level of concentration and control, as well as the collapse of the utility holding companies and the poor performance of the operating companies during the Great Depression, which ultimately led to demands for their regulation . . . Since the holding companies controlled the operating companies and the holding companies were engaged in interstate commerce, it was difficult, if not impossible, for the State public utility commissions to effectively regulate the operating utilities because of federal preemption.”).

⁴⁴ Public Utility Holding Company Act of 1935, ch. 687, § 33, 49 Stat. 838 (1935) (current version at 15 U.S.C. § 79) (repealed 2005)).

were required to limit their assets to those that “are physically interconnected or capable of physical interconnection.”⁴⁵ The effect of this provision, according to an analysis by the U.S. Energy Information Administration, was to “confine utility holding companies to generally operating within only one State where they could be effectively controlled by that State's public utility commission.”⁴⁶

A second gap in the regulatory scheme emerged after the Supreme Court's decision in *Public Utilities Commission Of Rhode Island v. Attleboro Steam & Electric Co.*⁴⁷ The case involved a corporation that generated electricity in Rhode Island and sold it across the state border to a customer in Massachusetts. The Massachusetts customer appealed a rate increase, which had been approved by the Rhode Island Public Utility Commission, to the Rhode Island Supreme Court claiming that the Rhode Island Commission had no jurisdiction over an interstate sale. The United States Supreme Court held that because the Rhode Island Commission's order was “the imposition of a direct burden upon interstate commerce, from which the state is restrained by the force of the commerce clause, it must necessarily fall, regardless of its purpose.”⁴⁸ The Court concluded that neither state had the power to regulate such an interstate transaction and “if such regulation is required it can only be attained by the exercise of the power vested in Congress.”⁴⁹

With interstate sales of electricity beyond the reach of state commissions, Congress added a new part to the Federal Water Power Act titled “Regulation of Electric Utility Companies Engaged in Interstate Commerce.”⁵⁰ The FPC was given broad jurisdiction over “transmission of electric energy in interstate commerce and . . . the sale of electric energy at wholesale in interstate commerce” and over “all facilities for

⁴⁵ *Id.* § 36, 49 Stat. 838 (current version 15 U.S.C. § 79(b)(29)(A) (repealed 2005)).

⁴⁶ PUHCA Analysis, *supra* note 43, at 11.

⁴⁷ 273 U.S. 83 (1927). This gap was later termed the “Attleboro Gap” by the Supreme Court in *New York v. FERC*, 535 U.S. 1, 11 (2002) (*see infra*, text accompanying note 150).

⁴⁸ *Attleboro*, 273 U.S. at 89 (citing *Shafer v. Farmers' Grain Co.*, 268 U.S. 189, 199 (1925); *Real Silk Mills v. Portland*, 268 U.S. 325, 336 (1925)).

⁴⁹ *Id.* at 90.

⁵⁰ Federal Power Act, ch. 687, § 213, 49 Stat. 847 (1935) (current version at 16 U.S.C. § 824 (2006)).

such transmission or sale of electric energy.”⁵¹ The Act granted the FPC a range of new powers, including the authority to order utilities to interconnect and prescribe the terms of that interconnection,⁵² to regulate and set rates for transmission or sale of electricity across state lines,⁵³ to hold hearings about rates and services,⁵⁴ and to compel utilities to file reports about costs of inventory.⁵⁵ Utilities were prohibited from selling any property subject to FPC jurisdiction without FPC approval⁵⁶ and could not issue securities without approval.⁵⁷ Sections 205 and 206, which would provide the justification for a vast expansion of the Commission’s authority sixty years later, required that utilities charge “just and reasonable rates,” prohibited utilities from granting any “undue prejudice or disadvantage,” and granted the FPC the authority to remedy “unduly discriminatory or preferential” practices. Congress also added a third part to the Act, which required all public utilities under the jurisdiction of the FPC to keep records in accordance with rules promulgated by the FPC,⁵⁸ granted the FPC further investigatory powers,⁵⁹ allowed the FPC to set depreciation rates,⁶⁰ and forbade anyone from serving as an officer for more than one public utility.⁶¹

While Congress granted wide-ranging authority to the FPC, it was explicitly the intent of Congress not to supersede the jurisdiction of state commissions. The Act, now titled simply the Federal Power Act (“FPA”), declared that federal regulation should “extend only to those matters which are not subject to regulation by the States.”⁶² Furthermore, the provisions of the Act applied only to interstate commerce and “the Commission . . . shall not have jurisdiction, except as specifically provided in this [Part] . . . over facilities used for the generation of electric

⁵¹ *Id.* § 201(b), 49 Stat. 847 (current version at 16 U.S.C. § 824 (2006)).

⁵² *Id.* § 202(b), 49 Stat. 848 (current version at 16 U.S.C. § 824a(b) (2006)).

⁵³ *Id.* §§ 205(a), 206(a), 49 Stat. 851–52 (current version at 16 U.S.C. § 824e(a) (2006)).

⁵⁴ *Id.* §§ 205(e), 207, 49 Stat. 852–53 (current version at 16 U.S.C. § 824e(a) (2006)).

⁵⁵ *Id.* § 208(b), 49 Stat. 853 (16 U.S.C. § 824g(b) (2006)).

⁵⁶ *Id.* § 212, 49 Stat. 849 (current version at 16 U.S.C. § 801 (2006)).

⁵⁷ *Id.* § 213, 49 Stat. 850 (1935) (current version at 16 U.S.C. § 824c(a) (2006)).

⁵⁸ *Id.* § 213, 49 Stat. 855 (current version at 16 U.S.C. § 825c(a) (2006)).

⁵⁹ *Id.* § 213, 49 Stat. 856 (current version at 16 U.S.C. § 825f(a) (2006)).

⁶⁰ *Id.* § 213, 49 Stat. 855 (current version at 16 U.S.C. § 825a(a) (2006)).

⁶¹ *Id.* § 213, 49 Stat. 856 (current version at 16 U.S.C. § 825d(b) (2006)).

⁶² *Id.* § 201(a), 49 Stat. 847 (current version at 16 U.S.C. § 824(a) (2006)).

energy or over facilities used in local distribution or only for the transmission of electric energy in intrastate commerce”⁶³

In 1943, the Supreme Court wrote “[t]he primary purpose of Title II, Part II of the 1935 amendments to the Federal Power Act . . . was to give a federal agency power to regulate the sale of electric energy across state lines,”⁶⁴ giving authority to the states that had previously been denied by the Supreme Court’s 1927 decision in *PUC of RI v. Attleboro Steam*.⁶⁵ Two years later, the Supreme Court looked at the legislative history and cited the commissioner of the FPC who said the “new Title II of the act is designed to secure coordination on a regional scale of the Nation’s power resources and to fill the gap in the present State regulation of electric utilities. It is conceived entirely as a supplement to, and not as a substitution for, State regulation.”⁶⁶ A House Committee report on the bill declared that “[t]he new parts are so drawn as to be a complement to and in no sense a usurpation of State regulatory authority and contain throughout directions to the Federal Power Commission to receive and consider the views of State commissions.”⁶⁷

Despite the purpose of the Act and its legislative history, the Supreme Court also held that sections of the Act pertaining to the sale of utility property and securities, issuance of securities, investigation into actual costs of utility property and accounting standards explicitly grant overlapping jurisdiction for utilities that fall under FPC jurisdiction.⁶⁸ In other words, the FPC and a relevant state commission both have oversight responsibilities with regard to the same subject matter. In one case, the Court held that a sale of securities required FPC approval even though the state commission was also required to approve the sale.⁶⁹

With the passage of the FPA, regulation of electric utilities was generally neatly divided between state commissions and the FPC. The

⁶³ *Id.* § 201(b), 49 Stat. 847 (current version at 16 U.S.C. § 825(b)(1) (2006)).

⁶⁴ *Jersey Central Power & Light Co. v. Fed. Power Comm’n*, 319 U.S. 61, 67 (1943).

⁶⁵ 273 U.S. 83 (1927).

⁶⁶ *Conn. Light & Power Co. v. Fed. Power Comm’n*, 324 U.S. 515, 525 (1945) (quoting *Hearings on H.R. 5423 Before H. Comm. on Interstate and Foreign Commerce*, 74th Cong. 384 (1935)).

⁶⁷ *Id.* at 526 (quoting H.R. Rep. No. 1318, at 7 (1935)).

⁶⁸ *Jersey Cent. Power & Light Co.*, 319 U.S. at 75.

⁶⁹ *Id.*

A CHALLENGE FOR FEDERALISM

SEC was given authority to break up large holding companies, which had the effect of relegating most utilities to a single state. State commissions were the primary administrators of the “regulatory compact” between utilities, customers and investors, and had broad authority to regulate nearly all aspects of a utility’s business, including setting rates for all intrastate sales and approving the siting of new facilities.⁷⁰ Interstate rates fell under the jurisdiction of the FPC, and certain financial matters could be subject to both state and federal jurisdiction. Congress did not expand the FPC’s jurisdiction with regard to electricity regulation until 1978.

However, other federal agencies emerged as key players in the electricity industry. New Deal Programs⁷¹ established agencies such as the Rural Electrification Administration and the Tennessee Valley Authority which expanded the federal government’s role in electricity generation, transmission and distribution. By 1950, 12% of all electricity was generated by the federal government.⁷² The Atomic Energy Act of 1954⁷³ created the civilian nuclear power industry and gave authority to the Atomic Energy Commission to issue licenses for nuclear facilities.⁷⁴ The Clean Air Act, passed in 1963⁷⁵ and significantly amended in 1970,⁷⁶ 1977,⁷⁷ and 1990,⁷⁸ required the Environmental Protection Agency and states to control pollution from electricity generation. The new federal agencies did not alter state commissions’ role as the primary regulators of electric utilities, nor did they change the commissions’ primary mission,

⁷⁰ See Swartwout, *supra* note 2, at 305 (describing the state regulatory process as primarily encompassing three elements: the certificate of convenience and necessity, which a state commission had to issue to grant a utility permission to construct new facilities, rate regulation, and the regulation of utility securities and finances).

⁷¹ See, e.g., Tennessee Valley Authority Act of 1933, 16 U.S.C. § 831 (2006); The Rural Electrification Act of 1936, 7 U.S.C. § 901 (2006); The Bonneville Project Act of 1937, 16 U.S.C. § 832 (2006).

⁷² EIA History, *supra* note 31.

⁷³ Atomic Energy Act of 1954, Pub L. No. 703, 68 Stat. 919 (1954) (codified at 42 U.S.C. § 2011 (2006)).

⁷⁴ 42 U.S.C. § 2011 (2006).

⁷⁵ Clean Air Act, Pub L. No. 88-206, 77 Stat. 392 (1963) (current version at 42 U.S.C. § 7401 (2006)).

⁷⁶ Clean Air Act Amendments of 1970, Pub L. No. 91-604, 84 Stat. 1676 (1970).

⁷⁷ Clean Air Act Amendments of 1977, Pub. L. No. 95-95, 91 Stat. 676 (1977).

⁷⁸ Clean Air Act Amendments of 1990, Pub. L. No. 101-549, 104 Stat. 2468 (1990).

which dated back to the 1907 Wisconsin law, of providing reliable service at the lowest possible rate. These new agencies introduced new goals and concerns for the electricity industry. Nuclear safety and air pollution were not relevant when state legislators created regulatory commissions in the early part of the twentieth century, but they emerged as key issues in the latter part of the century that state commissions would encounter on a regular basis.

Meanwhile, electricity continued to expand. From 1932 to 1941 generation of electricity increased by an average of 8% per year while retail prices fell by one-third.⁷⁹ After World War II, growth continued, particularly in the residential sector, as prices continued to fall.⁸⁰ From 1949 until 1981, total electricity generation in the United States went up each year and increased nearly eightfold over the entire three decade period.⁸¹ Electric utilities were fueled by an ideology of growth, and the idea of slowing the industry's expansion was "nothing less than heresy to the generations of public servants and businessmen who have come to equate growth with progress, and energy demand with the vitality of our society."⁸²

As electricity generation grew, so did interstate transmission. By 1970, the United States had twenty-one "power pools,"⁸³ interconnected networks of transmission lines that enabled coordination among neighboring utilities. These voluntary arrangements between utilities could include a variety of services, such as purchase and sale of reserve generating capacity, purchase and sale of electricity during emergencies and maintenance, seasonal exchange of low-cost energy and centralized coordination of generation based on cost.⁸⁴ Pooling could have significant economic benefits for participating utilities, such as reduced investment in reserve generation and coordinated planning that increases the efficiency

⁷⁹ EIA History, *supra* note 31.

⁸⁰ *Id.*

⁸¹ U.S. Energy Info. Admin., Annual Energy Review, Electricity Overview, 1949–2009 (Aug. 19, 2010), <http://www.eia.gov/aer/elect.html>.

⁸² Hirsh, *supra* note 1, at 50 (citation omitted).

⁸³ James F. Fairman & John C. Scott, *Transmission, Power Pools, and Competition in the Electric Utility Industry*, 28 *Hastings L.J.* 1159, 1170 (1977).

⁸⁴ *Id.* at 1169.

of new investments.⁸⁵ Section 202(a) of the FPA loosely encouraged such arrangements,⁸⁶ and power pool agreements were submitted to the FPC for its approval.⁸⁷

Voluntary pooling agreements were supplemented by the establishment of the National Electric Reliability Council and nine regional reliability councils by 1968.⁸⁸ The FPC issued an order in 1970 requiring that state utility commissions and the FPC be allowed to participate in reliability council meetings.⁸⁹ An FPC report from 1970 noted that “the enormous development of interstate power networks in the last thirty years requires a reevaluation of the governmental responsibility for continuity of the service supplied by them, since it is impossible for a single state effectively to regulate the service from an interstate pool or grid.”⁹⁰

C. Congress Sets National Electricity Policy Goals

After forty-three years without any electricity legislation from Congress, the Public Utility Regulatory Policies Act of 1978 (“PURPA”)⁹¹ ushered in a wave of legislation and regulation, both at the federal and state levels, that has reshaped the industry and vastly expanded federal authority. Following the Oil Embargo of 1973, PURPA introduced two new goals into electricity regulation: conservation and the development of more efficient, smaller scale, non-utility generation.

⁸⁵ *Id.*

⁸⁶ “[T]he Commission is empowered and directed to divide the country into regional districts for the voluntary interconnection and coordination of facilities for the generation, transmission, and sale of electric energy . . . It shall be the duty of the Commission to promote and encourage such interconnection and coordination . . .” Federal Power Act, §202(a) (current version at 16 U.S.C. § 824a (2006)).

⁸⁷ Fairman & Scott, *supra* note 83, at 1178.

⁸⁸ George K. Lagassa, *State Utility Commissions as Vestigial Organs: The Need for Regional Governance of Electric Utilities*, 28 U. Kan. L. Rev. 291, 296 (1979).

⁸⁹ *Id.* at 298.

⁹⁰ *Id.* at 297 (quoting U.S. Fed. Power Comm’n, Report to President on The Power Failure in the Northeastern United States and the Province of Ontario on Nov. 9–10 (1965), available at http://blackout.gmu.edu/archive/pdf/fpc_65.pdf.)

⁹¹ Public Utility Regulatory Policies Act of 1978, Pub. L. No. 95-617, 91 Stat. 3117 (1978) [hereinafter PURPA] (current version at 16 U.S.C. §§ 2601–2645 (2006)).

Title I of PURPA⁹² required each state public utility commission to consider implementing a number of federal ratemaking standards with the purpose of encouraging conservation, efficient use of utility resources and equitable rates⁹³. The Act permitted state commissions to reject the federal ratemaking standards⁹⁴ after first holding a formal hearing and making determinations about each federal standard in writing.⁹⁵ The Act authorized the Department of Energy (“DOE”) to provide grants to state commissions that could be used to make determinations about the federal ratemaking standards.⁹⁶

Title II of PURPA “ended the monopoly control enjoyed by regulated utilities”⁹⁷ by opening the electricity generation market to non-utility owned cogeneration facilities⁹⁸ and small power production

⁹² PURPA, §111, 91 Stat. 3117, 3121 (1978) (current version at 16 U.S.C. §§ 2611–13 (2006)).

⁹³ PURPA, §101 (current version at 16 U.S.C. § 2611) (“The purposes of this title are to encourage – (1) conservation of energy supplied by electric utilities; (2) the optimization of the efficiency of use of facilities and resources by electric utilities; and (3) equitable rates to electric consumers.”). The Conference Committee Report explained that the first purpose was to foster conservation by end users, and the second purpose was directed at utilities and the efficiencies of their facilities, including capital resources. Nat’l Ass’n of Regulatory Comm’rs, Reference Manual and Procedures for Implementation of the PURPA Standards in the Energy Policy Act of 2005 14 (Mar. 22, 2006), *available at* http://www.naruc.org/Publications/PURPA_Manual_webversion.pdf.

⁹⁴ PURPA, § 111(a) (current version at 16 U.S.C. § 2621) (“Nothing in this subsection prohibits any State regulatory authority or nonregulated electric utility from making any determination that it is not appropriate to implement any such standard, pursuant to its authority under otherwise applicable State law.”).

⁹⁵ PURPA, § 111(b) (current version at 16 U.S.C. § 2621) (“The consideration referred to in subsection (a) shall be made after public notice and hearing. The determination in subsection (a) shall be (A) in writing, (B) based upon findings included in such determination and upon evidence presented at the hearing, and (C) available to the public.”).

⁹⁶ PURPA, § 207 (current version at 16 U.S.C. § 2645).

⁹⁷ Hirsh, *supra* note 1, at 73.

⁹⁸ PURPA, § 201(18) (current version at 16 U.S.C. § 796(18)) (“A cogeneration facility means a facility which produces – (i) electric energy, and (ii) steam or forms of useful energy (such as heat) which are used for industrial, commercial, heating, or cooling purposes.”).

facilities.⁹⁹ PURPA amended the FPA to require utilities to purchase electricity¹⁰⁰ generated by qualifying cogeneration and small power production facilities (“Qualifying Facilities”). The Act required the FPC, now named FERC, to promulgate rules to encourage sales of electricity to utilities and ensure that rates are “just and reasonable to the electric consumers of the electric utility and in the public interest.”¹⁰¹ FERC was also authorized, in consultation with state commissions, to exempt Qualifying Facilities from provisions of the FPA, PUHCA and state laws.¹⁰² Title II also affected the FERC’s regulation of interstate electricity transactions. Prior to PURPA, interstate electricity transactions were regulated under the FPA based on the seller’s costs using a similar methodology that state commissions used in ratemaking proceedings. Under PURPA, FERC could approve wholesale transactions involving Qualifying Facilities based on competitive bidding and market rates rather than cost.¹⁰³

Title II of PURPA further amended the FPA to grant FERC the authority to order a utility to connect a generator to the utility’s

⁹⁹ PURPA, § 201(17) (current version at 16 U.S.C. § 796(17)) (“Small power production facility means a facility which – (i) produces electric energy solely by the use, as a primary energy source, of biomass, waste, renewable resources, or any combination thereof; and (ii) has a power production capacity which, together with any other facilities located at the same site (as determined by the Commission) is not greater than 80 megawatts.”)

¹⁰⁰ “[T]he Commission shall prescribe . . . such rules as it determines necessary to encourage cogeneration and small power production which rules require electric utilities to offer to – (1) sell electric energy to qualifying cogeneration facilities and qualifying small power production facilities and (2) purchase electric energy from such facilities.” PURPA, § 210 (current version at 16 U.S.C. § 824a-3(a)).

¹⁰¹ PURPA, § 210(b) (current version at 16 U.S.C. § 824a-3(b)).

¹⁰² PURPA, § 210(e) (current version at 16 U.S.C. § 824a-3(e)).

¹⁰³ Larry Parker, *CRS Report for Congress, Electricity Restructuring: Comparison of S.1401, H.R. 655, H.R. 1230, S.722, and H.R. 1960* (1997), available at http://assets.opencrs.com/rpts/97-504_19971117.pdf; see also Jeffrey D. Watkiss and Douglas W. Smith, *The Energy Policy Act of 1992 – A Watershed for Competition in the Wholesale Power Market*, 10 Yale J. on Reg. 447, 486 (1993) (noting that “FERC has permitted power wholesales at market-based rates only where FERC has determined that the seller – electric utilities as well as non-utility generators – either lacked power to influence price in the relevant market or had mitigated that power in some fashion.”).

transmission system,¹⁰⁴ to require a utility to provide transmission services to another utility (also known as wheeling) and to exempt utilities from state laws that prohibited or prevented utilities from entering into voluntary power pool agreements.¹⁰⁵ These new powers were subject to a range of caveats. FERC could not wield its new powers unilaterally but could only act in response to an application from an affected party. With regard to its authority to order a connection or transmission service (wheeling), FERC's authority was limited by a number of constraints¹⁰⁶ including determinations by FERC that such an order would be in the public interest, would conserve energy or improve reliability and would maintain existing competitive relationships.¹⁰⁷

In *FERC v. Mississippi*, the Supreme Court upheld the constitutionality of Title I, which required state commissions to make a determination about federal ratemaking standards, and Section 210, which required utilities to purchase electricity from Qualifying Facilities.¹⁰⁸ The District Court had held these sections of the Act unconstitutional because they exceeded Congress' power under the Commerce Clause and Tenth Amendment. With regard to the Commerce Clause, the appellees asserted that "PURPA is facially unconstitutional because it does not regulate 'commerce'; instead, it is said, the Act directs the non-consenting State to regulate in accordance with federal procedures."¹⁰⁹ The Court held that

¹⁰⁴ PURPA, §203, 91 Stat. 3117, 3135 (1978).

¹⁰⁵ *Id.* § 205.

¹⁰⁶ "No order may be issued . . . unless the Commission determines that such order is not likely to result in a reasonable ascertainable economic loss . . . will not place an undue burden on an electric utility . . . will not unreasonably impair the reliability of an electric utility . . . will not impair the ability of any electric utility . . . to render adequate service to its customers . . . unless the applicant demonstrates that he is ready, willing, and able to reimburse the party subject to the order . . ." *Id.* § 204; *see also id.* § 203 ("No order may be issued under subsection (a) unless the Commission determines that such order would reasonably preserve existing competitive relationships.").

¹⁰⁷ "No order may be issued by the Commission under subsection (a) unless the Commission determines that such order – (1) is in the public interest, (2) would (A) encourage overall conservation of energy or capital, (B) optimize the efficiency of use of facilities and resources, or (C) improve the reliability of any electric utility system or federal power marketing agency to which the order applies . . ." *Id.* § 202(c).

¹⁰⁸ Fed. Energy Regulatory Comm'n v. Mississippi, 456 U.S. 742, 769 (1982).

¹⁰⁹ *Id.* at 743.

electricity generation and transmission have an immediate effect on interstate commerce, and it was therefore within Congress' power under the Commerce Clause to enact both Title I and Section 210.

Regarding the Tenth Amendment challenge, the Court wrote that "[i]nsofar as § 210 authorizes FERC to exempt qualified power facilities from 'State laws and regulations,' it does nothing more than pre-empt conflicting state enactments in the traditional way."¹¹⁰ Furthermore, "the Federal Government may displace state regulation even though this serves to 'curtail or prohibit the States' prerogatives to make legislative choices respecting subjects the States may consider important."¹¹¹ According to the Court, PURPA "establishes a program of cooperative federalism that allows the States, within limits established by federal minimum standards, to enact and administer their own regulatory programs, structured to meet their own particular needs."¹¹² The Court concluded that Title I "simply establishes requirements for continued state activity in an otherwise pre-emptible field."¹¹³

PURPA was landmark legislation because it marked the federal government's first major step into the regulation of intrastate electricity sales. The Act mandated that all state commissions "consider,"¹¹⁴ Congress' ratemaking standards in light of the national goals of conservation, efficiency and equity.¹¹⁵ One plausible explanation for Congress entering the field of intrastate ratemaking was to unify the "wide diversity and unevenness in public policy that characterized ninety years of state public utility commission regulation."¹¹⁶ However, Congress' attempt to harmonize state policies to meet national goals was, in many cases, "unnecessary and dated in that many state commissions were 'well

¹¹⁰ *Id.*

¹¹¹ *Id.* at 759 (quoting *Hodel v. Va. Surface and Reclamation Ass'n, Inc.*, 452 U.S. 264, 290 (1981)).

¹¹² *Id.* at 767 (quoting *Hodel*, 452 U.S. at 289).

¹¹³ *Id.* at 769.

¹¹⁴ "(a) Consideration and Determination. — Each state regulatory authority . . . shall consider each standard established by subsection (d) and make a determination concerning whether or not it is appropriate to implement such standard to carry out the purposes of this title." PURPA, §111, 91 Stat. 3117, 3121 (1978).

¹¹⁵ PURPA §101, *supra* note 93.

¹¹⁶ Douglas N. Jones, *The National Energy Act and State Commission Regulation*. 30 Case Wes. L. Rev. 324, 336 (1979).

ahead' in employing the concepts and practices proposed" in PURPA.¹¹⁷ PURPA nonetheless had an effect on laggard states. According to a DOE survey of state commissions, PURPA's ratemaking standards were adopted or implemented by most state commissions that had not already done so.¹¹⁸ The effect of PURPA's Title I, at the very least, was to put state commissions on notice that Congress sought to achieve national goals through ratemaking and further failure by laggard state commissions to meet those goals could result in increased intervention by FERC and Congress.

Title II, which required utilities to purchase electricity from Qualifying Facilities, provided for a more intrusive intervention by the federal government into intrastate electricity markets.¹¹⁹ Section 210 created new market players that could be exempted from state laws by FERC and dictated that Qualifying Facilities receive "relatively high"¹²⁰

¹¹⁷ *Id.* Jones further notes that:

[T]hose state public utility commissions least wary of NEA [National Energy Act, of which PURPA was a component] are those that have been most progressive in consideration of many of the standards and guidelines that appear in the legislation. Compliance could be fairly simple for about seventeen state commissions which have already held 'generic hearings,' almost all of which encompassed the ratemaking standards in NEA . . . Further, a number of commissions which had generic (or other) proceedings underway but not finished on the date of the enactment of NEA have wisely taken advantage of the PURPA provision which allows commissions to incorporate consideration of the standards in the course of completing such hearings. *Id.* at 338.

¹¹⁸ Nat'l Ass'n of Regulatory Utility Comm'rs, Reference Manual and Procedures for Implementation of the "PURPA Standards" in the Energy Independence and Security Act of 2007, 26 (Aug. 11, 2008), available at <http://www.naruc.org/Publications/EISStandardsManualFINAL.pdf> (citing Paul Rodgers & Charles D. Gray, Nat'l Ass'n of Regulatory Utility Comm'rs, Second Report on State Commission Progress Under the Public Utility Regulatory Policies Act of 1978 (Oct. 20, 1982). The survey defined "adopted" as a favorable finding by the commission. *Id.* "Implemented" was defined as a favorable finding and the standard was actually put into effect. *Id.* Presumably adopted standards would ultimately be implemented, but the survey was conducted in 1982, just over three years after PURPA became law. *Id.*; see also John T. Miller, Jr., *Conscripting State Regulatory Authorities in a Federal Electric Rate Regulatory Scheme: A Goal of PURPA Partially Realized*, 4 Energy L.J. 77, 82 (1983) (quoting the same study and noting that the federal ratemaking standards were adopted at rates between 66% and 49%).

¹¹⁹ PUPRA, *supra* note 104.

¹²⁰ Hirsh, *supra* note 1, at 81.

rates that would be subject to federal regulations. While Title I was Congress' attempt to unify state-based ratemaking around national goals, Title II created an entirely new market that was deemed to be in the national interest and that states had largely ignored.¹²¹

The purpose of this new market, as an association of utilities commented, was not to introduce competition for the sake of economic efficiency, but to enable new entrants who would reduce the use of fossil fuels in generation.¹²² By this metric, PURPA made a difference. While 5,822 MW of cogeneration, which uses fossil fuels more efficiently than traditional generation, went online between 1970 and 1979, 17,551 MW of cogeneration were added in the 1980s.¹²³ Non-fossil fuel based generation technologies flourished as well. During the 1980s, 1,100 MW of wind capacity went online, compared to 17 MW in the 1970s; 1,523 MW of wood-fueled power began operation in the 1980s compared to 212 MW in the 1970s; and geothermal power increased from 550 MW installed during the 1970s to 2,135 MW in the 1980s.¹²⁴ Solar power, landfill gas and municipal solid waste, which saw no installations in the 1970s, combined to add more than 2,000 MW of capacity during the 1980s.¹²⁵ Although there was more hydropower capacity added in the 1970s than in the 1980s, PURPA's focus on small power production facilities enabled a clear trend

¹²¹ See Thomas Hagler, *Utility Purchases of Decentralized Power: The PURPA Scheme*, 5 Stan. Envtl. L. Rev. 154, 159 (1983) (noting that a 1977 study found that state laws and regulations did not extend to the issue of utility purchases of decentralized power. Most public utility commissions, moreover, had no policy for alternative energy).

¹²² Richard D. Cudahy, *PURPA: The Intersection of Competition and Regulatory Policy*, 16 Energy L. J. 419, 423 (1995) (quoting the "PURPA Reform Petition," drafted by the PURPA Reform Group, an association of utilities).

¹²³ All statistics in this paragraph are from my analysis of U.S. Energy Info. Admin., 2009 Electric Generator Report, available at <http://www.eia.doe.gov/cneaf/electricity/page/eia860.html> [Hereinafter 2009 Generator Report]. But see D. Eugene Simmons, *Section 210 of PURPA: Are Mid-Course Corrections Needed?* 2 Nat. Resources & Env't 25 (1986-1987) (Simmons argues that many cogeneration facilities are inefficient and do not further the goals of PURPA. Rather, "they occupy an artificial niche in the marketplace created solely by the legal requirement that utilities must buy all power offered to them by qualifying facilities.").

¹²⁴ See 2009 Generator Report, *supra* note 123.

¹²⁵ See *id.*

toward smaller scale projects in the 1980s, with the average size of a new project decreasing from 108 MW in the 1970s to 15 MW in the 1980s.¹²⁶

These new installations were concentrated in a handful of states, particularly California.¹²⁷ PURPA led to a flurry of new state electricity legislation and regulation, with much of it focused on non-utility owned generation. Some states went above and beyond PURPA's requirements for Qualifying Facilities,¹²⁸ particularly in ratemaking, by mandating highly preferential rates to Qualifying Facilities.¹²⁹ Although Section 210 applied nationwide, its impact was contingent on state-by-state implementation and results varied widely. Overall, utility generation continued to dominate the market.¹³⁰

D. Restructuring of the 1990s and the Growing Powers of FERC

FERC believed that opening access to transmission lines for non-utility generators was critical to encouraging the further development of competitive markets for electricity generation.¹³¹ This proposition makes

¹²⁶ See *id.*

¹²⁷ See *id.*

¹²⁸ See Stanley A. Martin, *Problems with PURPA: The Need for State Legislation to Encourage Cogeneration and Small Power Production*, 11 B.C. Envtl Aff. L. Rev. 149, 171 n.194 (1983) (stating that at least seventeen states have enacted "mini-PURPAs" that require state commissions to implement regulations for exemptions of Qualifying Facilities, for determining rates for Qualifying Facilities, and for requiring utilities to interconnect).

¹²⁹ See Cudahy, *supra* note 122, at 433 (In regard to state ratemaking, to calculate avoided cost, New Jersey added 10% to the average PJM pool price. Nine states included "societal and environmental costs" to varying degrees.); see also Hagler, *supra* note 121, at 162 (Hagler notes the ways that state ratemaking varied. Oregon's commission, for example, approved a rate for Qualifying Facilities based on residential prices. A salesman of windmills commented that the rate, "made the difference between no sales and the sales we've made.").

¹³⁰ During the 1960s, 1970s, and 1980s, of all new generation capacity added, more than 60% was owned by utilities. In the 1990s, the percentage of new capacity that was utility owned plummeted to 43%. 2009 Generator Report, *supra* note 123.

¹³¹ See Joseph T. Kelliher, *Pushing the Envelope: Development of Federal Electric Transmission Access Policy*, 42 Am. U. L. Rev. 543, 606 n.15-16 (1992) (As examples, the FERC wrote in one decision that its "fundamental competitive concern . . . is that an increase in control over key transmission facilities may lead to a greater ability to block competing lower-cost suppliers from reaching wholesale electric customers." In another

sense; if a generator is unable to connect to a utility's transmission system, the generator will not be able to sell the electricity it is producing. Vertically-integrated public utilities have a disincentive to connect potential competitors. One solution, in the eyes of regulators, was to force monopoly utilities to connect competing generators, thereby enabling competition.

However, FERC's power to order a utility to open its transmission lines to competitors was quite limited. In fact, because of the constraints that PURPA placed on FERC's wheeling authority, FERC had never exercised its authority under Section 211 of the FPA to order wheeling.¹³² Lacking the authority to order open access to transmission lines outright, FERC imposed it as a condition of other orders that were within its power. For example, FERC used its authority under the FPA to condition approvals of mergers on a utility's acceptance of obligations to provide transmission access to third parties.¹³³ FERC also conditioned authorizations to sell power at market rates on a utility's agreement to file transmission tariffs that would enable third party generators to access the transmission system.¹³⁴

decision the FERC wrote that "without a guarantee that wheeling service will be provided on these occasions, it is unlikely that a competitive market for bulk power could emerge.").

¹³² *Id.* at 551. Prior to the passage of PURPA, FERC had no wheeling authority. The FPA had granted the FPC very limited power to order interconnection between an electric utility and another entity producing electricity. The Supreme Court further limited that authority in *Otter Tail Power Co. v. United States*, 410 U.S. 366 (1973), holding that the FPA does not grant the Commission the authority to order wheeling, or the transfer of power from one utility to another. *Id.* at 387 n.4. The Court looked at the legislative history of the FPA and noted that an earlier draft of the Act included a common carrier provision that "would have made it the duty of every public utility . . . to transmit energy for any person upon reasonable request" and would have also given the FPC the authority to order wheeling if it found to be in the public interest. *Id.* at 384 (Stewart, J., concurring); *see also id.* at 387 n.4. The version of the FPA that Congress actually passed "rejected a pervasive regulatory scheme for controlling the interstate distribution of power in favor of voluntary commercial relationships." *Id.* at 374.

¹³³ Kelliher, *supra* note 131, at 606 n.43 (listing five cases where FERC imposed transmission obligations on merging utilities).

¹³⁴ *Id.* at 564 (citing several FERC decisions). However, FERC's authority over market rates was further limited because the Commission first had to make a finding of market power by the applicant. *See id.* at 577 (noting that in one case at the FERC, the

The PUHCA was a second impediment to increased development of competitive markets for generation. PURPA exempted Qualifying Facilities from PUHCA regulations¹³⁵ and required utilities to purchase electricity generated by Qualifying Facilities.¹³⁶ Although utilities were forced to work with Qualifying Facilities, they could continue to refuse to deal with non-utility generators who did not meet PURPA's requirements for achieving status as a Qualifying Facility. Non-Qualifying Facility, non-utility generators were further limited by ownership restrictions placed on them by the PUHCA which inhibited their ability to raise capital and imposed costly regulatory burdens.¹³⁷

Congress attempted to remedy both of these constraints to the development of competitive generation markets with the passage of the Energy Policy Act of 1992.¹³⁸ The Act amended the PUHCA to include the defined term "Exempt Wholesale Generator" ("EWG").¹³⁹ EWG status allowed a company to own a generation facility and sell wholesale power without meeting PURPA's requirements for a Qualifying Facility or being regulated under the PUHCA.¹⁴⁰ EWGs were permitted to own Qualifying Facilities, and certain utilities were allowed to own EWG subsidiaries. As was the case with Qualifying Facilities, Congress was again permitting a new entrant into electricity markets which would directly affect intrastate transactions. The Act carved out minimal power for state commissions to override a presumption against sales by EWGs to

Department of Justice intervened to request a rehearing on the basis that "the Commission is simply without statutory authority to require open access as a quid-pro-quo for its approval of lawful competitive market based rates" where the applicant lacked market power).

¹³⁵ PURPA, § 210(e) (current version at 16 U.S.C. § 824a-3(e)).

¹³⁶ PURPA, § 210(a) (current version at 16 U.S.C. § 824a-3(a)).

¹³⁷ Watkiss & Smith, *supra* note 103, at 465.

¹³⁸ Energy Policy Act of 1992, Pub. L. No. 102-486, 106 Stat. 2776 (1992).

¹³⁹ Energy Policy Act of 1992, Pub. L. No. 102-486, § 711(a)(a) ("The term 'exempt wholesale generator' means any person determined by person determined by the Federal Energy Regulatory Commission to be engaged directly, or indirectly through one or more affiliates as defined in section 2(a)(11)(B), and exclusively in the business of owning or operating, or both owning and operating, all or part of one or more eligible facilities and selling electric energy at wholesale.").

¹⁴⁰ *Id.* § 711(g).

an affiliated utility,¹⁴¹ provided that the state commission make several determinations about the transaction.¹⁴² But, in general, states had limited authority over EWGs.

To enable EWGs and other generators to sell their power to utilities, the 1992 Act also expanded FERC's authority over wheeling. The amended provisions dropped PURPA's requirement that FERC make a finding that a wheeling order would improve conservation or efficiency or maintain the competitive positions of the parties. Under the 1992 Act, FERC could issue a wheeling order based only on a finding that the order was in the public interest. The amended wheeling provisions,¹⁴³ however, still limited FERC by allowing it to issue an order only upon an application from another utility or another entity that generates electricity.¹⁴⁴ Furthermore, FERC was given only backstop authority; the applicant had to first apply directly to the transmitting utility before applying to FERC.¹⁴⁵ Overall, the amended provisions required FERC to make fewer findings and imposed fewer limitations on FERC's authority to order wheeling but still did not grant blanket authority that FERC would need to open transmission access nationwide.

Lacking an explicit grant by Congress to require utilities to adopt transmission tariffs of general applicability that would allow any generator to access a utility's transmission system, FERC looked to the FPA to grant itself the authority. Reinterpreting sections of the FPA left mostly unchanged by Congress since 1935, FERC granted itself the authority to require transmission owners to offer wheeling to any qualified, wholesale generator. FERC Order 888, promulgated in 1996, requires:

¹⁴¹ "Affiliate" of a company is defined in the PUHCA as any person that directly or indirectly owns, controls, or holds with power to vote, 5% or more of the outstanding voting securities of such specified company. 42 U.S.C. § 16451 (2006).

¹⁴² Energy Policy Act of 1992, Pub. L. No. 102-486, §711(k)(2)(A)(ii), 722, 106 Stat. 2776, 2909 (1992) ("A determination that the transaction (I) will benefit consumers; (II) does not violate any state law . . . (III) would not provide the exempt wholesale generator any unfair competitive advantage . . . and (IV) is in the public interest . . .").

¹⁴³ Energy Policy Act of 1992, Pub. L. No. 102-486, §§ 721, 722, 106 Stat. 2776, 2915 (1992) (current version at 16 U.S.C. § 824(j)).

¹⁴⁴ *Id.*

¹⁴⁵ *Id.*

all public utilities that own, operate or control interstate transmission facilities to offer network and point-to-point transmission services (and ancillary services) to all eligible buyers and sellers in wholesale bulk power markets, and to take transmission service for their own uses under the same rates, terms and conditions offered to others. In other words, it requires non-discriminatory (comparable) treatment for all eligible users of the monopolists' transmission facilities.¹⁴⁶

Order 888 was intended to further competition in generation by prohibiting “owners and operators of monopoly transmission facilities from denying transmission access, or offering only inferior access, to other power suppliers in order to favor the monopolists’ own generation and increase monopoly profits”¹⁴⁷ It required all transmission owners to file an open access transmission tariff with FERC and to separately state the price of wholesale generation and wholesale transmission (also known as functional unbundling¹⁴⁸). FERC also imposed an open access requirement on retail transmission in interstate commerce where the state commission or utility had voluntarily unbundled generation and transmission.¹⁴⁹ Critics of FERC’s Order 888 claimed that by relying on sections of the FPA that had not been significantly amended since their enactment in 1935 FERC was ignoring both Congress’ intent to merely fill the Attleboro gap and the FPA provisions that specifically limited FERC’s wheeling authority.¹⁵⁰ Furthermore, FERC’s claim of jurisdiction over retail transmission crossed a jurisdictional bright line between state and federal control.¹⁵¹

¹⁴⁶ Final Rulemaking: Federal Energy Regulatory Commission, Order 888: Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, 78 FERC ¶ 61,220 (1997) (codified at 18 C.F.R. pt. 35) [Hereinafter *Order 888*].

¹⁴⁷ *Id.*

¹⁴⁸ *New York v. FERC*, 535 US 1, 11 (2002).

¹⁴⁹ *Order 888*, *supra* note 146, at 121.

¹⁵⁰ *New York v. FERC*, 535 US 1, 20 (2002).

¹⁵¹ *Id.* at 16.

A CHALLENGE FOR FEDERALISM

The Supreme Court upheld FERC's assertion of jurisdiction and agreed with FERC that the FPA granted FERC authority over unbundled transactions.¹⁵² The Court supported its holding with citations to sections 201, 205 and 206, which established FERC's jurisdiction as including "the transmission of electric energy in interstate commerce," prohibited utilities from charging unreasonable, discriminatory rates "with respect to any transmission or sale subject to the jurisdiction of the Commission," and gave the Commission the power to correct such unlawful practices. Agreeing with the lower court,¹⁵³ the Court wrote that "the landscape of the electric industry has changed since the enactment of the FPA, when the electricity universe was 'neatly divided into spheres of retail versus wholesale sales,' and the plain language of the FPA readily supports FERC's claim of jurisdiction."¹⁵⁴ The language of the statute¹⁵⁵ confines FERC's jurisdiction over sales to wholesale sales, but the FPA put no such limitation over its jurisdiction over interstate transmission.¹⁵⁶ Although the Court acknowledged that the legislative history "demonstrates Congress' interest [in 1935] in retaining state jurisdiction over retail sales," the Court's evaluation of that history was "affected by the importance of the changes in the electricity industry that have occurred since the FPA was enacted."¹⁵⁷ The Court concluded that the statutory text provided the "clearest guidance," and the "text unquestionably supports FERC's jurisdiction to order unbundling of wholesale transactions . . . as well as to regulate the unbundled transmissions of electricity retailers."¹⁵⁸

¹⁵² *Id.*

¹⁵³ *Transmission Access Policy Study Group v. FERC*, 225 F.3d 667, 691 (D.C. Cir. 2000).

¹⁵⁴ *New York v. FERC*, 535 US 1, 16 (2002) (citing *Transmission Access Policy Study Grp. v. FERC*, 225 F.3d 667, 691 (D.C. Cir. 2000)).

¹⁵⁵ "The provisions of this subchapter shall apply to the transmission of electric energy in interstate commerce and to the sale of electric energy at wholesale in interstate commerce . . ." 16 USC § 824(b)(1) (2006).

¹⁵⁶ *New York v. FERC*, 535 US 1, 17 (2002).

¹⁵⁷ *Id.* at 23.

¹⁵⁸ *Id.*

FERC released two other major orders to further take transmission out of the hands of state commissions. Order 889,¹⁵⁹ released on the same day as Order 888, required every public utility that owns, controls, or operates facilities used for interstate transmission to participate in or create an electronic system that provides potential customers with real-time information about transmission capacity, prices and other information. In 1999, FERC issued Order 2000¹⁶⁰ which established principles for Regional Transmission Organizations (“RTO”), a third-party that manages interstate transmission to ensure equal access and reliability. FERC’s objective was “for all transmission-owning entities in the Nation . . . to place their transmission facilities under the control of appropriate RTOs in a timely manner,”¹⁶¹ but it maintained a voluntary approach. Utilities were not required to join an RTO,¹⁶² but they had to at least report to the FERC about impediments to RTO participation.¹⁶³ FERC found that RTOs were desirable because “traditional management of the transmission grid by vertically integrated electric utilities was inadequate to support . . . the continued development of competitive electricity markets, and that continued discrimination in the provision of transmission services . . . may also be impeding fully competitive electricity markets.”¹⁶⁴ If RTOs were not formed voluntarily, FERC wrote that it would “reconsider what further regulatory steps are in the public interest.”¹⁶⁵

By the middle of 2005, FERC had released three additional orders¹⁶⁶ that required public utilities to revise their open access

¹⁵⁹ Final Rulemaking: Federal Energy Regulatory Commission, Order 889: Open Access Same-Time Information System (formerly Real-Time Information Networks) and Standards of Conduct Issued, 61 Fed. Reg. 21,737-01 (May 10, 1996) (codified at 18 C.F.R. pt. 37).

¹⁶⁰ Final Rulemaking, Federal Energy Regulatory Commission, Regional Transmission Organizations, 89 FERC ¶ 61,285 (1999) (codified at 18 C.F.R. pt. 35) [Hereinafter *Order 2000*], available at www.ferc.gov/legal/maj-ord-reg/land-docs/RM99-2A.pdf.

¹⁶¹ *Id.*

¹⁶² *Id.* at 115.

¹⁶³ *Id.* at 117.

¹⁶⁴ *Id.* at 2.

¹⁶⁵ *Id.* at 4.

¹⁶⁶ Final Rulemaking: Federal Energy Regulatory Commission, Standardization of Generator Interconnection Agreements and Procedures, 104 FERC ¶ 61,103 (2003)

transmission tariffs to include standard procedures and interconnection agreements for generators and to take the unique technical properties of large-scale wind farms into account in these agreements. In each order, FERC cited its authority in sections 205 and 206 of the FPA to remedy undue discrimination. In one order FERC wrote that, “interconnection is a critical component of transmission service, and having a standard interconnection procedures and a standard agreement . . . will limit opportunities for transmitting utilities to favor their own generation . . . [and] remove unfair impediments to market entry”¹⁶⁷ Once again, the federal government asserted authority to enable new entrants in intrastate electricity markets. Over the course of a decade, FERC had vastly expanded its power over the country’s electricity infrastructure using provisions in the FPA that had been largely untouched by Congress since 1935.

In August 2005, Congress passed The Energy Policy Act of 2005 (“2005 Act”),¹⁶⁸ the most recent piece of federal legislation significantly affecting electricity regulation. The 2005 Act was passed in the wake of a massive blackout in the northeastern United States that affected 50 million people, cost \$6 billion, and was blamed on congested transmission lines in Ohio.¹⁶⁹ Electricity reliability and transmission policy were therefore two areas of Congressional interest. The 2005 Act granted FERC the authority to site transmission facilities.¹⁷⁰ The federal government had siting authority over electricity infrastructure since 1920, but its power had been largely limited to hydroelectric projects. FERC’s 2005 power could only be exercised in regions designated by DOE as areas of “national

(codified at 18 C.F.R. pt. 35); Final Rulemaking: Federal Energy Regulatory Commission, Standardization of Small Generator Interconnection Agreements and Procedures (2005) (codified at 18 C.F.R. pt. 35); Final Rulemaking: Federal Energy Regulatory Commission, Interconnection for Wind Energy 111 FERC ¶ 61,353 (2005) (codified at 18 C.F.R. pt. 35).

¹⁶⁷ Final Rulemaking: Federal Energy Regulatory Commission, Standardization of Small Generator Interconnection Agreements and Procedures (2005) (codified at 18 C.F.R. pt. 35).

¹⁶⁸ Energy Policy Act of 2005, Pub L. No. 109-58, 119 Stat. 594 (2005).

¹⁶⁹ JR Minkel, *The 2003 Northeast Blackout – Five Years Later*, Sci. Am. (Aug. 2008), available at <http://www.sciam.com/article.cfm?id=2003-blackout-five-years-later>.

¹⁷⁰ Energy Policy Act of 2005, Pub L. No. 109-58, § 1221(b) 119 Stat. 594, 947 (2005) (current version at 16 U.S.C. § 824(p)).

interest”¹⁷¹ and in the following five scenarios: (1) if the relevant state does not have the authority to approve the siting, (2) if the relevant state does not have authority to take potential interstate benefits into account, (3) if the applicant does not serve customers in the relevant state and therefore cannot apply to the local authority,¹⁷² (4) if the state authority has withheld approval for more than one year,¹⁷² or, (5) if the state authority has conditioned its approval in such a way that construction will not reduce congestion or will make congestion reduction economically unfeasible.¹⁷³

The 2005 Act also required that FERC adopt a rule establishing incentive ratemaking for transmission infrastructure to help promote

¹⁷¹ “In determining whether to designate a national interest electricity transmission corridor . . . the Secretary may consider the (A) economic vitality and development of the corridor, or the end markets served by the corridor, may be constrained by lack of adequate or reasonably priced electricity; (B)(i) economic growth in the corridor, or the end markets served by the corridor, may be jeopardized by reliance on limited sources of energy; and (ii) a diversification of supply is warranted; (C) the energy independence of the United States would be served by the designation; (D) the designation would be in the interest of national energy policy; and (E) the designation would enhance national defense and homeland security.” Energy Policy Act of 2005, Pub L. No. 109-58, § 1221, 119 Stat. 594, 946 (2005) (current version at 16 U.S.C. § 824(p)).

¹⁷² In February 2009, the Fourth Circuit limited the scope of FERC’s authority under the Energy Policy Act. *Piedmont Environmental Council v. Federal Energy Regulatory Commission*, 558 F. 3d 304, 314 (4th Cir. 2009). FERC had interpreted the phrase “withheld approval for more than 1 year after the filing of [a permit] application” in case (4) to include a state’s outright denial of an application. *Id.* The court ruled that FERC’s interpretation was contrary to the plain meaning of the statute, and FERC may not issue a permit when a state has affirmatively denied an application. *Id.* According to the court, the Commission’s reading would mean that Congress has told state commissions that they will lose jurisdiction unless they approve every permit application in a national interest corridor. *Id.* Under such a reading it would be futile for a state commission to deny a permit based on traditional considerations like cost and benefit, land use and environmental impacts, and health and safety . . . In providing for this measured transfer of jurisdiction, Congress simply makes sure that there is a utility commission available—if not a state commission, then FERC—to make a timely and straightforward decision on every permit application in a national interest corridor. In short, §216(b)(1), read as a whole, does not indicate that Congress intended to bring about the sweeping transfer of jurisdiction suggested by FERC. *Id.*

¹⁷³ Energy Policy Act of 2005, Pub L. No. 109-58, § 1221(b)(1) 119 Stat. 594, 947 (2005) (current version at 16 U.S.C. § 824(p)).

reliability and reduce congestion,¹⁷⁴ certify an organization to establish and enforce reliability standards for transmission system reliability,¹⁷⁵ and establish incentive-based rates for interstate transmission that will attract new investment.¹⁷⁶ The Act also amended PURPA¹⁷⁷ to require state commissions to “consider” adopting a net metering tariff,¹⁷⁸ developing a plan to minimize dependence on a single fuel source, increasing the efficiency of generation, and implementing time-based rate schedules. Additionally, the 2005 Act repealed the remaining provisions of the PUHCA¹⁷⁹ and eliminated the mandatory purchase requirement established by PURPA with regard to Qualifying Facilities if FERC made a finding that the relevant Facility has access to a competitive wholesale market.¹⁸⁰

To summarize, from 1978 to 2005 Congress and FERC vastly expanded the federal government’s role in electricity regulation. One method of doing so, which was used in PURPA and the 1992 and 2005 Acts, was to require state commissions to “consider” adopting policies. This tactic was designed to bring uniformity to disparate state commission practices and motivate laggard state commissions to adopt the more progressive practices that had already been implemented by other state commissions around the country. A second area of expansion was into intrastate electricity markets. PURPA’s Section 210, the 1992 Act’s definition of an EWG, and various FERC orders beginning with 888 led to an increase in non-utility generation and alternative generating technologies. However, despite these repeated attempts by the federal

¹⁷⁴ Energy Policy Act of 2005, Pub L. No. 109-58, § 1241, 119 Stat. 594, 961 (2005) (codified at 16 U.S.C. § 824(s) (2006)).

¹⁷⁵ *Id.* § 1211, 119 Stat. 594, 941 (current version at 16 U.S.C. § 824(o)).

¹⁷⁶ *Id.* § 1241, 119 Stat. 594, 961 (current version at 16 U.S.C. § 824(s)).

¹⁷⁷ *Id.* § 1251, 119 Stat. 594, 962 (current version at 16 U.S.C. § 824(s)).

¹⁷⁸ “Net metering service means service to an electric consumer under which electric energy generated by that electric consumer from an eligible on-site generating facility and delivered to the local distribution facilities may be used to offset electric energy provided by the electric utility to the electric consumer during the applicable billing period.” *Id.*

¹⁷⁹ Energy Policy Act of 2005, Pub L. No. 109-58, § 1263, 119 Stat. 594, 974 (2005).

¹⁸⁰ Energy Policy Act of 2005, Pub L. No. 109-58, § 1253, 119 Stat. 594, 967 (2005) (current version at U.S.C. § 824a-3(m)).

government to bring greater uniformity and competition to the industry, substantial differences between the states remain.

E. *Differences Between the States*

Each state has its own body of laws, regulations, and administrative decisions that govern electricity regulation. Although many states' regulatory regimes can be traced back to the 1907 Wisconsin law, and every state regulatory regime began with similar principles, major differences between the states have emerged over the last forty years.

Utility planning was historically driven by managers who justified expansion based on their own projections for demand growth, expected facility retirements and plans for meeting that demand in terms of generation and transmission lines to link the plants to load centers.¹⁸¹ State commissions began to widen their scope from their traditional focus on ratemaking and utility finances to include careful scrutiny of utility planning.¹⁸² By 1991, nearly all states had adopted some form of integrated resource planning ("IRP"), broadly defined as the development of demand- and supply-side energy options designed to result in the maximum benefits for consumers and include analyses of environmental externalities, resource availability and load forecasting.¹⁸³ Implementation of IRP, however, likely varies widely among states and depends on the exact language of statutes and regulations as well as state commission

¹⁸¹ Ashley C. Brown & Jim Rossi, *Siting Transmission Lines in a Changed Milieu: Evolving Notions of the "Public Interest" In Balancing State and Regional Considerations*, 81 U. Colo. L. Rev. 705, 721 (2010).

¹⁸² Daniel Yergin, Gary Simon, & I.C. Bupp, *Caught in the Muddle: The Dilemma of Today's Electric Power Industry*, 8 NAT. RESOURCES & ENV'T 3 (1993); see also Swartwout, *supra* note 2, at 323–28 (describing how public utility commissions increasingly mixed traditional utility economic and rate regulation with "social regulation functions." Social regulation included "public safety, public health, and the environment." State commissions also undertook "prudence reviews" of investment decisions, which shifted the burden to utilities of proving that their investments were not imprudent).

¹⁸³ Clinton A. Vince, Sherry A. Quirk, Stuart J. Rabin, *Integrated Resource Planning: The Case for Exporting Comprehensive Energy Planning to the Developing World*, 25 CASE W. RES. J. INT'L L. 371, 373 (1993).

practices. Congress clearly approved of this expansion of the role of state commissions. The Energy Policy Act of 1992 required all states that had not already done so to consider adopting IRP.¹⁸⁴

The 1992 Act prohibited FERC from requiring retail wheeling,¹⁸⁵ or providing customers with a choice among providers of retail electricity, but many states took up the initiative. In 1994, California and a few other states with relatively high electric rates began the process of opening retail electricity markets to competition and consumer choice.¹⁸⁶ By 2002, twenty-four states enacted legislation or issued regulatory orders to offer retail choice to customers.¹⁸⁷ This movement quickly stalled and retreated. In 2010, only fifteen states offered retail choice.¹⁸⁸

Opening up the retail market to competition was related to further restructuring of the electricity industry in some states. By September 1999, twenty-one states had passed legislation dealing with divestiture of generation assets by utilities, with five states requiring utilities to sell at least some of their generation assets and a handful of other states explicitly granting the state commission authority over divestiture of generation.¹⁸⁹ In some states, utilities sold off generation assets on their own initiative, and in many states generation was sold to affiliate companies of utilities.¹⁹⁰ Today, there is a great disparity among states in how much

¹⁸⁴ Energy Policy Act of 1992, Pub. L. No. 102-486, § 111, 106 Stat. 2776, 2795 (1992) (codified as 16 U.S.C. § 2621 (2006)).

¹⁸⁵ “Prohibition on Mandatory Retail Wheeling and Sham Wholesale Transactions: No order issued under this Act shall be conditioned or require the transmission of electric energy: (1) directly to an ultimate consumer, or (2) to, or for the benefit of, an entity if such electric energy would be sold by such entity directly to an ultimate consumer” Energy Policy Act of 1992, Pub. L. No. 102-486, §722(h), 106 Stat. 2776, 2016 (1992) (codified as 16 U.S.C. § 824k (2006)).

¹⁸⁶ David B. Spence, *Coal-Fired Power in Restructured Electricity Market*, 15 DUKE ENVTL. L. & POL’Y F. 187, 201 (2005).

¹⁸⁷ U.S. Gen. Accounting Office, *Lessons Learned from Electricity Restructuring: Transition to Competitive Markets Underway, But Full Benefits Will Take Time and Effort to Achieve* (Dec. 2002), <http://www.gao.gov/new.items/d03271.pdf>.

¹⁸⁸ U.S. Energy Admin. Info., *Status of Electricity Restructuring by State* (Sept. 2010), http://www.eia.doe.gov/cneaf/electricity/page/restructuring/restructure_elect.html.

¹⁸⁹ U.S. Energy Info. Admin., *Divestiture of Generation Assets by Investor-Owned Electric Utilities* (May 19, 2011),

http://www.eia.doe.gov/electricity/corp_str/chapter6.html.

¹⁹⁰ *Id.*

power is generated by traditional utilities as compared to independent power producers. For example, Massachusetts imports 30% of its electricity and utilities generate only 1% of all electricity generated in the state.¹⁹¹ In Indiana, which is a net exporter of electricity, utilities generate 90% of the state's total generation.¹⁹² These differences are a reflection of legislative and regulatory choices. Massachusetts was among the first states to implement retail choice; later legislation provided financial incentives for vertically integrated utilities to sell their generation assets,¹⁹³ and the legislature and various regulatory bodies have been actively reshaping the industry over the past fifteen years.¹⁹⁴ Indiana's legislature, by contrast, has kept the traditional vertically integrated structure of the industry largely intact.¹⁹⁵

¹⁹¹ See U.S. Energy Info. Admin., Massachusetts Electricity Profile, 2009 Edition, http://www.eia.gov/cneaf/electricity/st_profiles/massachusetts.html.

¹⁹² See U.S. Energy Info. Admin., Indiana Electricity Profile, 2009 Edition, http://www.eia.gov/cneaf/electricity/st_profiles/indiana.html.

¹⁹³ Mass. Gen. Laws, ch. 164, §§ 1-8 (2008) ("An Act Relative to Restructuring the Electric Utility Industry in the Commonwealth, Regulating the Provision of Electricity and Other Services, and Promoting Enhanced Consumer Protection").

¹⁹⁴ See U.S. Energy Info. Admin., Massachusetts Restructuring, <http://www.eia.doe.gov/cneaf/electricity/page/restructuring/massachusetts.html> (stating a digest of activities).

¹⁹⁵ See U.S. Energy Info. Admin., Indiana Restructuring (Apr. 2007), <http://www.eia.doe.gov/cneaf/electricity/page/restructuring/indiana.html> (showing little activity with regard to restructuring); see also Ind. Code, public utility laws (2011), available at <http://www.in.gov/legislative/ic/code/title8/ar1/> (showing no structural changes implemented by the legislature); see also Ind. Util. Regulatory Comm'n, Report to the Regulatory Flexibility Committee of the Indiana General Assembly 12 (2010), http://www.in.gov/iurc/files/Report_to_the_Reg_Flex_Committee_2010.pdf (noting that utilities "are vertically integrated, which means they own facilities for generation, transmission, and distribution" and "Indiana electric utilities operate under a traditional regulatory regime administered by the IURC). Under this regulatory framework, the utility owns and operates generation, transmission, and distribution facilities in order to provide electric retail service to customers in a defined exclusive service territory. Retail customers are billed for service based on the average embedded cost to serve, including an authorized reasonable rate of return on investment. Generation resources owned by utilities are economically dispatched such that generation output meets customer demand. Indiana utilities are responsible for short-term and long-term planning to meet customer demand at the lowest reasonable cost." *Id.* at 17. The major change in the operation of the state's utilities is that Indiana participates in two RTOs which "direct the operation in

A CHALLENGE FOR FEDERALISM

Coal represents another major difference among states. States that produce coal or are neighbors of major coal producing states generate most of their electricity from coal, have the among the lowest electricity rates in the country and emit the most carbon dioxide per megawatt-hour of electricity generated (CO₂/MWh). In short, dirty power is cheap, especially if the dirty resource is located close to the state's power plants.

Table 1: State statistics and rankings based on in-state generation¹⁹⁶

	Rank by CO ₂ /MWh Generated	Rank by Price of Electricity	% Electricity Generated by Utilities	% Electricity Generated by Coal	Rank by Coal Production
North Dakota	1	7	93%	87%	9
Wyoming	2	1	96%	91%	1
Indiana	3	15	90%	93%	6
Kentucky	4	3	89%	93%	3
West Virginia	5	5	74%	96%	2
Delaware*	6	38	11%	58%	n/a
Iowa	7	12	83%	73%	n/a
Missouri**	8	11	98%	81%	23
Utah	9	6	97%	82%	13
Ohio	10	29	70%	84%	11
New Mexico	11	20	87%	73%	12

*Most of Delaware's electricity is generated out-of-state

**Missouri is bordered by five coal producing states, including Kentucky and Illinois, two of the largest producers.

States with inexpensive, dirty electricity generally chose not to restructure. Of the top eleven states in terms of CO₂/MWh, only Delaware and Ohio have restructured their electricity industries. On the

real time of all generating facilities in their regions to ensure that the lowest-cost combination of generation resources is being used at any given moment. Additionally, RTOs engage in long-term resource planning in order to achieve greater optimality in the construction of new resources.”

¹⁹⁶ All electricity statistics are from the U.S. Energy Information Administration from 2009, with the exception of CO₂ data which is from 2008, *available at* <http://www.eia.doe.gov/pub/electricity/epm0310.zip> and http://www.eia.gov/cneaf/electricity/chg_str/restructure.pdf. Coal production statistics are from <http://www.eia.gov/cneaf/coal/page/acr/table6.html>.

other hand, the nine most expensive states, on average more than twice as expensive as the ten cheapest, have all restructured their electricity industries. Another major difference between the dirtiest and most expensive states is that all of the dirtiest states, with the exceptions of Delaware and Ohio, export electricity. Of the most expensive states, six import electricity, thus keeping pollution out-of-state.

Table 2: State statistics and rankings based on in-state generation, most expensive states¹⁹⁷

	Rank by CO2/MWh Generated	Rank by Price of Electricity	% Electricity Generated by Utilities	% Electricity Generated by Coal	Rank by Coal Production
Vermont	33	39	11%	0%	n/a
Maine	34	40	31%	0%	n/a
Maryland	35	41	1%	55%	19
California	36	42	50%	1%	n/a
Rhode Island	37	44	1%	0%	n/a
New Jersey	38	45	1%	9%	n/a
New Hampshire	39	46	19%	14%	n/a
Massachusetts	41	48	3%	25%	n/a
New York	42	49	28%	10%	n/a
Connecticut	43	50	1%	8%	n/a

Another major legislative difference between states that has emerged more recently is whether or not the state has a Renewable Portfolio Standard (“RPS”). An RPS typically mandates that each utility procure a certain percentage of its power from renewable generation sources. Thirty-five states have an RPS or an Alternative Energy Portfolio Standard (“AEPS”),¹⁹⁸ and their goals vary widely from requiring 25% of

¹⁹⁷ Alaska and Hawaii have been omitted because they cannot participate in regional markets.

¹⁹⁸ Pew Center on Global Climate Change, *Renewable & Alternative Portfolio Standards* (Oct. 27, 2010), available at http://www.pewclimate.org/what_s_being_done/in_the_states/rps.cfm (last visited Aug. 16, 2011) [hereinafter *Pew RPS Chart*]. Note that Florida never passed an RPS. *Id.* Four states have voluntary goals, meaning that utilities that fail to meet the goal are not penalized. *Id.* Under a mandatory RPS, utilities often have to pay a fine for each megawatt-hour that they fail to procure from renewable sources. Four states—Michigan,

electricity to be generated by renewables by 2025 (Illinois) to mandating only 1% of the state's current installed capacity.¹⁹⁹ Of the five dirtiest states in Table 1, North Dakota has a voluntary RPS, West Virginia has an AEPS that allows utilities to meet goals with advanced coal technologies,²⁰⁰ and the other three states have not set any renewable energy goals. Every state in Table 2 has an RPS.

States also have widely varying goals and policies with regards to energy efficiency. Roughly half of states have an Energy Efficiency Resource Standard or Energy Efficiency Portfolio Standard that encourage or mandate more efficient generation, transmission and distribution of electricity.²⁰¹ Typically an efficiency standard requires utilities to reduce energy use by a specified percentage each year, and some states combine efficiency targets with RPS goals by allowing efficiency improvements to count towards the state's RPS. In its 2010 ranking of state energy efficiency policies, the American Council for an Energy-Efficient Economy ("ACEEE") observed that "states are demonstrating leadership and innovation in developing and implementing energy efficiency policies" and predicted that "states will continue to guide our nation's direction in clean energy."²⁰² The ranking demonstrates vast disparities among the states. While California leads the nation with a maximum cumulative score of 50, based on a "comprehensive assessment of policy

Ohio, Pennsylvania, and West Virginia—have Alternative Energy Portfolio Standards which allow some of the requirement to be met with advanced fossil fuel technologies, such as carbon capture and sequestration and integrated gasification combined cycle. *Id.*¹⁹⁹ Iowa's RPS mandates only 105 MW of capacity by 2025, equivalent to only 1% of the state's current installed capacity. U.S. Energy Info. Admin., State Electric Profile, http://www.state.ia.us/government/com/util/energy/electric_profile.html. Regardless, as of January 2010, there were 3,670 MW of wind capacity operating in Iowa. American Wind Energy Ass'n, U.S. Wind Energy Projects—Iowa (Sept. 2010), <http://archive.awea.org/projects/projects.aspx?s=Iowa>.

²⁰⁰ See W. Va. Code § 24-2F-3 (2007) (defining "Alternative Energy Sources" as including advanced coal technology, coal bed methane, fuel produced by coal gasification, synthetic gas, and other fossil-fuel based sources).

²⁰¹ Pew Center on Global Climate Change, Energy Efficiency Standards and Targets, http://www.pewclimate.org/what_s_being_done/in_the_states/efficiency_resource.cfm (last visited Aug. 16, 2011).

²⁰² Am. Council for an Energy-Efficient Economy, The 2010 State Energy Efficiency Scorecard 1 (Oct. 2010), available at <http://www.aceee.org/node/820>.

and programs,” thirteen states scored below 10, indicating that they had few initiatives aimed at improving energy efficiency.²⁰³ Not surprisingly, there is a high correlation between energy efficiency policies and RPS policies. The twenty highest ranked states in ACEEE’s ranking all have an RPS.²⁰⁴ Of ACEEE’s bottom fifteen states, only five states have any form of RPS goals, which includes one state with an AEPS that allows advanced coal technologies (West Virginia) and two states with non-mandatory goals (North and South Dakota).

This very brief overview of state electricity legislation and regulation is intended to demonstrate only that there are significant differences between the states, and those differences can be the result of choices by legislatures and state commissions. In some cases, those choices are influenced by coal mining and a state’s historic relationship with that industry. In other states, those choices may be motivated by historic high electricity prices and environmental concerns. As FERC recently observed, “significant differences exist between regions, including differences in industry structure, mix of ownership, sources for electric generation, population densities, and weather patterns. Some regions have organized spot markets administered by an RTO or ISO, and others rely solely on bilateral contracting between wholesale sellers and buyers.”²⁰⁵

PART II: CURRENT ISSUES IN ELECTRICITY POLICY – TRANSMISSION AND CLEAN ENERGY

A. *National Electricity Policies and Goals*

In 1935, Congress set the parameters of its jurisdiction over electricity regulation, establishing bright-line boundaries that held solidly for four decades and have since slowly eroded. It also declared its motivations for intervening in electricity regulation—encouraging

²⁰³ *Id.* at 3–4.

²⁰⁴ *Id.* Although Iowa, ranked twelfth by ACEEE, has a very weak RPS, and Utah, which is tied with Iowa in the ACEEE ranking, has only a voluntary goal. *Id.*

²⁰⁵ Wholesale Competition in Regions with Organized Electric Markets, 122 FERC ¶ 61,167 (Feb. 22, 2008).

competition, ensuring reliability and remedying discrimination—which served as rationales for much of the later federal action and are still featured prominently in FERC rulemakings.²⁰⁶ The Federal Power Act of 1935 still serves as the foundation for all federal government activity in the electricity industry.

With the passage of PURPA in 1978, Congress attempted to harmonize state commissions around a set of national goals.²⁰⁷ Congress' approach combined mandates that superseded the jurisdiction of state commissions and recommendations that states were required to "consider."²⁰⁸ PURPA both required and motivated states to act. For example, every state commission made a determination about the calculation of "avoided costs" as they apply to rates for Qualifying Facilities.²⁰⁹ Every state commission that had not already done so prior to

²⁰⁶ See, e.g., "We firmly believe that our authorities under the FPA not only permit us to adapt to changing economic realities in the electric industry, but also require us to do so, as necessary to eliminate undue discrimination and protect electricity customers. The record supports our conclusion that, absent open access, undue discrimination will continue to be a fact of life in today's and tomorrow's electric power markets." *Order 888*, *supra* note 146, at 10. See also, "the Commission reviewed evidence that traditional management of the transmission grid by vertically integrated electric utilities was inadequate to support the efficient and reliable operation that is needed for the continued development of competitive electricity markets, and that continued discrimination in the provision of transmission services by vertically integrated utilities may also be impeding fully competitive electricity markets. *Id.*

²⁰⁷ Public Utility Regulatory Policies Act of 1978, Pub. L. No. 95-617, §2, 91 Stat. 3117, 3119 (1978): (codified at 16 U.S.C. § 2601(1) (2008)) (Congress found that the country required increased conservation of electricity, improved efficiency of facilities and resources, and equitable rates).

²⁰⁸ See *supra* text accompanying notes 88–99.

²⁰⁹ See Brent L. Vanderlinden, Note, *Bidding Farewell to the Social Costs of Electricity Production: Pricing Alternative Energy Under the Public Utility Regulatory Policies Act*, 13 J. Corp. L. 1011, 1024 (1988) ("Public Utility Commissions in forty-nine states [note that Nebraska does not have a Public Utility Commission] have dealt with the question of how to calculate avoided costs, but not all have chosen to adopt a fixed methodology for the calculation. Definitions of what constitutes avoided costs, and the methodologies for calculating them, vary widely from state to state."); see also Deirdre O'Callaghan & Steve Greenwald, *PURPA from Coast to Coast: American's Great Electricity Experiment*, 10 Nat. Resources & Env't. 17 (1996) (noting that the choice to put Qualifying Facility rates in the hands of state commissions was at least partially made by the FERC, not Congress).

PURPA's passage was also required to hold formal hearings and make written findings, and was given federal grants to do so, to consider PURPA's ratemaking standards. Some states also went above and beyond PURPA's requirements. At least seventeen state legislatures passed implementing legislation,²¹⁰ with some states passing multiple laws.²¹¹

Since PURPA's enactment in 1978, the electricity industry has undergone vast changes, including the increase of competition in generation, the establishment of open access transmission, the growth of wholesale electricity markets, the rise of regional transmission organizations, the awareness of conservation and the introduction of renewable portfolio standards. The impacts of these changes have varied considerably by state, and Congress has not reacted strongly to the disparities. In 1992, Congress indicated a preference towards enabling competition, but many states have held on to the traditional regulated monopoly structure of the industry.²¹² In 1978, 1992 and 2005, Congress attempted to unify states around conservation and efficiency, but the country's electricity consumption has continued to grow.²¹³ Congress has yet to articulate any goal about greenhouse gas emissions from the electricity industry.

"Section 210 states that the FERC shall adopt 'such rules as it determines necessary to encourage cogeneration and small power production' The statute requires that the rate of purchase be (1) just and reasonable and in the public interest; and (2) shall not discriminate against cogenerators or small power producers. In 1980, FERC adopted 18 C.F.R. Part 292 to implement PURPA 210. FERC determined that fair, reasonable, and nondiscriminatory rates meant 'full avoided cost' and established in the federal regulations a framework for state regulatory agencies to implement the federal standard. States were allowed to implement FERC's rules by rulemaking, case-by-case adjudication or 'any other reasonable procedure.'" *Id.* (quoting 16 U.S.C. § 824a-3(a)-(b)).

²¹⁰ See Martin, *supra* note 128, at 171 n.194.

²¹¹ *Id.* (describing post-PURPA legislation in Maine and California).

²¹² See *supra* text accompanying notes 185-188.

²¹³ See U.S. Energy Info. Admin., Electricity Overview 1949-2009, <http://www.eia.gov/totalenergy/data/annual/txt/ptb0801.html> (last visited Aug. 30, 2011). Year-to-year electricity consumption increased every year from 1949 to 2009, except for 1974, 1982, 2001, 2008, and 2009. Overall growth from 1949 to 2009 was 1,367%. *Id.*

Since 2005, there have been numerous bills proposed that include major reforms to electricity regulation.²¹⁴ This paper will look at two areas targeted for possible reform, transmission siting and clean electricity generation, in light of the history of federal-state jurisdiction explored in Part I.

B. *Transmission*

Regional coordination and planning have been part of the electricity industry since three utilities in New Jersey and Pennsylvania formed “the world’s first continuing power pool” in 1927.²¹⁵ In 1935, the Federal Power Act of 1935 empowered the FPC to promote regional coordination.²¹⁶ As electricity expanded its reach with ever larger centralized generators, regional pooling became a standard industry practice.²¹⁷ In the aftermath of a major blackout in 1965, the National Electric Reliability Council was established to ensure greater reliability. In 1999, FERC issued criteria for Regional Transmission Organizations. Today, twenty-seven states are at least mostly covered by a FERC-approved RTO or Independent System Operator (“ISO”), and every other state is part of an organization that performs some of the functions of an

²¹⁴ There are many examples of proposed bills from the 111th Congress, many of which include both transmission siting reform and sections about increasing renewable generation. *See, e.g.*, American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. (2009); Clean Renewable Energy and Economic Development Act, S. 539, 111th Cong. (2009); American Clean Energy Leadership Act of 2009, S. 1462, 111th Cong. (2009); Clean Energy Jobs and American Power Act, S. 1733, 111th Cong. (2010); National Energy Security Act of 2009, S. 774, 111th Cong. (2009); Sound Management of America’s Resources and Technologies for Energy Act of 2009 (SMART Energy Act), S. 807, 111th Cong. (2009).

²¹⁵ PJM Heritage, <http://www.pjm.com/about-pjm/who-we-are/pjm-heritage.aspx> (last visited Apr. 25, 2011).

²¹⁶ The Federal Power Act “empowered and directed” the FPC to “divide the country into regional districts for the voluntary interconnection and coordination of facilities for the generation, transmission, and sale of electric energy” and provided the FPC with the “duty” to “promote and encourage such interconnection and coordination within each such district and between such districts.” Federal Power Act, ch. 687, § 202, 49 Stat. 848 (1935) (codified at 16 U.S.C. § 824a(a) (2006)).

²¹⁷ *See supra* text accompanying notes 79–87.

RTO/ISO.²¹⁸ These regional entities engage in rigorous long-term transmission planning, and FERC-approved RTOs/ISOs have the authority to allocate costs of new projects among their member utilities. These regional entities do not have the authority to site transmission lines.

The limited authority granted to FERC in the 2005 Act to site transmission lines was designed to overcome perceived deficiencies in state laws. State approval processes are rooted in the traditional vertically integrated utility paradigm under which the costs of new transmission are allocated to the incumbent utility's ratepayers based on an understanding that these customers will benefit from the new transmission.²¹⁹ State laws and regulations therefore often require that its approval process focus on the costs and benefits accruing to in-state ratepayers only while ignoring the project's regional impacts. Three of the five scenarios under which FERC has authority over siting under the 2005 Act involve a state's lack of legal authority to approve the project because of the parochial nature of its framework for approval.²²⁰

²¹⁸ FERC recognizes seven RTOs or Independent System Operators (ISOs) that meet the requirements of Order 2000: California ISO, the Electricity Reliability Council of Texas, Southwest Power Pool, Midwestern Independent System Operator, PJM Interconnection, New York ISO, and New England ISO. Fed. Energy Regulatory Comm'n, Regional Transmission Organizations (RTO)/Independent System Operators (ISO) (May 17 2011), available at <http://www.ferc.gov/industries/electric/indus-act/rto.asp>. In total, 27 states are mostly covered by a FERC-certified regional entity. *Id.* (also showing map of the regions). FERC also recognizes that "public utility transmission providers in regions outside of RTOs and ISOs have relied on [the following organizations] to comply with certain requirements of Order No. 890 . . . the North Carolina Transmission Planning Collaborative, Southeast Inter-Regional Participation Process, SERC Reliability Corporation, ReliabilityFirst Corporation, Mid-Continent Area Power Pool, Florida Reliability Coordination Council, WestConnect, ColumbiaGrid, and Northern Tier Transmission Group. Final Order, Federal Energy Regulatory Commission, Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, 131 FERC ¶ 61,253 (2010) (to be codified at 18 C.F.R. pt. 35) [hereinafter *June 17 NOPR*]. Utilities and other entities that cover substantial portions of every state (other than Alaska and Hawaii) participate in either a FERC-certified RTO/ISO or one of these other entities that fulfill some requirements of FERC's Order 890.

²¹⁹ See generally Brown & Rossi, *supra* note 181.

²²⁰ See *supra* text accompanying notes 146–147. The relevant scenarios are: (1) If the relevant state does not have the authority to approve the siting; (2) If the relevant state does not have authority to take potential interstate benefits into account; and (3) If the

A CHALLENGE FOR FEDERALISM

In the 2005 Act, Congress provided states with means of avoiding federal jurisdiction. One option was for states to amend their laws and/or regulations to preclude a scenario that would trigger federal jurisdiction.²²¹ For example, under the 2005 Act, FERC could approve an interstate transmission line provided it was located in a designated region and the relevant states did not have authority to account for interstate benefits in its approval process. A state legislature could avoid FERC's jurisdiction by granting its state commission the authority to account for a project's interstate benefits. A second option was for a state to enter into an agreement with at least two contiguous states to establish a regional transmission siting agency.²²² With the exception of dispute resolution, FERC would not have siting authority in states that had entered into regional agreements. While Congress attempted to motivate reform at the state level, because the 2005 Act provided FERC with such limited authority, subject to geographic and substantive limitations, it failed to induce states to bring their siting procedures in line with Congress' standards.

There are two major issues with respect to state-by-state transmission siting. First, roughly thirty states give a single state agency exclusive jurisdiction over siting of transmission lines, but the remaining states require multiple local governments to approve a new transmission project.²²³ Working with a single agency is likely to be faster and cheaper for entities building new transmission lines. Each local approval is an additional cost to the builder with its own set of unique concerns and opportunities for new interveners and for local authorities to extract concessions, such as financial payments or re-routing of the line. Regardless of whether the state approval process includes local governments, getting a large-scale transmission line approved is a lengthy process. If the line traverses through federal land, environmental

applicant does not serve customers in the relevant state and therefore cannot apply to the local authority.

²²¹ See *supra* text accompanying notes 168–173.

²²² Energy Policy Act of 2005, Pub L. No. 109-58, §1221(i) 119 Stat. 594, 950 (2005) (codified at 16 U.S.C. § 824p(i) (2006)).

²²³ Roughly twenty states still have a decentralized approach to transmission approvals. Brown & Rossi, *supra* note 181, at 708 n.7 (citing Ashley C. Brown & Damon Daniels, *Vision Without Site, Site Without Vision*, 16 *Electricity J.* 23, 24 (Oct. 2003)).

reviews²²⁴ and multi-round review processes by regional transmission entities, such as an RTO, can last for several years.²²⁵ Given the long duration of the overall approval process, whether the project requires approval by a single state agency or by multiple local governments certainly adds some complexity but in the grand scheme of the project may not be a deal breaker.

The second problem with the state-by-state approval process is that state agencies may lack the authority to approve interstate projects. State regulators typically have to make an initial determination about the justification for construction of the new transmission line.²²⁶ Historically those decisions were made in light of demand forecasts of the in-state ratepayers and the supply of the incumbent vertically integrated monopoly utility.²²⁷ However, interstate transmission lines, which may pass through a state without providing in-state benefits, do not fit this historic paradigm. State statutes, regulations, or utility commission practices may not authorize or may make it unlikely that regulators can consider out-of-state regional benefits or policy goals, such as whether the transmission project will enable new renewable generation.²²⁸ Without authority to consider

²²⁴ See, e.g., Gateway West Transmission Line Project, http://www.wy.blm.gov/nepa/cfodocs/gateway_west/schedule.php (last visited Apr. 20, 2011) (showing that the NEPA process is expected to take more than three years—potential lawsuits are not included.) As proposed, the Gateway West Transmission Line Project will stretch 1,000 miles along southern Wyoming and Idaho, including 500 miles through federal land managed by the Bureau of Land Management. Gateway West Transmission Line Project: About This Project, http://www.wy.blm.gov/nepa/cfodocs/gateway_west/index.html (last visited Apr. 20, 2011).

²²⁵ See, e.g., Transwest Express, *WECC Rating Process for TWE Project Advances to Phase 2 Status* (Feb. 2, 2011), available at <http://www.transwestexpress.net/news/briefs/020210-WECC-Phase-2.shtml> (highlighting that the TransWest project passed two of three rounds of review at the relevant regional transmission planning organization). The process took more than two years. *Id.* The TransWest project will move power from Wyoming through Utah and Colorado and terminate near Las Vegas. *Id.*

²²⁶ Brown & Rossi, *supra* note 181, at 721.

²²⁷ *Id.* at 706–08.

²²⁸ Jim Rossi, *The Trojan Horse of Electric Power Transmission Line Siting Authority*, 39 *Envtl. L.* 1015, 1029 (2009).

out-of-state benefits, state commissions are less likely to approve interstate projects whose benefits do not accrue to in-state ratepayers.

A July 2008 survey of state statutes by the National Council on Electricity Policy found that twenty-three states have statutes that encourage coordination with neighboring states.²²⁹ In these states, statutes may grant the state commission generic permission to cooperate, provide authority to conduct joint investigations or hearings or issue orders with neighboring states, or authorize the state commission to enter into compacts.²³⁰ The study notes that “language governing interstate transmission siting varies throughout the country” and while some statutes provide concrete direction, others are “nuanced in a way that may either create opportunities for or prevent interstate coordination, depending on interpretation.”²³¹ Eleven states’ statutes are silent on interstate transmission siting and interstate coordination more broadly.²³² But eight of these eleven states participate in a FERC-approved RTO/ISO despite the lack of explicit statutory authorization.²³³ The report found that “statutory language is not the determining factor in how well state’s coordinate with one another on transmission siting”²³⁴ and that “initiative” and “perception of need” may be greater drivers of interstate cooperation.²³⁵ Ultimately, some states lack the initiative to either participate in regional coordination efforts or to reform statutes and commission practices that would enable approval of interstate projects.

Assuming an interest in fixing the problems with state siting practices, Congress’ first option is simply to maintain the status quo and

²²⁹ Julia Friedman & Miles Keogh, The National Council on Electricity Policy, *Coordinating Interstate Electric Transmission Siting: An Introduction to the Debate 7* (2008),

http://energy.gov/sites/prod/files/oeprod/DocumentsandMedia/Transmission_Siting_FIN_AL_41.pdf [Hereinafter NCEP Survey].

²³⁰ *Id.*

²³¹ *Id.* at 7.

²³² *Id.*

²³³ *See Id.* at 7. For the map of relevant states, *see* Fed. Energy Regulatory Comm’n, Regional Transmission Organizations (RTO)/Independent System Operators (ISO) (May 2011), <http://www.ferc.gov/industries/electric/indus-act/rto.asp> for a map of RTO/ISO coverage.

²³⁴ NCEP Survey, *supra* note 229, at 4.

²³⁵ *Id.*

pass no new legislation that would further empower FERC. Despite its lack of new authority since 2005, FERC has been active in reforming transmission.²³⁶ A key issue is allocating costs for new transmission among the utilities and merchant power providers in the affected region. FERC and regional transmission organizations are working to find a methodology that will increase investment in new transmission, and it seems plausible that they can solve the problem without new legislation from Congress.²³⁷ Cost allocation is a complicated issue²³⁸ and will not be dealt with in detail in this paper. With regard to concerns about siting statutes, the decision of whether or not to reform laws can be left to states. Those states that want to facilitate the export of electricity can amend their laws to more easily allow for the siting of new interstate transmission, as

²³⁶ See, e.g., June 17 NOPR, *supra* note 218 (proposing reforms to transmission cost allocation, regional planning, and coordination between transmission planning regions); Preventing Undue Discrimination and Preference in Transmission Service, 18 C.F.R. pts. 35, 37 (2010) (amending the pro forma open access transmission tariff to ensure that it remedies discrimination and adopting eight planning principles that require coordinated, open, and transparent transmission planning on both a sub-regional and regional level); Integration of Variable Energy Resources, 133 FERC ¶ 61,149 (2010) (to be codified at 18 C.F.R. pt. 35) proposing to reform the open access transmission tariff so it meets the needs of variable resources such as wind; and Final Rule, Federal Energy Regulatory Commission, Promoting a Competitive Market for Capacity Reassignment 132 FERC ¶ 61,238 (Sept. 10, 2010) (codified at 18 C.F.R. pt. 35) (lifting the price cap for all electric transmission customers reassigning transmission capacity, which is intended to help facilitate the development of a market for electric transmission capacity reassignments as a competitive alternative to transmission capacity acquired directly from the transmission owner).

²³⁷ See, e.g., Midwest Independent Transmission System Operator, Inc., 133 FERC ¶ 61, 221 (2010) (accepting a proposal from the Midwest ISO to establish a new category of transmission projects, called Multi Value Projects, that are determined to “enable the reliable and economic delivery of energy in support of documented energy policy mandates or laws Filing Parties propose that the costs of MVPs be allocated all load in, and exports from, Midwest ISO on a postage-stamp basis.”). See also June 17 NOPR, *supra* note 218 (FERC proposes new cost allocations methodologies).

²³⁸ See *A Survey of Transmission Cost Allocation Issues, Methods and Practices* (Mar. 10, 2010), <http://ftp.pjm.com/~media/documents/reports/20100310-transmission-allocation-cost-web.ashx> (explaining five general methodologies for allocating costs of new transmission).

some states have already done.²³⁹ Furthermore, a recent study by the Edison Electric Institute, a prominent industry association,²⁴⁰ found that transmission investment has been growing, and the Institute credits the 2005 Act and FERC pricing policies as key to sustaining continued growth.²⁴¹ Despite the challenges with current state laws, regulations and administrative practices, new transmission projects are actually moving forward.

Notwithstanding the growth in investment, Congress may still find it beneficial to unify states around a common understanding for the siting of interstate transmission projects. In addition to simplifying the process for transmission builders, pushing states to update their transmission siting policies can be part of a larger effort to bring state electricity policies in line with the changed industry. One tactic would be to follow the model of Title I of PURPA, repeated in the 1992²⁴² and 2005²⁴³ Acts, of

²³⁹ Wyoming, for example, has created the Wyoming Infrastructure Authority (WIA), whose mission is “to diversify and expand the Wyoming economy through improvements in the state’s electric transmission infrastructure and to facilitate the consumption of Wyoming energy by planning, financing, constructing, developing, acquiring, maintaining and operating electric transmission facilities, advanced coal technology facilities, advanced energy technology facilities and related supporting infrastructure” Wyo. Stat. Ann. § 37-5-303(a) (2010). The Authority can participate in planning, financing, constructing, developing, acquiring, maintaining and operating electric transmission facilities and their supporting infrastructure. The WIA also has authority to “acquire by condemnation within the state of Wyoming any properties necessary or useful for its purposes” *Id.* § 37-5-304(a)(v).

²⁴⁰ Edison Electric Institute, *About Us*,

<http://www.eei.org/whoweare/abouteei/Pages/default.aspx> (last visited Apr. 20, 2011).

²⁴¹ Edison Electric Institute, *Transmission Projects: At a Glance* (Feb. 2010), http://www.eei.org/ourissues/ElectricityTransmission/Documents/Trans_Project_lowres.pdf (“Despite the economic downturn, the investment being made by EEI member companies is significant and growing, and reflects preparation for future customer needs. From 2001 to 2008, EEI members invested nearly \$57.5 billion in transmission infrastructure improvements to meet these various needs This trend in increased transmission investment is due, in part, to several landmark developments in federal and state policies affecting transmission infrastructure, notably, the Energy Policy Act of 2005 [] and federal transmission pricing policies being implemented by the Federal Energy Regulatory Commission The adoption of these pricing policies is helping to sustain the continued level of investment growth.”).

²⁴² Energy Policy Act of 1992, Pub. L. No. 102-486, §§111, 106 Stat. 2776, 2795 (amending PURPA).

requiring state commissions to “consider” a federal standard. Some states will likely require a statutory fix, but for the twenty-three states with statutes permitting state commissions to work with neighboring states in some capacity, a regulatory process may prove enough to ensure that regional benefits can be accounted for in the evaluation of interstate transmission projects. Similarly, Congress could also require state commissions to consider accounting for public policy goals, such as a state’s RPS, and regional transmission planning processes²⁴⁴ in transmission siting decisions and reform ratemaking to avoid the possibility that in-state ratepayers will bear the financial risk of a transmission line that largely benefits other states.²⁴⁵ Under the PURPA model, state commissions would be required to hold formal hearings and make determinations in writing about federal standards for interstate transmission project evaluation. Allowing state commissions to implement the standards themselves will give states discretion to tailor the standards to their own circumstances.

Inevitably, some states will reject Congress’ standards and others will require a legislative fix. Rather than superseding state authority, Congress can again borrow a practice from previous electricity legislation to encourage states to reform their statutes. One option is for Congress to require a joint FERC-States Commission to study reforming state siting statutes and require that FERC submit a report to Congress.²⁴⁶ Such a

²⁴³ Energy Policy Act of 2005, Pub. L. No. 109-58, §1251, 119 Stat. 594, 962 (amending PURPA).

²⁴⁴ See June 17 NOPR, *supra* note 218 (describing generally the current requirements for regional transmission planning and the deficiencies of the current framework).

²⁴⁵ See Brown & Rossi, *supra* note 181, at 709 (noting that in states that still use the traditional vertically integrated utility paradigm the cost of each new transmission facility is included in the retail rate of the utility building it. Revenues derived from customers outside of the utility’s franchise area may be credited back to local customers, but the full risk of the residual revenue responsibility is generally borne by local customers. This practice makes the allocation of costs a critical part of obtaining approval for a proposed new line. It is unlikely that a state commission will allow a utility to build a line if the costs, or even the revenue risk, are to be borne by local customers while the benefits largely accrue out of state).

²⁴⁶ The Energy Policy Act of 2005 required two such studies. See Energy Policy Act of 2005 § 1234 (codified at 16 U.S.C. § 16432) (requiring that the “Secretary, in coordination and consultation with the States, shall conduct a study on” economic

commission, which could be broken down into regional groups, would allow states to provide input to Congress on the issue and an opportunity for states to collaborate with FERC to craft solutions that would both meet national goals and maintain state authority over siting. More importantly, states would be put on notice that Congress is considering nationalizing transmission siting, which could have the effect of motivating state legislatures to reform their siting statutes to avoid federal jurisdiction. Similarly, rather than establishing a joint commission, Congress could simply make a finding that state transmission siting practices need to be reformed, declare the principles on which that reform should be based, and reserve the right to usurp state authority at a future date.²⁴⁷ Such a finding may also motivate states to take preemptive action to avoid federal jurisdiction.

A more drastic move would be for Congress to expand FERC's backstop authority established in the 2005 Act to include the entire country. Such authority would still be constrained by factors similar to those enumerated in the 2005 Act and could become effective starting one or two years after the passage of the bill, giving states enough time to amend their siting statutes to avoid federal jurisdiction. Putting states on notice that Congress is considering usurping state authority may seem unnecessary, as states have been aware of the possibility at least since the passage of the 2005 Act, but actual action by Congress including a hard deadline for state action could produce results. In 2009, Lauren Azar, president of the Organization of the Midwestern ISO States and a member of the Wisconsin Public Service Commission, speculated that if FERC had clear backstop authority states might be "more willing to get it done" and

dispatch of generation and submit an annual report to Congress and the states that includes suggestions for legislative or regulatory changes.); *see also id.* § 1298 (codified at 16 U.S.C. §824(w)) (establishing "joint boards on a regional basis" to study economic dispatch for various market regions. Congress required each state to nominate a representative, and a FERC member would serve as chairman of each board. FERC was required to submit a report that includes any consensus recommendations for statutory or regulatory reform).

²⁴⁷ There is no exact parallel in the 2005 Act. In § 1236 Congress declares "that it is the sense of Congress that FERC should carefully consider the States' objections" about to a proposal to implement "a specific type of locational installed capacity mechanism in New England pending before FERC." *Id.* § 1236.

compromise.²⁴⁸ Reforming state siting statutes will involve compromises that states may not be willing to make without a clear message from Congress. The tradeoff may be that states can fundamentally retain jurisdiction over siting, but they must incorporate national goals in their approval processes. While states that have not already done so may have to sacrifice their traditional regulatory models valuing in-state ratepayers above out-of-state benefits, the ability to maintain control over land-use decisions may be a tradeoff states are ultimately willing to make.

A more radical proposal vests FERC with full authority over the siting of interstate transmission lines, as it has over interstate gas pipelines,²⁴⁹ and cut states out of the process. There are differences, however, between transmission lines and gas pipelines in terms of traditional land use considerations, such as visibility,²⁵⁰ land area requirements,²⁵¹ and effect on property values.²⁵² On the other hand, both

²⁴⁸ Katherine Ling, *Modern Grid Needs National Policy, Federal Siting* (Mar. 2, 2009), <http://www.eenews.net/public/eenewspm/print/2009/03/02/2>.

²⁴⁹ The interstate transportation and sale of natural gas came under the jurisdiction of the federal government after the enactment of the Natural Gas Act in 1938. Natural Gas Act, ch. 556, 52 Stat. 821 (1938). The Act, as amended in 1942, required all companies engaged in the transportation of natural gas and companies constructing natural gas facilities to have a certificate of public convenience issued to it by the Federal Power Commission. In 1947, Congress amended the Act again and granted the power of eminent domain to “any holder of a certificate of public convenience and necessity [who] cannot acquire by contract . . . the necessary right-of-way to construct, operate, and maintain a pipeline or pipelines for the transportation of natural gas” Natural Gas Act Amendments, ch. 333, 61 Stat. 459, § 7 (1947) (codified at 15 U.S.C. § 717(f)).

²⁵⁰ Gas pipelines are typically buried underground. Interstate transmission towers vary in height but are typically around 140 feet tall. American Electric Power, *Transmission Facts 3*, <http://www.aep.com/about/transmission/docs/transmission-facts.pdf> (last visited Apr. 23, 2011).

²⁵¹ Gas pipelines typically require a right-of-way that is 75 to 100 feet wide during construction and 50 feet permanently. Office of Energy Projects, Fed. Energy Regulatory Comm’n, *An Interstate Natural Gas Facility on My Land? What Do I Need to Know?* 6–7 (July 2010), <http://www.ferc.gov/for-citizens/citizen-guides/citz-guide-gas.pdf>. Rights-of-way for interstate transmission lines are likely to be at least twice as wide, requiring a minimum of 200 feet, and can be as wide as 900 feet. Am. Wind Energy Ass’n and the Solar Energy Indus. Ass’n, *Green Power Superhighways: Building a Path to America’s Clean Energy Future* 8 fig. 2 (Feb. 2009), <http://www.awea.org/documents/GreenPowerSuperhighways.pdf>.

pipelines and transmission lines limit the land's usefulness and impede future development. It seems uncontroversial to assert that the siting of either pipelines or transmission lines involve significant local concerns. Despite the relevance of local concerns, roughly thirty states have already preempted local governments and consolidated siting of transmission lines into a single state agency.²⁵³ This one-stop approach enabled "the public to participate in utility planning and siting of facilities in exchange for a single forum applying a single set of statewide policies for making siting decisions that either preempt or allow for overruling local authorities."²⁵⁴ Federalizing the siting process would further undercut local concerns, which is likely to benefit industry, and it would remedy the inability of states to approve projects that do not primarily benefit in-state interests.

Usurping state authority, however, may lead to a backlash from state commissions and even state legislatures, particularly in those states that have largely maintained the traditional regulatory paradigm. If Congress is interested reforming the electricity sector, and more generally creating a lower carbon economy, it is going to need the active engagement of states. Dramatically reducing carbon emissions will require a range of regulatory tools, many of which have been historically

²⁵² According to industry-funded studies, gas pipelines have been found to have a negligible effect on property values. See Eric Fruits, *Natural Gas Pipelines and Residential Property Values* (Feb 2008), <http://www.oregonlng.com/pdfs3/appendices/RR-5/appendices/appendix5c.pdf>. See also Pacific Connector, *The Facts About Natural Gas Pipelines*, <http://www.pacificconnectorgp.com/faq.php> (last visited Apr. 19, 2011). A study of transmission lines rated at 250 kV to 500 kV found that they had little effect on the value of agricultural land but as much as a 17% negative effect on properties in populated areas. Cynthia A. Kroll and Thomas Priestley, *The Effects of Overhead Transmission Lines on Property Values* 47 (July 1992), <http://staff.haas.berkeley.edu/kroll/pubs/tranline.pdf>. But see Stanley W. Hamilton & Gregory M. Schwann, *Do High Voltage Electric Transmission Lines Affect Property Value?* 71 *Land Econ.* 436, 443 (1995) (finding that a statistical analysis of several studies concluded that overhead wires of at least 69 kV have only a 6% negative effect on the values of properties adjacent to the lines. The negative effect dissipates quickly as distance from the lines increases). However, new interstate transmission lines are likely to be rated significantly higher than 69 kV and may require wider rights-of-way and taller towers.

²⁵³ See Rossi, *supra* note 228.

²⁵⁴ Brown & Rossi, *supra* note 181, at 207.

under the jurisdiction of states and local governments, including land use planning, building construction codes and public transportation. Transitioning to an economy that uses more renewable energy and does so more efficiently will take decades,²⁵⁵ and Congress should be careful not to begin the endeavor by alienating its partners. Some states have shown no interest in reform or in lowering carbon emissions, and Congress can take any number of steps, such as those described in this paper, to motivate change. Cutting the states entirely out of the process seems unlikely to help in achieving longer-term and more ambitious goals.

C. Clean Electricity

In his 2011 State of the Union address, President Obama set a goal of generating 80% of U.S. electricity from “clean energy sources” by 2035.²⁵⁶ President Obama was using a very inclusive definition of “clean energy sources” that seemed to include every form of electricity generation with the exception of coal without carbon capture and sequestration (“CCS”) technology.²⁵⁷ This definition contrasts with the more restrictive definitions that many states have used for sources eligible for RPS qualification.²⁵⁸ The President provided no details of how the country could achieve this goal but left it to Congress to work out the specifics.²⁵⁹

²⁵⁵ See Vaclav Smil, *Energy at The Crossroads* 60 *Energy at The Crossroads: Global Perspectives and Uncertainties* 60 (2003) (writing that “slow substitutions of both primary energies and prime movers should temper any bold visions of new sources and new techniques taking over in the course of a few decades . . . dominant energy systems during the first decades of the twenty-first century will not be radically different from those of the last generation.”).

²⁵⁶ Barack Obama, U.S. President, Address Before a Joint Session of the Congress on the State of the Union (Jan. 25, 2011), *in* N.Y. Times, Jan. 25, 2011, http://www.nytimes.com/2011/01/26/us/politics/26obama-text.html?_r=1&pagewanted=all.

²⁵⁷ *Id.* (“So tonight I challenge you to join me in setting a new goal: By 2035, 80% of America’s electricity will come from clean energy sources. Some folks want wind and solar. Others want nuclear, clean coal, and natural gas. To meet this goal, we will need them all, and I urge Democrats and Republicans to work together to make it happen.”).

²⁵⁸ See *infra* text accompanying notes 266–276.

²⁵⁹ *Id.*

President Obama, who supports reducing greenhouse gas emissions, was indirectly acknowledging that there are only two ways to significantly reduce CO₂ emissions from electricity generation: either reduce the amount of electricity generated by coal combustion or capture and sequester the CO₂ emitted by coal-fired plants. Coal combustion for electricity generation is responsible for approximately 30% of all U.S. greenhouse gas emissions.²⁶⁰ Within the electricity sector, coal is responsible for more than 80% of CO₂ emissions, with nearly all of the rest coming from natural gas.²⁶¹ The electricity industry has been reducing the percentage of electricity generated by coal. In 1996, coal generated 52% of the country's electricity while natural gas generated 13%.²⁶² In 2010, coal's share dropped to 45% while natural gas rose to 24%.²⁶³ The total amount of coal combusted by the electricity industry, however, has actually increased by 4% from 1996 to 2009, peaking in 2007 at a 16% increase as compared to 1996.²⁶⁴

Non-hydro renewables, such as wind and solar, have grown as well, from 2% of all electricity in 1996 to almost 4% in 2010.²⁶⁵ A key driver of renewable energy growth is state RPS goals. Thirty-five states have set such goals for renewable energy generation, and nearly all of these states have made the goals mandatory for utilities.²⁶⁶ According to the Union of Concerned Scientists, if these RPS goals are met almost 80 gigawatts of renewable generation capacity will be added to the grid by

²⁶⁰ U.S. Env'tl. Prot. Agency, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2008 2–18 tbl.2-12 (2010), http://www.epa.gov/climatechange/emissions/downloads/10/US-GHG-Inventory-2010_Report.pdf.

²⁶¹ *Id.*

²⁶² See U.S. Energy Info. Admin., Net Generation by Energy Source Total (All Sectors), http://www.eia.doe.gov/cneaf/electricity/emp/table1_1.html (last visited Apr. 20, 2011).

²⁶³ *Id.*

²⁶⁴ See U.S. Energy Info. Admin., Coal Consumption by Sector, 1949–2009, <http://www.eia.gov/totalenergy/data/annual/txt/ptb0703.html> (last visited Aug. 30, 2011).

²⁶⁵ See U.S. Energy Info. Admin., Net Generation by Energy Source Total (All Sectors), http://www.eia.doe.gov/cneaf/electricity/emp/table1_1.html (last visited Apr. 20, 2011).

²⁶⁶ See Minkel, *supra* note 169 and accompanying text.

2025.²⁶⁷ By comparison, there are currently 340 gigawatts of coal generation²⁶⁸ that operate at roughly 60% capacity.²⁶⁹ With renewable generation operating at lower capacities than coal, it is highly unlikely President Obama's goal will be met with renewable generation alone. Growing renewable energy's share of electricity generation can still play a meaningful role in reducing carbon dioxide emissions, but if President Obama's goal is adopted by Congress it will take more than existing state RPS targets to clean up the electricity sector.

One foundational element of an RPS is defining what qualifies as an eligible source.²⁷⁰ While biofuels, biomass, hydro, landfill gas, photovoltaic solar and wind are eligible resources in every state,²⁷¹ only half of states include municipal waste, most states do not include combined heat and power,²⁷² and Ohio is the only state to include nuclear energy.²⁷³ All coastal states with an RPS include tidal and wave energy as

²⁶⁷ Union of Concerned Scientists, *Renewable Electricity Standards Toolkit*, http://www.ucsusa.org/clean_energy/res/overviewgrowth.html (last visited Apr. 22, 2011).

²⁶⁸ U.S. Energy Info. Admin., Existing Capacity by Energy Source, <http://www.eia.doe.gov/cneaf/electricity/epa/epat1p2.html> (last visited Apr. 22, 2011).

²⁶⁹ Capacity factor is calculated as follows: Total generating capacity * 8,760 / actual megawatt hours produced. Actual megawatt hours produced is also available from EIA. U.S. Energy Info. Admin., Net Generation by Energy Source (All Sectors), http://www.eia.doe.gov/cneaf/electricity/epm/table1_1.html (last visited Apr. 20, 2011). According to 2009 data, 338,000 Megawatts of coal produced 1,755,904,000 megawatt hours of electricity. *Id.*

²⁷⁰ Nearly all states that have an RPS established it with legislation. *See* Pew Center on Global Climate Change, *supra* note 198 (noting that Arizona and New York have RPS established through regulatory action. Iowa's RPS was set by the governor, and Colorado, Missouri, and Washington established theirs through ballot initiatives.).

²⁷¹ U.S. Env'tl Prot. Agency, Renewable Portfolio Standards: An Effective Policy to Support Clean Energy Supply fig. 3, http://www.epa.gov/chp/state-policy/renewable_fs.html (last visited Apr. 20, 2011) [Hereinafter EPA RPS Chart].

²⁷² *Id.*

²⁷³ Ohio Rev. Code Ann. § 4928.01 (A)(34)(d) (LexisNexis 2008) (defining "Advanced Energy Resource" as including "advanced nuclear energy technology"); *see also* Christine Stapleton, *State Report Backs Nuclear Power as Clean Energy*, THE PALM BEACH POST NEWS, Dec. 31, 2008, http://www.palmbeachpost.com/state/content/state/epaper/2008/12/31/greenenergy_0101.html (claiming that only Ohio allows nuclear to qualify for its RPS).

eligible resources.²⁷⁴ Biomass, while accepted by all states, may come with qualifications. New Jersey, for example, requires that biomass be “cultivated and harvested in a sustainable manner”²⁷⁵ and Massachusetts regulators recently revised eligibility requirements in light of a study analyzing the lifecycle carbon dioxide emissions released by generating electricity from in-state wood resources.²⁷⁶ Generating electricity from any combination of these sources is consistent with President Obama’s goal, but no state RPS goes far enough. State RPS targets typically end in 2020 or 2025, at least a decade before 2035, and with a few exceptions, do not mandate more than 25% generation from eligible resources.²⁷⁷

Michigan, Ohio, Pennsylvania and West Virginia are the only states with AEPs which permit some of the state’s annual targets to be met with advanced fossil fuel technologies with the remainder from renewables and efficiency.²⁷⁸ In Ohio, utilities can meet up to half of the state’s AEPs requirement²⁷⁹ with “advanced energy resources,” which include coal with CCS technology and efficiency improvements that increase generation without increasing carbon dioxide emissions, among

²⁷⁴ *EPA RPS Chart*, *supra* note 271.

²⁷⁵ N.J. Rev. Stat. § 48:3-51 (2011) (Definitions relative to competition in the electric power and gas industries: “Class I renewable energy” means electric energy produced from solar technologies, photovoltaic technologies, wind energy, fuel cells, geothermal technologies, wave or tidal action, and methane gas from landfills or a biomass facility, provided that the biomass is cultivated and harvested in a sustainable manner.”).

²⁷⁶ See Mass. Dept. of Energy Resources, Renewable Portfolio Standard – Biomass Policy Regulatory Process, *available at* http://www.mass.gov/?pageID=eoeaterminal&L=4&L0=Home&L1=Energy,+Utilities+%26+Clean+Technologies&L2=Renewable+Energy&L3=Biomass&sid=Eoeea&b=terminalcontent&f=doer_renewables_biomass_policy-reg-process&csid=Eoeea (last visited Aug. 30, 2011) (stating “the Massachusetts Department of Energy Resources (DOER) has released a draft proposed regulation to establish criteria that woody biomass facilities must meet under the Massachusetts RPS. This proposed regulation is a result of careful consideration of the Biomass Sustainability and Carbon Policy Study, subsequent public comments on that study and public comments generally on biomass policy.”).

²⁷⁷ U.S. Env’tl. Prot. Agency, Renewable Portfolio Standards: An Effective Policy to Support Clean Energy Supply fig. 2, http://www.epa.gov/chp/state-policy/renewable_fs.html (last visited Apr. 20, 2011).

²⁷⁸ See *supra* text accompanying notes 198–200.

²⁷⁹ Ohio Rev. Code Ann. § 4928.64(B) (West 2010).

other eligible resources.²⁸⁰ Pennsylvania's legislature included integrated combined coal gasification technology as an eligible resource,²⁸¹ Michigan included gasification and coal with CCS technology,²⁸² and West Virginia allowed for a wide range of coal-based technologies.²⁸³ While the resource eligibility is wider than state RPS goals, these AEPS targets do not go as far as Obama's 80% goal. West Virginia and Ohio have the most ambitious goals, aiming for 25% of electricity generated by eligible resources by 2025.²⁸⁴ West Virginia currently generates nearly all of its electricity from coal with Ohio close behind, generating 84% of its electricity from coal. Even if both states meet their targets, they may still generate two-thirds of their electricity using old and polluting coal technologies that are not in line with President Obama's clean electricity goal.

Current state efforts can help achieve the President's 80% goal, but they are insufficient by themselves. The industry, which has already been moving to more natural gas and less coal, will likely get part of the way on its own. However, if the country is going to meet President Obama's target and move away from cheap, dirty coal, the federal government will have to step up and play a role. It is worth briefly noting previous efforts by the federal government to both directly and indirectly mandate fuel switches in the electricity sector and clean up its pollution.

The Powerplant and Industrial Fuel Use Act of 1978, ("Fuel Use Act")²⁸⁵ passed by Congress along with PURPA, prohibited new power plants from using natural gas or petroleum as a primary energy source²⁸⁶

²⁸⁰ Ohio Rev. Code Ann. § 4928.01(34) (West 2010) (defining "Advanced Energy Resource" as including "[a]ny method or any modification or replacement of any property, process, device, structure, or equipment that increases the generation output of an electric generating facility to the extent such efficiency is achieved without additional carbon dioxide emissions by that facility."). The statute specifically includes customer cogeneration, carbon capture, advanced nuclear generation, fuel cell, solid waste, and demand-side management.

²⁸¹ 73 Pa. Stat. Ann. § 1648.2 (West 2010).

²⁸² Mich. Comp. Laws § 460.1003(c) (2010).

²⁸³ W. Va. Code § 24-2F-3 (2010).

²⁸⁴ Pew RPS Chart, *supra* note 198.

²⁸⁵ The Powerplant and Industrial Fuel Use Act of 1978, Pub. L. No. 95-620, 92 Stat. 3289 (codified at 42 U.S.C. §§ 8301-8484 (2006)).

²⁸⁶ *Id.* § 201, 92 Stat. at 3298 (current version at 42 U.S.C. § 8311 (2006)).

and required that existing power plants phase out the use of natural gas by 1990.²⁸⁷ The law was designed to encourage greater use of coal to generate electricity but also included a number of exemptions allowing the use of natural gas and petroleum.²⁸⁸ The Act coincided with an end to the construction of inefficient natural gas-powered steam electric generating units (“EGU”). While nearly 37 gigawatts of natural gas-powered steam EGUs came online in the 1970s, construction ceased and the market shifted to turbines and more efficient combined cycle plants thereafter.²⁸⁹ Petroleum has been almost entirely phased out as a fuel for electricity generation. In 1978, more than 600 million barrels of liquid petroleum products were used to generate electricity in the U.S., and by 1990 petroleum use declined to 200 million barrels.²⁹⁰ Put differently, in 1978, petroleum generated 17% of U.S. electricity, yet by 1990 its share had fallen to just 4% and in 2009 petroleum was used to generate less than 1% of U.S. electricity.²⁹¹ While the Fuel Use Act was just one factor that led to these switches in generation technologies and fuels, after less than a decade and facing an oversupply of natural gas, Congress repealed the provisions that restricted the use of natural gas for electricity generation.²⁹²

As Congress was promoting coal in the 1970s it also began to regulate pollution from coal power plants, which had the effect of encouraging a shift from high-sulfur coal, found primarily in the eastern half of the U.S., to low-sulfur coal, found in Wyoming and Montana. The Environmental Protection Agency (“EPA”) promulgated the first sulfur

²⁸⁷ *Id.* § 301, 92 Stat. at 3305 (current version at 42 U.S.C. § 8323 (2006)).

²⁸⁸ See Edward L. Lublin & Marvin G. Pickholz, *Introduction to the Powerplant and Industrial Fuel Use Act of 1978: Securing Exemptions for Utilities and Major Industrial Users*, 29 Am. U. L. Rev. 485, 489 (1980) [hereinafter *Introduction to Fuel Use Act*].

²⁸⁹ See 2009 Generator Report, *supra* note 123.

²⁹⁰ U.S. Energy Information Administration, Annual Energy Review 2009 239 tbl. 5.13d (2010), <http://www.eia.doe.gov/totalenergy/data/annual/pdf/aer.pdf>.

²⁹¹ *Id.* at 231 tbl. 8.2b.

²⁹² U.S. Energy Information Administration, Repeal of the Powerplant and Industrial Fuel Use Act (1987), available at http://www.eia.doe.gov/oil_gas/natural_gas/analysis_publications/ngmajorleg/repeal.html (last visited April 20, 2011).

dioxide emission standards for coal power plants in 1971.²⁹³ Some power plants met the requirement by switching to low sulfur coal rather than installing costly pollution-controlling scrubbers. In 1977, eastern utilities consumed 26 million tons of low-sulfur coal from the western United States, up from 1 million tons in 1970 before the regulations went into effect.²⁹⁴ From 1986 to 1995, production of low-sulfur coal in western states increased at an annual rate of 5.5%, while production of Appalachian coal grew at a rate of just .2% per year and coal output of interior states declined by 1.7% annually.²⁹⁵ Some coal power plants chose to install costly scrubbers to reduce sulfur emissions. By 1985, roughly 20% of coal power plants had installed desulfurization scrubbers, which increased steadily to about 40% in 2009.²⁹⁶

The Clean Air Act Amendments of 1990 further restricted sulfur emissions by first setting emissions limits for 110 of the dirtiest coal power plants and then allowing all power plants to meet emissions goals by switching to low sulfur coal or natural gas, installing scrubbers, shifting electricity production from dirty to cleaner plants, or encouraging customers to use electricity more efficiently.²⁹⁷ While the federal scheme was designed to give utilities the flexibility to choose the most efficient means of reducing emissions, some state legislatures passed statutes that limited utilities' options in order to protect local coal mining industries. Ohio, Pennsylvania, Illinois, West Virginia, were among the coal producing states that passed laws that granted their state commissions authority over utilities' plans to meet the sulfur emissions requirements.²⁹⁸ In Illinois, for example, state law specifically required utilities to install

²⁹³ Eugene M. Trisko, *Universal Scrubbing: Cleaning the Air*, 84 W. Va. L. Rev. 983, 985 (1982).

²⁹⁴ *Id.* at 986.

²⁹⁵ David McDermott, *Coal Mining in the U.S.: Price and Employment Trends*, 120 Monthly Lab. Rev. 18, 20 (1997).

²⁹⁶ U.S. Energy Information Administration, *Installed Nameplate Capacity of Fossil-Fuel Steam-Electric Generators with Environmental Equipment, 1985–2008* tbl 12.8 (2009), <http://www.eia.gov/emeu/aer/txt/ptb1208.html> [Hereinafter EIA Sulfur Scrubber Chart].

²⁹⁷ Eileen L. Kahaner, *GAO's Analysis of Title IV's Sulfur Dioxide Emissions Allowance Trading Program*, 2 *Env'tl. Law* 239, 243 (1995).

²⁹⁸ Richard Warren Beckwith, Comment, *From the Ashes of Wyoming v. Oklahoma Arises the PUC Phoenix – Can Wyoming Combat Economic Protectionism in the Age of the Clean Air Act Amendments*, 29 *Land & Water L. Rev.* 59, 65 (1994).

scrubbers, thus allowing them to continue to burn high-sulfur Illinois coal.²⁹⁹ In Oklahoma, a state law, later struck down by the U.S. Supreme Court, specifically required that utilities burning coal include at least 10% from in-state mines to prevent a complete switch to low-sulfur Wyoming coal.³⁰⁰ On the other hand, other states provided utilities with incentives, such as accelerated recovery of costs associated with installation of scrubbers, for complying with the Clean Air Act Amendments.³⁰¹ The salient point is that states chose different paths to complying with the federal emissions goal.

As the Obama Administration looks to reduce electricity generation from coal, it may consider mandating a fuel switch, perhaps by banning construction of new coal plants, phasing out older coal plants through environmental regulations, or requiring new or existing coal plants to use CCS technology. The comparisons to the Fuel Use Act and sulfur regulations are not perfect, but a few ideas may still be relevant.

First, an outright ban on coal seems both politically unrealistic³⁰² and potentially shortsighted. One purpose of the Fuel Use Act of 1978 was to conserve natural gas for “essential uses,” such as fertilizer production and crop drying, for which there were “no feasible alternative

²⁹⁹ *Id.* at 69.

³⁰⁰ *Wyoming v. Oklahoma*, 502 U.S. 437, 443 (1992).

³⁰¹ Alexander F. Skirpan Jr., *Plus Ca Change, Plus C’Est La Meme Chose: 1990 Amendments to the Clean Air Act and Their Impact on Utility Regulation*, 55 U. Pitt. L. Rev. 171, 199 (1993).

³⁰² See, e.g., Jim Snyder and Kim Chipman, “Coal Lobby Spending Jumps 76% Fighting US Air Pollution Rules.” Bloomberg, Jun. 6, 2011, <http://www.afiren.com/en/news/35-coal-lobby-spending-jumps-76-fighting-us-air-pollution-rules>, noting that in the first quarter of 2011 “[e]nvoys from coal dependent utilities in the U.S. Midwest have visited more than 90 congressional offices” in an attempt to thwart new EPA rules. Lobbying expenses were \$1.05 million by the National Mining Association, \$2 million by American Electric, \$940,000 by the American Coalition for Clean Coal Electricity, and \$1.36 million by Peabody. See also The Center for Responsive Politics: Ranked Sectors, 2010, available at <http://www.opensecrets.org/lobby/top.php?showYear=2010&indexType=c> (last accessed August 10, 2011). In 2010, companies and associations in the energy and natural resources industries spent \$450 million on lobbying, behind only health (\$521 million) and finance, insurance, and real estate (\$475 million). Of the \$450 million, nearly half was spent by utilities and mining companies.

fuels.”³⁰³ At the time, Congress and the President were concerned about dwindling supplies of domestic natural gas.³⁰⁴ Since the Fuel Use Act was repealed in 1987, construction of new natural gas powered generators has increased dramatically,³⁰⁵ proved domestic reserves have spiked,³⁰⁶ and the recent substantial increase in shale gas production is considered by some in the energy industry to be a revolutionary development.³⁰⁷ With hindsight, it looks like Congress’ ban, while perhaps beneficial in the short-run, was not the right strategy for the long-term. While it seems unlikely that burning coal will ever be environmentally prudent, it is possible that shale gas has been overhyped,³⁰⁸ nuclear will prove too costly,³⁰⁹ or there will be some unforeseeable reason why fuel diversity will be valuable for the country’s electricity system. It may be possible for the use of coal to be prudently reduced, but a complete ban could prove to be misguided.

Congress and the EPA may instead choose to place restrictions on coal power plants that lead to the shutdown of the least efficient plants and require new or existing plants to include CCS. A recent White House report recognizes that widespread adoption of CCS technology is going to take decades.³¹⁰ According to projections in the report, by 2035, 80

³⁰³ *Introduction to Fuel Use Act*, *supra* note 288, at 487 n. 18.

³⁰⁴ *Id.* at 486.

³⁰⁵ See 2009 Generator Report, *supra* note 123.

³⁰⁶ U.S. Energy Info. Admin., U.S. Dry Natural Gas Proved Reserves (Dec. 30, 2010), http://www.eia.gov/dnav/ng/hist/rngr11nus_1a.htm.

³⁰⁷ See, e.g., Daniel Yergin, *Stepping on the Gas*, Wall St. J., Apr. 2, 2011 (calling the increase in shale gas production “a potentially profound change in the global energy equation” and concluding that the “shale gas revolution is both a major innovation and a formidable new addition to our energy supply.”)

³⁰⁸ See, e.g., Ian Urbina, *Insiders Sound Alarm Amid a Natural Gas Rush*, N.Y. Times, Jun. 25, 2011 (writing that according to emails obtained by the *New York Times*, “energy executives, industry lawyers, state geologists and market analysts voice skepticism about lofty forecasts and question whether companies are intentionally, and even illegally, overstating the productivity of their wells and the size of their reserves.”)

³⁰⁹ Benjamin K. Sovacool & Christopher Cooper, *Nuclear Nonsense: Why Nuclear Power Is No Answer to Climate Change and the World’s Post-Kyoto Energy Challenges*, 33. Wm. & Mary Envtl. L. & Pol’y Rev. 1, 26 (2008–2009) (discussing historic cost overruns in the construction of nuclear power plants.)

³¹⁰ Report of the Interagency Task Force on Carbon Capture and Storage 8 (2010), <http://www.fe.doe.gov/programs/sequestration/ccstf/CCSTaskForceReport2010.pdf>.

gigawatts of coal generation will include CCS technology, which will likely be less than one-third of all coal generation capacity.³¹¹ These CCS projections, which assume a price on carbon, should be regarded as highly uncertain. In 1976, an EPA analysis concluded that by 1990 there would be 270 gigawatts of coal plants with sulfur scrubbers.³¹² The actual figure in 1990 was only 70 gigawatts.³¹³

The more important lesson from the history of sulfur emissions regulations is that Congress ought to provide states and utilities with the flexibility to tailor general requirements. Coal states will likely want to protect their in-state production, as many did in the early 1990s, and may prefer expensive CCS technology instead of a switch to natural gas or another fuel. Other states that prioritize low electricity prices may opt for a combination of lower cost options, such as natural gas and wind, along with some dirty coal. States that currently generate a relatively small percentage of their electricity from coal may choose to abandon the fuel entirely. States vary in available resources, environmental preferences and regulatory histories, and federal policy has historically respected those differences.

Articulating goals, and requiring consideration of a range of methodologies, would be entirely consistent with the legislative patterns established in PURPA and continued with the 1992 and 2005 Acts. This is not to suggest that PURPA and the Energy Policy Acts of 1992 and 2005 represent the height of legislative perfection. Rather, Congress can achieve President Obama's goal while still maintaining state authority in electricity regulation. A few statistics from 2009 highlight the challenges

³¹¹ *Id.* at 22 fig. II-2. There are currently 338 GW of coal generation capacity. U.S. Energy Info. Admin., Existing Capacity By Energy Source (Apr. 2011), <http://www.eia.doe.gov/cneaf/electricity/epa/epat1p2.html>. If new EPA regulations force the closure of all of the oldest coal power plants, for example all plants that began operation prior to 1960, and no new coal power plants are built, coal capacity will be approximately 290 GW, based on EIA data, available at http://www.eia.gov/todayinenergy/images/2011.06.16/vintage_cap_bar.png (last visited Aug. 30, 2011).

³¹² Trisko, *supra* note 293, at 995.

³¹³ EIA Sulfur Scrubber Chart, *supra* note 296.

and disparities among states, providing another rationale for allowing states to choose their own methods of achieving a federal goal:³¹⁴

- 36 states generated more than 20% of their electricity from coal, thus currently falling short of Obama's goal;
- 22 states generated more than 50% of their electricity from coal;
- The top 5 states generated 32% of all coal electricity in the U.S.;
- The top 10 states generated 52% of all coal electricity;
- The states without any RPS or AEPS consumed 36% of all electricity and generated 40% of all coal electricity.

These statistics illustrate that coal is currently widespread but concentrated in a handful of states. The burden to reduce the amount of coal generation will fall disproportionately on those states that currently generate most of their electricity from coal. But these statistics give an incomplete picture. Electricity markets are interstate, and some large coal electricity producers export much of their power to nearby states. Pennsylvania, the fourth largest producer of coal electricity, participates in the PJM market³¹⁵ and exports more than one-third of the electricity it produces.³¹⁶ West Virginia, the ninth largest producer of coal electricity and also a participant in the PJM market, exports more than half of its coal power.³¹⁷

A threshold question for any new federal legislation is whether it will be aimed at utilities, state regulators, or regional organizations. RPS statutes typically set requirements for distribution companies, which sell power to end-use customers, to procure power from renewable generation.

³¹⁴ The following statistics were derived from U.S. Energy Info. Admin., *Electric Power Monthly*, tbls. 1.6.B, 1.7.B, and 5.4.B (Mar. 2010),

<http://www.eia.gov/ftproot/electricity/epm/02261003.pdf> [hereinafter EPM March 2010].

³¹⁵ "PJM Interconnection is a regional transmission organization (RTO) that coordinates the movement of wholesale electricity in all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia." PJM INTERCONNECTION, WHO WE ARE, <http://pjm.com/about-pjm/who-we-are.aspx> (last visited Aug. 30, 2011).

³¹⁶ See EPM March 2010, *supra* note 314.

³¹⁷ *Id.*

Federal electricity legislation, such as PURPA, set requirements for both utilities and state commissions.³¹⁸ On the other hand, the Clean Air Act, the primary piece of environmental legislation that could be used to shut down or clean up coal power plants, regulates individual sources, requires states to implement goals and targets regional control areas.³¹⁹ Given the growing prominence of RTOs, new legislation or FERC regulations could target regional electricity organizations. Meeting the Obama Administration's goal could conceivably include several different regulatory systems working along different jurisdictional lines, and such complexity could be replicated at both federal and state levels. Such a convoluted approach may be difficult to untangle, locking the electricity sector into various overlapping regulatory systems that may be politically difficult to undo. Given the uncertainty of the technological and economic development of the electricity industry in moving to a lower carbon footprint, a less tangled and more flexible regulatory approach may be better suited to adapt and meet the challenges of reform.

Congress should therefore set a broad goal and let states determine the best courses of action for meeting that goal. Requiring each state or every utility to meet the 80% goal by 2035 will result in costly, and perhaps unrealistic, shifts in electricity production for a handful of states. One option is to mandate that all states or all utilities gradually reduce the amount of electricity generated by dirty coal. Alternatively, rather than directly targeting dirty coal, a less specific goal would mandate reductions in emissions per megawatt-hour of electricity generated or consumed, giving states and utilities the flexibility to choose from among all generation options to reduce emissions. Setting CO₂/MWh goals would give priority to zero-emissions technologies, such as nuclear, wind and solar, over natural gas, which generates CO₂ emissions. Such a scheme could obviate a national RPS as it would encourage and even reward renewable generation without specific mandates for each state or utility.

Either mandate, reducing coal or reducing CO₂/MWh, would be entirely consistent with a system of tradable allowances. A trading system could allow states or utilities to offset each other's emissions through

³¹⁸ See *supra* text accompanying notes 93–108.

³¹⁹ See U.S. Env'tl. Prot. Agency, Understanding the Clean Air Act, <http://www.epa.gov/air/peg/understand.html> (last visited Aug. 30, 2011).

tradable credits. For example, under a CO2 emissions allowance system, if a utility in Massachusetts reduced its emissions below its target, it could sell allowances to a utility in Ohio, allowing the Ohio utility to continue to use more dirty coal. Under a Clean Energy Credit system, which would be similar to how many states currently structure their RPS systems, a utility would get a credit for each MWh of electricity sold from any source other than dirty coal. At the end of the year, each utility would be required to hold a certain number of credits based on the total amount of electricity sold and the required percentage from non-coal mandated. The system could include both carrots, such as additional tradable credits for meeting renewable generation targets, and sticks, such as financial penalties for failing to meet emissions targets.

A system of tradable allowances or credits could be administered by states or regional organizations, as opposed to the federal government. States or utilities could be given the option of joining a trading scheme rather than being required to do so. Regional markets may better reflect electricity industry positions and would therefore tie the allowance market more closely to actual reductions of carbon emissions. A larger national market seems more likely to attract a range of investors from outside of the industry who have no stake in its future and are more likely to prioritize quick profits from allowance trading over long-term industry stability. The owners of electricity infrastructure are also profit-seeking corporations,³²⁰ but with billions of dollars invested in long-term assets, such as power plants and transmission lines, they seem less likely to be lured by the speculative profits available in smaller regional allowance or credit markets.

States could be free to choose the means for achieving that federal goal or go above and beyond that goal. The federal government could provide backstop enforcement authority if states fail to make adequate progress on their own. For example, funding from the federal government could be tied to progress, with threats of funding reductions for failure to

³²⁰ Government-owned utilities generated 10.1% of U.S. electricity, cooperatives generated 4.9%, and federal power marketers generated another 6.4%. The remaining 79.6% was generated by investor-owned utilities and non-utility generators, such as independent power producers and industrial facilities. Am. Public Power Ass'n, U.S. Electric Utility Industry Statistics (June 29, 2011), *available at* <http://www.publicpower.org/files/PDFs/USElectricUtilityIndustryStatistics.pdf>.

meet targets and incentive payments, to be reinvested in clean energy programs and efficiency, for states that are successful. As it already does through the Clean Air Act, Congress could require states or utilities to regularly submit implementation plans.³²¹ These plans could be conducted with federal government assistance, such as through funding grants, joint studies, or technical assistance. The plans could serve as a guide against which progress could be measured, could provide a basis for federal regulators asserting jurisdiction, or could represent a shared understanding between state regulators, utilities and the federal government of developable “clean” resources and appropriate means for achieving the national clean electricity goal. There is no doubt that some states will resist any federal mandate to reducing dirty coal electricity, regardless of its form. Some states will face steep costs, and if the federal government is going to require states to incur those costs it ought to allow states to allocate those costs as they see fit.

CONCLUSION: MAINTAINING THE FEDERAL-STATE BALANCE

An article in *Business Week* in 1947 stated that there are “highly respected scientists who predict that within twenty years substantially all central power will be drawn from atomic sources.”³²² Seven years later, the chairman of the Atomic Energy Commission projected that “our children will enjoy electrical energy [from fusion power] in their homes that is too cheap to meter.”³²³ Writing in 1983 for a study published by the Energy Project at Harvard Business School, a Harvard and Stanford professor declared that, “it is relatively safe to predict that renewables by the year 2000 will account for 10–30% of the nation’s energy supply.”³²⁴

³²¹ See, e.g., Clean Air Act, § 110, State Implementation Plans for National Primary and Secondary Ambient Air Quality Standards (42 U.S.C. § 7410).

³²² David Bodansky, *Nuclear Energy: Principles, Practices, and Prospects* 32 (Springer-Verlag 2d ed. 2004) (citing Robert C. Williams & Philip L. Cantelon, *What is the Atom’s Industrial Future*, *Bus. Wk.*, Mar. 9, 1947, at 21–22).

³²³ *Id.*

³²⁴ Modesto A. Maidique, *Solar America*, in *Energy Future: Report of the Energy Project at the Harvard Business School* 231, 264 (Robert Stobaugh & Daniel Yergin, eds., 1980). The article quotes several studies which project renewable energy’s contribution at between 7% and 27% by the year 2000. *Id.*

In reality, nuclear energy never provided more than 21% of U.S. electricity, fusion power³²⁵ does not exist, and only 6% of U.S. energy was provided from renewables in 2004.³²⁶ Energy forecasts have “a manifest record of failure.”³²⁷ Predicating national electricity policy on precise numerical outcomes³²⁸ based on one projection of the future of the industry is a risky approach.

In the private sector, consolidation of an historically vertically-integrated industry has been restrained by the SEC and FERC under the authority of the PUHCA and the market power provisions of the FPA.³²⁹ Since 1935, growth of individual utilities has been hindered by these laws and regulations, helping to ensure that the nation’s infrastructure is not dominated by a handful of corporations. In the public sector, the power of

³²⁵ Bodanksy, *supra* note 322, at 35.

³²⁶ U.S. Energy Info. Admin., U.S. Energy Consumption by Energy Source, <http://www.eia.doe.gov/cneaf/solar.renewables/page/trends/table1.html> (last visited Apr. 20, 2011).

³²⁷ Smil, *supra* note 255, at 121. Chapter 3, titled “Against Forecasting” cites numerous examples of failed forecasts. *Id.* Smil argues that only two kinds of looking ahead are worthwhile. *Id.* “The first kind consists of contingency scenarios preparing us for foreseeable outcomes that may deviate substantially, even catastrophically, from standard trend expectations or from consensus visions The second kind of forecasts encompasses no-regret normative scenarios that should be prepared to guide our long-term paths toward reconciliation of aspirations with biospheric imperatives.” *Id.* at 121–22.

³²⁸ See American Clean Energy and Security Act of 2009, H.R. 2454, 111th Cong. § 721(e) (2009) (listing a specific number of greenhouse gas emissions allowances to be issued each year from 2012 to 2050). The Act also includes means for regulators to issue more or less allowances depending on actual emissions (§ 721(e)(2)), and polluters can save allowances for future years (§ 725). While there is limited flexibility, the Act’s cap-and-trade system is premised on very precise projections by Congress of emissions that are decades into the future. Many state RPS statutes include specific targets for annual renewable energy generation. The key difference is that state legislation is much smaller in scale. A state’s RPS may only affect a few utilities, and while these precise numerical projections may cause difficulties as the requirements continue to increase in the future, state legislators and regulators can deal with those problems as they arise. In a national system, some states may achieve goals without any difficulties while others may struggle. Federal regulators will then be required to manage state-by-state crises, perhaps a task better suited for state legislators and regulators.

³²⁹ See, e.g., 16 U.S.C. § 824b (requiring utilities to seek FERC approval for mergers and acquisitions).

regulators has been kept in check by the fact that there are fifty state legislatures and commissions and a dozen regional organizations with authority over the nation's electricity system. Such diversity can lead to policy innovation,³³⁰ and it also helps to protect against system-wide collapse. Regulatory and market failures can still happen, as in California in 2000,³³¹ but further centralization increases the stakes of policymaking and risks imposing a uniform regulatory system on a fragmented industry with a range of current conditions.

If Congress passes legislation that sets specific nationwide goals or significantly consolidates control over the industry, it will have to stay engaged over the long-term. Course corrections seem inevitable given the uncertainty inherent in energy markets. Congress, however, has historically been disengaged from the industry. The few major pieces of electricity legislation were only included as part of larger energy legislation packages, and each was passed in the wake of prominent foreign policy crises in the Middle East: the Oil Embargo of 1973, the Iraq war of 1991 and the Afghanistan and Iraq wars of 2001 and 2003.³³² The only other major piece of energy legislation during the last 40 years, the Energy Independence and Security Act of 2007, was passed while the U.S. was still engaged in armed conflict and oil prices had climbed to \$90 a barrel, a 70% increase since the passage of the 2005 Act.³³³ Such crises

³³⁰ "One of federalism's chief virtues, of course, is that it promotes innovation by allowing for the possibility that 'a single courageous State may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country.'" *Gonzales v. Raich*, 545 U.S. 1, 42 (O'Connor, J., dissenting) (quoting *New State Ice Co. v. Liebmann*, 285 U.S. 262, 311 (1932) (Brandeis, J., dissenting)).

³³¹ See, e.g., Steven Ferrey, *Soft Paths, Hard Choices: Environmental Lessons in the Aftermath of California's Electric Deregulation Debacle*, 23 Va. Envtl. L.J. 251 (2004-05).

³³² PURPA was passed in 1978, in the wake of the Arab Oil Embargo of 1973-74 and continued rise in oil prices. The Energy Policy Act of 1992 was passed one year after U.S.-led forces removed Sadaam Hussein from Kuwait. The Energy Policy Act of 2005 was passed while the U.S. was fighting in Afghanistan and Iraq.

³³³ The Energy Policy Act, 42 U.S.C. § 15801 (2006), was passed on July 28, 2005 and The Energy Independence and Security Act of 2007, 42 U.S.C. § 17001 (Supp. 2007), was passed on December 18, 2007. Oil prices at the end of those weeks, according to EIA data, were at \$53.18 and \$89.79 a barrel. U.S. Energy Info. Admin., *Petroleum & Other Liquids*,

demanded a domestic political response. There is little reason to think Congress has the political will to pass multiple pieces of electricity legislation over the next decade. If Congress does enact a major bill in the coming years that hands significant new authority to federal regulators, the industry could be locked in for decades.

That is not to suggest that Congress has no role to play. Congress has historically subsidized a wide range of energy resources,³³⁴ and it continues to support clean electricity.³³⁵ In addition to financial subsidies, Congress can also provide regulatory subsidies by removing or limiting costly hurdles to developing clean electricity. For example, in 2010 the average age of a nuclear power plant in the U.S. was 30 years³³⁶ and nearly every nuclear plant came online before 1990.³³⁷ Nuclear currently provides 20% of the country's electricity, twice as much as all other non-carbon emitting sources combined,³³⁸ and reducing coal use could prove a greater challenge if nuclear energy is declining as well.

<http://www.eia.doe.gov/dnav/pet/hist/LeafHandler.ashx?n=WTOTWORLD&f=W> (last visited Apr. 20, 2011).

³³⁴ See, e.g., Robert H. Bezdek & Robert M. Wendling, *A Half Century of US Federal Government Energy Incentives: Value, Distribution, and Policy Implications*, 27 *Int. J. Global Energy Issues* 42, 42 (2007), available at <http://www.misinet.com/publications/IJGEI-V27N1-07.pdf> (calculating that energy subsidies "over the past 50 years" from the federal government total \$644 billion). Oil received the most with \$302 billion, followed by natural gas (\$87.1), coal (\$80.9), hydropower (\$72.6), nuclear (\$63.4), renewables (\$32.6), and geothermal (\$5.7). *Id.* at 43. The authors' calculations include: research and development, federal regulation and mandates, taxation, disbursements, government services, and direct federal government involvement in the marketplace. *Id.*

³³⁵ See, e.g., Adenike Adeyeye et al., *Estimating U.S. Government Subsidies to Energy Sources: 2002–2008*, 3 (2009), available at

http://www.elistore.org/reports_detail.asp?ID=11358 (estimating federal government subsidies for fossil fuels to be \$72.4 billion during the 7 year period while renewables received 28.9 billion in subsidies).

³³⁶ See 2009 Generator Report, *supra* note 123.

³³⁷ See *id.* Of the 104 nuclear power plants in the U.S., five began operations after 1989. No new nuclear reactors have come online since 1996.

³³⁸ See U.S. Energy Info. Admin., *Annual Energy Review, Electricity Overview*, tbl. 8.2c, <http://www.eia.gov/totalenergy/data/annual/txt/ptb0802c.html> (last visited Aug. 30, 2011).

Although public support for nuclear energy fell³³⁹ after the disaster at Japan's Fukushima nuclear facility,³⁴⁰ the Obama Administration has continued to support the development of nuclear power.³⁴¹ Congress could take steps to support the ensure the continued viability of nuclear power, such as creating fast-track environmental and licensing reviews and take other steps to ensure the future viability of nuclear power.³⁴² Similarly, the federal government could enable faster and simpler

³³⁹ In 2001, Gallup claimed that Americans' support of nuclear power reached an all-time high. A poll conducted in March 2010 found that 62% of Americans "favor the use of nuclear energy as one of the ways to provide electricity for the U.S." *U.S. Support for Nuclear Power Climbs to New High of 62%*, Gallup, Mar. 22, 2010, <http://www.gallup.com/poll/126827/support-nuclear-power-climbs-new-high.aspx> (last visited August 10, 2011). According to a Gallup poll conducted March 25–27, 2011, two weeks after the Fukushima disaster, 46% of Americans said nuclear power "is necessary" while 48% said the dangers are "too great." *Majority of Americans Say Nuclear Power Plants in U.S. are Safe*, Gallup, Apr. 4, 2011, <http://www.gallup.com/poll/146939/majority-americans-say-nuclear-power-plants-safe.aspx> (last visited August 10, 2011).

³⁴⁰ On March 11, 2011, an earthquake, measuring 9.0 on the Richter scale, struck off the northeast coast of Japan. The earthquake and resulting tsunami led to a "massive explosion" at the Fukushima-Daiichi nuclear power plant the next day. *Japan's Megaquake: What We Know*, New Scientist, Mar. 12, 2011, <http://www.newscientist.com/blogs/shortsharpscience/2011/03/powerful-japan-quake-sparks-ts.html> (last visited August 10, 2011). The explosion precipitated a weeks-long crisis as international teams of experts attempted to contain the release of nuclear materials. See Int'l Atomic Energy Agency, Fukushima Nuclear Accident Update Log, <http://www.iaea.org/newscenter/news/tsunamiupdate01.html> (last visited August 10, 2011). Japan's government later confirmed that three reactors experienced a "full meltdown." *3 Nuclear Reactors Melted Down After Quake, Japan Confirms*, CNN Jun. 7, 2011, <http://edition.cnn.com/2011/WORLD/asiapcf/06/06/japan.nuclear.meltdown/index.html?ref=NS1> (last visited August 10, 2011).

³⁴¹ Kathleen Hennessy, *Energy Secretary Chu Says Obama Administration Remains Committed to Nuclear Power*, L.A. Times, Mar. 15, 2011, <http://articles.latimes.com/2011/mar/15/news/sc-dc-chu-nuclear-energy-20110316>

³⁴² See Mass Inst. of Tech., Update of the MIT 2003 Future of Nuclear Power 19 (2009), <http://web.mit.edu/nuclearpower/pdf/nuclearpower-update2009.pdf> (concluding that "the current assistance program put into place by the 2005 EPACT has not yet been effective and needs to be improved. The sober warning is that if more is not done, nuclear power will diminish as a practical and timely option for deployment at a scale that would constitute a material contribution to climate change risk mitigation.").

permitting of offshore wind and renewable generation projects on federal land. As many as eleven federal agencies and fifteen statutes may currently be implicated in the permitting process for offshore wind.³⁴³ The Department of Interior (“DOI”) has already begun the process of simplifying permitting of projects on federal land on its own initiative.³⁴⁴ Other agencies could grant unique treatment for clean electricity projects, and Congress could enact a range of exemptions and simplifications. EPA, DOI, DOE and others could continue to collaborate on studies that will open large areas of the country for development of clean electricity infrastructure. Congress could also require states to “consider” removing regulatory impediments to the development of clean electricity that are rooted in restrictive public utility laws.³⁴⁵

³⁴³ Office of Energy Efficiency and Renewable Energy, Wind, & Water Power Program, U.S. Dep’t of Energy & Bureau of Ocean Energy Mgmt., Regulation and Enforcement, U.S. Dep’t of the Interior, A National Offshore Wind Strategy: Creating an Offshore Wind Energy Industry in the United States 11–12 tbl. 2 (2011), http://www1.eere.energy.gov/windandhydro/pdfs/national_offshore_wind_strategy.pdf. The eleven agencies are: Bureau of Ocean Energy Management, Regulation, and Enforcement (Dept. of Interior), U.S. Army Corps of Engineers, EPA, Fish and Wildlife Service, National Park Service, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Federal Aviation Administration, Department of Defense, U.S. Coast Guard, and FERC. *Id.* The statutes are: National Environmental Policy Act, Endangered Species Act, Marine Mammal Protection Act, Magnuson-Stevens Fishery Conservation and Management Act, Marine Protection, Research, and Sanctuaries Act, National Marine Sanctuaries Act, Coastal Zone Management Act, National Historic Preservation Act, Federal Aviation Act, Federal Power Act, Ports and Waterways Safety Act, Rivers and Harbors Act, Outer Continental Lands Act, Clean Water Act, and Clean Air Act. *Id.*

³⁴⁴ *See id.* at 13 (describing efforts by the Department of Interior to streamline the permitting process for offshore wind); *see also* U.S. Dep’t of Interior, Bureau of Land Management, New Energy for America, http://www.blm.gov/wo/st/en/prog/energy/renewable_energy.html (last visited Apr. 22, 2011) (saying that “The U.S. Department of the Interior and the BLM are working with local communities, state regulators, industry, and other federal agencies in building a clean energy future by providing sites for environmentally sound development of renewable energy on public lands.”).

³⁴⁵ *See, e.g.*, In the Matter of a Declaratory Order Regarding Third-Party Arrangements for Renewable Energy Generation, No. 09-00217-UT (Dec. 30, 2009), *available at* <http://www.nmprc.state.nm.us/commissioners/pdf/Third%20Party%20Order.pdf> (ordering that “a third party developer that owns renewable generation equipment that is

Congress has historically let states lead, generally requiring that states “consider” a federal approach only after most had already adopted it.³⁴⁶ In both transmission siting and clean electricity generation, many states have made legislative and regulatory reforms to enable the construction of new infrastructure. The key task for the federal government is to articulate a goal that motivates further reform at the state level. Congress has yet to do that. But if it does pass electricity legislation it should recognize that there are many potential paths to achieving its goal. Regulatory indeterminacy is a call to let states allocate the costs of meeting a national goal to match their current situations and long-term priorities. Deferring to states and granting them flexibility will allow for a variety of approaches. Such policy diversity will enable innovation and dampen the effects of mistakes and market failures.

installed on a customer’s premises, pursuant to a long term contract with the customer to supply a portion of that customer’s electricity use, payments for which are based on a kilowatt-hour charge, is not a public utility subject to regulation by the Commission.”); *see also* 220 Mass. Code Regs. 18.09(5) (2010) (“[n]othing in [the net metering regulation] 220 CMR 18.00 is intended in any way to limit eligibility for Net Metering services based upon a third party ownership or financing agreement related to a Net Metering facility, where Net Metering services would otherwise be available.”). According to the Department of Public Utilities, this clause was added to the regulations “[t]o ensure that our final regulations do not impede the development of third-party ownership or financing arrangements.” Mass. Dep’t of Pub. Utilities, Order Adopting Final Regulations, D.P.U. 08-75-A (Jun. 26, 2009), *available at* <http://www.env.state.ma.us/dpu/docs/gas/08-75/62609dpuord.pdf>. Each of these state commission orders is an example of the commission providing an exemption for third-party financing arrangements of small-scale renewable energy generation facilities on a customer’s premises. *But see* Arizona Corp. Comm’n, In the Matter of the Application of Solar City Corp. For a Determination that When It Provides Solar Service to Arizona Schools, Governments, and Non-Profit Entities It Is Not Acting as a Public Service Corporation Pursuant to Art. 15, Section 2 of the Ariz. Constitution, No. E-20690A-09-0346 (Jul. 12, 2010), *available at* <http://images.edocket.azcc.gov/docketpdf/0000114068.pdf> (where Arizona regulators found that under a third-party financing arrangement, the third-party owner of solar panels would not be regulated as a public utility when entering into a Solar Services Agreement with schools, government entities, and non-profits, but did not decide whether it would be considered a public utility when dealing with commercial and residential customers).

³⁴⁶ *See supra* text accompanying notes 110–112, 154–157.

Congress should remain cautious as it inevitably continues to expand its jurisdiction and influence over the electricity industry.