

CHAPTERS

BLACKOUTS AND OVERSUPPLY OR REGULATORY PLANNING AND COOPERATION

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Policymakers in the United States have asserted broad goals to reduce electricity rates by increasing market competition, increase the use of renewable sources of electricity, and upgrade the U.S. transmission system to accommodate intermittent renewable energy sources. When policy goals are not well integrated with local and national regulatory policies, periods of too little or too much electricity on the grid result. This article analyzes the restructuring of the California electricity market in the late 1990s and the 2012 periods of oversupply on the Bonneville Power Administration grid as case studies in regulatory failure, then looks to the current smart grid upgrades to the national transmission system to recommend more cooperative regulatory policy.

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I. INTRODUCTION

Blackout and oversupply events in the West have proven that market after-the-fact regulation of electricity fails consumers. Lack of planning on state and federal levels has resulted in increased costs for consumers and short-term failure in the distribution of electricity. Without up-front regulatory planning, physical upgrades to the nation's transmission system will likely fall short of state and federal policy goals, and cost increases are likely to result.

Poor regulatory planning resulted in blackouts following the restructuring of the California electricity market. The State of California restructured its electricity market in the late 1990s in an attempt to reduce

electric costs that were higher than the regional average.¹ The deregulated system relied on electricity markets to determine the fair market price at any given time.² Under this system, regulators believed that the invisible hand of the market would control prices and adequately incentivize production.³ Instead, the market proved ripe for manipulation.⁴ Power plants were deliberately taken off line to reduce supply, prices skyrocketed, and rolling blackouts spread across the state.⁵ Utilities are still litigating settlements from the failure of the market thirteen years later.

Poor regulatory planning also resulted in periods of excess power in the Northwest. The majority of states in the Northwest have adopted renewable portfolio standards that aim to increase the percentage of power produced from renewable sources.⁶ While regulators adopted a series of Orders to ensure fair access to transmission lines,⁷ they failed to adequately address the comprehensive effect that additional renewable power would have on the electric grid. Periods when production of renewable power exceeded total regional consumption resulted, and regulators disconnected generating sources to ensure grid safety.⁸ These actions, which violated transmission contracts, are currently in litigation, and the cost of violating transmission contracts will be passed on to consumers.⁹

The complexity of the existing piecemeal U.S. system of jurisdiction over electricity production and transmission makes it difficult to perform comprehensive regulatory planning. While the United States is currently implementing technological upgrades to the electric grid that can mitigate blackout and oversupply events, our current regulatory system prevents full

¹ 1996 Cal. Stat. 4505 (codified as amended at CAL. PUB. UTIL. CODE §§ 330-99.11 (West 2004 & Supp. 2013)).

² *Id.*

³ Timothy P. Duane, *Regulation's Rationale: Learning from the California Energy Crisis*, 19 YALE J. ON REG. 471, 487 (2002).

⁴ See CHRISTOPHER WEARE, PUB. POL'Y INST. OF CAL., THE CALIFORNIA ELECTRICITY CRISIS: CAUSES AND POLICY OPTIONS vi (2003), available at http://www.ppic.org/content/pubs/report/R_103CWR.pdf.

⁵ BILL LOCKYER, ATTORNEY GENERAL'S ENERGY WHITE PAPER: A LAW ENFORCEMENT PERSPECTIVE ON THE CALIFORNIA ENERGY CRISIS 6-7 (2004), available at <http://oag.ca.gov/sites/all/files/pdfs/publications/energywhitepaper.pdf>.

⁶ See MONT. CODE ANN. § 69-3-20 (2012); OR. REV. STAT. § 469A (Supp. 2013); WASH. REV. CODE ANN. § 19.285 (West 2013).

⁷ See Order No. 888, *Promoting Wholesale Competition Through Open Access Non-discriminatory Transmission Services by Public Utilities*, 75 F.E.R.C. ¶ 61,080 (Apr. 24, 1996) [hereinafter Order No. 888]; Order No. 2003, *Standardization of Generator Interconnection Agreements & Procedures*, 104 F.E.R.C. ¶ 61,103 (July 24, 2003) [hereinafter Order No. 2003]; Order No. 1000, *Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities*, 136 F.E.R.C. ¶ 61,051 (Aug. 11, 2011) [hereinafter Order No. 1000].

⁸ See BONNEVILLE POWER ADMIN., BPA'S INTERIM ENVIRONMENTAL REDISPATCH AND NEGATIVE PRICING POLICIES 14 (2011), available at <http://www.bpa.gov/news/pubs/RecordsofDecision/rod-20110513-Interim-Environmental-Redispatch-and-Negative-Pricing-Policies.pdf> [hereinafter REDISPATCH POLICIES].

⁹ See *Iberdrola Renewables, Inc. v. Bonneville Power Admin.*, 141 F.E.R.C. ¶ 61,234 at P 11 (2012).

utilization of these upgrades. State and Federal regulators need to work together to effectively implement regulatory structures that support physical upgrades to the electric grid.

This paper provides recommendations for addressing the piecemeal system of electricity regulation in the United States. Part Two looks at the current system of electricity regulation and how it developed. Part Three discusses two case studies that demonstrate the impact of poor regulatory planning. Part Four looks at current transmission upgrades to the U.S. electric system. Part Five then applies lessons learned from the case studies to recommend an improved regulatory system that minimizes cost increases for consumers. This Chapter concludes with specific recommendations for State Commissions and the Federal Energy Regulatory Commission to work together on long term power production and integration planning.

II. JURISDICTION OVERVIEW

The U.S. electricity regulatory system has not kept up with upgrades to the production and transmission infrastructure. The physical electric grid in the United States developed from small, local, and distinct systems of generation and consumption to a nearly national grid capable of moving electricity in interstate commerce from regions of supply to end consumers.¹⁰ While the electric transmission system has become well integrated, the regulatory system remains piecemeal.

A. *The US Electric Production and Distribution System*

Since the passage of the Federal Power Act (FPA),¹¹ the United States has seen a significant increase in both the number and type of electricity suppliers.¹² In 1949, the earliest year for which data is readily available, the United States consumed 291 billion kilowatt-hours of electricity primarily produced from fossil fuel sources, but 31% of power generated that year was from renewable sources including hydroelectricity.¹³ In 2011, the United States consumed 3,955 billion kilowatt-hours of electricity including only 12.3% of power from renewable sources.¹⁴ Technological advances in the production of electricity have made it possible to generate electricity efficiently in different ways and, in many cases, in smaller scales.¹⁵ Despite

¹⁰ *What is the Smart Grid?*, http://www.smartgrid.gov/the_smart_grid#smart_grid (audio lecture) (last visited July 21, 2013) [hereinafter *Smart Grid*].

¹¹ 16 U.S.C. §§ 791a–828 (2006 & Supp V 2011).

¹² *New York v. F.E.R.C.*, 535 U.S. 1, 6–7 (2002).

¹³ U.S. ENERGY INFO. ADMIN., DOE/EIA-0384, ANNUAL ENERGY REVIEW 2011, at 225 (2012), available at <http://www.eia.gov/totalenergy/data/annual/showtext.cfm?t=ptb0802b> [hereinafter ANNUAL REVIEW].

¹⁴ *Id.*

¹⁵ *New York*, 535 U.S. at 7. Though the percentage of power generated from renewable resources has decreased since 1949, electricity is now generated from many new sources

advances, the United States has become increasingly dependent on fossil fuels for electricity generation and increasingly dependent on schedulable power sources¹⁶ in the last decade.¹⁷

Three major grids currently deliver electricity in the continental United States.¹⁸ More than 9,200 electricity-generating facilities connect to the grids, which transmit power over more than 300,000 miles of transmission lines.¹⁹ In all but three states, electricity travels in interstate commerce over long distances at low costs.²⁰

B. Development of Electricity Regulation

Regulation of electricity in the United States occurs through a system that distinguishes based on size, whether the utility received financing under the Rural Electrification Act of 1936,²¹ and ownership of the utility to determine whether the utility is subject to regulation. Federal and state entities further divide jurisdiction over regulated entities. As the flow of electricity became increasingly regional and national, this piecemeal system of regulation became increasingly burdensome.

1. Regulated Versus Unregulated Utilities

The existing system of electricity regulation in the United States is a complicated, confusing web. Of the four main types of electricity providers, only one—the investor owned utility—is consistently regulated by both the Federal Energy Regulatory Commission (FERC) and State Public Utility Commissions (State Commissions). The other three types may be regulated by FERC, State Commissions, both, or neither depending on local rules. The complexity creates obstacles to improving the regulatory system.

The FPA defines a jurisdictional utility, in relevant portion, as a utility that is not an entity of the United States, a State, or any political subdivision of a State, not an electric cooperative that receives financing under the Rural Electrification Act of 1936,²² or a utility that sells less than 4,000,000 megawatt-hours of electricity per year.²³ Frequently, whether a utility is

including waste, geothermal energy, solar photovoltaics, wind, and other manufactured and waste gases derived from fossil fuels. ANNUAL REVIEW, *supra* note 13, at 225.

¹⁶ Schedulable power sources are power sources that can be turned off and on in response to consumption needs.

¹⁷ See ANNUAL REVIEW, *supra* note 13, at 225.

¹⁸ *New York*, 535 U.S. at 7. The three grids are the Western Interconnection, the Texas Interconnection, and the Eastern Interconnection. For a diagram see LOCKYER, *supra* note 5, at 25.

¹⁹ *Smart Grid*, *supra* note 10.

²⁰ *New York*, 535 U.S. at 7.

²¹ 7 U.S.C. §§ 901–950bb (2006).

²² *Id.*

²³ 16 U.S.C. § 824(f) (2006).

regulated is clarified by whether the utility is investor owned, public power, electric cooperative, or federal power.

Investor Owned Utility Companies (IOUs) are private shareholder-owned companies.²⁴ Approximately 220 IOUs ranging in size from multistate holding companies to small local operations currently exist in the United States.²⁵ IOUs serve approximately 75% of the United States.²⁶ Under the FPA, FERC and State Commissions regulate IOUs.²⁷

Public power systems include local, municipal, regional and state-owned power systems.²⁸ More than 2,000 public power systems operate in the United States.²⁹ In some states, State Commissions regulate public power, while in others, municipal governments regulate the utility or the utility is self-regulating.³⁰

Electric cooperatives are privately owned electric systems managed and owned by the members they serve.³¹ Most electric cooperatives were formed during the Great Depression.³² More than 800 electric cooperatives currently provide electricity services in the United States.³³ Some State Commissions exercise jurisdiction over electric cooperatives, while others do not.³⁴ Electric cooperatives with outstanding loans under the Rural Electrification Act of 1936³⁵ are subject to regulation by the Rural Utilities Service in the Department of Agriculture. Those without outstanding loans are regulated by FERC.³⁶

Federal power includes wholesale power from federal facilities and federal power marketing agencies including Bonneville Power Administration (Bonneville).³⁷ Federal power producers primarily sell power at the wholesale level but also sell power directly to end customers.³⁸ Federal power marketing agencies own and control their transmission.³⁹

In many states, one must know the history of a utility to know whether the utility is regulated by the State Commission, FERC, both, or neither.⁴⁰

²⁴ ELEC. ENERGY MKT. COMPETITION TASK FORCE, REPORT TO CONGRESS ON COMPETITION IN WHOLESALE AND RETAIL MARKETS FOR ELECTRIC ENERGY 10 (2006), *available at* <http://www.ferc.gov/legal/fed-sta/ene-pol-act/epact-final-rpt.pdf> [hereinafter COMPETITION REPORT].

²⁵ *Id.* at 11.

²⁶ REGULATORY ASSISTANCE PROJECT, ELECTRICITY REGULATION IN THE US: A GUIDE 9 (2011), *available at* www.raponline.org/document/download/id/645 [hereinafter U.S. REGULATION].

²⁷ COMPETITION REPORT, *supra* note 24, at 11.

²⁸ *Id.*

²⁹ *Id.*

³⁰ *Id.* at 12.

³¹ *Id.*

³² U.S. REGULATION, *supra* note 26, at 10.

³³ COMPETITION REPORT, *supra* note 24, at 12.

³⁴ *Id.*

³⁵ 7 U.S.C. § 901 (2006).

³⁶ COMPETITION REPORT, *supra* note 24, at 12–13.

³⁷ *Id.* at 13.

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ U.S. REGULATION, *supra* note 26, at 24.

This jurisdictional issue is just the beginning of the complexity of electricity regulation.

2. *Division of Regulatory Authority Between FERC and State Commissions*

For regulated utilities, regulatory roles are further complicated by whether the area at issue falls under FERC or State Commission jurisdiction. The FPA drew a distinct line between interstate and intrastate sale of electricity from jurisdictional utilities, with the former falling under FERC authority and the latter falling under State Commission authority.⁴¹ FERC jurisdiction under the FPA became plenary and extended to wholesale sales in interstate commerce except where State Commissions explicitly retained jurisdiction.⁴² FERC became responsible for regulation of interstate transmission of electricity, while State Commissions retained authority to regulate the rates charged to retail consumers and the portion of transmission that travels from facilities to consumers.⁴³

FERC primarily regulates interstate power.⁴⁴ FERC's regulatory authority over wholesale sales of power includes wholesale pricing, rate formulas, practices, and other terms and conditions of service.⁴⁵ FERC has jurisdiction over the transmission and sale of electricity in interstate commerce by utilities subject to regulation under the FPA, and the rates, terms, and conditions of interstate electricity and wholesale sales.⁴⁶ FERC's jurisdiction also extends to corporate activities, accounting, and reliability of jurisdictional utilities.⁴⁷ Its jurisdiction is primarily interstate.

State Commissions regulate in-state power.⁴⁸ State Commissions have jurisdiction over local and in-state distribution of electricity and the rates, terms, and conditions of service for jurisdictional utilities.⁴⁹ State Commission jurisdiction extends to the sales of electricity to end users including the rates, terms, and conditions of those sales.⁵⁰ State Commissions also have jurisdiction over siting and construction of most power generation⁵¹ and environmental matters, with the exception of

⁴¹ See Federal Power Act, 16 U.S.C. § 824(b)(1) (2006) ("The Commission shall have jurisdiction over all facilities for such transmission or sale of electric energy, but shall not have jurisdiction . . . over facilities used for the generation of electric energy or over facilities used in local distribution or only for the transmission of electric energy in intrastate commerce, or over facilities for the transmission of electric energy consumed wholly by the transmitter.").

⁴² See *Nantahala Power & Light Co. v. Thornburg*, 476 U.S. 953, 966 (1986) (citing *Fed. Power Comm'n v. S. Cal. Edison Co.*, 376 U.S. 205, 215–16 (1964)).

⁴³ Jeffery S. Dennis, *Twenty-Five Years of Electricity Law, Policy, and Regulation: A Look Back*, 25 NAT. RESOURCES & ENV'T 33, 33 (2010).

⁴⁴ U.S. REGULATION, *supra* note 26, at 11.

⁴⁵ 16 U.S.C. § 824d(a) (2006).

⁴⁶ *Id.* §§ 824, 824d, 824e.

⁴⁷ *Id.* §§ 824b, 824c, 824o, 825, 825d(b).

⁴⁸ U.S. REGULATION, *supra* note 26, at 11.

⁴⁹ 16 U.S.C. §§ 824, 824d, 824e (2006).

⁵⁰ *Id.* § 824(a).

⁵¹ *Id.* § 824p.

environmental issues related to hydroelectric generation and nuclear power generation.⁵² Their jurisdiction is intrastate.

Public and federal power entities were typically not subject to FERC regulation before the 1990s, and in many cases still are not subject to State Commission regulation.⁵³ Public and federal power entities may contract to abide by rates regulated by FERC, but doing so does not make them jurisdictional entities.⁵⁴

The piecemeal system of regulation and jurisdiction creates obstacles to national electricity planning. Utilities that fall under neither FERC nor State Commission authority may still be required to comply with FERC transmission orders such as Orders No. 888, 2003, and 1000.⁵⁵ The assertion of FERC authority over aspects of nonjurisdictional entities further complicates regulation.

C. Major Modern Developments in the Regulation of Transmission

Both Congress and FERC have taken steps toward uniform national regulation of the electric grid. Congress adopted legislation regarding regulation of transmission. FERC adopted orders regarding transmission access and transmission planning. These efforts, while significant steps toward a national system, are still piecemeal reforms.

1. Congressional Actions

Congress responded to the changing needs of the U.S. electric system from 1970 through 1992 by updating the FPA. Congress began expanding FERC's regulatory authority in the 1970s by encouraging development of generation resources owned by entities other than vertically integrated utilities.⁵⁶

⁵² *San Diego Gas & Elec. Co. v. Sellers of Energy and Ancillary Servs.*, 96 F.E.R.C. ¶ 61,117, at p. 61,448 (2001).

⁵³ *See* 16 U.S.C. § 824(f) (2006) ("No provision in this subchapter shall apply to, or be deemed to include, the United States, a State or any political subdivision of a State, an electric cooperative that receives financing under the Rural Electrification Act of 1936 or that sells less than 4,000,000 megawatt hours of electricity per year, or any agency, authority, or instrumentality of any one or more of the foregoing, or any corporation which is wholly owned, directly or indirectly, by any one or more of the foregoing, or any officer, agent, or employee of any of the foregoing acting as such in the course of his official duty, unless such provision makes specific reference thereto.") (citation omitted).

⁵⁴ *Id.*

⁵⁵ *See* Order No. 888, *supra* note 7; Order No. 2003, *supra* note 7; Order No. 1000, *supra* note 7.

⁵⁶ Public Utility Regulatory Policies Act of 1978, 16 U.S.C. § 824a-3 (2006). A vertically integrated utility is a utility that owns the generating capacity, distribution, and transmission facilities that it utilizes. *See* U.S. ENERGY INFO. ADMIN., DOE/EIA-0562, *THE CHANGING STRUCTURE OF THE ELECTRIC POWER INDUSTRY 2000: AN UPDATE* (2000), *available at* http://www.eia.gov/cneaf/electricity/chg_stru_update/update2000.pdf.

In the early 1990s, Congress passed the Energy Policy Act of 1992,⁵⁷ which facilitated development of interstate power production and competition in wholesale electric power markets.⁵⁸ The Energy Policy Act of 1992 also expanded the FPA to allow FERC to order a utility with transmission facilities to provide transmission service to any entity generating electric energy for wholesale sale.⁵⁹ Under the Energy Policy Act of 1992, FERC gained authorization to order individual utilities to provide transmission services to unaffiliated wholesale generators.⁶⁰ These regulatory changes facilitated more recent developments in transmission.

The 2005 Energy Policy Act gave FERC authority to “require an entity not otherwise subject to jurisdiction under the FPA to provide transmission services on a comparable and nondiscriminatory basis to others.”⁶¹ This new ability to require entities previously outside FERC jurisdiction to comply with FERC orders helped to further erode jurisdictional divisions.

2. FERC Orders

Beginning in 1996, FERC adopted three significant orders that changed its jurisdiction over electricity transmission. Order No. 888 prevented transmission owning utilities from charging unreasonable rates for the use of their transmission systems.⁶² Order No. 2003 gave FERC jurisdiction over interconnection agreements between generators and transmission providers.⁶³ Order No. 1000 required regional transmission planning.⁶⁴ Each made significant steps toward facilitating a nationally regulated electric grid.

a. FERC Order No. 888, Non-Discrimination in Transmission

Order No. 888 adopted rules for access to transmission lines. Jurisdictional utilities typically own the transmission lines within their local area.⁶⁵ Without access regulations, transmission owners could charge competitors unreasonable rates to use their lines or refuse to allow transmission on their lines entirely.⁶⁶ FERC addressed the potential for utilities that own transmission to prevent use of their lines or to charge unreasonable rates for the use of transmission by adopting non-discrimination principles with Order No. 888.

⁵⁷ Pub. L. No. 102-486, 106 Stat. 2776 (codified as amended at 42 U.S.C. §§ 13201–13574 (2006 & Supp. V 2011)).

⁵⁸ Dennis, *supra* note 43, at 34.

⁵⁹ *Id.* (referencing Federal Power Act, 16 U.S.C. § 824(j) (2006)).

⁶⁰ *New York v. F.E.R.C.*, 535 U.S. 1, 9 (2002), (referencing 16 U.S.C. §§ 824j–824k (2006)).

⁶¹ Dennis, *supra* note 43, at 35 (referencing 16 U.S.C. § 824(j)(1) (2006)).

⁶² Order No. 888, *supra* note 7.

⁶³ Order No. 2003, *supra* note 7.

⁶⁴ Order No. 1000, *supra* note 7.

⁶⁵ *New York*, 535 U.S. at 2.

⁶⁶ *Id.*

FERC relied on its FPA section 206(a) authority in developing Order No. 888 and concluded that utilities had used their monopoly transmission to discriminate against potential competitors.⁶⁷ FERC also concluded that such monopoly behavior would likely increase as competition in the industry increased.⁶⁸ In 1996, FERC found the practice of charging unreasonable rates for the use of transmission lines discriminatory under section 205 of the FPA and issued Order No. 888 as a remedy.⁶⁹ With Order No. 888, FERC began a voluntary process of encouraging transmission providers to reduce discrimination.⁷⁰

Order No. 888 left regulation of bundled retail transmission⁷¹ to State Commissions, concluding that “when transmission is sold at retail as part and parcel of the delivered product called electric energy, the transaction is a sale of electric energy at retail.”⁷² FERC, however, asserted jurisdiction over unbundled retail transmissions based on its FPA section 201 authority.⁷³ FERC recognized that retail facilities used in local distribution fall within State Commission jurisdiction, but adopted a seven factor test to determine which facilities are local and which are not. The former facilities fall within State Commission jurisdiction, while the latter fall within FERC jurisdiction.⁷⁴ The order attempted to clarify the boundaries of State Commission jurisdiction over retail transmission.

⁶⁷ *Transmission Access Policy Study Grp. v. F.E.R.C.*, 225 F.3d 667, 703 (D.C. Cir. 2000), *aff’d sub nom.* *New York v. F.E.R.C.*, 535 U.S. 1 (2002) (referencing Order No. 888, *supra* note 7, at 31,676).

⁶⁸ *Id.*

⁶⁹ Order No. 888, *supra* note 7, at 31,676.

⁷⁰ Matthew R. McGuire, *(Mis)understanding “Undue Discrimination”: FERC’s Misguided Effort to Extend the Boundaries of the Federal Power Act*, 19 GEO. MASON L. REV. 549, 555–56 (2012) (referencing Order No. 888, *supra* note 7).

⁷¹ Under bundled retail electric service, consumers pay a single charge for both the cost of the electricity and the cost of its delivery. *New York*, 535 U.S. at 1.

⁷² *Transmission Access Policy Study Grp.*, 225 F.3d at 691 (citing Order No. 888, *supra* note 7).

⁷³ *New York*, 535 U.S. at 1. (“Invoking its § 206 authority, FERC 1) ordered ‘functional unbundling’ of wholesale generation and transmission services, which means that each utility must state separate rates for its wholesale generation, transmission, and ancillary services, and must take transmission of its own wholesale sales and purchases under a single general tariff applicable equally to itself and others; 2) imposed a similar open access requirement on unbundled *retail* transmissions in interstate commerce; and 3) declined to extend the open access requirement to the transmission component of bundled retail sales, concluding that unbundling such transmissions was unnecessary and would raise difficult jurisdictional issues that could be more appropriately considered in other proceedings.”).

⁷⁴ *Transmission Access Policy Study Grp.*, 225 F.3d at 695 n.6 (citing Order 888, *supra* note 7, at 31,981) (“The . . . seven factor test requires evaluating on a case-by-case basis [seven indicators of local distribution]: 1) Local distribution facilities are normally in close proximity to retail customers. 2) Local distribution facilities are primarily radial in character. 3) Power flows into local distribution systems; it rarely, if ever, flows out. 4) When power enters a local distribution system, it is not reconsigned or transported on to some other market. 5) Power entering a local distribution system is consumed in a comparatively restricted geographical area. 6) Meters are based at the transmission/local distribution interface to measure flows into the local distribution system. 7) Local distribution systems will be of reduced voltage.”).

The adoption of Order No. 888 allowed FERC to remove obstacles to competition in the wholesale power market and reduce costs to consumers.⁷⁵ The order also provided a clear standard for determining when retail transmissions fall under FERC jurisdiction.⁷⁶

b. FERC Order No. 2003, Interconnection Jurisdiction

FERC again expanded its jurisdiction in 2003 by requiring standardized interconnection service. Order No. 2003 requires public utilities to offer “nondiscriminatory, standardized interconnection service” to power producers that connect to their transmission lines.⁷⁷ FERC intended Order No. 2003 to ensure a reduction in interconnection time and cost, assist in preserving reliability, expand the energy supply, and lower wholesale prices.⁷⁸

FPA section 201(b) gives FERC jurisdiction over facilities utilized for transmission or sale of electric energy in interstate commerce.⁷⁹ Order No. 2003 asserted jurisdiction “over the terms of interconnection between generators and transmission providers, even where the transmission facility also engages in local distribution, but only insofar as the interconnections are ‘for the purpose of making sales of electric energy for resale in interstate commerce.’”⁸⁰ The Order allows FERC to regulate transmission facilities used for in-state electricity needs if the facilities are also used for interstate power needs.

In *National Association of Regulatory Commissioners v. F.E.R.C.*,⁸¹ the association of State Regulatory Commissioners challenged FERC for impeding on State Commission jurisdiction with Order No. 2003.⁸² The D.C. Circuit, however, upheld Order No. 2003 under section 206(b)(1) of the FPA, because the FPA gives FERC authority to regulate jurisdictional transactions including interstate transmissions and wholesale sales occurring at nonjurisdictional facilities.⁸³ Courts have upheld Order No. 2003 as within FERC’s authority despite the challenge by the National Association of Regulatory Commissioners.

⁷⁵ Order No. 888, *supra* note 7.

⁷⁶ Unbundled “means that each utility must state separate rates for its wholesale generation, transmission, and ancillary services, and must take transmission of its own wholesale sales and purchases under a single general tariff applicable equally to itself and others.” *New York*, 535 U.S. at 2.

⁷⁷ Federal Energy Regulatory Commission, *Standard Interconnection Agreements & Procedures for Large Generators*, <http://www.ferc.gov/legal/maj-ord-reg/land-docs/order2003.asp> (last visited July 21, 2013).

⁷⁸ *Id.*

⁷⁹ Federal Power Act, 16 U.S.C. § 824(b)(1) (2006).

⁸⁰ *Nat’l Ass’n of Regulatory Comm’rs v. F.E.R.C.*, 475 F.3d 1277, 1279–80 (D.C. Cir. 2007).

⁸¹ *Id.* (referencing Order No. 2003, *supra* note 7).

⁸² *Id.* (holding that orders issued by FERC were a valid exercise of its jurisdiction under the FPA).

⁸³ *Id.* (referencing 16 U.S.C. § 824(b)(1) (2006)).

By requiring standardized interconnection service, FERC helped to facilitate interconnection of renewable sources of power to the grid and expedite development of new generation.⁸⁴ FERC expected decreased prices and increased reliability for consumers as a result of the order.⁸⁵

c. FERC Order No. 1000, Requirements for Regional Transmission Planning

In 2011, FERC issued Order No.1000, which requires jurisdictional utilities to participate in regional transmission planning to determine whether regional solutions may be more cost effective and efficient than individualized local transmission planning processes.⁸⁶ Order No. 1000 attempts to ensure that services by jurisdictional utility providers are just and reasonable and not unduly discriminatory or preferential when providing transmission service.⁸⁷ Under Order No. 1000, FERC added obligations for utility transmission providers to ensure regional transmission planning that considers and evaluates possible transmission alternatives, verifies that transmission costs are fairly allocated, and performs interregional coordination and cost allocation for transmission solutions.⁸⁸

As part of the interregional coordination requirements, Order No. 1000 added a requirement for joint evaluation and sharing of information related to regional transmission needs. It also provided a methodology for allocating costs of new transmission facilities within each transmission planning region, as well as with neighboring transmission regions.⁸⁹ This new requirement for interregional transmission planning could help facilitate the integration of an increasing number of intermittent renewable generation sources by ensuring regions have adequate transmission capacity to meet their needs.

D. Summary of Regulation

FERC and Congress have attempted to address electricity transmission and supply concerns through a series of acts and orders that expand FERC regulatory jurisdiction and require better regional transmission planning. While these efforts provide piecemeal reforms that help fix problems in our existing regulatory structure, they retain the complex regulatory system and fall short of the comprehensive reforms necessary to facilitate cost reduction, national transmission upgrades, and integration of more renewable power.

⁸⁴ Order No. 2003, *supra* note 7.

⁸⁵ Stephen M. Fisher, *Reforming Interconnection Queue Management Under FERC Order No. 2003*, 26 YALE J. ON REG. 117, 127 (2009).

⁸⁶ *See* Order No. 1000, *supra* note 7, at 49,842.

⁸⁷ *Id.*

⁸⁸ *Id.* at 49,845.

⁸⁹ *Id.* at 49,846.

III. UNEXPECTED CONSEQUENCES FROM PIECEMEAL REFORMS

Shortsighted regulatory planning contributed to a dysfunctional electricity market in California during the California energy crisis by limiting FERC and State Commission authority to regulate.⁹⁰ Shortsighted regulatory planning also contributed to a poorly functioning transmission system in the Northwest when more production capacity was connected to the grid than consumers could use.⁹¹ Without comprehensive planning, regulators are likely to repeat these mistakes and the full benefit of transmission upgrades is unlikely to be achieved.

A. *Poor Regulatory Planning Led to Too Little Power in California*

The California energy crisis of 2000 provided a very public demonstration of regulatory issues that can arise from undersupply in, and poor management of, the power market. Attempts to reduce costs resulted in exponential increases in prices, market manipulation, blackouts, and economic and fiscal consequences for the state. FERC's after-the-fact attempts to remedy unjust rates charged during the crisis opened government entities up to liability and spread costs for the failure across the entire region.

1. *Restructuring of the California Electricity Market*

In the 1990s, California restructured its electric energy markets⁹² in an attempt to lower electricity prices that were as much as 30% higher than other states in the West.⁹³ The restructured system required regulated utilities to purchase power from regulated merchant generators that were also subject to regulation by FERC.⁹⁴ Power-producing municipal and federal government entities, which were nonjurisdictional utilities, also sold electricity to the regulated merchant generators and utilities.⁹⁵ The regulated market worked by requiring jurisdictional and nonjurisdictional sellers of electricity to "bid into the market until sufficient power was secured to meet demand, at which point all sellers were paid the price bid by the seller whose electricity was needed to clear the market."⁹⁶ The restructured system

⁹⁰ See LOCKYER, *supra* note 5, at 6–7.

⁹¹ See REDISPATCH POLICIES, *supra* note 8, at 9.

⁹² The restructuring of California's electricity market was authorized by, Assemb. B. No. 1890. See 1996 Cal. Stat. 4505 (codified as amended at CAL. PUB. UTIL. CODE §§ 330–99.11 (West 2004 & Supp. 2013)).

⁹³ City of Redding, Cal. v. F.E.R.C. (*Redding*), 693 F.3d 828, 831–32 (9th Cir. 2012); WEARE, *supra* note 4, at 10.

⁹⁴ *Redding*, 693 F.3d at 832 (citing 94 F.E.R.C. ¶ 61245, at 61864–65).

⁹⁵ *Id.*

⁹⁶ *Id.* (citing Bonneville Power Admin. v. F.E.R.C., 422 F.3d 908, 912 (9th Cir. 2005)) (internal quotation marks omitted).

was ripe for market manipulation because regulatory oversight was reduced.⁹⁷

In part, FERC and the California Energy Commission adopted deregulation in response to concerns regarding the ability of IOUs to gain an advantage over competitors by entering into special deals.⁹⁸ As part of deregulation, California established two new, independent bodies to regulate the market: the California Power Exchange (CA/PX), and the California Independent System Operator (CA/ISO).⁹⁹ The CA/PX managed market transactions, while the CA/ISO managed the transmission system for the utilities.¹⁰⁰ Under this system, the California regulators gave up most of their authority over regulation of electricity.¹⁰¹

2. *Meltdown of the Restructured Market*

On May 22, 2000, wholesale electricity prices in California skyrocketed, and remained high for over a year.¹⁰² The State of California quickly discovered that the structure of its deregulated market could exacerbate supply problems.¹⁰³ The California Attorney General determined that during peak times of consumption, generators deliberately withheld enough power to supply more than one million homes and generators and falsely reported generating facilities as offline in order to maximize profits.¹⁰⁴ As a result of inadequate electricity supply, portions of California experienced rolling black outs, and wholesale power prices exceeded \$1,400 per megawatt where they had averaged just \$45 per megawatt on the same date in the year prior to deregulation.¹⁰⁵ California experienced an average price increase of 277% between 1999 and 2000.¹⁰⁶

FERC's oversight of California was inadequate to control the market. The State of California concluded that prior to and during the crisis, FERC did not act when power sellers failed to file reports on their sales and purchases of wholesale power.¹⁰⁷ The State also determined that FERC failed

⁹⁷ See WEARE, *supra* note 4, at 35.

⁹⁸ Duane, *supra* note 3, at 497–98.

⁹⁹ *Id.* at 498.

¹⁰⁰ *Id.*

¹⁰¹ See *id.* at 506–07.

¹⁰² LOCKYER, *supra* note 5, at 16.

¹⁰³ San Diego Gas & Elec. Co., 93 F.E.R.C. ¶ 61,121, at p. 61,365 (2000) (“In times of adequate supply the single price auction disciplines prices by encouraging suppliers to bid their marginal costs so that they can be selected for dispatch and be paid the clearing price. However, in times of scarcity the single price auction can exacerbate the effect of supply shortages by allowing sellers who have small market shares to set the clearing price. Not only is the seller transformed into a price setter rather than a price taker, but the resulting price is ascribed to the entire market.”).

¹⁰⁴ LOCKYER, *supra* note 5, at 7.

¹⁰⁵ *The California Crisis California Timeline*, <http://www.pbs.org/wgbh/pages/frontline/shows/blackout/california/timeline.html> (last visited July 21, 2013).

¹⁰⁶ LOCKYER, *supra* note 5, at 6.

¹⁰⁷ *Id.* at 8.

to enforce requirements necessary for documentation of just and reasonable rates, and FERC used inadequate methodology for determining the adequacy of market power.¹⁰⁸ The restructured market relied on FERC oversight, and FERC's oversight fell short.¹⁰⁹

3. *Picking Up the Pieces*

Following the crisis, the State of California claimed losses of \$8.9 billion for the amount the State paid above the FERC established just and reasonable rate.¹¹⁰ The State of California could not take action against power marketers directly because FERC holds exclusive jurisdiction to determine the reasonableness of wholesale rates.¹¹¹ The Supremacy Clause of the United States Constitution bars State action within the zone of FERC's authority.¹¹² This California petition for cost recovery triggered a series of lawsuits that resulted in liability for both jurisdictional and nonjurisdictional entities.¹¹³

In response to the California petition, FERC determined that the market structure in California during 2000 resulted in unjust and unreasonable rates and price escalation.¹¹⁴ FERC issued a forward looking solution that aimed to

¹⁰⁸ *Id.*

¹⁰⁹ *Id.*

¹¹⁰ *San Diego Gas & Elec. Co.*, 96 F.E.R.C. ¶ 61,120 (July 25, 2001) *referencing* *San Diego Gas & Elec. Co. et al.*, 96 F.E.R.C. ¶ 63,007 (July 12, 2001).

¹¹¹ *See Miss. Power & Light Co. v. Mississippi ex rel. Moore*, 487 U.S. 354, 371 (1988). *See also* Federal Power Act, 16 U.S.C. § 824e(a) (2006) (FERC shall determine the just and reasonable rate when it finds that "any rate, charge, or classification, demanded, observed, charged, or collected by any public utility for any transmission or sale subject to the jurisdiction of the Commission, or that any rule, regulation, practice, or contract affecting such rate, charge, or classification is unjust, unreasonable, unduly discriminatory or preferential").

¹¹² *Pub. Util. Dist. No. 1 of Grays Harbor Cnty. Wash. v. IDACORP Inc.*, 379 F.3d 641, 647 (9th Cir. 2004), (referencing *Miss. Power & Light Co.*, 487 U.S. at 371; U.S. CONST. art. VI, cl. 2.).

¹¹³ Following establishment of the methodology for calculating refunds in *San Diego Gas & Elec. Co.*, 96 F.E.R.C. ¶ 61,120 (July 25, 2001), multiple entities filed claims for cost recovery. *See generally San Diego Gas & Elec. Co.*, 92 F.E.R.C. ¶ 61,172 (2000).

¹¹⁴ *San Diego Gas & Elec. Co.*, 93 F.E.R.C. ¶ 61,121, at 61,349 (2000) ("The Commission finds in this order that the electric market structure and market rules for wholesale sales of electric energy in California are seriously flawed and that these structures and rules, in conjunction with an imbalance of supply and demand in California, have caused, and continue to have the potential to cause, unjust and unreasonable rates. . .").

prevent future price escalation,¹¹⁵ and initiated hearings regarding rates charged during the peak of the crisis.¹¹⁶

In 96 F.E.R.C. ¶ 61,120, FERC established a methodology for calculating refunds for transactions in the spot markets operated by CA/ISO and the CA/PX during the crisis.¹¹⁷ This order included sales by both jurisdictional and nonjurisdictional utilities into the California markets.¹¹⁸ FERC decided to include nonjurisdictional utilities in the refund order because it believed both jurisdictional and nonjurisdictional utilities contributed to and benefited from the dysfunction of the California market.¹¹⁹ As a result, all sellers—including nonjurisdictional sellers—that received a price that FERC determined was unjust and unreasonable were liable for refunds. FERC believed that up to 30% of power sales into the centralized CA/ISO and CA/PX spot markets in California came from nonjurisdictional utility sellers and excluding them from the refund remedy would have a detrimental effect on consumers in California.¹²⁰

¹¹⁵ *San Diego Gas & Elec. Co.*, 93 F.E.R.C. ¶ 61,294, at 61,982 (2000) (“Given the gravity of the situation and the need to expeditiously implement remedies that will avert a recurrence of the problems in California last summer as well as the problems in the past few weeks, our order today is forward-looking. This order does not address issues associated with retroactive refund and retroactive remedial authority issues. Today we concentrate on the implementation of those market reforms that are needed immediately. We emphasize that critical long-term reforms such as siting and demand response also must be addressed immediately by relevant State authorities.”).

¹¹⁶ *San Diego Gas & Elec. Co.*, 92 F.E.R.C. ¶ 61,172, at 61,603 (2000) (“[W]e are instituting consolidated hearing proceedings pursuant to Section 206 of the Federal Power Act to investigate the justness and reasonableness of the rates and charges of public utilities that sell energy and ancillary services to or through the California ISO and PX, and to also investigate whether the tariffs and institutional structures and bylaws of the California ISO and PX are adversely affecting the efficient operation of competitive wholesale electric power markets in California and need to be modified.”).

¹¹⁷ *San Diego Gas & Elec. Co.*, 96 F.E.R.C. ¶ 61,120, at 61,499 (2001).

¹¹⁸ *Id.*

¹¹⁹ *Id.* at 61,511 (“We have decided to extend refund liability to public and non-public utility sellers based on our review of the controlling law, the involvement of both types of sellers in the California centralized ISO and PX spot markets, and the equities of the situation. Non-public utility sellers as well as public utility sellers of electric energy in those California markets contributed to and benefitted from the dysfunctions that offered the possibilities for the market abuse under certain conditions, on which the call for refunds are based. . . . [A]lthough we do not have direct regulatory rate authority over power sales by non-public utilities, we do have authority to order them to abide by the market rules we have established and to make refunds of unjust and unreasonable rates for sales pursuant to those market rules.”).

¹²⁰ *Id.* at 61,513.

a. Bonneville Power Administration v. F.E.R.C., an Effort to Prevent FERC Regulation of Nonjurisdictional Power Producers

Bonneville and other nonjurisdictional entities challenged FERC's authority over nonjurisdictional sellers in the market.¹²¹ The United States Court of Appeals for the Ninth Circuit found, based on a reading of the FPA, that FERC did not have refund authority over wholesale electric energy sales made by federal power, public power, and nonjurisdictional utilities including Bonneville.¹²² Further, the structure of the FPA clearly reflected Congress's intent to exempt governmental entities from FERC's refund authority.¹²³

In its decision, the Ninth Circuit determined that FERC's jurisdiction under sections 205 and 206 of the FPA expressly applies only to jurisdictional utilities, leaving nonjurisdictional and government entities exempt from the just and reasonable requirements of section 205.¹²⁴ The Ninth Circuit determined that none of the municipal or state entities were jurisdictional utilities under the definition in section 201(f) of the FPA¹²⁵ and nonjurisdictional utilities could not opt into FERC jurisdiction by participating in FERC regulated activities.¹²⁶

The Ninth Circuit noted, however, that though FERC did not have jurisdiction to order refunds from nonjurisdictional utilities, entities that purchased power at rates above the just and reasonable rate established by FERC could have a contractual remedy based on the contracts between the nonjurisdictional entities and CA/ISO and CA/PX.¹²⁷ Thus, utilities that purchased power brought contract action against the nonjurisdictional sellers in Federal Claims Court.¹²⁸

¹²¹ See *Bonneville Power Admin. v. F.E.R.C.*, 422 F.3d 908 (9th Cir. 2005) (Various non-public utilities petitioned FERC's determination ordering both public and non-public utilities to make refunds to California ratepayers related to the 2000 and 2001 spot market.).

¹²² *Id.* at 911.

¹²³ This was consistent with the D.C. Circuit holding in *Transmission Agency of N. Cal. v. F.E.R.C.*, 495 F.3d 663, 673 (D.C. Cir. 2007).

¹²⁴ *Bonneville Power Admin.*, 422 F.3d at 918 (citing Federal Power Act, 16 U.S.C. § 824d(a) (2006) ("All rates and charges made, demanded, or received by *any public utility* for or in connection with the transmission or sale of electric energy subject to the jurisdiction of the Commission, and all rules and regulations affecting or pertaining to such rates or charges shall be just and reasonable, and any such rate or charge that is not just and reasonable is hereby declared to be unlawful.")).

¹²⁵ *Id.* at 917.

¹²⁶ *Id.* at 924.

¹²⁷ *Id.* at 925.

¹²⁸ See *Pac. Gas & Elec. Co. v. United States*, 105 Fed. Cl. 420 (2012) (in which IOUs sued under the Federal Power Act seeking to recover refunds from electricity overcharges by Bonneville Power Administration (BPA) and Western Area Power Administration (WAPA), as federal agencies selling hydroelectric power to IOUs during California's energy crisis).

b. Post Bonneville, FERC Refund Calculations

On remand, FERC vacated each of the refund orders as applied to nonjurisdictional utility entities.¹²⁹ However, FERC directed the CA/ISO and CA/PX to complete refund calculations, including calculations for nonjurisdictional utilities that participated in the market during the October 2, 2000, through June 20, 2001 period.¹³⁰ In Order No. 61,076, FERC referenced the Ninth Circuit's comment that FERC's inability to require nonjurisdictional entities to pay refunds under FPA section 206 does not preclude parties from seeking a contract remedy in state and federal courts.¹³¹ One month later, FERC clarified Order No. 61,067 in Order No. 61,188, stating that establishing a just and reasonable rate is a prerequisite for ordering refunds.¹³² The refund calculations provided entities that purchased power from the market with the monetary amount they were charged above the FERC-established just and reasonable rate. Thus, the refund calculations provided power purchasers with the damages amount for contract claims against sellers in the market.

FERC denied the nonjurisdictional parties' request for rehearing of Order No. 61,888 under the theory that section 206(a) provides FERC with the authority to determine the just and reasonable rate.¹³³ FERC also noted that while FPA section 206(a) authorizes FERC to set future rates, section 206(b) authorizes it to order refunds for charges in excess of the just and reasonable rate.¹³⁴ FERC specified that it believed the 1988 Regulatory

¹²⁹ *San Diego Gas & Elec. Co.*, 121 F.E.R.C. ¶ 61067, at 61346–47 (2007).

¹³⁰ *Id.*

¹³¹ *Id.* at 61,359 (“We find that, while the *Bonneville* court clearly limited Commission authority to order non-public utility entities to pay refunds under FPA section 206, the court left the door open for parties to bring contract disputes in state and federal court against these non-public utility entities. It is our understanding that California Parties have filed state and federal contract claims against non-public utility entities. However, we also find that those contract claims are not before the Commission, and therefore, we will not interfere in those proceedings. Amounts owed and payments thereof by non-public utility entities, if any, as a result of those contractual claims are a matter to be resolved by the relevant court. We deny California Parties’ request that the Commission wait until the outcome of the state and federal court proceedings to distribute refunds.”).

¹³² *San Diego Gas & Elec. Co.*, 121 F.E.R.C. ¶ 61188, at 61,925 (2007).

¹³³ *San Diego Gas & Elec. Co.*, 127 F.E.R.C. ¶ 61191, at 61,868 (2009) (citing Federal Power Act, 16 U.S.C. § 824(e) (2006)).

¹³⁴ *Id.* (“While it is true that section 206(a) directs the Commission to set rates or charges ‘to be thereafter observed,’ this language does not stand alone and must be read together with section 206(b), which expressly provides that, whenever the Commission institutes a proceeding under FPA section 206, it is obligated to establish a refund effective date and may order refunds ‘for the period subsequent to the refund effective date through a date fifteen months after such refund effective date . . . under the just and reasonable rate . . . which the Commission orders to be thereafter observed and in force.’ FPA section 206(b) thus specifically provides that the Commission may order refunds of amounts paid in excess of those which would have been paid under the just and reasonable rate or charge, as determined by the Commission.”).

Fairness Act amendments to the FPA authorize FERC's calculation of the just and reasonable rate.¹³⁵

c. Attempting to Prevent Contract Remedies Based on FERC Refund Calculations

Following the Ninth Circuit ruling in *Bonneville*, the California Parties¹³⁶ filed contract actions in California state court and the United States Court of Federal Claims against the nonjurisdictional electricity sellers that prevailed in *Bonneville*.¹³⁷ In the first of these cases, *Pacific Gas and Electric Co. v. United States*,¹³⁸ Pacific Gas and Electric, Southern California Edison, and the California Electricity Oversight Board jointly claimed that government agencies breached contractual obligations by failing to refund overcharges following the *Bonneville* decision.¹³⁹ The D.C. Circuit held that when nonjurisdictional entities signed CA/ISO and CAPX agreements, they agreed to accept the prices, terms, and conditions established by the tariffs.¹⁴⁰ The court also held that government agencies breached their contractual duty to pay refunds.¹⁴¹ This proceeding alone resulted in monetary damages of \$198,300,000.¹⁴²

In *City of Redding v. F.E.R.C.*,¹⁴³ nonjurisdictional plaintiffs sought to prevent liability for charges in excess of the established just and reasonable rates, such as the liability found by the Federal Claims Court in *Pacific Gas and Electric Co. v. United States*, by preventing refund calculations for all nonjurisdictional sellers.¹⁴⁴ The nonjurisdictional petitioners in this action sought clarification of the FERC orders that made nonjurisdictional entities liable for contract damages.¹⁴⁵ The petitioners argued that as nonjurisdictional government entities and power producers, they should not be liable for overcharging customers even where jurisdictional utilities were held liable for the same actions.¹⁴⁶

¹³⁵ *Id.* ("In 1988, in the Regulatory Fairness Act, Congress amended FPA section 206 to grant the Commission authority to order refunds for rates found to be unjust and unreasonable. Under FPA section 206, as amended by the Regulatory Fairness Act, upon instituting a proceeding under section 206, the Commission establishes a refund effective date and may order refunds, commencing with the refund effective date and for up to 15 months thereafter, if it finds an existing rate to be unjust, unreasonable or unduly discriminatory or preferential.").

¹³⁶ California Parties to 693 F.3d 828 include the State of California, the Public Utilities Commission of California, Pacific Gas and Electric, Southern California Edison, and San Diego Gas & Electric.

¹³⁷ *Redding*, 693 F.3d 828, 834 (9th Cir. 2012).

¹³⁸ 105 Fed. Cl. 420 (2012).

¹³⁹ *Id.* at 432.

¹⁴⁰ *Id.* at 427.

¹⁴¹ *Id.* at 440.

¹⁴² *Id.*

¹⁴³ 693 F.3d 828 (9th Cir. 2012).

¹⁴⁴ *Id.* at 834.

¹⁴⁵ *Id.* at 835.

¹⁴⁶ *See id.* at 828, 833.

The Ninth Circuit determined that while FERC has authority to state what a just and reasonable rate would have been pursuant to FPA section 206(b), FERC is not authorized to retroactively reset market rates for nonjurisdictional utilities.¹⁴⁷ However, when FERC recalculates the just and reasonable market clearing prices to order refunds from jurisdictional sellers, FERC does not infringe upon nonjurisdictional sellers' authority even when this calculation opens nonjurisdictional utilities to subsequent contract claims.¹⁴⁸ The Ninth Circuit thus denied the nonjurisdictional utilities' request.¹⁴⁹

As a result, contract claims against nonjurisdictional entities could become a more common outcome of FERC regulatory actions that result from undersupply or market manipulation events in deregulated markets. The decision in *Redding* represents an expansion of the role of FERC in the regulation of nonjurisdictional entities by confirming that nonjurisdictional entities may be liable when FERC resets market clearing prices.

4. Remedies Require Rate Increases Across the Region

The efforts of FERC and the California Commission to alter the regulation of electric utilities in California resulted in increased rates instead of decreased rates.¹⁵⁰ Ratepayers have been forced to cover billions of dollars in additional costs, the State has suffered billions of dollars in economic and financial losses, and the courts are still litigating remedies. The first of these contract claims alone resulted in more than \$198,000,000 in damages.¹⁵¹ Ratepayers in nearby states may also suffer long-term impacts as nonjurisdictional utilities that sold power into the California market become liable for rates charged during the crisis. Ultimately, this cost will be passed on to consumers across the region.

B. Poor Regulatory Planning Led to Too Much Power in the Northwest

Renewable power integration in the Northwest has resulted in periods of excess supply. Regulators have been forced to violate transmission contracts and FERC transmission orders by disconnecting wind turbines from the grid during periods of oversupply. These violations have resulted in litigation and increased costs that could have been prevented by proper planning.

Renewable power sources such as wind have variable—or intermittent—output, meaning the ability to produce electricity from these

¹⁴⁷ *Id.* at 841.

¹⁴⁸ *Id.* at 842.

¹⁴⁹ *Id.*

¹⁵⁰ LOCKYER, *supra* note 5, at 6.

¹⁵¹ *Pac. Gas & Elec. Co. v. United States*, 105 Fed. Cl. 420, 440 (2012).

sources varies depending on weather conditions.¹⁵² Integrating non-hydroelectricity renewable power sources at more than 30% of total power production within a region will likely require upgrades to transmission systems and technology.¹⁵³ Management of variability in intermittent renewable generation sources could occur through mechanisms including long-distance transmission, power storage, or switching off conventional fuel sources such as natural gas combustion.¹⁵⁴ While keeping conventional fuel sources available for reserve can enable utilities to respond when electricity demands are higher than the production capacity of renewable power, only storage and transmission upgrades will enable utilities to respond when intermittent power generation exceeds total consumption within a region.¹⁵⁵

Increased utilization of renewable power may result in an increase in FERC's regulatory role because transportation of power across many states will be necessary. The Supreme Court has held that FERC may exercise jurisdiction when evidence exists that power flows in interstate commerce or mixes with power that flows in interstate commerce.¹⁵⁶ The increased use of renewable power in many states will likely increase the amount of electricity flowing in interstate commerce because it will be necessary to transport power from remote generating sources to urban areas and move unschedulable renewable power to regions in need of additional supply.¹⁵⁷ FERC could help to ensure efficient use of renewable power and facilitate regional power transfers.

1. Regional Wind Development

In the Northwest, Montana,¹⁵⁸ Oregon,¹⁵⁹ and Washington¹⁶⁰ have renewable portfolio standards that aim to increase the percentage of each

¹⁵² PAUL DENHOLM ET AL., NAT'L RENEWABLE ENERGY LAB., THE ROLE OF ENERGY STORAGE WITH RENEWABLE ELECTRICITY GENERATION 1 (2010), *available at* <http://www.nrel.gov/docs/fy10osti/47187.pdf>.

¹⁵³ AM. PHYSICAL SOC'Y ON PUB. AFFAIRS, INTEGRATING RENEWABLE ELECTRICITY ON THE GRID 2 *available at* <http://www.aps.org/policy/reports/popa-reports/upload/integratingelec.pdf>.

¹⁵⁴ *Id.*

¹⁵⁵ *Flywheel Energy Storage*, <http://www.energybandgap.com/> (last visited July 21, 2013).

¹⁵⁶ *Fed. Power Comm'n v. Florida Power & Light Co.*, 404 U.S. 453, 458 (1972).

¹⁵⁷ INTEGRATING RENEWABLE ELECTRICITY ON THE GRID, *supra* note 153. As of January 2012, thirty states (including the District of Columbia) had adopted mandatory renewable portfolio standards which set a minimum requirement for the amount of electricity generated from renewable resources such as wind, solar or biomass. *Most States Have Renewable Portfolio Standards*, <http://www.eia.gov/todayinenergy/detail.cfm?id=4850> (last visited July 21, 2013).

¹⁵⁸ Montana RPS requires 15% renewable power by 2015. Eligible renewable resources include wind; solar; geothermal; existing hydroelectric projects (10 megawatts or less); certain new hydroelectric projects (up to 15 megawatts installed at an existing reservoir or on an existing irrigation system that did not have hydroelectric generation as of April 16, 2009); landfill or farm-based methane gas; wastewater-treatment gas; low-emission, non-toxic biomass; and fuel cells where hydrogen is produced with renewable fuels. INST. FOR ENERGY RESEARCH, MONTANA RPS REPORT (2010), *available at* <http://www.instituteforenergyresearch.org/wp-content/uploads/2010/12/Montana-RPS.pdf>.

State's power generated from renewable resources. In addition, some wind generation that meets California's renewable portfolio standard is sited in the Northwest and requires access to transmission to move the power to California.¹⁶¹ Twenty-nine states and the District of Columbia have enacted renewable portfolio standards and in most, like Oregon and Washington, existing hydropower does not qualify.¹⁶²

Bonneville, which owns approximately 75% of the high voltage transmission lines in the Northwest,¹⁶³ added more than 1,000 megawatts of wind power to its transmission system in 2011 which brought the total wind capacity within its balancing authority¹⁶⁴ to 4,300 megawatts.¹⁶⁵ Wind generated power was capable of meeting up to 70% of the electricity demand in the Bonneville system at certain times during 2012.¹⁶⁶

Integration of variable electricity generating sources presents challenges for the existing transmission system.¹⁶⁷ Renewable power sources often require moving energy from rural areas to urban centers by long transmission lines traveling across multiple states.¹⁶⁸ Siting renewable resources far from load centers outside of existing transmission corridors will require changes to multistate transmission of electricity and siting of

¹⁵⁹ Oregon RPS requires 25% renewable power by 2025 for large utilities and 5–10% renewable power for small utilities by 2025. OR . REV. STAT. § 469A.052(1)(d) (2007). Eligible resources include solar thermal electric, photovoltaics, landfill gas, biomass, hydroelectric, geothermal electric, municipal solid waste, hydrogen, anaerobic digestion, wind, tidal energy, wave energy, and ocean thermal primarily placed in service after January 1, 1995. *Id.* §§ 469A.010 to .025.

¹⁶⁰ Washington RPS requires 15% renewable power by 2020. WASH. REV. CODE ANN. § 19.285.010 (2013). Eligible resources include solar thermal electric, photovoltaics, landfill gas, wind, biomass, hydroelectric, geothermal electric, anaerobic digestion, tidal energy, wave energy, ocean thermal, and biodiesel. For hydroelectric projects, only incremental electricity produced as a result of efficiency improvements completed after March 31, 1999 is eligible. *Id.* § 19.285.030.

¹⁶¹ See CAL. PUB. UTIL. CODE § 399.11–399.16 (2004); James A. Holtkamp & Mark A. Davidson, *Transmission Siting in the Western United States: Getting Green Electrons to Market*, 46 IDAHO L. REV. 379, 380, 393 (2010).

¹⁶² HYDROPOWER REFORM COALITION UPDATE ON RENEWABLE PORTFOLIO STANDARDS 1, available at <http://www.hydroreform.org/sites/default/files/RPS%20Summary.pdf>.

¹⁶³ *Analysis Shows Region Likely to Continue Producing Surplus Electricity in the Spring and Early Summer*; http://www.nwcouncil.org/news/press-releases/2012-03-07_analysis_shows_surplus_energy/ (last visited July 21, 2013) [hereinafter *Surplus Analysis*].

¹⁶⁴ A balancing authority is “[t]he responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time.” N. AM. ELEC. RELIABILITY CORP., GLOSSARY OF TERMS USED IN RELIABILITY STANDARDS (2008), available at http://www.nerc.com/files/Glossary_of_Terms.pdf.

¹⁶⁵ BONNEVILLE POWER ADMIN., WORKING TOGETHER TO ADDRESS NORTHWEST OVERSUPPLY OF POWER 1 (2012), available at <http://www.bpa.gov/news/pubs/FactSheets/fs-201205-working-together-to-address-northwest-oversupply-of-power.pdf> [hereinafter WORKING TOGETHER].

¹⁶⁶ *Id.*

¹⁶⁷ WIND INTEGRATION FINAL REPORT 1 (2011), available at http://www.uwig.org/PGE_Study/AppendixF-UoO_MBA_Team_Report-PGE_Wind_Integration.pdf.

¹⁶⁸ Holtkamp & Davidson, *supra* note 161.

power plants.¹⁶⁹ Full integration of renewable power may require the construction of thousands of miles of new transmission lines in the near future.¹⁷⁰

2. *Electricity Oversupply*

Recently, the Northwest has experienced power oversupply, which occurs primarily in the spring when rivers that produce hydroelectricity run high, wind production is high, and power consumption is low.¹⁷¹ When production in the region exceeds consumption, power producers in the Northwest typically sell surplus power to the Southwest and transmit the power through the Pacific Northwest-Pacific Southwest Intertie.¹⁷² When oversupply occurs, however, the combined production of wind power and hydropower exceed the electricity needs of all connected regions. Combined wind and hydroelectricity production in the Northwest could continue to exceed power demand in the region during spring months.¹⁷³

Bonneville is required to balance the interests of fish and wildlife with the operation of hydroelectric dams.¹⁷⁴ During periods of oversupply, Bonneville must take into account potential impacts to wildlife when deciding whether to spill water over dams or disconnect other sources of power from its transmission system. If negative impacts to fish and wildlife could result from spilling water, regulators disconnect other power sources from the grid.

Hydropower accounts for approximately 51% of the current electricity supply in the Northwest.¹⁷⁵ The Columbia River generates the majority of the region's hydropower, generating between 12,000 and 20,000 average megawatts¹⁷⁶ a year.¹⁷⁷ When water levels are high, dam operators are limited in the amount of power they can spill over dams to levels that will not harm fish and other aquatic species.¹⁷⁸ To ensure the viability of fish and other aquatic species, Congress enacted the Pacific Northwest Power Planning and Conservation Act (Planning Act) in 1980.¹⁷⁹ The Planning Act addresses the effect that hydroelectric dams on the Columbia River have on fish and

¹⁶⁹ MIT ENERGY INITIATIVE, MANAGING LARGE-SCALE PENETRATION OF INTERMITTENT RENEWABLES 13 (2011), available at <http://mitei.mit.edu/system/files/intermittent-renewables-full.pdf>.

¹⁷⁰ Holtkamp & Davidson, *supra* note 161.

¹⁷¹ *Oversupply*, <http://www.bpa.gov/Projects/Initiatives/Oversupply/Pages/default.aspx> (last visited July 21, 2013).

¹⁷² *Surplus Analysis*, *supra* note 163.

¹⁷³ *Id.*

¹⁷⁴ REDISPATCH POLICIES, *supra* note 8, at 4–8 (2011).

¹⁷⁵ *Overview of Power Generation in the Northwest*, <http://www.nwcouncil.org/energy/pow-ersupply/map/overview/> (last visited July 21, 2013).

¹⁷⁶ “[A]n average megawatt is one million watts supplied continuously for a period of one year.” *Id.*

¹⁷⁷ *Id.*

¹⁷⁸ *Oversupply*, *supra* note 171.

¹⁷⁹ 16 U.S.C. §§ 839–839h (2006).

wildlife, encourages the use of renewable resources, and promotes energy efficiency.¹⁸⁰

The Planning Act requires the Pacific Northwest Electric Power and Conservation Council (Council) (now called the Northwest Power and Conservation Council) to give a high degree of deference to fishery managers when interpreting the Planning Act's fish and wildlife provisions.¹⁸¹ The Planning Act "protect[s], mitigate[s] and enhance[s] fish and wildlife, including related spawning grounds and habitat, on the Columbia River and its tributaries."¹⁸² The provisions are mandatory, substantive, and reviewable by Court of Appeals.¹⁸³ The Ninth Circuit held that the Council should take actions to protect salmon and give greater deference to fish agencies when they submit recommendations for program measures.¹⁸⁴ The Council's fish and wildlife program must protect fish and wildlife affected by hydropower facilities while assuring an "adequate, efficient, economical and reliable power supply."¹⁸⁵

In the spring of 2011, the Columbia River ran high, wind production was high and electricity consumption was low. On May 13, 2011, Bonneville issued a Final Record of Decision for its Environmental Redispatch Policy.¹⁸⁶ Under this Environmental Redispatch, Bonneville addressed water supply in excess of power consumption needs by temporarily substituting federal hydropower, at no cost, for wind power or other generation in Bonneville's Balancing Authority.¹⁸⁷

In 2011, oversupply in the Northwest totaled approximately 97,500 megawatt-hours.¹⁸⁸ Bonneville disconnected wind turbines from its transmission system to prevent negative impacts to fish and wildlife and damage to the grid during periods of oversupply.¹⁸⁹ However, Bonneville's transmission contracts for the supply of wind power to customers on their transmission system did not allow them to disconnect wind turbines.¹⁹⁰ Bonneville also violated FPA section 211A by preventing wind producers from using Bonneville's transmission.¹⁹¹

Iberdrola Renewables, Inc., a wind energy producer, challenged this action before FERC under multiple sections of the FPA¹⁹² and alleged that Bonneville engaged in discrimination by curtailing wind power and using the

¹⁸⁰ *Id.* § 839.

¹⁸¹ *Nw. Res. Info. Ctr., Inc. v. Nw. Power Planning Council*, 35 F.3d 1371, 1387–88 (9th Cir. 1994) (referencing 16 U.S.C. § 839b(h)(7) (2006)).

¹⁸² *Power Act: Summary*, <http://www.nwcouncil.org/reports/poweract/summary> (last visited July 21, 2013).

¹⁸³ *Nw. Res. Info. Ctr., Inc.*, 35 F.3d at 1389 (referencing 16 U.S.C. § 839b(h)(6) (2006)).

¹⁸⁴ *Id.* at 1392.

¹⁸⁵ *Power Act: Summary*, *supra* note 182.

¹⁸⁶ *See* REDISPATCH POLICIES, *supra* note 8, at 1.

¹⁸⁷ *Iberdrola Renewables, Inc.*, 141 F.E.R.C. ¶ 61,233 (2012).

¹⁸⁸ *Surplus Analysis*, *supra* note 163.

¹⁸⁹ *WORKING TOGETHER*, *supra* note 165.

¹⁹⁰ *See Iberdrola Renewables, Inc.*, 137 F.E.R.C. ¶ 61,185 (2011).

¹⁹¹ *Id.*

¹⁹² 16 U.S.C. §§ 824(i), 824(j)(1), 824(k), 825(f), 825(g), 825(h) (2006).

wind generator's firm transmission rights to deliver Bonneville-produced hydroelectricity to the wind generators' customers.¹⁹³ Iberdrola requested that FERC act under section 211A of the FPA to direct Bonneville to revise the Environmental Redispatch Policy, require Bonneville to file a revised open access transmission tariff with FERC, order Bonneville to cease curtailment practices under Environmental Redispatch immediately, and direct Bonneville to adhere to the terms of its existing interconnection agreements.¹⁹⁴ In response, FERC has stepped in to ensure Bonneville's compliance with contractual obligations.

As a nonjurisdictional government entity, regulation of Bonneville's interconnection agreements would have fallen outside FERC's jurisdiction prior to approval of FERC Order No. 2003. However, on December 7, 2011, FERC issued an order concluding that Bonneville's Environmental Redispatch Policy resulted in noncomparable treatment of certain generation connected to Bonneville's transmission system and, under FPA section 211A, directed Bonneville to provide comparable transmission service.¹⁹⁵ FERC noted that it did not lightly assert jurisdiction over Bonneville, however FERC ultimately decided that it has jurisdiction over Bonneville's transmission activities.¹⁹⁶

Bonneville challenged FERC's jurisdiction originally and on request for rehearing, but FERC found Bonneville's argument unpersuasive.¹⁹⁷ FERC noted that, "Section 211A of the FPA grants FERC broad legal authority to require unregulated transmitting utilities to provide comparable transmission service."¹⁹⁸ FERC determined that section 211A was an "appropriate statutory tool . . . to ensure transmission service on a comparable basis for all resources connected to Bonneville's transmission system."¹⁹⁹ Ultimately, FERC denied Bonneville's request for rehearing on the issue.

In response to FERC's ruling, Bonneville revised its Environmental Redispatch Policy and proposed to compensate generators for displacement costs including lost production tax credits, renewable energy credits

¹⁹³ *Iberdrola Renewables, Inc.*, 137 F.E.R.C. ¶ 61, 185, at 61,942–43.

¹⁹⁴ *Id.* at 61,943.

¹⁹⁵ *Id.* at 61,943, 61,953–54 ("By directing non-Federal generators under their respective interconnection agreements "to reduce generation in accordance with Transmission Provider's . . . Environmental Redispatch Business Practices," Bonneville affects the non-Federal generator's ability to inject energy at the point of receipt and interrupts non-Federal customer's firm point-to-point transmission service Through its use of dispatch orders, Bonneville's Environmental Redispatch Policy thereby impinges on the transmission service obtained by non-Federal generation. . . .") (citation omitted).

¹⁹⁶ *Id.* at 61,949.

¹⁹⁷ *Id.* at 61,946–47, 61,948; *Iberdrola Renewables, Inc. v. Bonneville Power Admin.*, 141 F.E.R.C. ¶ 61,234, at 62,183–84 (2012).

¹⁹⁸ *Iberdrola*, 141 F.E.R.C. at ¶ 62,184.

¹⁹⁹ *Id.* at 62,184, 62,190 ("The Commission reaffirms that Bonneville's actions under its Environmental Redispatch Policy affect transmission service, making it appropriate for the Commission to act under section 211A.").

unbundled from the sale of power, and related contract costs.²⁰⁰ Such displacement, however, will not be credited against renewable portfolio standard requirements in states that do not include hydroelectricity as a renewable resource allowable under the standard.²⁰¹ Bonneville proposed to limit the impact of the revised protocol on rates by only compensating entities that executed contracts before March 6, 2012.²⁰² Therefore, when wind generation is disconnected and replaced with hydroelectricity, utilities that rely on wind power to meet renewable portfolio standards in states where hydroelectricity cannot be used to meet the standard could fall short of state mandates.

Without FERC's assertion of jurisdiction over Bonneville's Environmental Redispatch Policy, wind generators would likely have lost revenue associated with renewable energy credits for power production. However, under the revised policy, ratepayers are left paying for long-term planning that failed to consider the potential for oversupply because ratepayers will have to compensate generators when wind power is disconnected from the grid.

FERC's ruling on Bonneville's Environmental Redispatch Policy helps to ensure that power producers are treated equitably when using Bonneville's transmission by ensuring that power producers are compensated when disconnected from the grid. Under the ruling, however, consumers of power from Bonneville have to pay wind producers for lost revenue. Bonneville consumers will also likely have to pay for the additional transmission necessary to transmit in-region wind power to other regions in order to prevent future periods of oversupply. Proper planning could ensure that more intermittent power is not brought on line than regions can consume, but such comprehensive planning would require cooperation across jurisdictions.

C. Lessons Learned from These Case Studies

As states and regions seek to maintain reasonable rates for electricity, respond to emissions reductions mandates,²⁰³ and achieve environmental and energy independence²⁰⁴ goals, it will become increasingly necessary to adopt regionally dynamic grids that can transfer power between areas with

²⁰⁰ *Id.* at 62,195 & n.12 (2012).

²⁰¹ *Id.* at 62,195–96.

²⁰² *Id.*

²⁰³ The Environmental Protection Agency (EPA) regulates emissions from power generating plants under the Clean Air Act, 42 U.S.C. §§ 7401–7671q (2006). On December 16, 2011, EPA finalized the Mercury and Air Toxic Standards, which set standards for all hazardous air pollutants emitted by electricity generating units with a capacity of 25 megawatts or greater. For a summary of this rule, see *Cleaner Power Plants*, <http://www.epa.gov/airquality/powerplanttoxics/powerplants.html> (last visited July 21, 2013).

²⁰⁴ See Energy Independence and Security Act of 2007, Pub. L. No 110-140, §§ 601–41, 121 Stat. 1492, 1674–88 (2007) (calling for accelerated research and development for solar, geothermal, marine, and hydrokinetic power and energy storage).

different production and consumption profiles.²⁰⁵ Without cooperative regulation and planning, we are likely to experience further periods of blackout and oversupply. Preventing future supply events will require electric grids that are smarter, better integrated across jurisdictions, and better able to balance production and consumption.²⁰⁶

The piecemeal after-the-fact reforms implemented by FERC following the California crisis are merely compensatory remedies for past failures. Likewise, FERC's assertion of authority over Bonneville transmission only came after litigation over the Environmental Redispatch Policy. Such litigation adds costs by providing compensation for failures and won't prevent future supply events. Comprehensive planning is necessary to prevent future supply problems. We need to improve our current regulatory system concurrently with physical upgrades to our transmission system.

FERC and State Commissions should work together to analyze regulatory policies before additional programs for market competition and integration of renewable power sources are implemented. FERC and State Commissions should evaluate and adjust their balance of authority so that they are able to respond to regional planning needs. In every step of analysis and evaluation they should consider electricity availability, consumption, and costs.

IV. A SMART GRID WITHOUT SMART PLANNING

The United States is currently moving forward with a national grid modernization effort that provides the physical capacity to mitigate future supply issues. Government and industry have touted a smart grid as the solution to the nation's existing transmission production and consumption constraints. A smart grid is, generally, a transmission system which includes digital control technology that allows for two-way communication between an electricity supplier and the end consumer.²⁰⁷ Among the goals of the smart grid are quicker restoration of power after outage events, reduced peak demand for electricity, and increased integration of renewable power generating sources.²⁰⁸ This physical system is capable of mitigating supply problems, but we are moving forward with implementation before addressing the regulatory reforms necessary to achieve the full benefit of the smart grid.

In 2007, Congress expressed its support for coordinated national grid modernization efforts with the passage of the Energy Independence and Security Act of 2007.²⁰⁹ The Act included the creation of a Smart Grid Advisory Committee and Task Force, Smart Grid Regional Demonstration Initiatives, Smart Grid Interoperability Framework, and a Federal Matching

²⁰⁵ See *Smart Grid*, *supra* note 10.

²⁰⁶ See *id.*

²⁰⁷ *Id.*

²⁰⁸ *Id.*

²⁰⁹ Pub. L. No 110-140, 121 Stat. 1492 (2007).

Fund for Smart Grid Investment Costs.²¹⁰ The administration has announced four policy goals it will pursue in the advancement of grid modernization: better alignment of economic incentives, greater focus on standards and interoperability, empowerment of customers, and improved grid security and resilience.²¹¹ Improved regulatory structures are not among the stated policy goals of the 2007 Act.

The American Recovery and Reinvestment Act (ARRA)²¹² included provisions for funding of renewable energy systems and related infrastructure to facilitate a modernized national transmission system capable of meeting state and federal policy goals.²¹³ ARRA also enabled the Secretary of Energy to make guarantees for renewable energy systems and electric power transmission systems that generate or transmit electricity or thermal energy in order to increase renewable power production in the United States.²¹⁴ ARRA is expected to boost investments in both renewable power and transmission infrastructure.

Smart grid projects demonstrate the capacity to mitigate supply issues by facilitating detection of and response to outages digitally, and automatically providing load information to consumers during times of peak use.²¹⁵ Ultimately, proponents of the smart grid hope it will enable utilities to reduce peak load by adjusting or controlling individual power consuming devices from a single location in response to consumer demand.²¹⁶

Projects such as the Pacific Northwest Smart Grid Demonstration Project, an ARRA funded project in the Northwest, are working to improve smart grid transmission systems that facilitate two-way communication between production and consumption, and allow for more efficient electricity consumption.²¹⁷ If successful, this modernization of electricity transmission to include two-way communication may facilitate increases in

²¹⁰ *Id.* §§ 1301–09, 121 Stat. at 1783–94.

²¹¹ *Smart Grid*, <http://energy.gov/oe/technology-development/smart-grid> (last visited July 21, 2013).

²¹² American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, § 406(a), 123 Stat. 145 (2009).

²¹³ *Id.*

²¹⁴ *Id.*

²¹⁵ *Smart Grid*, *supra* note 10.

²¹⁶ See U.S. DEP'T OF ENERGY, WHAT THE SMART GRID MEANS TO AMERICANS 4 *available at* <http://energy.gov/sites/prod/files/oeprod/DocumentsandMedia/ConsumerAdvocates.pdf> (stating that “enabling consumers to see what electricity they use, when they use it, and how much it costs” will allow utilities to “enlist consumer demand as another resource, offsetting the need for additional power generation”).

²¹⁷ The Pacific Northwest Smart Grid Demonstration Project is a multistate project that incorporates nonjurisdictional government entities, such as Bonneville Power Administration, nonjurisdictional utilities and jurisdictional entities. PACIFIC NORTHWEST SMART GRID DEMONSTRATION PROJECT, 2011 ANNUAL REPORT 2 *available at* http://www.pnwsmartgrid.org/docs/2011_annual_report.pdf.

the region's intermittent power-carrying capacity. However, such projects are still in the pilot stages.²¹⁸

The smart grid provides promising upgrades for the nation's transmission problems. However, fixing the wires without the proper standards will result in a reduced benefit for consumers and grid operators. To meet the goals of the smart grid, particularly reduced blackout and oversupply events, we must have the regulatory authority to transmit electricity across regions without state-by-state jurisdictional obstacles. Without integration of regulatory planning with transmission upgrades, we appear destined to repeat past mistakes.

In addition, states and regions need to perform comprehensive regional assessments of their ability to balance production and consumption of power under various loads. FERC should expand on Order No. 1000 to require planning for storage or distribution of power during oversupply events. Paying power producers not to produce is an ineffective alternative to long term planning.

V. COMPATIBLE REGULATORY SOLUTIONS

Lack of planning can result in market defects such as those seen during the California crisis by allowing market participants to easily manipulate the market and gain excess profits. Lack of planning can also lead to excess power that forces grid operators to violate contracts and regulations by disconnecting generation. Without comprehensive planning, similar failures of the smart grid are likely to result. By working together, FERC and State Commissions could help prevent similar regulatory failures and added costs from occurring with implementation of the smart grid.

Regulators need to implement proper planning and controls to prevent future blackout and oversupply events. California's power undersupply events cost the state \$40 billion in additional energy costs and lost productivity in 2001 and 2002.²¹⁹ Bonneville expects that the cost of paying wind generators to curtail production during times of oversupply could range from \$0 to more than \$50 million per year.²²⁰ As more states and regions consider deregulating their electricity markets and adopting or expanding renewable portfolio standards, it will become increasingly necessary to evaluate the cost of liability related to maintaining the existing regulatory system against the cost of adopting a more dynamically responsive regulatory system.

While technological upgrades may facilitate improved integration of intermittent power sources and enable utilities to prevent outages, the

²¹⁸ See PACIFIC NORTHWEST SMART GRID DEMONSTRATION PROJECT, 2012 ANNUAL REPORT 1 available at http://www.pnwsmartgrid.org/docs/2012_annual_report.pdf (stating that the four-phase project is currently in year one of phase three).

²¹⁹ WEARE, *supra* note 4, at 3.

²²⁰ BONNEVILLE POWER ADMIN., BPA PROPOSES RESOLUTION TO ELECTRICITY OVERSUPPLY 2 (2012).

regulatory failures that became apparent during blackout and oversupply events are still being addressed in a piecemeal state-by-state manner.²²¹ State Commissions still bear responsibility for ratepayer-funded investments in transmission infrastructure, local market structures, infrastructure needs, consumer concerns, and policy priorities,²²² while FERC is still responsible for regional and national planning. The National Association of Regulatory Utility Commissioners, which represents State Public Utility Commissioners, has explicitly resisted expansion of FERC authority and stated: "Federal policies should not interfere with State jurisdiction or programs but help ensure that consumers can receive the full benefits of smart grid deployments."²²³ This jurisdictional line in the sand creates an obstacle to planning by retaining state-by-state divisions.

Regulators have performed significant research into ways in which State Commissions can incentivize investment in an updated transmission system while ensuring that undue costs are not passed along to consumers, but little research has been performed into the potential regulatory hurdles associated with a nationally integrated grid capable of adapting to consumption and production demands between regions.²²⁴ FERC has advanced interoperability and rate standards,²²⁵ and asserted that its jurisdiction over the smart grid derives from authority over the rates, terms, and conditions of transmission and wholesale sales in interstate commerce.²²⁶ But, State Commissions still resist FERC's authority and continue to draw a jurisdictional line in the sand that prevents full cooperation.

State Commissions and FERC need to work together with utilities on power production, integration, and transmission planning. Utilities in regulated markets may be averse to the competition that an adaptive or smart transmission system could produce.²²⁷ Such risk aversion could lead to market manipulation behavior similar to what occurred in California during the height of the energy crisis and have an equally detrimental effect for consumers.²²⁸ For the full potential benefits of a modernized transmission system to accrue, State Commissions need to adopt policies that support the

²²¹ U.S. ENERGY INFO. ADMIN., SMART GRID LEGISLATIVE AND REGULATORY POLICIES AND CASE STUDIES, Attachment A, v-ix (2011), *available at* <http://www.eia.gov/analysis/studies/electricity/pdf/smartgrid.pdf>.

²²² NAT'L ASS'N OF REGULATORY UTIL. COMM'RS, RESOLUTION ON SMART GRID PRINCIPLES 1 (2011), *available at* <http://www.naruc.org/Resolutions/Resolution%20on%20Smart%20Grid%20Principles.pdf>.

²²³ *Id.* at 4.

²²⁴ *See, e.g.*, SMART GRID LEGISLATIVE AND REGULATORY POLICIES AND CASE STUDIES, *supra* note 221, at Attachment A; ASHLEY BROWN & RAYA SALTER, SMART GRID ISSUES IN STATE LAW AND REGULATION (2011), *available at* http://www.energycentral.com/download/products/whitepaper_final_wcover.pdf.

²²⁵ Fed. Energy Regulatory Comm'n, Smart Grid Policy, 128 FERC ¶ 61,060, 1 (July 16, 2009), *available at* <http://www.ferc.gov/whats-new/comm-meet/2009/071609/E-3.pdf>.

²²⁶ *Id.* at 2 (citing 16 U.S.C. §§ 824, 824o (2006)).

²²⁷ BROWN & SALTER, *supra* note 224, at 5.

²²⁸ *Id.*

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policies advanced by Congress and FERC. Congress should mandate partnership on production, transmission, and integration planning.

Lessons learned from past mistakes can provide guidance for more comprehensive regulatory planning. Merely upgrading our transmission system without addressing our piecemeal regulatory system will only bring about minimal gains. To achieve the full benefit of technological upgrades, we must first upgrade our regulatory system.