

RELIABILITY-BASED COMPETITION IN WHOLESALE ELECTRICITY: LEGAL AND POLICY PERSPECTIVES

*William L. Massey, Robert S. Fleishman, and Mary J. Doyle**

I. INTRODUCTION

The August 14, 2003 blackout, which affected more than fifty million Americans and Canadians, has breathed a sense of urgency into a lingering debate: what mix of federal electricity policies will provide both excellent reliability and well-functioning wholesale markets? This article tackles that question by advocating the implementation of the six policies set out below.

The thesis of this article is that implementation of the following key federal policies would provide substantial consumer benefits by significantly enhancing both bulk power reliability and vibrant wholesale competition. These policies are: 1) mandatory reliability standards; 2) the independent regional grid manager; 3) locational marginal pricing (LMP); 4) resource adequacy requirements, including demand response programs; 5) competitive wholesale procurement; and 6) transmission infrastructure investment.

These elements have been proposed and debated for several years. The organized wholesale markets grappled with and implemented a number of them. Except with respect to mandatory reliability standards and transmission investment, which have an obvious reliability rationale, most federal electricity policies are advocated or challenged in the context of a debate over which market elements will facilitate robust competition. In contrast, the reliability benefits of the pro-market proposals we discuss herein have often occupied a back seat in the debate. This article shines a spotlight on the considerable reliability benefits of these policies.

For a quarter of a century, there has been a steady, if somewhat uneven, evolution toward competitive wholesale electricity markets in the United States. An early catalyst was the Public Utility Regulatory Policies Act of 1978 (PURPA),¹ which was followed by the Energy Policy Act of 1992 (EPAAct).² Sensing a green light from Congress for an aggressive electric restructuring policy, the Federal Energy Regulatory Commission (FERC) promulgated the

* William L. Massey is a Partner at Covington & Burling in Washington, D.C. and a former FERC Commissioner. Robert S. Fleishman is Of Counsel, and Mary J. Doyle is Energy Policy Advisor, also at Covington & Burling in Washington, D.C. We acknowledge, with gratitude, the assistance of Nicholas Fels, Carolyn Corwin, Stuart Evans, Mary DeYoung, and Ory Okolloh in the preparation of this article, but we take full responsibility for any errors or excesses.

1. Public Utility Regulatory Policies Act of 1978, 16 U.S.C. §§ 2601–2645 (2000).
2. Energy Policy Act of 1992, 42 U.S.C. §§ 13201–13556 (2000).

transmission open access rules in Order No. 888.³ A few years later, in Order No. 2000, the FERC encouraged transmission owners to form independent grid management entities such as Regional Transmission Organizations (RTOs).⁴ The Commission has not finalized its proposed standard market design (SMD),⁵ a more aggressive and controversial restructuring step. However, the Commission continues to promote, on a region-by-region basis, an industry structure and market rules largely consistent with fundamental SMD principles.⁶

Although there have been setbacks in the FERC's march toward well-structured wholesale electricity markets,⁷ and there is sharp disagreement over how to define and achieve this goal,⁸ it is likely that supply competition, rather than cost-of-service regulation, will remain the policy favored by both Congress and the FERC for the foreseeable future. There is every indication that the Commission adheres to its fundamental belief that customers will benefit from a market-based approach,⁹ and pending energy legislation extols the virtues of well-structured wholesale electricity markets to serve the public interest.¹⁰

At the same time, concern about reliability has grown. The Final Report on the August 14, 2003 Blackout in the United States and Canada (Blackout Report)¹¹ was published after a comprehensive investigation by government

3. See Order No. 888, *Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities* [Regs. Preambles 1991-1996], F.E.R.C. STATS. & REGS. ¶ 31,036, 61 Fed. Reg. 21,540 (1996) (to be codified at 18 C.F.R. pts. 35, 385) [hereinafter Order No. 888], *order on reh'g*, Order No. 888-A, F.E.R.C. STATS. & REGS. ¶ 31,048, 62 Fed. Reg. 12,274 (1997) [hereinafter Order No. 888-A], *order on reh'g*, Order No. 888-B, 81 F.E.R.C. STATS. & REGS. ¶ 61,248, 62 Fed. Reg. 64,688 (1997) [hereinafter Order No. 888-B], *order on reh'g*, Order No. 888-C, 82 F.E.R.C. ¶ 61,046 (1998) [hereinafter Order No. 888-C], *aff'd in relevant part sub nom.*, *Transmission Access Policy Study Group, v. FERC*, 225 F.3d 667 (D.C. Cir. 2000), *aff'd sub nom.*, *New York v. FERC*, 535 U.S. 1 (2002).

4. Order No. 2000, *Regional Transmission Organizations*, F.E.R.C. STATS. & REGS. ¶ 31,089, 65 Fed. Reg. 809 (2000) (to be codified at 18 C.F.R. pt. 35) [hereinafter Order No. 2000], *order on reh'g*, Order No. 2000-A, F.E.R.C. STATS. & REGS. ¶ 31,092, 65 Fed. Reg. 12088 (2000), *aff'd sub nom.* *Pub. Util. Dist. No. 1 v. FERC*, 272 F.3d 607 (D.C. Cir. 2001) [hereinafter Order No. 2000-A].

5. Notice of Proposed Rulemaking, *Remedying Undue Discrimination Through Open Access Transmission Service and Standard Electricity Market Design*, F.E.R.C. STATS. AND REGS. ¶ 32,563, 67 Fed. Reg. 55,451, 67 Fed. Reg. 58,751, 67 Fed. Reg. 63,327 (2002) [hereinafter SMD].

6. See, e.g., *Southwest Power Pool, Inc.*, 106 F.E.R.C. ¶ 61,110 (2004) (granting RTO status subject to fulfillment of requirements), *order on reh'g*, 109 F.E.R.C. ¶ 61,010 (2004), *order on compliance filing*, 109 F.E.R.C. ¶ 61,009 (2004); see also *Midwest Indep. Transmission Sys. Operator, Inc.*, 108 F.E.R.C. ¶ 61,163 (2004) (accepting tariff sheets to start energy markets and establishing settlement judge procedures).

7. See, e.g., *San Diego Gas & Elec. Co.*, 93 F.E.R.C. ¶ 61,294 (2000) (directing remedies for California wholesale markets); see also FED. ENERGY REGULATORY COMM'N, FACT FINDING INVESTIGATION OF POTENTIAL MANIPULATION OF ELECTRIC AND NATURAL GAS PRICES (Mar. 2003).

8. See Letter from Richard Shelby, U.S. Senator, to Patrick Wood, III, Chairman, Fed. Energy Regulatory Comm'n (July 19, 2004).

9. See, e.g., FED. ENERGY REGULATORY COMM'N, WHOLESALE POWER MARKET PLATFORM WHITE PAPER (Apr. 28, 2003) available at http://www.ferc.gov/industries/electric/indus-act/smd/white_paper.pdf; *ISO New England Inc.*, 106 F.E.R.C. ¶ 61,280 (2004) (granting RTO status subject to fulfillment of requirements and establishing hearing and settlement judge procedure); see also *Midwest Indep. Transmission Sys. Operator, Inc.*, *supra* note 6.

10. See, e.g., Energy Policy Act of 2003, H.R. 6, 108th Cong. § 1232 (2003).

11. UNITED STATES-CANADA POWER SYSTEM OUTAGE TASK FORCE, FINAL REPORT ON THE AUGUST 14, 2003 BLACKOUT IN THE UNITED STATES AND CANADA: CAUSES AND RECOMMENDATION (Apr. 2004) available at <http://www.electricity.doe.gov> [hereinafter BLACKOUT REPORT].

officials and reliability experts from both countries. While the Blackout Report did not cite wholesale competition as a cause for the cascading outage,¹² the blackout's origination at a utility within the geographic region of the Midwestern Independent System Operator (MISO) caused some observers to question whether competitive wholesale markets are compatible with a highly reliable bulk power system.

Some expressed concern that the trend toward partial disaggregation of generation from transmission breaks a necessary planning and operational link, resulting in diminished reliability.¹³ Others appear to rely upon the 2003 blackout to support an argument that reliability and competition simply are incompatible.¹⁴ In sharp contrast, some experts insist that well-structured wholesale markets, with their accompanying price signals, would enhance reliability.¹⁵ As stated earlier, this article concludes that bulk power reliability and competitive wholesale markets are fully compatible, and the policy focus going forward should be to fashion measures that enhance both.

"Reliability-Based Competition"¹⁶ reflects the intersection of electricity reliability with well structured wholesale markets. How best to meld reliability and competition in a manner consistent with the public interest is critically important given the essential role of electricity in American life. On this issue, the Blackout Report states, "[m]arket mechanisms should be used where possible, but in circumstances where conflicts between reliability and commercial objectives cannot be reconciled, they must be resolved in favor of high reliability."¹⁷

12. In fact, the Blackout Report said that "[m]arket mechanisms should be used where possible . . ." BLACKOUT REPORT, *supra* note 11, at 139. Indeed, many of the blackouts in the United States occurred before the advent of competitive electricity markets. BLACKOUT REPORT, *supra* note 11, at 103–110. The common factors among the major outages summarized in the Blackout Report are not unique to competitive markets. BLACKOUT REPORT, *supra* note 11, at 107.

13. DUTZIK ET AL., NAT'L ASS'N OF STATE PIRGS, TOWARD A CONSUMER-ORIENTED ELECTRIC SYSTEM: ASSURING AFFORDABILITY, RELIABILITY, ACCOUNTABILITY & BALANCE AFTER A DECADE OF RESTRUCTURING 7 (2004) ("Restructuring has also been accompanied by the degraded reliability of the electric grid . . .").

14. The Blackout Report notes that there are some who blame the blackout on wholesale electric competition, referring to increased loads and power flows across the grid. BLACKOUT REPORT, *supra* note 11, at 32. This development, however, would be addressed by sufficient transmission investment in congested regions, a topic we deal with in some detail.

15. *In Response to the Midwest ISO Day 2 Tariff*, F.E.R.C. Ex. No. CIN-1, 7 (May 7, 2004) (Docket No. ER04-691) (direct testimony of Richard D. Tabors on behalf of Cinergy Services, Inc.). Dr. David Patton, Testimony at the 858th Commission Meeting of the Federal Energy Regulatory Commission (May 5, 2004), *infra* note 153.

16. "The need for additional attention to reliability is not necessarily at odds with increasing competition and the improved economic efficiency it brings to bulk power markets. Reliability and economic efficiency can be compatible, but this outcome requires more than reliance on the laws of physics and the principles of economics. It requires sustained, focused efforts by regulators, policy makers, and industry leaders to strengthen and maintain the institutions and rules needed to protect both of these important goals." BLACKOUT REPORT, *supra* note 11, at 140. We encountered a comparable term, "Reliability-Focused Competition," in the writings of Diana Moss, a former FERC economist, now with the American Antitrust Institute. Diana Moss, *Competition or Reliability in Electricity? What the Coming Policy Shift Means for Restructuring*, 17 ELEC. J. 2 (Mar. 2004).

17. BLACKOUT REPORT, *supra* note 11, at 139.

This conclusion is simply common sense. Markets must be reliable to be in the public interest. There is no reason why a high level of reliability cannot be achieved in well-structured competitive markets. Reliability requirements should not “serve as a smokescreen for non-competitive practices.”¹⁸ This nation can enjoy the benefits of both reliability and competition.

II. RELIABILITY-BASED COMPETITION

A. Mandatory Reliability Standards

There is no dispute that a reliable bulk power system is essential. The industry structure and applicable regulatory policies must respect this fact, as well as the engineering and physics of the system. An industry structure or body of regulatory and policy requirements that does not do so will diminish reliability and fail.

There is a broad consensus among regulators, policymakers, and industry experts that a reliable bulk power system must rest upon a foundation of clear and enforceable reliability standards, with penalties for non-compliance, applicable to all industry participants.¹⁹ Indeed, they must be the primary element of any system, including a system of reliability-based competition. There is no reason to question whether such mandatory reliability standards are in the public interest. Indeed, the first recommendation of the Blackout Report is that, “[a]ppropriate branches of government in the United States and Canada should take action as required to make reliability standards mandatory and enforceable, and to provide appropriate penalties for noncompliance.”²⁰ The Blackout Report urges the Congress to enact legislation no less stringent than H.R. 6 and S. 2095.²¹

In view of the regional nature of electric transmission and reliability, we think it is important for mandatory reliability standards to be imposed at the federal level. There have been several recent attempts to pass federal legislation that include provisions authorizing the FERC to approve reliability standards and establishing increased federal oversight over reliability.²² The reliability legislation now before the Congress has broad support from industry

18. “Regulators must ensure that competition does not erode incentives to comply with reliability requirements, and that reliability requirements do not serve as a smokescreen for noncompetitive practices.” *Id.* at 140.

19. See, e.g., *Hearing Before the U.S. Senate Committee on Energy and Natural Resources*, 108th Cong. (2004) (testimony of Michehl R. Gent, President and Chief Executive Officer, North American Electric Reliability Council).

20. BLACKOUT REPORT, *supra* note 11, at 139.

21. *Id.* See also NATURAL RES. CAN. & U.S. DEP’T OF ENERGY, THE AUGUST 14, 2003 BLACKOUT ONE YEAR LATER: ACTIONS TAKEN IN THE UNITED STATES AND CANADA TO REDUCE BLACKOUT RISK 1 (Aug. 13, 2004) [hereinafter ONE YEAR LATER REPORT].

22. See, e.g., S. 2071, 106th Cong. (2000) (enacted); H.R. 2944, 106th Cong. (1999) (enacted); 149 CONG. REC. H7922 (2003). In addition to H.R. 6, electricity reliability provisions appear in the following bills: Energy Policy Act of 2003, S. 2095, 108th Cong. (2004); Electricity Reliability Act of 2004, S. 2014, 108th Cong. (2004); Electric Reliability Security Act of 2003, S. 1754, 108th Cong. (2003); Energy Policy Act of 2004, H.R. 4503, 108th Cong. (2004); Electric Reliability Improvement Act of 2003, H.R. 3004, 108th Cong. (2003).

stakeholders because it would clarify the FERC's authority and would make certain entities subject to the FERC's reliability authority for the first time. In addition, it would require that reliability standards be developed and proposed by an independent electric reliability organization with members drawn from the private sector.²³ Any proposed standard, with penalties for non-compliance, would become mandatory upon approval by the FERC.²⁴ Enactment of this legislation would certainly be in the public interest and would eliminate any uncertainty regarding the FERC's authority. At this writing, however, Congress has not enacted such legislative proposals. The Blackout Report also recommends that, if legislation is not enacted, the FERC should enforce compliance with reliability standards in the United States to the maximum extent permitted by existing law.²⁵

The sections below, first briefly discuss the meaning of "reliability." Next, they review the existing legal framework, including pertinent legislative history, with respect to bulk power reliability. Finally, they consider the FERC's authority to make compliance with reliability standards enforceable under the existing statutory framework.²⁶

1. What is Reliability?

"Reliability" is a broad concept that is not easily defined in layman's terms. Perhaps it is more accurate to say that only engineers easily understand the definition. For example, the House version of H.R. 6, currently before Congress, generically defines "reliable operation" as "operating the elements of the bulk-power system within equipment and electric system thermal, voltage, and stability limits so that instability, uncontrolled separation, or cascading failures of such system will not occur as a result of a sudden disturbance or unanticipated failure of system elements."²⁷ Alternatively, the North American Electric Reliability Council (NERC) defines the reliability of the interconnected bulk electric systems in terms of two basic, functional aspects. The first "adequacy" means the "ability of the electric system to supply the aggregate electrical demand and energy requirements of customers at all times, taking into account scheduled and reasonably expected unscheduled outages of system elements." The second, "operating reliability," is the "ability of the electric system to withstand sudden disturbances such as electric short circuits or unanticipated failure of system elements."²⁸

23. See, e.g., Energy Policy Act of 2003, H.R. 6, 108th Cong. § 216 (2003).

24. *Id.*

25. BLACKOUT REPORT, *supra* note 11, at 140.

26. It is not our purpose to examine or critique particular reliability standards that may be proposed. We leave that to the engineers and industry technical experts. We assume that an independent reliability organization would only propose standards that, to the extent feasible, ensure a reliable bulk power system. Moreover, in view of the FERC's longstanding movement toward competitive wholesale markets, we further assume, to the extent of its authority, the FERC would carefully review any proposed reliability standards and approve only those that are not anticompetitive.

27. Energy Policy Act of 2003, H.R. 6, 108th Cong. § 16031 (2003) (amending Part II of the FPA by adding section 218(a)(4)).

28. N. AM. ELEC. RELIABILITY COUNCIL, 2003 LONG-TERM RELIABILITY ASSESSMENT 11 (2003), available at ftp://www.nerc.com/pub/sys/all_updl/docs/pubs/LTRA2003.pdf. See also BLACKOUT REPORT,

A 1998 report published by the Department of Energy Task Force on Electric System Reliability used somewhat simpler terms. Adequacy, it said, “[i]mplies that there are sufficient generation and transmission resources installed and available to meet projected needs plus reserves for contingencies.”²⁹ Operating reliability or security “implies that the system will remain intact even after outages or other equipment failures occur.”³⁰ As this important task force recognized, *adequacy* of resources is longer-term in nature and is responsive to market forces. Laws of supply and demand, institutions such as RTOs, price signals, pricing incentives, demand response, and resource adequacy programs, can sharply influence whether and where generation and transmission will be built. *Security*, a shorter-term concept, *involves* the existing system’s response to sudden emergencies.

In addition to adequacy and security, *quality* is another dimension of reliability that has gained in importance in recent years. A paper on electric system reliability published by the National Council on Competition and the Electric Industry points out that simple interruptions—which in the past affected mainly incandescent lights—can have a disastrous effect on computer chip manufacturers.³¹ New age industries require a much higher standard of reliability. The cost of even the smallest interruption of electricity can be in the millions of dollars.³² Reliability standards should take into account all three of these concepts.³³

2. Legal Framework for Reliability Regulation by the FERC

Historically, the FERC has played a relatively limited role in regulating reliability. The NERC, its regional reliability councils, and individual utilities have traditionally maintained reliability through a system of peer-reviewed

supra note 11, at 8–9. “The central organizing principle of electricity reliability management is to plan for the unexpected. . . . This principle is expressed by the requirement that the system must be operated at all times to ensure that it will remain in a secure condition (generally within emergency ratings for current and voltage and within established stability limits) following the loss of the most important generator or transmission facility (a ‘worst single contingency’). This is called the ‘N [minus] 1 criterion.’” *Id.*

29. TASK FORCE ON ELEC. SYS. RELIABILITY, U.S. DEP’T OF ENERGY, MAINTAINING RELIABILITY IN A COMPETITIVE U.S. ELECTRICITY INDUSTRY: FINAL REPORT OF THE TASK FORCE ON ELECTRIC SYSTEM RELIABILITY 6 (1998), *available at* <http://www.seab.energy.gov/publications/esrfinal.pdf> [hereinafter MAINTAINING RELIABILITY].

30. *Id.*

31. See RICHARD P. SEDANO, NAT’L COUNCIL ON COMPETITION AND THE ELEC. INDUS., DIMENSIONS OF RELIABILITY: A PAPER ON ELECTRIC SYSTEM RELIABILITY FOR ELECTED OFFICIALS 2–6 (2001), *available at* <http://www.ncouncil.org/reliability.pdf> [hereinafter DIMENSIONS OF RELIABILITY].

32. Power quality has become an important component of reliability in our digital age. “For sensitive loads, the quality of electric service has become as important as its reliability. Indeed, [power] quality is a new phenomenon . . . [power] quality problems have a huge economic impact. As a result, any discussion of power system reliability must also include power quality.” OAK RIDGE NAT’L LAB., U.S. DEP’T OF ENERGY, MEASUREMENT PRACTICES FOR RELIABILITY AND POWER QUALITY 4 (2004), *available at* <http://www.ornl.gov/sci/btc/apps/Restructuring/ORNLTM200491FINAL.pdf> [hereinafter MEASUREMENT PRACTICES FOR RELIABILITY AND POWER QUALITY]. See also 1 ELEC. POWER RESEARCH INST., ELECTRICITY SECTOR FRAMEWORK FOR THE FUTURE 36–37 (2003), *available at* <http://www.epri.com/corporate/esff/viewpdfs.asp>.

33. See DIMENSIONS OF RELIABILITY, *supra* note 31, at 2–6.

standards and voluntary cooperation. While the FERC has been content to defer to the NERC's reliability criteria and standards,³⁴ over the years the Commission has taken various actions that deal with reliability. More recently, the FERC has signaled that it will increase its level of activity in response to the interim Blackout Report.³⁵ Additionally, the FERC issued a policy statement concerning bulk power system reliability after the Blackout Report, which appears to reflect its current view of its legal authority in this area.³⁶ The Policy Statement on Reliability suggests that the FERC is not prepared to propose mandatory reliability standards on all public utilities, presumably a reflection of doubt about the scope of the Commission's existing legal authority.

In determining the scope of the Commission's legal authority, this article, first, examines which provisions of the Federal Power Act (FPA)³⁷ grant the FERC direct reliability authority. Next, this article reviews the FERC's conditioning authority with respect to reliability-related requirements. Finally, the article considers the relevant legislative history, the FERC's past and current views of its authority, and the approach a reviewing court would likely take in ruling on the FERC's authority to impose reliability standards.

a. Relevant Provisions of the FPA

Although federal statutes do not expressly confer comprehensive authority for the Commission to regulate bulk power reliability, the FPA contains several provisions addressing reliability. The FPA, taken as a whole, provides a basis for arguing that the FERC may impose some type of mandatory reliability standards.

To begin with, section 201 of the FPA declares that federal regulation, over the transmission of electric energy in interstate commerce and the sale of electric energy at wholesale in interstate commerce, is "necessary in the public interest," and recognizes the FERC's broad jurisdiction over such subjects.³⁸ The Supreme Court in *New York v. FERC*³⁹ held that this provision grants the FERC broad jurisdiction over electric transmission in both wholesale and retail markets.⁴⁰ The Court agreed with the FERC that transmissions on the

34. See, e.g., *W. Sys. Coordinating Council*, 87 F.E.R.C. ¶ 61,060, 61,234 (1999); see also Notice of Interim Procedures to Support Industry Reliability Efforts and Request for Comments, 91 F.E.R.C. ¶ 61,189, 65 Fed. Reg. 101 (2000).

35. Press Release, Federal Energy Regulatory Commission, FERC to Require Reporting of Power-Grid Reliability Violations: Pending Steps First in Exploration of Options Under Existing Law (Dec. 17, 2003).

36. *Policy Statement on Matters Related to Bulk Power System Reliability*, 107 F.E.R.C. ¶ 61,052, 69 Fed. Reg. 80 (2004) ("The Commission strongly supports legislative reform to provide a clear Federal framework for developing and enforcing mandatory reliability rules. In the interim, the Commission is issuing this Policy Statement and taking other steps within its existing authority to promote greater reliability of the United States' bulk power system and its operation and to support industry efforts to improve the current voluntary industry based approach."); Order Granting Request for Clarification, *Policy Statement on Matters Related to Bulk Power System Reliability*, 108 F.E.R.C. ¶ 61,288 (2004) [hereinafter *Policy Statement on Reliability*].

37. Federal Power Act, 16 U.S.C. § 824 (2000).

38. *Id.* at 824(a)-(b).

39. *New York v. FERC*, 535 U.S. 1, 2 (2002).

40. *Id.* at 9. See also Isaac D. Benkin, *Who Makes the Rules? Federal and State Jurisdiction Over*

interconnected national grid constitute transmissions in interstate commerce.⁴¹ The Court endorsed the D.C. Circuit's conclusion that 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."⁴² Although decided in the context of transmission open access, the Court's determination regarding the FERC's broad authority over transmission has important implications for the scope of the FERC's authority regarding reliability.

In addition, the Court stated that the "FPA did a good deal more than close the gap in state power identified in *Attleboro*⁴³. . . the FPA authorized federal regulation of interstate *transmissions* as well as of interstate wholesale sales. . . . Thus, even if *Attleboro* catalyzed the enactment of the FPA, *Attleboro* does not define the outer limits of the statute's coverage."⁴⁴

Section 202(a) of the FPA cites "an abundant supply of electric energy throughout the United States" as a goal of the Act.⁴⁵ Further, this section authorizes and directs the FERC to "divide the country into regional districts for the voluntary interconnection and coordination of facilities for the generation, transmission, and sale of electric energy."⁴⁶ Section 202 contains several other provisions under which the FERC may take reliability-related actions. The FERC has cited section 202 as a source of legal authority in support of Order No. 2000, which encourages the formation of RTOs to enhance both reliability

Electric Transmission Access, 13 ENERGY L.J. 45, 49 (1992) (stating in the context of transmission access: "All things considered, Congress has given the FERC a rather broad and unequivocal charter to regulate the business of performing transmission service."). Of course, reliability bears a strong relationship to electric transmission.

41. *Id.* at 50 (citing *FPC v. Fla. Power & Light Co.*, 404 U.S. 453, 466-467 (1972)).

42. *New York v. FERC*, 535 U.S. 1, 2 (2002) (quoting Transmission Access Policy Study Group v. FERC, 225 F.3d 667, 691 (2000)).

43. The Court described the *Attleboro* gap as follows:

Prior to 1935, the States possessed broad authority to regulate public utilities, but this power was limited by our cases holding that the negative impact of the Commerce Clause prohibits state regulation that directly burdens interstate commerce. When confronted with an attempt by Rhode Island to regulate the rates charged by a Rhode Island plant selling electricity to a Massachusetts company, which resold the electricity to the city of Attleboro, Massachusetts, we invalidated the regulation because it imposed a 'direct burden upon interstate commerce.' *Public Utils. Comm'n of R.I. v. Attleboro Steam & Elec. Co.*, 273 U.S. 83, 89, 47 S. Ct. 294, 71 L. Ed. 549 (1927). Creating what has become known as the '*Attleboro* gap,' we held that this interstate transaction was not subject to regulation by either Rhode Island or Massachusetts, but only 'by the exercise of the power vested in Congress.' *Id.* at 90, 47 S. Ct. 294. When it enacted the FPA in 1935, Congress authorized federal regulation of electricity in areas beyond the reach of state power, such as the gap identified in *Attleboro* . . . (footnotes omitted).

Id. at 4.

44. *New York v. FERC*, 535 U.S. at 10. See also William Penniman & Paul Turner, *A Jurisdictional Clash Over Electricity Transmission: Northern States Power v. FERC*, 20 ENERGY L.J. 205, 216-17 (1999) (including the cases cited therein; stating, "[t]he FERC and the courts have taken an expansive view of the Commission's jurisdiction over interstate transmission of electricity This broad view of the FERC's jurisdiction . . . is consistent with the broad view taken by the courts with respect to the FERC's jurisdiction over natural gas moving in interstate commerce.").

45. 16 U.S.C. § 824a (2000).

46. *Id.*

and the functioning of wholesale electricity markets across broad regions.⁴⁷

Sections 205 and 206 of the FPA require the Commission to remedy undue discrimination, and to ensure that rates charged by a public utility for transmission or sale within the Commission's jurisdiction (and any charges, classifications, rules, regulations, practices, and contracts that affect those rates) are just and reasonable.⁴⁸ Assuming that a proper foundation could be laid, the FERC might invoke sections 205 and 206 as a basis for promulgating reliability-related measures to remedy undue discrimination.⁴⁹ Despite much skepticism outside the agency, the FERC was successful in supporting Order No. 888 with an argument that the remedial aspects of FPA sections 205 and 206 warranted a mandatory open access program for wholesale electricity markets subject to its jurisdiction. Recognizing the increasingly tight interrelationship between commercial and reliability rules,⁵⁰ the FERC could structure a persuasive argument that reliability practices affect jurisdictional rates and services. To the extent that the FERC, in a rulemaking proceeding, found sufficient evidence that industry reliability practices had led to unjust, unreasonable, or unduly discriminatory rates, it could impose mandatory industry-wide reliability standards as an appropriate remedy.⁵¹

FPA section 207 states that, upon complaint of a state commission, the FERC may act on any "inadequate or insufficient" interstate service of any public utility by means of order, rule, or regulation.⁵² The FERC has not applied this section in the context of reliability standards, nor are there any reported decisions by the FERC or a court defining the scope of the Commission's section 207 authority. On its face, however, this section appears to allow the FERC to consider reliability as a factor in measuring and remedying inadequate interstate

47. Order No. 2000, *supra* note 4, at 30,993. See section 202(b), 16 U.S.C. § 824a(b) (2000) (permitting the interconnection of transmission facilities upon a complaint to the Commission); section 202(c), 16 U.S.C. § 824a(c) (2000) (permitting the Commission to require temporary connections on complaint or on its own initiative during times of war or other emergency); see also section 202(g), 16 U.S.C. § 824a(g) (2000) (granting the FERC the authority to order public utilities to promptly report "any anticipated shortage of electric energy or capacity which would affect such utility's capability of serving its wholesale customers" and to submit "contingency plans respecting—(A) shortages of electric energy or capacity, and (B) circumstances which may result in such shortages . . ."). Recently the FERC has used this latter provision to exert pressure on public utilities that have yet to put in place adequate reliability measures. See, e.g., *First Energy Corp.*, 105 F.E.R.C. ¶ 61,372 (2003) (directing First Energy to retain an independent expert and prepare a study of adequate transmission and generation facilities in Northern Eastern Ohio and explicitly referencing FPA section 304(a), 16 U.S.C. § 825c(a) (2000), as a source of authority).

48. 16 U.S.C. §§ 824d, 824e (2000).

49. *New York v. FERC*, 535 U.S. at 13 (quoting Order No. 888-A, *supra* note 3, at 30,202) (acknowledging that the FERC does not have "authority to order, *sua sponte*, open-access transmission services by public utilities, but explain[ing] that [section] 206 of the FPA explicitly required it to remedy the undue discrimination . . .").

50. See LARRY E. RUFF, FED. ENERGY REGULATORY COMM'N, DEFINING AND ALLOCATING RTO FUNCTIONS (2002); Notice of Proposed Rulemaking, *Amendment to the Federal Power Act to Advance the Formation of Regional Transmission Organizations*, F.E.R.C. STATS & REGS. ¶ 61,285, 64 Fed. Reg. 31,389; BLACKOUT REPORT, *supra* note 11.

51. See, e.g., *Niagara Mohawk Power Corp. v. FPC*, 379 F.2d 153, 159 (D.C. Cir. 1967) (the FERC's discretion is at its "zenith" when fashioning remedies for undue discrimination.) See further discussion concerning the FERC's conditioning authority *infra* section II.A.2(b).

52. 16 U.S.C. § 824f (2000).

service on at least a utility-by-utility basis.⁵³ As explained above, adequacy of service surely has a relationship to reliability.

The FERC may well be able to apply a section 207 remedy to more than a single utility. As previously noted, the August 14, 2003 blackout underscores that bulk power reliability is inherently regional in character. Because of grid engineering and the fundamental laws of physics, each of the three North American Interconnections operates as one large interconnected machine.⁵⁴ Thus, the FERC could conclude that a section 207 complaint by a single state necessitated examination of the adequacy of service on an Interconnection-wide basis. If the Commission were to find, on an appropriate record, that failure to comply with voluntary reliability standards rendered service inadequate or insufficient in one or more states within an Interconnection, the most rational remedy under section 207 might be the imposition of mandatory reliability standards on an entire Interconnection.⁵⁵

b. FERC's Conditioning Authority Under FPA Sections 205 and 206

Even if the FERC lacks the explicit statutory authority to impose mandatory reliability standards under the FPA on other than a utility-by-utility basis under FPA section 207, there remains the question of whether it may do so through the exercise of its conditioning authority. There is good reason to believe that such an exercise of authority, if properly structured, would be upheld by the courts. In order to make reliability requirements mandatory for all of the transmission owners that it regulates, i.e., "public utilities," the FERC could invoke its conditioning power under section 205 or 206 of the FPA.⁵⁶ Reliability standards

53. As noted in an *Energy Law Journal* article, with respect to section 211, one might observe that the FERC has failed to fully exercise its authority under FPA section 207 with regard to reliability and the provision of "adequate service." Isaac D. Benkin, *Who Makes the Rules? Federal and State Jurisdiction Over Electric Transmission Access*, 13 ENERGY L.J. 45, 49 (1992).

54. BLACKOUT REPORT, *supra* note 11, at 6. "Within each interconnection, electricity is produced the instant it is used, and flows over virtually all transmission lines from generators to loads." *Id.* at 6.

55. Other FPA authority that may be relevant to weaving a reliability tapestry includes: sections 209(b) and 209(c), 16 U.S.C. § 824h (permits the Department of Energy (DOE) and the FERC to ask reliability councils to report on reliability issues and to recommend voluntary reliability standards to utilities); section 210, 16 U.S.C. § 824i (requires the physical connection of facilities and any associated exchange, sale, or other coordination, if it would be in the "public interest" or, among other things, if it would "improve the reliability of any electric utility system . . ."); section 304(a), 16 U.S.C. § 825c(a) (requires public utilities to file with the Commission such special reports as the Commission may by order prescribe); section 311, 16 U.S.C. § 825j (allows the Commission to collect data on reliability from regional councils); section 309, 16 U.S.C. § 825h (a broad provision that grants the FERC "power to perform any and all acts, and to prescribe, issue, make amend, and rescind such orders, rules, and regulations as it may find necessary or appropriate to carry out the provisions of this chapter.").

56. Of course, the FERC may not use its conditioning authority "to circumvent a limitation imposed upon its ratemaking authority . . ." *Altamont Gas Transmission Co. v. FERC*, 92 F.3d 1239, 1246 (D.C. Cir. 1996) (discussing the NGA). *See, e.g.*, *Duke Power Co. v. FPC*, 401 F.2d 930, 945 (1968) (section 203 conditioning authority extends to "the quality of the utility's service"); *see also* 16 U.S.C. § 824b(b) (stating that the FERC may condition section 203 approval "as it finds necessary or appropriate to secure the maintenance of adequate service . . ."). However, nothing in the FPA prohibits the FERC from considering reliability issues to the extent they pertain to ratemaking. Section 203, concerning the transfer of jurisdictional facilities, contains explicit conditioning powers that have been broadly construed by the courts. However, section 203 could not be used to reach those transmission owners that do not seek to transfer or acquire such

grounded in section 205 or 206 would presumably take the form of a condition to rate authorization: that the rates charged by public utilities for transmission service would be considered just and reasonable only if the transmission provider complied with FERC-approved reliability standards and subjected itself to specified enforcement procedures. This might be accomplished either through a rulemaking proceeding, if adequate industry-wide findings of fact were made, or alternatively on a utility-by-utility basis in individual section 205 and 206 proceedings. It is noteworthy in that connection that section 206 grants the FERC authority over any “practice” affecting a utility’s “rate, charge, or classification.”⁵⁷

Historically, the term “practice” in section 206, which when enacted was patterned after the Interstate Commerce Act, has been construed to mean practices “in connection with the fixing of rates to be charged and prescribing of service to be rendered”⁵⁸ Against this background, the FERC has determined that a practice affecting a rate encompasses a “consistent and predictable course of conduct of the supplier that *affects [a utility’s] financial relationship with the consumer*”⁵⁹ More specifically in the context of the FPA, the FERC has repeatedly concluded that its authority over practices affecting rates covers “price, availability, firmness, duration or other terms or conditions of any existing services.”⁶⁰

The D.C. Circuit recently clarified the scope of the FERC’s authority, holding that section 206 conditioning power “is limited to those *methods or ways of doing things on the part of the utility that directly affect the rate or are closely related to the rate*”⁶¹ In that case the court held that reformation of an ISO’s corporate governance structure was not within the FERC’s section 206 authority. The decision is entirely consistent, however, with precedent holding that FERC’s section 206 conditioning authority extends to practices related to rates. Although the D.C. Circuit held that the FERC’s section 206 authority does not extend to the regulation of corporate governance, it would be difficult to argue that reliability is not sufficiently “related” to the rates charged for a service. To withstand scrutiny, however, industry-wide reliability standards imposed in this manner through a rulemaking likely would need to be accompanied by sufficient findings that existing service deficiencies render all transmission rates per se unjust, unreasonable, or unduly discriminatory, absent a utility’s adherence to certain minimum reliability standards.

With respect to those entities over which the FERC does not have jurisdiction (i.e., federal power marketing agencies, municipally-owned transmission providers, and cooperatives), the Commission could employ a

facilities.

57. 16 U.S.C. § 824e (2000).

58. *Mo. Pac. R.R. v. Norwood*, 283 U.S. 249, 257 (1931) (discussing “practice” under section 15 of the Interstate Commerce Act). Courts have looked to prior interpretations under section 15 of the Interstate Commerce Act when construing section 206 of the FPA. See *Cal. Indep. Sys. Operator Corp. v. FERC*, 372 F.3d 395 (D.C. Cir. 2004).

59. *Mich.-Wis. Pipe Line Co.*, 34 F.P.C. 621, 626 (1965) (emphasis added).

60. *City of San Diego v. San Diego Gas & Elec. Co.*, 51 F.E.R.C. ¶ 61,058, 61,058 (emphasis added).

61. *Cal. Indep. Sys. Operator Corp. v. FERC*, 372 F.3d 395, 403 (D.C. Cir. 2004) (emphasis added).

reciprocity provision similar to the one in Order No. 888.⁶² This reciprocity arrangement provided that all customers (including non-public utilities) that own, control, or operate transmission facilities and take service under a public utility's pro forma tariff, must offer comparable services in return. Likewise, if the Commission uses its conditioning authority to require public utilities to include mandatory reliability standards in the pro forma tariffs, non-jurisdictional entities would need to include the same or similar standards in their reciprocity tariffs in order for their services to be comparable.⁶³

Alternatively, even if section 206 does not grant the FERC authority to impose mandatory reliability standards, the Agency arguably could achieve a similar result under section 205 by determining that the transmission rate authorized includes a premium for compliance with minimum reliability standards. Rates for transmission, still generally deemed to be a monopoly function, are cost-based. It is, of course, well settled that in the universe of cost-based rates there is no single just and reasonable rate for a given service.⁶⁴ Rather, there is a zone of reasonableness, within which the FERC has discretion to find an appropriate compensatory level. The FERC might provide that, absent compliance with stated reliability standards, the transmission provider would receive at or near the low end of the zone of reasonableness, and that with such compliance, the provider would receive either what otherwise would be a standard rate of return or, perhaps, a premium toward the higher end of the zone of reasonableness.⁶⁵ At least in theory, however, transmission providers willing to accept lower (albeit non-confiscatory) rates could avoid the Commission's reliability requirements. One could legitimately question the wisdom of a policy that would allow a just and reasonable rate for a service that did not meet minimum reliability requirements. Nonetheless, such an approach arguably would be consistent with FERC precedent. To date the FERC has yet to specifically utilize its section 205 authority to require compliance with reliability standards. It has, however, recognized that reliability concerns can be

62. See Order No. 888, *supra* note 3, at 31,760; Order No. 888-A, *supra* note 3, at 30,285.

63. See also *Consumers Energy Co. v. FERC*, 367 F.3d 915 (D.C. Cir. 2004) (finding that the FERC reasonably implemented the reciprocity and comparable service provisions of Order No. 888).

64. See, e.g., *Ocean State Power*, 44 F.E.R.C. ¶ 61,261, 61,979 (1988) ("The Commission typically accepts rates as falling within the zone of reasonableness if the rates allow the seller to recover its costs of service plus a reasonable rate of return on equity.").

65. In broad terms, that differentiation might parallel the familiar distinction between firm and non-firm pipeline or transmission service, although firm versus non-firm rate distinctions are usually based on differing allocation of costs or rate designs. Consideration of reliability through rate adjustment would not be revolutionary. For example, the FERC recently approved departures from cost-based rates as an appropriate mechanism for remedying the capacity and reliability problems in the Western markets. See *W. Area Power Admin.*, 99 F.E.R.C. ¶ 61,306, *order den. reh'g*, 100 F.E.R.C. ¶ 61,331, 61,539, n.4 (2002) (incentive rates appropriate to remedy "serious impacts" along Path 15 because it is a "uniquely critical path"); see also *Removing Obstacles to Increased Electricity Generation and Natural Gas Supply in the Western United States*, 95 F.E.R.C. ¶ 61,225, *order on requests for reh'g and clarification*, 96 F.E.R.C. ¶ 61,155, *further order on requests for reh'g and clarification*, 97 F.E.R.C. ¶ 61,024 (2001). This approach has been upheld by the D.C. Circuit, which recently reaffirmed long-standing precedent that the FERC "may consider non-cost factors," such as the need to ensure adequate energy supply, when setting rates. See *Pub. Util. Comm'n of Cal. v. FERC*, 367 F.3d 925, 929 (D.C. Cir. 2004) (affirming the Path 15 incentive rates).

considered in the context of rate setting.⁶⁶

The FERC also might exercise its conditioning authority by requiring ISOs and RTOs to comply with specified standards of reliability. RTO/ISO status confers certain regulatory benefits upon those transmission owners that have transferred control over their transmission facilities to the RTO.⁶⁷ While the D.C. Circuit has made clear that the FERC cannot impose requirements with respect to governance structure on an ISO/RTO simply because it is a public utility,⁶⁸ the court also indicated that the Commission may condition RTO status upon conformance with certain governance standards.⁶⁹ Therefore, the Commission should be able to condition RTO status on compliance with reliability standards.⁷⁰

In sum, use of the Commission's power to condition under sections 205 and 206 of the FPA, if appropriately structured, could provide the basis for the application of mandatory reliability standards to the FERC—jurisdictional transmission providers.⁷¹

c. Legislative History and the Regulatory Record

Over the years, those who have argued that the FERC, and previously the FPC, lacks reliability authority have often pointed to the legislative history and regulatory record surrounding the FPA in support of this position. As set forth below, however, the legislative history is, at most, as ambiguous on the issue as the statute itself.

(1) Federal Power Act of 1935

In 1935 when the Federal Power Act was enacted, electric reliability was a

66. For example, in *Green Mountain Power Corp.*, 59 F.E.R.C. ¶ 61,213, 61,739 (1992), transmission customers intervened in a rate proceeding and requested that the FERC condition acceptance of the utility's rates on the commitment to improve service and reliability. Although it declined to rule on the proper remedy, the FERC made clear that "allegations about reliability raise questions of fact that we are fully capable of addressing in the section 205 proceeding . . ." The FERC went on to note that if the utility's "failure to maintain adequate facilities is the cause of the rolling blackouts and the low voltage conditions . . . then the parties should address whether the rates under the Transmission Agreements should be adjusted to reflect the quality of service . . ." See also *N.C. Elec. Membership Corp.*, 52 F.E.R.C. ¶ 61,298 (1990) (setting for hearing, under section 206, the issue of whether allegedly unreliable service was unjust, unreasonable, or unduly discriminatory); see also *Village of Freeport*, 87 F.E.R.C. ¶ 61,301 (1999).

67. Thus, for example, transmission owners that participate in a RTO may, in making certain market power showings, include the entire RTO region as the relevant geographic market. The Commission stated in its *Policy Statement on Reliability* that RTOs and ISOs must comply with specified reliability standards. *Policy Statement on Reliability*, *supra* note 36, at para. 24 (2004).

68. *Cal. Indep. Sys. Operator Corp. v. FERC*, 372 F.3d 395 (D.C. Cir. 2004).

69. *Id.* at 404.

70. While RTOs, ISOs, and non-independent transmission owners are all public utilities and subject to the FERC's jurisdiction, they differ in that RTOs and ISOs are FERC-defined entities. Thus, inasmuch as the qualifications of RTOs and ISOs are prescribed by the FERC, it should be able to mandate reliability requirements for them. It does not have the authority to define the qualifications of non-independent transmission owners.

71. In addition, the Commission could utilize a reciprocity policy to reach non-jurisdictional transmission providers. Order No. 888, *supra* note 3, at 31,760; see also Order No. 888-A, *supra* note 3, at 30,285; see also *Consumers Energy Co.*, *supra* note 63; see also text accompanying notes 62–63.

matter traditionally left to state utility commissions.⁷² As noted above, however, there are several FPA provisions under which the Congress specifically authorized the agency to take reliability-related actions.⁷³ In particular, section 207 provides that the FERC may act on inadequate or insufficient interstate service of a public utility upon the complaint of a state commission. There is no doubt, however, that as a general matter the FPA was not intended to usurp pre-existing state authority.⁷⁴

Although there is little discussion of reliability in the legislative history surrounding original passage of the FPA, it is not surprising given the structure of the industry at that time. The relatively limited scope of section 207 should be viewed in that context, namely the FPA's lack of explicit references to reliability stems from the reality that reliability was not a large area of concern at the time of enactment. Nonetheless, it is beyond dispute at this point that the FPA contains numerous statutory provisions that have ramifications far beyond what some view as its initial limited purpose, namely to "fill" the *Attleboro* gap. Indeed, the Supreme Court has specifically held that the FPA did more than simply deal with the *Attleboro* gap. Thus, the mere fact that the law was originally intended to preserve much state authority does not preclude the FERC from regulating in the area of reliability.

(2) Post-Enactment Interpretations

While not a focus of drafters at the time of enactment, electric utility reliability received substantial attention starting in the mid 1960s after a series of blackouts, including the New York City Blackout of 1965 and power interruptions in Florida in 1973. A number of reports and hearings during this period of time addressed utility reliability and the potential role of the FPC in this area. Immediately following the 1965 blackout, the FPC issued a report that flagged the need for an increased federal role in utility reliability.⁷⁵ While the 1965 report was ambivalent regarding the authority of the Commission to act, in its report to the President in 1967, the FPC stated that the "Commission has no authority to require adherence to reliability standards."⁷⁶

72. U.S. FED. POWER COMM'N, REPORT TO THE PRESIDENT ON THE POWER FAILURE IN THE NORTHEASTERN UNITED STATES AND THE PROVINCE OF ONTARIO ON NOV. 9-10 45 (1965) available at http://blackout.gmu.edu/archive/pdf/fpc_65.pdf [hereinafter NORTHEASTERN POWER FAILURE]. A law review article on the legislative history of the FPA, written relatively soon after enactment, is silent on the issue of electric reliability. Dozier A. DeVane, *Highlights of the Legislative History of the Federal Power Act of 1935 and the Natural Gas Act of 1938*, 14 GEO. WASH. L. REV 30 (1945).

73. See also FED. POWER COMM'N, 1 PREVENTION OF POWER FAILURES: AN ANALYSIS AND RECOMMENDATION PERTAINING TO THE NORTHEAST FAILURE AND THE RELIABILITY OF U.S. POWER SYSTEMS—REPORT OF THE COMMISSION 83 (1967), available at http://blackout.gmu.edu/archive/pdf/fpc_67_v1.pdf [hereinafter PREVENTION OF POWER FAILURES].

74. H.R. REP. NO. 74-1318, at 8 (1935).

75. NORTHEASTERN POWER FAILURE, *supra* note 72, at 45.

76. PREVENTION OF POWER FAILURES, *supra* note 73, at 83. The House Committee on Interstate and Foreign Commerce, Special Subcommittee to Investigate Power Failures held hearings on the northeast power failure in 1965 and 1966. At those hearings, Joseph C. Swidler, Chairman of the Federal Power Commission, testified that "[i]t is apparent that if the Congress should desire that the Federal Power Commission be an effective instrument in helping to improve the quality and the reliability of service throughout the country,

In 1969 and 1970, the Congress held hearings on the issue of electric power reliability. During the hearings, the Federal Power Commission continued to take the position that it lacked the authority to require adherence to reliability standards.⁷⁷ At the same time, however, Chairman White acknowledged the ambiguity in the law, noting that the FERC's reliability "authority is far from clear."⁷⁸ In 1970, Chairman John N. Nassikas further publicly recognized that the FPC "has not sought to test the limits of its compulsory regulatory jurisdiction as it relates to reliability and adequacy of service."⁷⁹

Over the next several decades the FERC's position continued to be that under the FPA it lacked clear reliability authority. Following the 1977 New York City blackout, then-FERC Chairman Charles B. Curtis testified before Congress on the issue of reliability, stating that "current authorities of the Commission are impaired" and that proposed reliability legislation "would give the Commission important new tools to assure the reliability of electric systems."⁸⁰ The Chairman also recognized, however, that sections 202, 205, 206, and 207 of the FPA⁸¹ do provide the FERC with some reliability authority by way of "promoting and encouraging voluntary actions by public utilities"⁸² The scope of the FERC's reliability authority was again a subject of discussion during debate on the PURPA,⁸³ although Congress elected not to clarify the issue.⁸⁴

After the late-1970s, significant debate on the FERC's reliability authority

additional legislation will be necessary."

77. Lee White, then Chairman of the Agency, responded to criticism that regulatory agencies were not doing enough to compel utilities to "do better and construct more facilities." Chairman White stated, "[w]e have absolutely no authority to do anything except plead or advise or counsel." *Electric Power Reliability—1969–1970: Hearings on H.R. 7186, H.R. 12585, H.R. 489, H.R. 9429, and H.R. 2506, Before the House Committee on Interstate and Foreign Commerce, Subcommittee on Communications and Power*, 91st Cong. 412–13 (1969) (testimony of Lee C. White, Chairman, Federal Power Commission).

78. For example, he stated that "the Commission may have additional untapped compulsory authority to accomplish some of the necessary functions of a comprehensive program[.]" He also acknowledged however, that "the extent of such authority is far from clear and its exercise would undoubtedly be subject to much time consuming litigation." *Id.* at 414.

79. *Electric Power Reliability—Federal Procedures Relating to Adequacy and Reliability of Electric Power: Hearings Before the Senate Committee on the Judiciary, Subcommittee on Administrative Practice and Procedures*, 91st Cong. 74 (1970) (testimony of John N. Nassikas, Chairman, Federal Power Commission).

80. *The New York City Blackout of July 13, 1977: Hearings Before the House Committee on Interstate and Foreign Commerce, Subcommittee on Energy and Power*, 95th Cong. 161 (testimony of Charles B. Curtis, Chairman, Federal Energy Regulatory Commission). Regarding section 207, he reiterated that the FERC could act only upon complaint from a state commission, which he said had occurred only twice. Because both of those cases were pending at the time of his testimony, Curtis declined to discuss them in further detail. *Id.* at 128.

81. *Id.*

82. *The New York City Blackout of July 13, 1977: Hearings Before the House Committee on Interstate and Foreign Commerce, Subcommittee on Energy and Power*, 95th Cong. 128 (testimony of Charles B. Curtis, Chairman, Federal Energy Regulatory Commission).

83. Public Utility Regulatory Policies Act of 1978, 16 U.S.C. §§ 2601–2645 (2000).

84. The proposed House version of PURPA (H.R. 4018) would have given the FERC explicit authority to regulate in the area of reliability, requiring it to issue rules to insure continuance of service, to establish electric utility reliability standards, and, to facilitate the sale and purchase of electricity between electric utilities and cogeneration facilities." H.R. Conf. Rep. No. 95-1750, at 64 (1978) (emphasis added).

subsidized for nearly two decades, reemerging again as a major area of concern following a failure in the western power grid in July of 1996. In response, a Task Force on Electric System Reliability was appointed to assess “the adequacy of existing North American electric reliability systems. . . .”⁸⁵ The Task Force’s final report, issued in September 1998, found that “[the] FERC’s authority with respect to bulk-power reliability is . . . *ambiguous*,” and that Congress should remove this ambiguity by clarifying the FERC’s reliability authority.⁸⁶

Over the past decade, a number of FERC Commissioners have testified before Congress on electric utility reliability. Their testimony has focused on the ambiguity of the FERC’s statutory authority in the field.⁸⁷ The joint task force investigating August 14, 2003 blackout recommended that reliability standards be made mandatory and enforceable.⁸⁸ To accomplish this goal, the task force recommended that “Congress should enact reliability legislation no less stringent than the provisions now included in pending comprehensive energy bills, H.R. 6 and S. 2095.”⁸⁹ At the same time, however, the task force recognized that the FERC’s current authority is unclear. In fact, the Task Force specifically recommended that “[i]n the absence of such reliability legislation, [the] FERC should review its statutory authorities under existing law, *and to the maximum extent permitted by those authorities, act to enhance reliability by making compliance with reliability standards enforceable in the United States.*”⁹⁰

Finally, during the debate on the Electric Reliability Act of 2004,⁹¹ Senators’ differing views further reflected this ambiguity regarding the extent of the FERC’s existing reliability authority. In one telling remark, Senator Jeffords reflected the long-standing tension between the ambiguity in existing law and proposed reliability legislation, when he asked “Why is Congress making [the] FERC waste time trying to determine whether they have the legal authority to act to protect consumers and ensure electric reliability? We should simply make

85. Press Release, Office of the Press Secretary, Memorandum on the Western Power Outage (July 3, 1996), available at <http://www.ibrary.org/pub/archives/whitehouse-papers/1996/Jul/1996-07-03-Directive-for-Report-on-Western-Power-Outage>.

86. MAINTAINING RELIABILITY, *supra* note 29, at 38 (emphasis added).

87. Former Chairman James J. Hoecker repeatedly testified that “there is no clear Federal authority for establishing reliability standards for the bulk power transmission grid or for enforcing such standards.” *Hearing Before the House Committee on Commerce, Subcommittee on Energy and Power*, 105th Cong. (1997) (testimony of James J. Hoecker, Chairman of the Federal Energy Regulatory Commission). He also testified that “Federal legislation is needed to achieve” a system of mandatory reliability rules. *Senate Hearing Before the Committee on Energy and Natural Resources*, 106th Cong. (2000) (testimony of James J. Hoecker, Chairman of the Federal Energy Regulatory Commission). Additionally, Commissioner Linda Breathitt referred to “the lack of clear Federal authority for establishing or enforcing reliability standards for the electric industry” *Senate Hearing Before the Committee on Energy and Natural Resources*, 106th Cong. (2000) (testimony of Linda Breathitt, Commissioner of the Federal Energy Regulatory Commission) Chairman Hoecker made substantially similar remarks before the House Resources Committee, Subcommittee on Water and Power on June 24, 1999 and the House Commerce Committee, Subcommittee on Energy and Power on April 22, 1999.

88. BLACKOUT REPORT, *supra* note 11, at 140.

89. *Id.* at 3.

90. BLACKOUT REPORT, *supra* note 11, at 142 (emphasis added).

91. Electric Reliability Act of 2004, S. 2014, 108th Congress (2004).

that statutory authority clear.”⁹²

(3) The FERC’s Current View of Its Authority

The FERC has undertaken various reliability-related actions that give a sense of its current views on its own legal authority in this area. In Order No. 2000, the FERC’s goal was to “promote efficiency in wholesale electricity markets and to ensure that electricity consumers pay the lowest price possible for reliable service.”⁹³ As we set out in some detail previously, RTOs are better at ensuring reliability because they have no financial interest in the marketplace, and because they cover wider geographical areas.⁹⁴ In order to address reliability issues that affect rates and discourage discrimination, Order No. 2000 requires RTOs to exercise control over the short-term reliability of the grid and to exercise certain other authorities.⁹⁵ The Commission did not require RTOs to establish performance or rating standards. Nor did it require generators to give notice of planned outages to the RTO. However, it did reserve the right to impose “sanctions and penalties” for non-compliance with RTO rules.⁹⁶ Moreover, in its *White Paper on Wholesale Power Market Platform*, the Commission suggests that reliability standards developed by the NERC in collaboration with RTOs, ISOs, and the North American Energy Standards Board “could be included in RTO and ISO tariffs to facilitate compatible and seamless rules across the interconnected power grid.”⁹⁷

Finally, in its *Policy Statement on Reliability*,⁹⁸ the FERC went one step further, clarifying that the term “Good Utility Practice” as used in Order No. 888 “include[s] compliance with NERC reliability standards or more stringent regional . . . standards. Accordingly, public utilities that own, control or operate Commission-jurisdictional transmission systems *should* operate their systems in accordance with Good Utility Practice as set forth in the Commission’s *pro forma* [open access, non-discriminatory tariff], including complying with NERC reliability standards.”⁹⁹ While compliance with NERC standards apparently is not mandatory for jurisdictional public utilities, the Commission stated that it “will consider taking utility-specific action on a case-by-case basis to address significant reliability problems or compliance with Good Utility Practices,

92. 150 CONG. REC. S121 (daily ed. Jan. 21, 2004) (statement on introduced bills and joint resolutions).

93. Order No. 2000, *Reg'l Transmission Orgs.*, F.E.R.C. STATS & REGS ¶ 31,089, 65 Fed. Reg. 809 (2000) (to be codified at 18 C.F.R. pt. 35). See also *W. Res.*, 83 F.E.R.C. ¶ 61,015, 61,044 (1998) (the Commission encouraged “the industry to examine reliability aspects of the [P]ro [F]orma Tariff when additional detail may be required to implement specific reservation, scheduling, and curtailment procedures and to propose generic improvements to the [P]ro [F]orma Tariff.”).

94. David White et al., *The 2003 Blackout: Solutions that Won't Cost a Fortune*, 16 ELEC. J. at 43–53 (Nov. 2003).

95. *Id.* See discussion *infra* Order No. 2000, *supra* note 4.

96. David White et al., *supra* note 94, at 31,156

97. FED. ENERGY REGULATORY COMM'N, WHITE PAPER: WHOLESAL POWER MARKET PLATFORM 12 (2003), available at http://www.FERC.gov/industries/electric/indus-act/smd/white_paper.pdf.

98. *Policy Statement on Reliability*, *supra* note 36.

99. *Id.* at 61,168 (emphasis added). Note, however, that the Commission’s *pro forma* tariff does not currently define “firm” and “non-firm” in terms of reliability, notwithstanding arguments that reliability is a feature of firm service. See *Village of Freeport*, 87 F.E.R.C. ¶ 61,301 (1999).

consistent with its authority.”¹⁰⁰ The FERC’s apparent reluctance to go further, i.e., to impose mandatory standards on all jurisdictional public utilities, is probably based on the fact that federal legislation prescribing mandatory reliability standards for all participants in the bulk power market is currently pending. Alternatively, the Commission might have been reluctant to be perceived as overstepping its boundaries, or it may have wanted to avoid a legal challenge questioning its reliability authority.

In contrast, the Policy Statement on Reliability provides that RTOs and ISOs, on the other hand, *must* comply with NERC standards, or with such regional variations that are no less stringent than, and inconsistent with, NERC standards. In addition, no new ISO or RTO will be allowed to operate without showing that its reliability capabilities are functional.¹⁰¹ RTOs or ISOs, by definition, are responsible for short-term reliability and have a number of reliability-related characteristics. These RTO features are probably the basis for the Commission’s conclusion that RTOs and ISOs must comply with NERC standards. Therefore, while not implementing an overly broad interpretation of its reliability authority, the FERC has recognized that the increasingly interconnected regional nature of transmission grid, as evidenced by the shift to ISOs and RTOs, provides a new and persuasive rationale for exercising its existing reliability authority.

(4) How Would a Reviewing Court Look at the Issue?

How would a reviewing court analyze a decision by the FERC to promulgate mandatory reliability standards under the existing statute? This article offers a summary of what one might expect to see. This article takes a reasonably optimistic view that a court would hold in the FERC’s favor.

Two recent cases provide the likely framework for the analysis. In *New York v. FERC*, discussed above, the Supreme Court concluded the FERC had authority to promulgate open access requirements for interstate electric transmission, despite the absence of express statutory authority for such a requirement. In upholding the FERC’s action, the Court stressed that the agency’s statutory authority over transmission is broad. In addition, the Court was willing to take into account “dramatic changes in the power industry that have occurred in recent decades,”¹⁰² i.e., the increasing movement of electricity between states and regions, even if the 1935 Congress had not foreseen such a development.¹⁰³

On the other hand, in *California ISO v. FERC (CAISO)*, the D.C. Circuit

100. *Policy Statement on Reliability*, *supra* note 36. The FERC does not elaborate on its source of authority for such measures, but notes that a failure to comply with industry standards could affect the Commission’s determination of whether the particular utility’s rates are just and reasonable. This is an apparent reference to FPA sections 205 and 206. The FERC recently established a new Reliability Division that will be staffed with grid-reliability engineering experts. See Press Release, Federal Energy Regulatory Commission, Chairman Announces Director of New Reliability Division (June 18, 2004), available at <http://www.ferc.gov/press-room/pr-archives/2004/2004-2/06-18-04.asp>.

101. See *Policy Statement on Reliability*, *supra* note 36, at 61,169.

102. *New York v. FERC*, 535 U.S. 1, 5 (2002).

103. *Id.* at 5, 16–17, 23–24.

concluded that the FERC lacked authority to require a change in the make-up of the California Independent System Operator governing board.¹⁰⁴ The court concluded that the FERC's statutory authority is not broad enough to permit the Agency to dictate the personnel and structure of a public utility's corporate governance. In the court's view, corporate governance does not have a close enough relationship to rates and other subjects over which the FERC has authority under the terms of the FPA.

Mandatory reliability standards appear closer to the open access requirements the Supreme Court approved in *New York* than to the ISO membership requirements considered in the *CAISO* case. Reliability is closely intertwined with transmission, and, as the Court stressed in *New York*, the FERC's authority over transmission is quite broad. Thus, the relationship to a subject over which the FERC has clear authority is much closer than in the case of the corporate governance subjects at issue in *CAISO*. In addition, as in the case of the open access requirements, the FERC may be able to ground reliability requirements in sections 205 and 206. While the case may not be as clear as in the case of open access (where the FERC could cite substantial evidence that utility practices had resulted in discrimination), the discussion above suggests that the FERC may be able to invoke sections 205 and 206 (as well as section 201) in support of mandatory reliability standards.

A court should be even more receptive to mandatory reliability standards if the FERC can invoke section 207, which provides express authority for imposing reliability requirements. Of course, this would require that one or more state commissions file broad complaints (alleging, e.g., that the state faces inadequate interstate service because of a lack of reliability within an interconnected area), and require a FERC finding that mandatory reliability requirements are an appropriate remedy.

Under a *Chevron* analysis, the court should give some deference to a FERC interpretation of the FPA to permit imposition of mandatory reliability standards.¹⁰⁵ As in *New York*, a court should agree that the electric system has become more interconnected and that the movement of electricity has become increasingly regional. Likewise, a court should accept a FERC finding that, as a result of this interconnectedness, maintenance of reliability requires national standards. Because of the practical importance of reliability standards to the

104. *Cal. Indep. Sys. Operator Corp. v. FERC*, 372 F.3d 395 (D.C. Cir. 2004).

105. In *Chevron U.S.A. Inc. v. Natural Res. Defense Council, Inc.*, 467 U.S. 837 (1984), the Supreme Court articulated a two-part test for an agency's interpretation of a statute it administers. If Congress has spoken to the precise question at issue and its intent is clear, "that is the end of the matter." *Id.* at 842-43 n.9. However, if the statute is ambiguous, or Congress has left a gap, a court should defer to the agency's interpretation if it is reasonable. *Chevron* at 843-44. We doubt that it could be said that Congress has spoken to the precise question of mandatory reliability standards, except perhaps in the case of action under section 207 (and, even under that provision, it might be argued that Congress's intent is unclear). Thus, a court presumably would analyze the FERC's statutory interpretation under the reasonableness standard. Under the second step of the *Chevron* analysis, the court must assess the agency's construction of an ambiguous statute in light of the statute's overall design of purpose and legislative history. *See, e.g.*, *United States v. Haggard Apparel Co.*, 526 U.S. 380, 392 (1999); *Bell Atl. Tel. Co. v. FCC*, 131 F.3d 1044, 1048-49 (D.C. Cir. 1997). In this connection, it is significant that we have found no indication in the legislative history that Congress intended to withhold authority from the FERC to impose mandatory reliability standards.

viability of electric transmission, we believe a court would find reasonable the FERC's interpretation of the statute to permit such standards.¹⁰⁶ In reviewing the Commission's authority in light of the analysis in *New York*, it is critical to recognize the fundamentally regional or interstate character of reliability. A primary lesson from the August 14, 2003 blackout is that, because of the interconnectedness of the grid, no state or utility is an island when it comes to reliability. No single state or utility, however well intentioned, has authority that is broad enough to protect itself fully from the adverse impact of reliability mistakes made elsewhere in the same region. After all, an outage that originated in Ohio spread broadly to several states and Canada. Only a federal entity, such as the FERC, can implement standards to maintain reliability on a regional basis.

We recognize that others can put forward arguments that the FERC lacks authority to promulgate mandatory reliability standards, but we do not find such arguments to be very persuasive. First, they would cite the obvious fact that (with the possible exception of section 207) there are no statutory provisions expressly granting such authority. At the same time, as discussed earlier, Congress has provided for more limited reliability related actions. It might be argued that this is evidence that Congress did not intend to confer broad authority on the FERC to promulgate mandatory reliability standards. However, a court is unlikely to take such a narrow view in light of the overall breadth of the FERC authority under the FPA and the absence of a clear Congressional statement on the subject.¹⁰⁷

Second, opponents might point to the fact that Congress has repeatedly failed to enact proposed legislation containing broad authority for the FERC to regulate reliability, including bills currently pending in Congress.¹⁰⁸ However, courts have generally not viewed failure to enact legislation as evidence of congressional intent.

Third, some may cite repeated statements by agency representatives that assume or state that the FERC (or the FPC, its predecessor agency) lacked authority to promulgate reliability requirements, as well as the agency's long-standing reliance on voluntary reliability measures. In fact, the record on this point is ambiguous, and the context suggests that such statements should not receive great weight.¹⁰⁹ In any event, a court is unlikely to attribute much significance to such expressions of opinion or to the agency's earlier reliance on

106. As noted above, the concept of reliability encompasses both security and adequacy. A court might be less likely to conclude that the FERC's interpretation was reasonable if it imposed standards for adequacy of generation or transmission line construction, areas in which states have long had a primary role. While the FERC has jurisdiction for siting interstate natural gas pipelines, it does not have jurisdiction over electric transmission siting matters. 16 U.S.C. § 824(b)(1). See MAINTAINING RELIABILITY, *supra* note 29, at 34-36. The fractionalized jurisdiction over electronic transmission citing is one of the major obstacles to adopting proposed transmission projects that will enhance reliability.

107. See *Barnhart v. Peabody Coal Co.*, 537 U.S. 149, 168 (2003) (noting that the Court has repeatedly held that "the canon *expressio unius est exclusio alterius* does not apply to every statutory listing or grouping; it has force only when the items expressed are members of an 'associated group or series,' justifying the inference that items not mentioned were excluded by deliberate choice, not inadvertence." (citations omitted).

108. See, e.g., bills referenced *supra* at note 22.

109. *Supra* at Section II.A.2.c.

voluntary measures, so long as the FERC articulates a clear basis for its view.¹¹⁰

Fourth, some may believe that the court should not defer to the agency in view of its historical lack of engineering and technical expertise in this area and its past deference to the NERC. To the contrary, the FERC's recent creation of a Reliability Division staffed with engineers, does suggest a different level of expertise at the agency than in the past. Moreover, the FERC staff recently has participated in numerous readiness audits conducted by the NERC.¹¹¹

Fifth, the states may complain that the FERC's issuance of mandatory reliability standards intrudes on an area that has traditionally been a matter for the states own determinations, citing section 201(a).¹¹² It is particularly likely that states will make this argument if the FERC seeks to establish standards for matters such as adequacy of generation (e.g., reserve requirements) and transmission siting and construction, standards the states have extensively regulated in the past.¹¹³ As noted above, we believe the FERC will have a

110. See, e.g., *FDA v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120, 156–57 (2000) (noting that agency's change in interpretation of its jurisdiction would not invalidate an assertion of jurisdiction); *In re Permian Basin Area Rate Cases*, 390 U.S. 747, 784–85 (1968) (“administrative authorities must be permitted, consistently with the obligations of due process, to adapt their rules and policies to the demands of changing circumstances.”). A line of FERC actions and court cases in the natural gas industry supports the proposition that the FERC may interpret the statutes it administers first to create a voluntary program for utilities, then modify that view so as to create a mandatory program, without any intervening statutory change regarding such programs. In 1985, the FERC issued Order No. 436 in which it established an open access transportation policy for natural gas pipelines on a voluntary basis. Order No. 436, *Regulation of Natural Gas Pipelines After Partial Wellhead Decontrol*, [Regs. Preambles 1982–1985] F.E.R.C. STATS. & REGS. ¶ 30,665, 50 Fed. Reg. 42,408 (1985) (to be codified at 18 C.F.R. pt. 2) (rehearing orders omitted). The D.C. Circuit upheld the voluntary program in *Associated Gas Distribs. v. FERC*, 824 F.2d 981 (1987). By 1992, the FERC decided that a more comprehensive, mandatory open access program was necessary. Order No. 636, *Pipeline Service Obligations and Revisions to Regulations Governing Self-Implementing Transportation; and Regulation of Natural Gas Pipelines After Partial Wellhead Decontrol*, [Regs. Preamble 1991–1996] F.E.R.C. STATS. & REGS. ¶ 30,939, 57 Fed. Reg. 13,267 (1992) (to be codified at 18 C.F.R. 284). This mandatory program, too, was upheld by the D.C. Circuit. *United Distrib. Cos. v. FERC*, 88 F.3d 1105 (D.C. Cir. 1996).

111. ONE YEAR LATER REPORT, *supra* note 21, at 5; FED. ENERGY REGULATORY COMM'N, REPORT TO THE UNITED STATES CONGRESS, FERC USE OF THE GRID RELIABILITY APPROPRIATION FOR FISCAL YEAR 2004.

112. 16 U.S.C. § 824(a) (stating that federal regulation is “to extend only to those matters which are not subject to regulation by the States.”). See *Detroit Edison Co. v. FERC*, 334 F.3d 48 (D.C. Cir. 2003) (court denied the Commission jurisdiction, under FPA section 201(b)(1), as the FERC lacks authority over facilities used in local distribution and any unbundled retail service occurring over those facilities). One of the goals of the FERC's proposed SMD was to improve reliability, however, many state regulators assert that the proposal expanded the FERC's jurisdiction over the bundled retail market, which has traditionally been the domain of state regulation. In the National Regulatory Research Institute's (NRRRI) view, “a practical implication of the SMD proposal is that state commissions will need to unbundle transmission and ancillary service costs from retail rate base.” NAT'L REGULATORY RESEARCH INST., FIVE THRESHOLD ISSUES FOR STATE PUBLIC UTILITIES COMMISSIONS POSED BY FERC'S STANDARD MARKET DESIGN NOPR 1, 3 (Aug. 16, 2002), available at <http://www.nrri.ohio-state.edu/programs/markets>.

113. A state might argue that a reliability requirement was impermissible because it applied to a transaction over which FERC lacks jurisdiction. For instance, in *N. States Power Co. v. FERC*, 176 F.3d 1090 (8th Cir. 1999), *cert. denied*, 528 U.S. 1182 (2000), the Eighth Circuit found that the FERC's attempt to regulate the curtailment of electrical transmission was unlawful because it involved regulating an intrastate transaction. This opinion was severely criticized by several commentators. See William Penniman & Paul Turner, *A Jurisdictional Clash Over Electricity Transmission: Northern States Power v. FERC*, 20 ENERGY L.J. 205 (1999). Moreover, in view of the decision in *New York v. FERC*, 531 U.S. 1189 (2001), the force

stronger argument for standards relating to transmission security. However, if the FERC can build a strong case that other types of national-level regulation are needed to avoid widespread blackouts, a court might defer to the agency. The differences between the electric grid of today and that of 1935 should not be minimized. Whereas when the FPA was enacted the implications of grid operations were considered to be primarily a state issue, today's policy choices, to have a rational basis, must respect the broadly interconnected and regional nature of our electricity delivery system. Only a federal entity, such as the FERC, can regulate reliability on a regional basis.

In sum, while there are arguments on both sides of the question, a court is likely to defer to a FERC conclusion that the Agency has authority to approve a range of mandatory reliability standards. The FERC's chances of having a court uphold such standards will be greatest if it assembles a strong factual record that there is a need for mandatory reliability standards to preserve the integrity of the electric transmission system, if it emphasizes measures that protect and enhance the security of the transmission system, and if it matches the standards closely to the harm it identifies.¹¹⁴

With mandatory reliability standards as a foundation, and based upon the assumption that the Commission either has been or will be authorized to adopt such standards, this article next turns to five market structure and design principles.¹¹⁵ Such principles are consistent with achieving vibrant wholesale markets for electricity, and they will enhance reliable market operation. In a market environment, reliability practices and the market structure and design principles are closely interrelated. As the NERC has stated, the "reliability practices affect how markets interface with each other, and market interface practices affect reliability."¹¹⁶

B. Independent Regional Grid Manager

In a market environment, it is essential that decisions with respect to generation dispatch and access to the transmission grid be made without bias. The Commission has concluded that the mere functional unbundling of merchant interests from transmission required by Order No. 888¹¹⁷ is insufficient to ensure unbiased grid operation.¹¹⁸

The cornerstone of wholesale markets where all resources may compete on a level playing field is a grid manager that is independent of merchant

of the *Northern States Power* holding appears to be diminished.

114. As noted above, we believe the FERC's position would be even stronger if it could frame any reliability standards as a response to a section 207 complaint.

115. It is beyond the scope of this article to describe all such structural and design features that may be relevant to reliable grid operations. Moreover, despite the numerous references to Order No. 2000 in the remainder of this article, the focus is limited principally to the reliability aspects of RTO policy and market design which heretofore have not been the principal focus of many industry policymakers and stakeholders.

116. Order No. 2000, *supra* note 4, at 31,167 (referring to the NERC comments).

117. Order No. 888, *supra* note 3.

118. SMD, *supra* note 5, at 38-59 specifies the many different means by which non-independent transmission providers can exercise transmission market power (e.g., delays in honoring service requests, scheduling advantages, imbalance resolution, CBM manipulation, OASIS postings, and calculation of ATC).

interests.¹¹⁹ Whether such an entity is designated as an ISO or RTO, or some other designation, independence is foundational. This is accomplished:

by cleanly separating the control of transmission from power market participants. An RTO would have no financial interests in any power market participant, and no power market participant would be able to control an RTO. This separation will eliminate the economic incentive and ability for the transmission provider to act in a way that favors or disfavors any market participant in the provision of transmission services.¹²⁰

The principle of independence, applied to grid and market operation, has intrinsic reliability value in a market-based environment. A well-structured wholesale market must have a variety of resources—transmission, generation and demand resources—to function well and reliably. Market participants and the Commission have expressed concern that transmission providers who are affiliated with merchant interests have a disincentive to construct the backbone transmission facilities that will make it easier for suppliers to compete to serve the affiliated merchants' customers.¹²¹ A 2002 Department of Energy Reliability Task Force (Reliability Task Force) on transmission issues concluded that investment in necessary transmission resources has not kept pace with the evolving and expanding needs of the electricity market.¹²²

In addition, when market participants perceive that transmission ownership or operation serves to tilt the playing field toward affiliated suppliers, they may choose not to participate in such a biased market. Such mistrust can create uncertainty, added risk for new generation investments, and harm reliability.¹²³ The Reliability Task Force, in its 1998 Final Report, concluded that entities with reliability authority must be independent of commercial interests “so that their reliability actions are—and are seen to be—unbiased and untainted”¹²⁴ In

119. Order No. 2000, *supra* note 4, at 31,047 where the FERC characterizes the comments before it as expressing “almost unanimous acceptance of the principle” of independence.

120. Order No. 2000, *supra* note 4, at 31,024. It is beyond the scope of this article to articulate the meaning of the independence principle in great detail. The subject of independent grid and market operation was discussed at length in Order No. 2000 and the proposed SMD. The question whether mere passive ownership by merchant interests of grid assets is independent enough remains controversial. Recognizing that all resources—transmission, generation, and demand resources—compete in real time, the Commission also has held that the RTO should not own or be affiliated with any such resources. This allows for both the Commission and market participants to have confidence that grid operations are nondiscriminatory. *See, e.g., Ameren Servs. Co.*, 101 F.E.R.C. ¶ 61,320 (2002). Some commenters go a step further and argue that a complete corporate separation, by divestiture, of supply resources from transmission is necessary to eliminate the last vestiges of undue discrimination. *See, e.g.,* Press Release, Federal Trade Commission, FTC Staff Comments on Reforms to Promote Competition in Public Utilities (Aug. 8, 1995), available at <http://www.ftc.gov/opa/1995/08/ferc.htm>.

121. “Much of this problem is directly attributable to the remaining incentives and ability of vertically integrated utilities to exercise transmission market power to protect their own generation market share.” Proposed Pricing Policy for Efficient Operation and Expansion of Transmission Grid, 102 F.E.R.C. ¶ 61,064 (2003).

122. U.S. DEP’T OF ENERGY, NATIONAL GRID STUDY 8 (May 2002), available at www.eh.doe.gov/ntgs/gridstudy/main_print.pdf [hereinafter GRID STUDY].

123. Notice of Proposed Rulemaking, *Reg’l Transmission Orgs.*, F.E.R.C. STATS. & REGS. ¶ 32,541, 33,714, 64 Fed. Reg. ¶ 31,389 (1999) (to be codified at 18 C.F.R. 35). This rationale was also adopted by Order No. 2000. *See* Order No. 2000, *supra* note 4.

124. MAINTAINING RELIABILITY, *supra* note 29, at xv.

1997, the NERC Electric Reliability Panel concluded that the “operator must be independent from market participants.”¹²⁵

In short, in a market environment, grid operators that are not independent of merchant interests may have a transmission investment disincentive that adversely affects reliability. The mistrust that arises from this lack of independence has reliability consequences, because it deters entry by market participants.¹²⁶

Beyond the intrinsic reliability value of independence, there are several characteristics that an independent regional grid manager must have in order to assure both short- and long-term reliability. First, it must have clear authority to maintain short-term reliability. Second, it must have operational authority over the transmission facilities under its control. Third, the grid manager must be the NERC security coordinator for its region. Fourth, it must have clear planning authority for transmission upgrades and expansion. Fifth, it must have, in the Commission’s words, adequate “scope and regional configuration.”¹²⁷ Finally, the independent grid manager must be able to deal effectively with seams issues by integrating reliability and market interface practices with adjacent grid operators. These features of reliable independent grid management are set out in the regulations promulgated in Order No. 2000.¹²⁸ They are critical to the reliable functioning of any grid operator, and will be discussed in turn.

First, a system operator with clear authority to maintain short-term reliability¹²⁹ is essential to reliable operations (indeed, this is true whether the operator is or is not independent of merchant interests). All reliable system operators, both RTOs and non-independent operators, confirm and implement interchange schedules within a control area and with adjacent control areas, exercise authority to redispatch generation when necessary for reliable operations, and control the scheduling of transmission maintenance to ensure compliance with applicable reliability standards. In addition, in Pennsylvania-Jersey-Maryland (PJM) for example, the RTO schedules generation maintenance for capacity resources, and it may withhold approval of a proposed generation outage scheduling or withdraw a prior approval if necessary for reliable operations.¹³⁰ This maintenance scheduling authority is important for reliable operation.

Second, it seems obvious that the independent grid operator must have operational authority over all transmission facilities under its control. This

125. ELEC. RELIABILITY PANEL, N. AM. RELIABILITY COUNCIL, RELIABLE POWER: RENEWING THE NORTH AMERICAN ELECTRIC RELIABILITY OVERSIGHT SYSTEM 17 (Dec. 22, 1997).

126. This is not to suggest that vertically integrated utilities do not operate reliably. Rather, we are convinced that a properly structured independent grid manager operating over an appropriate region may enhance reliability. Such a structure is also ideal for well functioning wholesale markets.

127. Order No. 2000, *supra* note 4, at 30,993.

128. 18 C.F.R. § 35.34(j) (2003).

129. In Order No. 2000, the Commission defined “short-term” as all periods of time from real time up to the planning horizon. “There is no time gap between what is included within short-term reliability and the RTO’s planning responsibilities.” Order No. 2000, *supra* note 4, at 31,103.

130. JEREMIAH D. LAMBERT, CREATING COMPETITIVE POWER MARKETS: THE PJM MODEL 161 (1st ed., Penwell Books 2001).

means, among other responsibilities, scheduling and operating reactive resources, controlling reactive and real power flows, controlling and adequately monitoring voltage levels, and switching transmission lines, transformers, and other transmission elements into and out of operation. The Commission has concluded that these concepts are basic and well understood by reliability experts and the industry.¹³¹

Third, the grid operator must be the NERC Security Coordinator for the region it serves. This role is essential to maintaining reliability of real-time operations and involves a variety of functions, including monitoring real-time operating characteristics such as system frequency and generation adequacy, requiring firm load shedding when necessary, exchanging security information with other entities, and performing load-flow and stability studies.¹³²

Fourth, planning authority for the grid operator is essential to ensure that the necessary facilities are in place for reliable operation over the long term. Furthermore, the operator must coordinate the exercise of such authority with the state agencies that are responsible for the siting of transmission and generation facilities.¹³³ The appropriate manner in which the grid operator should exercise this authority, including integrating market forces into the planning model, is the subject of intense debate within the industry. However, the independent grid operator's planning and transmission expansion processes, in coordination with state siting authorities under existing law, must be able to ensure that the facilities necessary for reliable grid operation are in place. As will be more fully developed herein, locational price signals should be utilized to send the correct price signals to guide investment decisions.

According to the FERC, DOE, and NERC, having independent grid operators of sufficient geographic scope has reliability value,¹³⁴ though a precise and objective definition of adequate scope has not been clearly provided by NERC or policymakers. In Order No. 2000, the Commission concluded that:

Adequate scope is not necessarily determined by geographic distance alone; other factors include the number of buyers and sellers covered by the RTO, the amount of load served, and the number of miles of transmission lines under operational control. The scope must be large enough to achieve the regulatory, reliability,

131. Order No. 2000, *supra* note 4.

132. *Id.* at 31,088.

133. The independent grid operator is responsible for reliable grid operation over a region that will often include a geographic area larger than a single state, but is unable to ensure that the facilities necessary for reliability are constructed without state cooperation. We believe that interstate transmission facilities should be sited by an entity with interstate jurisdiction, such as the FERC, in order to warrant reliable bulk power operations in wholesale markets. Nicholas W. Fels & Frank R. Lindh, *Lessons from the California "Apocalypse": Jurisdiction Over Electric Utilities*, 22 ENERGY L.J. 1, 11-12 (2001). At the very least, Congress should authorize FERC to exercise back-up siting authority over interstate transmission facilities when such facilities are necessary for well functioning and reliable wholesale markets. The pending energy legislation referenced above provides such authorization.

134. The Secretary of Energy in 1998 delegated to the Commission his authority under section 202(a) of the Federal Power Act, stating that the Commission is "increasingly faced with reliability-related issues" and that proper boundaries for transmission entities could help to address "reliability-related issues, thereby increasing the reliability of the transmission system." Notice of Delegation and Assignment, 63 Fed. Reg. 53,889 (Oct. 7, 1998).

operational and competitive objectives of this Rule.¹³⁵

In a 2002 filing before the Commission, the NERC asserted that “RTOs with a regional perspective will do a better job maintaining system reliability than currently exists with multiple individual control areas over large geographic areas.”¹³⁶ Indeed, the Blackout Report found that a contributing cause in many large blackouts is poor communications among adjacent system operators.¹³⁷ This problem could be solved in part by a system operator with firm operational control¹³⁸ over an area for which real-time communication is essential for reliable operations.¹³⁹ In addition, it is particularly important for reliability purposes that a single grid manager have within its scope facilities that encompass a highly integrated and interdependent region.¹⁴⁰ Such a manager can see potential problems, and take corrective action in real time, over a broad area to prevent an impending cascade.

The Blackout Report expressed concern about institutional fragmentation and decentralization of control and cited the operational inconsistencies and inefficiencies that arise from such fragmentation.¹⁴¹ This problem could be solved, and reliability enhanced, with the merger of control functions into a system operator with control over a much broader and more rationally configured region.

Finally, an independent grid manager of sufficient geographic scope must deal effectively with seams issues by integrating reliability and market interface practices with adjacent grid operators.¹⁴² Integrating reliability practices across

135. Order No. 2000, *supra* note 4, at 31,083.

136. Filing by NERC in Alliance Companies, Docket Nos. EL02-65-000 and RT01-88-016 (July 15, 2002).

137. BLACKOUT REPORT, *supra* note 11, at 109. (“A common factor in several of the events described above was that information about outages occurring in one system was not provided to neighboring systems.”).

138. At the time, MISO did not have firm real time operational control over the region it serves. See NERC STEERING GROUP, N. AM. ELEC. RELIABILITY COUNCIL, TECHNICAL ANALYSIS OF THE AUGUST 14, 2003, BLACKOUT: WHAT HAPPENED, WHY, AND WHAT DID WE LEARN? 97 (July 13, 2004), available at <http://www.nerc.com/~filez/blackout.html>.

139. “We understand that there have been instances where transmission system reliability was jeopardized due to the lack of adequate real-time communication between separate transmission operators in times of system emergencies. To the extent possible, RTO boundaries should encompass areas for which real-time communication is critical, and unified operation is preferred.” Order No. 2000, *supra* note 4, at 31,084.

140. “To promote reliability and efficiency, portions of the transmission grid that are highly integrated and interdependent should not be divided into separate RTOs. One RTO operating the integrated facilities can better manage the grid.” Order No. 2000, *supra* note 4, at 31,084.

141. “Some observers believe that some U.S. regions have too many control areas performing one or more of the four critical reliability functions. In many cases, these entities exist to retain commercial advantages associated with some of these functions. The resulting institutional fragmentation and decentralization of control leads to a higher number of operating contacts and seams, complex coordination requirements, misalignment of control areas with other electrical boundaries and/or operating hierarchies, inconsistent practices and tools, and increased compliance monitoring requirements. These consequences hamper the efficiency and reliability of grid operations. . . . Moreover, it is not clear that small control areas are financially able to provide the facilities and services needed to perform control area functions at the level needed to maintain reliability.” BLACKOUT REPORT, *supra* note 11, at 146.

142. “We understand, as NERC has pointed out in its comments, that the reliability and market interface practices are becoming highly interrelated. The reliability practices affect how markets interface with each

the borders among system operators means, among other responsibilities, coordinating such practices and sharing information among regions with respect to ancillary service standards and procedures for addressing parallel path flows.

C. Locational Marginal Pricing

The extensive written materials on the LMP model, with its security-constrained bid-based dispatch, focus largely on the considerable value of such an approach in facilitating a vibrant wholesale market.¹⁴³ Indeed, some believe that it is the only method, in a market setting, that sends the appropriate price signals and measures the true value of transmission on a constrained delivery system, without market distortions.¹⁴⁴ Yet, for several reasons the LMP model has immeasurable reliability value. First, it is a pricing and dispatch system that is completely consistent with system physics. Second, the LMP model signals participants about the consequences of their actions in short-term markets. Finally, it sends accurate price signals to guide market behavior and investments that will enhance reliability in the long term.

Market practices affect reliability, and reliability practices affect the market, both in the short and long term. Both the NERC and the FERC have recognized this inescapable fact.¹⁴⁵ Among other reasons, this is because of the physics and engineering of our bulk power supply and delivery system. Both the markets and reliability are integrally related to generation and loads. There is no separate reliability mechanism, unrelated to generation and loads, that determines reliability needs and takes the necessary actions in real time to maintain reliability. Market design expert Larry E. Ruff has described electric system reliability this way:

[R]eliability on a complex electricity grid is maintained, not by turning up some separate reliability machine, but by managing the energy (and ancillary service) output of the very same generators (and, in some cases, the consumption of some loads) that are the primary participants in the energy market. There is no way to manage reliability without affecting market outcomes.¹⁴⁶

Forward contracts specifying the quantity of power to be delivered at specified locations and at specified times, though highly valuable for a variety of reasons, cannot reliably determine real time dispatch decisions. This is because, on our electric delivery network, everything that happens affects everything else. Unanticipated equipment outages, significant weather changes, power transactions elsewhere on the network, and a host of other events that take place after forward markets close, often require a substantial modification to dispatch

other, and the market interface practices affect reliability.” Order No. 2000, *supra* note 4, at 31,167.

143. See, e.g., SCHWEPPE ET AL., SPOT PRICING OF ELECTRICITY (Thomas A. Lipo ed., Kluwer Academic Publishers 1988); William W. Hogan, *Contract Networks for Electric Power Transmission*, 4 J. REG. ECON. 211 (1992).

144. William W. Hogan, Presentation at the International Energy Agency Workshop on Transmission Network Reliability in Competitive Electricity Markets (Mar. 29–30, 2004), available at www.iaea.org/textbase/work/2004/transmission/Hogan.pdf.

145. Order No. 2000, *supra* note 4.

146. Comments of Larry E. Ruff, Defining and Allocating RTO Function, Docket No. RM01-12-000 (Mar. 12, 2002), available at <http://elibrary.ferc.gov/idmws/nvcommon/NVViewer.asp?Doc=8914226:0>.

decisions if the required matching of supply and demand in real time is to occur and reliability is to be maintained.

For years, utility system operators have used an integrated least cost dispatch model that matches generation and load in real time while managing all of the unpredictable factors described above. The dispatch system simultaneously manages interchanges, congestion, imbalances, and reliability. No one seems to question the workability of such a proven integrated dispatch system. The utility system operator, in a purely cost-of-service world, dispatches the mix of generation units necessary to achieve both reliability and least cost. If the cheapest generation cannot be dispatched because of congestion on the system, the operator will dispatch a higher priced generator behind the constraint. The operator need not worry about reliability decisions that distort a nonexistent market, or market decisions that undercut reliability.

In a market environment, the goal need not be to replace the cost-based dispatch system with one based upon different dispatch logic. Instead, the goal should be to replicate the virtues of reliable least cost dispatch in a model that is compatible with competitive markets. The LMP is such a model.

The traditional transmission access rules for markets without LMP generally are based upon a contract path model.¹⁴⁷ This model relies upon the fiction that power flows follow the physical path that has been contracted, somewhat similar to the natural gas pipeline model. Yet, electricity does not flow in the same manner as natural gas. Power flows according to the laws of physics along the path, or paths, of least resistance, often in all directions at once over the interconnection. Hence the contract path is not relevant to real time dispatch and reliability. A traditional system of access based on the gas market model does not take into account a number of critical factors—power system physics, the unpredictable events on electricity networks that change the predicted power flows, and the decisions the system operator must make in real time to match generation and loads. The contract path fiction also distorts market decisions because contracting parties whose grid usages create congestion do not pay the congestion costs they impose on the market. Transmission providers operating under such a system do not have a market-based methodology for recovering the cost of economic redispatch.

The LMP model cleanly accomplishes the goal of achieving an economic dispatch that is consistent with both reliable operation and fundamental economic principles that favor marginal cost pricing as the best way to eliminate inefficiencies and market distortions. It is an integrated model that achieves a security constrained—meaning reliable—dispatch in real time by substituting the bid prices submitted by competitive generation (and loads) for cost data.¹⁴⁸

147. See generally, Order No. 888, *supra* note 3.

148. Contrast this with the market design in California. See, e.g., William H. Hogan, *What's at stake in deregulating the power market—and how to do it right*, HARV. MAG., Sept.–Oct. 2001, at 34, available at www.harvardmagazine.com/on-line/0901199.html. (“At the heart of California’s system was a commitment to creating a market for electricity traders, no matter what the cost, to be effected through a complicated trading regime. Instead of a single coordinator, there would be two—the California Independent System Operator (CAISO) and a separate Power Exchange (PX)—whose relationship and market separation required an expanding collection of arcane rules. Eventually CAISO and PX were operating so many uncoordinated and

The LMP may change from location to location, and over time. If there is no congestion on the system, there will be only one LMP. When congestion exists, there may be several prices across the delivery system, and the system operator may not be able to dispatch the cheapest generation. The cost of congestion is reflected in the price differential between receipt and delivery points. If the cheaper generation cannot be dispatched because of congestion, the operator will dispatch the higher-priced generator that is behind the constraint—in other words, the operator will dispatch the generator within the constrained region where the load is located. The transparent price difference between the two generators—the cost of redispatch—reflects the true cost of congestion, and is the transmission usage charge. This difference sends a price signal that is the marginal cost of the transmission service necessary for redispatch (economic dispatch).¹⁴⁹

For forward power contracts, the usage charge is computed using the same methodology. Thus, there is no incentive that distorts decision making by market participants. In other words, the methodology is neutral with respect to the choice between a purchase of energy in the spot market compared to a purchase by forward contract.¹⁵⁰

The FERC has recognized that LMP is consistent with reliability. The transparent LMP methodology “relies on an incentive system (i.e., it assigns congestion costs to the transactions that cause the congestion) that encourages market participants to buy and sell power in a manner that is consistent with the reliable operation of the system.”¹⁵¹ Since parties to transactions will be aware of and responsible for the congestion costs they create, “each [will] have an incentive to manage its own transactions in a way that is consistent with a least-cost dispatch consistent with reliable system operations.”¹⁵² In addition, through instantaneous redispatch, the system operator has greater control of the power flows over the whole grid under its control, therefore, it may operate closer to the system limits and still maintain reliability.¹⁵³ For these reasons, the LMP

inconsistent markets for energy and ancillary services that it was amazing the system worked at all.”).

149. No discussion of LMP would be complete without also mentioning financial transmission rights (FTRs). FTRs entitle the holder to a credit equal to the difference in the nodal prices. In other words, they serve as a hedge against congestion charges. See John D. Chandley, *A Standard Market Design for Regional Transmission Organizations* 24 (Sept. 17, 2001) (unpublished report, on file with Harvard Energy Policy Group). “Because financial rights do not control physical operations, retaining their value need not compromise efficient physical outcome nor complicate the physical redispatch required to ensure reliability when the grid is constrained.” *Id.*

150. SMD, *supra* note 5, at 34,325.

151. *Id.* at para. 210.

152. SMD, *supra* note 5, at 34,326.

153. Dr. David Patton, the market monitor for Midwest Independent System Operator (MISO) and New York Independent System Operator (NYISO), made these points clearly, and underscored the reliability value of LMP markets, in oral testimony before the Commission on May 5, 2004. He was commenting on the incidence and impact of TLRs, the system for managing congestion used in non-LMP markets. Commissioner Nora Brownell asked whether competition contributed to the 2003 blackout, and he responded:

[t]he operation of RTO spot markets, particularly LMP markets, significantly reduces the potential for this kind of event, because the market software is instantaneously redispatching generation, so that when you approach a limit, there’s a constant monitoring and a constant redispatch to manage the loads on the key facilities. Whereas, in the TLR process you’re asking operators to make

methodology affirmatively enhances reliability.

D. Resource Adequacy Requirement

1. Generation Adequacy

In the old world dominated by vertically-integrated utilities, it was relatively easy to ensure that there was an adequate supply of generation. Utilities essentially were guaranteed to be paid the costs of their investment plus an appropriate return. Planning for new generation was done on a centralized basis. However, the introduction of energy markets required a new approach to ensuring adequate supply.

The Commission recognized this in the SMD notice of proposed rulemaking (NOPR) and included a resource adequacy requirement as part of the new market structure.¹⁵⁴ The Commission believed, for a number of reasons, that without a mechanism to ensure resource adequacy, sufficient new generation would not be built and reliability would suffer. This article agrees with the Commission's analysis.

First of all, a spot market reflecting short-term marginal energy prices, coupled with inelastic supply and demand, may not send the correct price signals in time to motivate new entry of capacity resources at the time they are needed.¹⁵⁵ As the Commission recognized, economic theory suggests that sufficient generation capacity would develop to meet a market-based reliability standard if energy and ancillary service prices were able to fluctuate freely and if demand were able to see and respond to wholesale prices. However, these conditions for an efficient level of generation are not present in the current markets and probably not in the foreseeable future in newly-formed markets. Prices are constrained (e.g., \$1000/megawatt hour (MWh) bid cap), which means that energy revenue may not be enough to support a reliable level of generation resources. Additional constraints on energy revenue exist in the form of various market mitigation measures, such as "automated mitigation procedures" (AMPs), which limit the ability of resource owners to seek the scarcity rents that are often necessary to support resource adequacy in the long run. Further, because wholesale prices are not passed through directly and instantaneously to the retail level where retail customers can adjust consumption accordingly, the demand side cannot be relied upon to help preserve reliability through a price

forecasts an hour ahead, with significant uncertainty. The transactions you cut are control area-to-control area. You really don't know which generation is going to move, so you don't really know how much relief you're going to get on the constraint that you're worried about. *So, my answer would be that deregulation, and in particular, LMP markets, have a reliability benefit.* The other thing that you could say is that it allows you to more fully utilize your transmission. Because of the uncertainties in the TLR process, you have to operate more conservatively and further away from the limits for LMP, because you have much greater degree control over the flows over all the facilities, and it allows you to operate closer to the limits.

Dr. David Patton, Testimony at the 858th Commission Meeting of the Federal Energy Regulatory Commission (May 5, 2004) (emphasis added).

154. SMD, *supra* note 5, at 34,377.

155. *Id.*

response.

Research confirms that in an energy-only market, high prices are needed from time to time in order to attract the resource investment that is consistent with traditional levels of reliability, e.g., the one day in ten-year loss of load probability (LOLP). Modeling research, such as that performed by Hobbs, Iñón and Stoft,¹⁵⁶ and subsequently by Iñón and Boland,¹⁵⁷ has found that energy price caps must be set significantly above \$10,000/MWh to avoid putting long-term resource adequacy at risk. This assumes that scarcity rents in energy prices are limited to shortage conditions, which is consistent with market mitigation measures like the AMP that have the express purpose of limiting these scarcity rents.

As a political reality, energy prices will not be allowed to reach the levels that are necessary for resource adequacy. Thus, long-term resource adequacy has to be supported by revenue beyond the capital recovery available through energy prices capped at levels in the \$1000/MWh range and otherwise subject to mitigation measures.

A resource adequacy requirement is a sound and politically achievable policy choice that can make up a portion of the generation revenues that are lost due to energy price capping, and can thus help to maintain reliability. Modeling by some experts suggests that under an energy cap of \$1000/MWh, resource adequacy revenues of \$74,000/MW per year would maintain so-called one-in-ten reliability.¹⁵⁸

Second, the likelihood that day-ahead and spot energy prices will be mitigated due to perceptions of either market power and/or scarcity will further diminish the ability of these prices to convey the information necessary to motivate new entry.¹⁵⁹ Third, due to the “free-rider” problem, (i.e., all parties can “lean” on the aggregate reliability of the interconnected electric system), there is an incentive for parties to lower their costs by relying on the resource investments of others and not invest in the necessary resources to assure long-term adequacy.¹⁶⁰

An appropriate solution that would enhance reliability is the establishment of a forward-looking resource adequacy requirement. Others have reached the same conclusion. Paul Joskow and Jean Tirole concluded that price caps can significantly reduce the scarcity rents that are needed to invest in peaking facilities, but that capacity obligations and associated capacity payments can restore investment incentives if all generating capacity is eligible for these payments and all load is required to meet the capacity obligations.¹⁶¹ Still others

156. Benjamin F. Hobbs et al., *Installed Capacity Requirements and Price Caps: Oil on the Water, or Fuel on the Fire?*, 14 ELEC. J. 23 (July 2001).

157. Javier Iñón & John J. Boland, *An Analysis of the Impacts of the Proposed FERC Resource Adequacy Requirement* (Jan. 10, 2002) (unpublished report, on file with Department of Geography and Environmental Engineering, The Johns Hopkins University).

158. *Id.* at 11.

159. SMD, *supra* note 5, at 34,378.

160. *Id.* at 34,379.

161. PAUL JOSKOW & JEAN TIROLE, *RELIABILITY AND COMPETITIVE ELECTRICITY MARKETS I* (Mass. Inst. Tech., Dep't of Econ., Working Paper No. 04-17, 2004).

have recognized that a capacity obligation “provides a means to value the contribution of capacity (in both surplus and shortage conditions), as well as an alternative source of revenues to high energy prices to support capacity investment, with prices rising as the capacity outlook tightens in forward periods.”¹⁶²

While the debate continues on how such requirements are structured,¹⁶³ a resource requirement should include certain features. The resource requirements should be based on long-term planning requirements developed jointly by the independent grid manager and the appropriate state or regional authorities. The requirements must be enforceable. In addition, load serving entities must be allowed to meet the requirement with a variety of resources—bilateral contracts, self-supply, or through some type of forward-looking central clearing auction in which demand can participate. Finally, the resource requirement must be structured to provide for the recovery of fixed costs for existing generators, and send the proper price signals for new investment.¹⁶⁴

In sum, a resource adequacy requirement serves two purposes which are inseparable—ensuring adequate compensation for sellers and ensuring reliability. In view of the fact that energy prices will be subject to some type of mitigation, a resource adequacy requirement is critical to provide the revenues necessary to maintain the reliability of the system.

2. Demand Response

Demand response can be a highly effective reliability tool. The resource adequacy requirement the Commission proposed in the SMD NOPR allowed load-serving entities to meet the requirement through biddable demand or other demand response programs.¹⁶⁵ The FERC has recognized the role of demand response programs in enhancing reliability in organized markets. When the Commission accepted PJM’s 2001 Load Response Program, it noted that “[p]rice-responsive demand is a key part of a well-functioning market that would mitigate price volatility and enhance reliability in the face of supply shortages.”¹⁶⁶

Until recently, the considerable reliability potential of demand response has not always received the proper attention. That has changed, however, in the last few years. For example, the National Association of Regulatory Utility Commissioners (NARUC) listed system reliability as one of the eight benefits of

162. Janet Gale Besser et al., *The Political Economy of Long-Term Generation Adequacy: Why an ICAP Mechanism is Needed as Part of Standard Market Design*, 15 ELEC. J. 53 (Aug./Sept. 2002).

163. See the discussion of PJM’s plan to implement a reliability pricing model that would replace its current installed capacity market auctions. According to Andy Ott, PJM Vice President of Market Services, an approach like this should “promote more pricing transparency while maintaining reliability, provide the incentive to invest in infrastructure and reflect operational reliability requirements in market value.” *PJM, NYISO Pursue Plans to Make Sure Grids Continue to Provide Reliable Service*, INSIDE FERC (Aug. 30, 2004).

164. For the fundamentals of a resource adequacy requirement, see ELEC. POWER SUPPLY ASS’N, A RESOURCE ADEQUACY REQUIREMENT: THE BARE ESSENTIALS (Nov. 2002).

165. SMD, *supra* note 5, at 34,380.

166. *PJM Interconnection, L.L.C.*, 95 F.E.R.C. ¶ 61,306, 62,042 (2001).

demand response programs.¹⁶⁷ Customer demand management, NARUC relates, “can enhance reliability of the electric system by providing system operators another potentially cost-competitive option to address local reliability, transmission congestion, and system reserve shortages.”¹⁶⁸ A more recent study by the General Accounting Office (GAO) found that demand-response programs not only improve markets but also enhance reliability.¹⁶⁹ The Study discussed two types of programs—market-based pricing and reliability-driven programs. Market-based programs allow customers to reduce demand when prices change while reliability-driven programs permit grid operators to request customers reduce their usage when, for example, the temperature increases or there is a system emergency.¹⁷⁰ These two types of programs enhance reliability since market-based pricing tends to reduce demand as prices rise and reliability-based programs allow the operators of the grid another way to manage last minute balancing of supply and demand in order to prevent blackouts.¹⁷¹

The relationship between reliability and demand response is relatively straightforward. As discussed above, two of the dimensions associated with reliability are security and adequacy. Demand response contributes to each of these.¹⁷²

Eric Hirst points out that when price-responsive demand bids are introduced into day-ahead energy markets, there are significant reliability benefits.¹⁷³ To the extent that demand is reduced during high-priced periods, reliability improves since there will be more supplies available to cover contingencies. Demand reduction reduces the stresses and strains on the supply and delivery system. Mr. Hirst also discusses the role of price-responsive demand in installed capacity markets as a substitute for physical capacity.

Mr. Hirst’s paper, though, is critical of what he sees as the bias in some of the NERC’s policies against load reduction in the provision of ancillary services. For example, the NERC’s 2001 Policy 1-Generation Control and Performance, provides that only generating units can provide frequency response when there is a loss of generator or a major transmission line.¹⁷⁴ This highlights the point made earlier: while mandatory reliability standards are a critical component of reliability-based competition, they must be developed by an independent reliability entity in a manner consistent with pro-competitive policies. In that context, we are persuaded that demand response programs can play a key

167. DR. DAVID KATHAN, NAT’L ASS’N OF REGULATORY UTIL. COMM’RS, POLICY AND TECHNICAL ISSUES ASSOCIATED WITH ISO DEMAND RESPONSE PROGRAMS (July 2002).

168. *Id.* at 5.

169. GEN. ACCOUNTING OFFICE, REPORT TO THE CHAIRMAN, COMMITTEE ON GOVERNMENTAL AFFAIRS, U.S. SENATE, ELECTRICITY MARKETS: CONSUMERS COULD BENEFIT FROM DEMAND PROGRAMS, BUT CHALLENGES REMAIN (Aug. 2004) [hereinafter GAO REPORT].

170. *Id.* at 4.

171. GAO REPORT, *supra* note 169, at 28.

172. Security relates to the short-term responses to emergency events, while adequacy takes into account what we think of as “iron in the ground.” See *supra* Section II.A.1.

173. ERIC HIRST, PRICE-RESPONSIVE DEMAND AS RELIABILITY RESOURCES, CONSULTING IN ELECTRIC-INDUSTRY RESTRUCTURING (Apr. 2002).

174. *Id.* at 4.

reliability role.

E. Competitive Wholesale Procurement

In any industry with depreciable assets, such as electric facilities, from time to time there is a need to retire such assets and make a decision whether to build new ones, buy assets from a third party, or simply contract to purchase the output from a third party or from an affiliate. This reshuffling of assets is necessary to meet the needs of customers as well as to ensure reliable operation of the grid.

Moving from a regulated utility model to a competitive paradigm raises the questions of how new resources are procured by utilities for their customers and of what potential harm is caused by discriminatory behavior involving affiliates. While the FERC has had in place long time standards arising from *Boston Edison Co. Re: Edgar Electric Energy Co.*,¹⁷⁵ standards that utilities must meet when procuring power from their affiliates, it is only in the past two years that much attention has been paid to whether the standards are sufficient to eliminate undue discrimination.

Very briefly, *Edgar* states that in order to charge market-based rates for transactions involving affiliates, applicants must show: (1) no potential abuse of self-dealing or reciprocal dealing; and (2) a lack of market power or that it has been adequately mitigated.¹⁷⁶ The Commission recently updated the *Edgar* standards in both section 203 and section 205 proceedings, and now applies them more broadly.¹⁷⁷ The Commission's new emphasis on standards for affiliate procurement is rooted in its belief that preferential procurement of an affiliate's assets has the potential to harm competition in a number of ways. The harm can include raising entry barriers, increasing market power, and impeding market efficiency.¹⁷⁸ In this regard, comments filed by the Federal Trade Commission (FTC) in Docket No. PL04-6-000 and Docket No. PL04-9-000, *Solicitation Processes for Public Utilities Acquisition and Disposition of Merchant Generation Assets by Public Utilities*, outlined the following harm to reliability-functioning competitive markets:

One potential adverse impact is that discrimination in affiliate transactions (procurement of generation assets or power supply contracts from affiliates at inflated prices, or below-market sales to affiliates) may result in the exit of more efficient generation assets and the retention of less efficient generation assets in the event, for example, that demand declines enough to force some exit from the market. In a market where capacity exceeds demand, some assets may exit from the market. Absent discrimination, the least efficient assets are the most likely assets to exit. In the presence of discrimination, less efficient assets owned by the utility or its affiliates are more likely to remain in the market while more efficient independent suppliers are forced to exit.¹⁷⁹

175. *Boston Edison Co. Re: Edgar Elec. Energy Co.*, 55 F.E.R.C. ¶ 61,382 (1991).

176. *Id.* at 62,167.

177. See *Ameren Elec. Generating*, 108 F.E.R.C. ¶ 61,081 (2004); *Allegheny Energy Supply Co.*, 108 F.E.R.C. ¶ 61,082 (2004).

178. *Ameren Elec. Generating*, *supra* note 177, at 61,410.

179. Comments of the Fed. Trade Comm'n, *Solicitation Process for Public Utilities Acquisition and*

The result, as the FERC and the FTC see it, is an overall decline in the efficiency and, arguably, the reliability of the market. The new standards are intended to guide utilities in their procurement processes so that the Commission can both judge whether the transaction is in the public interest and give customers the assurance that utilities have made an unbiased assessment of the market when soliciting new resources.¹⁸⁰

In a fashion similar to a resource adequacy requirement, a competitive procurement process ensures that new supply enters the market at prices that are not distorted and reflect market forces, while at the same time maintaining the reliability of the system.

F. Transmission Investment

We have now examined briefly the market features that address reliability of supply and the role of demand. We now turn to transmission, and how markets can send the right price signals to ensure that appropriate investment is made in transmission and that the existing transmission grid is operated reliably in competitive markets.

The DOE National Transmission Grid Study acknowledged the challenge of ensuring that the nation's transmission network performs reliably in a competitive environment:

The transmission systems of tomorrow must be operated in ways that take full advantage of market forces to ensure reliability in an economically efficient manner, allow customers to adjust their demands in response to system needs and be compensated for these actions, incorporate advanced hardware and software technologies to increase utilization of existing facilities safely, and follow strict rules for reliability with appropriate penalties for non-compliance. The transmission systems of tomorrow must be built by relying on open regional planning processes that consider a wide range of alternatives, accelerating the siting and permitting of needed facilities, taking full advantage of advanced transmission technologies, and incorporating appropriate safeguards to ensure the physical and cyber security of the system.¹⁸¹

The Secretary of Energy's introduction to the study states that the nation's transmission system will not meet the reliability standards required of it in the next decade without immediate attention.¹⁸² The study reaches the conclusion that in order to modernize the transmission grid, for both reliability and competitive reasons, it is critical to complete the transition to regional wholesale markets. "[The] DOE supports the establishment of well-designed RTOs as an effective way to address many of the market and reliability coordination

Disposition of Merchant Generation Assets by Public Utilities 10–11 (July 14, 2004) (Docket Nos. PL04-6-000, PL04-9-000), available at <http://www.ftc.gov/os/comments/ferc/vo40022.pdf>.

180. *Ameren Elec. Generating*, *supra* note 173, at 61,412. See also Alexandre B. Makler & Steven S. Schleimer, *Preserving the Benefits of Competition through Effective Competitive Bidding Rules for Utility Resource Procurement*, 16 *Elec. J.* 27 (July 2003).

181. GRID STUDY, *supra* note 122, at 8.

182. The DOE issued a recent Notice of Inquiry concerning electric transmission bottlenecks. The Notice states that bottlenecks in the transmission system have an adverse impact on electricity transactions and threaten the reliability of the transmission grid. Notice of Inquiry and Opportunity to Comment, Designation of National Interest Electric Transmission Bottlenecks (NIETB), 69 *Fed. Reg.* 43,833 (July 22, 2004).

problems currently facing the nation's transmission systems."¹⁸³

The DOE Study forcefully states that if market forces are allowed to send the proper price signals relating to congestion and losses, market participants will have incentives to improve the operations of the grid.¹⁸⁴ A policy under which market participants see the true costs of congestion and losses will encourage more efficient use of the grid. Recognizing that new transmission investment is also critical, the study recommends a regional planning process that is open and inclusive and with access to electricity system data that will facilitate the development of market-based transmission solutions.¹⁸⁵

Along the same lines, Hirst and Kirby make a number of recommendations that they believe are required for transmission planning in competitive markets.¹⁸⁶ Among the important characteristics of a good transmission plan are an examination of the effects of transmission on compliance with reliability standards, both planning and operating. Another opinion offered by Huntoon and Metzner is that what is needed is a "stable regulatory environment that identifies and delivers reliability-based infrastructure on a timely and rational basis, and that enables efficient responses to market forces."¹⁸⁷

While there are still those who maintain that transmission investment is best dealt within the traditional utility cost-of-service context, others argue that competitive markets provide a better environment for transmission investment. Rotger and Felder recognize in their November 2001 paper that, while market approaches are not perfect, neither is regulation. They suggest that a market-driven competitive solicitation process, together with a regulatory backstop for new reliability-related transmission investment, would bring consumers new sources of electric power while addressing reliability concerns caused by market failures.¹⁸⁸ In addition, the FERC has proposed a generic return on equity incentive equal to 100 basis points for new transmission investment when that investment is part of an RTO planning process.¹⁸⁹

Finally, this article should not overlook the debate on what is the proper model (or whether there is a "proper" model) to facilitate efficient operation of, and investment in, the transmission grid. The DOE issued, as part of its National Transmission Grid Study, a paper outlining a number of transmission business

183. GRID STUDY, *supra* note 122, at 25.

184. GRID STUDY, *supra* note 122, at 39.

185. *Id.* at 52. This recommendation is largely consistent with one prepared by NERC's Transmission Adequacy Issues Task Force of the NERC Planning Committee in its report entitled "Transmission Expansion: Issues and Recommendations" approved by the NERC Board of Trustees in February 2002. See TRANSMISSION ADEQUACY ISSUES TASK FORCE, N. AM. ELEC. RELIABILITY COUNCIL, TRANSMISSION EXPANSION: ISSUES AND RECOMMENDATIONS (Feb. 20, 2002).

186. Eric Hirst & Brendan Kirby, *Expanding Transmission Capacity: A Proposed Planning Process*, 15 ELEC. J. 54 (Oct. 2002).

187. Steve Huntoon & Alexandra Metzner, *The Myth of the Transmission Deficit*, 141 PUB. UTIL. FORT. 30 (Nov. 1, 2003).

188. Jose Rotger & Frank Felder, *Promoting Efficient Transmission Investment: The Role of the Market in Expanding Transmission Infrastructure* (Nov. 2001), <http://www.transenergicus.com/ngEfficientTransmissionInvestment%28Rotger-FelderNov2001%293.pdf>.

189. Proposed Pricing Policy for Efficient Operation and Expansion of Transmission Grid, 102 F.E.R.C. ¶ 61,064 (2003).

models. It examined various business models in the United States and abroad and “the extent to which incentives for operational efficiency and reliability of the grid and for efficient investment in the transmission system are facilitated or hindered by business models that differ in their level of vertical integration of ownership and control, investment financing mechanisms, reward structure and regulation, nature of governance, and degree of financial control.”¹⁹⁰ The pros and cons of a number of models are debated, especially with respect to whether ownership and control of the transmission system should be separate. One of the advantages noted by the authors to separate ownership and control (e.g., PJM) is that the system operator will opt for the most efficient solution for a reliability problem whether it is transmission or generation.¹⁹¹ Merchant transmission, while promising, may not alone produce the needed transmission investment, and the risks associated with compensation may also prove too great.¹⁹²

Investment in new transmission is critical to meeting the reliability needs of the industry. This article has discussed several incentives and features of competitive markets that will pave the way for new transmission. These include the independent grid manager, LMP, the regional planning process, as well as new industry structures like for-profit transmission companies. This article views these features, and others like them, as rising to the challenge identified by DOE of ensuring that the nation’s transmission network performs reliably now and in the future. And like the DOE, the authors of this article believe that transmission investment is most likely to occur the quicker the transition to competitive markets is completed.

III. CONCLUSION

This article recognizes that the nationwide implementation of the six policy elements that form the basis for Reliability-Based Competition presents a difficult political challenge, given the diverse views about competing policy choices and appropriate market structures that exist among policy makers and industry participants. This article is consistent with the Blackout Report’s view that achieving reliability and competition will not happen effortlessly, but will require “sustained, focused efforts by regulators, policy makers, and industry leaders to strengthen and maintain the institutions and rules needed to protect both of these important goals.”¹⁹³ This article urges a sustained display of the clear vision and political will that is necessary to secure the consumer benefits that will arise from achieving both goals.

190. OREN ET AL., DEP’T OF ENERGY, ALTERNATIVE BUSINESS MODELS FOR TRANSMISSION INVESTMENT AND OPERATION C-1, C-2 (May 2002).

191. *Id.* at C-9.

192. For a discussion of the difficulties associated with merchant transmission, see EMPIRE CONNECTION LLC, REPORT AND OBSERVATION ON OPEN SEASON FOR THE EMPIRE CONNECTION PROJECT (Mar. 24, 2004).

193. BLACKOUT REPORT, *supra* note 11, at 140.

