OVER THE RIVER AND (AROUND) THE WOODS TO GRANDMA'S HOUSE WE GO: LONG-TERM FIRM TRANSMISSION RIGHTS, TRANSMISSION MARKET POWER, & GAMING STRATEGIES IN A DEREGULATED ENERGY MARKET—AN INTERNATIONAL COMPARISON

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I. INTRODUCTION

At 4:10 p.m., on August 14, 2003, dozens of patrons at the Cedar Point Amusement Park in Sandusky, Ohio sat suspended in the air within the confined spaces of the Magnum XL200 roller coaster, which had come to a sudden halt three-quarters of the way up the steepest drop.[1] At this time, New York; Cleveland, Ohio; Detroit; and Toronto and Ottawa, Canada; endured a complete electrical blackout that lasted until 1 a.m. the following day for many customers.[2] Authorities attributed the blackout to multiple failures in the electricity grid.[3] In the last forty years, various portions of the United States endured a complete, albeit temporary, loss of electricity due to grid failure.[4] These instances highlight the need for a more secure, reliable, and competitive transmission grid.

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1. *Major Power Outage Hits New York, Other Large Cities*, CNN, Aug. 14, 2003, http://www.cnn.com/2003/US/08/14/power.outage.

2. *See id.* (noting that many customers closer to Niagara Falls in upstate New York did not have any electrical power until at least 8 a.m. the following day).

3. *Id.* (stating that this blackout affected several million people in the Northeast and that, due to the grid failure, twenty-one power plants were forced to shut down). Such a shut down increases costs for the utility, given that more resources are required to restart and ramp up the power plants in addition to the resources required to fix the problem that caused the blackout. *See, e.g.*, Michael Cooper, *Con Ed Told to Cover Its Own Costs After Blackout*, N.Y. TIMES, Apr. 11, 2007, at B5, *available at* http://www.nytimes.com/2007/04/11/nyregion/11coned.html?fta=y (discussing concerns that New York City residents might have to pay millions of dollars to aid in the repair of Con Ed's power network after a nine day blackout).

4. *See id.* (noting that on August 11, 1996, some four million customers in nine western states and parts of Mexico lost all power for up to ten hours). Additionally, in 1977, a New York City blackout left nine million people without power for up to twenty-five hours beginning on July 13. *Id.* Furthermore, "[i]n the Great Northeast Blackout of 1965, the largest in U.S. history, at least 25 million people in New York, New England and portions of Pennsylvania and New Jersey lost electricity for a day starting late in the afternoon of November 9." *Id.* (citing *Last Major Blackout Was 7 Years Ago*, CNN, Aug. 14, 2003, http://www.cnn.com/2003/US/08/14/previous.blackouts.ap/index.html).

Recently, the Federal Energy Regulatory Commission (FERC) promulgated Order No. 681, which extended the duration of long-term firm electrical transmission rights for current holders of such rights to ensure reliable electrical flows without harming competition.[5] Previously, FERC failed to delineate clearly any specifications as to the duration of long-term firm transmission rights, but FERC had a marked preference for longer terms of transmission service.[6] For example, FERC has, on occasion, allowed terms of transmission service up to twenty years in duration.[7] Order No. 681, however, will further exacerbate many of the market power issues experienced in U.S. electricity markets.[8] Because electrical transmission capacity should be an essential facility within the context of antitrust enforcement, FERC's decision to extend the duration of long-term firm transmission rights will serve to limit competition as holders of long-term firm transmission have

5. Federal Energy Regulatory Commission (FERC), Order No. 681, Long-Term Firm Transmission Rights in Organized Electricity Markets, 71 Fed. Reg. 43,564, 43,564 (July 21, 2006) [hereinafter Order No. 681].

6. Joseph T. Kelliher, *Pushing the Envelope: Development of Federal Electric Transmission Access Policy*, 42 AM. U. L. REV. 543, 582 (1993). FERC often allowed Transmission Providers to offer firm transmission for twenty to forty years in length, while non-firm transmission was offered on a much shorter duration. *Id*. at 556 n.54 (citing KEVIN KELLY ET AL., NAT'L REGULATORY RESEARCH INST., SOME ECONOMIC PRINCIPLES FOR PRICING WHEELED POWER 330–31 (1987)); *cf*. Energy Bar Ass'n, *Report of the Antitrust Committee*, 27 ENERGY L. J. 235, 244–45 (2006) (citing Comments of the Fed. Trade Comm'n, Long Term Transmission Rights in Markets Operated by Regional Transmission Organizations and Independent System Operators, F.E.R.C. Docket No. AD05-7-000, at 8 n.21, 12 (2005), *available at* http://www.ftc.gov/os/2005/08/050823 longtermtransrights.pdf) (examining long-term transmission investment). "[T]he FTC argues that the lack of tools to hedge long-term transmission risk may also reduce the demand for long-term supply arrangements, with a shift in preferences towards shorter-term supply contracts. . . . FTC recommends that [] FERC coordinate its policies to promote efficient transmission investment with its policies to reduce long-term transmission risk, since 'transmission investment is often at least a partial substitute for long-term transmission rights from a transmission customer's perspective.'" *Id.*

7. Kelliher, *supra* note 6, at 582.

8. Market power is defined as "[t]he ability of any market trader with a large market share to significantly control or affect price by withholding production from the market, limiting service availability, or reducing purchases." FED. ENERGY REGULATORY COMM'N: GLOSSARY, http://www.ferc.gov/help/glossary.asp (last visited Feb. 9, 2008).

incentives to congest transmission lines and engage in other gaming behaviors to prevent entry into deregulated electricity markets.[9]

9. Most courts have severely limited or refused to recognize the essential facilities doctrine altogether. *See, e.g.*, In re Microsoft Corp. Antitrust Litig., 274 F. Supp. 2d 743, 746 (D. Md. 2003) (holding that the essential facility doctrine was inapplicable to plaintiff's claims because it cannot be "interpreted to deny a person the right to gain temporary benefits from innovations to its own products"); Tri-Tech Mach. Sales, Ltd. v. Artos Engineering Co., 928 F. Supp. 836, 839 (E.D. Wis. 1996) (holding that plaintiff's essential facility claim was not frivolous, because the doctrine is not necessarily inapplicable to a manufacturer's stock of spare parts); The David L. Aldridge Co. v. Microsoft Corp., 995 F. Supp. 728, 751–52 (S.D. Tex. 1998) (holding that plaintiff enhancement software manufacturer did not have a valid essential facility claim against defendant operating system manufacturer, because the operation system in question was not essential, and even if it was, defendant did not deny plaintiff access to it in violation of the Sherman Act). However, some courts have followed the essential facilities doctrine. *See, e.g.*, In re Pac. Gas & Elec. Co., 295 B.R. 635, 662–63 (N.D. Cal. 2003) (holding that while the electric company's transmission system was essential, because it would be neither practical nor feasible for objectors to construct identical transmission lines, objectors failed to establish that the electric company effectively denied them access to its facility). In the bankruptcy proceeding against Pacific Gas and Electric Company (PG&E), the court recognized that, in order to prove that an essential facility is, indeed, essential, "a plaintiff must show more than inconvenience, or even some economic loss; he must show that an alternative to the facility is not feasible." *Id.* at 661 (citing Alaska Airlines, Inc. v. United Airlines, Inc., 948 F.2d 536, 544 (9th Cir. 1991); Twin Laboratories, Inc. v. Weider Health & Fitness, 900 F.2d 566, 570 (2d Cir. 1990)). California is among several states that will not allow a competing electric transmission system to be built in their jurisdiction. *Id.* The court determined that, even if California allowed a competing transmission system to be built, the competing system "would not be a feasible alternative to using PG&E's transmission system." *Id.* at 661. Furthermore, a competing transmission system would be economically and politically impossible, and in order to site the transmission system, a portion of the transmission lines would have to be "'submarined' beneath federally protected wildlife marshlands in the southern part of San Francisco Bay." *Id.* The Ninth Circuit appears to recognize essential facility claims if the plaintiff can prove: "(1) that the defendant was a monopolist in control of an essential facility . . .; (2) that plaintiff, as a competitor, could not reasonably or practically duplicate the facility . . . ; (3) that defendant has refused plaintiff access to the facility; and (4) that it is feasible for defendant to provide such access." *Id.* at 662–63 (citing City of Anaheim v. So. Cal. Edison Co., 955 F.2d 1373, 1380 (9th Cir. 1992); Metronet Serv. Corp. v. U.S. West. Comm., 329 F.3d 986, 1010 (9th Cir. 2003) (reversed on other grounds)); *see also* Fla. Mun. Power Agency v. Fla. Power & Light Co., 81 F. Supp. 2d 1313, 1330 (M.D. Fla. 1999) (providing the elements for establishing liability under the essential facilities doctrine); *cf.* New York v. F.E.R.C., 535 U.S. 1 (2002) (involving a refusal to grant nondiscriminatory access to the transmission grid and the court's reluctance to state an essential facilities argument); Snake River Valley Elec. Ass'n v. PacifiCorp, 357 F.3d 1042 (9th Cir. 2004) (holding that the essential facilities doctrine did not apply, because defendant competitor lacked monopolistic control in the

This Article will provide: (1) a brief history of electricity deregulation and the current structure of the transmission grid; (2) a discussion of the antitrust implications of firm transmission rights and gaming behaviors; (3) examples of how the international community addresses the noncompetitive aspects of transmission capacity; and (4) a cost/benefit analysis of possible remedies, including a complete separation of generation from transmission facilities and a complete nationalization of the transmission market.

II. A HISTORICAL PERSPECTIVE OF ELECTRICAL TRANSMISSION REGULATION

A. The Infancy of Electricity Deregulation

The deregulation of the U.S. electricity market has undergone significant restructuring since the advent of the modern electricity distribution grid.[10] The passage of the Public Utility Regulatory Policies Act of 1978 (PURPA)[11] marked the commencement of deregulation in electricity markets in the United States.[12] Although not initially intended to spur the

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wholesale electricity generating market, and as such, could not be liable for refusing to deal with plaintiff when plaintiff could buy power from other sellers in the market); Intergraph Corp. v. Intel Corp., 195 F.3d 1346, 1357 (Fed. Cir. 1999) (noting, however, that courts will recognize a Sherman Act violation as a result of an essential facilities argument only if there is a "market in which plaintiff and defendant compete, such that a monopolist extends its monopoly to the downstream market by refusing access to the facility it controls," and that the relevant market must be proven). Despite the few instances where a plaintiff has successfully posited an essential facilities argument, most courts acknowledge a refusal to deal claim in lieu of an essential facilities doctrine claim. *See infra* Part IV.

10. For a detailed discussion of the early years of electricity deregulation and the prevalence of the vertically integrated public utility throughout history, see generally Darren Bush & Carrie Mayne, *In (Reluctant) Defense of Enron: Why Bad Regulation is to Blame for California's Power Woes (Or Why Antitrust Law Fails to Protect Against Market Power When the Market Rules Encourage Its Use)*, 83 OR. L. REV. 207 (2004).

11. The Public Utility Regulatory Policies Act of 1978, Pub. L. No. 95–617, 92 Stat. 3117 (1978) (codified in scattered sections of 15 U.S.C., 16 U.S.C., 30 U.S.C., 42 U.S.C., and 43 U.S.C.).

12. Bush & Mayne, *supra* note 10, at 214; Joseph P. Tomain, *The Past and Future of Electricity Regulation*, 32 ENVTL. L. 435, 451 (2002) (discussing how PURPA's effect was to encourage deregulation).

creation of deregulated wholesale electricity markets, the unintended consequence of the regulation was the creation of incentives for state legislators to deregulate wholesale power markets.[13]

The main thrust of PURPA was to create a more diversified U.S. energy market and to promote the usage of efficient alternative energy resources.[14] Among the many requirements of PURPA, investor-owned utilities (previously referred to as utility holding companies) were to purchase energy from non-utility qualifying facilities at "avoided cost"[15] rates that were determined by state regulators and were subject to federal guidelines.[16] In addition, the investor-owned utilities were required to "make such interconnections with any qualifying facility as may be necessary to accomplish purchases or sales."[17] Basically, PURPA required utilities to buy power from qualifying facilities and to connect those qualifying facilities to the electricity grid, thus expanding the highly segmented electricity grid.[18] Traditionally, utilities were geographically isolated and disconnected from other control areas, which forced the utilities to supply their own generation needs.[19] Many problems arose when an intrastate transmission line or a major

13. Bush & Mayne, *supra* note 10, at 214 (citing Darren Bush, Creating Competition in Electricity Generation: Reconciling the Public Utility Regulatory Policies Act of 1978 with the Energy Policy Act of 1992 (1995) (unpublished Ph.D. dissertation, University of Utah) (on file with Professor Bush)).

14. Rohit C. Sharma, *Niagara Mohawk Power Corp. v. FERC*, 23 ENERGY L. J. 157, 158 (2002); *see also* Tomain, *supra* note 12, at 451 ("[PURPA] was aimed at securing reasonably priced energy for the nation through conservation, increasing use of alternative sources, and moving toward market-based rates.").

15. Scott Finlinson, *The Pains of Extinction: Stranded Costs in the Deregulations of the Utah Electric Industry*, 1998 UTAH L. REV. 173, 185 (1998) (citing RICHARD L. FANYO, STATE JURISDICTION AND RETAIL WHEELING, 1996 MINERAL L. SERIES 4-1, at 4–5) ("Avoided costs are 'the utility's cost to construct or purchase a comparable amount of electric generation capacity.'").

16. Joel B. Eisen, *Regulatory Linearity, Commerce Clause Brinksmanship, and Retrenchment in Electric Utility Deregulation*, 40 WAKE FOREST L. REV. 545, 549 n.14 (2005) (citing Public Utilities Regulatory Policies Act of 1978 § 210, 16 U.S.C. § 824a-3 (2005); Conservation of Power and Water Resources, 18 C.F.R. § 292.303–.304 (2004)).

17. Bush & Mayne, *supra* note 10, at 215 (citing 18 C.F.R. § 292.303 (2004)).

18. Steven Ferrey, *Exit Strategy: State Legal Discretion to Environmentally Sculpt the Deregulating Electric Environment*, 26 HARV. ENVTL. L. REV. 109, 129–30 (2002).

19. Bush & Mayne, *supra* note 10, at 216.

generation station within a control area was forced off-line, causing prolonged blackouts that undermined the reliability objectives of Public Utility Holding Company Act of 1932 (PUHCA).[20] Among the major blackouts during this regulatory period of time was the "Great Northeast Blackout of 1965," which affected twenty-five million customers from Buffalo, New York to New Hampshire, and from New York City to Ontario.[21]

To combat the rampant unreliability of the electricity grid, the utilities began to increase interconnectivity and formed the North American Electric Reliability Council (NERC) in 1968.[22] The various utilities around the country joined NERC and organized themselves into ten regional reliability councils under the regulatory control of NERC.[23] The interconnection of the utilities was of great importance to this movement, given that if a utility should endure the loss of a transmission line or the loss of a generator within its control area, the interconnectivity of the utilities would allow the suffering utility to import power

20. *Id*. at 217. Moreover, for an in-depth discussion of the Public Utility Holding Company Act of 1932, see Michael E. Stern & Margaret M. Mlynczak Stern, *A Critical Overview of the Economic & Environmental Consequences of the Deregulation of the U.S. Electric Power Industry*, 4 ENVTL. L. 79, 84–85 (1997); Richard D. Cudahy, *The FERC's Policy on Electric Mergers: A Bit of Perspective*, 18 ENERGY L.J. 113, 133–34 (1997) (discussing many of the problems that arise when a major generation station within an area is forced off line, including, for example, the inoperability of certain machinery "if the power is interrupted for even a fraction of a second").

21. Scott V. Heck, *Lights Out for New Jersey: The August 2003 Blackout and the End of Electricity Regulation in New Jersey*, 29 SETON HALL LEGIS. J. 279, 280–83 (2004).

22. *Id*. at 282–83 (noting that the purpose of NERC is to ensure that the bulk electric system in North America is reliable, adequate, and secure).

23. Mary Katherine Strahan, *Connecting Currents: Toward the Integration of North American Electricity Markets*, 21 HOUS. J. INT'L L. 291, 314 (1999) ("NERC is a nonprofit organization comprised of ten regional councils; membership consists of utilities and nonutilities from all segments of the electricity industry. . . . [A]ll membership and participation is voluntary, and currently the NERC must use peer pressure to persuade members to comply with its rules." (citing *Electricity: Reliability and Competition: Hearings Before the Subcomm. On Energy and Power of the House Comm. On Commerce*, 105th Cong. (1997) (testimony of David R. Nevius, Vice President of North American Electric Reliability Council))); *see also* Steven M. Kramer & Bret A. Summer, *Electric Reliability in North America: Cross-Border Implications*, 14-FALL NAT. RESOURCES & ENV'T 81, 83 (1999) (elaborating further on the structure and enforcement abilities of the NERC).

from another utility within the reliability council.[24] NERC guidelines required that participating utilities maintained surplus capacity to ensure reliability should another utility lose a transmission line or generator.[25] The surplus capacity requirement and the interconnectivity of the utilities created the foundation for the trading of wholesale electricity. [26]

The passage of the Energy Policy Act of 1992 (EPAct)[27] was the culmination of Congress' effort to facilitate competition in wholesale energy markets to drive down prices, increase innovation, and force the utilities to sell electricity at marginal cost.[28] EPAct introduced two major changes to the structure of wholesale energy markets that Congress envisioned would spur competition.[29] EPAct created a new class of generators called exempt wholesale generators (EWGs) and required wholesale wheeling of electricity across the grid.[30] The relaxation of the entry barriers erected by PUHCA for generation by EPAct

24. Bush & Mayne, *supra* note 10, at 218 (citing Joe D. Pace & John H. Landon, *Introducing Competition into the Electric Utility Industry: An Economic Appraisal*, 3 ENERGY L. J. 1, 8 (1982)).

25. *Id.*

26. *Id.*

27. Energy Policy Act of 1992, Pub. L. No. 102–486, 106 Stat. 2776 (1992) [hereinafter EPAct 1992] (codified in scattered sections of 15 U.S.C., 16 U.S.C., 25 U.S.C., 26 U.S.C., 30 U.S.C., and 42 U.S.C.).

28. Bush & Mayne, *supra* note 10, at 218; *see also* PETER C. CHRISTENSEN, RETAIL WHEELING: A GUIDE FOR END-USERS 27–30 (3d. ed. 1998) (noting that FERC began to allow market-based rate authority for utilities requesting the right to sell excess generation at market prices since they could make more money on the open market than in the cost-based pricing environment). FERC allowed market-based rate authority premised on the utility's promise to grant transmission access to other wholesale buyers and sellers since the utility maintained monopoly control over the transmission grid. *Id.* These actions served as the impetus for FERC's open access Order Nos. 888 and 889.

29. CHRISTENSEN, *supra* note 28, at 31–33.

30. *Id.* at 31; *see also* David S. Copeland, *Requiring Transmission Access By Electric Utilities: The Shifting Roles of Regulation and Antitrust*, 64 ANTITRUST L. J. 291, 293 (1996) (citing 16 U.S.C. §§ 824j(a), 824l(a) (2005)) (noting that "FPA Section 211(a), as amended by the EPAct [1992], vests FERC with broad authority to order wheeling, provided that such a party has first made 'a good faith request' for transmission service, as defined by FPA Section 213(a)"); Mark E. Haedicke, *Competitive-Based Contracts for the New Power Business*, 17 ENERGY L. J. 103, 106 (1996) ("Like a QF [qualifying facility proposed under PURPA], an EWG is exempt from PUHCA. Unlike a QF, however, an EWG does not need to satisfy the technical criteria for QF status, and there is no limit on a utility's ability to invest in EWGs.").

allowed for increased generation by the EWGs without the onerous costs imposed by PUHCA regulation.[31] In addition, the wholesale wheeling provision of EPAct opened the electricity grid to all market participants by requiring transmission facility owners to accept requests for wholesale wheeling that were reasonable.[32] Independent power producers were now allowed to enter the electricity market and, thus, increase the supply of power to all markets.[33] The increased supply of power would serve to lower prices given that generators were not taken offline in an attempt to manipulate the market. The opening of the grid to independent power producers also served to increase the ability of generators to sell their wholesale electricity to utilities that were not directly interconnected.[34] Therefore, generators that could produce power at or close to marginal cost were rewarded, while those that produced electricity in excess of marginal cost were penalized in that there was limited or no demand for their high priced power.[35] The combined impact of the two provisions of EPAct proved to create a more robust wholesale electricity market while opening up the electricity grid to competition through the deconstruction of entry barriers created by previous regulatory efforts.[36]

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31. Stephen L. Teichler & Ilia Levitine, *Long-Term Power Purchase Agreements in a Restructured Electricity Industry*, 40 WAKE FOREST L. REV. 677, 690–91 (2005).

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> Under Section 211 of EPAct, any wholesale generator or buyer can petition FERC to mandate wheeling over any "transmission utility's" facilities. The applicant must first request wheeling service from the transmission utility, and the utility has 60 days to respond in writing with (1) any limitations to the requested service due to transmission constraints and (2) the basis for the proposed wheeling rates. If the utility refuses a 'good faith' request to wheel the power at a reasonable rate, the applicant can request a FERC order to mandate wheeling.

CHRISTENSEN, *supra* note 28, at 29.

33. *See* Linda G. Stuntz, *The Energy Policy Act of 1992: Changing the Electricity Industry*, 10 NAT. RESOURCES & ENV'T 69, 69 (1995).

34. Haedicke, *supra* note 30, at 105–08.

35. CHRISTENSEN, *supra* note 28, at 32–33.

36. *See* Teichler & Levitine, *supra* note 31, at 690–91 (discussing the effects of EPAct 1992 that removed "regulatory hurdles" and made the electric-power industry a fully competitive market system).

In an effort to further encourage competition in wholesale electricity markets, FERC promulgated Order No. 888 on April 24, 1996.[37] Order No. 888 marked the beginning of FERC's open access policy.[38] "Order No. 888 required vertically integrated utilities to provide transmission service on an unbundled basis pursuant to a *Pro Forma* Open Access Transmission Tariff (OATT)."[39] This action by FERC sought to rid the electricity market of "'undue discrimination in transmission services in interstate commerce and provid[e] an orderly and fair transition to competitive bulk power markets.'"[40] The main purpose of Order No. 888 was to allow competitors to compete vigorously with the powerful vertically-integrated utilities through open access to the transmission grid.[41] Utilities were required to file separate tariffs with separate rates, terms, and conditions for each segment of the supply chain, including wholesale generation service, transmission service, and any ancillary services.[42] FERC estimated that open access transmission would

37. FERC Order No. 888, Promoting Wholesale Competition Through Open Access Nondiscriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, 61 Fed. Reg. 21,540 (1996) (codified at 18 C.F.R. pts. 35, 385), *order on reh'g*, Order No. 888-A, F.E.R.C. Stats & Regs. P 31,048 (1997), *order on reh'g*, Order No. 888-B, 81 F.E.R.C. P 61,248, 82 Fed. Reg. 64,688 (1997), *order on reh'g*, Order No. 888-C, 82 F.E.R.C. P 61,046 (1998), *aff'd in relevant part sub nom.*, Transmission Access Policy Study Group v. F.E.R.C., 225 F.3d 667 (D.C. Cir. 2000), *aff'd sub nom.*, New York v. F.E.R.C., 535 U.S. 1, 1–3 (2002) [hereinafter Order No. 888].

38. CHRISTENSEN, *supra* note 28, at 34–38.

39. John S. Moot, *Whither Order No. 888?*, 26 ENERGY L.J. 327, 327 (2005).

40. Bush & Mayne, *supra* note 10, at 220.

41. *See* Cassandra Burke Robertson, *Bringing the Camel into the Tent: State and Federal Power Over Electricity Transmission*, 49 CLEV. ST. L. REV. 71, 75–76 (2001) (noting that "[t]he goal of Order 888 was to encourage wholesale competition by preventing transmission-owning entrenched utilities from charging higher prices for new generators to wheel power over their lines").

42. Order No. 888, *supra* note 37 at 21,540 ("requiring all public utilities that own, control, or operate facilities used for transmitting electric energy . . . to have on file open access non-discriminatory transmission tariffs that contain the minimum terms and conditions of non-discriminatory service"); *see also* Robertson, *supra* note 41, at 76 (outlining the requirements Order No. 888 imposed on utilities).

save U.S. electric consumers $3.8 to $5.4 billion a year and would encourage more technological innovation in the industry.[43]

Order No. 888 also suggested the creation of Independent System Operators (ISOs) to monitor and coordinate open access to the grid.[44] The creation of the ISO was an attempt to reduce the ability of the utilities to benefit their own generation via discriminatory access to the utility's transmission system.[45] By

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43. Tomain, *supra* note 12, at 455.

44. Order No. 888, *supra* note 37, at 21,596. In order to create an ISO, the independent entity must secure FERC approval in accordance with Order No. 888 criteria. *See* Clinton A. Vince, et al., *What is Happening and Where in the World of RTOs and ISOs?*, 27 ENERGY L.J. 65, 68–70 (2006) (explaining that Order No. 888 authorizes FERC to determine whether a proposed ISO meets standards and requirements). The requirements for ISO creation resemble those of the RTO. ISOs must: (1) structure their governance in a fair and nondiscriminatory manner, (2) the ISO and its employees should have no financial interest in the economic performance of any power market participant, (3) an ISO should provide open access to the transmission system and all services under its control at a non-pancaked rate pursuant to a single tariff that applies to all eligible users in a nondiscriminatory manner, (4) an ISO should retain primary responsibility for ensuring the short-term reliability of grid operations, (5) the ISO must have control over the operation of all interconnected transmission facilities within its region, (6) the ISO should identify constraints on the system and be able to relieve those constraints via operational actions within the trading rules promulgated by the governing body, (7) the ISO should have appropriate incentives for efficient grid management and administration and should procure necessary services to maintain the integrity of an open competitive market, (8) the ISO's transmission and ancillary services pricing policies must promote efficient usage of and investment in generation, transmission, and consumption, (9) the ISO must make transmission information publicly available via an electronic information network [now known as the OASIS (author's note)], (10) the ISO should develop coordination mechanisms with surrounding control areas, and (11) the ISO must establish an alternative dispute resolution process to resolve disputes in the first instance. *Id.* at 68–69 (citing INDEPENDENT SYSTEM OPERATORS, 4 ENERGY LAW AND TRANSACTIONS (MB) 89-1, 13–16 (2002)); *see also* CHRISTENSEN, *supra* note 28, at 87 (listing the eleven principles for ISOs as required by FERC's Order No. 888).

45. Samuel R. Brumberg, *Getting the Camel Out of the Tent: Behind the Federal Energy Regulatory Commission's Rise to Power and the Importance of States' Continued Regulatory Oversight*, 30 WM. & MARY ENVTL. L. & POL'Y REV. 691, 692 n.2 (2006).

> "[T]he ISO is the FERC regulated control area operator of the ISO transmission grid. Its responsibilities include providing non-discriminatory access to the grid, managing congestion, maintaining the reliability and security of the grid, and providing billing and trading settlement services. The ISO has no affiliation with any market participant." . . . The ISOs are not to be confused with, but often operate hand-in-hand with, the RTOs . . . .

placing the control of the transmission grid in the hands of the ISO, the ability of the utility to exercise vertical market power was minimized, theoretically.[46] As a direct result of this design, FERC essentially expected lower retail prices, increased reliability of service, and nondiscriminatory electric service from the public utilities.[47]

The powerful utilities lobbied hard against the promulgation of Order No. 888 and the requirement to open the utility-owned transmission lines to competitors.[48] After all, the utilities owned the lines, and Order No. 888 functionally unbundled the transmission lines from the utility, whereby the utility was forced to transact with competitors and provide access to the transmission lines on a nondiscriminatory basis.[49] In the spirit of compromise and to ensure reliability, FERC provided the utilities with a fair opportunity to recover prudently incurred regulatory costs and any costs associated with making the transition to a competitive wholesale market.[50]

Id. (quoting CalISO, Glossary of Terms—The California ISO, *available at* www.lmc.or.kr/PCMMG03PRM.do?seq=15&title=Glossary%20of%20Terms.doc (last visited Feb. 9, 2008)).

46. Bush & Mayne, *supra* note 10, at 221 (citing Order No. 888, *supra* note 37, at 21,596).

47. Vince et al., *supra* note 44, at 220 (elaborating on some of the goals that FERC hoped to accomplish through the passing of Order No. 888).

48. WILLIAM W. HOGAN, RUTGERS UNIV. CTR. FOR RESEARCH IN REGULATED INDUS., ELECTRICITY MARKET RESTRUCTURING: REFORMS OF REFORMS 5 (2001), http://ksghome.harvard.edu/~whogan/rut052501.pdf. Hogan notes that the retail wheeling requirement of Order No. 888 was met with great opposition from most electric utilities who coined the phrase "'just-say-no' to retail wheeling," in an obvious allusion to the advertising campaign against the usage of illegal drugs. *Id.* at 5 n.13.

49. "Functional unbundling [of the transmission service] means that [transmission] activities are treated separately within the corporation [utility] without necessarily being put into separate corporate entities." Tomain, *supra* note 12, at 455. Therefore, the utilities owned the tangible transmission lines, yet with functional unbundling, the utility did not control the usage of the transmission lines. *Id.*

50. J. Gregory Sidak & Daniel F. Spulber, *Givings, Takings, and the Fallacy of Forward-Looking Costs*, 72 N.Y.U. L. REV. 1068, 1126 (1997) (Order No. 888, *supra* note 37, at 21,630).

Order No. 889 further clarified the requirements of Order No. 888 and established an electronic information system to ensure competitive wholesale markets.[51] The electronic system, called OASIS (open access same-time information system) provided existing and potential transmission users the same access to transmission information as that enjoyed by the transmission owner.[52] Order No. 889 also required utilities to comply with standards of conduct that precluded anticompetitive behavior by transmission owners, whereby affiliated generators or power marketers would be favored with transmission services.[53] Order Nos. 888 and 889 had a dramatic impact on creating competitive wholesale electricity markets through open access to the transmission grid on a nondiscriminatory basis and the encouragement of ISO formation. The Orders, however, failed to address issues surrounding retail wheeling and the appropriate form for a transmission facility.[54]

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51. FERC Order No. 889, Open Access Same-Time Information System and Standards of Conduct, 61 Fed. Reg. 21,737, 21,737 (May 10, 1996) (codified in 18 C.F.R. § 37.1–37.8) (1996) [hereinafter Order No. 889].

52. CHRISTENSEN, *supra* note 28, at 37. Transmission users, via OASIS, are required to identify the entire physical "path" [flow] of the transaction accurately. The "path" must include a source (the origin of the electricity generation), a sink (the location where the electricity ultimately flows), and any wheels (transmission lines) used to move the electricity from the source to the sink. 18 C.F.R. § 37.6(c)(4) (2008). The OASIS record serves to improve market transparency in that transmission users are provided information regarding the buyer and seller of the electricity, the physical "path" of the electrical flow, and information about the financial transmission rights for each wheel of the transaction. *See* Press Release, FERC, Commission Adopts Order No. 890 (Feb. 15, 2007), http://www.ferc.gov/news/news-releases/2007/2007-1/02-15-07-E-1.asp (outlining the increased "transparency" requirements mandated by Order No. 890). Financial transmission rights, as explained later, include firm and non-firm products.

53. Order No. 889, *supra* note 51, at 21,737. Order No. 2004 supersedes Order No. 889 on issues concerning FERC's Standards of Conduct. Moot, *supra* note 39, at 330 n.11.

54. Tomain, *supra* note 12, at 456. "The difficult question was how to structure the relationship between the transmission and generation portions of a utility's business. Clearly, FERC envisioned some sort of regional transmission organization, but the exact form it should take was and is unsettled. Nevertheless, FERC addressed this issue with Order No. 2000." *Id.*

In 1999, FERC promulgated Order No. 2000 to rectify engineering and economic inefficiencies and to counteract continued opportunities for discrimination.[55] FERC determined that electricity markets were insufficiently competitive and found the following: (1) the reliability of the bulk power system was stressed; (2) there were increasing difficulties in computing transmission capacity; (3) regional coordination was needed for congestion management; (4) there was increased uncertainty with transmission planning and expansion; and (5) pancaked rates in transmission pricing inhibited market development.[56]

Order No. 2000 changed the cumbersome terminology for the ISO to a regional transmission organization (RTO).[57] FERC's institution of a new regime involving RTOs sought to promote competition in wholesale markets by eliminating the

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55. Order No. 2000, Regional Transmission Organizations, [Regs. Preambles 1996-2000], 65 Fed. Reg. 810, 810–11 (2000) (codified at 18 C.F.R. pt. 35), *order on reh'g*, Order No. 2000-A, 65 Fed. Reg. 12,088 (2000), *aff'd sub nom.*, Pub. Util. Dist. No. 1 v. F.E.R.C., 272 F.3d 607 (D.C. Cir. 2001) [hereinafter Order No. 2000].

56. Tomain, *supra* note 12, at 456–57.

57. Regional transmission organizations (RTOs) are entities that are independent of the owners of generation facilities and manage the transmission systems either as owners or as operators. *Id.* at 456. To establish an RTO, FERC requires that the following eight provisions be met: (1) a RTO must control its own transmission tariff, establish its own pricing system, and be the sole provider of transmission within the region, (2) the RTO must create and implement transmission congestion mechanisms, (3) the RTO must address parallel path flow and coordinate path flow with adjacent regions, (4) the RTO must be the "provider of last resort" for ancillary services for market participants within the region, (5) RTOs must be the sole OASIS administrator and the sole calculator of available transmission capacity and total transmission capacity, (6) the RTO must monitor the energy market within its control and identify market power abuses, market design flaws, and improvements, (7) the RTO must plan and arrange for transmission expansions or upgrades, and (8) coordination with other regions through interconnects must be maintained by the RTO to ensure reliable flows of power across tie lines in other regions. Elec. Util. Regulation Comm., Energy Bar Ass'n, *Report of the Committee on Electric Utility Regulation*, 22 ENERGY L.J. 425, 429–30 (2001). FERC issued a staff report that estimates that to create an RTO, an initial outlay of $50 million to $70 million is required, which constitutes about twenty cents per month for the average residential customers to break even. Press Release, F.E.R.C., Staff Report Assesses the Costs of RTOs; A 'Lessons Learned' Approach is Recommended (Oct. 6, 2004), http://www.ferc.gov/news/news-releases/2004/2004-4/10-06-04.asp. In assessing the reasons for the high start-up costs, FERC determined that incomplete market design, changing plans at mid-course, poor project management, and extensive delays were the main cost drivers for RTO creation. *Id.*

discriminatory behavior engaged in by transmission line owners, despite the prohibition of such behavior by Order Nos. 888 and 889.[58] With regard to discriminatory behavior, FERC was highly concerned about self-dealing and the appearance of self-dealing.[59] Prior to Order No. 2000, transmission owners had no obligation to serve all customers outside of their control area.[60] A lack of transmission grid access was the main impediment to creating an open and competitive electricity market.[61] The impetus for limited access to the grid is that most of the transmission lines are privately-owned by the utilities, and the utilities have a fiduciary duty to their shareholders to maximize the value of the enterprise.[62] Therefore, utilities have an enormous incentive to increase prices to the maximum point that the market can bear, and there is very little incentive for the utilities to relinquish ownership or control of the transmission lines or any other segment of the operation.[63]

58. Michael Coyn Mateer, *When the Lights Go Out: The Impact of House Bill 6 on Regional Transmission Organizations and the Reliability of the Power Grid*, 12 GEO. MASON L. REV. 775, 795 (2004).

59. Tomain, *supra* note 12, at 457. "Overt self-dealing occurs when a utility owning transmission and generation charges itself a transmission charge lower than that charged to other customers, giving it a competitive edge." *Id.* Even the appearance of self-dealing is problematic in that it increases the transaction costs of doing business, because the market is deemed to be unreliable and not transparent, which serves to undermine the efficiency gains obtained from competition. *Id.*

60. *Id.*

61. *See* Peter Navarro, *A Guidebook and Research Agenda for Restructuring the Electricity Industry*, 16 ENERGY L.J. 347, 379–80 (1995) (highlighting the fact that the single greatest impediment to competition is market power through control of transmission); Griffen A. H. Bishop, *Post Blackout: FERC's Pricing Incentives Must Be Tailored to Improve Grid Reliability and Efficiency*, 56 ADMIN. L. REV. 881, 887 n.29 (2004) (citing FERC Orders discussing the use of RTOs to provide reliable nondiscriminatory power when evidence showed that the traditional management of the transmission grid by electric utilities was inadequate to support an efficient market and discrimination by the integrated utilities was hindering full competition).

62. Joseph P. Tomain, *The Persistence of Natural Monopoly*, 16 NAT. RES. & ENV'T 242, 245 (2002).

63. *Id.*

Although Order No. 2000 created RTOs to coordinate operations, planning, and transmission, FERC did not mandate RTO membership.[64] FERC simply allowed utilities to join RTOs on a voluntary basis.[65] The fact that membership was voluntary led to the creation of a hodgepodge of power markets throughout the United States.[66] Power markets developed in California, PJM (Pennsylvania, New Jersey, and Maryland), New York, and NEPOOL (the New England states), while less organized power markets formed in the Midwest, the South, and in Texas.[67]

In creating an RTO, FERC established two fundamental approaches: the nonprofit ISO, and the for-profit independent transmission company (Transco).[68] Both forms would have independent boards, but the ISO would be committed to nondiscriminatory service while the Transco would be driven by profit.[69] Despite the attempt by FERC to functionally separate transmission services into nonprofit and for-profit segments, the shareholder maximization problem still exists, because the

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64. Tomain, *supra* note 12, at 462. Because the majority of the requirements in Order No. 2000 are voluntary, it lacks deterrent effect. Numerous issues involving federalism and negotiations between regulators and industry over the most appropriate form for the transmission company (Transco) underscore the timid response from FERC regarding RTO membership and actual mitigation of discriminatory behavior in transmission services. *Id*. at 461–62; Bishop, *supra* note 61, at 888 (discussing that while RTO formation is voluntary, FERC strongly encourages it).

65. Bishop, *supra* note 61, at 888.

66. In fact, FERC believed that the voluntary coordination of the utilities into ISOs was no longer effective because:

> the volunteer groups are not vested with the broad decision-making authority needed to address larger issues that affect an entire region including managing congestion, planning and investing in new transmission facilities, pancaking transmission access charges, the absence of secondary markets in transmission services, and the possible disincentives created by the level and structure of transmission rates.

Tomain, *supra* note 12, at 457.

67. Bush & Mayne, *supra* note 10, at 222.

68. For an in-depth treatment of the differences between the ISO and Transco, see Richard P. Bonnifield & Ronald L. Drewnowski, *Transmission at a Crossroads*, 21 ENERGY L.J. 447, 457 n.38 (2000).

69. *See generally* Charles H. Koch, Jr., *Control and Governance of Transmission Organizations in the Restructured Electricity Industry*, 27 FLA. ST. U.L. REV. 569, 591–98 (2000) (describing the differences between Transco structures and ISOs).

utility still owns and operates the transmission assets.[70] In addition, the incentives for the ISO and Transco organizations are misaligned; in fact, the incentives are negatively correlated.[71] Therefore, the privately-owned utility has a greater incentive to act on behalf of the Transco unit to increase shareholder value at the expense of the nonprofit ISO unit, which serves to maximize the competitive benefits of open access to the transmission grid.[72]

B. The Deregulatory Era: 2000 to Present

The new deregulatory era involving transmission services commenced with the enactment of Order No. 2004, which encompassed regulations regarding Standards of Conduct for Transmission Providers.[73] The major thrust of the newly-enacted Standards of Conduct for Transmission Providers was the elimination of a loophole that failed to cover a Transmission Provider's relationship with Energy Affiliates that are not marketers or merchant affiliates.[74] FERC's Order No. 2004 sought to ensure that Transmission Providers could not "extend their market power over transmission to wholesale energy markets by giving their Energy Affiliates unduly preferential

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70. *Id.* at 602–03; *see also* Tomain, *supra* note 12, at 458–63 (discussing Order No. 2000 and the potential conflict of interest in both nonprofit and for-profit organizations).

71. *See* Tomain, *supra* note 12, at 458–63 (discussing the incentives for ISOs and Transcos). It is also noteworthy that regardless of form, Transcos and ISOs must achieve the following five goals in accordance with Order No. 2000: Every RTO must (1) have sufficient capacity, (2) provide reliable service, (3) manage congestion, (4) not discriminate, and (5) offer reasonable prices. *Id.* at 460.

72. Koch, *supra* note 69, at 591–92.

73. FERC Order No. 2004, Standards of Conduct for Transmission Providers, 68 Fed. Reg. 69,134, 69,135, Docket No. RM01-10-000 (December 11, 2003) (codified at 18 C.F.R. Part 37, 161, 250, 284, 358), *order on reh'g*, Order No. 2004-A, Standards of Conduct for Transmission Providers, 69 Fed. Reg. 23,562, Docket No. RM01-10-001 (2004) (codified at 18 C.F.R. Part 358), *order on reh'g*, Order No. 2004-B, Standards of Conduct for Transmission Providers, 69 Fed. Reg. 48,371, Docket No. RM01-10-002 (2004) (codified at 18 C.F.R. Part 358), *order on reh'g*, Order No. 2004-C, Standards of Conduct for Transmission Providers, 70 Fed. Reg. 284, Docket No. RM01-10-003 (2004) (codified at 18 C.F.R. Part 358) [hereinafter Order No. 2004].

74. *Id.*

treatment."[75]

The Energy Policy Act of 2005 (EPAct 2005), enacted August 8, 2005, serves as the cornerstone for deregulated electricity markets to ensure competition and open access.[76] Section 1233(b) of the EPAct 2005, for example, requires that FERC implement a new section to the previously enacted Section 217(b)(4) of the Federal Power Act (FPA) for transmission organizations with organized electricity markets.[77] EPAct 2005 set a target date of August 8, 2006, as the deadline for the implementation of the new section to the FPA.[78] With regard to the new section of the FPA, EPAct 2005 essentially provides teeth to Order No. 2000. The intent of Congress to strongly encourage membership in RTOs for Transmission Providers is an attempt to increase market transparency, ensure reliability, alleviate discriminatory practices engaged in by Transmission Providers, and mitigate market power exercised by vertically integrated utilities that remain.[79] EPAct 2005, however, also fails to mandate membership in an RTO.[80] Membership in the RTO affords participating members the opportunity to improve their ability to respond to regional preferences, and the RTO acts as a self-policing unit to ensure that RTO markets are competitive, assuming an absence of collusion.[81] Section 1233 of EPAct 2005 also directs FERC:

> [to facilitate] the planning and expansion of

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75. *Id.*

76. Energy Policy Act of 2005, Pub. L. No. 109–58, 119 Stat. 594 (2005) [hereinafter EPAct 2005].

77. *Id.* § 1233(b).

78. *Id.*

79. 42 U.S.C. §§ 16481, 15926, 717t-2 (2005) (amending Section 3 of the Federal Power Act, 16 U.S.C. § 796 (2005)).

80. Vince, et al., *supra* note 44, at 128–29 (citing Atl. City Elec. Co. v. F.E.R.C., 295 F.3d 1 (D.C. Cir. 2002); EPAct 2005, *supra* note 76, § 1241(c) (noting that the U.S. Court of Appeals for the District of Columbia Circuit ruled that FERC cannot require blanket RTO membership for utilities, but Congress specified that FERC must provide incentives to entities that join Transmission Organizations). EPAct 2005 does not differentiate between for-profit and nonprofit transmission organizations. Vince, et al., *supra* note 44, at 129. Congress was most concerned about utilities joining some transmission organization and that organization being in compliance with Order No. 2000, especially the independence requirement. *Id.* (citing 18 C.F.R. § 35.34(b)).

81. Koch, *supra* note 69, at 585.

> transmission facilities to meet the reasonable needs of the load-serving entities to satisfy the service obligations of the load-serving entities, and enable[] [them] to secure firm transmission rights (or equivalent financial rights) on a long-term basis . . . .[82]

EPAct 2005 also addressed the undue discrimination issues through prohibiting the utility companies from granting unfair access to the transmission grid via their Energy Affiliate.[83] EPAct 2005 reiterated the objectives of Order No. 2004, which required utilities to deal with their Energy Affiliate at "arm's length" in granting access to the transmission grid.[84] Essentially, the main objective of EPAct 2005 was to increase competitiveness in wholesale electricity markets through remedying discriminatory practices in transmission grid access

82. EPAct 2005, *supra* note 76, § 1233(b)(4).

83. *See generally id.* EPAct 2005 granted FERC, for the first time, authority to oversee reliability standards for the nation's electricity grid. *Id.* § 1211 (amending Section 215 of the Federal Power Act). Subsequently, the Commission created an Electric Reliability Organization (ERO) whose charge is to enforce mandatory electric reliability standards, which was immediately bestowed upon NERC. FED. ENERGY REGULATORY COMM'N, FERC & EPACT 2005: MEETING MILESTONES 5 (2005), http://www.ferc.gov /legal/fed-sta/ferc-and-epact-2005.pdf; *see also* Press Release, Fed. Energy Regulatory Comm'n, NERC certified as Electric Reliability Organization; Western Region Reliability Advisory Body Accepted (July 20, 2006), http://www.ferc.gov/news/news-releases/2006/ 2006-3/07-20-06-E-5.asp (describing how the new standards will apply to everyone). Additionally, EPAct 2005 noted the need to reduce risk exposure to transmission customers and the need to develop the grid. EPAct 2005, *supra* note 76, § 368(d) (noting the "need for upgraded and new electricity transmission and distribution facilities to— (1) improve reliability; (2) relieve congestion; and (3) enhance the capability of the national grid to deliver electricity"). In response, FERC issued Order No. 681 requiring transmission organizations to provide long-term firm transmission rights to load-serving entities to hedge against congestion cost risk. *See* 18 C.F.R. § 42.1(d)(4) (2006) (mandating that the term of rights must be sufficient to hedge long-term power supply arrangements). Furthermore, EPAct 2005 granted FERC supplemental siting authority in "national interest electric transmission corridors" whereby applicants seeking to build transmission within these corridors may seek construction permits from FERC rather than state siting authorities. EPAct 2005, *supra* note 76, § 1221 (amending Section 216 of the Federal Power Act). For further information regarding EPAct 2005 and its effects on energy markets, see FED. ENERGY REGULATORY COMM'N, ENERGY POLICY ACT OF 2005: FACT SHEET (2006), http://ferc.gov/legal/fed-sta/epact-fact-sheet.pdf.

84. *See* EPAct 2005, supra note 76, §§ 1267, 1283 (explaining affiliate transactions and market manipulation prohibitions).

and providing teeth to the previously enacted FERC orders.[85]

Recently, FERC has promulgated several orders aimed at clarifying financial rights associated with transmission services. Currently, Transmission Providers provide customers with transmission services on a firm or non-firm basis for varying degrees of time.[86] Order No. 681, finalized on July 20, 2006, significantly clarified the process for long-term firm transmission rights awards in organized electricity markets.[87] The passage of Order No. 681 serves to minimize uncertainty in electricity markets and allows market participants to hedge electricity price volatility over long periods of time, especially in a market where electricity prices are positively correlated with natural gas prices.[88] FERC now authorizes RTOs to develop long-term firm transmission designs that "reflect regional preferences and accommodate their regional market designs."[89] The Commission further noted, "long-term firm transmission rights must be made available with terms (and/or rights to renewal) that are sufficient to meet the reasonable needs of load serving entities to support long-term power supply

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85. FED. ENERGY REGULATORY COMM'N, ENERGY POLICY ACT OF 2005: FACT SHEET, *supra* note 83.

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> FERC's new Order 888 requires utilities to offer transmission service as either (1) firm or nonfirm, (2) network or point-to-point, and (3) short-or long-term. With respect to firmness, the order specifies priority for both reservation and interruption. Although service must be nondiscriminatory, reservation and interruption priority can be based on (1) firm beats non-firm, (2) network beats point-to-point, (3) long-term beats short-term, and finally, (4) price can be used as a tie-breaker.

CHRISTENSEN, *supra* note 28, at 36.

87. 18 C.F.R. § 42.1(c)–(d) (2006).

88. Order No. 681, *supra* note 5, at 43,951; s*ee also* Press Release, Fed. Energy Regulatory Comm'n, Long-term Firm Transmission Rights Finalized (July 20, 2006), http://www.ferc.gov/news/news-releases/2006/2006-3/07-20-06-E-2.pdf [hereinafter Long-term Firm Transmission Rights Finalized] (discussing the guidelines set forth by FERC for independent transmission organizations to follow while developing long-term firm transmission rights).

89. Order No. 681, *supra* note 5, at 43,564.

arrangements used to satisfy their service obligations."[90] The main criteria intimated by FERC in awarding long-term firm transmission rights is that the rights must be made available to all transmission customers, although FERC failed to delineate exactly how a Transmission Provider is to make the rights available to all customers and how much must be allocated to new customers.[91] In addition, Order No. 681 requires that Transmission Providers offer long-term firm transmission rights to any entity that pays for upgrades to the transmission grid or builds expansions.[92]

To clarify further, FERC adopted seven additional guidelines that must be followed in awarding long-term transmission rights.[93] The guidelines include: (1) a long-term transmission right should specify a source, a sink, and a quantity;[94] (2) the right must provide a hedge against day-ahead locational marginal pricing congestion charges or other direct assignment of congestion charges for the period covered and the quantity specified;[95] (3) long-term firm transmission rights

90. *Id.*

91. *Id.* at 43,564, 43,565, 43,567.

92. 18 C.F.R. § 42.1(d)(3) (2006).

93. Long-term Firm Transmission Rights Finalized, *supra* note 88.

94. The *location of generators* characterizes the *source* of the electricity, while the *location of the ultimate loads* describes the *sink* for the electricity. Donald F. Santa, Jr., *Who Needs What, and Why? Reporting and Disclosure Obligations in Emerging Competitive Electricity Markets*, 21 ENERGY L.J. 1, 14 (2000).

95. "Locational marginal pricing (LMP) is a market-pricing approach used to manage the efficient use of the transmission system when congestion occurs on the bulk power grid." *ISO New England: Locational Marginal Pricing*, http://www.iso-ne.com/nwsiss/grid_mkts/how_mkts_wrk/lmp/index.html (last visited Feb. 9, 2008). LMP is also described as "the price at each location in the grid at any given time [that] reflects the cost of making available an additional unit of energy for purchase at that location and time." Long-Term Firm Transmission Rights in Markets Operated by Regional Transmission Organizations and Independent System Operators, Notice of Proposed Rulemaking, 71 Fed. Reg. 6693, 6697 (Feb. 9, 2006). "In the absence of transmission congestion, all locational prices at a given time are the same." *Id.*; *see also* Vince, et al., *supra* note 44, at 138 (explaining that "transmission usage charges under LMP will vary based on the price of relieving congestion at each node"). The hedging option allows utilities to lock in the price of the electricity supply, thus reducing the risk associated with price volatility.

made feasible by transmission grid upgrades or expansions must be made available upon request to any party that pays for such upgrades or expansions;[96] (4) rights must be made available with term lengths that are at the discretion of the RTO, but FERC requires at least a ten-year firm transmission right;[97] (5)

96. Long-term Firm Transmission Rights Finalized, *supra* note 88. By awarding entities for upgrades to the transmission system, FERC is attempting to create incentives for utilities to remedy the lack of transmission capacity. *Proposed Pricing Policy for Efficient Operation and Expansion of Transmission Grid: Before the Fed. Energy Regulatory Comm'n* § I (2003) (containing comments of the Energy Storage Council on notice of proposed policy statement concerning establishment of incentives to promote efficient operation and expansion of the electric transmission grid) *available at* http://www.energystoragecouncil.org/esc%20comments%20to%20FERC.htm. FERC seeks to force utilities to internalize the cost of upgrading the system in return for a reward of firm priority in utilizing the newly updated transmission system. *See id.* (discussing how FERC can encourage the pursuit of energy storage solutions to transmission grid problems by awarding firm transmission rights). Long-term transmission rights may serve as appropriate incentives for utilities to actively participate in remedying the lack of transmission capacity, but it is more likely that utilities will neglect to participate given that they are no longer able to pass the costs of such upgrades on to consumers in a deregulatory environment. Finlinson, *supra* note 15, at 189 (noting that "[w]ithout regulation, electric utilities would extort large rates of returns [sic] from consumers in an attempt to maximize profits"). Utilities seek to minimize costs in a deregulatory environment to remain competitive, so exorbitant investments like transmission system upgrades put the utility at a competitive disadvantage. *See id.* (discussing that firms in an unregulated market would do anything to maximize their profits, and the regulations allow them to make improvements without losing money). In addition, FERC Orders 888 and 889 force utilities to open transmission lines to competitors and charge every company the same rate for using their transmission lines. *See* Order No. 888, *supra* note 37, at 21,541; Order No. 889, *supra* note 51, at 21,737; Steven J. Eagle, *Securing a Reliable Electricity Grid: A New Era in Transmission Siting Regulation?*, 73 TENN. L. REV. 1, 5 (2005). Therefore, utilities must engage in a cost/benefit analysis, whereby decision-makers must consider the benefit of long-term firm transmission rights balanced by the requirements of FERC to open the system to competitors. *See id.* (discussing how transmission owners are under-compensated and are deterred from making further investments because of the added risk of achieving long-term profitability).

97. *See* Long-term Firm Transmission Rights Finalized, *supra* note 88. By allowing the RTO to devise long-term firm transmission rights, FERC seeks to afford the RTO the flexibility necessary to devise solutions that are tailored to the specific market. Order No. 2000, supra note 55, at 811–12. FERC believes that the long-term firm transmission right will serve to ensure electricity reliability and has essentially ceded much of the responsibility of monitoring the competitiveness of electricity markets to the RTOs. *See* Order No. 681, *supra* note 5, at 43,564 (describing how the flexibility allowed in the guidelines must be sufficient to "meet the reasonable needs of load serving entities" and "satisfy their service obligations"). In addition, FERC likely believes that such discretion

load-serving entities must have priority over non-load serving entities in the allocation of firm transmission rights;[98] (6) long-term firm transmission rights designed to support a service obligation are assignable to another entity that acquires that service obligation;[99] and (7) "[t]he initial allocation of the long-term firm transmission rights shall not require recipients to participate in an auction."[100] These requirements characterize FERC's attempt to create incentives for transmission grid upgrades and to ensure that load-serving entities have the ability to hedge against price volatility to increase reliability and competitiveness of electricity markets.

III. THE CURRENT STATUS OF THE TRANSMISSION SYSTEM IN THE UNITED STATES

Current transmission capacity[101] on the grid cannot keep up with burgeoning demand of consumers.[102] Since the mid-1990s,

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afforded to the RTO will serve to create incentives for utilities to join RTOs given that membership still is not mandatory. *See generally id.* (noting how the act allows long-term firm transmission to firms in RTOs).

98. *See* Long-term Firm Transmission Rights Finalized, *supra* note 88. As previously mentioned, firm transmission rights have priority over non-firm transmission rights in the event of curtailment. CHRISTENSEN, *supra* note 28, at 36. *But see id.* at 149-51 (noting that, however, "[n]o electrical service is 100% firm . . . . [E]ven firm power can be curtailed or interrupted if there are true transmission constraints."). Load serving entities (LSEs) provide electric service to wholesale customers and end-users. Elec. Reliability Council of Texas - Load Serving Entities, http://www.ercot.com/services/rq/lse/index.html (last visited Feb. 9, 2008). In addition, "LSEs include the competitive retailers (CRs) that sell electricity at retail in the competitive market. . . . LSEs also include non-opt-in entities (NOIEs), which are electric cooperatives and municipally owned utilities that do not operate as [competitive retailers] and do not plan to offer customer choice." *Id.*

99. Long-term Firm Transmission Rights Finalized, *supra* note 88. This provision appears to suggest that firm transmission rights are transferable with respect to service obligations. Therefore, a utility can transfer a service obligation, and the long-term firm transmission rights would transfer along with the service obligation.

100. *Id.*; 18 C.F.R. 42.1(d)(7) (2006).

101. CHRISTENSEN, *supra* note 28, at 149 ("[C]apacity is truly the ability to provide power whether the actual energy is ever delivered or not.").

102. *See* Patrick J. McCormick III & Sean B. Cunningham, *The Requirements of the "Just and Reasonable" Standard: Legal Bases for Reform of Electric Transmission Rates*, 21 ENERGY L. J. 389, 392 n.14 (2000) ("NERC warns that the growing lack of capacity could seriously affect the reliability of electric service and could 'short-circuit' competition, denying consumers the promised benefits of better service at lower prices.").

demand for wholesale electricity products has increased by about 2–3% per year, while supply of transmission has increased only about 0.7% per year.[103] This phenomenon is attributed to the lack of investment in the transmission grid, the massive influx of new merchant power, and poor transmission pricing formulas by FERC.[104] In fact, it is estimated that from 2002 to

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FERC recognized NERC's concerns in Order No. 2000 by warning that "transmission planning and construction 'may not be keeping up with increased requirements.'" *Id.* (quoting Order No. 2000, supra note 55, at 814).

103. Mateer, *supra* note 58, at 813 (citing AMY ABEL, CONG. RESEARCH SERV., NO. RL32075, ELECTRIC RELIABILITY: OPTIONS FOR ELECTRIC TRANSMISSION INFRASTRUCTURE IMPROVEMENTS 4 (2004), http://digital.library.unt.edu/govdocs/crs/permalink/meta-crs-9649:1).

104. *Id.* (noting that "[f]irst, [] FERC has incorrectly priced transmission; and second, even 'correctly' priced transmission under FERC guidelines would not take into account an appropriate premium for the uncertainty of the power industry"); *see also* Eagle, *supra* note 96, at 1–2 (citing Lois R. Lupica, *Transition Losses in the Electric Power Market: A Challenge to the Premises Underlying the Arguments for Compensation*, 52 RUTGERS L. REV. 649, 652 n.6 (2000)) ("Electricity is of immense importance in our economy and culture. It has no close substitute in many of its functions and is uneconomical to store in anticipation of peak needs, future requirements, or times of crisis."). Furthermore, "[a]s the recent catastrophic results of Hurricane Katrina indicate, our emergency management system, energy production, and public health are dependent upon the transmission of electricity." *Id.* at 1 (citing Jad Mouawad, *No Quick Fix for Gulf Oil Operations*, N.Y. TIMES, Aug. 31, 2005, at C1). "Perhaps the greatest obstacle to the construction of new [electric] transmission [capability] . . . is the age-old problem of gaining approval for new transmission lines." *Id.* at 2 (quoting ERIC HIRST, EXPANDING U.S. TRANSMISSION CAPACITY 11 (2000), *available at* http://www.eei.org/industry_issues/energy_infrastructure/transmission/hirst2.pdf). The Mid-Atlantic region, New England, New York, and Texas have seen the greatest success with electricity restructuring because power is mostly provided by independent merchant operators; ownership of transmission, generation, and distribution assets is largely disaggregated; and a single entity operates the electricity grid. *Id.* at 4 (citing Richard J. Pierce, Jr., *Completing the Process of Restructuring the Electricity Market*, 40 WAKE FOREST L. REV. 451, 468–79 (2005)). The Mid-Atlantic region has saved billions of dollars by restructuring its electricity markets. *Id.* at 4. As one notable commentator stated, the shortage in transmission capacity throughout the nation "will eventually doom all restructuring efforts and . . . will yield disastrous results for the entire U.S. market no matter how it is structured, unless and until it is solved." Pierce, *supra*, at 469.

> Transmission systems both complement and substitute for generation. Transmission generally enhances reliability; lowers the cost of electricity

2012, national electricity demand will increase by twenty percent, but construction of high-voltage transmission facilities will not keep up.[105] "The *2003 Long-Term Reliability Assessment* of [NERC], the voluntary organization responsible for grid reliability, states that 'North American transmission systems are expected to perform reliably in the near term,'" but many sections of the grid are reaching their reliability limits due to increased customer demand and increased power transfers from new merchant power stations brought online as a byproduct of competition.[106] The best indicator of the problem is the

> delivered to consumers; limits the ability of generators to exercise market power; and provides flexibility to protect against uncertainties about future fuel prices, load growth, generator construction, and other factors affecting the electric system.
>
> Because most of the U.S. transmission grid was constructed by vertically integrated utilities before the 1990s, these legacy systems support only limited amounts of inter-regional power flows and transactions. Thus, existing systems cannot fully support all of society's goals for a modern electric-power system.

Eagle, *supra* note 96, at 2–3 (quoting Eric Hirst, U.S. TRANSMISSION CAPACITY: PRESENT STATUS AND FUTURE PROSPECTS V (2004), *available at* http://www.eei.org/industry_issues/energy_infrastructure/transmission/USTransCapacity10-18-04.pdf). Generation near load may serve as a substitute for transmission. Robert J. Camfield & Anthony G. Schuster, *Pricing Transmission Services Efficiently*, 13 ELEC. J. 9, 13–32 (2000). However, the siting of new generation encounters great opposition from residents (i.e., not-in-my-backyard, or "NIMBY," concerns). Eagle, *supra* note 96, at 2. In addition, the major load centers are rapidly running out of land necessary for siting such a facility due to population growth and the congregation of populations around large cities. *Id.* at 25. Furthermore, a glut of generation in major load centers will still cause bottlenecks in the inter-regional distribution system that necessitate upgrades and additions to the transmission system. Gary L. Hunt & Fereidoon Sioshansi, *Can F.E.R.C. Make SMD Work?*, 16 ELEC. J. 1, 25–38 (2003).

105. Eisen, *supra* note 16, at 556 (citing U.S. DEP'T OF ENERGY, NATIONAL TRANSMISSION GRID STUDY 4, 7 (2002), http://www.ferc.gov/industries/electric/gen-info/transmission-grid.pdf); c*f.* Joshua Z. Rokach, *The Invisible Hand Will Secure the Electric Grid*, 16 NAT. RESOURCES & ENV'T 183, 183 (2002) (arguing that the market, not governmental or regulator intervention, will resolve all transmission grid issues).

106. Eisen, *supra* note 16, at 555–56 (citing NORTH AM. ELEC. RELIABILITY COUNCIL, 2003 LONG-TERM RELIABILITY ASSESSMENT: THE RELIABILITY OF BULK ELECTRIC SYSTEMS IN NORTH AMERICA 5 (2003), ftp://ftp.nerc.com/pub/sys/all_updl/docs/pubs/LTRA2003.pdf); s*ee also* Severin Borenstein, James Bushnell & Steven Stoft, *The Competitive Effects of Transmission Capacity in a Deregulated Electricity Industry*, 31 RAND J. OF ECON. 294, 309 (Summer 2000) ("The transmission capacity that now exists in most of the United States was built to provide [] cost-arbitrage and reliability functions. . . . It was not built to augment competition among power generators.").

expansion of the Transmission Loading Relief (TLR) system, which is a procedure used to allocate transmission capacity when requests for transmission exceed the capacity on the grid.[107] As previously mentioned, over fifty million people lost power due to an enormous blackout in the Northeastern United States in 2003.[108] The outdated transmission grid is vulnerable to such outages for numerous reasons. Among the most common explanations for the outages are: (1) lack of coordination in the power grid due to its new, semi-independent status; (2) a lack of investment in the infrastructure; and (3) a lack of competition in the industry due to poor separation of generation from transmission.[109]

A. The New, Semi-Independent Status of the Power Grid Destabilizes Coordination Between Interconnections

Over time, the purpose of the transmission grid has changed. Initially, the grid was used to transport electricity from regional generators to local customers, but now the grid supports a budding international market in power.[110] Despite its changed purpose, the grid retains the old-world fractured organization of multiple and uncoordinated local utility

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"[E]xpanding transmission capacity between markets that suffer from market power problems may have very high payoffs in terms of reduced prices, increased consumption, and lower deadweight loss." *Id.* at 320.

107. Eisen, *supra* note 16, at 555–56.

108. *Id.* (citing U.S.-CAN. POWER SYSTEM OUTAGE TASK FORCE, FINAL REPORT ON THE AUGUST 14, 2003 BLACKOUT IN THE UNITED STATES AND CANADA: CAUSES AND RECOMMENDATIONS 1 (2004), http://www.ferc.gov/industries/electric/indus-act/blackout/ch1-3.pdf).

109. Mateer, *supra* note 58, at 813; *see also* Brian Orion, *Transmission in Transition: Analyzing California's Proposed Electricity Transmission Regulatory Reforms*, 56 HASTINGS L.J. 343, 365 (2004) (describing how California contracts for "reliability must-run" generation to ensure local reliability); Joshua J. Franklin, *Upgrading the National Power Grid: Electric Companies Need an Economic Incentive to Invest in New Technlogy*, 31 RUTGERS COMPUTER & TECH. L.J. 159, 184 (2004) (quoting JOHN J. FIALKA, POWER INDUSTRY SETS CAMPAIGN TO UPGRADE U.S. ELECTRICAL GRID, PUB. UTIL. LAW PROJECT 1 (2004), http://www.pulp.tc/html/power_industry_sets_campaign_t.html) (noting that "patchwork fixes on the current transmission system will result in continued outages that are costing businesses about $100 billion a year").

110. Mateer, *supra* note 58, at 815.

companies.[111] The fractured organization of the transmission grid has made it more difficult to repair or improve the power grid while maintaining an international power market.[112] Routine maintenance on the grid, let alone expansions or upgrades to the infrastructure, is nearly impossible given the lack of capacity and the burgeoning demand for electricity.[113] Typically, "[w]hen one portion of the grid is taken offline for maintenance or repair, other areas of the grid—perhaps owned by completely different utility companies—are expected to compensate."[114] The grid cannot sustain maintenance or repairs conducted by multiple utility companies that require transmission lines to be taken offline.[115] The result of such action is increased congestion on the power lines with the possibility of blackouts.[116] Some utilities are attempting to coordinate maintenance, repair, and upgrade procedures via webpages and other communications.[117] Ironically, utilities in California are leading the charge in increasing coordination between state utilities, but the grid remains vastly unorganized and uncoordinated.[118]

In addition, the lack of coordination and organization has increased the difficulty for generators to transport power from place to place. Often, a utility must contract with several different utilities to transport power from point A to point B.[119] Due to FERC's handling of the pricing of transmission, each utility on the path from point A to point B gets to charge the

111. *Id.*

112. *Id.*

113. *Id.*

114. *Id.*

115. *See id.* (explaining that when multiple utility companies take parts of their transmission lines offline at the same time blackouts can occur).

116. *Id.; see also* Todd Kimbrough, *Did I Dance on the Tables? Did I Shoot Out the Lights? European Electricity Policy as a Guide to America's Energy Future*, 4 WASH. U. GLOBAL STUD. L. REV. 675, 686 (2005) (explaining that, in England, despite electricity deregulation at a national level, a blackout recently occurred due to human error in line repair).

117. Mateer, *supra* note 58, at 815.

118. Order No. 2000, *supra* note 55, at 816.

119. Antitrust Comm., Energy Bar Ass'n, *Report of the Antitrust Committee*, 25 ENERGY L.J. 459, 470 n.65 (2004).

generator a tariff, which breeds inefficient results.[120] This process, also known as the "pancaking" of rates, creates a resulting price for transmission that is irrational and illogical given that the distance the electricity travels or how congested the lines are do not determine the price.[121] The transmission price is simply determined based on the number of fractured utilities that happen to be on the path between point A and point B.[122] FERC's RTO membership proposal may serve to mitigate the "pancaking" phenomenon, but the creation of RTOs are very expensive, and FERC has yet to mandate RTO membership for all utilities.[123] Additional problems arise with

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120. Stephen Paul Mahinka & Theodore A. Gebhard, *Deregulation and Industry Restructuring: Antitrust Issues in Electric Utility Mergers and Alliances*, 12 ANTITRUST 38, 39 (1998).

121. Mateer, *supra* note 58, at 816. Many jurisdictions utilize a postage stamp scheme for transmission pricing, which is a simple charge for transmission per kWh or for peak kW that treats generation and consumption as being at a single point and ignores costs of transmission due to line losses and congestion. HANS BJORNSSON, ROBERT CROW & HILLARD HUNTINGTON, STANFORD UNIV. CTR. FOR INTEGRATED FACILITY ENG'G TECHNICAL REPORT, INTERNATIONAL COMPARISONS OF ELECTRICITY RESTRUCTURING: CONSIDERATIONS FOR JAPAN 11 (2004). Because many integrated utilities utilize postage stamp pricing, buyers must pay the postage stamp rate for each utility that the power flow crosses. *Id.* at 13. If there are several utilities along the path, transmission costs may be so high that inter-regional competition is discouraged. *Id.* FERC has attempted to rectify this phenomenon with various orders promulgated since Order Nos. 888 and 889, and many jurisdictions have adopted locational marginal pricing, which prevents "pancaked" rates. Locational Marginal Pricing, http://www.cogeneration.net/Locational_Marginal_Pricing.htm (last visited Feb. 9, 2008).

122.

> In the industrial Midwest, there are many small but separate control areas that each have independent transmission services. Moving power a relatively short geographical distance may mean shipping power over two, three, or more utilities. Each utility will add its FERC-approved tariff rate until the cost to move that power can become prohibitive.

CHRISTENSEN, *supra* note 28, at 173.

123. *See* EPAct 2005, *supra* note 76, § 1241(c) (noting how the Commission shall provide incentives to transmitting utilities that join transmission organizations). Antitrust Comm., Energy Bar Ass'n, *Report of the Antitrust Committee*, *supra* note 119, at 470 (stating that the proposal would require RTOs and ISOs to pursue interregional coordination, which includes the elimination of pancaked access fees); *see also* Vince, et al., *supra* note 44, at 72 (citing Energy Bar Ass'n, *Report of the Committee on Electric Utility Regulation*, 22 ENERGY L. J. 425, 429 (2001) ("The RTO must be the sole provider of transmission service and sole administrator of its own open access transmission tariff. The RTO must have sole authority to evaluate and approve all requests for transmission

regard to "loop flow" externalities, but this issue is beyond the scope of this Paper.[124]

B. Underinvestment in the Infrastructure Exacerbates the Problems Associated With the Power Grid

The current lack of investment in the transmission grid is attributable to two major problems: (1) FERC has incorrectly priced transmission, and (2) for transmission that may be "correctly" priced, FERC guidelines do not account for an appropriate premium for the uncertainty associated with the electricity industry.[125]

FERC Order No. 888 required all utilities that owned transmission lines to delineate a single tariff for the usage of those lines.[126] However, the calculation of the tariffs presents many problems, including the fact that the tariff tends to under

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service including requests for new interconnections," and the tariff must not result in pancaked rates.). However:

> Order 2000 mandates that "all public utilities . . . that own, operate or control interstate transmission facilities file with the Commission . . . a proposal for an RTO . . . or, alternatively, a description of efforts to participate in an RTO, any existing obstacles to RTO participation, and any plans to work towards RTO participation." . . . FERC effectively was ordering at least *some* measure of participation but calling this a voluntary process. Contrary to the claims of FERC, this process is not voluntary. . . . This author is not now aware of any large incumbent utility not actively participating in, or seeking to participate in, an RTO scheme.

Brumberg, *supra* note 45, at 704–05 (internal citations omitted).

124.

> The difference between hypothetical flows on the contract path (point A directly to point B) and the actual electrical flows according to physical laws is referred to as "loop flow" or parallel path, which is generally defined "as the difference between scheduled and actual flow of electricity over a given established transfer path."

Jeffrey D. Watkiss & Douglas W. Smith, *The Energy Policy Act of 1992—A Watershed For Competition in the Wholesale Power Market*, 10 YALE J. ON REG. 447, 480 (1993) (citing Richard S. Bayless, Planning Aspects of Phase Shifters in the Western Interconnection 1 (1992) (unpublished manuscript, on file with the Yale Journal on Regulation)); *see also* CHRISTENSEN, *supra* note 28, at 160 (discussing the problem of loop flows).

125. Mateer, *supra* note 58, at 813.

126. Jim Rossi, *Lowering the Field Tariff Shield: Judicial Enforcement for a Deregulatory Era*, 56 VAND. L. REV. 1591, 1622–24 (2003).

compensate transmission facilities for new capital investments like new power lines.[127] Furthermore, the tariff-pricing scheme fails to account for "bottlenecks" on popular paths.[128] "Bottlenecks" are another way to describe congestion on a line, whereby there is more demand to send power over the transmission line than there is capacity to carry the power over the line, thus resulting in a supply shortage.[129] Such a shortage of supply would usually increase prices, yet the tariff-pricing scheme fails to attach the appropriate risk premium to compensate consumers for the risk of curtailment.[130]

In addition, FERC is now recommending that utilities divest their transmission assets or relinquish control over the transmission assets to ISOs or RTOs, which have not been proven to be profitable.[131] Therefore, there is a disincentive for Transmission Providers to join RTOs or ISOs given that membership will likely reduce the utility's ability to exercise monopoly power.[132] Considering the fact that numerous

127. Mateer, *supra* note 58, at 813; *see also* Darrell Blakeway & Carol Brotman White, *Tapping the Power of Wind: FERC Initiatives to Facilitate Transmission of Wind Power*, 26 ENERGY L.J. 393, 421–22 (2005). For a discussion of network tariffs that create disincentives for infrastructure investment within the context of the telecommunications industry, see Salvatore Massa, Mark E. Meitzen & Steve G. Parsons, *Pricing Network Elements Under the Telecommuncations Act of 1996: Back to the Future*, 23 HASTINGS COMM. & ENT. L. J. 751, 771–72 (2001) (noting that there is a lack of adequate investment in the grid).

128. Mateer, *supra* note 58, at 813.

129. *Id.*

130. *See id.* at 814–15 (stating that FERC's formulas for permissible utility charges for transmission services undercompensate investors in the new lines).

131. *Id.* at 814 (citing AMY ABEL, CONG. RESEARCH SERV., NO. RL32075, ELECTRIC RELIABILITY: OPTIONS FOR ELECTRIC TRANSMISSION INFRASTRUCTURE IMPROVEMENTS 8–10 (2003)).

132. Utilities are reluctant to join RTOs given that membership essentially forces the utility to provide open and nondiscriminatory access to its transmission lines as dictated by the RTO. Mateer, *supra* note 58, at 827–28. Essentially, the utility is forced to give up something that it owns. Another issue arises in regard to the ability of utilities to trigger a transmission load relief (TLR) within the RTO and still exercise monopoly power. *See* Seth Blumsack, *Measuring the Benefits and Costs of Regional Electric Grid Integration*, 28 ENERGY L.J. 147, 180 (2007). David Patton, the market monitor for the Midwest Independent System Operator (MISO) and the New York Independent System Operator (NYISO) addressed the issue of TLRs in RTOs in his testimony before FERC on May 5, 2004. William L. Massey, Robert S. Fleishman & Mary J. Doyle, *Reliability-Based Competition in Wholesale Electricity: Legal and Policy Perspectives*, 25 ENERGY

regulations involving the electricity industry are still in flux, much uncertainty surrounds the industry.[133] This uncertainty does not create the appropriate incentives for investors to finance upgrades or improvements to the grid. Appropriate incentives that compensate investors for the high risk associated with electricity markets may serve to bankrupt many utilities or force the abandonment of many projects given the high cost of capital, thus creating a self-fulfilling prophecy.[134]

The underinvestment in the electricity infrastructure is also attributable to the absence of incentives for utilities—still largely vertically integrated—to innovate or upgrade the grid system.[135] The expansion of the electricity grid would afford

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L.J. 319, 347 n.153 (2004).

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 the 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 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."

Id. (quoting David Patton, Testimony at the 858th Commission Meeting of the Fed. Energy Regulatory Comm'n (May 5, 2004) (emphasis added)).

133. Maximilian Barteau, *The Horses Have Bolted, But Close the Barn Doors Anyway: Utilities Told Not to Sell Their Generation Assets After All*, 33 MCGEORGE L. REV. 355, 357–58 (2001–02) (citing GOVERNOR'S OFFICE OF COMMUNICATION, CALIFORNIA'S ENERGY STORY A CHRONOLOGY 1976–2001, May 4, 2001, at 41).

134. For a discussion of the bankruptcy and reorganization of the electric utilities in California that filed for Chapter 11 bankruptcy after the California Energy Crises, see Steven Ferrey, *The Eagles of Deregulation: The Role of the Courts in a Restructured Environment*, 32 ENVTL. L. 297, 297–99 (2002).

135. Elec. Utility Regulation Comm., Energy Bar Ass'n, *Report of the Electric Utility Regulation Committee*, 24 ENERGY L.J. 191, 206 (2003) (citing Notice of Proposed Rulemaking, *Standardization of Generator Interconnection Agreements and Procedures*,

more generators the opportunity to compete in the electricity market, which would subsequently reduce prices given the increase in supply.[136] The decrease in prices would likely reduce the profitability of the utilities. Previously, utilities were able to recoup all their costs and obtain a reasonable rate of return associated with an expansion to the grid under a cost-of-service regime.[137] Given that many jurisdictions have abandoned the cost-of-service regime and opted to deregulate their electricity markets, utilities enjoy neither the guarantees of recouping their costs nor the recovery of a reasonable rate of return.[138] The uncertainty surrounding the industry creates incentives for the utilities to maintain the status quo and resist innovation due to the unlikelihood that costs would be recouped and the fact that rational investors would not finance such projects without a reasonably certain rate of return.[139] The risk is much too high for most investors to finance transmission grid expansion.

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99 F.E.R.C. P 61,086, 67 Fed. Reg. 22,250, 22,251 (2002) (codified at 18 C.F.R. pt. 35)).

136. Bishop, *supra* note 61, at 883–85.

137. Gregory J. Vogt, *Cap-Sized: How the Promise of the Price Cap Voyage to Competition was Lost in a Sea of Good Intentions*, 51 FED. COMM. L.J. 349, 359–60 (citing Federal Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591 (1944)) ("Traditionally, public utilities were allowed to set rates up to an amount that recovered costs on a dollar-for-dollar basis, plus a reasonable rate of return on the amount invested. The simplified basis formula is thus $Rate = C + I(R)$, where C is costs, I is investment, and R is the rate of return.").

138. ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, STATUS OF STATE ELECTRIC INDUSTRY RESTRUCTURING ACTIVITY (2003), http://www.eia.doe.gov/cneaf/electricity/chg_str/restructure.pdf (noting that twenty-four of the fifty states commenced deregulation of the electricity markets as of the last update by the U.S. Department of Energy in February 2003, and that, Oregon, for example, has enacted legislation to provide revenue and investment recovery to otherwise ensure the financial health of its utilities).

139. *See* William A. Borders, *Learning From the Storm: Lessons for Illinois Following California's Experience With Electricity Restructuring*, 77 CHI.-KENT L. REV. 333, 363 (2001–02) (citing ERIC HIRST, *supra* note 104); *see also* Hoang Dang, *New Power, Few New Lines: A Need for a Federal Solution*, 17 J. LAND USE & ENVTL. L. 327, 338–40 (2001–02) (discussing the impediments to innovation and the creation of new transmission lines due to state regulations and the lack of investment incentives).

C. *Poor Separation Between Generation and Transmission Facilities Undermines the Goal of Competition in Wholesale Electricity Markets*

The generation sector of the electricity industry "operates not in a free market, but under the shadow of monopoly."[140] PURPA and EPActs 1992 and 2005 afforded new generation facilities opportunities to enter the market with relative ease in order to buy and sell wholesale power at the lowest price.[141] The reality, however, is that the market is not fair given that independent generators are often at a disadvantage in procuring transmission services from the incumbent utility that owns the transmission lines.[142] The incumbent utility has an incentive to withhold transmission from competitors to the greatest degree afforded by law. Incumbent utilities routinely discriminate against competing generation firms, and they are often successful in doing so given the difficulty in proving the discriminatory conduct.[143] Perverse incentives exist whereby competitors would not attempt to file a complaint with FERC given the likelihood that competitors will not be able to meet their burden of proof to show that the alleged discriminatory conduct transpired and that the costs of litigation are so high. In addition, incumbent utilities have great incentives to charge competing generation firms higher prices for access to their transmission lines, which undermines competition in the electricity market. Until regulators fully separate transmission services from generation, incumbent utilities will substantially benefit from the fact that they own the transmission lines. The incumbents will attempt to exercise market power over the

140. Mateer, *supra* note 58, at 817.

141. *See* The Public Utility Regulatory Policies Act of 1978, Pub. L. No. 95–617, 92 Stat. 3117 (1978) (codified in scattered sections of 15 U.S.C., 16 U.S.C., 30 U.S.C., 42 U.S.C., and 43 U.S.C.) (outlining purpose and implementation of PURPA); EPAct 1992, *supra* note 27; EPAct 2005, supra note 76; *see generally* Strahan, *supra* note 23, at 299–300 (presenting an in-depth discussion of EPAct and its effect on competition and NAFTA and the ability of generators to enter the wholesale power market).

142. Dang, *supra* note 139, at 338–39.

143. Toshiaki Takigawa, *Competition Policy Toward Dominant Utility Companies: Vertical Divestiture or Access Rules?*, 1 WASH. U. GLOBAL STUD. L. REV. 301, 308 (2002) (citing OECD, THE OECD REPORT ON REGULATORY REFORM, VOLUME I: SECTORAL STUDIES 178 (1997)).

transmission services in an attempt to reduce competition and maximize profits.

The current structure of the electricity grid creates incentives for incumbent utilities that own the transmission lines to benefit their native generation or participate in gaming behaviors that serve to undermine the spirit of open access and nondiscriminatory allocation of transmission assets. Considering that FERC has not made RTO membership mandatory and that utilities can create for-profit Transcos that have perverse incentives in relation to the nonprofit ISOs, utilities will continue to seek to maximize profitability in accordance with the fiduciary duty they owe to their shareholders.[144] If FERC were to give Order No. 888 and Order No. 889 some enforcement power, then it is possible that the discriminatory practices that currently transpire could be mitigated.

It is difficult, however, to prove that such discriminatory practices transpire. In fact, numerous commentators and my own experiences as a wholesale electricity scheduler and trader illustrate that complete open access is a fallacy.[145] The recent increase in duration for firm transmission rights and the discretion given to RTOs to tailor the financial transmission rights to the preference of their region only serve to exacerbate the situation and perpetuate the fractured coordination of the grid explained above. The expansion of firm transmission rights raise numerous antitrust issues and may result in further discriminatory practices and limited open access to the

144. JOHN D. CHANDLEY & WILLIAM W. HOGAN, INDEPENDENT TRANSMISSION COMPANIES IN A REGIONAL TRANSMISSION ORGANIZATION i, 19 (2002), http://ksghome.harvard.edu/~whogan/Chandley%20Hogan%20ITC%20in%20RTO%20rev_Jan_8_02.pdf.

145. Narasimha Rao & Richard Tabors, *Transmission Markets: Stretching the Rules for Fun and Profit*, ELEC. J. 20, 20–21 (June 2000). *See* Robertson, *supra* note 41, at 89–90 (citing Michael J. Zimmer, *Transmission Policy: Ending the Masquerade*, GLOBAL ENERGY BUS., Nov. 1, 2000, at 41, *available at* LEXIS, News Library, ALLNEWS file) ("Currently, only 20% of the nation's transmission 'offers some dimension of open access transmission service.' Much of the exclusion comes from 'municipal systems, rural cooperative utilities, the Tennessee Valley Authority, the Bonneville Power Administration, and power marketing administrations,' which do not fall under FERC's jurisdiction.").

electricity grid.[146]

It appears that until FERC forces the complete separation of generation from transmission or mandates RTO membership, incumbent utilities will continue to seek ways to benefit native generation at the expense of the competitive electricity market. Of the many potential remedies for this situation, one solution may require the complete overhaul of the electricity industry whereby regulators force divestiture of transmission assets from the utilities and create a nationalized transmission company that is independent from an association with a utility and must offer transmission access on an open and nondiscriminatory basis. Such a remedy is explored in greater detail later.[147] The point is that the regulators must remain proactive in devising solutions to counteract the gaming behavior that incumbent utilities currently engage in to the detriment of the consumer.

IV. ANTITRUST IMPLICATIONS OF LONG-TERM FIRM TRANSMISSION RIGHTS AND OTHER HEDGING STRATEGIES

A. The Essential Facilities Doctrine

It follows that the U.S. transmission grid should be considered an essential facility within the context of antitrust enforcement considering the cost-prohibitive nature of replication and that many states have enacted legislation preventing the construction of a duplicate transmission grid. The essential facilities doctrine has its roots in the 1912 Supreme Court decision in *United States v. Terminal R.R. Ass'n*.[148] This case involved a railroad company limiting access to a railway line that passed through St. Louis, Missouri.[149] The court found that "in ordinary circumstances," railroads could overcome the market power exercised by Terminal Company over the terminal system by constructing their own.[150] The situation with St. Louis proved to be "most extraordinary"

146. *See infra* Part IV.E.

147. *See infra* Part VI.

148. United States v. Terminal R.R. Ass'n, 224 U.S. 383 (1912).

149. *Id.* at 392–93.

150. *Id.* at 405.

because the "'physical or topographical condition peculiar to the locality'" made the acquisition of adequate facilities cost-prohibitive.[151] In lieu of divestiture of the problematic terminals, the court devised an open access policy whereby Terminal Company could continue its operations as long as it either admitted all railroads to ownership of the assets in question or provided for the use of terminal facilities "upon such just and reasonable terms and regulations as will, in respect of use, character and cost of service, place every such company upon as nearly an equal plane as may be with respect to expenses and charges as that occupied by the proprietary companies."[152] This case served as the first acknowledgement of the essential facilities doctrine, and it acts as an early open access policy which FERC has at its disposal in devising open access policies for transmission use. [153]

The modern statement of the essential facilities doctrine arose from *MCI Comm. Corp. v. AT&T*, a case that grew out of MCI's attempts to enter the long-distance telephone services market at the behest of AT&T.[154] At the time, AT&T was the monopoly provider of local "switched" telephone service but was facing increasing competition in the long-distance market.[155] The Federal Communications Commission (FCC) authorized MCI to provide long-distance service using microwave technology.[156] MCI, subsequently, built numerous microwave towers to transmit signals between terminals in different cities, but the connection effort also required an interconnect with AT&T's local lines and switches, which AT&T refused.[157] The court determined that:

> A monopolist's refusal to deal under these circumstances is governed by the so-called essential

151. *Id.*

152. *Id.* at 411–12.

153. Robert Pitofsky et al., *The Essential Facilities Doctrine Under U.S. Antitrust Law*, 70 ANTITRUST L.J. 443, 445 (2002–2003).

154. MCI Commc'ns Corp. v. AT&T Co., 708 F.2d 1081 (7th Cir. 1982), *cert. denied*, 464 U.S. 891 (1983).

155. 708 F.2d at 1093–95.

156. *Id.* at 1094.

157. *Id.* at 1096.

> facilities doctrine. Such a refusal may be unlawful because a monopolist's control of an essential facility (sometimes called a "bottleneck") can extend monopoly power from one stage of production to another, and from one market into another. Thus, the antitrust laws have imposed on firms controlling an essential facility the obligation to make the facility available on non-discriminatory terms.[158]

The court further delineated that in order to establish liability under the essential facilities doctrine, the following four elements must be satisfied: (1) control of the essential facility by a monopolist; (2) a competitor's inability, practically or reasonably, to duplicate the essential facility; (3) the denial of the use of the facility to a competitor; and (4) the feasibility of providing the facility.[159]

B. First Generation Antitrust Cases

Characterizations of antitrust claims involving electric utilities are either "first generation" or "second generation."[160] The 1973 decision in *Otter Tail* by the U.S. Supreme Court marked the first significant instance in which the courts closely examined transmission access issues.[161] Following the *Otter Tail* decision, a wave of antitrust cases were filed involving monopolization claims under Section 2 of the Sherman Act.[162] This initial wave of cases is considered "first generation" based on the utility's refusal to wheel power.[163] Since the enactment of

158. *Id.* at 1132 (citing *Terminal R.R. Co.*, 224 U.S. at 410–11).

159. *Id.* at 1132–33.

160. David S. Copeland, *Requiring Transmission Access By Electric Utilities: The Shifting Roles of Regulation and Antitrust*, 64 ANTITRUST L. J. 291, 295–96 (1995–1996).

161. Otter Tail Power Co. v. United States, 410 U.S. 366 (1973).

162. Copeland, *supra* note 160, at 295.

> Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a felony, and, on conviction thereof, shall be punished by fine not exceeding $100,000,000 if a corporation, or, if any other person, $1,000,000, or by imprisonment not exceeding 10 years, or by both said punishments, in the discretion of the court.

Sherman Antitrust Act, 15 U.S.C. § 2 (2005).

163. Copeland, *supra* note 160, at 295.

EPAct 1992 and the open access Order Nos. 888 and 889, "second generation" cases have been brought relating to transmission access, but subject to liability in "restraint of trade" under Section 1 of the Sherman Act.[164]

The emergence of antitrust enforcement in transmission access began with the Supreme Court decision in *Otter Tail Power Co. v. United States*.[165] For first generation cases, the most common antitrust allegation for refusing access to the transmission grid is a monopolization claim under Section 2 of the Sherman Act.[166] For a utility to be found liable under Section 2 of the Sherman Act, a plaintiff must establish: (1) that the defendant possesses monopoly power in the relevant product and geographic markets and (2) that the defendant acquired or maintained such power by improper means (through exclusionary or anticompetitive conduct).[167] Typically, plaintiffs narrowly define the market to include transmission or generation in the utility's service area whereby the utility's

164. *Id.* at 295–96, 301.

165. Otter Tail Power Company was an electric utility that owned transmission lines within the control area of Minnesota, North Dakota, and South Dakota, which amounted to an amassing of monopoly power. *Otter Tail Power Co.*, 410 U.S. at 368. Otter Tail refused to wheel competitors' power through its control area to reach other markets. *Id.* Competitors were forced to seek alternative routes to wheel power around Otter Tail's control area, which resulted in substantial increases in the cost structure for the supply of power. *Id.* at 371 (citing Elbow Lake v. Otter Tail Power Co., 40 F.P.C. 1262, *aff'd*, Otter Tail Power Co. v. F.P.C., 429 F.2d 232 (8th Cir. 1970), *cert. denied*, 401 U.S. 947 (1971)). The Justice Department filed suit alleging a monopolization claim under Section 2 of the Sherman Act. United States v. Otter Tail Power Co., 331 F. Supp. 54, 56 (D. Minn. 1971). The Court determined that Otter Tail's actions amounted to a territorial allocation scheme and that "[t]he promotion of self-interest alone does not invoke the rule of reason to immunize otherwise illegal conduct." 410 U.S. at 380 (citing United States v. Arnold, Schwinn & Co., 388 U.S. 365, 375 (1967)). Furthermore, the Court found that Otter Tail's business justification was not valid given there was available transmission capacity (ATC). *Id.* at 378. The Court failed to categorize this case as an example of the essential facilities doctrine even though many commentators refer to this case as an essential facilities case; instead, the Court deemed Otter Tail's territorial allocation scheme as a per se violation of Section 1 of the Sherman Act even though the case better represented a "refusal to deal" antitrust case under Section 2 of the Sherman Act. *Id.* at 372, 378.

166. Copeland, *supra* note 160, at 295.

167. *Id.* at 296 (citing Town of Concord v. Boston Edison Co., 915 F.2d 17, 21 (1st Cir. 1990) (Breyer, J.), *cert. denied*, 499 U.S. 931 (1991)).

monopoly power is self-evident.[168] Any transmission alternatives that are economically feasible or realistic will negate such a narrow market definition and undermine any claims of monopoly power.[169] The element of exclusionary or anticompetitive conduct is not satisfied if the utility offers a legitimate business justification for a refusal to wheel, such as limited transmission capacity.[170] Historically, courts are deferential to the utility's business justifications for refusing to wheel power.[171] "For example, if a utility has insufficient transmission capacity to provide the requested wheeling, it will probably not be required as a matter of antitrust law to expand its facilities to accommodate the request."[172]

Prior to the passage of EPAct 1992, a party seeking transmission services from an electric utility would probably have a better chance of success by suing in federal court under the antitrust laws than by petitioning FERC.[173] It is likely that this phenomenon remains true given FERC's reactive nature towards enforcement and regulation, the difficulty of proving such anticompetitive behavior, and the limited resources afforded FERC to enforce judgments.[174] FERC's open access policies require that the utility treat all transmission customers in a manner that is comparable to how it would treat itself.[175]

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168. *Id.*

169. *Id.* (citing Borough of Lansdale v. Philadelphia Elec. Co., 692 F.2d 307 (3d Cir. 1982)) (noting that, in the absence of transmission alternatives, a utility's "natural" monopoly over local transmission facilities, coupled with a refusal to provide access to those facilities, may support a claim that the utility has monopoly power over the transmission market within its service territory).

170. *Id.* (citing City of Groton v. Conn. Light & Power Co., 662 F.2d 921, 926 (2d Cir. 1981); Town of Massena v. Niagara Mohawk Power Corp., 1980-2 Trade Cas. (CCH) ¶ 63,526 at 76,822 (N.D.N.Y. 1980)).

171. *Id.*

172. *Id.* at 297.

173. *Id.*

174. *See* Richard R. Bradley, *One Step in the Right Direction: An Analysis of FERC's Reporting Requirement for Status Changes for Public Utilities with Market-Based Rate Authority*, 1 ENVTL. & ENERGY L. & POL'Y J. 373, 390–92 (2007) (discussing how FERC often lacks the resources to properly monitor markets or be proactive due to budgetary constraints, and how FERC relies on self-reporting of public utilities and other energy market participants).

175. Copeland, *supra* note 160, at 297.

However, the reality of FERC effectively enforcing such policies is a fallacy. A Section 2 refusal to wheel case may be extremely difficult to satisfy if the utility seeks to justify its conduct as an effort to comply with shifting regulatory standards involving transmission rather than conduct undertaken to exclude competition.[176]

Furthermore, several courts have held that specific intent to monopolize is required in a Sherman Act Section 2 case against a federally-regulated utility, even though general intent is necessary in a case against non-regulated defendants for monopolization claims, not monopolization attempts.[177] Despite the usage of the term "deregulation," electricity markets are still highly regulated, thus likely requiring specific intent to prove a monopolization case.[178] Therefore, it is likely that a utility may have a legitimate business justification for refusing to wheel power if it can prove good faith efforts were made to satisfy the ever-changing regulations promulgated by FERC.[179]

Supreme Court jurisprudence in "refusal to deal" cases continued with *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*[180] In *Aspen Skiing*, the Supreme Court held that there is no general duty to cooperate with competitors.[181] However, in

176. *Id.*

177. *Id.* (citing City of Groton, 662 F.2d at 931–32).

178. *See* Kate O'Loughlin, *The Trigen Case: Does This Mean Lights Out for Energy Deregulation?*, 14 LOY. CONSUMER L. REV. 345, 346–47, 357–59 (2002) (examining deregulation and the state action immunity doctrine's impact on antitrust suits); Jeff B. Slaton, *Searching for "Green" Electrons in a Deregulated Electricity Market: How Green is Green?*, 22 ENVIRONS ENVTL. L. & POL'Y J. 21, 23 (1998) (noting that the term deregulation is a misnomer, and that the term "re-regulation" would be more appropriate); Harry First, *Regulated Deregulation: The New York Experience in Electric Utility Deregulation*, 33 LOY. U. CHI. L. J. 911, 924–30 (2002) (exploring New York's attempts at "regulated de-regulation").

179. Copeland, *supra* note 160, at 298.

180. Aspen Skiing Co. v. Aspen Highlands Skiing Corp., 472 U.S. 585 (1985). In *Aspen Skiing*, three skiing resorts came to an agreement to offer interchangeable resort tickets whereby customers could visit any of the three resorts with one ticket. *Id.* at 589. After a series of acquisitions, Aspen Skiing discontinued the interchangeable ticket option and created a new ticketing scheme that excluded Aspen Highlands, its former partner in the interchangeable ticketing scheme. *Id.* at 590–93. As a result, Aspen Highlands sustained substantial decreases in market share while Aspen Skiing Co. profited from the "refusal to deal." *Id.* at 594–95.

181. *Id.* at 600 (citing United States v. Citizens & S. Nat'l Bank, 422 U.S. 86, 116

the event that parties have a prior course of dealing, exclusionary tactics will be construed as an attempt to create or maintain a monopoly in violation of Section 2 of the Sherman Act.[182] Therefore, if a prior course of dealing exists, then refusals to cooperate amongst the participating parties are deemed to be in violation of the antitrust laws.

The *Aspen Skiing* decision may prove problematic in improving access to the electricity grid. Given that, the Supreme Court has determined that entities do not have a duty to cooperate with competitors if there is no prior course of dealing.[183] Tension exists in that Transmission Providers are required to cooperate with competitors and provide open access to investor-owned transmission lines where there may not be a prior course of dealing.[184] Order Nos. 888 and 889 mandate that transmission is provided to all qualifying facilities on an open and nondiscriminatory basis, yet this amounts to cooperating with competitors.[185] A strict application of *Aspen Skiing* would result in enormous barriers to entering the transmission market, which would undermine the objectives of Order Nos. 888 and 889. The fact that no duty exists to cooperate with competitors may be why FERC has yet to mandate membership in RTOs for all generators of electricity. Membership in the RTO would amount to a prior course of dealing with competitors and, therefore, utilities would be precluded from denying access to transmission lines.

C. Second Generation Cases

Although not extinct, there has been a gradual disappearance of Sherman Act Section 2 refusal to wheel cases.[186] However, this does not indicate that antitrust suits are

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(1975)).

182. *Id.* at 601–05.

183. *Id.* at 601.

184. Griffin A. H. Bishop, *Post Blackout: FERC's Pricing Incentives Must Be Tailored to Improve Grid Reliability and Efficiency*, 56 ADMIN. L. REV. 881, 886–87 (2004).

185. Bishop, *supra* note 61, at 886.

186. Copeland, *supra* note 160, at 300.

no longer possible for transmission-related misconduct.[187] Section 1 of the Sherman Act now emerges to the forefront.[188] In second generation cases, utility decisions to grant or deny transmission access are likely to be subject to Section 1's prohibition of conduct that unreasonably restrains trade.[189] In addition, RTOs and ISOs are not subject to antitrust exemptions; thus, their decisions regarding transmission access are subject to the antitrust laws.[190] However, since the transmission organizations are within the purview of federal and state regulations, such alleged anticompetitive conduct would likely be subject to rule of reason scrutiny that considers pro-competitive benefits of these joint arrangements.[191] It is still likely that arguments suggesting an absence of "pervasive regulatory scheme" may be asserted in defense of anticompetitive conduct.[192] The recent influx of regulation by FERC may serve to undermine such arguments to some degree. A retail wheeling antitrust claim would be subject to significant defenses including the state action doctrine.[193]

> For example, to the extent that a utility's refusal to provide retail transmission service could be justified by a state prohibition against retail wheeling, the "state action" doctrine might apply . . . "[a]t the retail level,

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187. *Id.*

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> Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is declared to be illegal. Every person who shall make any contract or engage in any combination or conspiracy hereby declared to be illegal shall be deemed guilty of a felony, and, on conviction thereof, shall be punished by fine not exceeding $100,000,000 if a corporation, or, if any other person, $1,000,000, or by imprisonment not exceeding 10 years, or by both said punishments, in the discretion of the court.

Sherman Antitrust Act, 15 U.S.C. § 1 (2005).

189. Copeland, *supra* note 160, at 301 (citing 15 U.S.C. § 1).

190. *Id.* (citing Reply Comments of the U.S. Dept. of Justice, FERC Dkt. No. RM94-20-000, at 5–6 (Apr. 3, 1995)).

191. *Id.* (citing James R. Atwood, *Antitrust, Joint Ventures, and Electric Utility Restructuring: RTGs and Poolcos*, 64 ANTITRUST L.J. 323 (1996)).

192. Copeland, *supra* note 160, at 301–02.

193. *Id.* at 302 (citing Parker v. Brown, 317 U.S. 341 (1943); Praxair, Inc. v. Fla. Power & Light Co., 64 F.3d 609 (11th Cir. 1995)).

> whether the law prohibits the transaction for which wheeling is sought, and whether and under what circumstances the relevant state commissions have the authority to order wheeling to retail customers, must be considered."[194]

Any utility charged with a violation of the antitrust laws for refusal to wheel power may assert an argument that the need to guarantee sales revenue from local industrial customers in order to ensure electric reliability to native-load customers provides a legitimate business justification that overcomes any findings of anticompetitive conduct.[195] The plethora of justifications for anticompetitive conduct, however, does not completely eliminate the risk of antitrust litigation for a utility's refusal to provide retail wheeling.[196]

In *Verizon Comm. Inc. v. Law Offices of Curtis V. Trinko, LLP*,[197] the Supreme Court reiterated the fact that competitors do not have any general duties to help each other unless there is a prior course of dealing.[198] In addition, the Court declined to follow the essential facilities argument made by the plaintiffs.[199] The Telecommunications Act of 1996 impliedly recognizes an essential facilities argument in that without the open access policy, competition would halt given the exorbitant costs

194. *Id.* (citing David J. Russo, *Transmission Access—A Crucial Issue for an Industry*, PUB. UTIL. FORT., Feb. 16, 1989, at 18, 24).

195. *Id.*

196. *Id.*

197. Verizon Comm. Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398 (2004) [hereinafter Trinko].

198. *Id.* at 409–10. In *Trinko*, an indirect purchaser sued Verizon Communications for refusing to allow AT&T access to their networks to provide quality service. *Id.* at 404. The governing statute, the Telecommunications Act of 1996, imposed duties upon incumbent local telephone companies to facilitate market entry by competitors and established a complex system of monitoring and enforcement. Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (codified as amended at 47 U.S.C. § 609 (Supp. II 1996)) [hereinafter Telecommunications Act]. The Court ruled that Verizon's refusal to grant access to the network did not state a monopolization claim under Section 2 of the Sherman Act. *Trinko*, 540 U.S. at 415–16. The Court deferred heavily to the Federal Communication Commission's interpretation of the Telecommunications Act of 1996. *See id.* at 413–14 (describing the FCC as "an effective steward of the antitrust function," and noting that "[a]llegations of violations of [The Telecommunications Act] are difficult for antitrust courts to evaluate").

199. *Id.* at 410–11.

involved in recreating the telephone networks.[200] Therefore, an argument may be made that the Supreme Court may have accepted inadvertently an essential facilities argument by deferring to the Act of 1996, requiring open access to proprietary networks.

The holding in *Trinko* reinforces the notion that, absent a prior course of dealing, competitors have no obligation to assist one another. In *Aspen Ski* and *Otter Tail*, the defendants had a prior course of dealing with the aggrieved party, which subjected the exclusionary conduct to antitrust liability.[201] Therefore, Transmission Providers have incentives to refuse to assist competitors by granting access to transmission networks. If the Transmission Provider grants access, then a course of dealing is established, and any subsequent refusals to grant access may run afoul of the antitrust laws. It appears that the antitrust laws and the profit-maximizing objectives of the utility serve to undermine competition and FERC's open access policies. Without a complete divestiture of separation of generation from transmission, Transmission Providers will likely continue to limit access to the grid.

D. The Horizontal Merger Guidelines & The Inability of Antitrust Law to Remedy Transmission Market Power

Basically, antitrust laws do very little to advance competition and open access to transmission grids in electricity markets. Most courts are reluctant to entertain, much less recognize, an essential facilities argument,[202] which arguably best describes the electrical transmission grid. The antitrust laws establish liability only if a prior course of dealing exists, which will involve a case-by-case analysis.[203] However, courts

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200. *See generally* Telecommunications Act § 251(d)(2)(B) (requiring the Commission to consider whether "the failure to provide access to such network elements would impair the ability of the telecommunications carrier seeking access to provide the services that it seeks to offer").

201. *Aspen Skiing Co. v. Aspen Highlands Skiing Corp.*, 472 U.S. at 601; *Otter Tail Power Co. V. United States*, 410 U.S. at 368–70.

202. *See, e.g.*, Trinko, 540 U.S. at 411 ("We have never recognized such a doctrine . . . .").

203. In *Trinko*, the Supreme Court distinguished a course of dealing compelled by

defer heavily to the regulatory authority of the administrative agency.[204] This presents somewhat of a quandary given that FERC lacks the resources to closely monitor anticompetitive behaviors in electricity markets, yet the courts are loath to step in and assist the agency in maintaining competition. It appears that the easiest solution, given the unwillingness of the courts to assist the administrative agency in monitoring and enforcing the competitive process, is that generation must be completely separate from transmission to reduce the incentives for Transmission Providers to participate in gaming behaviors to the detriment of the competitive process and, ultimately, consumers.

Antitrust merger policy must be examined to appropriately gauge what, if any, influence antitrust laws may have on transmission market power outside of the prior course of dealing exception. The 1992 Horizontal Merger Guidelines serve as a basis for examining merger policy.[205] The Merger Guidelines, drafted by the U.S. Department of Justice and the Federal Trade Commission, involve several steps in determining if a merger should receive approval.[206] Defining the market appropriately is essential, but regulators possess the ability to rectify potential or actual market power abuses via the market definition in a Merger Guidelines analysis.[207] Therefore,

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law from a voluntary agreement entered into by competitors, and found liability only in the latter. *Id.* at 409.

204. *See id.* at 413–14 (describing the FCC as "an effective steward of the antitrust function," and noting the difficulty of evaluating Telecommunications Act violations in antitrust courts).

205. *See* U.S. DEP'T OF JUSTICE & FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES § 0.2 (1992), *available at* http://www.usdoj.gov/atr/public/guidelines/horiz_book/toc.html [hereinafter MERGER GUIDELINES] ("The Guidelines describe the analytical process that the Agency will employ in determining whether to challenge a horizontal merger.").

206. *Id.* § 1.11.

207. *See id.* § 1.0 ("The analytic process described in this section ensures that the Agency evaluates the likely competitive impact of a merger within the context of economically meaningful markets."). First, regulators must appropriately define the product and geographic market using the hypothetical monopolist test, which entails measuring entry and exit with a small, but significant non-transitory increase in price (SSNIP, or the five percent test). *Id.* § 1.1–.2. The SSNIP test is applied until the hypothetical monopolist would not find it profitable to impose such an increase in price.

antitrust laws do afford some ability for regulators to remedy transmission market power. However, merger policy analysis must involve a merger, which likely will not address exercises of market power currently transpiring.

E. Transmission Market Power

1. The Process of Transmitting Electricity

Transmission rights are offered by Transmission Providers in a variety of packages to wholesale generators.[208] For simplicity, I will focus on the two specific transmission rights afforded: firm and non-firm. Firm transmission rights (FTRs) are financial rights to transmission offered in varying terms of duration, but the key factor with FTRs is that in the event that a transmission line becomes constrained and transmission load relief (TLR)[209] is initiated, FTRs provide a generator with

Id. Even though numbers are applied, subjectivity plays a major role in defining the market. *See generally id.* § 1.0 (describing the method of defining a market as an "analytic process"). The market definition level of the Merger Guidelines is where the regulators exercise much discretion in defining the market and potentially mitigating market power. As stated before, merging parties often seek a broad market definition to reduce the likelihood that regulators will find the potential for exercises of market power. Regulators have discretion to narrowly define the market and remedy potential transmission market power, but this can only happen in the event a party files a complaint in regard to the merger or initiates a merger by a Hart-Scott-Rodino (HSR) filing. Andrew G. Howell, *Why Premerger Review Needed Reform-And Still Does*, 43 WM. & MARY L. REV. 1703, 1703 (2002). The remaining steps include calculating market shares; assessing concentration levels using the Herfindahl-Hirschman Index (HHI); examining coordinated and unilateral effects; assessing the timeliness, likelihood, and sufficiency of entry; recognizing efficiencies gained from the merger; and analyzing the possibility of a firm failing. MERGER GUIDELINES, *supra* note 205, §§ 1.5, 2.1–.2, 4, 5.1–.2.

208. *See, e.g.*, Targei Kristiansen, Markets for Financial Transmission Rights § 2.1 (unpublished paper, Norwegian University of Science and Technology) (on file with Department of Electrical Power Engineering, Norwegian University of Science and Technology) (describing the various forms of FTRs available to generators)*; see also* Richard J. Pierce, Jr., *A Proposal to Deregulate the Market for Bulk Power*, 72 VA. L. REV. 1183, 1188 (1986) (citing P. JOSKOW & R. SCHMALENSEE, MARKETS FOR POWER: AN ANALYSIS OF ELECTRIC UTILITY DEREGULATION 62–77 (1983)) (noting that "transmission accounts for only two percent of the total cost of electricity," but "access to transmission facilities is critical to the ability of the generation segment of the industry to take advantage of the substantial economies of scale and coordination potentially available in its operations.").

209. Transmission load relief (TLR) is a procedure used to allocate transmission

transmission rights that cannot be curtailed (except in a few extraordinary circumstances).[210] Intuitively, non-firm transmission rights are essentially the opposite of FTRs. If a generator, for example, attempts to move power from Southern California to Northern California using Path 15, the California ISO is likely to determine that there is not enough available transmission capacity (ATC) and will enact curtailments whereby entities with non-firm transmission rights will be among the first to be denied access to the transmission line in order to alleviate the constraint on the transmission line.[211]

The process begins with the Transmission Provider calculating ATC on an hourly basis for every path within its jurisdiction.[212] These calculations are complex and the results depend heavily on the physical state of the transmission grid at any point in time.[213] ATC calculations are also convoluted yet are accepted by markets on the "honor principle" from the Transmission Provider.[214] Once ATC is calculated and made

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capacity when requests for transmission exceed the system capacity. Eisen, *supra* note 16, at 555–56. (citing Linda G. Stuntz, *Symposium Materials from the University of Richmond School of Law Symposium, The Blackout of 2003: What's Next? Transmission Investment, Restructuring and the Future of the Electric Utility Industry* 12–13 (2004). "TLRs are not a solution to the problem of congestion on the grid but demonstrate the need for increased capacity." *Id.*

> "TLRs are operating procedures developed by NERC to mitigate operating security limit violations[,]. . . procedures intended to better address parallel flows by broadening the scope of TLR operating procedures to allow the curtailment or restriction of incremental interchange transactions. . . . For all TLRs that reach Level 2, [Security Coordinators (Transmission Providers)] may disallow any incremental interchange transactions on paths that impact the flowgate."

Rao & Tabors, *supra* note 145, at 22.

210. *See* N. Am. Elec. Reliability Corp., Transmittal Letter to FERC A 9C-2 (May 11, 1999) (unpublished letter), *available at* http://www.nerc.com/~filez/nerc_filings_ferc_tlr.html (outlining the order of priority for curtailment, and identifying firm service as the least likely to be curtailed).

211. *See id.* (identifying "[non-firm s]ervice over secondary receipt and delivery points" as the first to be curtailed); *see also* Mahinka & Gebhard, *supra* note 120, at 40 (noting that non-firm transmission rights do not have the guarantee of continuous availability).

212. Rao & Tabors, *supra* note 145, at 22.

213. *Id.*

214. *Id.*

available to the market, generators submit bids to procure transmission for their electricity via OASIS, as required by FERC Order No. 889.[215] Many entities have enacted long-term hedging strategies, which allows for transmission access, on-demand, at future dates.[216] Entities engaging in such long-term hedging strategies typically purchase FTRs to minimize the risk of curtailment.[217] ATC is offered to generators in the day-ahead and hour-ahead markets.[218] The allocation of non-firm and firm transmission rights is limited by regulation, whereby a Transmission Provider must offer firm transmission rights for load-serving entities on a given transmission line.[219] Generators purchase transmission rights to move power from point A to point B, in accordance with their contractual obligations.

Transmission rights, like airline reservations, are subject to revisions and overbooking. Purchasers of transmission rights know or should know that the risk of curtailment is much higher with the purchase of non-firm transmission rights, as opposed to purchasing firm transmission rights. Transmission Providers often revise ATC calculations or are forced to enact TLRs if the transmission line becomes constrained.[220] Generators with FTRs

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215. *Id.* at 21–22; *see also* Order No. 889, *supra* note 51, at 21,737 (requiring an OASIS system with which to provide nondiscriminatory transmission service).

216. *See National Perspectives on Financial Transmission Rights* (Elec. Util. Consultants, Inc., Arlington, VA), Mar. 2007, at 2, *available at* https://www.euci.com/pdf/0307-ftr.pdf (highlighting the demand for long-term hedging strategies).

217. *See* Eisen, *supra* note 16, at 553 (FTRs are "designed to protect customers from the costs associated with congestion.").

218. *See, e.g.*, OG&E OASIS Procedures and ATC Methodology, (OG&E, Okla.) Aug. 10, 2006, at 6 (describing the "Weekly, Daily, and Hourly Updates to ATC Values").

219. *See generally* EPAct 2005, supra note 76, § 1231 (stating that a utility may be required to provide transmission services). Remaining firm transmission rights may be dispersed at the discretion of the Transmission Provider; however, for the market to function properly and to reduce the possibility of curtailments, the Transmission Provider is likely to limit the amount of firm transmission rights sold once firm transmission rights are offered to load-serving entities in accordance with EPAct 2005. *See id.* § 1233(c) (noting that firm transmission rights held prior to January 1, 2005, will be grandfathered but that the transmission rights must be consistent with § 217(b)(1)-(3) of the Federal Power Act); Elec. Regulation Comm., Energy Bar Ass'n, *Electricity Regulation Committee Report*, 27 ENERGY L.J. 267, 280 (2006) (describing the changes EPAct 2005 has made on Section 217(c) of the Federal Power Act).

220. *See generally* CONSORTIUM FOR ELEC. RELIABILITY TECH. SOLUTIONS, OUR

are not obligated to exercise their transmission rights.[221] However, in the event they choose to exercise their FTRs, the Transmission Provider must accommodate their request and may have to curtail some non-firm transmission rights to provide access for generators with FTRs (assuming the transmission line is operating at capacity).[222] Therefore, the ATC calculations are hardly accurate given the ability of holders of FTRs to exercise their rights at any time prior to settlement.[223] Intuitively, purchasers of non-firm transmission rights encounter a significant risk of curtailment along popular electricity paths.

Trading occurs for every hour of every day with a day-after settlement process.[224] By order of magnitude, an entity that

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NATIONAL TRANSMISSION SYSTEM TODAY AND TOMORROW 6, *available at* http://certs.lbl.gov/ntgs/main-1.pdf ("ATC calculations establish the maximum ability of a system to support expected wholesale transactions reliably. When the system is in danger of exceeding these limits, TLR procedures (known as TLR 'calls') determine which requests for transmission will be denied in order to prevent lines from becoming overloaded.").

221. *See FTR Market: Frequently Asked Questions* (PJM), Feb. 1, 2005, at 1, *available at* http://www.pjm.com/markets/ftr/downloads/ftr-faqs.pdf (FTRs can be in the form of options, giving the holder the right—but not the obligation—to exercise the FTR).

222. *See generally* Transmittal Letter to FERC, *supra* note 210, at A 9C-2 (outlining the order of priority for curtailment).

223. In practice, settlement occurs at ten minutes prior to each hour. For example, if traders were trading electricity contracts for hour ending 7:00, then trading would transpire until 6:50. All trading would cease for the hour ending at 7:00 at 6:50 at which time the ISO, consisting of the various generators and Transmission Providers within the jurisdiction, would enact settlement, whereby all contracts would be calculated and the ISO would ensure that the physical electricity flow balances. Any discrepancies would first result in curtailment of non-firm transmission rights and then curtailment of additional transmission rights subordinate to FTRs. At 7:00, generators would ramp up generation, and the electricity would flow in accordance with the contracts purchased. This is a simplistic description of the process that transpires for every hour of every day for the purchase and sale of electricity.

224. BALTIMORE GAS & ELEC. CO., ELECTRIC SUPPLIER: SECTION B-ELECTRICITY SUPPLIER COORDINATION TARIFF 14 (2000), http://supplier.bge.com/SupplierTariff.pdf

> The Day-After Settlement occurs after the day of dispatch. PJM will perform the first portion of settlement as part of its wholesale accounting procedures by comparing the Electricity Supplier's supply schedule to the Supplier's load responsibility [] submitted by the Company. In the Day-After Settlement, PJM will bill or credit the Electricity Supplier for the difference each hour between (i) any hourly energy amounts supplied by the electric service provider; and (ii) the hourly load responsibility of the Electricity Supplier.

possesses non-firm transmission rights for even a duration as short as a day has the risk of encountering curtailments up to twenty-four times for that day.[225] In the event that an entity must be curtailed, the entity must procure transmission along another non-constrained path in order to fulfill contractual obligations.[226] If the entity cannot procure transmission and thereby fulfill its contractual obligations, it would be in breach of contract and subject to liquidated damages.[227] Therefore, it is best to procure FTRs to drastically reduce the risk of curtailment. However, FTRs reflect an internalized risk premium in that they are quite expensive and difficult to procure in exchange for the ability to minimize risk.[228]

2. Gaming Behaviors that Undermine Competition

The complexity and secretive nature of the process subjects the market to enormous abilities for firms to engage in gaming behaviors or withholding strategies in an attempt to limit access to the grid in violation of FERC open access rules, increase price,

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> The difference will be billed or credited to the Electricity Supplier at PJM's LMPs.

Id.

225. *See* N. AM. RELIABILITY COUNS., RELIABILITY COORDINATION–TRANSMISSION LOADING RELIEF (TLR) 9–10 (2007), ftp://www.nerc.com/pub/sys/all_updl/standards/sar/IRO-006-4_Clean_for_Comment_01May07.pdf (stating that non-firm transmission can be curtailed in the hour-ahead market at multiple priority levels).

226. CHRISTENSEN, *supra* note 28, at 133-36.

227. Mark E. Haedicke, *Competitive-Based Contracts for the New Power Business*, 17 ENERGY L.J. 103, 123 (1996); *see also* Penny Tvrdik, *Utility Restructuring: Negotiating, Structuring and Documenting the Deal 1999: Power Contract Summary*, 1144 PLI/CORP 513, 537–38 (1999) ("If the seller in a Transaction fails to deliver the contract quantity of electric energy or capacity, the Enabling Agreement provides a formula for calculation of liquidated damages. No damages are due, however, if the failure to deliver is due to the fault of the buyer.").

228. *See* ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, RENEWABLE ENERGY ANNUAL 1998 ISSUES AND TRENDS: TRANSMISSION PRICING ISSUES FOR ELECTRICITY GENERATION FROM RENEWABLE RESOURCES 10 (1998) ("Under current transmission pricing, most generation is sold through take-or-pay, capacity-based transmission charges to reserve firm capacity."). In addition, non-firm contracts are typically more economical and can be long-term or short-term, while firm contracts are much more expensive and are typically for a longer duration. *Id.* at 6.

and benefit native generation to the detriment of competitors.[229] Ultimately, the consumer will likely be harmed, as prices will likely reflect the increased price associated with gaming strategies.

The ability to game the transmission system has been observed in the following areas: (1) OASIS games; (2) the initiation of TLRs; and (3) capacity benefit margin (CBM)[230] and native load exclusion.[231] This list is not exclusive by any means, because many behaviors cannot be proven given the secretive nature of the process. Even though an action cannot be proven, it does not necessarily mean that the gaming behavior does not transpire and is not anticompetitive.

a. OASIS Games

The lack of information dissemination to market participants in the electricity industry drastically undermines market transparency, which is subsequently factored into the prices of electricity. OASIS games are a way in which Transmission Providers can game the system for their own benefit.[232] The current regulatory regime affords Transmission Providers the ability to calculate and disclose ATC for the transmission lines.[233] This practice allows Transmission Providers to restrict competition in a manner that would take exhaustive auditing to discover, and no administrative agency with oversight authority has the resources to conduct such an audit.[234] Transmission Providers can deny requests for firm

229. Rao & Tabors, *supra* note 145, at 20.

230. Capacity benefit margin (CBM) "is the transfer capability set aside by load-serving entities (LSEs) to ensure access to generation from interconnected systems so as to allow LSEs to reduce reserve requirements for physical generation within their territories." *Id.* at 22.

231. *Id.* at 23–27.

232. *Id.* at 23.

233. *Id.* at 22.

234.

> Determining whether such behavior actually occurred . . . would require exhaustive analysis and reproduction of real-time conditions . . . the data required to verify ATC postings and request refusals are voluminous, because numerous ATC postings and calculations would need to be verified for every such request. This would require extensive knowledge of the

service on a day-ahead or longer basis on the grounds of insufficient ATC, despite the fact that there is sufficient ATC.[235] Data shows there to be significantly higher ATC postings than the cumulative refused requests on certain paths on certain high-price days.[236] The sole explanation for such a phenomenon is that, at the time of the request, ATC may have been low or set to zero due to TLR or other restrictions and reset prior to the day of service.[237] However, as Rao and Tabors describe, the final postings show very high numbers, which brings into question the likelihood of such a drastic, short-lived drop.[238] Furthermore, the time stamps on the transmission requests when combined with the ATC data sometimes appear fraudulent.[239] From the perspective of the requestor, proving an unreasonable denial of transmission access is very difficult at the time of the request, considering most market participants do not have the benefit of trend analysis encompassing several months of data.[240] Such results could be attributed to genuine changes in the system, mistakes in calculation, spurious data, or deliberate market foreclosure.[241] The problematic issue is that FERC allows the Transmission Provider to calculate ATC on the "honor principle" without any way of enforcing FERC policies or

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> physical state of the system, the model runs, and calculations that resulted in these postings . . . all historical updates to a particular service offering for which a request was refused would need to be audited as well.

Id. at 25

235. *Id.* at 23.

236. *Id.* (analyzing several utilities in the Midwest during 1999 to determine the cause of price spikes in electricity).

237. *Id.*

238. *Id.*

239. *Id.* ("[W]ithout an extensive audit of the provider's actions and calculations, verifying the legitimacy of such a request denial would be impossible.").

240. *Id.* (explaining that, with respect to testing the legitimacy of genuine changes in the system, spurious data, and mistakes in calculation, only an extensive audit of the provider's data would give the regulator an accurate picture of why the price spiked in the Midwest during the summer of 1999); *see, e.g.*, FED. ENERGY REGULATORY COMM'N, INVESTIGATION OF BULK POWER MARKETS: NORTHEAST REGION 165-68 (Nov. 1, 2000), http://www.ferc.gov/legal/maj-ord-reg/land-docs/northeast.pdf (identifying such problems in the New York ISO). The risk of detection is extremely low. Rao & Tabors, *supra* note 145, at 23 (noting that detection would take "exhaustive auditing").

241. Rao & Tabors, *supra* note 145, at 23.

antitrust laws if the Transmission Provider engages in anticompetitive conduct.[242] In fact, the Transmission Provider has a great incentive to fraudulently deny transmission requests to competitors in an attempt to maximize profit, given that it is virtually impossible to prove.

Rao and Tabors found other behaviors that effectively foreclosed access to transmission markets.[243] Many discrepancies between ATC postings for day-ahead or longer service increments and hourly offerings were observed.[244] Day-ahead ATC on high price days was observed to be zero, as reported on OASIS, while ATC for hourly markets on the same day was significant and positive.[245] This phenomenon created incentives to divert competition in the day-ahead market to other paths considering most traders cannot risk a complete reliance of the hourly market.[246] As Rao and Tabors suggest, the only players "able to take advantage of the hourly market would be those incumbents with either generation capable of responding in an hourly market [generators that can ramp up or ramp down] or those with 'parked' [] energy capable of being delivered over transmission [lines that have] been reserved under the native load exclusion of Order No. 888."[247] Regardless of the justification, the discrepancies between the ATC for day-ahead and hourly markets demonstrate unequal access to the transmission system.[248] This behavior gives the incumbent utility and its merchant affiliates a competitive advantage at the expense of competition. Price spikes in the Midwest during the summer of 1999 indicated, after extensive research, that such behavior occurred and exacerbated the price spikes.[249] In reality, many of the Transmission Providers are vertically aligned with a generator, and ATC is calculated to benefit their

242. *Id.* at 22.
243. *Id.* at 24.
244. *Id.*
245. *Id.*
246. *Id.*
247. *Id.* at 24–25; *see also* Order No. 888, *supra* note 37, at 21,574.
248. Rao & Tabors, *supra* note 145, at 25.
249. *Id.*

own generation.[250] Since incumbent generators are most likely to capitalize on the discrepancies between the day-ahead and hour-ahead ATC, Transmission Providers have a great incentive to exacerbate the discrepancies between day-ahead and hour-ahead ATC to benefit their own generation and increase profitability.

Furthermore, antitrust laws do not appear to help the situation unless a potential plaintiff can prove a Section 1 violation of the Sherman Act or a prior course of dealing, in accordance with *Otter Tail*, *Aspen Ski*, and *Trinko*.[251] These types of behaviors essentially constitute a restraint of trade in violation of Section 1 of the Sherman Act, but given the difficulty in proving the existence of such behaviors, the likelihood of success is miniscule. There appears to be, however, no pragmatic solutions to this problem, given that ATC changes constantly and would require instantaneous auditing to ensure that Transmission Providers do not engage in such anticompetitive behaviors. If an agency had the resources to instantaneously audit transmission markets, then there may be sufficient evidence to support a Section 1 claim.

b. TLR Abuse

Since NERC's revised TLR provisions were accepted in mid-1999, TLR occurrences have increased significantly.[252] "The vast majority of these TLRs required some level of restriction on at

250. *See id.* at 21 (noting that calculation of ATCs are done on an honor system unlikely to be audited, making it easy for Transmission Providers to favor their own generator).

251. *See* Otter Tail v. United States, 410 U.S. 366, 366 (1973) (holding that "the power company's refusals to deal with municipal corporations [are] not immunized from anti-trust liability"); Aspen Skiing Co. v. Aspen Highlands Skiing Corp., 472 U.S. 585, 585 (1985) (finding an antitrust violation where there was refusal to deal with a competitor in which a prior course of dealing had been established); Verizon Commc'ns, Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398, 398 (2004) (holding that the "Telecommunications Act of 1996 had no effect on application of traditional antitrust principals").

252. Rao & Tabors, *supra* note 145, at 25–26, fig.3 (illustrating that in August 1998, approximately thirty Level 2 or higher TLR events transpired as compared to sixty Level 2 or higher TLR events in August 1999). For the months of July 1999 to September 1999, approximately twice the amount of TLR events occurred than in the previous year. *Id.* at 26.

least incremental interchange transactions."[253] Rao and Tabors found that: "[for a] specific transmission provider on high-priced days showed that interchange transactions seem to have been inconsistently restricted into particular sinks . . . causing significant market foreclosure. Simultaneously, several confirmed transactions for this provider's merchant affiliate into that sink were observed."[254]

The discretion afforded Transmission Providers gives them incentives to restrict or allow transmission flows as they see fit. Transmission Providers have a great incentive to institute a TLR and begin curtailing competitors' transmission while at the same time circumventing the TLR by affording access to the recently curtailed line to their energy affiliate.[255] FERC Orders require that an energy affiliate transact at "arm's length" with its similarly situated Transmission Provider, but the enforceability of such provisions is nearly impossible.[256] Like the ATC abuse previously discussed, a concerted effort must be made to discern TLR abuse. Often times, the regulator may not find anticompetitive behavior, but the potential for such

253. *Id.* at 25.

254. *Id.*

255.

> *Energy Affiliate* means an affiliate of a Transmission Provider that: (1) [e]ngages in or is involved in transmission transactions in U.S. energy or transmission markets; or (2) [m]anages or controls transmission capacity of a Transmission Provider in U.S. energy or transmission markets; or (3) [b]uys, sells, trades or administers natural gas or electric energy in U.S. energy or transmission markets; or (4) [e]ngages in financial transactions relating to the sale or transmission of natural gas or electric energy in U.S. energy or transmission markets.

18 C.F.R. § 358.3(d)(1)–(4) (2007). Also, "[a] local distribution company ('LDC') division of an electric public utility Transmission Provider [is] the functional equivalent of an Energy Affiliate unless it qualifies for an exception." *Id.* § 358.3(d)(5).

256. FERC, Interpretive Order Relating to the Standards of Conduct, 61 Fed. Reg. 9446, 9447 (Feb. 24, 2006) (noting that a nuclear power plant operator, for example, is prohibited from being a conduit for sharing information with employees of other marketing or energy affiliates). "For example, a nuclear power plant operator may communicate that output from the nuclear power plant is not available, but the operator may not disclose that the plant output is unavailable due to an outage at a certain location on the transmission system (unless that information is publicly available)." *Id.*; 18 C.F.R. § 358.5(a).

behavior to occur is quite high.[257] Also like ATC abuse, market foreclosure causes competitors to have to re-route electricity flows, which increases the cost structure for the competitor. These actions would constitute a "restraint of trade" in violation of Section 1 of the Sherman Act, but without sufficient evidence of the behavior, a competitor cannot meet its burden of proof. Rao and Tabors seem to suggest that these behaviors occur frequently, but the evidence is lost amidst the bureaucracy of the regulators and the complexity of the industry.[258] Furthermore, the apparent inability to prove such anticompetitive behavior necessitates the complete separation of transmission from generation. Vertically-integrated utilities with both generation and transmission assets cannot and should not be trusted to vigorously compete given that their primary objective is to maximize profitability for their shareholders. The "honor principle" is no longer the appropriate regime for transmission markets.

c. Capacity Benefit Margin and Native Load Exclusion Abuses

Many companies reserve up to "15% of their total interregional transfer capability for [capacity benefit margin]."[259] The CBM reserve can accrue benefits to:

> a vertically integrated transmission provider both when it is held as reserve and sold only on a nonfirm basis and when the transmission provider is actually using the reserved capacity. . . . A transmission provider A with excess generation that is adjacent to a load center may restrict third parties from accessing the load center through its service territory due to limited firm capacity available for "through" service.[260]

Therefore, the vertically integrated utility with Transmission Provider "A" may sell its CBM reservation into the load center even though it is not the low-cost supplier, forcing other parties to seek alternative transmission paths and pay

257. Rao & Tabors, *supra* note 145, at 21.

258. *Id.* at 28.

259. *Id.* at 27.

260. *Id.* Figure 4 illustrates the "flow through" problem with CBM reservations favoring generation arms of vertically-integrated utilities. *Id.*

"pancaked" rates to reach that load.[261]

This type of anticompetitive act resembles the refusal to deal in *Otter Tail*. The U.S. Supreme Court determined that Otter Tail did not have to wheel power to Elbow Lake if they did not have a prior course of dealing.[262] Therefore, this type of anticompetitive behavior is implicitly endorsed by the Supreme Court as long as no prior course of dealing existed. Moreover, entities do not have a duty to assist their competitors and, actually, subject themselves to antitrust liability if they attempt to help their competitor.[263] Therefore, antitrust laws do not help much in regard to preventing CBM reservation abuses. Additionally, proving such behavior actually transpired might be problematic for the same reasons specified for ATC and TLR abuses.[264]

Order No. 888 provides that native load service transactions are exempt from open access and reporting requirements.[265] The fact that native load services occur outside of the realm of open access and are not required to be reported on OASIS undermines market transparency.[266] OASIS does have a provision for utilities to report native load service voluntarily, but some

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261. *Id*. It is noteworthy that competitors, in re-routing electricity, must procure more electricity to cover the line-losses endured as the electricity must now travel over longer distances. *See* Sam Hokin, *The Physics of Everyday Stuff: High Voltage Transmission Line*s, Feb. 10, 2002, http://www.bsharp.org/physics/stuff/xmission.html (stating "[l]ine loss can be quite large over long distances, up to 30% or so").

262. *See* Otter Tail Power Co. v. United States, 410 U.S. 366, 371–76 (1973) (demonstrating the lack of a prior course of dealing).

263. *See id.* at 374 (noting that Congress prefers commercial relationships that are voluntary and governed by business judgments and is hesitant to impose antitrust regulations on such interactions)

264. *See supra* Part IV.E.2.i–ii (detailing the difficulty in proving anticompetitive behavior).

265. *See* Rao & Tabors, *supra* note 145, at 21–22 (citing "[n]ative load exclusion from FERC Order No. 888 open access rules" as one of the market categories of transmissions market rules).

266. Robertson, *supra* note 41, at 99 (noting the native load exclusion from OASIS reporting and that "[i]n times when transmission is short[,] . . . States commonly require electric utilities to protect first the retail customers to whom public utility obligations are owed"). Furthermore, "[t]his very protection of retail customers, however, can turn into protectionism of state customers at the expense of customers in other states. A recent report on transmission policy found that this type of protectionism was in fact taking place, and was having a negative impact on open access in general." *Id.*

utilities refuse to report.[267] This activity is "hidden" and essentially impossible to prove.[268] Theoretically, generators can ramp up generation under the guise of native load service and avoid reporting the activity while simultaneously utilizing their affiliated Transmission Provider to constrain the transmission lines.[269] A generator can effectively force a competitor to use alternate paths and pay "pancaked" rates through artificial generation under the ruse of native load service. The lack of reporting requirements allows such activity to remain undetected.[270]

Basically, these are just a few examples of the gaming behaviors utilities engage in to increase profitability and exercise market power. In fact, the Public Utility Commission of Texas (PUCT) has devised a complex chart of possible gaming behaviors and possible mitigation strategies.[271] PUCT attempts to remain proactive in rooting out anticompetitive behaviors despite the uphill battle of obtaining sufficient evidence to prove such behavior transpired. Without evidence, the antitrust laws do not help much. As such, proposals calling for the complete separation of generation from transmission are more attractive. As noted later, Argentina does not allow generators to have any holdings in transmission facilities.[272] It is possible that a complete separation or possibly the nationalization of transmission markets would serve to minimize the effects of anticompetitive behaviors and fill the gaps left by antitrust laws and previously promulgated FERC orders.

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267. Rao & Tabors, *supra* note 145, at 27.

268. *Id.*

269. *See, e.g.*, *id.* (noting that, in the Midwest during the summer of 1999, a merchant affiliate had net sales out of its service territory in excess of estimated generation surplus when there were no corresponding in transactions). "This 'parking' amounted to a greater than 3,000 MW during periods of the summer of 1999." *Id.* at 27–28. At this time, prices spiked due to a lack of supply. *Id.* at 23.

270. *Id.* at 27.

271. MKT. OVERSIGHT DIV., PUB. UTIL. COMM'N OF TEX., 2002 ANNUAL REPORT ON THE ERCOT WHOLESALE MARKET, PROJECT NO. 26390 32–34, tbls.12–13 (2003), *available at* http://www.puc.state.tx.us/WMO/documents/annual_reports/2002annualreport.pdf [hereinafter 2002 ERCOT ANNUAL REPORT].

272. *See supra* Part V.C (addressing Argentina's market structure in which private companies control transmissions).

V. INTERNATIONAL COMMUNITY DEREGULATION EFFORTS AND NEW MARKET STRUCTURES

I now look to the international community for guidance on the proper structuring of U.S. electricity markets. Many international jurisdictions have commenced deregulatory efforts for electricity markets. In fact, many of the European nations commenced their deregulation efforts prior to the efforts made by the United States.[273] EU countries are subject to multiple layers of regulation, so European Directives and member state initiatives for deregulation (also known as market liberalization) will be explored. The Scandinavian countries, England, and Argentina are the countries closely examined.

A. Deregulation of Electricity in the European Union (Community)

The onset of electricity deregulation began in 1951 with the passage of the Treaty of Paris.[274] This was the first attempt by Europe to create a cohesive energy community through the creation of the European Coal and Steel Community.[275] In 1957, Europe enacted the Treaty of Rome which, among other things, created energy monopolies and encouraged utilities to capitalize on monopoly power, much like PUHCA in the United States.[276]

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273. *See generally* Rachel A. Mitchell, *The Electricity Directive of the European Union: What Can the Member States Learn from the Experiences of Privatized England and Wales?*, 14 AM. U. INT'L L. REV. 761, 766–76 (1999) (providing the history and background of the European Union's effort to make one energy policy).

274. Peter A. Gish, *Project Financing of Renewable Energy Projects in Europe: An Improving Market*, 22 SUFFOLK TRANSNAT'L L. REV. 405, 416–17, 417 n.57 (1999).

275. *Id.* at 417 n.57.

276. *See* Dana L. Romaniuk, *Regulating Public Monopolies in Furtherance of the EEC Free Competition Goal: Article 90 and the Two-Step Approach*, 69 CHI.-KENT L. REV. 1025, 1025 (1994) (noting that the Treaty of Rome afforded member states the ability to create monopoly enterprises, undermining energy competition in Europe and hindering the ability to establish a cohesive European Community (EC) energy policy); s*ee also* Patrick Del Duca & Duccio Mortillaro, *The Maturation of Italy's Response to European Community Law: Electric and Telecommunication Sector Institutional Innovations*, 23 FORDHAM INT'L L.J. 536, 541 (2000) (indicating that Article 90(2) of the Treaty of Rome provided an exemption for State monopolies). *But see* Daniel J. Gifford, *The Draft International Antitrust Code Proposed at Munich: Good Intentions Gone Awry*, 6 MINN J. GLOBAL TRADE 1, 5–6 (1997) (noting that article eighty-five of the Treaty of Rome covers horizontal and vertical restraints). Article 85 of the Treaty of Rome,

The Treaty of Rome also created the European Economic Community (EEC) and the European Atomic Energy Community (EURATOM).[277] However, the Treaty of Rome undermined the objectives of the EEC.[278] The EEC's charge was to create a common market fueled by free market competition, which the creation of monopoly utilities obfuscated.[279] The Single European Act, enacted in 1987, emphasized the elimination of barriers hindering inter-Union trading and established the "Internal Energy Market."[280] The "Internal Energy Market" encountered numerous problems in its infancy, because member states sought to safeguard their own supplies and question whether the EU (not an official organization at this time) had legal and regulatory authority to prevent such safeguarding.[281]

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addressing horizontal and vertical restraints of trade, is akin to section one of the Sherman Act. *Id.* Articles 85 and 86 of the Treaty of Rome govern control of concentration and restructuring issues, similar to section 7 of the Clayton Act. *Id.* Furthermore, the Treaty of Rome covers abuse of a dominant position in Article 86, which is mirrored in section 2 of the Sherman Act. *Id.* The Treaty of Rome serves as a basis for antitrust enforcement in the EU. *Id.* at 2.

277. Treaty Establishing the European Economic Community, Mar. 25, 1957, 298 U.N.T.S. 11; Treaty Establishing the European Atomic Energy Community, Mar. 25, 1957, 298 U.N.T.S. 169*.; see also* Gish, *supra* note 274, at 416 n.57 (commenting that the Treaty of Rome established the European Economic Community and the European Atomic Energy Community).

278. Mitchell, *supra* note 273, at 767–69.

279. *Id.* at 769.

280. 1987 O.J. (L 169) 1 (amending the Treaty of Rome); *see* Alexander J. Black, *Direct Sales of Gas in the European Community*, 1 TULSA J. COMP. & INT'L L. 119, 122 (stating that the Single European Act "aims to harmonize and integrate inter-Community trade . . . . [T]he Single European Act may be seen as an evolution of the Treaty of Rome (EEC Treaty), which founded the European Economic Community, seeking an 'ever closer union' between the peoples of the Member States.").

281. Jonathan D. Fishbane, *Troubled Evolution of Energy Policy in the EEC: A Discordant Note in the Harmonization Process*, 27 AKRON L. REV. 301, 349 (1994).

> In its April 27, 1988 "Information Memo," the Commission [of the European Economic Community] implicitly admitted that Member States were traditionally prone to safeguarding their own supplies:
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> "Leaving aside the general problem of economic and social cohesion within the Community, the constraints on completion of the internal energy market stem chiefly from the objective of safeguarding security of supply and from the strategic importance of the energy industry. To overcome these constraints, future Community energy policy must be based on the right

In 1989, the European Union (EU) was granted jurisdiction to regulate inter-Union trading, though the EU was not legally recognized until 1993.[282] EU Directive 90/531, promulgated in 1990, opened water, transport, energy and communications to competition amongst EU member states.[283] Later that year, the EU enacted Directive 90/377, which created EU procedures to improve price transparency for natural gas and electricity charged to industrial end-users.[284] The seminal directive for electrical transmission was Directive 90/547.[285] This directive required contract negotiations "between the grid operators and the entities in the member states responsible for importing and exporting electricity" to coordinate the grid in an attempt to ensure reliability.[286] Directive 90/547 also required member states to notify the EEC and national authorities of supply contracts that last more than a year and when such contracts

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> combination of market forces and political measures to safeguard and coordinate the Twelve's supplies."

Id. (quoting Comm'n of the European Econ. Cmty, *A First Step Towards the Internal Energy Market*, at 2, P (88) 52 (Apr. 27, 1988)).

282. Through the Single Market Act, the European Union Commission has jurisdiction to regulate free trade within the European Union Community, which was officially established in 1993 through the Maastricht Treaty. *See* European Single Market, http://www.civitas.org.uk/eufacts/FSECON/EC1.htm (last visited Feb. 9, 2008) (discussing the European Single Market); *see also* Europe in 12 Lessons: Historic Steps, http://europa.eu/abc/12lessons/index2_en.htm (last visited Feb. 9, 2008) (providing a detailed history of the formation of the EC).

283. Alexander J. Black, *European Law and Public Utility Open Access*, 10 FLA. J. INT'L L. 117, 127 (1995) (citing Council Directive 90/531, 1990 O.J. (L 297) 1, 29 (EU)).

284. Thomas von Danwitz, *Regulation and Liberalization of the European Electricity Market-A German View*, 27 ENERGY L.J. 423, 435 (2006) (citing 1990 O.J. (L 185) 16). Directive 90/377 required producing, transmitting, and distributing entities to report prices and pricing mechanisms to the Statistical Office of the European Communities (SOEC) twice a year. Mitchell, *supra* note 273, at 771. In addition, companies were required to report customer base analyses twice a year. *Id.* If the SOEC found that market abnormalities existed based on the reported information, the SOEC had the authority to investigate. *Id.* at 772.

285. *See* Eugene Daniel Cross, *EC Electricity Legislation and the Irish Electricity Industry*, 1 TULSA J. COMP. & INT'L L. 33, 43 (1993) (calling Directive 90/547, "an important step towards the completion of the internal market"); *cf.* Thomas von Danwitz, *Regulation and Liberalization of the European Electricity Market – A German View*, 27 ENERGY L.J. 423, 435 (2006) (characterizing Directive 90/547 as mainly preparatory).

286. *Id.*

terminate.[287] Transit conditions were required to ensure the free movement of electricity without compromising energy security or reliability, and the EEC retained authority to enforce this directive with procedures allocated by EU law.[288]

In 1991, the second wave of directives by the EU commenced with the signing of the European Energy Charter which sought to inject Western investment and knowledge in former Soviet countries.[289] The European Energy Charter was an attempt to increase European connectivity and to secure a foothold in the abundance of natural resources located in the western portions of the former Soviet Union for electricity generation purposes.[290] The Charter established legally binding rules for investment, competition, access to capital, trade, and energy.[291] Similar to FERC Order Nos. 888 and 889, the Charter memorialized the plan for a three-stage process by which third parties could obtain access to transmission lines.[292] The stages were to: (1) "improve[] transparency of electricity and gas prices charged to end-users" and unify transmission networks of the EU; (2) "eliminate[] several restrictions on equal access [lative to hydrocarbons" and create common rules for electricity and gas third party open access; and (3) "combine[] the internal market [structure] of its component parts from the previous stages."[293]

The principle of subsidiarity, which ensured a preservation of the rights of each individual citizen within the EU, was

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287. *Id.*

288. *Id.*

289. Peter Cameron, *Creating a Legal Framework for Investment in the Commonwealth of Independent States Energy Sector: Lessons From the Energy Charter Experiment*, 1 TULSA J. COMP. & INT'L L. 233, 233–35 (1994).

290. *Id.* at 243–44. The western former Soviet Union states, including Russia and Ukraine, control the natural gas deposits and transportation networks on which Europe relies to meet its electricity generation demands. ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, COUNTRY ANALYSIS BRIEFS: UKRAINE, http://www.eia.doe.gov/emeu/cabs/Ukraine/Full.html (last visited Feb. 9, 2008).

291. The Energy Charter Treaty, Dec. 17, 1994, 34 I.L.M. 360, *available at* http://www.encharter.org/fileadmin/user_upload/document/EN.pdf; s*ee also* Energy Charter: About the Charter, http://www.encharter.org/index.php?id=7 (last visited Feb. 9, 2008) (stating that the Energy Charter entered into legal force in April 1998, and is a legally binding multilateral instrument).

292. Mitchell, *supra* note 273, at 773.

293. *Id.*

established by the signing of the Treaty Establishing the European Community (Maastricht Treaty).[294] The principle of subsidiarity enabled the EU to take immediate action when the member states could not adequately address a proposed action.[295] The Maastricht Treaty also marked the establishment of the economic and political union known as the European Union.[296]

Directive 96/92 gave the previous directives teeth, in that it required "Member States to implement legislation-specifically related to electricity-by combining the elements of previous directives that promote competition through the elimination of [trade] barriers, while assuring reliable service and security of supply."[297] Directive 96/92 mandated the interconnection of member state electricity grids and sought to alleviate the problem of member states having too much discretion given the number of exceptions granted for small utilities in the initial stages of EU electricity deregulation.[298] By allowing member states too much discretion, the goal of the EU to create a single,

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294. Ian Ward, *The Best of All Possible Worlds? Maastricht and the United Kingdom*, 5 IND. INT'L & COMP. L. REV. 75, 81–82 (1994) ("The absence of clear guidelines . . . tends to suggest that the reason why the definition of subsidiarity in the Maastricht Treaty is so vague is precisely because there can be little agreement at a political level on the substance of the concept in the European Community today." (quoting Anthony Teasdale, *Subsidiarity in Post-Maastricht Europe*, 64 THE POL. Q. 189 (1993))). "In theory, the principle of subsidiarity should determine which law will govern, with a presumption in favor of national legislation. Unfortunately, the vague nature of the principle leaves open many possible interpretations. . . . [T]he job of delineating subsidiarity would fall to the Court of Justice of the European Communities." Matthew J. Eshelman, *The Maastricht Train: Slowing Down for Sharp Curves*, 11 DICK. J. INT'L L. 605, 617 (1993).

295. *See id.* (indicating that member states gave the EC exclusive control in a number of areas).

296. Treaty on European Union art. A, Feb. 7, 1992, O.J. (C 191) 1 (1992), 31 I.L.M. 247.

297. Mitchell, *supra* note 273, at 775–76 (citing Council Directive 96/92, 1997 O.J. (L 027) 20–34 (EC) [hereinafter Directive 96/92]).

298. Kimbrough, *supra* note 116, at 677–78 (citing Directive 96/92, *supra* note 297). *See generally* Jean Michel Glachant & Dominique Finon, Why Do the European Union's Electricity Industries Continue to Differ? A New Institutional Analysis, in INSTITUTIONS, CONTRACTS & ORGANIZATIONS 313–14 (Claude Menard ed., 2000) (analyzing the differences in the reforming of EU countries' electricity industries and what factors are playing a role in the deregulation process).

cohesive energy market would be for naught.[299] Therefore, it was imperative that the EU take swift action to ensure that member states do not have too much discretion in dictating energy policy.

Finally, the EU promulgated Directive 2003/54 in the summer of 2003, which advocated for an energy market much like that of the failed Standard Market Design proposed by former FERC Chairman Pat Wood III.[300] Directive 2003/54 provided clear deadlines for the completion of market liberalization, maintains the opt-out provisions that allow member states some discretion in whether or not to connect small utilities to the Union-wide system, and gave member states an ownership interest in monopoly utilities to prevent the blockage of the free trade of electricity.[301] Furthermore, "[Directive 2003/54] emphasizes cooperation and coordination among the national regulators of each country, rather than implementing a Union-wide mandate for uniformity."[302] The directive, however, failed to address the need and the process for additions to the pre-existing transmission infrastructure to meet current demand.[303]

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299. Kimbrough, *supra* note 116, at 678–79.

300. *Id.* at 679–80; Council Directive 2003/54, para. 2, 2003 O.J. (L 176) 37 (EC) [hereinafter Directive 2003/54/EC]; *Energy Market Manipulation: Hearing Before the Comm. on Energy and Natural Resources*, 107th Cong. 16 (2002) (statement of Pat Wood, III, Chairman of the Federal Energy Regulatory Commission), *available at* http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=107_senate_hearing&docid=f:81138.pdf.

301. Kimbrough, *supra* note 116, at 680 (citing Directive 2003/54/EC, *supra* note 300, art. 30 §§ 1–2).

302. Kimbrough, *supra* note 116, at 680 (citing Directive 2003/54/EC, *supra* note 300 ¶ 16).

303. *Id.* at 678–79. Directive 2003/54 sought to remedy many of the exemptions afforded small utilities and the broad discretion afforded to member states to achieve homogeneity of the market and seamless borders. *Id.* at 678–79. "Many suggest that current European attempts to introduce competition have not succeeded in overcoming transactional difficulties, namely, the inability to store electricity and the geographic problems associated with inadequate interconnections." *Id.* at 679. Member states have concerns about a slippery-slope of national sovereignty forfeiture that may be required to adequately connect the EU, which has slowed integration significantly. *Id.* (citing Mitchell, *supra* note 273, at 767). The resistance of the EU member states to cede authority of electricity markets mirrors many of the federalism issues associated with state's rights and FERC and other federal administrative agency oversight of electricity

In January 2007, the EU enacted legislation (European Union Energy Package) that provided residential and industrial consumers of electricity the ability to choose their electricity and natural gas suppliers.[304] EU regulators set an implementation date of July 1, 2007, for such choice.[305] Additionally and most importantly, EU regulators mandated that all large and medium-sized electricity and natural gas distribution companies would "have to be organized as legally separate companies" from their parent companies (i.e., legal unbundling) by July 1, 2007.[306] These actions were aimed at increasing and maintaining fair and open access to transmission and distribution networks for all suppliers within the EU.[307]

Also addressed in the January 2007 European Union Energy Package initiative was the aforementioned lack of transmission infrastructure to meet burgeoning consumer demand.[308]

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markets. *See id.* at 679–80 (demonstrating the unwillingness of member states to give the EU control).

304. Press Release, Eur. Comm'n, Directorate-Gen. for Energy and Transp., All EU Citizens Free to Choose Their Electricity and Gas Supplier as of 1 July (July 1, 2007), *available at* http://europa.eu/rapid/pressReleasesAction.do?reference=IP/07/983&format=HTML&aged=0&language=EN&guiLanguage=en [hereinafter EU Freedom to Choose]; Press Release, Friends of the Earth Eur., EU Energy Package to Feeable to Fight Climate Change (Jan. 10, 2007), *available at* http://www.foeeurope.org/press/2007/Jan10_JK_EC_energy_package.htm.

305. EU Freedom to Choose, *supra* note 304.

306. *Id.*

307. *Id.* (noting that transmission level "legal unbundling" was made compulsory in 2003). The European Commission further noted that "[i]n the Member[] States where the freedom to choose the energy supplier has been in place for some time, experience shows that customers increasingly take advantage of this opportunity." *Id.* Such findings are contrary to the environment in the United States where consumers are reluctant to change energy suppliers despite being afforded the opportunity to do so. *See, e.g.*, Eric Kelderman, *States Pull the Plug on Electricity Dereg*, STATELINE, July 21, 2005, http://www.stateline.org/live/ViewPage.action?siteNodeId=136&languageId=1&contentId=44242 ("Residential consumers have found little reason to switch to new power providers, and the promises of lower prices and a reliable electricity infrastructure have failed to materialize."). Additionally, the European Commission intends to adopt a European Charter on the Rights on Energy Consumers, which is essentially a bill of rights for energy consumers and an attempt by the regulators to ensure competitive electricity markets. EU Freedom to Choose, *supra* note 304.

308. *Communication from the Commission to the Council and the European Parliament: Priority Interconnection Plan*, at 3, COM (2006) 846 final/2 (Jan. 1, 2007),

Regulators identified several delayed interconnection projects that are pivotal to the market design of the EU, including several projects in the Nord Pool[309] control area that incorporate wind energy technologies and serve as major interconnections between the Eastern and Western grids in the EU.[310] Regulators attributed much of the delay in these projects to a lack of oversight.[311] In response, European coordinators will be appointed to pursue identified priority projects and ensure their timely completion.[312] Regulators also commissioned the implementation of "GALILEO," which is software used to provide accurate real-time surveillance of the energy networks and allow regulators the ability to monitor and control the electricity grid in real time.[313] In all, the EU's Energy Package called for €6 billion in investment for adequate electricity transmission.[314] The actions of the EU appear to be progressive enough to meet the immediate needs of consumers through the establishment of what EU regulators call a "smart grid."[315] In

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available at http://eur-lex.europa.eu/LexUriServ/site/en/com/2006/com2006_0846en02.pdf [hereinafter *Priority Interconnection*].

309. *See infra* Part V.A.1.i–iv.

310. *See Priority Interconnection*, *supra* note 308, at 5–8 ("20 out of 32 projects of European interest . . . face delays. 12 of the 20 projects face a delay of one to two years while eight are delayed by more than three years."). European Commissioners state that lack of investment (i.e., financial difficulties), "lack of harmonised (sic) planning and authorisation (sic) procedures" when two or more member states are involved, and certain Transmission System Operators' (TSO) slowness in increasing cross-border capacity are among the most significant causes for the delay in improving the electricity infrastructure in the EU. *Id* at 6–7. The lack of TSOs' coordination is attributed to a lack of adequate incentives provided by the regulatory framework and gaming behaviors by "vertically integrated companies [that are] unwilling to increase existing supply that might be to the detriment of their supply affiliates." *Id*. at 7.

311. *Id.* at 6–7.

312. *Id.* at 10.

313. *Id.* at 12 ("This technology will also contribute the upcoming European Initiative for the protection of Critical Energy Infrastructure."). Essentially, GALILEO will assist in coordinating TSOs to ensure reliable electricity transmission and to assist in further network planning initiatives. *Id.*

314. *Id.* at 5. The Commission further recognized that an additional €700–800 million per year would be necessary to connect more electricity generated from renewable sources to the grid and for the internalizing balancing costs for intermittent generators in the grid. *Id.*

315. *See id*. at 11–12 (stating that Europe requires ongoing monitoring of its power

fact, such efforts should be lauded and followed in the electricity markets of the United States, because they correctly call for significant increases in investment in the electricity grid, they identify key bottlenecks in the grid and allocate their resources to rectify these problematic areas immediately, and, most importantly, they implemented software (GALILEO) that will allow regulators to re-route power and take other preventative steps to decrease congestion and transmission gaming behaviors.

The United States engaged in a similar deregulatory process for electricity markets as the EU, even though many differences exist.[316] An examination of policies instituted by the member states in the EU may assist U.S. regulators in crafting policies that encourage competition while mitigating the ability to exercise market power.

1. The Scandinavian Countries (Nord Pool)

The Scandinavian countries of Norway, Sweden, Finland, and Denmark combined to form an organization called Nord Pool in 1996.[317] "Nord Pool is a voluntary electricity wholesale exchange" characterized by a spot market for physical contracts like day-ahead and unit prices; a financial derivatives market for futures, swaps, and options contracts; and a clearing service for financial electricity contracts.[318] Those who participate in Nord Pool transactions are market makers for financial derivatives and direct participants acting on behalf of actual or potential market participants.[319] Among the collection of direct participants are power generators, distributors, and large end-users.[320] Nord Pool resembles a power exchange, but, in reality,

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system, because it is built to serve consumers, and it uses "smart grid" as a way to monitor and control the system in real time).

316. Kimbrough, *supra* note 116, at 675.

317. STEVE THOMAS, PUB. SERV. INT'L RESEARCH UNIT, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES 11, 20 (2005), http://www.psiru.org/reports/2005-10-E-EUDirective.pdf; BJORNSSON, CROW, & HUNNINGTON, *supra* note 121, at 20.

318. BJORNSSON, CROW & HUNTINGTON, *supra* note 121, at 20.

319. *Id.*

320. *Id.*

participants are simply utilizing bilateral contracts.[321]

Initially, the market structures for the Nord Pool countries were comprised of powerful, vertically-integrated, nationalized utilities with a few city-owned utilities.[322] This regime existed until Norway, Sweden, Finland, and Denmark came to an agreement to create Nord Pool in 1996 as the first international marketplace for electricity.[323] The establishment of Nord Pool served as the catalyst for electricity restructuring in the member countries.[324] The motivations for restructuring included a desire to increase economic efficiency through competition, an attempt to maintain large, dominant national companies while remaining in compliance with EU electricity market directives requiring at least 33% of electricity markets to be open to competition by 2003, and the recognition of the value of a pan-Nordic competitive power market.[325]

The current market structure for the Nord Pool countries includes large, dominant national companies, which illustrates the reluctance of Nord Pool Member States to completely deregulate and privatize.[326] The national companies, rather than privatized companies, own all the generation, transmission, and distribution assets in the Nord Pool countries.[327] In order to comply with EU Directives, the Nord

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321. James Barker, Jr., Bernard Tenenbaum & Fiona Woolf, *Regulation of Power Pools and System Operators: An International Comparison*, 18 ENERGY L.J. 261, 293 (1997). Nord Pool is different from other power pools in three different ways:

> First, it is an international pool . . . . Second, the Nord Pool does not have a legal monopoly on arranging transactions . . . . About 60 to 65 percent of the electricity generated in Norway is produced under bilateral contracts negotiated outside the pool. Third, the pool is owned by a profit-making corporation rather than a non-profit corporation or association . . . .

Id. at 293–94.

322. BJORNSSON, CROW & HUNTINGTON, *supra* note 121, at 37 tbl.2.

323. TRADE & ENVIRON. DATABASE CASE STUDIES, AM. UNIV., NORDIC ELECTRICITY TRADE (2002), http://www.american.edu/TED/nordic-power.htm.

324. Stuart M. Reynolds, Jr., *The Relationship of Antitrust Laws to Regulated Industries and Intellectual Property in the New Marketplace*, 4 TUL. J. TECH. & INTELL. PROP. 1, 18 (2002) ("Nord Pool, the Nordic Power Exchange, is the world's first international commodity Exchange for electrical power.").

325. BJORNSSON, CROW & HUNTINGTON, *supra* note 121, at 39.

326. *Id.* at 39, 58.

327. Richard D. Christie & Ivor Wagensteen, *Power Engineering Letters, The*

Pool countries spun off some localized generation facilities.[328] However, the large dominating companies in the region, Vattenfall (Sweden), Statkraft (Norway), and Fortum (Finland), have been buying holdings in recent years, which results in an increase in market concentration.[329] The market monitor for this region is similar to an independent system operator in the United States whereby the monitor has a monopoly in oversight authority and the responsibility for the operation of the system subject to each country's regulation.[330] The increased market concentration serves to undermine the purpose of restructuring and may serve to minimize the functionality of electricity markets in the region.

a. Norway

In 1991, Norway first opened electricity markets to competition via the Energy Act of 1991, which forced the separation of grid transmission activities from competitive

Energy Market in Norway and Sweden, an Introduction, IEEE POWER ENGINEERING REV., Feb. 1998, http://ieeexplore.ieee.org/iel3/39/14250/00655587.pdf?arnumber=655587.

328. BJORNSSON, CROW & HUNTINGTON, *supra* note 121, at 39; ORG. FOR ECON. CO-OPERATION & DEV., REGULATORY REFORM IN THE NETHERLANDS 22 (1999), http://www.oecd.org/dataoecd/17/14/2712842.doc.

329. THOMAS, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES, *supra* note 317 at 100; *see*, *e.g.*, Steve Thomas, *Corporate Concentration in the EU Energy Sector* (Feb. 2007), http://www.psiru.org/reports/2007-03-E-Energyconcentration.doc (stating that "[i]n 2005, Vattenfall acquired 35.3 per cent of the shares of Elsam, then the largest Danish electricity company," and soon afterwards "exchanged the shares for a number of Danish CHP and wind power plants"); Statkraft, *Statkraft Acquires Hydropower Plants in Sweden and Finland* (July 1, 2005), http://www.statkraft.com/pro/press/Press_releases/2005/1001147.asp (stating that Statkraft was acquiring 24 hydropower plants in Sweden and Finland); Thomson Financial Corporate Group, *With U.S. Markets Closed, European Bourses Remain Quietly Bouyant* (Jan. 17, 2005) http://www.prnewswire.com/cgi-bin/stories.pl?ACCT=104&STORY=/www/story/01-17-2005/0002857045&EDATE= (stating that Fortum was using its call option "to buy all shares of E.ON Finland owned by the E.ON Group," which "constitute[d] about 65.6% of the share capital and votes of E.ON Finland").

330. EUR. REGULATORS' GROUP FOR ELEC. & GAS, COMPATIBILITY OF NATIONAL LEGAL CONDITIONS CONCERNING REGULATORY COMPETENCES 3 (2006), http://www.ergeg.org/portal/page/portal/ERGEG_HOME/ERGEG_DOCS/ERGEG_DOCUMENTS_NEW/ELECTRICITY_FOCUS_GROUP/E06-REM-08-03_CompatibilityNatlCond_2006-12-06.pdf.

activities.[331] Prior to liberalization, Statkraft owned over forty percent of all Norwegian generation.[332] The national power company of Norway was split into a nation-wide grid company, Statnett, and a nation-wide generating company, Statkraft, in 1992.[333] Statnett was delegated responsibility for monitoring and operating the power grid.[334] Essentially, Statnett was granted a monopoly over transmission assets but was subject to close government regulation.[335]

Norway was the founder of Nord Pool, but Norway has not been immune from the recent spate of energy mergers occurring within Nord Pool.[336] The Norwegian regulator—Norges vassdrags- og energidirektorat (NVE)—has allowed municipal companies to merge, which has stifled foreign entry into Norwegian markets.[337]

An assessment of electricity market liberalization in Norway has yielded mixed results as the Norwegians have had difficulty in counteracting market power exercised in generation markets.[338] In addition, Norway encountered issues regarding the investment in its electricity generation markets, since many of its regulations allow only environmentally acceptable forms of

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331. BJORNSSON, CROW & HUNTINGTON, *supra* note 121, at 39 (noting that Norway opened its electricity markets "in order to increase competition and provide the consumers with greater freedom of choice and, by open and increased trade in electricity, to create the conditions for efficient pricing").

332. THOMAS, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES, *supra* note 317, at 93.

333. *Id.* at 20.

334. *Id.* at 23.

335. *See* Kimbrough, *supra* note 116, at 687 (stating that "there is only one primary transmission owner, Statnett SF, because the Norwegian government maintained transmission as a natural monopoly").

336. *Id.* at 93 (noting that, for example, Lyse Energi, a municipal energy company, was formed by a merger of five local companies and their generation assets).

337. *See* THOMAS, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES, *supra* note 317, at 93 (illustrating that the main foreign entrant in Norwegian electricity markets, Fortum, has given up on attempts to increase its thirty-four percent stake in the Hafslund company in May 2004).

338. *See* Eirik S. Amundsen & Lars Bergman, *Will Cross-Ownership Reestablish Market Power in the Nordic Power Market?* 15 (Found. For Research in Econs. and Bus. Admin., Working Paper No. 56/00, 2000) (stating that Nordic countries such as Norway, Sweden, and Finland have taken steps in seeking electricity market reform to counteract vertical market power).

electricity generation.[339] Norway, however, does essentially maintain a governmentally-owned transmission network that has been viewed as successful.[340]

b. Sweden

Sweden commenced electricity restructuring in 1991 following a decision by the Swedish government to separate transmission from generation.[341] Svenska Kraftnet was created to manage the transmission network.[342] Therefore, the Swedish created a monopoly company under the direction of the Swedish government to dictate transmission grid access.[343]

"The largest [electric] company in Sweden is Vattenfall, which is fully owned by the Swedish state and owns 50 per cent of the generation capacity as well as [most] of the distribution network [in Sweden]."[344] The second and third largest electricity companies in Sweden—Sydkraft and Birka—round out the triumvirate of dominant electric companies in Sweden that account for 86% of generation.[345] There are ten main generation companies, but only Vattefall, Sydkraft, and Birka have more

339. THOMAS, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES, *supra* note 317, at 93.

340. *See* STEVE THOMAS, ELECTRICITY INDUSTRY REFORMS IN SMALLER EU COUNTRIES: EXPERIENCE FROM THE NORDIC REGION (2004), *available at* http://www.psiru.org/reports/2004-10-E-Nordic-elec.doc (stating that, "The Norwegian electricity sector remains almost entirely in public hands," and listing a set of seven factors behind the apparent success of the Nordic model); *see also* OMX TECHNOLOGY, POWER MARKET CASE STUDY: NORD POOL 3, *available at* http://www.google.com/search?q=cache:DkPg3Oyie9YJ:www.omxgroup.com/digitalAssets/642_And_then_there_was_light.pdf+%22And+then+there+was+light%22+omx&hl=en&ct=clnk&cd=1&gl=us (last visited Feb. 9, 2008) (stating that, "Today, according to most industry insiders, Nord Pool is the best-organized power exchange in the world and is often cited as a role model for the industry.").

341. BJORNSSON, CROW & HUNTINGTON, *supra* note 121, at 48.

342. *Id.*

343. *Id.* (explaining Svenska Kraftnät's role as Sweden's sole transmission operations company which controls transmission assets owners' grid access for the Swedish government).

344. THOMAS, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES, *supra* note 317, at 100.

345. *Id.*

than 5% market share.[346] Therefore, the Swedish market monitor, Energimyndigheten, allows generation markets in Sweden to be highly concentrated and utilizes a monopoly transmission provider.[347] The distribution market was comprised of 250 distribution companies, but due to the rampant consolidation in Nord Pool, that number dwindled to 130 in 2002 with Vattenfall, Sydkraft, and Fortum Sweden accounting for 60% market share.[348]

Sweden became a member of Nord Pool in 1996.[349] Customers have enjoyed some cost savings since Sweden became a Nord Pool member.[350] From 1998 to 2001, more than 50% of small consumers switched electricity suppliers to more cost effective substitutes.[351] In 2003, the Benchmarking Report claimed that about 10% of small and residential consumers switched electricity suppliers.[352] Given the high rate of switching, there appears to be some successful competitive aspects of the Swedish market. Consumers switched in droves to secure lower electricity prices and more reliable power.[353] This evidence of a competitive market is undermined by the highly concentrated market structure employed by Sweden.[354] It must be that the government, which exerts great influence over electricity markets, has highly regulated the profitability of the electricity suppliers or has provided subsidies to consumers to switch to lower cost providers as a catalyst for competition.

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346. *Id.*

347. *See* UNION OF SERV. AND COMMC'N EMPLOYEES (SEKO), REGULATE THE DEREGULATION 4 (2003), http://www.seko.se/cs-media/webbEnglish/uploads/000017621/Regulatethederegulation.pdf.

348. *Id.*

349. *Id.* (citing Nord Pool, http://www.nordpool.com (last visited Feb. 9, 2008)).

350. *See id.* (implying that customers who renegotiated their rates experienced cost savings).

351. *Id.*; *see also* Tomas Kåberger, *Environmental Labelling of Electricity Delivery Contracts in Sweden*, 31 ENERGY POL'Y 633, 633–34 (2003) (stating that the establishment of certain online services have helped consumers research the lower market prices and that, upon entering data into an online profile, the consumer can even be contacted by a supplier "suiting his demand at the lowest price").

352. *Id.*

353. *Id.*; *see also* Kåberger, *supra* 351, at 633–34.

354. THOMAS, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES, *supra* note 317, at 11, 23.

The Swedish electricity market has had some issues regarding system reliability in recent years. On September 23, 2003, the Danish islands of Zealand and Bornholm, as well as southern Sweden endured a six-hour blackout that affected two million homes and businesses in Sweden and Denmark.[355] In addition, several days of gale force winds and snow storms in southwest and southern Sweden caused 100,000 customers to be without power on December 6-7, 2003.[356] This blackout spurred the Swedish government to investigate "whether poorly maintained [and monitored] production and transmission systems contributed to the blackouts."[357] Furthermore, in January 2005, Hurricane Gudrun caused extensive damage to transmission networks in Sweden, causing 400,000 households to be without power, and 50,000 households lacked power a week after the storm.[358]

In response to Hurricane Gudrun, the Swedish government enacted legislation that forced electricity companies to provide compensation to customers who lost power for more than twenty-four hours.[359] This legislation was aimed to create incentives for companies to monitor and update transmission segments within their service area and keep their regional level networks clear of trees.[360] Such reliability issues undermine competition in electricity markets, but it is peculiar that reliability issues arise given that the transmission system is a government-run monopoly. Therefore, the government must allocate adequate resources to appropriately monitor the physical status of the transmission grid to ensure that supply reliably meets electricity demand.

c. Denmark

In 2002, Denmark began restructuring its electricity markets in accordance with EU Directives.[361] Denmark is

355. *Id.* at 100–01.
356. *Id.* at 101.
357. *Id.*
358. *Id.*
359. *Id.*
360. *Id.*
361. BJORNSSON, CROW & HUNTINGTON, *supra* note 121, at 39.

unique in that it utilizes two separate electrical systems of comparable size with no direct connection.[362] The Western part of the system, Jutland and Fyn, is connected to the UTCE system, which connects most of Western Europe, including Germany and France.[363] Meanwhile, the Eastern part of the system, the Island of Zealand, connects to the Nord Pool system, thus resembling the Western and Eastern Interconnection of the United States.[364] Connections between the Western system and between the Eastern system and Germany allow Denmark to participate in both the Nord Pool and UTCE systems.[365] The entire electricity sector has traditionally been under governmental control, with the Danish Energy Regulatory Authority assuming most of the oversight since 2000.[366]

Historically, for both generation and transmission, Elsam dominated the western part of Denmark while Elkraft dominated the eastern half.[367] Both Elsam and Elkraft were "not-for-profit co-operatives."[368] Elsam became a public company in 2000, with sixty grid companies in the region owning most of the shares in Elsam.[369] Similar to other Nord Pool countries, the Danish electricity market endured concentration and consolidation of generation and transmission companies, with Energi E2 and Elsam emerging as the dominant companies.[370]

Denmark employs a system somewhat similar to the current ISO/RTO framework in the United States.[371] Eltra assumed the

362. THOMAS, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES, *supra* note 317, at 73.

363. Press Release, Union for the Coordination of Transmission of Electricity (May 16, 2007) (available in electronic form at http://www.ucte.org/_library/news/20070513_GA_Munich.pdf) (announcing that the western parts of Denmark joined the UCTE).

364. THOMAS, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES, *supra* note 317, at 73*; The Blackout of 2003*, ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, Nov.–Dec. 2003, http://www.eia.doe.gov/kids/classactivities/Blackout2003IntSec.pdf.

365. THOMAS, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES, *supra* note 317, at 73.

366. *Id.*

367. *Id.*

368. *Id.*

369. *Id.*

370. *Id.*

371. *Compare* THOMAS, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES,

Transmission System Operator (TSO) function for the West while Elkraft Transmission assumed the TSO function for the East.[372] However, on January 1, 2005, the two Danish system operators, Eltra and Elkraft, merged to form Energinet.dk, a state-owned monopoly.[373]

Denmark joined Nord Pool in 1999.[374] Since this time, market liberalization efforts have yielded mixed results. Danish consumers were allowed to choose electricity suppliers in retail markets beginning on January 1, 2003.[375] A Benchmarking Report shows that 5% of small and residential consumers switched suppliers in 2003, while Danish national statistics show that only 2% of consumers switched.[376] Furthermore, in 1999, there were seventy-eight electricity suppliers, yet the three largest—NESA, Kobnhavns Energi and SEAS—accounted for more than a third of the market.[377] Therefore, it is clear to see that the Danish electricity market is highly concentrated with minimal competition. The reluctance to switch retail providers indicates either irrationality on the part of consumers or, more likely, substantial switching costs associated with an anticompetitive market. Denmark does not enjoy competition in the generation sector, so the cost savings associated with government-run transmission are not realized. Thus, Danish customers are subjected to higher costs associated with electricity consumption due to inadequate competitive mechanisms in the Danish electricity market.

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supra note 317, at 73 (discussing the structure of Denmark's electricity industry) *with* ISO/RTO Council, The ISO/RTO Council, http://www.isorto.org/site/c.jhKQIZPBImE/b.2603295/k.BEAD/Home.htm (last visited Feb. 9, 2008) (discussing how ISOs and RTOs serve more than two-thirds of electricity consumers in the United States).

372. THOMAS, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES, *supra* note 317, at 73.

373. *Id.*

374. *Id.*

375. *Id.* at 74.

376. *Id.* (citing Danish Energy Association Statistics and Facts, http://www.danskenergi.dk (last visited Feb. 9, 2008)).

377. *Id.* at 74.

d. Finland

In 1996, competition in electricity markets was introduced in Finland when the Finnish government mandated the operational separation of transmission, which constituted a separation of system operation from ownership of the transmission assets.[378] The impetus for Finnish competition policy in energy markets was the desire to achieve economic and thermal efficiency while emphasizing the need for renewable energy resources.[379]

The Finnish generation structure is peculiar, in that the Finnish Energy Market Authority (the electricity market regulator established in 1995) authorized the creation of two parallel but connected electrical systems.[380] One system supplies the public while the second supplies a "'club' of industrial consumers."[381] The largest generator is Fortum, which owns about 40% of capacity.[382] Industrial consumers own most of the second largest generator, Pohjolan Voima (PVO), with 20% of the capacity.[383] Since electricity liberalization commenced in Finland, about one hundred companies have entered the retail electricity market.[384] Fortum and Vattenfall, however, have engaged in several mergers and acquisitions of local electricity companies to further concentrate the electricity market.[385] Only fourteen companies have more than 50,000 customers in the Finnish retail market.[386] Therefore, Fortum and Vattenfall exercise market power in generation markets, which allows Fortum and Vattenfall to game transmission markets using their monopoly power in generation.

In 1997, the transmission network was divested from

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378. BJORNSSON, CROW & HUNTINGTON, *supra* note 121, at 39, 48.

379. *Id.* at 39.

380. THOMAS, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES, *supra* note 317, at 75.

381. *Id.*

382. *Id.*

383. *Id.*

384. *Id.*

385. *Id.* at 75.

386. *Id.*

Fortum and PVO and formed Fingrid.[387] The Finnish government has a 12% interest in Fingrid, Fortum and PVO each enjoy a 25% interest, and insurance companies own the remaining 38% interest.[388] This ownership structure in Fingrid, combined with the largely concentrated generation sector of the Finnish electricity market, resemble the vertically integrated utilities in the United States whereby the utilities have great incentive to exercise market power by using generation assets to limit access to transmission networks.[389] The Finnish government appears to condone this market structure given the fact that the government did not bargain for a greater ownership interest in Fingrid.

Finland has experienced higher prices since joining Nord Pool in 2002.[390] When Nord Pool prices fell, retail prices in Finland remained high.[391] Finland's Energy Market Authority stated:

> This winter, the level of wholesale prices on the power exchange has been lower than last year, but decreases in retail prices have been waited for in vain. From the beginning of 2004 to the beginning of March, the public list prices have remained unchanged, and the price pressure is being relieved by the fact that some major suppliers have announced that they will lower their electricity prices at the beginning of April, 2004.[392]

A report from the Finnish Ministry of Trade and Industry published in May 2004 announced that "deregulation 'has neither led to extensive competition amongst suppliers, nor extensive benefits for customers.'"[393] "Customer awareness,

387. *Id.*

388. *Id.*

389. *See infra* note 504 and accompanying text.

390. *See* THOMAS, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES, *supra* note 317, at 76 (indicating that high Nord Pool prices corresponded to higher retail prices).

391. *Id.*

392. *Id.* (citing ENERGY MKT. AUTH., ANNUAL REPORT OF EMA 2003 (2003), http://www.energiamarkkinavirasto.fi/data.asp?articleid=660&pgid=130).

393. *Id.* (citing PHILIP E. LEWIS, MERGA PAKKANEN & MARTTI MUROMA, FINNISH MINISTRY OF TRADE & INDUSTRY, THE ELECTRICITY CUSTOMER'S LOT: THE STATUS OF THE DEREGULATED FINNISH ELECTRICITY MARKET-CONSEQUENCES FOR THE CUSTOMER

prices, service quality, additional offerings, environmentalism, equality and fairness 'have apparently not fared particularly well as a result of deregulation, except perhaps for the largest or most active customers.'"[394] As a result of the situation, most Finnish customers have negative attitudes towards the state of electricity competition in Finland at this time.[395]

2. England

Power markets in England arose in a much different fashion than those of the United States did.[396] The United States adopted a privatized approach via the utility system at the inception of their electricity markets.[397] However, for many years, England owned all generation and transmission assets but allowed for some local government autonomy through the creation of regional distribution boards.[398] England's transition to deregulation occurred in three stages: (1) de-integration of the vertically-integrated government-run companies and the establishment of a market regulator; (2) privatization; and (3) deregulation of energy markets.[399]

England's movement towards deregulation commenced with the passage of the Electricity Act of 1957, creating the Central Electricity Generating Board (CEGB) which had control over the operation of electricity generation and transmission facilities and all related investment decisions.[400] At this time, England

(2004), http://www.vaasaemg.com/pdf/466695_KuluttajajasahkoKTM2004ENG.pdf).

394. THOMAS, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES, *supra* note 317, at 76.

395. *Id.*

396. *See generally* Kimbrough, *supra* note 116, at 685–86, 688–99 (discussing background information and comparisons between the English and U.S. power markets).

397. David G. Pettinari, *You Can't Always Get What You Want—Will Two Recent State Court Decisions Tarnish the Political Promise of Electricity Industry Deregulation?*, 76 U. DET. MERCY L. REV. 501, 512 (1999) (citing Joseph P. Tomain, *Electricity Restructuring: A Case Study in Government Regulation*, 33 TULSA L. J. 827, 830 (1998)) (noting that "[i]n 1922, for instance, there were 3774 privately owned electric utilities in operation in the United States").

398. Mitchell, *supra* note 273, at 787.

399. John E. Kwoka, *Transforming Power: Lessons from British Electricity Restructuring*, REGULATION, Summer 1997, at 47–48, *available at* http://www.cato.org/pubs/regulation/reg20n3e.html.

400. *Id.* at 42.

created twelve semi-autonomous regional distribution boards throughout England and Wales.[401] This system survived until the passage of the Electricity Act of 1989.[402] Amidst concerns that the old system was inflexible, bureaucratic, secretive, and out of political control, British Parliament passed the Electricity Act of 1989, which de-integrated the electricity industry along functional lines (i.e., generation, transmission, and distribution).[403] After de-integration, the English government privatized electric generation, formed a nonprofit power pool, and organized distribution into private regional companies.[404] Furthermore, the English created the Office of the Energy Regulation (OFFER) to oversee energy markets and ensure functioning competitive markets.[405] Subsequently, OFFER merged with the Office of Gas Supply to form the current regulator, the Office of Gas and Electricity Markets

401. Giuseppe Tesauro, *Market Power in Electricity Markets: Regulation, Deregulation and Competition—Lessons From the Italian Experience and Other European and U.S. Case Studies*, 25 FORDHAM INT'L L.J. 946, 951 n.6 (2002) (stating that the twelve area boards acted as regional distribution monopolies, and that the CEGB operated all generation and transmission as a vertically-integrated statutory monopoly).

402. *See id.* (noting that "[t]he Electricity Act of 1989 divided the Central Electricity Generating Board of England and Wales into four companies"). "These companies were created as public limited companies and sold, together with the National Grid Company to the public in December 1990." *Id.* National Grid was established as a monopoly transmission provider that owns and operates the transmission grid with the mission "to facilitate competition and administer 'financial settlement following the trading of electricity in the wholesale competitive market through NGC Settlements, Ltd.'" Mitchell, *supra* note 273, at 791. National Grid Company has the "statutory duty to develop and maintain a reliable, efficient, and economic transmission system" that promotes competition in generation supply, and the NGC is also responsible for environmental preservation through regulation of plant emissions. *Id.*

403. BJORNSSON, CROW & HUNTINGTON, *supra* note 121, at 42, 46; s*ee also* ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, ELECTRICITY REFORM ABROAD AND U.S. INVESTMENT: ELECTRICITY RESTRUCTURING AND PRIVATIZATION IN THE UNITED KINGDOM (1997), http://www.eia.doe.gov/emeu/pgem/electric/ch2.html [hereinafter U.K. ELECTRICITY RESTRUCTURING AND PRIVATIZATION] ("Guiding the government's restructuring was the idea that electricity generation and marketing could be made competitive industries, while transmission and distribution needed to be treated as natural monopolies for the indefinite future." (citing ALFRED E. KAHN, THE ECONOMICS OF REGULATION 11/I (MIT Press 1988))).

404. BJORNSSON, CROW & HUNTINGTON, *supra* note 121, at 46.

405. U.K. ELECTRICITY RESTRUCTURING AND PRIVATIZATION, *supra* note 403.

(OFGEM).[406] From 1989 to the present, England, as a charter member of the EU, followed the deregulatory process outlined by EU Directives.[407]

The current market structure in England is characterized as the largest electrical system to undertake radical reform to restructure.[408] The English created a one-body, independent regulator, established price regulation for transmission and distribution, and engendered competition for generation and retailing whereby the regulator, the Director General of OFGEM, has wide authority over pricing of such assets.[409] The market is comprised of twelve area boards (RECs), three competing generation companies, and a monopoly transmission company.[410] In recognizing the importance of transmission and the fact that this segment of the electricity supply chain is essential, England granted one transmission company monopoly status subject to oversight by OFGEM.[411]

Long-term hedging is authorized in England.[412] Initially, the English power market was organized as a pool system,

406. *See* THOMAS, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES, *supra* note 317, at 63 (explaining that the OFGEM merger took place in 2001); BJORNSSON, CROW & HUNTINGTON, *supra* note 121, at 50 (describing the merger of OFFER with the Office of Gas Supply).

407. Mitchell, *supra* note 273, at 786.

408. "England and Wales were the first electricity markets to restructure." Kimbrough, *supra* note 116, at 685 (citing The Electricity Act, 1989, c. 29 (U.K.), *reprinted in* 17 HALSBURY'S STATUTES OF ENGLAND & WALES 460 (4th ed. 1997)).

409. Francis N. Botchway, *The Role of the State in the Context of Good Governance and Electricity Management: Comparative Antecedents and Current Trends*, 21 U. PA. J. INT'L ECON. L. 781, 819–20 (2000) (noting that OFGEM is a corporate body composed of at least three members appointed by the Secretary of State and headed by the Director of OFGEM). OFGEM members can only be removed on grounds of incapacity or misconduct. *Id.* at 820. OFGEM is entrusted with protecting the interests of consumers regarding generation, supply, and distribution of electricity while balancing the need for competition amongst entities engaged in the energy business. *Id.* (citing Utilities Act, 2000, c. 27, § 9(1) (Eng.)); *see also* Mitchell, *supra* note 273, at 796 n.193 (noting the Director General issues pricing and licensing controls).

410. *See* BJORNSSON, CROW & HUNTINGTON, *supra* note 121, at 37 tbl.2, 42, 44 tbl.3 (breaking down the market in England and Wales).

411. *See id.* at 37 tbl.2, 50, 70 (highlighting the national government ownership of generation and transmission).

412. *See id.* at 20 (stating England and Wales were the first to introduce a deregulated exchange).

otherwise known as a day-ahead auction market.[413] In this structure, the regulators defined how electricity would be traded, and created a system through which generators had to offer wholesale electricity and from which those who wanted to buy wholesale electricity were forced to buy.[414] Furthermore, electricity prices were set for each half-hour, plants were subsequently dispatched, and after settlement, generators were paid and suppliers were charged.[415] Currently, England employs a system called New Electricity Trading Agreements (NETA) that operates like other commodity markets, while ensuring the electricity system stays in physical balance at all times to maintain security and quality of supplies.[416] The NETA system is premised "on bilateral trading between generators, suppliers, traders and end-users."[417] NETA affords traders the ability to engage in long-term hedging positions against price volatility, which, conceivably, requires uninterruptible access to the transmission grid.[418] Shortly after the commencement of deregulation, a spot market arose in order for consumers to alter contract positions in a simple and accessible way.[419]

Since privatization began, English markets have exhibited three major trends: "[1] [t]ake-over of [English] companies by foreign companies[;] . . . [2] [a] split of the regional companies into separate distribution and retail supply companies; and [3] [i]ntegration of retail supply companies into generation companies."[420] British regulators promulgated legislation to

413. *Id.*

414. *Id.*

415. *Id.*

416. *Id.*

417. *Id.*

418. *Id.* at 61 (stating the English/Wales power pool "permit[s] and encourage[s] a contract-for-differences hedging market" to hedge price volatility). The hedging market allows for the negotiation of bilateral contracts between generators and RECs and large end-users. *Id.* This market resembles the California Power Exchange where generation units with the cheapest bid prices were selected first until demand was met. *Id.*

419. *Id.* at 56 tbl.4. NETA allows buyers to enter into long-term electricity supply agreements with generators, and short-term spot markets evolved for traders to: (1) "'fine tune' their contract positions in a simple and accessible way;" (2) provide a balancing mechanism to balance supply and demand in the short-run; and (3) act as a settlement process for market participants. *Id.* at 20.

420. THOMAS, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES, *supra*

combat the potential for market power abuses associated with their current market structure. Owners of distribution and retail supply companies are operationally separated, but ownership interests are not affected.[421]

However, English markets are rife with market power abuses in wholesale and retail electricity markets. An examination of British markets reveals seven major problems preventing customers from realizing a cost savings associated with competition.[422] The seven major problems are: (1) high prices for residential customers, especially the poor, compared to industrial customers;[423] (2) unethical selling practices;[424] (3) high cost of switching;[425] (4) logistical problems for customers trying to switch;[426] (5) use of demand profiling rather than

note 317, at 63.

421. *Id.*

422. *See id.* at 67 (discussing the problems facing consumers in Britain).

423. *Id.* "From 1990–98, small consumers remained captive to their local retailer, while large and medium (from 1994 onwards) consumers were able to choose [their] supplier." *Id.* OFGEM found that retailers were "systematically allocating their expensive wholesale power purchases to the captive market and their cheap power purchases to the competitive market." *Id.* The National Audit Office launched an investigation into NETA and found that residential customers, for whom electricity is only a small portion of their expenditures and who are unlikely to play the market to their advantage, will bear higher prices than larger consumers will. *Id.* at 67–68 (citing NAT'L AUDIT OFF., THE NEW ELECTRICITY TRADING ARRANGEMENTS IN ENGLAND AND WALES, 2002–3, H.C. 624, at 3).

424. THOMAS, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES, *supra* note 317, at 67. Since market liberalization efforts began, numerous companies received fines by OFGEM for mis-selling. *Id.* at 69. "Slamming"—changing a customer's supplier without their consent—and preventing consumers from switching are among the most common acts associated with mis-selling. *Id.*

425. THOMAS, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES, *supra* note 317, at 67. EU Directives prohibit companies from charging consumers directly for switching electricity suppliers. *Id.* at 69. However, "the costs incurred by the small number of consumers that do switch generally to find a cheaper supplier are borne primarily by those that do not switch and who gain no benefit." *Id.* In the only attempt to quantify the costs associated with switching, Maclaine "found that the total cost paid by residential consumers [to switch suppliers] was about £430m per year or more than £16–17 per consumer in 2002." *Id.* at 70 (citing D. Maclaine, Determining the Limits of Competition: A Critical Evaluation of the Process to Introduce Electricity Supply Competition (2003) (unpublished Ph.D. dissertation, University of Sussex)).

426. THOMAS, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES, *supra* note 317, at 67. From 2002 to 2004, PricewaterhouseCoopers found that problems associated with switching increased by 25% and the volume of non-significant errors

electronic meters;[427] (6) inability of small customers to identify the cheapest supplier; and (7) switching seems to be reaching a plateau.[428]

Many of the problems appear to be associated with poor information dissemination and reoccurring problems with anticompetitive behaviors engaged in by electricity market participants. In addition to the aforementioned problems, a report by the House of Commons Trade and Industry Committee determined that "there is a danger that there is currently insufficient investment in the [transmission] network to replace in a planned and orderly way equipment which is reaching the end of its life."[429] Due to this problem, transmission network owners are expecting to double capital expenditures to update the transmission system, and consumers are likely to expect price increases in the aggregate amount of £1 billion per year.[430] The Chair of the Committee offered a stinging criticism of the electricity market in England, stating "the supply system had been 'gold-plated' before privati[z]ation but companies had been living off that cushion for too long."[431] The inadequate transmission network significantly contributed to a blackout in

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increased from about six million to eight million. *Id.* at 70 (citing PRICEWATERHOUSECOOPERS, LLP, BSC AUDITOR'S REPORT FOR THE YEAR ENDED 30 SEPTEMBER 2004 19 (2004)). This phenomenon suggests that there is more wrong with the structure of the market than can be attributed simply to the transitional process. *Id.*

427. THOMAS, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES, *supra* note 317, at 67. Initially, regulators sought to implement electronic meters that could be read every thirty minutes to accurately assess each customer's consumption. *Id.* at 70. However, the cost of the implementation for the electronic meters has been high, so regulators defaulted to the previous system of demand profiling, which involves measuring each consumer's consumption every three months and forecasting demand that follows standard curves. *Id.* This process is fairly inaccurate and does not allow price signals to pass to consumers. *Id.*

428. THOMAS, THE EUROPEAN UNION GAS AND ELECTRICITY DIRECTIVES, *supra* note 317, at 67. In May 2001, "net switching (that is, consumers no longer with their local supplier) reached about 27 per cent . . . ." *Id.* at 71. By October 2003, net switching decreased to only 12%. *Id.* These figures appear to suggest that approximately 60% of consumers will never switch electricity suppliers. *Id.*

429. THOMAS, *supra* note 317, at 71 (citing HOUSE OF COMMONS TRADE AND INDUSTRY COMMITTEE, RESILIENCE OF THE NATIONAL ELECTRICITY NETWORK, 2003–04, H.C. 69–1, at 3).

430. *Id.*

431. *Id.*

London on August 28, 2003, during evening rush-hour that trapped 250,000 commuters in London subway and rail services.[432] England, like the United States, has encountered issues involving an old transmission network in need of upgrades,[433] but without government intervention, energy companies do not have incentives to upgrade the system. In addition, England's market structure remains somewhat vertically-integrated,[434] which creates situations where companies have incentives to exercise market power to raise price or exclude competition given that the transmission network appears to lack the capacity to meet consumer demand. Therefore, consumers are saddled with high priced electricity due to a lack of competition attributed to an outdated infrastructure and a constantly evolving market structure.

A comparison between England or Nord Pool and the United States yields a result that the United States may need to create a government-regulated monopoly to monitor and maintain the transmission grid. The U.S. electricity grid is fragmented, under-invested, and lacking capacity along many key paths. A government regulated monopoly may serve to better monitor the transmission grid and ensure the reliability of electricity flow. However, a major concern would involve the divestiture of each utility's transmission assets. This would be a serious undertaking that the government may be reluctant to partake in given the enormity of the transmission grid in the United States and the widely-held view that government-run entities are inherently inefficient. Many of the countries examined do not possess a grid of the magnitude that the U.S. employs. The smaller grids afford regulators more flexibility in instituting change and coordinating oversight.

Another major concern with a government-regulated monopoly would involve upgrades to the system. The government would likely incur enormous costs involved with obtaining and maintaining the transmission lines. Additional

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432. *Id.*; *Power Cut Causes Chaos*, BBC NEWS, Aug. 28, 2003, http://news.bbc.co.uk/1/hi/england/london/3189755.stm.

433. *See supra* Part III.A (discussing the state of the U.S. transmission system).

434. *The Price of Risk Assessed*, POWER IN EUR., Nov. 6, 2006, *available at* 2006 WLNR 20121226.

costs associated with expanding and upgrading the system would create a substantial financial burden for the government, which it would likely pass on to consumers via tax increases. Therefore, it may not be beneficial to consumers to create a government-regulated monopoly. However, the government-regulated monopoly would be able to mitigate market power associated with long-term transmission rights. The monopoly would, theoretically, be a completely independent company with no incentive to benefit native generation. Many of the gaming behaviors, previously discussed, would be minimized. The question remains if the costs associated with gaming behaviors and other market manipulations outweigh the cost of creating a nationalized transmission company. Considering the international application of restructuring has been viewed as successful as a whole, a combination of market structures may be appropriate to maintain competition to the benefit of consumers.

B. Transmission Market Power in the European Union

Congestion management is among the many controversial issues confronting regulators in liberalized European electricity markets. In European markets, Transmission System Operators (TSOs) manage congestion on transmission lines.[435] European Community (EC) regulations delegate much responsibility to the TSOs.[436] A TSO should: (1) implement coordination and information exchange mechanisms; (2) publish safety, operational and planning standards; (3) afford nondiscriminatory, market-based access to transmission lines

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435. *See generally* EUR. TRANSMISSION SYS. OPERATORS, EVALUATION OF CONGESTION MANAGEMENT METHODS FOR CROSS-BORDER TRANSMISSION 3 (1999), http://www.etso-net.org/upload/documents/Evaluation_of_congestion_management_methods_for_cross-border_transmission_(Florence).pdf (discussing the role of TSOs in managing cross-border transmissions); *see also* ANDREAS EHRENMANN & YVES SMEERS, INEFFICIENCIES IN EUROPEAN CONGESTION MANAGEMENT PROPOSALS 5–6 (2004), http://www.ksg.harvard.edu/hepg/Papers/Ehrenmann.Smeers_Inefficiences.European.Congestion.Mgmt.pdf (noting that the market power of TSOs is often overlooked).

436. *See* KARSTEN NEUHOFF, CROSS BORDER PRICING OF TRANSMISSION (2004) http://www.econ.cam.ac.uk/electricity/news/refining/neuhoff.pdf (listing the TSO's responsibilities).

with no curtailment; (4) adopt a use-it or lose-it approach; (5) engage in netting, as far as technically possible; and (6) use congestion revenue for operation and investment in the transmission system.[437] The EC considered several options for the allocation of transmission capacity, including nodal pricing and separate markets.[438] The regulators were forced to acknowledge certain market power consequences of each given proposal for transmission allocation, including "[i]nefficient dispatch, [d]istorted investment signals, [p]ossible bias against certain technologies, [w]ealth transfers, [and] [d]ead-weight welfare loss."[439] In order to mitigate the exercise of market power, EC regulators attempted to create incentives for TSOs to resolve intra-zonal transmission constraints. Among the incentives were to create a trade-off between the use of capacity for internal and international transmission where the TSO should avoid local constraints with its re-dispatch costs, but the TSO will distort downward capacity available for international transfers and neighbors' loop flows.[440] This mitigation strategy appears to create incentives for the TSO to engage in anticompetitive behaviors for the benefit of native generation. It is helpful to consider the conglomeration of EU countries as a close reference to the conglomeration of sovereign states in the United States. The authority of the EU over the sovereign

437. *Id.* (citing Council Regulation 1228/2003, arts. 5.1–.2, 6.1, 6.4–.6, 2003 O.J. (L 176) 4–5 (EC)).

438. *Id.* In a nodal pricing scheme, generators submit bids to energy spot markets, and the system operator determines nodal prices and dispatch. *Id.* However, in a separate market pricing scheme, generators submit bids to a transmission auction. *Id.* Results from the auction are published, and generators then submit bids to energy spot markets. *Id.* Subsequently, the results of the energy spot market auction are published. *Id.* In a separate market pricing scheme, the auction serves as a means to determine price and dispatch levels. *See id.* (representing graphically the inefficiency of the separate market design).

439. *Id.*

440. *Id.* (citing DANIELE BENINTENDI & NICOLAS BOCCARD, AN EFFICIENT MECHANISM FOR CROSS-BORDER CONGESTION RELIEF, 2–3 (2003)); Jean-Michel Glachant & Virginie Pignon, *Nordic Electricity Congestion's Arrangement as a Model for Europe: Physical Constraints or Operator's Opportunism?* 1 (MIT Ctr. for Energy & Envtl. Pol'y Res., Working Paper No. 2002–06, 2002)); *see also* EHRENMANN & SMEERS, *supra* note 435, at 5–6 ("The question of the possible exercise of market power by TSOs is rarely addressed even though the activity of the Federal Cartel Office in Germany indicates that it might be a real problem in some cases.").

member states mirrors federalism concerns in the United States. In any event, the TSO will attempt to avoid local constraints in transmission to benefit local customers at the expense of possible electricity transfers outside of the TSO's control area.

Whatever methodology regulators choose to utilize, EC regulations do not clearly define a preferred route to take.[441] The Preamble of the Regulation 1228/2003 notes that there are various ways to address congestion problems while mentioning market splitting[442] and explicit auctions in the Appendix.[443] The Preamble further states that a "harmonized framework . . . cannot be achieved by the Member States . . . by reason of the scale and effect of the action" but would "be better achieved at the Community level."[444] This language is an assertion of EC

441. NEUHOFF, *supra* note 436.

442. *Id.* (citing Council Regulation (EC) 1228/2003, pmbl. 17, 2003 O.J. (L 176) 2 (EC)); *see also* EHRENMANN & SMEERS, *supra* note 435, at 2 (noting "[m]arket splitting[] is a simplified form of nodal pricing that was implemented in the Nordic system in 1993"). Market splitting has a record of success in the Nordic countries. *Id.* at 17. However, market splitting, by definition, requires the markets to be split into zones, which creates many problems associated with crafting zones of appropriate size. *Id.* For a more detailed economic discussion of market splitting, see generally *id*. at 17–22.

443. NEUHOFF, *supra* note 436 (citing Council Regulation 1228/2003, 2003 O.J. (L176) 10 (EC))*; see also* EHRENMANN & SMEERS, *supra* note 435, at 8, 30 (noting that coordinated auctions most naturally refer to bilateral transactions, and the EC has indicated a preference for such transactions). The auction is a vast departure from nodal pricing and assumes that the electricity markets of member states are so different that integration is not possible. *Id.* "[C]ompetitive generators and traders face uncertainty about prices in the energy market when deciding on their bids for transmission markets and might therefore buy an inappropriate amount of transmission rights." *Id.* at 39 (citing SCOTT M. HARVEY ET AL., TRANSMISSION CAPACITY RESERVATIONS AND TRANSMISSION CONGESTION CONTRACTS 24 (1996), http://ksghome.harvard.edu/~whogan/tccoptr3.pdf). Support from the German-Dutch interconnection proves the legitimacy of transmission rights concern. *Id.* (citing Karsten Neuhoff, *Integrating Transmission and Energy Markets Mitigates Market Power* 2 (Cambridge-MIT Inst., CMI Working Paper No. 17, 2003), *available at* http://www.econ.cam.ac.uk/electricity/publications/wp/ep17.pdf). The relevance of this statement is that EC regulators prefer a coordinated auction because "traders do not want to deal with the intricacies of the network." *Id.* Ehrenmann and Smeers appear to advocate a market splitting approach, which, as previously mentioned, resembles a less complicated form of nodal pricing that would be more efficient than the coordinated auction approach would be. *See id.* (describing how a nodal pricing system would work). For a more in-depth discussion of the pitfalls of coordinated auctions, see generally *id.* at 30–38.

444. NEUHOFF, *supra* note 436 (citing Council Regulation 1228/2003, pmbl. 22,

power over creating electricity markets within the context of congestion management. Given the incentives for member states to engage in behaviors that would benefit native generation to the detriment of other member states, the EC desires to assert its role as the central regulator and sole authority for market design.[445]

EC regulators also recognize the importance transmission contract design has on exercises of market power. Regulators assert that long-term transmission contracts "[r]emove base risk for forward contracting, [r]eveal future demand [and] signal for investment, [and] [c]an provide incentives for TSO[s]" to operate efficiently without amassing market power.[446] Furthermore, physical transmission contracts would be a fall-back option for market failures.[447]

The European Transmission System Operators produced their own report chronicling ideas for congestion management in European electricity markets and posited that a method for alleviating congestion should be fair and nondiscriminatory, economically efficient, transparent and non-ambiguous, feasible, and compatible with different types of trade and contracts.[448] In

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2003 O.J. (L 176) 2 (EC)).

445. *See id.* (stating that the EC can harmonize cross-border exchanges of electricity better than member states); *supra* note 286 (mentioning the protectionist behaviors of member states).

446. NEUHOFF, *supra* note 436 (citing Paul Joskow & Jean Tirole, *Merchant Transmission Investment* 60 (Cambridge-MIT Inst., CMI Working Paper No. 24, 2003), *available at* http://www.econ.cam.ac.uk/electricity/publications/wp/ep24.pdf).

447. *Id.* "Financial contracts focus on price hedging, . . . increase[] liquidity, and reduce[] transaction costs." *Id.* Financial contracts allow for the aggregation of periods and zones, which reduces the number of contracts needed. *Id.* Physical contracts, on the other hand, allow for capacity to be sliced in auctions for short-term liquidity. *Id.* Physical contracts must match the final position for balancing of electric flows. *Id.* The characteristics of the physical contract imply that lower long-term volume is available. *Id.* This implication makes sense given that capacity is limited on transmission lines. EUR. TRANSMISSION SYS. OPERATORS, *supra* note 435, at 3. However, in European electricity markets, most market participants prefer physical contracts. Neuhoff, *supra* note 436. This may be due to the trader's flexibility in meeting contractual obligations while possibly capitalizing on arbitrage opportunities when price spreads begin to appear. *See id.* (discussing the design of a transmission auction).

448. EUR. TRANSMISSION SYS. OPERATORS, *supra* note 435, at 4 (noting that regulators should "provide incentives to the TSOs to enlarge transfer capacities appropriately either by using different dynamic mechanisms to increase trade

an attempt to mirror the TLR process in the United States, TSOs advocate for a curtailment process that is based upon published net transfer capacities (NTCs) combined with some other method—not clearly specified—for congestion management to create a new hybrid system.[449] "The [NTC] represents the best estimate limit for physical electricity transfer between two control areas."[450] This process involves using the NTC as an upper limit of the available transmission capacity (ATC), whereby no further capacity may be allocated by TSOs once the upper limit is reached.[451] Then, the process requires that a system of priority for using the NTCs be implemented.[452] This system does not involve any allocation

possibilities, or by investing in new network equipment or reinforcing cross-border tie-lines").

449. *Id.* at 6; *see supra* Part IV.E.2.ii (discussing TLR abuses in the United States).

450. EUR. TRANSMISSION SYS. OPERATORS, *supra* note 435, at 6. Furthermore, "NTC is defined by the total transfer capacity (TTC) of an interconnector or more often by several interconnectors that link two control areas, reduced by a transmission security margin (TRM)." *Id.*

451. *Id.*

452. *Id.* at 6–7. Among the priority rules established are: (1) "[f]irst come, first served method;" (2) "[r]anking according to power market bids;" (3) "[p]ro rata rationing;" and (4) "[p]hysical power flow relative contribution." *Id.* at 12–13. The first come, first served method gives priority to the first reservation made for a given period of time over subsequent reservations. *Id.* at 12. This method encourages participants to make longer forecasts, but it often serves to drastically reduce short-term trading. *Id.* However, the lack of short-term trading in this method may be counteracted by the fact that Europe utilizes a use-it or lose-it scheme, and companies would be reluctant to reserve transmission they do not project to use. *Id.* at 11–13, 15, 17–18, 20 (listing the European countries utilizing a use-it or lose-it scheme). For sales to the market, the highest priority is for the lower bid price and for purchases from the market; the highest priority is for the highest prices. *Id.* at 12–13 (characterizing the ranking according to power market bid priority). This method creates strong incentives for economic efficiency but may lead to gaming strategies whereby companies bid low for their generation to have priority. *Id.* at 13. The pro rata method curtails electricity according to the following ratio: existing capacity versus requested capacity. *Id.* This method brings transparency to the market and subjects all participants to the risk of curtailment based on the size of transaction. *Id.* However, TSOs observe that gaming strategies may occur in this method by companies offering inconsistent volumes of transactions (i.e., artificially over-evaluated amounts of transactions). *Id.* Therefore, a company has an incentive to break a larger transaction into smaller pieces to reduce the risk of curtailment or reduce the amount of the transaction being curtailed. In this instance, companies have no incentive to reduce congestion. The physical power flow relative contribution priority model assigns a participation factor to each transaction that is based upon a ratio between the

scheme.[453] "The possibility of giving binding NTCs before day-ahead has been abandoned due to the inherent inaccuracy of such [NTC] values" and the fact that NTCs cannot be guaranteed because of the existence of loop flows and uncertainties with network outages and generation.[454] Contrary to U.S. electricity markets, Europe does not grant firm transmission rights, because firm transmission rights are not compatible with the current congestion management scheme.[455]

All methods proposed by TSOs and the EC regulators are subject to gaming behaviors that undermine the competitiveness of European electricity markets.[456] Based on the TSO proposed method of NTC-based curtailments, TSOs have great incentives to game the system with minimal consequences for their actions. Still, the Transmission Provider, the TSO, bases curtailments on self-reports of transmission line capacity.

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flow induced by the transaction on the congested line and the volume of the transaction. *Id.* Once curtailment is necessary, the transactions responsible for the congestion are given a priority rank according to the participation factor, and those transactions are curtailed until the congestion disappears. *Id.* This method also creates market transparency and appears to force companies who congest lines to internalize the cost of curtailment, but long-term efficiency is not ensured, and small generators not located near the transmission lines are favored. *Id.*

453. *Id.* at 7.

454. *Id.*

455. *Id.*; *see discussion supra* pp. 3–4 (mentioning the granting of firm transmission rights in the United States).

456. *See* Janusz W. Bialek, Gaming the Uniform-Price Spot Market: Quantitative Analysis, 17 IEEE TRANSACTIONS ON POWER SYS., 786, 769 (2002), *available at* http://www.see.ed.ac.uk/~jbialek/Gaming%20Uniform%20Price%20Auction.pdf [hereinafter Gaming the Uniform-Price Spot Market] (demonstrating the reasons for gaming and the strategy involved in bidding); Janusz W. Bialek, *Transmission Pricing of Cross-Border Trades in Europe* 1–2 (Univ. of Edinburgh Sch. of Eng'g & Elecs., 1999), *available at* http://www.see.ed.ac.uk/~jbialek/Invited%20paper%20Bled.pdf (invited paper for Power System Automation and Control); Janusz W. Bialek & Stanislaw Ziemanek, *Tracing Based Transmission Pricing of Cross-Border Trades: Fundamentals and Circular Flows* 1, 8 (Univ. of Edinburgh Sch. of Eng'g & Elecs., 2003), *available at* http://www.see.ed.ac.uk/~jbialek/Bialek%20and%20Ziemianek%20-%20Tracing%20Based%20Transmission%20Pricing.pdf (presented at the 2003 IEEE Bologna Power Tech Conference) (stating that the proportional sharing assumption used in tracing methodology can be rationalized on game theoretic grounds).

C. Argentina Market Structure and Gaming Behaviors

Although not a part of the EU, Argentina's deregulatory efforts are of importance, given the success of the efforts and the fact that Argentinean electricity markets are structured similarly to the U.S. markets. Argentina's electricity restructuring efforts are interesting to examine, because their markets are largely privatized, as opposed to the large nationalized companies endorsed by EU countries.[457] In the 1980s, Argentina endured chronic electricity shortages primarily attributed to poor maintenance of existing equipment, overstaffing of the electricity sectors that led to the sectors operating at a deficit (excess overhead), and a serious debt situation involving the sovereign.[458] The previous market was composed of four federal utilities; including one utility that served to balance the country's needs for power generation and transmission,[459] but it failed to create incentives for efficiency and generated distorted tariffs.[460]

In an effort to increase efficiency and remedy the reliability issues faced in the 1980s, Argentina passed the Electricity Law of 1992, which created a national regulatory body to oversee the restructuring of Argentina's electricity markets.[461] The national regulatory body, ENRE (Ente Nacional Regulador de la Electricad), was organized as a five-member commission within the Ministry of Energy, with the Minister retaining some regulatory functions.[462] Argentina, then, commenced the

457. *See* BJORNSSON, CROW & HUNTINGTON, *supra* note 121, at 41 (demonstrating Argentina's electricity structure prior to privatization).

458. *Id.* at 37.

459. *Id.* at 41.

460. *Id.* at 37 tbl.2.

461. Alejandra Nuñez-Luna & Erik J. Woodhouse, *The IPP Investment Experience in Argentina*, 8 (Working Paper No.44, 2005), *available at* http://iis-db.stanford.edu/pubs/20954/Argentina.pdf (citing Law No. 24065, Jan. 3, 1992, [LII-A] A.D.L.A. 82–93) (stating that the Electricity Act unbundled the electricity industry into generation, transmission, and distribution and allowed private participation in each segment).

462. Other characteristics of ENRE are: (1) ENRE derives its functions and responsibilities from law and not from executive branch power; (2) ENRE members cannot be easily removed, thus ensuring political independence; (3) ENRE funding is independent from government funding whereby each market participant pays in

separation of generation, transmission, and distribution into private companies.[463] In particular, the privatization of the six transmission companies currently in existence began in 1993 and was completed by 1995.[464]

Currently, "Argentina maintains a regulated retail market with franchised monopoly distributors."[465] Market participants in Argentina do not conduct electricity transactions through a power exchange.[466] Instead, Argentina, like most of the EU countries, employs bilateral contracting.[467] Argentina employs some interesting regulations aimed at preventing vertical integration of generation and transmission assets. Generation and distribution companies are competitive, for-profit entities.[468] No company, however, is allowed to own an interest in the transmission system, nor can any company participate in the system's operation.[469] Private, regulated companies own and operate all transmission in Argentina, which characterizes a complete separation between generation and transmission.[470] Argentina's electricity restructuring efforts have fared favorably upon comparisons to both other sectors in Argentina and other

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proportion to its share in gross production; (4) ENRE can unilaterally propose new policies through issuing or renewing licenses to produce energy; and (5) ENRE must respond to any proposal for change coming from consumers, generators, or distributors involving such items as price setting formulas and tariff structures. BJORNSSON, CROW & HUNTINGTON, *supra* note 121, at 49–50. ENRE is a politically independent organization under the Secretary of Energy. James Barker, Jr., Bernard Tenenbaum, & Fiona Woolf, *Regulation of Power Pools and System Operators: An International Comparison*, 18 ENERGY L.J. 261, 305 n.79 (1997).

463. Nuñez-Luna & Woodhouse, *supra* note 461, at 8.

464. ROBERT THOMAS CROW, NOT INVENTED HERE: WHAT CALIFORNIA CAN LEARN FROM ELSEWHERE ABOUT RESTRUCTURING ELECTRICITY MARKETS 11 (2001), *available at* http://media.hoover.org/documents/crow__CalElectricity.pdf (paper presented at Hoover Institution's conference "The California Electricity Problem" in October 2001).

465. BJORNSSON, CROW & HUNTINGTON, *supra* note 121, at 24.

466. *Id.* at 31 n.9.

467. *Id.*

468. *See* Maria Fernanda Ariceta, *Privitization in Argentina: When Accountability Suffered*, 1 J. OF DEV. AND SOC. TRANSFORMATION 51, 54–55 (2004), *available at* http://www.maxwell.syr.edu/moynihan/Programs/dev/pdfs/ariceta7.pdf (concluding that a key goal of Argentina was to implement privatization and to avoid vertical integration).

469. *Id.* at 15.

470. *Id.*

electricity sector reforms in the world.[471] In analyzing the restructured electricity market in Argentina, Pardina "find[s] improvements in efficiency at all stages (power generation, distribution, transmission and supply), with steady or diminishing prices in real terms and with enhanced reach and service quality."[472]

An analysis of the various restructuring efforts amongst the EU countries and Argentina yields mixed results. Although many commentators have found that each regime has been successful to some degree,[473] some structures are easier to implement within the context of U.S. electricity markets. Argentina's market structure most resembles the current system utilized in the United States given that Argentina has generation, transmission, and distribution sectors that are competitive.[474] Many of the EU countries have essentially granted monopolies for transmission companies while encouraging competition amongst the generation and distribution companies.[475] Some EU countries, like England,

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471. *See* Jim Chen, *The Nature of the Public Utility: Infrastructure, the Market, and the Law*, 98 NW. U. L. REV. 1617, 1634–35 (2004) (reviewing JOSÉ A. GÓMEZ-IBÁÑEZ, REGULATING INFRASTRUCTURE: MONOPOLY, CONTRACTS, AND DISCRETION (2003)) (noting the successful structure of Argentina's energy market and the fact that Argentina has completely privatized its electricity industry while incorporating Professor Gómez-Ibáñez's three legal strategies: "private contracts, concession contracts, and discretionary regulation"). However, Argentina was forced to "freez[e] bank deposits in 2001 and default[ed] on its debts and devalue[ed] the peso in 2002 . . . ." *Id.* at 1635. This collapse undermined confidence in Argentina's economy, which greatly affected support for electricity deregulation. "Argentina dropped from the eighth highest per capita gross national product in 1928 to forty-third by the late 1980s." *Id.* (citing ROBERT D. CRASSWELLER, PERÓN AND THE ENIGMAS OF ARGENTINA 8, 252 (1987)). These statistics illustrate the extreme volatility in the Argentinean economy, which makes it difficult to accurately assess the success of deregulation of electricity markets. *Id.*

472. MARTIN RODRIGUEZ PARDINA, GOVERNANCE MECHANISMS FOR THE ELECTRICITY MARKET IN ARGENTINA – CRITICAL ANALYSIS AND INTERNATIONAL COMPARISON 2 (2002), *available at* http://www.infraday.tu-berlin.de/fileadmin/documents/infraday/2002/papers/pardina-2002-governance_mechanism_electricity_market_argentinia-web.pdf.

473. BJORNSSON, CROW & HUNTINGTON, *supra* note 121, at 23–24.

474. GEOFFREY ROTHWELL & TÓMAS GÓMEZ, ELECTRICITY ECONOMICS: REGULATION AND DEREGULATION 10 (Wiley-IEEE Press, 2003), *available at* http://media.wiley.com/product_data/excerpt/70/04712343/0471234370-2.pdf.

475. *See supra* Part V.A.

have privatized their generation and distribution companies similar to reform the United States, but the fact remains that transmission continues to operate as a state-regulated monopoly.[476]

Even though Argentina's market structure most resembles the U.S. structure and appears to be the easiest to implement, the previous market structure of Argentina does not compare to the initial market structure of the United States, thus complicating the comparisons between the two markets. Argentina's previous market structure was comprised of four federal utilities, two joint venture hydroelectric plants, a few provincial utilities, and several electricity cooperatives.[477] Clearly, the Argentinean electricity market is neither as complicated nor as massive as the U.S. market. Like all of the international markets examined, Argentina's electricity market began as a government-run industry as compared to the immediate privatization of U.S. electricity markets.[478] In fact, Argentina and many of the EU countries did not privatize their utilities until the 1990s.[479] Therefore, more time is needed to assess the validity of their market structures accurately. Argentina also does not have a rigorous regulatory structure for energy markets,[480] which is contrary to the regulatory objectives of FERC.[481] Given this and the many differences in market structure, it may be that England or the Nordic countries are most comparable to U.S. markets.

476. Mitchell, *supra* note 273, at 789–94.

477. BJORNSSON, CROW & HUNTINGTON, *supra* note 121, at 41.

478. *Id*. at 45–46.

479. *Id*. at 46–48 (citing examples of Argentina, U.K., Germany, and Norway).

480. *See id*. at 44 (noting that the Minister only "retains some regulatory functions").

481. *Id*. at 49.

VI. REMEDIES MITIGATING THE ACCUMULATION AND EXERCISE OF MARKET POWER IN TRANSMISSION MARKETS

A. Nationalization of the Transmission Grid Under the Supervision of a Monopoly Transmission Company

Many European countries have implemented a system whereby there is one Transmission Provider with monopoly status and some semblance of competition in the generation and distribution segments of the electricity supply chain.[482] The government heavily regulates and, in some instances, subsidizes the Transmission Provider, thus making it a nonprofit or limited profit organization.[483] Considering the fact that transmission lines are not easily duplicated (thus an essential facility),[484] it makes sense for the government to manage the lines in the public interest. A for-profit entity does not have the incentive to manage the lines for the public interest. Instead, the for-profit entity has the incentive to manage transmission lines for its own profit-maximizing objectives. Therefore, many control areas may have reoccurring blackouts if the local utilities cannot procure reliable electricity due to gaming behaviors that prevent power from flowing over the transmission lines. Each locality is subject to such risk, which serves to undermine NERC's primary mission to ensure the reliability of the power supply.[485] Recently, we have had numerous blackouts in major cities at least partially, if not completely, due to the fact that the transmission lines are at capacity.[486]

In addition, privatized utilities remain unwilling to invest in the infrastructure to create more transmission lines to ensure reliability. Siting transmission lines is a very difficult and time-consuming endeavor that depletes the resources of the private

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482. *Id*. at 23, 46–48.

483. *Id*. at 18–23.

484. Paul Ballonoff, *Decree Number 888*, REG., Summer 1996, at 20, *available at* http://www.cato.org/pubs/regulation/reg19n3h.html.

485. North American Electricity Reliability Corporation, Mission Statement, http://www.nerc.com (last visited Feb. 9, 2008).

486. *See supra* Parts II, III (using the "Great Northeast Blackout of 1965" as an example).

entity.[487] In addition, FERC Order Nos. 888 and 889 force the utility to allow competitors access to the transmission lines.[488] FERC has, however, attempted to provide incentives to utilities to build new transmission lines, such as providing utilities that upgrade the system with long-term firm transmission rights.[489] These rights do not account for the entire capacity of the newly upgraded or built transmission lines.[490] Therefore, the utility could essentially give competitors a portion of its own investment—capacity on the transmission line. This has been a reoccurring problem for many years, and regulators have yet to devise appropriate incentives to spur the private sector to invest in expanding and updating the transmission infrastructure and reduce the ability of privatized utilities to engage in gaming behaviors to drive prices up.

It is possible that the government may be the entity that should step in and assume responsibility for the security of our electricity supply. By designating a monopoly Transmission Provider under the watchful eye of government regulators, the incentive to engage in gaming behaviors (i.e., constrain lines to benefit native generation, fraudulently report ATC, or abuse TLRs) would be reduced significantly. However, there are numerous cost concerns involved with such an undertaking. First, the government would have to provide just compensation for essentially seizing the transmission assets of all the public utilities either by exercising eminent domain or destroying all economic value of the transmission lines by administrative agency order.[491] Many of the European countries had the benefit

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487. Joel B. Eisen, *The Blackout of 2003: What Is Next?*, 39 U. RICH. L. REV. 709, 714 (2005).

488. Order No. 888, *supra* note 37, at 21,541. *See* Order No. 889, *supra* note 51, at 21,737.

489. 18 C.F.R. § 42.1(d)(3) (2006).

490. *See* 18 C.F.R. § 42.1(d)(6) (allowing transmission organizations to propose limitations on "existing capacity used to support long-term firm transmission rights".)

491. *See* Penn. Cent. Transp. Co. v. City of New York, 438 U.S. 104, 124–28 (1978) (examining what constitutes a "taking" of property); Loretto v. Teleprompter Manhattan CATV Corp., 458 U.S. 419, 437–38 (1982) (determining what role occupation plays in a taking); Lucas v. South Carolina Coastal Council, 505 U.S. 1003, 1015 (1992) (noting that the deprivation of all economically beneficial or productive uses of property constitutes a categorical taking regardless of the importance of the governmental

of the government initially owning the transmission assets, so creating a government-regulated monopoly company was quite easy.[492] In the United States, the electricity industry began in a privatized state,[493] which makes it increasingly difficult to revert back to a government-run and controlled industry. In addition, the electric utility is among the more cherished capitalistic entities of our economic past. In the past, government intervention has been minimal for the electricity industry.[494] Many would view the nationalization of the electricity grid as a Communistic endeavor.[495] In fact, in the midst of the California Energy Crisis, then-Governor Gray Davis proposed to nationalize the California electricity grid in order to secure reliable power at reasonable prices and to reduce the ability of the utilities to game the system.[496] The media, however, depicted Governor Davis as a Communist with

interest being served). It may be possible to allow the Transmission Providers to retain their assets and alliances but have a governmental controller of the transmission grid, which would effectuate a separation of generation from transmission without constituting a taking. Essentially, this plan would call for operational separation, but not ownership separation. Therefore, the asset owner retains some economic value. The resources necessary to constantly monitor and upgrade the transmission grid may be cost prohibitive even for the government. The end result may be an increase in taxation of the general citizenry, which would not be a popular route to take. Informational asymmetries regarding the complexity of the electricity industry may prevent the public from supporting such an endeavor. However, educational opportunities may serve to educate the populace enough to encourage politicians and regulators to create a governmental entity to control the transmission grid. Currently, NERC assumes this role, but it appears that this job may be too large of an undertaking for NERC given the reliability issues associated with the blackouts and the California Energy Crises. *See infra* Part VI.B (examining the unfeasibility of a governmental agency to monitor electricity markets).

492. JOHN BOWER, OXFORD INST. OF ENERGY STUDIES, ELECTRICITY INFRASTRUCTURE & SECURITY OF SUPPLY: SHOULD EU GOVERNMENTS INVEST IN TRANSMISSION CAPACITY?, (2004), http://www.oxfordenergy.org/comment.php?0403.

493. U.S. DEP'T OF HEALTH AND HUM. SERV., A CONSUMER'S GUIDE TO THE ISSUES IN THE RESTRUCTURING OF ELECTRIC UTILITIES (2005), http://www.liheap.ncat.org/dereg/cecarf.htm#II.Genesis.

494. GREG ALIFF & BRANKO TERZIC, THE NAT'L INT. - ENERGY SUPPLEMENT (NO. 74-S), TODAY'S ELECTRIC POWER GRIDS (Winter 2003–2004), *available at* http://www.ciaonet.org/olj/ni/ni_energysupp03/ni_energysupp03d.html.

495. *See, e.g.*, *The Y2K KO*, SACRAMENTO NEWS & REV., Dec. 28, 2000, http://www.newsreview.com/sacramento/Content?oid=oid%3A3891.

496. *Id.*

comparisons to Fidel Castro, Cuba's former Communist leader.[497] It is readily apparent that those participating in the electricity industry would prefer less government intervention even though the recent blackouts and energy crises indicate that major problems exist with the current structure of the market.

The cost to the government for nationalizing the electricity grid would be substantial. Not only would significant financial contributions be necessary to seize control of the transmission lines, but many resources would be required to appropriately monitor the system, correct any outages, settle the system (balance supply and demand for electricity), ensure no gaming behaviors occur, and engage in the many other oversight responsibilities needed to guarantee that electricity markets are competitive.[498] An auction amongst Transmission Providers for the monopoly contract may serve to raise the necessary funds to nationalize the transmission grid. Those participating in the auction would need to realize that the government would maintain extensive oversight and would regulate rates of return. In a sense, the monopoly Transmission Provider would revert back to cost-of-service regulation where the Transmission Provider charged generators and distributors rates that encompass all costs associated with delivery of the product and a regulated rate of return. The certainty of such a return may be incentive enough to attract bidders in the auction. However, it would be absolutely necessary for Transmission Providers to divest all generation and distribution assets before assuming the monopoly Transmission Provider status. This requirement is necessary to prevent Transmission Providers from participating in gaming behaviors. In addition, the government should heavily regulate the monopoly Transmission Provider to ensure that no undue discrimination takes place in the awarding of transmission rights.

Perhaps, given the exorbitant costs involved and the intense oversight needed to mitigate market power, nationalizing the electricity grid may not be the best solution. There appears to be

497. *Id.*

498. DATA INTERCHANGE STANDARDS ASS'NS, INDUSTRY PARTICIPANTS CALL FOR OPEN STANDARDS TO SUPPORT WHOLESALE ELECTRIC POWER MARKETS (2002), http://www.disa.org/pdfs/report01.pdf.

a great resistance to government intervention in the privatized electricity sector coupled with the fact that some do not view the electricity grid as a problem requiring such drastic action.[499] Ironically, some of those who are quick to criticize nationalizing the electricity grid are also those who cried out for federal assistance during the blackouts and the California Energy Crisis. Regardless, the complete overhaul of our electricity market may not be the most reasonable remedy at this time.

B. Functional Separation of Generation and Transmission

The most plausible solution to the transmission market power issue appears to be the functional separation of generation from transmission.[500] The gaming behaviors employed between Transmission Providers and their own generators continue to increase costs to consumers each year.[501]

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499. Aliff & Terzic, *supra* note 494 (noting that the U.S. electricity grid is among the most modern and reliable in the world). Electricity rates for U.S. consumers are among the lowest in the world. *Id.* However, deep regional variations in prices have emerged for various classes of customers. *Id.* The authors attribute some of the discrepancy to jurisdictional issues: FERC retains jurisdiction over wholesale electricity markets while state public utility commissions and regulators have jurisdiction over retail electricity rates paid by consumers. *Id.*

500. *See* Paul L. Joskow & Jean Tirole, *Transmission Rights and Market Power on Electric Power Networks*, 31 RAND J. OF ECON. 450, 475 (2000) ("The possession of financial [transmission] rights by a producer in the importing region or by a consumer in the exporting region aggravates their market power . . . . [P]ossession of financial rights by a monopsony in the importing region mitigates its market power by giving it an incentive to raise price in the importing region."). The observation made by Joskow and Tirole indicates that generators should not have firm or non-firm [financial] transmission rights at all, because it aggravates market power issues. *Id.* In addition, allowing a monopsony—a single buyer—to possess all the financial transmission rights would serve to mitigate market power. *Id.* The governmentally-controlled transmission system would serve as a monopsonist that could mitigate market power. Furthermore, Joskow and Tirole mention that the monopsonist has the incentive to raise price in the importing region. *Id.* This would not be applicable in a situation where the government controls the transmission system and operates it in the public interest as a nonprofit organization. The monopsonist—the governmentally-controlled Transmission Provider—would exercise enough power to keep prices low and prevent generators from amassing or exercising market power through a collusion between the generator and the Transmission Provider. It must be noted that the experiment conducted by Joskow and Tirole involved a two-node electrical network, which dwarfs the massive and complex electrical system in the United States.

501. *See* Rao & Tabors, *supra* note 145, at 21.

Currently, regulators do not have a successful solution to remedy the gaming situation. The Public Utility Commission of Texas (PUCT) appears to be one of the more proactive regulators attempting to root out gaming behaviors.[502] However, even the complex and comprehensive list compiled by the PUCT of games generators and Transmission Providers play is not all-inclusive. It is very likely that gaming occurs in ERCOT markets despite such a listing. Regulators must have the resources and the ability to constantly monitor electricity markets for anticompetitive behaviors between generators and Transmission Providers. A long, complex listing of behaviors is not enough. It appears that delegating monitoring authority to governmental agencies may not be feasible given their limited financial resources to undertake such an endeavor. Therefore, a separation between generation and transmission would serve to minimize the responsibilities of the regulators while ensuring that electricity markets remain competitive.

The experiments conducted by Rao and Tabors in the Midwest during price spikes in 1999 illustrate that Transmission Providers often grant access to transmission lines to benefit their own generation.[503] The current U.S. electricity market structure allows for vertical integration with generators owning and operating transmission lines.[504] FERC's recent order addressing long-term firm transmission rights—Order No. 681—may serve to exacerbate the gaming situation we currently face.[505] Transmission Providers are given the right to disperse the long-term firm transmission rights, and considering that the Transmission Provider often owns generation assets,[506] it is highly likely that the majority of the long-term transmission rights will be used to benefit the Transmission Provider's own generation. Only a small portion of the transmission line will

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502. *See* 2002 ERCOT ANNUAL REPORT, *supra* note 271, at 13 (showing several of the steps PUCT has taken to combat gaming).

503. Rao & Tabors, *supra* note 145, at 27 (showing significant sales due to parking).

504. *See id.* at 21.

505. *See* 18 C.F.R. § 42.1(a) (2006) (providing flexibility to transmission organizations and allowing them to self-regulate).

506. *Id.*; Rao & Tabors, *supra* note 145, at 20–21.

likely be left open for access by competitors in accordance with FERC Order Nos. 888 and 889.[507] However, given the difficulty in proving that a utility did not grant open access to the transmission lines and the fact that antitrust laws do not help much, Transmission Providers are more likely to engage in anticompetitive behaviors to limit the ability of competitors to access transmission lines to ensure delivery of safe and reliable electricity.[508]

As previously mentioned, regulators should assume control of the transmission grid and effectuate the functional separation of generation from transmission. A complete separation between generation and transmission is likely to run afoul of U.S. Supreme Court jurisprudence on "takings."[509] Allowing generators to own the transmission assets but not exercise any control over operations would drastically reduce the ability of the generator or Transmission Provider to game the system. Furthermore, government regulators would not be bound by a fiduciary duty to stockholders to maximize profits. Regulators would control the transmission grid and operate it in the public interest, which would be for the safe, efficient, and reliable transmission of electricity products to end-users. In addition, proceeds received from usage of transmission lines may be used to upgrade the transmission network or build new transmission lines to meet burgeoning demand. Regulators may also need to provide compensation to generators for the functional control of the transmission assets to avoid the destruction of all economic value.[510] However, government regulators could provide generators with a reasonable rate of return, like under a cost-of-service regime, for usage of the transmission lines; therefore, government regulators could avoid a "takings" claim by generators for the destruction of all economic value of the transmission lines.

Such a solution would allow generators to continue to own

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507. Order No. 888, *supra* note 37, at 21,541. Order No. 889, *supra* note 51, at 21,737.

508. *See* Rao & Tabors, *supra* note 145, at 29 (stating that "the speed of the transition to *equal* open access is not great").

509. *See supra* note 491 (detailing the history of takings).

510. *Id.*

assets and would not serve to undermine property rights. Therefore, Communistic outcries would be kept to a minimum and consumers would benefit from reliable power at competitive prices. The government must be prepared to monitor the market closely. Many EU member states employ some modification of this solution in their market structures.[511] On the whole, this market structure has been viewed as successful.[512] It is notable that the EU and the United States are in the beginning stages of complete deregulation of electricity markets and are likely to endure additional obstacles along the way. Regulators must establish the appropriate market structure for the long-term to ensure the mitigation of transmission market power and the efficient functioning of competitive electricity markets.

VII. CONCLUSION

The underinvestment in transmission markets and the advent of long-term firm transmission rights provide many opportunities for Transmission Providers and generators to engage in gaming behaviors to exclude competitors from accessing transmission lines. Regulators have not promulgated appropriate remedies to create incentives for Transmission Providers to allow open and nondiscriminatory access to the grid. Antitrust laws and previous orders from FERC do not create proper incentives to ensure competition and punish anticompetitive behaviors. It is clear that private utilities cannot be trusted to self-report on the "honor principle." The incentives to game the system and to maximize the profitability of the utility at the expense of the competitive market are too great. Therefore, the government must assume a more proactive role in monitoring transmission markets. I propose the functional separation between generation and transmission as an initial solution to remedy gaming behaviors and to create incentives to invest in transmission grid upgrades. Over time, regulators would be able to better assess the success of this

511. *See supra* Part V. (examining the Scandinavian countries, England, and Argentina).

512. *See id.* (commending the EU's market structure).

solution.[513] If the solution proves to be unworkable, then it may be necessary to take more drastic steps towards nationalizing the transmission grid and creating a monopoly Transmission Provider.

The complexity of the U.S. electricity market makes it increasingly difficult to devise a complete solution. It is evident, though, that generation assets should be separated from transmission assets, thus eliminating much of the vertical integration of the utilities. Even though the EU and the United States have different starting points, the United States should use the EU member states as a template for where we want to end.[514] A market structure with competitive generation and distribution balanced by a nationalized or "semi-nationalized"[515] transmission segment should align incentives to ensure lower prices for consumers, reliable power, and sustained competition in electricity markets.

513. Deregulation of electricity markets essentially commenced with the passage of the PURPA in 1978. John Howes, *The Politics of Electric Power Deregulation*, REG., Winter 1992, at 17, *available at* http://www.cato.org/pubs/regulation/reg15n1-howes.html. Therefore, the current deregulation structure has had approximately twenty-eight years to bear fruit. Some jurisdictions have not begun to deregulate until recently, but it remains apparent that the current system is unworkable. It is my conjecture that the functional separation between generation and transmission will create workable electricity markets capable of handling burgeoning demand while increasing reliability and minimizing costs.

514. *See supra* Part V. (describing the EU electricity markets as having competitive generation and distribution segments and a monopolistic, nationalized Transmission Provider).

515. "Semi-nationalized" describes the solution allowing generators to own transmission assets but retain no control. Government regulators would assume all control over the transmission assets.