

Note

Reforming Interconnection Queue Management Under FERC Order No. 2003

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The recent surge in renewable energy development has underscored the difficulties faced by electric transmission providers in providing grid access to a growing number of electric power developers. In many regions of the nation, interconnection queues are severely backlogged, with hundreds of projects awaiting grid connection—many of which are necessary to satisfy state renewable energy mandates. This Note examines the problem of generator interconnection and the underlying causes of the current interconnection queue backlogs. The Note criticizes the current interconnection policies promulgated under the Federal Energy Regulatory Commission’s Order No. 2003, evaluates recent regional efforts toward reforming these policies, and suggests additional measures that would increase the efficiency of the generator interconnection process.

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Introduction

“Take a number . . . and a seat.” Such is the message many U.S. electric power developers are hearing these days upon seeking access to the grid¹ and finding themselves at the very end of an already crowded interconnection queue.² Over the last several years, transmission planners have been inundated with requests from power developers seeking grid access, an influx that, in most regions, has been driven primarily by a sharp increase in renewable energy development. In particular, the U.S. wind energy industry has witnessed explosive growth over the past five years, a trend that has been widely reported by industry observers and, more recently, the mainstream media.³ In 2007, for example, over 5000 megawatts⁴ of wind energy were installed in the United States, representing a total investment of over \$9 billion.⁵ However, less obvious from this success story are the increasing difficulties faced by regional

1 The “grid” generally refers to the network of electric power transmission lines and associated equipment used for the long-distance transport of bulk electricity. The U.S. grid is composed of three effectively separate networks: the Eastern Interconnection, the Western Interconnection, and the Texas Interconnection. See Paul L. Joskow, *Transmission Policy in the United States*, 13 UTIL. POL’Y 95, 97 (2005). Bulk power transmission is one of three functions served by the electric power industry in addition to power generation and retail power distribution.

2 Interconnection is, most basically, the procedure by which an electric power generator is physically and electrically connected to the existing power grid. The interconnection queue is the process by which prospective generation projects are grouped and ordered by transmission planners to evaluate the potential impacts of new generation projects on the existing power grid. The list of prospective generation projects is often referred to as the interconnection queue. Queue priority is established on a first-come, first-served basis; a lower queue number therefore corresponds to higher queue priority.

3 See, e.g., Brit T. Brown & Benjamin A. Escobar, *Wind Power: Generating Electricity and Lawsuits*, 28 ENERGY L.J. 489, 489-91 (2007); Clifford Krauss, *Move Over, Oil, There’s Money in Texas Wind*, N.Y. TIMES, Feb. 23, 2008, at A1.

4 A megawatt (MW) is the most common metric used for measuring the output of an electric power plant. Roughly speaking, one MW of electric power capacity is sufficient to provide power for 1000 average residential homes.

5 AM. WIND ENERGY ASS’N, 2008—ANOTHER RECORD YEAR FOR NEW WIND INSTALLATIONS (2008), http://www.awea.org/pubs/factsheets/Market_Update.pdf.

transmission providers⁶ in managing interconnection services for the massive influx of wind and solar energy projects currently seeking transmission access.⁷ These difficulties are readily apparent from the current status of regional interconnection queues—many are backlogged with hundreds of power projects, representing tens of thousands of megawatts of generating capacity.⁸ In addition, project sponsors have reported delays of up to several months in project development owing to the interconnection process.⁹

The question, then, is why generator interconnection is so difficult. In today's "plug-and-play" world of personal computers and multimedia devices, interconnecting a power generator to the grid may seem all too simple a task. From an engineering perspective, however, generator interconnection has always presented a rather complicated technical problem that has only increased in complexity as regional transmission networks have become more highly integrated.¹⁰ Yet planners face their greatest challenge not in engineering technical solutions, but rather in balancing the many competing transmission policy objectives inherent in the open-access framework of competitive electricity markets. Whereas policy considerations were once limited to cost and network reliability, today's transmission planners must

6 In this paper, the term "transmission provider" refers to an entity that controls access to the transmission system and provides and prices transmission services. The transmission provider may or may not be the actual owner of the transmission system, as some transmission systems are owned and operated by separate entities. Where the distinction must be made between transmission owners and providers, this Note uses the term "transmission system owners" for the former. Independent transmission providers are classified as either Independent System Operators (ISOs) or Regional Transmission Organizations (RTOs). An ISO is an independent entity that coordinates transmission services over a geographic area. See LORRIN PHILIPSON & H. LEE WILLIS, UNDERSTANDING ELECTRIC UTILITIES AND DE-REGULATION 44 (2d ed. 2006). An RTO is similar to an ISO but is required to fulfill additional criteria. There are currently ten ISOs and RTOs in North America, which serve two-thirds of the electric power customers in the United States. ISO/RTO COUNCIL, IRC SOURCEBOOK 2007, at 4 (2007), <http://www.isorto.org/site/c.jhKQIZPBImE/b.2604455/k.C323/Members.htm>. The ISOs and RTOs operating in North America are Alberta Electric System Operator (AESO), California ISO (CAISO), Electric Reliability Council of Texas (ERCOT), Ontario's Independent Electricity System Operator (IESO), ISO New England (ISO-NE), Midwest ISO (MISO), New York ISO (NYISO), New Brunswick System Operator (NBSO), PJM Interconnection (PJM), and Southwest Power Pool (SPP). *Id.*

7 To be sure, the problems in obtaining grid access are neither specific to nor caused solely by renewable energy developers—all power developers appear to be facing the same interconnection difficulties, regardless of their generation technology. Indeed, in some regions, most projects awaiting interconnection rely not on wind or solar energy, but rather on fossil-fuel or other generating technologies. For example, as of November 7, 2008, the ISO-NE interconnection queue included only one wind project out of a total of sixty queued projects. ISO-NE, Interconnection Queue Request Queue 11-07-08, [available at http://www.iso-ne.com/genrntn_resrcs/nwgen_inter/status/interconnection_request_queue_%2011072008.xls](http://www.iso-ne.com/genrntn_resrcs/nwgen_inter/status/interconnection_request_queue_%2011072008.xls).

8 Bruce W. Radford, *The Queue Quandary*, PUB. UTIL. FORT., Mar. 2008, at 29.

9 *Delays in PJM Queue Processing Scare Off New Capacity, Increase Costs, Says Complaint*, INSIDE FERC, Feb. 4, 2008, at 12 (citing delays by transmission provider PJM interconnections in processing an interconnection request by Dominion Resources Services).

10 See Craig S. Pirrong, *Transaction Costs and the Organization of Coordination Activities in Power Markets*, in ELECTRIC CHOICES: DEREGULATION AND THE FUTURE OF ELECTRIC POWER 113, 115-21 (Andrew N. Kleit ed., 2007) (discussing the problem of coordination and other technical challenges faced by transmission providers); see also TURAN GÖNEN, MODERN POWER SYSTEM ANALYSIS 13 (1988) (citing the impact of interconnections on generation and transmission planning).

navigate a much thornier policy environment that includes, among other issues, the economic benefits or detriments of each particular transmission investment—including those investments that are allocated to generator interconnections.¹¹

Fortunately, or so it would seem, transmission planners are not completely out to sea without a compass. Since 2003, generator interconnection procedures and agreements have been governed by the Federal Energy Regulatory Commission's (FERC or the Commission) Order No. 2003, which established standard interconnection procedures and agreements for transmission providers interconnecting generators greater than 20 MW.¹² Uniform interconnection procedures and agreements, FERC thought, would “minimize opportunities for undue discrimination and expedite the development of new generation, while protecting reliability and ensuring that rates are just and reasonable.”¹³ FERC's standardized interconnection procedures and agreements under Order No. 2003 were the end result of an extensive public rulemaking procedure, involving input and collaboration from a broad range of industry and outside stakeholders. Yet today, Order No. 2003 has become the focal point of widespread criticism from project developers, transmission providers, and state regulators for its perceived failure to allow timely interconnection and promote the “relatively unencumbered entry”¹⁴ of new generation.¹⁵

Little more than five years since Order No. 2003 was issued, FERC is once again reforming its generator interconnection policies in light of the increasing concerns over interconnection queue management. The Commission began its efforts at reform with a December 2007 technical conference to address the issue of interconnection queue management and determine what changes, if any, should be made to Order No. 2003.¹⁶ The oral testimony and

11 See ROSS BALDICK ET AL., WORKING GROUP FOR INVESTMENT IN RELIABLE AND ECONOMIC ELECTRIC SYSTEMS, A NATIONAL PERSPECTIVE ON ALLOCATING THE COST OF TRANSMISSION INVESTMENT: PRACTICE AND PRINCIPLES 9-10 (2007) (discussing the competing objectives underlying transmission policy).

12 Order No. 2003, Standardization of Generator Interconnection Agreements and Procedures, 68 Fed. Reg. 49,846 (Aug. 19, 2003) (codified at 18 C.F.R. pt. 35) [hereinafter Order No. 2003]. Since issuing Order 2003, FERC has issued three more orders on rehearing. Order No. 2003-A, Standardization of Generator Interconnection Agreements and Procedures, 69 Fed. Reg. 15,932 (Mar. 26, 2004) (codified at 18 C.F.R. pt. 35) [hereinafter Order No. 2003-A]; Order No. 2003-B, Standardization of Generator Interconnection Agreements and Procedures, 70 Fed. Reg. 265 (Jan. 4, 2005) (codified at 18 C.F.R. pt. 35) [hereinafter Order 2003-B]; Order No. 2003-C, Standardization of Generator Interconnection Agreements and Procedures, 70 Fed. Reg. 37,661 (June 30, 2005) (codified at 18 C.F.R. pt. 35) [hereinafter Order No. 2003-C]; see *Nat'l Ass'n of Regulatory Util. Comm'rs v. FERC*, 475 F.3d 1277 (D.C. Cir. 2007), cert. denied, 128 S. Ct. 1468 (2008).

13 Order No. 2003, 68 Fed. Reg. at 49,848, ¶ 11.

14 *Id.*

15 *Market Participants Complain That FERC's Interconnection Rules Are Broken*, FOSTER ELEC. REP., Dec. 2007, at 6.

16 See Federal Energy Regulatory Commission, Technical Conference on Interconnection Queuing Practices, AD08-2-000, F.E.R.C. Docket No. AD08-2-000 (statement of Chairman Joseph T. Kelliher) (Dec. 11, 2007), available at http://elibrary.ferc.gov/idmws/docket_search.asp (enter “AD08-

subsequent written commentary provided by industry representatives indicated widespread dissatisfaction with the status quo ante, but little consensus on the way to proceed.¹⁷ In a March 2008 follow-on order, FERC offered advice to RTOs and ISOs on ways to streamline interconnection processing, but stopped short of making any changes to Order No. 2003.¹⁸ Rather, FERC acknowledged that regional differences between transmission providers warranted regional approaches.¹⁹ To this end, the Commission instructed regional transmission providers to propose their own variations of Order No. 2003 and provided general guidance as to what types of solutions would likely be approved.²⁰

The Midwest ISO—the independent entity controlling grid access in the Midwest—was the first to propose policy changes to FERC’s pro forma interconnection procedures, filing a queue reform proposal with the Commission in June 2008, after an extensive nine-month stakeholder process.²¹ In its filing, the Midwest ISO proposed significant changes to the procedural and substantive requirements of Order No. 2003, including increased fees for queue entry, progress milestones for queue progression, and a fast-track procedure for certain qualifying generation projects. In August 2008, the Commission issued its conditional approval of the Midwest ISO’s proposals, indicating a significant course change in the agency’s previous interconnection queue policies.²²

This Note examines FERC’s interconnection policies under Order No. 2003, as well as the recently approved reforms proposed by the Midwest ISO. It suggests additional reforms that should be pursued by FERC or other regional transmission providers that would further increase efficiency in processing interconnection queues. Part I of the Note begins by tracing the development of FERC’s interconnection policies and procedures within the broader movement toward deregulated U.S. electricity markets and open-access transmission policies. This Note then provides an overview of the procedural

2” into the “Docket Number” field, and then click on the documents with “Accession No.: 20071211-3002”).

17 See *FERC Eyes Reform for Generator Interconnection*, MEGAWATT DAILY, Dec. 12, 2007, at 9. All commentary and testimony from FERC’s December 11, 2007 Technical Conference on Interconnection Queuing Practices can be accessed at <http://elibrary.ferc.gov/idmws/search/fercadvsearch.asp> under Docket No. AD08-2. Written commentary from industry representatives and other stakeholders was generally filed on January 10, 2008.

18 Interconnection Queuing Practices, Docket No. AD08-2-000, Order on Technical Conference, 73 Fed. Reg. 18,267, 18,269, [2008 Transfer Binder] 122 Fed. Energy Reg. Comm’n Rep. (CCH) ¶ 61,252, at 62,433-34, ¶¶ 10-12 (Mar. 20, 2008) [hereinafter Order on Technical Conference].

19 *Id.* at 62,433, ¶ 8.

20 *Id.* at 62,434-35, ¶¶ 13, 16-18.

21 See Midwest Independent Transmission System Operator Inc. Submits Proposed Revisions to Their Open Access Transmission and Energy Markets Tariff Under ER08-1169, F.E.R.C. Docket No. ER08-1169-000 (June 6, 2008), available at http://elibrary.ferc.gov/idmws/docket_search.asp (enter “ER08-1169” into the “Docket Number” field, and then click on the documents with “Filed Date: 6/26/2008”) [hereinafter Midwest ISO Application].

22 Order Conditionally Accepting Tariff Revisions Addressing Queue Reform, 124 Fed. Energy Reg. Comm’n Rep. (CCH) ¶ 61,183, 61,879 (Aug. 25, 2008) [hereinafter Midwest ISO Approval Order].

and substantive requirements of Order No. 2003, with a particular emphasis on the important issue of cost allocation. Part II examines the difficulties of managing regional interconnection queues under the provisions of Order No. 2003. In particular, this Note stresses the implications of Order No. 2003's first-come, first-served queue priority policy and its insufficient requirements for queue entry and maintenance of queue position. Part III analyzes and evaluates the Midwest ISO's queue reform proposals and then proposes additional queue reforms. As a long-term improvement, the Note recommends expanding the authority and discretion provided to transmission providers in deciding which generation projects should proceed to interconnection. The Note argues that, by refining the financial and developmental milestones adopted in the Midwest ISO plan, such increased authority could be achieved while still limiting the opportunity for undue discrimination. As a short-term improvement to interconnection queue management, the Note recommends increasing the use of third-party consultants to conduct interconnection studies. Part IV concludes.

I. FERC's Generator Interconnection Policies and Procedures

A. *Development of Standardized Generator Interconnection Procedures*

Although federal authority to mandate generator interconnection has existed in varying degrees since the enactment of the Public Utility Regulatory Policies Act (PURPA)²³ in 1978, standardized interconnection procedures are only a recent development in the open-access regulatory framework.²⁴ Prior to PURPA, generator interconnection was primarily an internal affair—a single, vertically integrated utility typically owned and operated both the interconnecting generator and the transmission system, thereby obviating the need for formal generator interconnection procedures and agreements.²⁵ PURPA, however, forced transmission providers to provide access to their

23 Public Utility Regulatory Policies Act of 1978, Pub. L. No. 95-617, 92 Stat. 3117 (codified at 16 U.S.C. §§ 2601-2645 (2006)). PURPA was the first major step toward today's open-access transmission framework. The statute amended the Federal Power Act by adding section 210, a provision that granted FERC the authority to compel electric utilities to provide transmission system interconnection to a qualified applicant. Federal Power Act, 16 U.S.C. § 824i (2006); see RICHARD F. HIRSH, *POWER LOSS: THE ORIGINS OF DEREGULATION AND RESTRUCTURING IN THE AMERICAN ELECTRIC UTILITY SYSTEM* 81-88 (1999).

24 Prior to PURPA, the Federal Power Commission (FPC), FERC's predecessor, had only limited authority under the Federal Power Act (FPA) to force transmission system owners to interconnect their transmission systems with unaffiliated entities. The FPC's authority to order interconnection was limited to when "necessary or appropriate and in the public interest." 16 U.S.C. § 824(b) (2006). The FPC utilized this authority extensively during World War II, when it ordered numerous temporary interconnections between utilities to maintain grid reliability for emergency purposes. Richard S. Wirtz, *Electric-Utility Interconnections: Power to the People*, 21 STAN. L. REV. 1714, 1714-22 (1969). In the mid-1960s, as regional electricity networks were expanding in size, many municipal utilities sought to invoke the FPA's section 202(b) interconnection authority to gain access to cheaper public power or to enhance their competitiveness with private utilities. *Id.*

25 See PHILIPSON & WILLIS, *supra* note 6, at 12.

transmission networks to unaffiliated “qualifying facilities”—mostly cogenerating steam plants and small power plants using renewable resources.²⁶ Transmission providers managed these interconnections by utilizing a wide variety of procedures and contractual arrangements, ranging from formal interconnection agreements to simple addenda attached to power purchase agreements.²⁷ Even after the Energy Policy Act of 1992 broadened FERC’s authority to mandate generator interconnection,²⁸ there was very little standardization of interconnection procedures among transmission providers. FERC continued to overlook generator interconnection in its landmark Order No. 888, which laid the initial foundation for its open-access transmission policies.²⁹ Although Order No. 888 required each transmission owner to file basic terms and conditions regarding interconnection as part of its open access transmission tariff (OATT),³⁰ it left the remaining details of interconnection to the discretion of each transmission provider.³¹

FERC’s apparent neglect of interconnection issues in Order No. 888 was perhaps due to the fact that, by the time Order No. 888 was drafted, the Commission had already developed a substantial body of case law on generator interconnection. Indeed, after PURPA was enacted, FERC’s involvement in generator interconnection issues increased dramatically with the surge of qualifying facilities seeking interconnection during the 1980s and early 1990s.³² FERC initially treated these issues on a case-by-case basis by settling disputes that arose between generator and transmission system owners over the specific provisions of interconnection procedures and agreements.³³ Cost allocation was perhaps the most contentious issue in FERC’s interconnection hearings, as it was never entirely clear which parties benefitted the most from the transmission upgrades or facilities required for interconnection and who should pay their cost.³⁴ The Commission ultimately developed a bifurcated

26 Joskow, *supra* note 1, at 102.

27 Jackie S. Levinson & Andrew D. Schifrin, *Regulatory and Tax Treatment of Electric Interconnection Facilities*, 23 ENERGY L.J. 459, 467 (2002).

28 Energy Policy Act of 1992, Pub. L. No. 102-486, 106 Stat. 2776 (codified in scattered sections of 15, 16, 38, and 42 U.S.C.). The Energy Policy Act removed the remaining barriers to transmission access by granting FERC even greater authority to order any electric utility to provide service to any power generator or wholesale buyer. PHILIPSON & WILLIS, *supra* note 6, at 24.

29 Order No. 888, Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, 61 Fed. Reg. 21,540 (May 10, 1996) [hereinafter Order No. 888].

30 The OATT is essentially a collection—electronic or published—of a transmission provider’s rate schedules for transmission services charged to transmission customers. Order No. 888 requires all transmission providers to make public their transmission charges in the form of the OATT. Joskow, *supra* note 1, at 103.

31 Standardizing Generator Interconnection Agreements and Procedures, Advance Notice of Proposed Rulemaking, 66 Fed. Reg. 55,140 (Nov. 1, 2001) [hereinafter 2001 ANPRM].

32 Approximately 60,000 MW of the U.S. generating capacity added between the 1980s and early 1990s consisted of qualifying facilities. Joskow, *supra* note 1, at 102.

33 Order No. 2003, 68 Fed. Reg. 49,846, 49,848, ¶ 10 (Aug. 19, 2003).

34 Transmission system upgrades typically consist of physical equipment such as transmission lines, transformers, switching devices, and power meters. In addition, upgrades might also require an extensive site preparation, including the purchase of land for siting equipment or easements.

approach to cost allocation, whereby transmission upgrades for generator interconnection were divided between two categories: “interconnection facilities” and “network upgrades.”³⁵ Because the benefits of interconnection facilities were assumed to accrue to generator owners, the owners were deemed responsible for those costs. Network upgrades, on the other hand, were those upgrades necessary to maintain the overall reliability and stability of the grid given the additional power input of the proposed generator. The generator owner was required to pay the up-front cost of network upgrades; however, because these upgrades benefitted the entire network, their costs were ultimately reimbursed in the form of credits against transmission charges.

As for transmission service charges, FERC established a “higher of” pricing policy for transmission owners who also owned and operated generation facilities (non-independent transmission owners). Under this policy, non-independent transmission owners had the option of charging unaffiliated generators a transmission rate that was the higher of either: (1) the incremental cost rate of the network upgrades required for interconnection; or (2) an embedded (or “rolled in”) cost rate³⁶ for the entire transmission system, including the cost of network upgrades.³⁷ The rationale for this pricing policy was to protect the existing transmission system subscribers and native load customers from effectively subsidizing an unaffiliated generator’s network upgrades.³⁸ Accordingly, where the costs of network upgrades exceeded the benefits to existing subscribers and native load customers, the transmission provider had the option of charging the incremental cost rate to the generator.

Although FERC’s case law established a relatively clear policy on cost allocation for interconnection-related upgrades, both generation owners and transmission providers still faced considerable uncertainty with respect to the more detailed aspects of the interconnection process. The variance in interconnection procedures and standards among transmission providers increased the commercial risk faced by independent generation developers.³⁹ In

35 Order No. 2003, 68 Fed. Reg. at 49,849, ¶ 21. Under previous FERC case law, the dividing line between interconnection facilities and network upgrades was the point of connection to the transmission system. Any upgrades that were installed between the generating unit and the interconnection point were classified as interconnection facilities. By contrast, any upgrades installed beyond the interconnection point were classified as network upgrades. *Id.*

36 The incremental cost rate is roughly calculated by dividing the costs of network upgrades required for interconnection by the estimated transmission usage of the interconnected generator. In contrast, the embedded cost rate is calculated by dividing the aggregate transmission system costs (including the network upgrade of the interconnected generator) by the aggregate transmission system usage (including the additional usage of the interconnected generator). Order No. 2003-A, 69 Fed. Reg. 15,932, 15,979-80, ¶ 581 (Mar. 26, 2004).

37 FERC’s “higher of” pricing policy was established in *Northeast Utilities Service Co.*, 58 Fed. Energy Reg. Comm’n Rep. (CCH) ¶ 61,070 (1992), *aff’d in part and remanded in part sub nom. Ne. Utils. Serv. Co. v. FERC*, 993 F.2d 937 (1st Cir. 1993). *See also Pa. Elec. Co.*, 58 Fed. Energy Reg. Comm’n Rep. (CCH) ¶ 61,278, *aff’d sub nom. Pa. Elec. Co. v. FERC*, 11 F.3d 207 (D.C. Cir. 1993).

38 Order 2003-A, 69 Fed. Reg. at 15,979, ¶ 580.

39 *See* 2001 ANPRM, 66 Fed. Reg. 55,140, 55,141 (Nov. 1, 2001) (“[T]he Commission recognizes that there is still dissatisfaction and uncertainty with existing interconnection policy and

addition, there was widespread belief among unaffiliated generator owners that transmission system owners were using interconnection policies and procedures to discriminate against unaffiliated generators.⁴⁰ For their part, transmission system owners generally argued that their interconnection procedures and policies were necessary to ensure that only viable projects remained in the queue and that native load customers were not paying for upgrades that benefitted only the unaffiliated generator.⁴¹ And, as the number of generator owners seeking access to the grid increased significantly after Order No. 888, so too did the frequency of interconnection disputes between generator owners and transmission providers.⁴²

In October 2001, FERC took its first step toward remedying this situation by issuing an advanced notice of proposed rulemaking (ANPRM) seeking industry comment on a standardized interconnection procedure and agreement modeled on those used by the Electric Reliability Council of Texas (ERCOT).⁴³ After gathering industry comments on the proposed new rules, FERC then began a highly collaborative process of drafting and revising its standardized interconnection procedures and agreement, drawing on the expertise and viewpoints of power generators, transmission providers, state utility regulators, and the public.⁴⁴ In 2002, FERC published the result of this process in a notice of proposed rulemaking (NPRM) and requested further comment.⁴⁵ After further drafting and revising, in July 2003, FERC released its final pro forma standardized interconnection procedures and agreement under Order No. 2003.⁴⁶

Despite its extensive effort to build a broad consensus on the provisions of its pro forma interconnection procedures and agreement, no sooner had FERC issued Order No. 2003 than it was swamped with petitions for rehearing and clarification.⁴⁷ Accordingly, in 2004, FERC issued two more orders on rehearing: Order No. 2003-A in March 2004,⁴⁸ and Order No. 2003-B in

procedures that may have resulted in less investment in infrastructure and less confidence in the competitiveness of the markets.”).

40 *See id.* (citing complaints of unaffiliated generator owners that included unequal treatment by transmission system owners toward unaffiliated generators and lack of certainty in upgrade costs charged to unaffiliated generators).

41 *Id.* (citing transmission providers’ needs for interconnection procedures and policies as: (1) weeding out those interconnection customers who will likely never interconnect; (2) assuring the control area will benefit from the added generation; and (3) improving coordination between generators and load).

42 Order No. 2003, 68 Fed. Reg. 49,846, 49,848, ¶ 10 (Aug. 19, 2003).

43 2001 ANPRM, 66 Fed. Reg. 55,140. The ERCOT interconnection procedures and agreement were modified to reflect “best practices” that had been developed under the FERC case law. *Id.* at 55,141.

44 Order No. 2003, 68 Fed. Reg. at 49,848, ¶ 14; *see* JAMES H. MCGREW, FERC: FEDERAL ENERGY REGULATORY COMMISSION 182 (2003).

45 Standardization of Generator Interconnection Agreements and Procedures, Notice of Proposed Rulemaking, 67 Fed. Reg. 22,250 (May 2, 2002).

46 Order No. 2003, 68 Fed. Reg. 49,846.

47 *See Report of the Electric Utility Regulation Committee*, 26 ENERGY L.J. 217, 237 (2005).

48 Order No. 2003-A, 69 Fed. Reg. 15, 932 (Mar. 26, 2004).

December 2004.⁴⁹ In general, both Order No. 2003-A and Order No. 2003-B revised and clarified the rules for allocating costs incurred for any network improvements required to interconnect a generator.⁵⁰ FERC revisited its interconnection policies again in 2005, issuing Order No. 2003-C on rehearing to reaffirm and clarify its pricing policies for network improvements.⁵¹ Most recently, in January 2007, the D.C. Circuit upheld FERC's Order No. 2003 and all orders on rehearing under a challenge brought by four utilities and six state regulatory agencies, together with the National Association of Regulatory Utility Commissioners (NARUC).⁵²

B. Overview of FERC Order No. 2003

1. Objectives and Priorities

The stated objectives of Order No. 2003 are to “minimize the opportunity for undue discrimination and expedite the development of new generation while protecting reliability and ensuring that rates are just and reasonable.”⁵³ To achieve these goals, Order No. 2003 promulgates the pro forma Large Generator Interconnection Procedures (LGIP) and Large Generator Interconnection Agreements (LGIA)—standardized interconnection procedures and agreements that each jurisdictional⁵⁴ transmission provider is required to adopt as part of its OATT.⁵⁵ By ensuring that all transmission providers employ

49 Order No. 2003-B, 70 Fed. Reg. 265 (Jan. 4, 2005).

50 See, e.g., *Brownell Predicts that Changes to Generation Interconnection Rule Will Create Unnecessary Financial Uncertainty*, FOSTER ELEC. REP., Jan. 2005, at 4 (summarizing Order No. 2003-B provisions); *Revised Generator Interconnection Rule Pleases Neither Generators nor Transmission Owners*, FOSTER ELEC. REP., Apr. 2004, at 3 (summarizing Order No. 2003-A provisions). FERC also included in Order No. 2003-A two exemptions from the standardized interconnection requirements for wind power generators, recognizing that wind generators' “unique electrical characteristics” warranted a “slightly different approach.” Order No. 2003-A, 69 Fed. Reg. at 15,963 n.85. For specific exemptions, see *id.* at 15,935, ¶¶ 29, 34.

51 Order No. 2003-C, 70 Fed. Reg. 37,661 (June 30, 2005); see *FERC Affirms and Clarifies Its Large Generator Interconnection Rule*, FOSTER ELEC. REP., June 2005, at 6.

52 *Nat'l Ass'n of Regulatory Util. Comm'rs v. FERC*, 475 F.3d 1277 (D.C. Cir. 2007), cert. denied, 128 S. Ct. 1468 (2008).

53 Order No. 2003, 68 Fed. Reg. 49,846, 49,848, ¶ 11 (Aug. 19, 2003).

54 Under the FPA, FERC has jurisdiction over all transmission facilities providing interstate transmission service. 16 U.S.C. § 824 (2006). FERC normally has no jurisdiction over distribution facilities (e.g., power lines for local distribution to homes and businesses). However, for the purpose of Order No. 2003, the Commission has claimed jurisdiction over distribution facilities that are also used to interconnect generators for the purpose of wholesale power sales. See Order No. 2003-A, 69 Fed. Reg. at 15,933.

55 The LGIP, 68 Fed. Reg. 49,933 (Aug. 19, 2003), establish the procedural requirements for generator interconnection, whereas the LGIA, 68 Fed. Reg. 49,949 (Aug. 19, 2003), delineate the substantive rights and responsibilities of each party. As such, the LGIA contemplate and address a broad range of contingencies that arise in the generator interconnection process. The LGIP are included as Appendix C to Order 2003, while the LGIA are included in the LGIP as Appendix 6. Order No. 2003, 68 Fed. Reg. at 49,847. The current LGIP and LGIA reflecting all revisions can be accessed at <http://www.ferc.gov/industries/electric/indus-act/gi/stdn-gen.asp>. Hereinafter, specific provisions of the LGIP and LGIA will be cited in reference to the applicable section of the LGIP or article of the LGIA.

the same interconnection procedures and standards for all generators seeking interconnection, Order No. 2003 limits the ability of non-independent transmission providers to use the interconnection process as a tool to discriminate against unaffiliated generators. With greater ease in accessing the transmission network, more generators can connect to the grid, which increases the overall supply of electricity, thereby resulting in decreased prices and increased reliability for consumers.

In drafting Order No. 2003, FERC placed a considerably high premium on flexibility—for both transmission providers as well as interconnection customers. For example, although Order No. 2003 mandates the adoption of the pro forma LGIP and LGIA, it also allows deviations from the standard provisions, thereby seeking “a reasonable balance between . . . uniformity and flexibility.”⁵⁶ Where the transmission provider is a non-independent entity,⁵⁷ Order No. 2003 allows deviations that are justified under either a “regional differences” or a “consistent with or superior to” standard.⁵⁸ On the other hand, if the transmission provider is an independent entity—that is, an RTO or ISO—the order allows much more leeway in modifying the LGIP and LGIA. To a limited extent, independent transmission providers can adjust the terms, conditions, and pricing of the pro forma procedures and the agreement to accommodate specific aspects of their particular region. Although such modifications must be approved by FERC prior to their adoption by the transmission provider, they need meet only a much less rigid “independent entity variation” standard.⁵⁹

Along with the flexibility afforded transmission providers, Order No. 2003 also provides significant flexibility to the interconnection customer. First, an interconnection customer may withdraw its interconnection request at any

56 Order No. 2003, 68 Fed. Reg. at 49,846, ¶ 7.

57 See *supra* note 6.

58 Order No. 2003, 68 Fed. Reg. at 49,850, ¶ 26. The “regional differences” and “consistent with or superior to” standards were first developed by FERC in Order No. 888 as a means to allow transmission providers to deviate from specific provisions of the pro forma OATT. Order No. 888, 61 Fed. Reg. 21,540, 21,619 (May 10, 1996). The “regional differences” standard allowed transmission providers to adopt changes to the pro forma OATT that captured regional practices that were “reasonable, generally accepted in the region, and consistently adhered to by the transmission provider (e.g., time deadlines for scheduling changes, time deadlines for determining available capacity).” *Id.* Deviations from the pro forma OATT based on the regional differences standard were permitted within the first sixty days following the issuance of the final rule under Order No. 888. *Id.* After this period, FERC was considerably less flexible in allowing deviations from the pro forma tariff in that it permitted alterations only where such changes were “consistent with, or superior to” those called for by the pro forma tariff. *Id.* In Order No. 2003-A, FERC clarified that the “regional difference” standard would be applicable only where a non-independent transmission provider sought a variation that was necessary to meet established reliability requirements. Order No. 2003-A, 69 Fed. Reg. 15, 932, 15,999, ¶ 756 (Mar. 26, 2004). For any other variations, the non-independent transmission provider is required to meet the “consistent with or superior to” standard. *Id.*

59 Order No. 2003, 68 Fed. Reg. at 49,983, ¶ 827. Under the “independent entity standard,” the Commission “recognizes that an RTO or ISO has different operating characteristics depending on its size and location and is less likely to act in an unduly discriminatory manner than a [t]ransmission [p]rovider that is a market participant.” *Id.* The “RTO or ISO shall therefore have greater flexibility to customize its interconnection procedures and agreements to fit regional needs.” *Id.*

time during the interconnection process with little more than written notice to the transmission provider.⁶⁰ When an interconnection customer withdraws, it forfeits its queue position and must pay the transmission provider all costs “prudently incur[red]” with respect to the interconnection request.⁶¹ Second, an interconnection customer may suspend construction and installation of interconnection facilities or network upgrades for up to three years after executing an interconnection agreement.⁶² Upon suspending its project, the customer is responsible for only (1) the costs incurred by the transmission provider prior to the suspension; and (2) any costs the transmission provider incurs by suspending the interconnection project.⁶³ Last, an interconnection customer is permitted to modify its interconnection request—including the technical parameters of both its power generator and interconnection facilities—at any time during the interconnection study process.⁶⁴ For example, the LGIP allow interconnection customers significant flexibility to modify, suspend, or withdraw their interconnection request with little consequence. The customer is, however, limited in its ability to change the electric power output of its proposed generator—it may not increase the proposed output, and it has only limited ability to decrease the proposed output of the project.⁶⁵ These policies and their implications for queue management will be discussed in Part II.

2. Procedural and Substantive Requirements

Viewed from a distance, generator interconnection under Order No. 2003 seems relatively straightforward. The interconnection procedure begins when a prospective generator developer—the “interconnection customer”⁶⁶—submits a valid interconnection request to the transmission provider along with a \$10,000 deposit and a demonstration of site control.⁶⁷ The transmission provider then

60 LGIP, 68 Fed. Reg. 49,933, 49,938, § 3.6 (Aug. 19, 2003). An interconnection request may also be deemed withdrawn by the transmission provider if the interconnection customer does not adhere to the provisions of the LGIP. *Id.*

61 *Id.*

62 LGIA, 68 Fed. Reg. 49,949, 49,958, art. 5.16 (Aug. 19, 2003).

63 *Id.*

64 *See, e.g.*, LGIP, 68 Fed. Reg. at 49,939, §§ 4.4.1-3.

65 Prior to the system impact study, the interconnection customer may decrease its proposed electric power output by up to sixty percent. *Id.* at 49,939, § 4.4.1. Prior to the facilities study, the interconnection customer may decrease its proposed electrical output an additional fifteen percent. *Id.* at 49,939, § 4.4.2. If the interconnection customer wishes to increase its proposed electric power output, the incremental power increase will be placed at the end of the queue for cost allocation and interconnection analyses. *Id.* at 49,939, § 4.4.1.

66 *Id.* at 49,934, § 1. The interconnection customer can also be the transmission provider, transmission owner, or any of the affiliates or subsidiaries of either, that proposes to interconnect a generating facility with the transmission provider’s transmission system. *Id.*

67 *Id.* at 49,937, § 3.3.1. Site control can be demonstrated by any of the following: (1) holding a leasehold interest or right to develop a site for the purpose of constructing a power generator; (2) an option to purchase or acquire a leasehold site for such purpose; or (3) an exclusivity or other business relationship between the interconnection customer and the seller/owner of the site property. *Id.* at 49,934, § 1. In lieu of demonstrating site control, the interconnection customer can instead post an

assigns the interconnection customer a queue position based on the date and time the interconnection request was submitted. Upon establishment of queue priority, the transmission provider commences an in-depth interconnection study process composed of three separate analyses: a feasibility study, a system impact study, and a facilities study.⁶⁸ The interconnection customer is responsible for all costs associated with interconnection studies and must post nominal deposits prior to the commencement of each study.⁶⁹

All interconnection studies are performed separately and sequentially, beginning with the feasibility study and ending with the facilities study. The feasibility study is the most basic of the studies and comprises a reality check to ensure the proposed interconnection is reasonable from engineering and economic perspectives. By comparison, the system impact and facilities studies are much more rigorous engineering and cost evaluations of the requirements for interconnection. All interconnection requests are studied serially based on queue priority, but the LGIP allow the transmission provider to perform the system impact study on multiple interconnection requests simultaneously in “clusters.”⁷⁰

After completion of the interconnection studies, the transmission provider and interconnection customer then negotiate any remaining transaction-specific provisions, such as construction milestones and other interconnection details.⁷¹ Once an agreement has been reached between the parties, the interconnection agreement is filed and executed. Thereupon, the interconnection customer and transmission provider may begin construction activities on the interconnection in accordance with the terms agreed upon in the LGIA.⁷²

3. Interconnection Cost Allocation

In drafting the pro forma LGIP and LGIA under Order No. 2003, FERC incorporated much of its previous case law regarding generator

additional \$10,000 deposit that is refundable if the interconnection customer later demonstrates site control. *Id.* at 49,937, § 3.3.1.

68 *Id.* at 49,939-41, §§ 6-8. The LGIP also list a fourth test—the optional interconnection study. This study is performed for informational purposes at the request of the interconnection customer. *Id.* at 49,942, § 10.1. An interconnection customer might request an optional interconnection study in order to evaluate an alternate interconnection point.

69 *Id.* at 49,944, § 13.3. The required deposit amounts for the feasibility study and system impact study are \$10,000 and \$50,000, respectively. *Id.* at 49,939-40, §§ 6.1, 7.2. Prior to the facilities study, the interconnection customer must deposit the greater of \$100,000 or the estimated monthly cost of the study. *Id.* at 49,941, § 8.1.

70 *Id.* at 49,938, § 4.2. A transmission provider may also group all interconnection requests within a timeframe or “queue cluster window” of one hundred eighty calendar days. *Id.* While the LGIP do not explicitly state how clusters should be formed, in Order No. 2003 FERC indicated that clusters should be constituted on the basis of both queue position and electrical location. Order No. 2003, 68 Fed. Reg. 49,846, 49,861, ¶ 156 (Aug. 19, 2003).

71 LGIP, 68 Fed. Reg. at 49,942, § 11.2; *see* LGIA, 68 Fed. Reg. 49,949, 49,972 apps. A-F (Aug. 19, 2003).

72 LGIP, 68 Fed. Reg. at 49,942, § 11.4. These provisions are contained in the appendices of the pro forma LGIA. LGIA, 68 Fed. Reg. at 49,972 apps. A-F.

interconnection.⁷³ Most importantly, FERC continued its bifurcated approach to allocating the cost of interconnection-related upgrades. Interconnection customers remain responsible for the up-front costs of both interconnection facilities as well as network upgrades; however, the transmission provider must ultimately reimburse the cost of network upgrades, first through transmission service credits and then in a final balloon payment of any costs that are not reimbursed after twenty years.⁷⁴ In addition, FERC continued its “higher of” pricing policy with respect to transmission service charges.⁷⁵

Consistent with its underlying policy of providing flexibility to transmission providers and interconnection customers, Order No. 2003 permits independent transmission providers to deviate from the pro forma cost allocation scheme. In the order, the Commission recognized that allowing an interconnection customer to recover the full costs of network upgrades over time would mute much of the “incentive to make an efficient siting decision that takes new transmission costs into account,”⁷⁶ and where the generator ultimately sold its output to off-system customers, such recovery would amount to an unfair subsidy. Accordingly, in Order No. 2003, the Commission permitted independent transmission providers to adopt “participant funding” wherein the interconnection customer “bears the cost of all facilities and upgrades that would not be needed but for the interconnection of the new [g]enerating [f]acility.”⁷⁷

II. The Challenges of Queue Management Under Order No. 2003

A. *Symptoms*

FERC issued Order No. 2003 with the specific goal of remedying the prevalent delays in the interconnection process.⁷⁸ However, based on the oral testimony and written commentary arising from FERC’s December 2007 technical conference on queue management issues, interconnection delays have actually worsened since the issuance of Order No. 2003. The evidence and experiences shared by regional transmission planners, project developers, and state utility regulators depict an exasperating state of affairs in managing interconnection queues under FERC’s standardized procedures. For example, at the time of FERC’s technical conference, the Midwest ISO’s queue contained

73 Order No. 2003, 68 Fed. Reg. at 49,849, ¶ 21.

74 LGIA, 68 Fed. Reg. at 49,964, art. 11.4.1.

75 Order No. 2003-C, 70 Fed. Reg. 37,661 (June 30, 2005). FERC has long viewed the up-front payments for network upgrades as a loan from the interconnection customer to the transmission provider. *Id.* at 37,662 n.9.

76 Order No. 2003, 68 Fed. Reg. at 49,903, ¶ 695.

77 *Id.*

78 Order No. 2003, 68 Fed. Reg. at 49,848, ¶ 11.

over 73,000 MW⁷⁹ of prospective generation projects awaiting interconnection, of which over 57,000 MW were comprised of wind power projects.⁸⁰ It has been estimated that the Midwest ISO interconnection queue would require anywhere from forty to three hundred years to process these requests under the current interconnection procedures.⁸¹ Interconnection queues in other regions appeared similar to that of the Midwest ISO. In the California ISO, for example, there were 57,000 MW of active interconnection requests, which included approximately 40,000 MW of renewable energy technologies.⁸²

Contributing to the growing interconnection queue backlogs is the increasing frequency of delays in processing interconnection studies. As one example, power developer Dominion Resources Services (Dominion) cited a feasibility study that was completed nearly three months late as well as a follow-on system impact study that was an estimated three to six months behind schedule.⁸³ Along with Dominion, several other power developers have expressed their frustration with delayed interconnection studies.⁸⁴ Moreover, in regions that have implemented forward capacity markets,⁸⁵ delays in completing interconnection studies are causing even greater complications. Power developers seeking to participate in forward capacity markets are either

79 Interconnection queue size is typically measured in terms of the overall power capacity awaiting connection rather than the number of projects awaiting connection.

80 Comments on Filing of ISO/RTO Council (ISO/Regional Trans. Org. Council) Under AD08-2, F.E.R.C. Docket No. AD08-2-000, at 6 (Jan. 10, 2008), *available at* http://elibrary.ferc.gov/idmws/docket_search.asp (enter “AD08-2” into the “Docket Number” field, and then click on the documents with “Accession No.: 20080110-5085”) [hereinafter Comments of the ISO/RTO Council].

81 Radford, *supra* note 8, at 28.

82 Comments of the ISO/RTO Council, *supra* note 80, at 6.

83 Post-Technical Comments of Dominion Resources Services., Inc. under AD08-2, F.E.R.C. Docket No. AD08-2-000, at 5 (Jan. 10, 2008), *available at* http://elibrary.ferc.gov/idmws/docket_search.asp (enter “AD08-2” into the “Docket Number” field, and then click on the documents with “Accession No.: 20080110-5078”) [hereinafter Post-Technical Conference Comments of Dominion Resource Services].

84 *See, e.g.*, American Wind Energy Association Comment Under AD08-2-000 in Support of RTO/ISO Areas and in Opposition to Participant Funding, F.E.R.C. Docket No. AD08-2-000 (Jan. 10, 2008), *available at* http://elibrary.ferc.gov/idmws/docket_search.asp (enter “AD08-2” into the “Docket Number” field, and then click on the documents with “Accession No.: 20080110-5020”) [hereinafter Comments of the American Wind Energy Association] (noting the delays in processing interconnection studies); Post-Technical Conference Comments of LS Power Associates, L.P., in Docket AD08-2, F.E.R.C. Docket No. AD08-2-000, at 5 (Jan. 10, 2008), *available at* http://elibrary.ferc.gov/idmws/docket_search.asp (enter “AD08-2” into the “Docket Number” field, and then click on the documents with “Accession No.: 20080110-4005”) (“[T]he problem is that studies required by the LGIP are not completed in accordance with the deadlines set forth in the LGIP.”).

85 To maintain network reliability, all transmission providers must make arrangements with power generators—affiliated or unaffiliated—to provide reserve or backup generating capacity to ensure overall system reliability. In regions that have adopted competitive wholesale electricity markets, forward capacity markets (FCM) are a recent innovation being adopted in several regions to establish the price that a power generator will be paid for providing capacity at a future date. In general, in a FCM, generators “bid” their capacity into an auction-type market, and, if their bid clears, they enter an agreement to provide capacity at a future date. *See* Peter Cramton & Steven Stoft, Ctr. for Energy and Envtl. Policy Research, The Convergence of Market Designs for Adequate Generating Capacity with Special Attention to the CAISO’s Resource Adequacy Problem 15-19 (Apr. 25, 2006) (unpublished working paper), *available at* <http://stoft.com/p/71.html>.

not permitted to bid their capacity without the results of an interconnection study or are unwilling to incur the commercial risk of entering a forward capacity agreement without an estimate of the interconnection costs.⁸⁶

B. *Queue Priority: Implications for Cost Allocation and Interconnection Re-studies*

Perhaps the most fundamental—and problematic—aspect of interconnection queue management under Order No. 2003 is its first-come, first-served paradigm for assigning queue priority. Although the presumable rationale for this policy is to ensure non-discriminatory treatment in establishing queue priority, this mechanism has serious implications for the interconnection study process as well as the allocation of costs for interconnection upgrades. In both cases, transmission providers must assume that the queue is static and all higher-queued customers have been integrated into the grid. However, in practice, the queue is anything but static, as any interconnection customer may either withdraw or suspend an interconnection request. Although an interconnection customer may modify its interconnection request after entering the queue, the effect of such modifications on the queue is limited in that only non-material modifications are permitted. Any modification to an interconnection request that is deemed material is permitted only if the interconnection customer forfeits its queue position.⁸⁷

1. Cost Allocation Implications

Intuitively, the withdrawal of higher-queued interconnection customers would seem beneficial to interconnection customers of lower priority who are then able to advance in the queue. But the withdrawal or even the suspension of a higher-queued project can, in fact, carry serious financial consequences for lower-queued interconnection customers. Under the cost allocation policy of Order No. 2003, the full up-front costs of network upgrades are allocated to the first interconnection customer requiring such upgrades for interconnection—a “first-come, first-pay” paradigm. For purposes of cost allocation and interconnection analysis for all succeeding interconnection customers, the transmission provider will assume that all higher-queued network upgrades have already been integrated into the grid. Lower-queued interconnection customers negotiating and executing interconnection agreements on this assumption are therefore subject to the commercial risk of later having to pay the up-front cost of network upgrades left unfunded by a higher-queued

⁸⁶ Post-Technical Conference Comments of Dominion Resource Services, Inc., *supra* note 83, at 4-7 (commenting on Dominion’s inability to participate in PJM Interconnection’s Base Rate Auction (FCM) due to PJM Interconnection’s delay in processing an interconnection study).

⁸⁷ LGIP, 68 Fed. Reg. 49,933, 49,939, § 4.4.3 (Aug. 19, 2003). The LGIP do not define precisely what constitutes a material modification, but rather leave the transmission provider the task of making this determination on a “reasonable basis.” Order No. 2003, 68 Fed. Reg. 49,846, 49,862, ¶ 168 (Aug. 19, 2003).

customer that withdraws its project from the queue. If a higher-queued interconnection customer suspends construction or installation of a network upgrade, any lower-queued interconnection customer entering an interconnection agreement in reliance on the suspended network upgrades again faces considerable commercial uncertainty, since it has no basis to determine if and when the network upgrades will actually be funded.

In adopting its final rule under Order No. 2003, FERC acknowledged the commercial risk imposed on lower-queued interconnection customers by its suspension and withdrawal policy.⁸⁸ However, the Commission reasoned that all interconnection customers would benefit from the added flexibility and could mitigate their commercial risk by including such contingencies in their negotiations with transmission providers over the interconnection agreement.⁸⁹ If such contingencies were not accounted for in the interconnection agreement, the Commission was less helpful, as it would simply “leave it to the [lower-queued] Interconnection Customer and the Transmission Provider to revisit the negotiated terms of their executed Interconnection Agreement.”⁹⁰

2. Interconnection Re-studies

Even where the withdrawal or suspension of a higher-queued project does not reallocate network upgrade costs to a lower-queued interconnection customer, the change can still have a financial impact on lower-queued projects because of the delays caused by interconnection re-studies. Since interconnection studies assume that all higher-queued projects have been integrated along with any network upgrades required for interconnection, any change in this assumption—namely, a higher-queued project that either drops out of the queue or otherwise modifies its interconnection request—requires an interconnection re-study.⁹¹ Although such re-studies are driven by the actions of higher-queued interconnection customers, the lower-queued projects bear the resulting costs and delays. In some cases, delays caused by re-studies can have even greater implications for project viability, as when an interconnection customer’s lenders are unwilling to finance a project without an interconnection agreement.⁹² Although FERC acknowledged that its liberal withdrawal policy might have a negative impact on lower-queued customers, it again decided in favor of flexibility, reasoning that lower-queued customers would actually benefit from “the flexibility to request that the Transmission Provider study a substitute Point of Interconnection.”⁹³

88 Order No. 2003, 68 Fed. Reg. at 49,881, ¶ 409.

89 *Id.*

90 *Id.*

91 LGIP, 68 Fed. Reg. at 49,938-41, §§ 4.4, 6.4, 7.6, 8.5.

92 See *Neptune Tells FERC That PJM’s Restudy Demands Are Putting Transmission Project “In Grave Jeopardy,”* FOSTER ELEC. REP., Jan. 2005, at 13 (citing the inability of a merchant transmission company to obtain financing for a transmission project due to delays in obtaining an interconnection agreement caused by interconnection re-studies).

93 Order No. 2003, 68 Fed. Reg. at 49,867, ¶ 222.

III. Improving Interconnection Queue Management Under Order No. 2003

A. *FERC Guidance*

Since the Commission's 2007 Technical Conference, the industry has taken significant steps toward improving interconnection queue management through regional stakeholder processes.⁹⁴ These efforts have been guided by FERC's March 2008 Conference Order, in which the Commission suggested three types of reforms to regional interconnection procedures that would likely gain approval. First, the Commission acknowledged that the requirements for obtaining and maintaining queue position were insufficient to prevent premature or unviable projects from entering the queue.⁹⁵ As one possible means of strengthening these requirements, FERC suggested increasing the amount of monetary deposits required at each stage of the interconnection process.⁹⁶ Second, the Commission recommended eliminating the feasibility study as a separate step in the interconnection process, reasoning that as long as interconnection customers have sufficient means to gather information regarding prospective interconnection sites, the feasibility study adds unnecessary delays to the interconnection process.⁹⁷ FERC also acknowledged that removing the feasibility study would increase the cost of queue entry, as the initial deposit would reflect the higher price of the system impact study as opposed to the lower cost of the feasibility study.⁹⁸ Last, and perhaps most important, FERC suggested that "there may be approaches to prioritizing queue processing that provide protection against discrimination comparable to the first come, first served approach, but that are more efficient,"⁹⁹ thereby creating an opening for transmission planners to shift to a "first-ready, first-served" approach to establishing queue priority.

FERC's follow-on order left many questions unanswered regarding the extent to which regional planners could stray from Order No. 2003 in crafting regional reforms. For example, where FERC would draw the line on increased deposits remained uncertain, as did the extent to which developmental or

94 Even before FERC's 2007 Technical Conference, several ISOs had already initiated stakeholder processes to develop solutions to interconnection queue backlogs. *See, e.g.*, CALIFORNIA ISO, GENERATION INTERCONNECTION REFORM INITIATIVE, ISSUES IDENTIFICATION PAPER (2008), available at <http://www.caiso.com/1f42/1f42c00d28c30.html>; MIDWEST ISO, PROPOSAL TO REVISE GENERATOR INTERCONNECTION PROCEDURES 3 (2008), available at http://www.midwestmarket.org/publish/Document/1d6630_11a6da4545e_-7cba0a48324a?rev=1; Memorandum from Stephen Rourke, Vice President of Sys. Planning, ISO New England, et al., to New England Conference of Public Utils. Comm'rs (Sept. 13, 2007), available at http://www.iso-ne.com/committees/comm_wkgtps/othr/fcm_gen/mtrls/sep272007/index.html.

95 Order on Technical Conference, 73 Fed. Reg. 18,267, 18,269-70, ¶ 15 (Apr. 3, 2008).

96 *Id.* at 18,270, ¶ 16.

97 *Id.* ¶ 17.

98 *Id.* ("Elimination of a separate feasibility study could streamline the study process and could reduce interconnection requests by screening out those customers who are not willing to pay the higher deposit required for a system impact study.")

99 *Id.* ¶ 18.

financial milestones could be used to establish or maintain queue priority. Moreover, in shifting to a seemingly subjective “first-ready” standard, it was difficult to say how regional transmission planners determine that a project was “first-ready” with respect to others in the queue. Fortunately, FERC provided clarity to these issues in an August 2008 order that conditionally approved an interconnection queue reform proposal submitted by the Midwest ISO in June 2008.¹⁰⁰ The approved Midwest ISO plan departs significantly from the pro forma procedures under Order No. 2003, both procedurally and substantively. In that the Midwest ISO reform proposals have gained FERC approval, it is likely that they will be highly influential in any subsequent regional reform initiatives that follow.

B. *Midwest ISO Reform*

On a procedural level, the Midwest ISO plan diverges from Order No. 2003 by dividing and arranging the pro forma interconnection process into four separate phases: a newly created Pre-Queue Phase, an Application Review Phase, a System Planning and Analysis Phase, and a final Definitive Planning Phase.¹⁰¹ During the Pre-Queue Phase, prospective interconnection customers must first meet with Midwest ISO transmission providers in an informational session to discuss their interconnection request proposal prior to actually submitting an application or paying any deposits.¹⁰² The Midwest ISO added this additional phase to reduce non-viable or speculative interconnection requests by providing realistic expectations with respect to the potential for success of interconnection requests.¹⁰³ The System Planning and Analysis Phase is simply the System Impact Study Phase from Order No. 2003, whereas the Definitive Planning Stage consists of an additional system impact study as well as a study similar to the facilities study of Order No. 2003.¹⁰⁴

The Application Review Phase is comprised primarily of the same feasibility study as used under Order No. 2003.¹⁰⁵ However, rather than serving merely as an informative evaluation, the feasibility study under the Midwest ISO plan performs a much more qualitative function in that it determines whether a project is eligible for special “fast-track” treatment. Under this newly adopted feature, an interconnection customer may skip ahead of other higher-

¹⁰⁰ Midwest ISO Approval Order, 124 Fed. Energy Reg. Comm’n Rep. (CCH) ¶ 61,183, 61,879 (Aug. 25, 2008).

¹⁰¹ Midwest Independent Transmission System Operator Inc. Submits Proposed Revisions to Their Open Access Transmission and Energy Markets Tariff Under ER08-1169, F.E.R.C. Docket No. ER08-1169-000, at 3-4 (June 30, 2008), available at http://elibrary.ferc.gov/idmws/docket_search.asp (enter “ER08-1169” into the “Docket Number” field, and then click on the documents with “Accession No. 20080630-0024”) [hereinafter Midwest ISO Amendment Filing].

¹⁰² Midwest ISO Approval Order, 124 Fed. Energy Reg. Comm’n Rep. (CCH) at 61,883, ¶ 32.

¹⁰³ *Id.* at 61,880, ¶ 5.

¹⁰⁴ Midwest ISO Amendment Filing, *supra* note 101, at 4-5.

¹⁰⁵ Midwest ISO Application, *supra* note 21, at 4.

queued projects by foregoing the System Planning and Analysis Phase entirely, and proceeding directly to the Definitive Planning Phase.¹⁰⁶ Qualification for the fast track depends on the readiness of the generation project to proceed and the complexity of the interconnection as determined by the feasibility study.¹⁰⁷

Along with the fast-track provision, the Midwest ISO plan also attempts to accelerate generator interconnection by creating a new “temporary interconnection” service that allows generation developers to take advantage of existing transmission capacity without paying for necessary network upgrades.¹⁰⁸ Under this service, a developer is permitted to interconnect to the grid; its output, however, is restricted to a seasonally adjusted operational limit based on the available transmission capacity. Accordingly, temporary interconnection would bear the financial risk that future operational limits could render the project commercially unviable.

Substantive changes to the pro forma procedure are designed largely to ensure that only commercially viable projects enter the queue and that, once in the queue, projects continue to make progress toward an interconnection agreement. Most importantly, the first-come, first-served queue priority rule of Order No. 2003 is mostly scrapped under the Midwest ISO plan. Aside from allowing qualifying interconnection projects to skip the System Planning and Analysis Phase under the fast-track option, the Midwest ISO plan also allows interconnection projects to advance toward interconnection based on a series of technical and financial readiness milestones.¹⁰⁹ For example, before the Facilities Study in the Definitive Planning Stage, the interconnection customer must meet one of the following requirements: (1) obtain a power purchase agreement or become designated as a network resource; (2) provide the transmission provider reasonable security for the cost of necessary network upgrades; or (3) demonstrate that generator turbines have been ordered for the proposed project.¹¹⁰

In addition to readiness milestones, the Midwest ISO plan also increases the cost of entering and remaining in the queue through increased study deposits and a more rigid suspension policy. Where Order No. 2003 calls for a \$10,000 deposit to enter the queue, the Midwest ISO plan requires not only an initial \$5000 application fee, but also an additional study deposit that ranges from \$10,000 to \$120,000, depending on the size of the generator.¹¹¹ The plan

106 Midwest ISO Approval Order, 124 Fed. Energy Reg. Comm’n Rep. (CCH) at 61,883, ¶ 38.

107 Midwest ISO Amendment Filing, *supra* note 101, at 4.

108 Midwest ISO Approval Order, 124 Fed. Energy Reg. Comm’n Rep. (CCH) at 61,896, ¶ 124.

109 Midwest ISO Amendment Filing, *supra* note 101, at 13-16.

110 *Id.* at 15 n.53.

111 Midwest ISO, Attachment X: Generator Interconnection Procedures, § 3.3.1 (June 26, 2008), available at http://www.midwestmarket.org/publish/Document/25f0a7_11c1022c619_-7d600a48324a [hereinafter Midwest ISO Interconnection Procedure]. For generators less than 6 MW, the Midwest ISO plan calls for a \$10,000 study deposit, whereas a 100 MW generator requires a \$120,000 deposit. *Id.*

requires a similar sliding study deposit before an interconnection customer enters the Definitive Planning Stage.¹¹² Along with higher queue entry fees, the Midwest ISO plan also raises the cost of suspending an interconnection request by allowing suspension only for force majeure reasons and requiring the customer to provide additional security to pay for the cost of network upgrades that would have been required for the interconnection project.¹¹³

C. *Evaluating the Midwest ISO Plan*

Transmission planners face no easy task in improving interconnection queue management given the number and disparity of stakeholders involved, as well as the constraints imposed by FERC under Order No. 2003. The Midwest ISO plan itself was the result of an extensive stakeholder process involving over twenty-nine separate organizations meeting on more than fifteen occasions over the course of nine months.¹¹⁴ Perhaps most amazing was that any consensus was actually reached among so many competing interests. And, although it is uncertain that the Midwest ISO plan will yield any short-term improvements, the plan is certainly on the right track as a long-term solution to interconnection queue congestion, and it should serve as an adequate starting point for other regional transmission providers drafting their own reform proposals.

As a short-term solution, it is unclear that the Midwest ISO plan will have much, if any, effect on the immense queue backlogs in the Midwest. The plan's fast-track and temporary interconnection options should enable many projects to move forward much faster than under Order No. 2003. In particular, wind projects seeking interconnection in remote areas with relatively simple interconnections could benefit from either the fast-track or the temporary interconnection option. However, even if such projects are accelerated through the interconnection process, the limited availability of transmission capacity in the wind-rich areas of the Midwest will likely prevent any meaningful paring of the queue.¹¹⁵ Further, although the plan's milestones and deposit requirements should ultimately weed out many speculative projects, reaching this equilibrium could entail queue churn and its attendant re-study delays, as interconnection customers withdraw from the queue in reaction to the new measures.¹¹⁶ Last, the Midwest ISO plan does nothing to reduce the time required to conduct interconnection studies, a seemingly simple short-term solution to queue backlogs that was recommended by FERC in its post-

112 *Id.*

113 Midwest ISO Amendment Filing, *supra* note 101, at 19.

114 *Id.* at 3.

115 See Matthew L. Wald, *Wind Energy Bumps into Power Grid's Limits*, N.Y. TIMES, Aug. 26, 2008, at A1.

116 The Midwest ISO queue reforms will be implemented sixty days after the date of FERC's approval order. Midwest ISO Approval Order, 124 Fed. Energy Reg. Comm'n Rep. (CCH) ¶ 61,183, 61,891-92, ¶ 90 (Aug. 25, 2008). Thereafter, study deposits and milestones are applied to all interconnection customers that have not commenced a facilities study.

conference order.¹¹⁷ Rather, in one instance, the plan actually increases the time allotted for the system impact study from the ninety-day limit of Order No. 2003 to a full year.¹¹⁸

As a long-term solution, the Midwest ISO shows promise in correcting the well-known faults of Order No. 2003: excessive interconnection customer flexibility; the first-come, first-served queue priority mechanism; and insufficient queue entry requirements and suspension penalties. But more fundamentally—and more importantly—the Midwest ISO plan marks a significant increase in the authority granted to independent transmission providers in managing their interconnection queues. Rather than demanding mechanistic application of the queue priority rules under Order No. 2003, the Midwest ISO plan requires a much more proactive role for the transmission provider in managing interconnection requests. Both the Pre-Queue Phase and fast-track procedures grant the transmission provider greater discretion in moving viable projects quickly toward interconnection and dissuading non-viable projects from entering the queue. Moreover, although queue progression milestones are currently limited to those approved by the Commission, these milestones also comprise a significant increase in the transmission provider's authority to distinguish and promote promising generation projects. Going forward, increased authority to distinguish among commercially viable projects will certainly benefit the Midwest ISO.

D. *Suggestions for Future Reforms*

Moving beyond the Midwest ISO plan, the Commission and regional planners could still improve upon Order No. 2003. As a general recommendation, the Commission should continue to expand the authority and discretion granted to transmission providers in managing interconnection queues. To be sure, the absence of any such authority and discretion is arguably the surest way to prevent undue discrimination in the interconnection process; however, to achieve efficiency in managing a vast interconnection queue in a near void of any real planning or managerial discretion requires a mechanical system of exceptional robustness in the face of the many competing imperatives that define today's power industry. Order No. 2003 was a reasonable attempt at such a system, but its track record clearly indicates that it has failed to reach that ideal.

In that they have little, if anything, to gain by favoring one generator over another, independent transmission providers should be given broader latitude in

117 Order on Technical Conference, 73 Fed. Reg. 18,267, 18,269, ¶ 12 (Apr. 3, 2008).

118 Under Order No. 2003, the System Impact Study must generally be completed within ninety days of signing the System Impact Study Agreement. LGIP, 68 Fed. Reg. 49,933, 49,941, § 7.4 (Aug. 19, 2003). Under the Midwest ISO plan, "[t]he Transmission Provider shall use Reasonable Efforts to complete the Interconnection System Impact Study within one (1) year after the start of the Interconnection System Impact Study Agreement, with due diligence used to complete the study as soon as practicable." Midwest ISO Interconnection Procedure, *supra* note 111, § 7.4.

crafting interconnection policies that allow them to accelerate the most promising projects toward interconnection. Rather than blindly following the goal of “minimiz[ing] the opportunity for undue discrimination,”¹¹⁹ interconnection procedures should be flexible enough to allow and encourage independent transmission providers to duly discriminate in favor of those projects that have the most reasonable chance for commercial success. Although such provisions would necessarily introduce subjectivity to the interconnection procedure, this is a reasonable and manageable tradeoff for the efficiencies that could be gained in processing interconnection requests. Moreover, subjectivity may ultimately be an unavoidable aspect of interconnection queue management if transmission planners are forced to meet state goals relating to renewable portfolio standards. For example, in addition to deciding which project is “first-ready,” transmission providers might ultimately find themselves determining which project is “most green.”

1. Refining Milestones

As a future long-term solution to improving interconnection queue efficiency, regional planners should push to further refine developmental milestones. Although any move toward milestone-based queue management is certainly an improvement over the first-come, first-served mechanism of Order No. 2003, milestones that are crafted too broadly will do little to separate those projects that are most ready to advance in the queue from those that are not. A single, one-size-fits-all approach to developmental milestones, under which all generation projects and developers are subject to the same metrics, can be too exclusive for some developers but too permissive for others. The site control milestone developed by the Midwest ISO illustrates this problem. Under this milestone, a developer must demonstrate site control upon initially submitting an interconnection request and thereafter maintain site control throughout the interconnection process.¹²⁰ Alternatively, a developer may post a \$100,000 deposit in lieu of demonstrating site control.¹²¹ The difficulty in meeting this requirement depends largely on the type of generation technology used. For example, obtaining site control for a large wind energy project can require up to hundreds of easement and leasehold agreements, whereas site control for a fossil-fuel plant may require only a few. Yet both projects would be considered equally ready under the site control milestone. The option to submit a \$100,000 deposit in lieu of site control further diminishes the usefulness of this milestone in that the deposit has little meaning to a large generation project. For example, the optional deposit has little impact on developers of large wind energy projects, which will already require committed capital ranging from tens to

119 Order No. 2003, 68 Fed. Reg. 49,846, 49,848, ¶ 11 (Aug. 19, 2003).

120 Midwest ISO Application, *supra* note 21, § 3.3.1.

121 *Id.*

hundreds of millions of dollars.¹²² For these developers, the optional deposit comprises a relatively cheap call option on what may ultimately be a viable project, but might just as well be a speculative queue position that contributes indefinitely to interconnection queue congestion.

To more effectively gauge readiness to advance in the queue, developmental milestones must reflect the inherent differences among prospective generation projects. By incorporating such factors as the proposed generation technology, the relative size of the project (on a power output basis), and the business model of the developer, milestones could be crafted to provide a more meaningful determination of which projects are most ready to proceed. This could be accomplished by implementing a class-based milestone system, whereby developmental milestones would be defined and applied to separate classes of generation projects. Classes, in turn, could be created on the basis of generating technology, total power output, or other relevant factors. For example, separate classes defined on the basis of total power output could be created to allow a more meaningful evaluation of a developer's demonstration of, or commitment to, obtaining site control. Deposit requirements in lieu of demonstrating site control could then be defined progressively to reflect the overall capital commitment of the project. This system would allow a more meaningful evaluation of a developer's commitment to demonstrating site control. Creating separate classes of interconnection customers should not be equated with discriminating against certain generating technologies or types or sizes of interconnection customers. To the contrary, a class-based milestone system would allow for a more appropriate "apples-to-apples" comparison of the relative readiness of a generation project to proceed.

2. Third-Party Consultants

Focusing on short-term solutions to relieving interconnection queue congestion, FERC should push regional transmission providers to reduce their time frames for completing interconnection studies. The Commission has previously recognized the contribution of lengthy interconnection studies to queue backlogs, and has recommended such actions as eliminating the Feasibility Study and clustered interconnection studies, to name a few.¹²³ Yet, in approving the Midwest ISO plan, the Commission permitted the Midwest ISO to significantly lengthen its interconnection study timelines.¹²⁴ FERC should reconsider this position. To require that interconnection customers meet rigid developmental milestones, while not holding transmission providers to

¹²² The average cost for wind power development is estimated at \$1 million per MW. A twenty megawatt project—the minimum for purposes of Order No. 2003—would therefore require a minimum capital commitment of \$20 million. See AM. WIND ENERGY ASS'N, WIND ENERGY FACT SHEET: 10 STEPS IN BUILDING A WIND FARM, available at http://www.awea.org/pubs/factsheets/10stwf_fs.pdf.

¹²³ Order on Technical Conference, 73 Fed. Reg. 18,267, 18,269, ¶ 12 (Apr. 3, 2008).

¹²⁴ See *supra* note 118.

similarly rigid interconnection study timelines, is to tackle only half of the problems underlying interconnection delays. Moreover, to the extent that reducing study timelines can likely be achieved by increasing the resources available to conduct these studies, the Commission is ignoring what is perhaps the lowest-hanging fruit in its search for solutions to interconnection backlogs.

An immediate measure that could add necessary resources to expedite interconnection study timelines is the use of third-party consultants to conduct these studies. To a limited extent, the use of third-party consultants is already authorized under section 13.4 of Order No. 2003.¹²⁵ Indeed, in its post-technical conference order, the Commission even recommended the use of such consultants as a means to streamline the interconnection study process.¹²⁶ However, in its order approving the Midwest ISO plan, the Commission retracted from its earlier promotion of third-party consultants. Although it continued to “support the concept of customer commissioned interconnection studies when an RTO is not meeting its study timelines,” the Commission nonetheless concluded that “the present state of the Midwest ISO’s interconnection queue does not afford that opportunity.”¹²⁷ Given that the Midwest ISO has estimated that processing the active requests in its current queue would not be completed until 2050, it is difficult to see why the Midwest ISO queue does not afford the opportunity to expand the use of third-party consultants to expedite interconnection queue processing.¹²⁸

In objecting to the use of third-party consultants to conduct interconnection studies, FERC seemed convinced by the Midwest ISO’s claim that, due to the incorrect or incomplete assumptions made by third-party consultants in conducting interconnection studies, RTOs and ISOs would ultimately need to re-perform the interconnection studies using their own assumptions, resulting in no savings in time.¹²⁹ However, this problem could be cured by requiring third-party consultants to use the same underlying

125 LGIP, 68 Fed. Reg. 49,933, 49,944, § 13.4 (Aug. 19, 2003). Under this section, the interconnection customer may require the transmission provider to use a third-party consultant to conduct interconnection studies where: (1) the transmission provider and the interconnection customer disagree as to the estimated completion time of the study; (2) the transmission provider provides notice to the interconnection customer that it will be unable to complete the interconnection study in the time allotted by the LGIP; or (3) the transmission provider has not completed the interconnection studies in the time allotted by the LGIP nor has it provided notice to the interconnection customer of its inability to meet the applicable timeline. *Id.*

126 Order on Technical Conference, 73 Fed. Reg. at 18,269, ¶ 12.

127 Midwest ISO Approval Order, 124 Fed. Energy Reg. Comm’n Rep. (CCH) ¶ 61,183, 61,902, ¶ 168 (Aug. 25, 2008).

128 *Id.* at 61,881, ¶ 9.

129 *Id.* at 61,902, ¶ 167; *see also* Midwest Independent Transmission System Operator, Inc. Submits Proposed Revisions to Their Open Access Transmission and Energy Markets Tariff Under ER08-1169, F.E.R.C. Docket No. ER08-1169-000, pt. 4, tab F, at 65-67 (June 6, 2008) (testimony of Eric Laverty, Midwest ISO), *available at* http://elibrary.ferc.gov/idmws/docket_search.asp (enter “ER08-1169” into the “Docket Number” field, and then click on the documents with “Accession No.: 20080630-0028”) [hereinafter Testimony of Eric Laverty] (arguing that allowing developers to conduct their own interconnection studies would result in “[b]alkanized” transmission planning because developers fail to consider the needs of the entire transmission region).

interconnection study assumptions and information that are used by RTOs and ISOs in their own interconnection studies. Moreover, enhanced collaboration between transmission planners and third-party consultants would ensure that third-party interconnection studies reflect the needs of the entire transmission region in a reliable and nondiscriminatory manner, thereby avoiding the problem of “compartmentalized transmission planning.”¹³⁰ And, although there is a legitimate concern that sharing information with third-party consultants could potentially compromise sensitive information regarding proposed generation projects, this concern could be allayed by requiring third-party consultants to adhere to confidentiality agreements.

IV. Conclusion

Transmission planners face no simple task in balancing the many competing imperatives of today’s open-access electricity framework. And, as investment in generation continues to outpace investment in new or upgraded transmission capacity, the problem of allocating limited transmission resources will only increase in difficulty. Given these challenges, transmission planners can ill afford interconnection procedures and policies that only create additional inefficiencies in their planning processes. The Midwest ISO plan is a reasonable first attempt at curing many of the inefficiencies that plague FERC’s pro forma interconnection procedures under Order No. 2003. Yet policymakers can and should push for further refinement. Most importantly, interconnection procedures should not only allow, but also encourage, independent transmission providers to seek out and promote those projects most ready to proceed toward interconnection. In addition, strict interconnection timelines that apply equally to both generation developers and transmission providers will ensure that projects do not languish in interconnection queues.

130 Testimony of Eric Laverty, *supra* note 129, at 66.