

135 FERC ¶ 61,065
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Jon Wellinghoff, Chairman;
Marc Spitzer, Philip D. Moeller,
John R. Norris, and Cheryl A. LaFleur.

Midwest Independent Transmission
System Operator, Inc.

Docket No. ER06-356-002

ORDER ON REHEARING

(Issued April 21, 2011)

1. Midwest Independent Transmission System Operator, Inc. (Midwest ISO) and Horizon Wind Energy (Horizon) filed requests for rehearing of the Commission's order in this proceeding.¹ In this order, we grant in part and deny in part the requests for rehearing, as discussed below.

I. Background

2. In Order No. 2003,² the Commission adopted standard procedures and a standard agreement for the interconnection of large generation facilities. The Commission required public utilities that own, control, or operate facilities for transmitting electric energy in interstate commerce to file revised open access transmission tariffs containing these standard provisions and use them to provide interconnection service to generating facilities having a capacity of more than 20 megawatts.

¹ *Midwest Indep. Transmission Sys. Operator, Inc.*, 114 FERC ¶ 61,270 (2006) (March 17 Order).

² *Standardization of Generator Interconnection Agreements and Procedures*, Order No. 2003, FERC Stats. & Regs. ¶ 31,146 (2003), *order on reh'g*, Order No. 2003-A, FERC Stats. & Regs. ¶ 31,160, *order on reh'g*, Order No. 2003-B, FERC Stats. & Regs. ¶ 31,171 (2004), *order on reh'g*, Order No. 2003-C, FERC Stats. & Regs. ¶ 31,190 (2005), *aff'd sub nom. Nat'l Ass'n of Regulatory Util. Comm'rs v. FERC*, 475 F.3d 1277 (D.C. Cir. 2007), cert. denied, 552 U.S. 1230 (2008).

3. In Order No. 2003-A, the Commission noted that the standard interconnection procedures and agreement were based on the needs of traditional synchronous generation facilities and that a different approach might be more appropriate for generators relying on other technologies, such as wind plants.³ Accordingly, the Commission granted certain clarifications and also added a blank Appendix G to the *pro forma* Large Generator Interconnection Agreement (LGIA) for future adoption of requirements specific to other technologies.⁴

4. In Order No. 661, as modified by Order No. 661-A,⁵ the Commission adopted standard technical requirements and procedures for the interconnection of large wind plants, to be included in Appendix G to the *pro forma* LGIA and a new Appendix 7 to the *pro forma* Large Generator Interconnection Procedures (LGIP).⁶ Specifically, the Commission adopted provisions establishing standards for low voltage ride-through and power factor design criteria (reactive power). For low voltage ride-through, the Commission required all wind plants to possess the ability to remain online during voltage disturbances. For power factor design criteria, the Commission required that wind plants maintain a certain power factor measured at the point of interconnection as defined in the LGIA if the Transmission Provider shows, in the System Impact Study,⁷ that it is needed to ensure the safety or reliability of the transmission system. The

³ Order No. 2003-A, FERC Stats. & Regs. ¶ 31,160 at P 407, n.85.

⁴ *Id.*

⁵ *Interconnection for Wind Energy*, Order No. 661, FERC Stats. & Regs. ¶ 31,186 (2005), *order on reh'g*, Order No. 661-A, FERC Stats. & Regs. ¶ 31,198 (2005); *see also order granting extension of effective date and extending compliance date*, 112 FERC ¶ 61,173 (2005); Notice Extending Compliance Date, issued Oct. 28, 2005; notice extending compliance date, issued Dec. 22, 2005.

⁶ We note that Attachment X of the Midwest ISO tariff (Tariff) contains both the LGIP (referred to in the Tariff as the Generator Interconnection Procedures (GIP)), and the LGIA (referred to in the Tariff as the Generator Interconnection Agreement (GIA)). In this order, we will refer to the LGIP or LGIA when discussing the Commission's *pro forma* LGIP and LGIA. We will refer to the GIP and GIA when referring to Midwest ISO's GIP and GIA.

⁷ In Midwest ISO, the Interconnection System Impact Study occurs in the System Planning and Analysis Phase, which is designed to determine Network Upgrades that will reliably and efficiently integrate a proposed generating facility or capacity increase onto the transmission system. *See* Midwest ISO, FERC Electric Tariff, Fourth Revised Vol. No. 1, Attachment X, section 7, Original Sheet No. 3082.

Commission also adopted special interconnection procedures and a supervisory control and data acquisition requirement applicable to large wind plants.

A. Midwest ISO Compliance Filings

5. In its December 21, 2005 and January 18, 2006 filings in compliance with Order Nos. 661 and 661-A, Midwest ISO stated that, as a result of its stakeholder process and internal review of Order No. 661, it proposed revisions to the Commission's *pro forma* Appendix G to the LGIA and Appendix 7 to the LGIP under the "independent entity variation" and "consistent with or superior to" standards.⁸

6. Among other things, Midwest ISO proposed, under the "independent entity variation" standard, to revise the power factor design criteria provisions of the *pro forma* Appendix G:

A wind generating plant shall maintain all power factor factors within the range of over 0.95 leading to 0.95 lagging, unless Transmission Provider has established different requirements that apply to all generators in the Control Area on comparable basis. The Generating Facility shall be capable of continuous dynamic operation throughout the power factor design range as measured at the Point of Interconnection as defined in this LGIA, if the Transmission Provider's System Impact Study shows that such a requirement is necessary to ensure safety or reliability

Under these proposed revisions, Midwest ISO would require all wind plants to: (1) have reactive power capability, instead of only in cases where Midwest ISO determines in the System Impact Study that such capability is needed for safety or reliability; (2) maintain *all* power factors *over* 0.95 leading to 0.95 lagging, instead of *a* power factor *within the range of* 0.95 leading to 0.95 lagging; (3) meet a different power factor requirement, if that requirement is applied to all generators in a particular control area⁹ on a comparable

⁸ In Order No. 661, the Commission stated that a Transmission Provider could seek to justify revisions from the *pro forma* language under variation standards announced in Order No. 2003. See Order No. 661, FERC Stats. & Regs. ¶ 31,186 at P 107-109, citing Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 816, 822-227.

⁹ We note that Midwest ISO has since revised its GIP and GIA to refer to local balancing authority areas instead of control areas. See *Midwest Indep. Transmission Sys. Operator, Inc.*, 124 FERC ¶ 61,183 (2008) (Queue Reform Order), *order on reh'g*, 127 FERC ¶ 61,294 (2009). For the purposes of this proceeding, we will continue to refer to "control areas," which reflects the language used in the proposed tariff revisions in this proceeding.

basis; and (4) be capable of continuous dynamic operation throughout the power factor design range.

7. Midwest ISO also proposed, under the “independent entity variation” standard, to revise the special interconnection procedures adopted in Order No. 661, which permit wind plant interconnection customers to submit preliminary design specifications with their interconnection requests and then submit detailed design specifications within six months. Midwest ISO proposed to revise these procedures to require wind plant interconnection customers to provide detailed electrical design specifications for wind plants within five business days of Midwest ISO providing notification of its intent to commence the System Impact Study.

B. March 17 Order

8. In the March 17 Order, the Commission accepted in part and rejected in part Midwest ISO’s proposed revisions to the *pro forma* Appendix G. In particular, the Commission accepted Midwest ISO’s proposal to require wind plants to meet a different power factor requirement if that requirement is applied to all generators in a particular control area on a comparable basis.¹⁰ The Commission stated that this modification is permitted by Order No. 2003 and Order No. 661 and is consistent with the Commission’s previous requirement that Midwest ISO modify the power factor design criteria provisions in its *pro forma* LGIA to accommodate control areas that apply a different power factor range.¹¹

9. The Commission rejected the remainder of Midwest ISO’s proposed variations, however. First, with regard to Midwest ISO’s proposal to require all wind plants to have reactive power capability, the Commission noted, as it did in Order Nos. 661 and 661-A, that reactive power capability is a significant added cost for wind plants as opposed to conventional generators, which produce reactive power inherently. It also noted that wind plants are often located at the end of radial lines far from load, where reactive power would be wasted. As a result, the Commission expressed concern that requiring all wind plants to possess reactive power capability, regardless of a determination that it is needed for safety or reliability, could effectively discriminate against wind plants located in areas where reactive power is not needed because of the potentially prohibitive costs for them to possess this capability. Given these technical differences, the

¹⁰ March 17 Order, 114 FERC ¶ 61,270 at P 30.

¹¹ *Id.*, citing *Midwest Indep. Transmission Sys. Operator, Inc.*, 114 FERC ¶ 61,134, at P 24 (2006).

Commission concluded that Midwest ISO should instead follow the case-by-case approach of Order Nos. 661 and 661-A.¹²

10. The Commission also rejected Midwest ISO's proposed language that would require wind plants to "maintain all power factors over 0.95 leading to 0.95 lagging."¹³ The Commission stated that Midwest ISO had not explained the purpose or effect of this language or why it was necessary.¹⁴

11. The Commission rejected Midwest ISO's proposal to require wind plants to be "capable of continuous dynamic operation throughout the power factor design range," stating that the Commission, in Order No. 661, expressly declined to require dynamic reactive power capability in all wind plants.¹⁵

12. In addition, the Commission rejected Midwest ISO's proposed changes to the special interconnection procedures in the *pro forma* Appendix G. The Commission found that the proposed language was so vague that it could allow Midwest ISO to require detailed design data from wind plants at any time, defeating the purpose of the special interconnection procedures to accommodate the technical characteristics of wind plants that prevent them from providing detailed design specifications at the time when they submit interconnection requests.¹⁶

II. Rehearing Requests

13. Horizon seeks rehearing with respect to the power factor range required when a System Impact Study demonstrates that a wind facility must possess reactive power capability. Midwest ISO requests rehearing with respect to several issues: (1) requiring dynamic reactive power capability; (2) requiring all wind plants to provide reactive power; (3) maintaining "all power factors over" the applicable power factor range; and (4) the special interconnection procedures.

¹² *See id.* P 31-35.

¹³ *See id.* P 18, 37.

¹⁴ *Id.* P 37.

¹⁵ *Id.* P 36.

¹⁶ *Id.* P 43-47, citing Order No. 661, FERC Stats. & Regs. ¶ 31,186 at P 94-100, *order on reh'g*, Order No. 661-A, FERC Stats. & Regs. ¶ 31,198 at P 61.

III. Discussion

A. Control Area-Specific Power Factor Range and Dynamic Reactive Power Capability

1. Requests for Rehearing

14. Horizon requests rehearing regarding the Commission's acceptance of Midwest ISO's proposal to require a power factor range different from the 0.95 leading to 0.95 lagging range adopted in Order No. 661 if that different range is applied to all generators in a particular control area on a comparable basis.¹⁷ Specifically, Horizon asks the Commission to clarify that, in the event that a System Impact Study demonstrates that a wind facility must possess reactive power capability, a wind generator is required to meet only the power factor range identified in the System Impact Study. In the alternative, Horizon asks the Commission to direct Midwest ISO to amend its Tariff to provide that a wind plant is required to meet only the power factor range that the System Impact Study shows is needed for safety and reliability.

15. According to Horizon, the Commission's acceptance of Midwest ISO's proposal to apply control area-specific power factor ranges to wind plants, combined with its rejection of Midwest ISO's proposal to require all wind plants to have reactive power capability (instead of only requiring such capability on a case-by-case basis),¹⁸ create a potential inconsistency. In particular, it argues that the March 17 Order is unclear as to what power factor range should be applied where a System Impact Study shows that reactive power is needed for safety or reliability but demonstrates that the necessary power factor range is different from the range required for the control area. As an example, it notes that the System Impact Study for its Whistling Wind WI Energy Center, LLC (Whistling Wind), shows a need for a power factor range of 0.928 leading to 0.977 lagging, which is less than the 0.95 leading to 0.90 lagging required in the American Transmission Company, LLC (ATC), control area.

16. Horizon contends that a wind plant should not be held to a control area-specific reactive power requirement, such as that applied in the ATC control area, when the System Impact Study demonstrates the need for a less onerous requirement. It asserts that to do so would contradict the Commission's conclusion in Order Nos. 661 and 661-A that reactive power capability should only be required where necessary for safety or

¹⁷ Request for Rehearing of Horizon at 2, citing March 17 Order, 114 FERC ¶ 61,270 at P 30.

¹⁸ Request for Rehearing of Horizon at 2-3, citing March 17 Order, 114 FERC ¶ 61,270 at P 31.

reliability, and the Commission's clear policy that wind plants not be unduly burdened with the significant added cost of producing reactive power unless the System Impact Study supports the need for such reactive power.¹⁹

17. Midwest ISO seeks rehearing of the Commission's rejection of its proposed language requiring wind plants to "be capable of continuous dynamic operation throughout the power factor design range" and the Commission's statement that the System Impact Study should demonstrate the need for dynamic reactive power capability.²⁰ Specifically, Midwest ISO asks whether the System Impact Study must demonstrate only a need for dynamic reactive power capability to allow it to require a wind plant to be capable of continuous dynamic operation over the entire power factor range or whether the study must show the actual amount of dynamic capability needed at every point in the range. Stating the request differently, Midwest ISO states that it seeks clarification as to whether it can require capability for continuous dynamic operation over the entire control area power factor range once the need for dynamic reactive power is determined or whether it must develop a wind-specific System Impact Study to demonstrate a specific range for dynamic reactive power capability.²¹ Midwest ISO argues that requiring capability for continuous dynamic operation over the entire control area range, rather than determining the specific level of need in the System Impact Study, is consistent with Order Nos. 661 and 661-A.²²

2. Commission Conclusion

18. As discussed below, we will deny Horizon's request for rehearing, consistent with the Commission's determinations in Order Nos. 661 and 661-A. We will grant Midwest ISO's request and clarify that, once the Transmission Provider determines in a System Impact Study that the particular wind plant at issue must have reactive power capability for safety or reliability, that wind plant must be capable of meeting the standard power factor range of 0.95 leading to 0.95 lagging or any different power factor range that has

¹⁹ Request for Rehearing of Horizon at 3-4, citing March 17 Order, 114 FERC ¶ 61,270 at P 31 and Order No. 661-A, FERC Stats. & Regs. ¶ 31,198 at P 41.

²⁰ Request for Rehearing of Midwest ISO at 22-23, citing March 17 Order, 114 FERC ¶ 61,270 at P 36.

²¹ Midwest ISO contends that the Commission failed to provide any meaningful guidance as to the factors that a wind-specific System Impact Study should consider.

²² Request for Rehearing of Midwest ISO at 23, citing Order No. 661, FERC Stats. & Regs. ¶ 31,186 at P 53 and Order No. 661-A, FERC Stats. & Regs. ¶ 31,198 at P 36.

been established for the relevant control area and is applied to all generators on a comparable basis.²³ This clarification applies to dynamic reactive power capability as well.

19. In Order Nos. 661 and 661-A, the Commission adopted the 0.95 leading to 0.95 lagging power factor standard for wind plants that are required to possess reactive power capability, while also allowing Transmission Providers that have a different power factor range in their LGIA to seek a variation to apply that range to wind plants.²⁴ The Commission explained that a “wind generating plant, if required to provide reactive power capability . . . , should be able to operate anywhere in the +/- 0.95 power factor range.”²⁵ The Commission also stated that establishing an achievable reactive power standard if it is needed for safety or reliability provides assurance to wind plant developers that their interconnection to the grid will not be frustrated or face uncertainty due to a lack of standards.²⁶ The Commission also found that this uniform standard should remove unnecessary obstacles to the increased growth of wind generation by ensuring that wind developers, when they seek to interconnect, are not faced with widely varying standards in different areas, or for different wind technologies, manufacturers, or plant owners.²⁷

20. Consistent with this approach set forth in Order Nos. 661 and 661-A, if a System Impact Study demonstrates that a wind plant must possess reactive power capability, that wind plant must be capable of meeting the standard power factor range of 0.95 leading to 0.95 lagging or any different power factor range that has been established for the relevant control area, as explained above, and this applies to dynamic reactive power capability as

²³ The Commission requires transmission providers to use a case-by-case approach in determining whether wind plants must provide reactive power. *See infra* P 30.

²⁴ Order No. 661, FERC Stats. & Regs. ¶ 31,186 at P 50-57, *order on reh'g*, Order No. 661-A, FERC Stats. & Regs. ¶ 31,198 at P 50-52. The Commission also stated that, if a System Impact Study shows the need for a power factor range *wider* than +/- 0.95 for safety or reliability, the Transmission Provider must file a non-conforming agreement. Order No. 661-A, FERC Stats. & Regs. ¶ 31,198 at P 50.

²⁵ Order No. 661, FERC Stats. & Regs. ¶ 31,186 at P 53.

²⁶ *Id.* P 50.

²⁷ *Id.*

well.²⁸ Accordingly, we will deny Horizon's request for rehearing regarding the power factor range required.

B. Proposed Revisions to Require All Wind Plants to Provide Reactive Power

1. Request for Rehearing

21. Midwest ISO asserts that the Commission's rejection of its proposed revisions to require all wind plants to provide reactive power capability was contrary to the "independent entity standard" and granted wind plants an undue preference. According to Midwest ISO, the Commission failed in the March 17 Order to "defer to the judgment or local experience" of Midwest ISO or consider whether the proposed revisions were unduly discriminatory.²⁹ Midwest ISO also contends that the Commission failed to consider the unique circumstances of the Midwest ISO region.

22. Specifically, Midwest ISO argues that the Commission erred in basing its rejection of the proposed revisions on the "potentially prohibitive costs" that wind plants could incur by being required to provide reactive power capability in all cases, stating that the Commission failed to examine or analyze any actual cost concerns of wind plants in the Midwest ISO region. It also argues that the Commission failed to consider that Schedule 2 of Midwest ISO's Tariff could alleviate or eliminate any potential cost concerns associated with the provision of reactive power.³⁰ By basing its rejection on "potential" instead of "actual" cost concerns, Midwest ISO argues that the Commission acted contrary to its own policy and practice (which generally rejects speculative arguments) and granted wind plants an undue preference in violation of the Federal Power Act.

23. Midwest ISO also contends that, even if providing reactive power capability could impose potentially prohibitive costs, as the Commission stated in the March 17 Order,

²⁸ See also *Midwest Indep. Transmission Sys. Operator, Inc.*, 115 FERC ¶ 61,310, at P 16 (2006) (denying request of Horizon to apply only the narrower power factor range demonstrated in the System Impact Study to the Whistling Wind project). Midwest ISO's proposed language with respect to Appendix G is not necessary because Order Nos. 661 and 661-A and Appendix G already provide Midwest ISO with what it sought with respect to its proposed language.

²⁹ Request for Rehearing of Midwest ISO at 10.

³⁰ See *id.* at 11. Schedule 2 of the Midwest ISO Tariff provides compensation to generating facilities that provide reactive power.

wind plants are not relieved of the obligation to provide such “costly” power if necessary for reliability.³¹ As a result, the case-by-case approach does not reduce costs to a wind plant that must provide reactive power capability, according to Midwest ISO.

24. Midwest ISO asserts that the Commission failed to consider the unique circumstances in its region, including the concentrated location of wind plants, the existence of wind plants over a large geographic area, and the large volume of wind plants that are seeking to interconnect. According to Midwest ISO, the Commission erred in failing to carefully consider this evidence, as well as evidence addressing cost concerns, included in its affidavit.

25. Further, Midwest ISO states that, by finding that the amount of wind generation seeking to interconnect is not a different regional operating characteristic that would justify a deviation from the *pro forma* Appendix G,³² the Commission has made the amount of wind generation seeking to interconnect a “paramount issue” due to two factors.³³ First, Midwest ISO argues that the Commission has not provided any guidance regarding the study requirements Midwest ISO must apply or what it needs to demonstrate in order to require a wind plant to provide reactive power capability. Second, Midwest ISO states that it may have to rely on non-wind generating plants and the rest of the transmission system to provide additional reactive power to ensure the safe and reliable operation of the transmission system; as a result, the amount of wind generation seeking to interconnect will factor into the amount of reactive support needed from non-wind generating plants.

26. Midwest ISO also contends that the Commission erred in concluding that Midwest ISO had not offered any evidence to demonstrate that a System Impact Study is inadequate to determine reliability needs.³⁴ According to Midwest ISO, its affidavit offered evidence regarding why a “wind-specific System Impact Study is inadequate,” noting the difficulty of modeling a System Impact Study for wind plants in its large geographic footprint and explaining that, under its interconnection process, all generators must have reactive power capability.³⁵ As a result, Midwest ISO states, the System

³¹ *Id.* at 12.

³² *Id.* at 13, citing March 17 Order, 114 FERC ¶ 61,270 at P 35.

³³ Request for Rehearing of Midwest ISO at 13-14.

³⁴ *Id.* at 17, citing March 17 Order, 114 FERC ¶ 61,270 at P 32.

³⁵ Request for Rehearing of Midwest ISO at 17-18, citing Ronald Arness Aff. at 4-7, attached to Midwest ISO’s January 18, 2006 filing in this proceeding.

Impact Study for all large generating plants is conducted based on the 0.95 leading to 0.95 lagging reactive power standard. Midwest ISO argues that, if the Commission requires it to individually study wind plants to determine the need for reactive power capability, it will have to develop a specific System Impact Study for wind that presumes that reactive power is not necessary. Creating such a study is difficult given the large size of its footprint and the different reactive power requirements in its 26 control areas, Midwest ISO asserts. It argues that the Commission erred in failing to consider this reliability concern under the “independent entity” standard, or provide guidance as to what modified studies might be required to demonstrate that a wind plant needs to provide reactive power, and also granted wind plants an undue preference in this regard.³⁶

2. Commission Conclusion

27. We will deny rehearing of the March 17 Order with regard to the case-by-case approach for determining the necessity of reactive power capability for wind plants. As the Commission stated in the March 17 Order, while the Commission affords Regional Transmission Organizations (RTO) and Independent System Operators (ISO) greater flexibility under the “independent entity variation” standard when complying with its interconnection rules, it “nonetheless review[s] the proposed variations to ensure that they do not provide an unwarranted opportunity for undue discrimination or produce an interconnection process that is unjust and unreasonable.”³⁷ Midwest ISO suggests in its rehearing request that under this standard the Commission must “defer to the judgment and local experience of the Midwest ISO.”³⁸ While the Commission may well deem it appropriate and just and reasonable to defer to the judgment and local experience of an RTO or ISO, that is not the standard for reviewing modifications proposed under the “independent entity variation” standard.

28. Further, the Commission did not act contrary to the “independent entity variation” standard when it rejected Midwest ISO’s proposal to require all wind plants to possess reactive power capability, instead of on a case-by-case basis after a determination that such capability is necessary for safety or reliability. The Commission found in the March

³⁶ Request for Rehearing of Midwest ISO at 19, citing March 17 Order, 114 FERC ¶ 61,270 at P 34 (noting the conclusion in Order No. 661-A that the burden of any modified studies was outweighed).

³⁷ March 17 Order, 114 FERC ¶ 61,270 at P 29, citing *PJM Interconnection, LLC*, 108 FERC ¶ 61,025, at P 7 (2004).

³⁸ Request for Rehearing of Midwest ISO at 10.

17 Order, as it did in Order Nos. 661 and 661-A, that it would be unjust and unreasonable to require reactive power capability for all wind plants, given the significant added expense wind plants must incur to possess such capability and the technical differences of wind plants. In particular, the Commission concluded in all of these orders that this added expense could effectively provide the opportunity for undue discrimination against wind plants, given that other types of generating plants do not face a similar expense to provide reactive power capability.³⁹ As a result, the Commission required Transmission Providers to first determine that such capability is necessary for safety or reliability. This requirement ensures that wind plants will not face undue discrimination, while also protecting the reliability of the transmission system. This approach does not provide any “undue preference” for wind plants, as Midwest ISO argues; it simply recognizes that wind generation technology is different from other forms of generation and seeks to accommodate that difference, while still ensuring safety and reliability.

29. Midwest ISO argues that, in order to reject its proposed revisions, the Commission must rely on “actual” costs to wind plants for providing reactive power capability and erred in relying on “potentially prohibitive” costs. In this case, however, we are considering generic revisions to the *pro forma* tariff provisions adopted in Order No. 661 and not a specific interconnection agreement for which the actual costs might be relevant to determining whether undue discrimination has occurred. Here, the Commission may rely on its generic findings in Order Nos. 661 and 661-A, as well as the record in this proceeding,⁴⁰ regarding the significant and potentially prohibitive costs of reactive power capability for wind plants when considering whether proposed tariff provisions are just and reasonable and not unduly discriminatory.

30. Midwest ISO also contends that Schedule 2 of its Tariff provides compensation to generating plants for their provision of reactive power, which alleviates the cost concerns expressed by the Commission. Schedule 2 of the Midwest ISO Tariff reflects the Order No. 2003-A reactive power compensation policy that applies to all Transmission Providers, which only provides compensation to interconnection customers if the Transmission Provider compensates its own or its affiliated generators for reactive power within the established range,⁴¹ and therefore the compensation is not guaranteed. The Commission, in Order Nos. 661 and 661-A, developed the case-by-case approach to determining whether wind plants should provide reactive power to recognize that reactive

³⁹ See March 17 Order, 114 FERC ¶ 61,270 at P 31.

⁴⁰ See *id.* P 26, citing Protest of American Wind Energy Association/Wind on the Wires at 6-7.

⁴¹ See Order No. 2003-A, FERC Stats. & Regs. ¶ 31,160 at P 416.

power capability is a significant added cost for wind plants but not for traditional generators,⁴² and we will maintain that approach here.

31. Midwest ISO's contention that the case-by-case approach does not achieve the goal of reducing costs to wind plants because they will not be relieved of such costs if reactive power is necessary for safety or reliability is misplaced. The Commission's policy, as expressed in Order Nos. 661 and 661-A, is that, if required for safety or reliability, a wind plant must possess reactive power regardless of cost. But the case-by-case approach does reduce costs for wind plants that demonstrably do not need reactive power capability for safety or reliability. Although not all wind plants will be able to experience this cost savings, the Commission's policy expressed in Order Nos. 661 and 661-A represents an appropriate compromise between the goal of preventing wind plants from paying unnecessary reactive power costs and the need to ensure system safety and reliability.

32. In addition, contrary to Midwest ISO's contention, the Commission did consider the unique circumstances asserted as justification for the proposed revisions. For example, the Commission agreed with protesters that the increased development of wind generation in the Midwest ISO footprint was not a different regional operating characteristic that would justify deviation from the *pro forma* Appendix G adopted in Order Nos. 661 and 661-A, given that Appendix G was developed specifically to recognize and accommodate an increase in the interconnection of wind plants.⁴³ Likewise, the existence of wind plants over a large geographic area is not a different regional operating characteristic that would justify deviation from the *pro forma* Appendix G; many Transmission Providers, including other RTOs and ISOs, process interconnection requests for wind plants that are siting over large geographic areas.

33. Midwest ISO also contends that the concentration of wind facilities in certain locations in its footprint justifies revising the *pro forma* Appendix G to require all wind plants to possess reactive power capability. Further, Midwest ISO contends that, by finding that the amount of wind generation seeking to interconnect is not a different regional operating characteristic, the Commission has made the amount of wind generation seeking to interconnect a "paramount" issue. Underlying both arguments is Midwest ISO's assertion that, if all wind plants are not required to have reactive power capability, Midwest ISO will have to rely on other generating plants to provide additional reactive power to ensure the safe and reliable operation of the transmission system. In response, we reiterate that the System Impact Study "will take into account the system's

⁴² See, e.g., Order No. 661-A, FERC Stats. & Regs. ¶ 31,198 at P 45.

⁴³ See March 17 Order, 114 FERC ¶ 61,270 at P 35.

need for reactive power, both as it exists today and under reasonable anticipated assumptions,”⁴⁴ and along with the other interconnection studies “should take into account a variety of assumptions concerning anticipated system conditions.”⁴⁵ Also, as the Commission stated in the March 17 Order and Order No. 661-A, under Order No. 2003 all Transmission Providers must act in accordance with Good Utility Practice, which includes performing the studies necessary to determine whether a generating plant must provide reactive power.⁴⁶ As a result, if the amount of wind plants on the transmission system rises to such a level that a newly interconnecting wind plant will need to provide reactive power to avoid “leaning” on the system and other generators, the System Impact Study should demonstrate the need. Likewise, as future wind plants are added and the interconnection studies take into account more imminent anticipated retirements, the studies should demonstrate the need for incremental reactive power resulting from any retirements.⁴⁷

34. Finally, Midwest ISO objects to the Commission’s conclusion in the March 17 Order that Midwest ISO had not offered sufficient evidence to demonstrate that the System Impact Study is inadequate to determine reliability needs. Midwest ISO argues that its affidavit offered evidence as to why the System Impact Study is inadequate. In that affidavit, Midwest ISO argued that it would have to develop special modeling procedures for wind plants to assume that they would not be providing reactive power, which would be both costly and time consuming. As the Commission concluded in the March 17 Order and reiterates here, Midwest ISO has not persuaded the Commission that the System Impact Study is inadequate to demonstrate when a proposed wind plant will need to provide reactive power for safety or reliability. Under the interconnection study procedures, every new generating plant that proposes to interconnect, regardless of type, is modeled by the Transmission Provider with specific parameters, which should include reactive power parameters. Moreover, we note that this issue may have been overtaken by events, as Midwest ISO’s business practices manuals indicate that it *has* developed a

⁴⁴ *Id.* P 33, citing Order No. 661-A, FERC Stats. & Regs. ¶ 31,198 at P 42.

⁴⁵ March 17 Order, 114 FERC ¶ 61,270 at P 34, citing Order No. 661-A, FERC Stats. & Regs. ¶ 31,198 at P 44.

⁴⁶ March 17 Order, 114 FERC ¶ 61,270 at P 33; Order No. 661-A, FERC Stats. & Regs. ¶ 31,198 at P 42.

⁴⁷ *See also* Order No. 661-A, FERC Stats. & Regs. ¶ 31,198 at P 42 (noting that new wind generators later in the queue may be required to provide reactive power capability).

power factor analysis to determine whether wind plants need to provide reactive power.⁴⁸ Further, the Commission concluded in Order No. 661-A that, even if some additional studies are necessary (which we are not convinced will be extensive), the additional burden is justified by the considerations underlying the case-by-case approach.⁴⁹ Moreover, as the Commission has stated previously, to the extent that modeling wind generators results in additional costs, the wind plant interconnection customer will pay such costs.⁵⁰

C. Proposed Revisions to Require Wind Plants to “Maintain All Power Factors Over” 0.95 Leading to 0.95 Lagging

1. Request for Rehearing

35. Midwest ISO argues that by accepting its proposal to require wind plants (if necessary) to meet any applicable control area-specific power factor range, but rejecting its proposed tariff language to require wind plants to “maintain all power factors” over the range, the Commission granted wind plants an undue preference and “created an inconsistent result in the manner in which [] Midwest ISO requires reactive power from wind generating facilities in contrast to other generating facilities that may detrimentally affect[] the reliability of the transmission system.”⁵¹ Midwest ISO states that, by requiring Midwest ISO to revise its power factor design criteria to require wind plants to maintain a power factor within the applicable range, the Commission has allowed a wind plant to satisfy its reactive power requirement by being able to provide any leading or lagging reactive power at any point in the range. Midwest ISO also states that, under its *pro forma* GIA, all large generating plants must maintain “all power factors” within the applicable control area range to ensure that all large plants are operating in harmony with

⁴⁸ In the power factor analysis, Midwest ISO sets a wind generator’s power factor at 0.95 leading and monitors voltages in the local area. If the wind plant violates reliability criteria, the applicable control area’s power factor requirements may apply (a further analysis determines whether modeling the wind plant at its inherent reactive power capability would resolve the issue). See Midwest ISO Business Practices Manual, Generator Interconnection, Manual No. 015, section 5.1.2.

⁴⁹ Order No. 661-A, FERC Stats. & Regs. ¶ 31,198 at P 44.

⁵⁰ *Id.*

⁵¹ Request for Rehearing of Midwest ISO at 21.

the transmission system.⁵² Accordingly, Midwest ISO seeks rehearing, arguing that, under the March 17 Order, a wind plant could meet reactive power criteria by being able to provide reactive power at 0.95 lagging, even if the transmission system required 0.95 leading to allow the plant to operate in harmony. Midwest ISO also contends that allowing wind plants to operate differently from other generating plants in this regard further exacerbates its need to require non-wind plants to provide additional reactive power to ensure the reliability of the transmission system.

2. Commission Conclusion

36. We will deny Midwest ISO's request for rehearing. In the March 17 Order, we rejected Midwest ISO's proposed revisions to require wind plants to "maintain *all power factors over 0.95 leading to 0.95 lagging*" because Midwest ISO had not explained the purpose or effect of the proposal or why it was necessary.⁵³ On rehearing, Midwest ISO states that under the GIA in its Tariff, "a generating facility must be capable of operating over the entire range specified (0.95 lag to 0.95 lead)."⁵⁴ However, we continue to find that Midwest ISO has not explained why its proposal is necessary. Our determination to deny rehearing is consistent with Order No. 661. The *pro forma* Appendix G adopted in Order No. 661 provides that "[a] wind generating plant shall maintain a power factor within the range of 0.95 leading to 0.95 lagging..." and, as explained in Order No. 661, a "wind generating plant, if required to provide reactive power capability as described above, should be able to operate anywhere in the +/- 0.95 power factor range."⁵⁵ Accordingly, we disagree with Midwest ISO's contention that in the March 17 Order the Commission allowed a wind plant to satisfy its reactive power requirement simply by being able to provide any leading or lagging reactive power at any point within the range instead of providing the necessary reactive power support for the transmission system over that range. Rather, the Commission's determination in the March 17 Order is consistent with the Commission's previous determination that a wind generating plant, if required to provide reactive power capability, should be able to operate anywhere in the power factor range of 0.95 leading to 0.95 lagging.

⁵² *Id.*, citing *Midwest Indep. Transmission Sys. Operator, Inc.*, 108 FERC ¶ 61,027, at P 64 (2004).

⁵³ *See* March 17 Order, 114 FERC ¶ 61,270 at P 37 (emphasis in original).

⁵⁴ Request for Rehearing of Midwest ISO at 21 & n.42, citing *Midwest Indep. Transmission Sys. Operator, Inc.*, 108 FERC ¶ 61,027, at P 64 (2004).

⁵⁵ Order No. 661, FERC Stats. & Regs. ¶ 31,186 at P 53.

D. Proposed Revisions to the Special Interconnection Procedures**1. Request for Rehearing**

37. Midwest ISO argues that the Commission erred in rejecting its proposed revisions to the special interconnection procedures. Midwest ISO asserts that in doing so the Commission acted contrary to the “independent entity variation” standard and created an unjust and unreasonable interconnection process.

38. Specifically, Midwest ISO contends that allowing wind plants up to six months after the submission of an Interconnection Request to provide “detailed electrical design specifications or generic design specifications” creates obstacles to properly planning and processing the interconnection queue.⁵⁶ According to Midwest ISO, it has found that allowing six months to provide detailed design specifications causes delays in completing studies for lower-queued projects “by creating an undue delay simply because a wind generator does not know (at the time it enters the interconnection queue) what type of wind generator it will seek to install.”⁵⁷ It also asserts that lower-queued projects face increased risks that their study results (and the resulting determination of necessary interconnection facilities) will require modification once a higher-queued wind plant completes its design specifications. Under the general principles of Order No. 2003, these uncertainties should fall on the entity causing the uncertainty and not on other projects, Midwest ISO contends.

39. Midwest ISO also responds to the Commission’s conclusion that its revisions were too vague and appeared to require, as soon as a wind plant enters the queue, that Midwest ISO notify the wind plant interconnection customer of its intent to commence the System Impact Study and, thus, require it to submit detailed design specifications.⁵⁸ Contrary to this conclusion, Midwest ISO argues that its proposed revisions take into account the procedures in its GIP, which first require the preparation of a feasibility study prior to the System Impact Study. According to Midwest ISO, it requested modifications to the special interconnection procedures under the “independent entity variation” standard because the delays (noted above) that it has found, through its experience in safely and reliably interconnecting wind plants, are caused by the six-month window for providing detailed design criteria.

⁵⁶ Request for Rehearing of Midwest ISO at 15.

⁵⁷ *Id.*

⁵⁸ *Id.* at 16, citing March 17 Order, 114 FERC ¶ 61,270 at P 42.

2. Commission Conclusion

40. We will deny Midwest ISO's request for rehearing regarding the special interconnection procedures. In the March 17 Order, we rejected Midwest ISO's proposed revisions to the special interconnection procedures because they appeared to allow Midwest ISO to require the wind plant interconnection customer to submit detailed design data at any time, even on the same day that the interconnection request is received and the customer receives the base case data.⁵⁹ We also noted that in Order No. 661-A the Commission rejected a rehearing request that proposed similar procedures.⁶⁰

41. Midwest ISO has not provided any justification for its proposed revisions that addresses the concerns that prompted the Commission to reject its proposal and has again failed to explain how its proposed revisions would accommodate the special technical characteristics of wind plants. As the Commission explained in the March 17 Order, the special interconnection procedures were adopted in the *pro forma* Appendix 7 to the LGIP by Order No. 661 to recognize the technical differences of wind plants, particularly the fact that the physical placement of wind turbines and other equipment depends on the location of the wind plant and other generators.⁶¹ This necessary information is contained in the base case data, which is available to an interconnection customer after it submits an interconnection request and enters the interconnection queue. Thus, the special interconnection procedures in the *pro forma* Appendix 7 were crafted to allow the wind plant interconnection customer to provide simplified design data in its interconnection request, enter the queue and receive the base case data, and then use that data to develop its specific design.⁶² The wind plant interconnection customer must submit its detailed design data within six months of submitting its interconnection request, a time period that takes into account the other procedures that must take place before the System Impact Study can begin, including the Feasibility Study and negotiation of a study agreement.⁶³ As a result, the Commission concluded in the March

⁵⁹ March 17 Order, 114 FERC ¶ 61,270 at P 45.

⁶⁰ *Id.*

⁶¹ *Id.* P 44.

⁶² *Id.*

⁶³ *Id.* P 46.

17 Order that Midwest ISO will receive the detailed data necessary to perform the System Impact Study in sufficient time to avoid delay in the interconnection process.⁶⁴

42. Midwest ISO does not explain how its proposed modifications would take into account the special technical characteristics of wind plants that the Commission sought to address with the special interconnection procedures adopted in Order No. 661. Instead, it states that these special interconnection procedures cause undue delay for lower-queued projects, but it does not explain how these delays are caused or why the Commission's conclusion that the special interconnection procedures will avoid delay is incorrect.

43. Midwest ISO also has not made clear why the detailed design specifications might require extensive re-study of lower-queued projects. As the Commission has previously explained, re-studies occur only under certain defined circumstances, one of which is in the event of a material modification to a higher-queued project, as defined in section 4.4 of the LGIP.⁶⁵ In Order No. 661-A, the Commission noted that, for a wind plant that initially submits simplified design data under the special interconnection procedures in Appendix 7 of the LGIP, the later detailed design data should be substantially the same as the initial single-generator equivalent design in terms of costs and effect on the transmission system.⁶⁶ Otherwise, it can constitute a material modification under section 4.4 of the LGIP. Thus, the risk of re-study from wind plants using the special interconnection procedures should not be any greater than the risk of re-study for any other type of generating plant. Moreover, we note that, since the Commission's conditional acceptance of Midwest ISO's proposal to reform its interconnection queue, Midwest ISO can process interconnection requests out of order on a first-ready, first-served basis, which suggests that Midwest ISO's concern regarding delays for lower-queued projects may have been overtaken by events.⁶⁷ This change provides further assurance that Midwest ISO should have enough flexibility within its interconnection procedures to accommodate the interconnection of wind plants under the special interconnection procedures of Order No. 661 as well as the interconnection of other generating plants.

⁶⁴ *Id.*

⁶⁵ See *Midwest Indep. Transmission Sys. Operator, Inc.*, 109 FERC ¶ 61,085, at P 34, n.30 (2004).

⁶⁶ Order No. 661-A, FERC Stats. & Regs. ¶ 31,198 at P 62.

⁶⁷ Queue Reform Order, 124 FERC ¶ 61,183 (2008).

The Commission orders:

(A) The request for rehearing of Midwest ISO is hereby granted in part and denied in part, as discussed in the body of this order.

(B) The request for rehearing of Horizon is hereby denied, as discussed in the body of this order.

By the Commission.

(S E A L)

Kimberly D. Bose,
Secretary.