114 FERC ¶ 61,270
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Joseph T. Kelliher, Chairman;
Nora Mead Brownell, and Suedeen G. Kelly.

Midwest Independent Transmission System Operator, Inc.	Docket Nos. ER06-356-000 ER06-356-001

ORDER ON COMPLIANCE FILING

(Issued March 17, 2006)

1. On December 21, 2005, as supplemented on January 18, 2006, Midwest Independent Transmission System Operator, Inc. (Midwest ISO) submitted for filing, pursuant to section 205 of the Federal Power Act,[1] proposed revisions to its Open Access Transmission and Energy Markets Tariff (TEMT) in compliance with Order Nos. 661 and 661-A.[2] In its filing, Midwest ISO proposes certain revisions to the *pro forma* tariff pages adopted by the Commission in Order Nos. 661 and 661-A. In this order, the Commission accepts in part and rejects in part Midwest ISO's proposed revisions.

I. Background

2. In Order No. 2003,[3] the Commission adopted standard procedures and a standard agreement for the interconnection of large generation facilities. The Commission

[1] 16 U.S.C. § 824d (2000)

[2] *Interconnection for Wind Energy*, Order No. 661, 70 Fed. Reg. 34,993 (June 16, 2005), FERC Stats. & Regs. ¶ 31,186 (2005), *order on reh'g*, Order No. 661-A, 70 Fed. Reg. 75,005 (Dec. 19, 2005), FERC Stats. & Regs. ¶ 31,198 (2005); *see also* Order Granting Extension of Effective Date and Extending Compliance Date, 70 Fed. Reg. 47,093 (Aug. 12, 2005), 112 FERC ¶ 61,173 (2005); Notice Extending Compliance Date, issued Oct. 28, 2005; Notice Extending Compliance Date, issued Dec. 22, 2005.

[3] *Standardization of Generator Interconnection Agreements and Procedures*, Order No. 2003, 68 Fed. Reg. 49,845 (Aug. 19, 2003), FERC Stats. & Regs., Regulations Preambles ¶ 31,146 (2003) (Order No. 2003), *order on reh'g*, 69 Fed. Reg. 15,932 (Mar. 24, 2004), FERC Stats & Regs., Regulations Preambles ¶ 31,160 (2004) (Order No. 2003-A), *order on reh'g*, 70 Fed. Reg. 265 (January 4, 2005), FERC Stats & Regs., (continued)

required public utilities that own, control, or operate facilities for transmitting electric energy in interstate commerce to file revised open access transmission tariffs (OATTs) containing these standard provisions, and use them to provide interconnection service to generating facilities having a capacity of more than 20 megawatts.

3. In Order No. 2003-A, the Commission noted that the standard interconnection procedures and agreement were based on the needs of traditional generation facilities and that a different approach might be more appropriate for generators relying on other technologies, such as wind plants.[4] Accordingly, the Commission granted certain clarifications, and also added a blank Appendix G to the standard Large Generator Interconnection Agreement (LGIA) for future adoption of requirements specific to other technologies.[5]

4. In Order No. 661, the Commission adopted standard technical requirements and procedures for the interconnection of wind plants, to be included in the blank Appendix G and a new Appendix to the Large Generator Interconnection Procedures (LGIP). Specifically, the Commission adopted standards for low voltage ride-through and power factor design criteria (reactive power), and required that wind plants meet those standards only if the Transmission Provider shows, in the System Impact Study, that they are needed to ensure the safety or reliability of the transmission system.

5. The Commission, in Order No. 661-A, granted rehearing in part and adopted new low voltage ride-through provisions developed by the North American Electric Reliability Council (NERC) and the American Wind Energy Association (AWEA) after NERC raised reliability concerns regarding the low voltage ride-through standard adopted in Order No. 661.[6] In addition to revising certain technical aspects of the low voltage ride-through standard adopted in Order No. 661, the revised low voltage ride-through provisions adopted by the Commission in Order No. 661-A require that all wind plants have low voltage ride-through capability, as opposed to the case-by-case approach

---

Regulations Preambles ¶ 31,171 (2004) (Order No. 2003-B), *order on reh'g*, 70 Fed. Reg. 37,661 (June 30, 2005), FERC Stats. & Regs. ¶ 31,190 (2005) (Order No. 2003-C); *see also* Notice Clarifying Compliance Procedures, 106 FERC ¶ 61,009 (2004).

[4] Order No. 2003-A at P 407, n.85.

[5] *Id.*

[6] *See* Order No. 661-A at P 13-14, 21-30.

adopted in Order No. 661.[7] The Commission denied rehearing of Order No. 661 in all other respects. In particular, the Commission denied requests that Appendix G to the LGIA require wind plants to possess reactive power capability in all cases, instead of only when the System Impact Study shows that such capability is necessary for safety or reliability.[8] The Commission also denied rehearing of the special interconnection procedures adopted in Order No. 661, which permit wind plants to complete the Interconnection Request required by section 3.3 of the LGIP with a simplified set of preliminary data depicting the wind plant as a single equivalent generator, and provide more detailed electrical design specifications within six months.[9]

6. In its compliance filing, Midwest ISO states that as a result of its stakeholder process and internal review of Order No. 661, it proposes 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.[10] The proposed revisions concern the low voltage ride-through, power factor design criteria (reactive power) and special interconnection procedures adopted for wind plants by the Commission in Order Nos. 661 and 661-A. Midwest ISO proposes an effective date for the revised tariff sheets of February 19, 2006.

II. Notice of Filing and Responsive Pleadings

7. Notice of Midwest ISO's December 21, 2005 compliance filing was published in the *Federal Register* with comments, interventions, and protests due on or before January 11, 2006.[11] The Midwest Stand-Alone Transmission Companies and Wisconsin Public Service Corporation, Upper Peninsula Power Company, WPS Energy Services Inc. and WPS Power Development, LLC filed motions to intervene. AWEA and Wind on the Wires (AWEA/WOW) and Horizon Wind Energy LLC (Horizon) filed motions to

---

[7] *Id.* at P 25.

[8] *Id.* at P 38-46.

[9] *Id.* at P 55-63.

[10] In Order No. 661, the Commission stated that a Transmission Provider could seek to justify revisions from the *pro forma* language under the three variation standards announced in Order No. 2003. *See* Order No. 661 at P 107-109, *citing* Order No. 2003 at P 816, 822-27.

[11] 71 Fed. Reg. 1423 (2006).

intervene and protests. American Transmission Company LLC (ATC) and International Transmission Company (ITC) filed supplemental comments.[12] On January 12, 2006, FPL Energy, LLC (FPL) filed a motion to intervene out-of-time and protest. On January 26, 2006, Midwest ISO filed an answer to the protests.

8. Notice of Midwest ISO's January 18, 2006 supplement to its compliance filing was published in the *Federal Register* with comments, interventions, and protests due on or before February 8, 2006.[13] The Midwest ISO Transmission Owners filed a motion to intervene and supporting comments. AWEA and WOW filed a response.

III. Discussion

A. Procedural Matters

9. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure,[14] the timely, unopposed motions to intervene serve to make the entities that filed them parties to this proceeding. Given the early stage of this proceeding and the absence of any undue prejudice or delay to any party, also pursuant to Rule 214, the Commission will grant the unopposed out-of-time motion to intervene of FPL. Rule 213(a)(2) of the Commission's Rules of Practice and Procedure[15] prohibits an answer to a protest unless otherwise ordered by the decisional authority. We are not persuaded to accept Midwest ISO's answer and will, therefore, reject it.

B. Proposed Revisions to the Low Voltage Ride-Through Provisions

10. First, Midwest ISO proposes, under the "consistent with or superior to" standard, to revise the low voltage ride-through provisions of the *pro forma* Appendix G by adding language to both the transition period standard and the post-transition period standard. Specifically, for the transition period standard, Midwest ISO proposes to revise the third sentence to read:

---

[12] ATC and ITC moved to intervene as a member of the Midwest Stand-Alone Transmission Companies.

[13] 71 Fed. Reg. 5,826 (2006).

[14] 18 C.F.R. § 385.214 (2005).

[15] 18 C.F.R. § 385.213(a)(2) (2005).

> "The maximum clearing time the wind generating plant shall be required to withstand for a three-phase fault shall be 9 cycles or as otherwise consistent with the System Protection Facilities' capability at the Point of Interconnection . . ."

(proposed variations emphasized). Midwest ISO also proposes to add this language to the third sentence of the post-transition period standard. It argues that this additional language is superior to the *pro forma* language and is necessary to recognize that fault clearing times are dependent on the particular voltage level and dynamic stability of the system to which the plant will be interconnected. According to Midwest ISO, this language takes into account that some protection systems below 100kV clear more slowly, and without this additional language, unnecessary replacement of protection systems might be required to satisfy the faster clearing times required by the *pro forma* low voltage ride-through provisions. Midwest ISO also contends that its proposed revisions ensure the reliability of the system while allowing wind plants the flexibility to decide whether it is more cost effective to install new fault protection equipment or improve their dynamic reactive capability.

11. In its supplemental filing, Midwest ISO states that these proposed revisions were intended to benefit wind plants by giving them greater flexibility in meeting fault clearing times and allowing them to avoid the cost of replacing protection systems. The proposed revisions were not intended to set a more stringent standard for low voltage ride-through. To the extent the Commission believes the revisions would create a more stringent standard, Midwest ISO states that it proposes to adopt the low voltage ride-through provisions in Order No. 661-A without revision.

1. Comments and Protests

12. ATC and ITC support Midwest ISO's proposed revisions to the low voltage ride-through standard, stating that the revisions reflect the fact that the Midwest ISO tariff applies to more than 25 transmission owners with transmission facilities operating at voltages 69kV and above. Because the clearing times of certain facilities on the Midwest ISO system may not be as efficient as provided for in the *pro forma* Appendix G, they argue that the proposed revisions are appropriate and necessary, and will allow wind generating plants to meet the requirements of the particular transmission system they are interconnected to instead of requiring the transmission system to be upgraded to meet the low voltage ride-through requirement.

13. AWEA/WOW, Horizon and FPL all protest Midwest ISO's proposed modifications to the low voltage ride-through provisions of the *pro forma* Appendix G. First, both AWEA/WOW and FPL argue that these proposed revisions should be rejected

because in Order No. 661-A, the Commission stated that variations from the low voltage ride-through provisions would be permitted only on an interconnection-wide basis.[16]

14. AWEA/WOW also contends that Midwest ISO's proposed modifications are inferior to the *pro forma* Appendix G. It notes that the Commission limited the consideration of variations to the low voltage ride-through provisions because of the close connection of those standards to an industry-wide reliability standard. Additionally, they point out that the standard interconnection requirements adopted by the Commission in Order Nos. 661 and 661-A balance the need for reliability with the wind industry's need for manufacturing certainty, and Midwest ISO's proposed variations undercut that certainty and provide opportunities for discrimination without providing any greater reliability. Additionally, they argue that Midwest ISO's proposed revisions would undercut the Commission's intent to provide a standard because they provide no objective fixed clearing time that a wind generator must be able to withstand. Finally, AWEA/WOW argue that the ability to negotiate and file non-conforming agreements with the Commission allows for any specific reliability problems at particular locations to be addressed.

15. Horizon also urges the Commission to reject Midwest ISO's proposed low voltage ride-through modifications. It contends that while the intent of Midwest ISO's proposed revisions may be to allow wind generators to avoid unnecessary system upgrade costs, the proposed language is broadly worded and could allow Midwest ISO to impose a more stringent low voltage ride-through standard.

2. Commission Determination

16. We will reject Midwest ISO's proposed variations to the low voltage ride-through standard. In Order No. 661-A, the Commission clearly established that modifications to the low voltage ride-through provisions would be permitted on an interconnection-wide basis only.[17] The Commission explained that the low voltage ride-through provisions adopted in Order No. 661-A were crafted specifically, after negotiation among the wind industry and NERC, to ensure that NERC Reliability Standard TPL-002-0 is met in all regions. The Commission reasoned that the close connection of this standard to an industry-wide reliability standard made limiting variations to those made on an

[16] Protest of AWEA/WOW at 3-4 and Protest of FPL at 3-4, *citing* Order No. 661-A at P 33.

[17] Order No. 661-A at P 33.

interconnection-wide basis appropriate to ensure that reliability is protected.[18] In addition, adoption of a single low voltage ride-through standard ensures that wind plant developers are not faced with widely varying interconnection standards in different areas of the country, which would increase manufacturing costs needlessly.

17. Moreover, we agree with Horizon that the language of Midwest ISO's proposed deviation is much too broad and could permit Midwest ISO to obligate a wind generator to fulfill a vast number of requirements. Based on the foregoing, we reject Midwest ISO's proposed revision to the *pro forma* low voltage ride-through provision adopted in Order No. 661-A.

C. Proposed Revisions to the Power Factor Design Criteria Provisions

18. Midwest ISO also proposes revisions, under the "independent entity variation" standard, to the power factor design criteria for wind plants adopted by the Commission in Order No. 661. Specifically, Midwest ISO proposes to revise the language in the *pro forma* Appendix G as follows:

> "A wind generating plant shall maintain all power ~~factor within the range of~~ factors 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~~."

(proposed revisions emphasized). Midwest ISO states that these proposed revisions reflect the *pro forma* LGIA in its TEMT, and will treat all large generators alike by requiring them to "maintain all power factors 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."[19] These provisions are intended to apply to all large generators. According to Midwest ISO, this revision is needed to maintain the reliability of the transmission system given the large amount of wind generation seeking to interconnect in its region, and will provide certainty to all generators seeking interconnection.

---

[18] *Id.*

[19] Transmittal letter to Midwest ISO's December 21, 2005 filing at 6.

19. Midwest ISO's proposed revisions to the power factor language would also remove the requirement in the *pro forma* Appendix G that the Transmission Provider demonstrate in the System Impact Study that the wind plant must have reactive power capability. Midwest ISO asserts that requiring reactive power capability of all wind plants is necessary to ensure the reliability of its system and comply with Good Utility Practices. Midwest ISO also contends that determining the need for reactive power capability at the time a wind plant is interconnected could result in a future system with several generators interconnected without reactive power capability, which "negatively affects the design of the bulk electric power system and is unreliable, shortsighted, and contrary to good utility practice."[20]

20. Finally, Midwest ISO proposes to remove the last sentence from article 9.6.1 of its *pro forma* LGIA, which provides that "[t]he requirements of this Article 9.6.1 shall not apply to wind generators." According to Midwest ISO, deleting this sentence recognizes its responsibility to ensure the safe and reliable operation of the transmission system, and accounts for its role as an independent transmission system operator.

21. In its supplemental filing, Midwest ISO explains that these proposed revisions are intended to address "the unique regional concerns" in the Midwest ISO footprint created by the approximately 1,760 MW of wind generating capacity that entered into LGIAs in 2005, as well as the approximately 7,000 MW of wind generating capacity in the Midwest ISO queue. In light of this increase in wind generation, Midwest ISO argues that requiring it to demonstrate the need for reactive power in the System Impact Study for each wind plant will significantly increase the time and cost of processing wind interconnection requests.

22. Midwest ISO also asserts that demonstrating the need for reactive power from a specific wind plant will require the development of a special wind-specific analytic test to determine the effect of each wind plant on the transmission system. This creates a significant burden, Midwest ISO argues, because it must model each study with the assumption that reactive power is not needed, and then model each wind plant individually in isolation from other generators as well as in conjunction with other plants located in the area of the interconnection. It also states that such a study must model any number of contingencies that might require the wind plant to provide reactive power to maintain voltage stability, and must cover five to ten years rather than the typical one year time period that the interconnection studies for other generators cover.

---

[20] *Id.* at 7.

23. Further, Midwest ISO notes that even if it were to develop a modified study for wind plants, that study might still be inadequate to demonstrate that an individual wind plant must provide reactive support, resulting in the interconnection of some wind plants without reactive power capability. In that situation, according to Midwest ISO, other generators or Transmission Owners (through their regional planning procedures) may need additional reactive power capabilities to meet the reliability and stability needs of the system, effectively forcing existing load to "subsidize" the reactive power requirements of wind plants.

1. Comments and Protests

24. With regard to Midwest ISO's proposal to require all wind plants to meet the power factor standard, ATC and ITC state that they support the proposal and contend that exempting wind plants from providing reactive power capability unless the System Impact Study shows a need for such capability could reduce the reliability of the Midwest ISO system. With regard to Midwest ISO's proposal to apply a different power factor range if that range is applied to all other generators in the control area, ATC and ITC argue that this change merely reflects the Commission's permitted variation from the power factor range for other types of generators, and merely harmonizes the power factor range requirements for all generators, including wind plants. Finally, ATC and ITC support the proposed elimination of the last sentence in article 9.6.1 of Midwest ISO's *pro forma* LGIA, stating that it will eliminate any confusion and resolve inconsistency.

25. Midwest ISO Transmission Owners also support Midwest ISO's proposed modifications. They state that requiring all wind plants to maintain the required power factor is appropriate in the Midwest ISO because large wind generators are becoming more common.

26. AEWA/WOW, Horizon and FPL protest Midwest ISO's proposed modifications to the power factor standard in Order Nos. 661 and 661-A. AWEA/WOW and FPL contend that Midwest ISO's modifications "make little sense when applied to induction machines that are non-synchronous like wind, and that are often interconnected at the end of a radial line remote from load."[21] Due to these technical differences, AWEA/WOW argue that the capital investment to provide the capability to produce reactive power would be wasted for most wind plants, since dynamic reactive power capability can only be used to support system voltage near the wind plant and thus far from dense load centers, where it is needed. They also contend that requiring all wind plants to provide dynamic reactive power capability discriminates against wind generators, since the cost

[21] Protest of AWEA/WOW at 6.

of such capability (especially dynamic capability) for wind plants is more expensive than for conventional generators, which provide such capability inherently. Additionally, AWEA/WOW assert that the need-based approach adopted by the Commission in Order No. 661 is appropriate and is familiar to transmission planners, who use a similar approach to determine the need for adding transmission facilities such as switched capacitors, reactors, static var compensators, and statcoms.[22]

27. In their protests, both FPL and Horizon argue that the Commission should reject Midwest ISO's proposed modifications to the reactive power provisions as a collateral attack on Order Nos. 661 and 661-A, contending that Midwest ISO has provided no support for deviating from Order Nos. 661 and 661-A other than restating prior arguments made by the Midwest ISO Transmission Owners. Horizon also objects to the Midwest ISO's proposal to require wind plants to operate within the +/- 0.95 power factor range unless a different standard is applied to all other generators in the control area, again arguing that the proposal amounts to a collateral attack, since the Commission addressed the issue in Order No. 661. FPL also objects to this proposal, stating that if Midwest ISO wants to set a new power factor standard that applies to all generators on a comparable basis it must file an amendment to its tariff to establish that standard. Finally, Horizon contends that Midwest ISO has failed to provide any justification for the proposed modification that would require wind plants to "maintain all power factors over 0.95 leading to 0.95 lagging."

28. FPL asserts that Midwest ISO's modifications should be considered under the "consistent with or superior to" standard because they do not concern either regional operating characteristics or non-discriminatory treatment of wind generators, which are the justifications necessary for modifications under the "independent entity variation" standard. FPL, along with AWEA/WOW, argues that Midwest ISO's assertion that its region will have a significant amount of wind generation does not give that region different operating characteristics. Additionally, FPL, noting that the Commission found that the case-by-case determination of whether reactive power is required would reduce opportunities for discrimination, contends that Midwest ISO's proposed modifications could actually result in undue discrimination. Finally, in their response to Midwest ISO's supplemental filing, AWEA/WOW contend that the additional contingencies that Midwest ISO claims must be modeled under the case-by-case approach (thereby adding

[22] AWEA/WOW also notes that NERC's comments in Docket No. AD05-1-000 (Principles for Efficient and Reliable Reactive Power Supply and Consumption) "emphasize the point that the transmission owner has the responsibility to identify the location, size, and timing or reactive power needs based on studies." Protest of AWEA/WOW at 8-9, *citing* Comments of NERC, Docket No. AD05-1-000 at 7.

time and cost to the interconnection process) are actually no different than the "myriad of contingencies" that are currently modeled. They also assert in that response that the Commission's current interconnection standards use a "snapshot in time," and do not consider future changes to the system or include an open-ended obligation on the generator to account for future changes, as Midwest ISO's proposed modifications would require.

2. Commission Determination

29. Midwest ISO proposes these variations to the *pro forma* Appendix G under the "independent entity variation" standard. While the Commission affords RTOs and ISOs greater flexibility under this standard when complying with its interconnection rules, we "nonetheless review 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."[23] As we describe in more detail below, the Commission will reject in part and accept in part Midwest ISO's proposed modifications to the power factor design criteria provisions adopted in Order No. 661.

30. First, we will accept Midwest ISO's proposed modification that would allow a different power factor range if it has established different requirements which would apply to all generators in a particular control area on a comparable basis.[24] Under Order No. 2003, if a Transmission Provider wants to adopt a different power factor requirement, article 9.6.1 of the *pro forma* LGIA allows it to do so as long as the power factor requirement is applied to all generators on a comparable basis.[25] Additionally, in Order No. 661-A, the Commission recognized that if a Transmission Provider has a different power factor range in its LGIA and wishes to apply that range in its *pro forma* Appendix G, it may seek a variation.[26] Furthermore, in *Midwest Independent Transmission System*

---

[23] *PJM Interconnection, L.L.C.*, 108 FERC ¶ 61,025 at P 7 (2004).

[24] Specifically, we accept the following proposed language: "unless Transmission Provider has established different requirements that apply to all generators in the Control Area on comparable basis."

[25] Order No. 2003 at P 542.

[26] Order No. 661-A at P 50.

Operator, Inc.,[27] the Commission directed Midwest ISO to modify the power factor design criteria provisions in its *pro forma* LGIA to accommodate control areas that apply a different power factor range. In that order, the Commission required that the *pro forma* LGIA either state the power factor range that applies in the control area or reference a page on the Midwest ISO website that lists the power factors for specific control areas.[28] Given that Midwest ISO's proposed language is consistent with this requirement and permitted by Order No. 2003 and Order No. 661, we accept this proposed modification.

31. We reject, however, the remainder of Midwest ISO's proposed modifications to this portion of the *pro forma* Appendix G. In particular, we reject the proposed variation that would require all wind plants to have reactive power capability, instead of only in cases where the Transmission Provider determines in the System Impact Study that such capability is needed for safety or reliability, as the *pro forma* provisions in Appendix G require. As the Commission noted in both Order No. 661 and 661-A and as protestors point out here, reactive power is a significant added cost for wind plants as opposed to conventional generators, which produce reactive power inherently. Additionally, protestors point out that because wind plants are often located at the end of radial lines far from load, reactive power capability would often be wasted. In Order No. 661-A, we rejected requests that we modify the *pro forma* Appendix G to require that wind plants provide reactive power in all cases. The Commission reasoned there, and in Order No. 661, that the case-by-case approach was more appropriate because it would protect reliability while also "limit[ing] opportunities for undue discrimination by ensuring that Transmission Providers do not require costly equipment that is not necessary for reliability."[29] We are concerned that Midwest ISO's proposal to require 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 due to the potentially prohibitive cost for them to possess such capability. Given the technical differences of wind plants, we believe that it is appropriate to require Midwest ISO to use the case-by-case approach developed in Order Nos. 661 and 661-A.

---

[27] *Midwest Independent Transmission System Operator, Inc.*, 114 FERC ¶ 61,134 (2006).

[28] *Id.* at P 24.

[29] Order No. 661-A at P 41, *citing* Order No. 661 at P 51.

32. Midwest ISO attempts to justify its proposed deviations with several arguments that the Commission addressed and dismissed in Order No. 661-A. For example, Midwest ISO argues that the proposed variations that would require reactive power capability of all wind plants are necessary to ensure reliability. The Commission explicitly concluded in Order No. 661-A, however, that the case-by-case approach will not threaten reliability, because the System Impact Study will determine if the particular wind plant at issue must have reactive power to protect the safety and reliability of the transmission system.[30] Midwest ISO has not offered any evidence that the System Impact Study is inadequate to determine reliability needs, or offered any other arguments that persuade us to revisit our conclusion in Order No. 661-A that reliability is adequately protected under the case-by-case approach.

33. Midwest ISO also argues that determining the need for reactive power at the time a wind plant interconnects to the system will result in a future system with too many generators connected without reactive power capability, contrary to Good Utility Practice. Again, the Commission addressed this contention in Order No. 661-A, concluding that the System Impact Study "will take into account the system's need for reactive power, both as it exists today and under reasonable anticipated assumptions."[31] The Commission also noted that under Order No. 2003, all Transmission Providers must follow Good Utility Practice, which includes performing the studies to determine the systems need for reactive power from a particular generator.[32] Midwest ISO has not persuaded us that the System Impact Study is inadequate to anticipate the reasonable needs for reactive power in its region.

34. Additionally, as the Commission stated in Order No. 661-A, "the System Impact Study, as well as the other interconnection studies, should take into account a variety of assumptions concerning anticipated system conditions."[33] Again, Midwest ISO has not adequately demonstrated that the System Impact Study fails in this respect. Even if some modified studies are required, the Commission specifically concluded in Order No. 661-A that any additional burden is outweighed by "the cost considerations underlying the case-by-case approach."[34] And as discussed, reactive power is both a significant

---

[30] Order No. 661-A at P 41.

[31] *Id.* at P 42.

[32] *Id.*

[33] Order No. 661-A at P 44.

[34] *Id.*

added cost for wind plants (when compared with conventional generators, which produce reactive power inherently) and is often wasted, since wind plants are frequently located far from load, where reactive power is needed. Given this balance struck by the Commission in Order Nos. 661 and 661-A, we believe that it is appropriate to require Midwest ISO to use the case-by-case approach adopted in those orders.

35. Midwest ISO also contends that the increase in development of wind generation in its region justifies its proposed revisions to the reactive power provisions in the *pro forma* Appendix G. We agree with protestors, however, that the increased development of wind generation in the Midwest ISO footprint is not a different regional operating characteristic that would justify its proposed deviation from the interconnection rules that the Commission developed specifically to recognize and accommodate the increasing level of wind generation as a total percentage of generation on some systems.[35]

36. We also reject Midwest ISO's proposed language that would require wind plants to be "capable of continuous dynamic operation throughout the power factor design range." In Order No. 661, the Commission expressly declined to require dynamic reactive power capability in all wind plants, stating that it was unconvinced such capability is needed in every case.[36] As the Commission explained in Order No. 661, if a particular wind plant must have dynamic reactive power capability to maintain reliability, the System Impact Study should demonstrate that need.[37]

37. Additionally, we will reject the proposed language requiring wind plants to "maintain all power factors over 0.95 leading to 0.95 lagging." Midwest ISO has not explained the purpose or effect of this particular modification, and as Horizon argues, has not explained why such a modification is necessary.

38. We also reject Midwest ISO's proposed modifications to article 9.6.1 of its *pro forma* LGIA. Appendix G sets forth the power factor design criteria requirements that apply to wind plants. If article 9.6.1 of the LGIA were to apply, as it would under Midwest ISO's proposed revision, there would be no need for the reactive power provisions in Appendix G.

---

[35] Order No. 661 at P 11.

[36] Order No. 661 at P 66.

[37] *Id.* at P 66-67.

D. Proposed Revisions to the Special Interconnection Procedures

39. Also under the "independent entity variation" standard, Midwest ISO proposes to revise the *pro forma* Appendix 7 adopted in Order No. 661 to read as follows:

> The wind plant Interconnection Customer, in completing the Interconnection Request required by section 3.3 of this LGIP, may provide to the Transmission Provider a set of preliminary electrical design specifications depicting the wind plant as a single equivalent generator (including step-up transformers) capable of supporting the power factor design criteria. Upon satisfying these and other applicable Interconnection Request conditions, the wind plant may enter the queue and receive the base case data as provided for in this LGIP. ~~No later than six months after submitting an Interconnection Request completed in this manner~~Upon entering into the interconnection queue the Transmission Provider shall notify the wind plant Interconnection Customer of its intent to commence an Interconnection System Impact Study. Once Transmission Provider has notified the wind plant Interconnection Customer of its intent to commence the System Impact Study, the wind plant Interconnection Customer must submit, within five (5) business days, completed detailed electrical design specifications and other data (including collector system layout data, or generic design specifications based on typical industry equipment) needed to allow the Transmission Provider to complete the System Impact Study.

(proposed revisions emphasized). Additionally, Midwest ISO proposes to add a new paragraph to Appendix 7 as follows:

> If the wind plant Interconnection Customer opts to submit generic design specifications for the Interconnection System Impact Study based on typical industry equipment, the wind plant Interconnection Customer acknowledges that it shall assume a degree of cost uncertainty, in the event additional facilities may be required when actual design specifications are taken into account in the System Impact Study or any restudy as provided in the LGIA.

40. According to Midwest ISO, these revisions and the proposed additional language are consistent with provisions in its *pro forma* LGIP and LGIA and ensure that interconnection projects are moving forward and not delaying other projects in the queue. It also asserts that the proposed revisions and additional language reflect the voluntary assumption by the wind plant Interconnection Customer of extra economic risk when it submits generic data, and reflect the study and restudy provisions in its *pro forma* LGIP and LGIA.

41. In its supplemental filing, Midwest ISO states that it requires detailed design data to begin the System Impact Study. According to Midwest ISO, by the time it is ready to begin the System Impact Study, "the interconnection customer should have ample opportunity to determine what type of wind generating technology it shall be using which provides the parameters for the study."[38] It also asserts that interconnection customers must timely provide this design data to ensure that the lower queued projects are not impacted by delays.

1. Comments and Protests

42. AWEA/WOW and FPL argue that the Commission should reject Midwest ISO's proposed modifications to the special interconnection procedures because in Order No. 661-A, the Commission rejected the same request from Midwest ISO.[39] They also argue that because the detailed design of wind plants depends upon the power system studies, it is impractical for wind plants to submit detailed design data before those studies begin. Finally, they assert that Midwest ISO's proposed modifications should be rejected because the proposed language is vague and "appears to say that as soon as the wind Interconnection Customer enters the queue, the Transmission Provider is required to notify the Wind Interconnection Customer of its intent to commence the study, and thus trigger the required submittal of detailed designs."[40]

2. Commission Determination

43. As with its proposed revisions to the power factor design criteria provisions in the *pro forma* Appendix G, Midwest ISO proposes these variations from the special interconnection procedures under the "independent entity variation" standard. Thus, as we stated above, we "review 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."[41] As discussed below, we will reject Midwest ISO's proposed modifications to the *pro forma* special interconnection procedures adopted in Order No. 661.

---

[38] Supplemental Filing of Midwest ISO at 5.

[39] *See* Protest of AWEA/WOW at 10-11, *citing* Order No. 661-A at P 61.

[40] Protest of AWEA/WOW at 10-11.

[41] *PJM Interconnection, L.L.C.,* 108 FERC ¶ 61,025 at P 7.

44. The Commission adopted the special procedures in Appendix 7 to the LGIP in recognition of the technical differences of wind plants that prevent them from providing detailed design specifications at the time it submits its interconnection request.[42] As the Commission noted in Order No. 661, the physical placement of wind turbines and other equipment that affect the specific electrical characteristics of a wind plant depends on the location of the wind plant and the location of other generators on the system.[43] Thus, the Commission adopted the procedures in Appendix 7 to allow wind plants to provide simplified design data and enter the interconnection queue, which is a prerequisite to obtaining the system data necessary to complete their detailed electrical design.[44]

45. As AWEA/WOW and FPL correctly point out, in Order No. 661-A the Commission rejected a rehearing request from Midwest ISO asking the Commission to generically revise Appendix 7 to include the modification it now proposes here as an "independent entity" variation to its own tariff. We rejected Midwest ISO's earlier generic request out of concern that its proposed language could allow a Transmission Provider to require a wind plant to provide detailed design specifications at any time, thereby defeating the purpose of permitting wind plants to submit preliminary design specifications and perhaps even allowing the Transmission Provider to frustrate the interconnection of wind plants.[45] Midwest ISO's proposed language here raises the same concerns. The proposed language is so vague (as AWEA/WOW and FPL contend) that it would allow Midwest ISO to require detailed design data at any time, even on the same day the Interconnection Request is received and the wind plant receives the base case data. Accordingly, for the same reasons we denied Midwest ISO's request for rehearing in Order No. 661-A, we reject the proposed modifications submitted in this proceeding, without prejudice to Midwest ISO filing a modified proposal that addresses the concerns raised by the Commission here and in Order No. 661-A.

46. Furthermore, Midwest ISO has offered no justification that persuades us to allow it to adopt the proposed modifications rejected in Order No. 661-A as a variation to the *pro forma* Appendix 7. Primarily, Midwest ISO states that its proposed revisions are necessary to ensure that wind plant interconnections are moving forward and not delaying other generation projects in the queue. As we stated in Order No. 661-A, however,

---

[42] *See* Order No. 661 at P 94-100.

[43] *Id.* at P 97.

[44] *Id.* at P 99.

[45] Order No. 661-A at P 61.

allowing wind plants to submit simplified design specifications when submitting an interconnection request will not result in delay, since the *pro forma* procedures require the wind plant to submit its detailed design specifications within six months.[46] As the Commission described in Order No. 661-A, that six-month time period takes into account the other procedures that must take place before the System Impact Study can even be commenced, including the Feasibility Study and the negotiation of study agreements.[47] Thus, Midwest ISO will receive the detailed data necessary to perform the System Impact Study in sufficient time to avoid delay in the interconnection process.

47. Midwest ISO also contends that its proposed revisions are consistent with provisions in its *pro forma* LGIP and LGIA. We recognize that under section 4.1 of the Midwest ISO's *pro forma* LGIP, Midwest ISO may perform an interconnection study out of queue order. Although unexplained in its filings, it appears that Midwest ISO may be concerned about consistency with this provision. We believe that Midwest ISO can apply this provision of its *pro forma* LGIP, which applies to wind plants as well as other generators, in harmony with the special interconnection procedures of Appendix 7. However, as we are rejecting these proposed revisions without prejudice, Midwest ISO may seek to further explain its concerns regarding inconsistency in any future request to modify Appendix 7 to the LGIP.

F. Compliance Filing

48. We direct Midwest ISO to file revised tariff sheets consistent with this order within 30 days of the date of this order.

The Commission orders:

(A) Midwest ISO's compliance filing is hereby accepted in part and rejected in part, as discussed in the body of this order.

[46] *Id.*

[47] *Id.*

(B) Midwest ISO is hereby directed to submit a compliance filing with revised tariff sheets consistent with this order within 30 days of the date of this order, as discussed in the body of this order.

By the Commission. Chairman Kelliher dissenting in part with a separate statement attached.

(S E A L)

Magalie R. Salas,
Secretary.

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Midwest Independent Transmission System Operator, Inc.	Docket Nos. ER06-356-000 ER06-356-001

(Issued March 17, 2006)

Joseph T. KELLIHER, Chairman, *dissenting in part*:

I dissent from the portion of the order that denies the Midwest ISO's proposal under the independent entity variation to require all wind plants to have reactive power capability for the reasons explained in my partial dissent in Order No. 661-A[1] and for the reasons relating to the "independent entity variation" as explained in my partial dissent in the NYISO order being issued concurrently in Docket No. ER06-506, *et al.*

_____
Joseph T. Kelliher

[1] *Interconnection for Wind Energy*, Order No. 661-A, 113 FERC ¶ 61,254 (2005), Chairman Kelliher *dissenting* at p. 2.