

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

18 CFR Part 35

(Docket No. RM05-4-000)

Interconnection for Wind Energy and Other Alternative Technologies

(January 24, 2005)

AGENCY: Federal Energy Regulatory Commission.

ACTION: Notice of Proposed Rulemaking.

SUMMARY: The Federal Energy Regulatory Commission (Commission) is proposing to amend its regulations to require public utilities to append to the standard large generator interconnection agreement in their open access transmission tariffs (OATTs) specific technical requirements for the interconnection of large wind generation.

DATES: Comments are due [**insert date 30 days after publication in the FEDERAL REGISTER**]. Reply comments will be due 30 days thereafter.

ADDRESSES: Comments may be filed electronically via the eFiling link on the Commission's web site at <http://www.ferc.gov>. Commenters unable to file comments electronically must send an original and 14 copies of their comments to Federal Energy Regulatory Commission, Office of the Secretary, 888 First Street N.E., Washington, DC, 20426. Refer to the Comment Procedures section of the preamble for additional information on how to file comments.

FOR FURTHER INFORMATION CONTACT:

Bruce A. Poole (Technical Information)
Office of Markets, Tariffs and Rates
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426
(202) 502-8468

G. Patrick Rooney (Technical Information)
Office of Markets, Tariffs and Rates
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426
(202) 502-6205

P. Kumar Agarwal (Technical Information)
Office of Markets, Tariffs and Rates
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426
(202) 502-8923

Jeffery S. Dennis (Legal Information)
Office of the General Counsel
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426
(202) 502-6027

SUPPLEMENTARY INFORMATION

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Interconnection for Wind Energy and Other Alternative Technologies Docket No. RM05-4-000

NOTICE OF PROPOSED RULEMAKING

(January 24, 2005)

Introduction

1. In Order No. 2003,¹ the Commission adopted standard procedures for the interconnection of large generation facilities and a standard large generator interconnection agreement. 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 (OATTs) containing these standard provisions, and use them to provide interconnection service to generating facilities having a capacity of more than 20 megawatts. In Order No. 2003-A, on rehearing, the Commission determined that the standard procedures and agreement were designed around the needs

¹ 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., Regulations Preambles ¶ 31,171 (2004) (Order No. 2003-B), reh'g pending; see also Notice Clarifying Compliance Procedures, 106 FERC ¶ 61,009 (2004).

of traditional synchronous generation facilities, and that generators relying on non-synchronous technologies,² such as wind plants, may find that a specific requirement is inapplicable or that a different approach is needed.³ Accordingly, the Commission granted certain clarifications, and also added a blank Appendix G (Requirements of Generators Relying on Non-Synchronous Technologies) to the standard generator interconnection agreement as a placeholder for the inclusion of requirements specific to non-synchronous technologies.⁴ It appears that the only relevant non-synchronous generator in this rulemaking is the wind generator, and thus the proposed rule would apply only to wind plants, although we request comments on whether there are other technologies that should also be subject to the rule.

2. In this Notice of Proposed Rulemaking (NOPR), the Commission is proposing standards applicable to the interconnection of large wind generating plants,⁵ to be included in Appendix G of the Large Generator Interconnection Agreement (LGIA). The Commission proposes these standards in light of its findings in Order No. 2003-A, noted

² A wind generator is considered non-synchronous because it does not run at the same speed as a traditional generator. A non-synchronous generator possesses significantly different characteristics and responds differently to network disturbances.

³ Order No. 2003-A at P 407, n. 86.

⁴ Id.

⁵ Large wind generating plants are those with an output rated at 20 MW or higher at the point of interconnection.

above, and in response to a petition submitted by the American Wind Energy Association (AWEA) on May 20, 2004. Specifically, and as described more fully below, we propose to include in Appendix G to the LGIA certain technical requirements that Transmission Providers must apply to interconnection service for wind generation plants that are different from that required of traditional synchronous generating plants or are now needed because of the increased presence of larger aggregated wind plants on the Transmission Provider's systems. These requirements would be applied in addition to the standard interconnection procedures and requirements adopted by the Commission in Order No. 2003. Additionally, the Commission seeks comments on certain issues, including whether there are other non-synchronous technologies, or other technologies in addition to wind, that should also be covered by the proposed Appendix G.

Background

3. In Order No. 2003, pursuant to its responsibility under sections 205 and 206 of the Federal Power Act (FPA)⁶ to remedy undue discrimination, the Commission required all public utilities that own, control, or operate facilities for transmitting electric energy in interstate commerce to append to their OATTs the pro forma Large Generator Interconnection Procedures (LGIP) and pro forma LGIA. To achieve greater standardization of interconnection terms and conditions, Order No. 2003 required such public utilities to file revised OATTs containing the pro forma LGIP and LGIA included in Order No. 2003.

⁶ 16 U.S.C. §§ 824d-e (2000).

4. Order Nos. 2003-A and 2003-B, issued on rehearing, made certain revisions to the pro forma LGIP and LGIA. In Order No. 2003-A, the Commission clarified that certain provisions of the LGIP and LGIA are not appropriately applied to wind generators. The Commission stated that it “recognize[d] that the LGIA and LGIP are designed around the needs of large synchronous generators and that many generators relying on newer technologies may find that either a specific requirement is inapplicable or that it calls for a slightly different approach.”⁷ In light of this recognition, the Commission clarified that LGIA article 5.4 (Power System Stabilizers), LGIA article 5.10.3 (Interconnection Customer’s Interconnection Facilities Construction) and LGIA article 9.6.1 (Power Factor Design Criteria) would not be applied to wind generators.⁸ Additionally, the Commission noted that “there may be other areas of the LGIP and LGIA that may call for a slightly different approach for a generator relying on newer technology because it may have unique electrical characteristics.”⁹ As a result, the Commission added to the LGIA a blank new Appendix G as a placeholder for requirements specific to newer technologies to be developed at a future time.¹⁰

⁷ Order No. 2003-A at P 407, n. 85.

⁸ Id. at P 278, 407, n. 85.

⁹ Id. at P 407, n. 85.

¹⁰ The Appendix G that was added to the LGIA in Order No. 2003-A and that we propose in this NOPR should not be confused with the Appendix G that the Commission originally proposed to include in the LGIA, which concerned Interconnection Guidelines. The Commission did not include that Appendix in the Final Rule LGIA, since its provisions were covered elsewhere in the LGIP and LGIA. See Order No. 2003 at P 673. In Order No. 2003-A, the Commission used the Appendix G label for the requirements

(continued)

5. On May 20, 2004, in Docket No. RM02-1-005, AWEA submitted a petition for rulemaking or, in the alternative, request for clarification of Order No. 2003-A, and a request for a technical conference. AWEA asked the Commission to adopt in Appendix G certain standards for the interconnection of wind generation plants. Specifically, AWEA submitted a proposed Appendix G that it argues addresses the concerns of both Transmission Providers and the wind generation industry. AWEA's proposed Appendix G included a low voltage ride-through capability standard, which would allow the Transmission Provider to require as a condition of interconnection that wind generation facilities have the ability to continue operating or "ride-through" certain low voltage conditions on the transmission system to which they are interconnected. Additionally, AWEA proposed that the power factor design criteria of up to 0.95 leading/lagging be applied to wind generation plants, with certain flexibility regarding whether the location of the reactive support equipment would be at the common point of interconnection of all the generators in the plant rather than at the individual turbine. Further, AWEA proposed that we require Transmission Providers and wind generator manufacturers to participate in a formal process to develop, update, and improve the engineering models and specifications used in modeling wind plant interconnections. Finally, AWEA proposed to include language in Appendix G allowing the wind Interconnection Customer to "self-study" interconnection feasibility by entering

specific to wind generation and perhaps other non-synchronous technologies that we propose in this rulemaking.

the interconnection queue without providing certain power and load flow data, receiving certain information from the Transmission Provider, and conducting its own Feasibility Study.

6. On September 24, 2004, the Commission held a Technical Conference to discuss the issues raised by AWEA's petition. The goal was to discuss the technical requirements for the interconnection of wind plants and other alternative technologies and the need for specific requirements for their interconnection. Additionally, the Technical Conference considered how wind and other alternative generator technologies may respond differently to transmission grid disturbances and have different effects on the transmission grid. The Commission also solicited and received post-Technical Conference comments from interested persons.

Discussion

7. Based on our review and consideration of AWEA's petition and the comments received at and after the Technical Conference, the Commission is proposing certain technical requirements for the interconnection of wind generating plants. The Commission proposes to include these technical requirements as Appendix G to the LGIA, as contemplated in Order No. 2003-A. The technical requirements we propose here are similar in certain respects and differ in other respects from the Appendix G proposed by AWEA in its petition for rulemaking. The Commission is also seeking comments on certain issues, as discussed below. Our goal is to adopt final technical requirements for the interconnection of wind plants (and other alternative technologies, if any) that recognize the special characteristics of wind plants, their larger size and

increased penetration on the transmission system (in terms of the wind generating capacity's percentage contribution to total system generating capacity), and the effects they have on the transmission system. This proposal seeks to accommodate wind plants while ensuring the continued reliability of the nation's electric transmission system.

8. The Appendix G technical requirements for the interconnection of wind generation plants that we propose in this NOPR are not intended to be the sole interconnection requirements for wind plants. Such plants will still be subject to the other standard interconnection procedures and requirements adopted by the Commission in Order No. 2003, unless wind plants have been otherwise exempted from such procedures and requirements.

9. Recently, the Commission became aware of the Alberta Electric System Operator's adoption of technical standards for the interconnection of wind generation plants to its transmission system.¹¹ The standards adopted by the AESO are similar to, but more comprehensive than, the standards we propose in the Appendix G in this NOPR.

10. The Commission is not proposing a transition period before the technical requirements in Appendix G would take effect. At the Technical Conference, however, several participants noted that wind turbine manufacturers have turbines in their inventory that do not have low voltage ride-through capability or adequate reactive power capability. Some participants argued that a transition period would be appropriate to

¹¹ Those standards, titled Wind Power Facility Technical Requirements, are at <http://www.aeso.com>.

accommodate this inventory. This proposal is designed in part to allow the Transmission Provider to assure transmission grid safety and reliability. For this reason, deviations should not be permitted unless approved by the Transmission Provider on a comparable basis. The proposal grants the Transmission Provider the flexibility to relax certain requirements if not needed for safety and reliability, as explained in more detail below.

Low Voltage Ride-Through Standard

11. Prior to the advent of larger wind plants generally consisting of multiple wind generation turbines, individual wind turbines were designed to go offline if there was a sudden change in voltage on the transmission system. However, now there are larger aggregated wind plants with a greater penetration level on the Transmission Provider's systems in certain areas, and significant stability problems can occur on the transmission system if such large plants become unavailable during a low voltage excursion. As a result, Transmission Providers need large wind plants to remain online during low-voltage occurrences for reliability reasons.

12. The Commission is proposing to require that large wind plants seeking to interconnect to the grid demonstrate low voltage ride-through capability, unless waived by the Transmission Provider on a comparable and not unduly discriminatory basis. Specifically, Appendix G would require that "wind generating plants . . . demonstrate the

ability to remain on-line during voltage disturbances up to the time periods and associated voltage levels set forth in Figure 1” of the Appendix. The required voltage levels would be measured at the high voltage side of the substation transformers.¹²

13. The Commission seeks comments on this proposed standard. Particularly, the Commission is interested in comments addressing whether it should adopt a low voltage ride-through standard at all, whether this or another standard is more appropriate, and whether this proposed standard is specific enough. Additionally, the Commission seeks comment on whether the voltage-time profile of the proposed Appendix G is appropriate or should be modified.

Supervisory Control and Data Acquisition (SCADA) Capability

14. Previously, Transmission Providers generally did not require wind generators to have remote supervisory control and data acquisition (SCADA) capability because of their small size and minimal effects on the transmission system. Now that there are more large wind plants, Transmission Providers may need SCADA capability to ensure the safety and reliability of the transmission system during normal, system emergency, and system contingency conditions, and to acquire wind facility operating data.

¹² While low voltage ride-through capability is needed for wind plants, it is not a concern for large synchronous generating facilities because most of these facilities are equipped with automatic voltage control devices to increase output during low voltage excursions.

15. The Commission proposes to require that large wind plants seeking to interconnect to the transmission grid possess SCADA capability. The proposed Appendix G would require that the wind plant install SCADA capability to transmit data and receive instructions from the Transmission Provider. Additionally, the proposed Appendix G states that the Transmission Provider and wind plant owner shall determine the SCADA information that is essential for the proposed wind plant, taking into account the size of the plant, its characteristics, location, and importance in maintaining generation resource adequacy and transmission system reliability in its area.¹³

16. The Commission seeks comments regarding the SCADA capability requirements proposed in this NOPR. Particularly, the Commission seeks comments on whether there is any basic essential SCADA information that large wind plants should be required to provide, and if so, what that information should be (such as information needed to determine how the plant's maximum megawatt output and megawatt ramp rate vary over time with changes in the wind speed, and/or information needed to forecast the megawatt output of the plant).

¹³ Unlike synchronous generating plants, which generally possess SCADA capability, can respond to automatic generation control signals from the control center and are often staffed, wind generating plants are often remote, unmanned, and characterized by an unpredictable rate of change of output, thus making it difficult for the Transmission Provider to limit the output of the wind plant when necessary for system reliability.

Power Factor Design Criteria (Reactive Power)

17. Previously, Transmission Providers did not require wind generators to have the capability to provide reactive power because the facilities were generally small and had minimal impact on the transmission grid. Because of the larger size of many of the wind plants currently operating and the increased penetration of wind energy on the transmission system, Transmission Providers may need to require wind plants to operate within a specified power factor range to help balance the reactive power needs of the transmission system.

18. The Commission is proposing to require that wind plants maintain a power factor within the range of 0.95 leading to 0.95 lagging (as required by Order No. 2003), to be measured at the high voltage side of the substation transformer. The proposed Appendix G permits wind plants flexibility in how they meet the power factor requirement (for example, using either power electronics designed to supply this level of reactive capability or fixed and switched capacitors if agreed to by the Transmission Provider, or a combination of the two.) Additionally, the Commission proposes to allow the Transmission Provider to waive the power factor requirement for wind plants where such capability is not needed at that location or for a generating facility of that size, provided that such waiver is not unduly discriminatory and is offered on a comparable basis to similarly situated wind plants. Should the power factor requirement be waived, however, the interconnection agreement would be considered a non-conforming agreement under section 11.3 of the LGIP, requiring that it be filed with the Commission. The Commission believes that it is appropriate to permit the Transmission Provider to

waive the power factor requirement for a wind plant if the Transmission Provider does not need reactive power for reliability at that plant's location because, unlike a non-wind generator which always has some reactive power capability, a wind plant must incur an additional capital cost to provide this reactive power. Finally, we propose to require that wind plants have the capability to provide sufficient dynamic voltage support in order to interconnect to the transmission system, instead of the power system stabilizer and automatic voltage support at the generator excitation system, if the System Impact Study shows that such dynamic capability is necessary for system reliability.

19. The Commission seeks comments regarding whether the proposed power factor range proposed should be increased or decreased for wind generation plants. Also, the Commission seeks input as to whether any dynamic (i.e., controllable) reactive capability should be required of wind plants as a condition of interconnection, and if so, what level of dynamic capability should be required. Further, the Commission seeks comments on the proposed waiver provisions for the power factor requirement discussed above.

Models and Self-Study of Feasibility

20. In its petition, AWEA proposed that certain variations in the Interconnection Study process be applied to the interconnection of wind plants. Specifically, AWEA proposed that Transmission Providers be required to “participate in a formal process for updating, improving, and validating the engineering models used for modeling the interconnection impacts of wind turbines.”¹⁴ Additionally, AWEA proposed that wind

¹⁴ AWEA Proposed Appendix G at 5.

Interconnection Customers be permitted to enter the interconnection queue and “self-study” the feasibility of interconnection after submitting an Interconnection Request that does not include power and load flow data and paying the applicable deposit. These wind Interconnection Customers should be entitled to have the scoping meeting with the Transmission Provider and receive from the Transmission Provider the base case data, according to AWEA. Following its self-study, the wind Interconnection Customer would submit an electrical design and turbine models sufficient to allow the Transmission Provider to conduct a System Impact Study under AWEA’s proposal. AWEA stated that these provisions were necessary because requiring power system and load flow data to be submitted with the Interconnection Request is impractical for wind plants, since the turbine selection and electrical design of the wind plant may be based on the outcome of the Feasibility Study and grid conditions at the point of interconnection.

21. The Commission is not proposing these provisions for several reasons. With regard to the proposal to require Transmission Providers to participate in a formal process to update and improve wind turbine modeling, we believe that such a formal process should take place outside the Commission, through industry technical groups or perhaps through the regional reliability councils. The Commission recognizes, however, that improvements in the way that wind interconnections are modeled would be beneficial, and we encourage the industry to address this issue.

22. With regard to AWEA's self-study proposal, Order No. 2003 currently requires that a valid and complete Interconnection Request be on file with the Transmission Provider before the Interconnection Customer may receive Base Case data.¹⁵ Section 2.3 did not address situations where the Interconnection Customer might need access to the Base Case data before it could complete its Interconnection Request. Therefore we seek comments on how to balance the need of wind generators to self-study prior to filing a completed Interconnection Request with the need to protect this critical energy infrastructure information and commercially sensitive data against unwarranted disclosure.

23. Additionally, in Order No. 2003 the Commission addressed requests that additional time be provided after the Interconnection Request is made to submit final design specifications.¹⁶ There, we stated that "[t]he Interconnection Customer should have its design substantially completed prior to submitting its Interconnection Request so that it does not block or disrupt the queue process."¹⁷ We also noted that Transmission Providers would not be able to act on an incomplete Interconnection Request, and that

¹⁵ See LGIP, section 2.3; see also Order No. 2003 at P 77-84.

¹⁶ See Order No. 2003 at P 99.

¹⁷ Id. at P 103.

giving “one class of Interconnection Customers extra time to submit design specifications would be unfair to other Interconnection Customers in the queue.”¹⁸ The Commission is not persuaded to propose deviations from these conclusions in this rulemaking.

Other Generating Technologies

24. The Commission seeks comments regarding whether there are other generating technologies that should be required to comply with the specific technical requirements included in Appendix G.

Variations from Appendix G

25. The Commission is proposing to permit Transmission Providers to justify variations from the terms of the final Appendix G using the approach taken in Order No. 2003. In Order No. 2003, the Commission modified the approach taken in Order No. 888,¹⁹ which allowed two types of variations. First, public utilities may seek variations to the LGIP and LGIA based on regional reliability requirements.²⁰ Second, public utilities may argue that proposed changes to any OATT provision are “consistent

¹⁸ Id.

¹⁹ Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, Order No. 888, FERC Stats. & Regs. ¶ 31,036 (1996) at 31,760-61 (Order No. 888), order on reh’g, Order No. 888-A, FERC Stats. & Regs. ¶ 31,048 (1997), order on reh’g, Order No. 888-B, 81 FERC ¶ 61,248 (1997), order on reh’g, Order No. 888-C, 82 FERC ¶ 61,046 (1997), aff’d in relevant part sub nom. Transmission Access Policy Study Group v. FERC, 225 F.3d 667 (D.C. Cir. 2000), aff’d sub nom. New York v. FERC, 535 U.S. 1 (2002).

²⁰ See Order No. 2003 at P 823-24.

with or superior to” the terms of the pro forma OATT.²¹ Additionally, Order No. 2003 allows RTOs and ISOs greater flexibility in complying with its provisions. They may seek an “independent entity variation” from the pricing and non-pricing provisions of the pro forma LGIP and LGIA.²² The Commission intends to apply all three of these variation standards to proposed variations from the Appendix G the Commission finally adopts in this proceeding.

Information Collection Statement

26. Office of Management and Budget (OMB) regulations require OMB to approve certain information collection requirements imposed by agency rule.²³ Comments are solicited on the Commission’s need for this information, whether the information will have practical utility, the accuracy of provided burden estimates, ways to enhance the quality, utility and clarity of the information to be collected, and any suggested methods for minimizing respondents’ burden, including the use of automated information techniques.

27. Public Reporting Burden:

<u>Data Collection</u>	No. of Respondents	No. of Responses	Hours Per Response	Total Annual Hours
FERC-516	238	1	18	4,284

²¹ See id. at P 816.

²² Id. at P 822-827; see also Order No. 2003-A at P 48.

²³ 5 CFR § 1320.11 (2004).

Information Collection Costs: The Commission seeks comments on the costs to comply with these requirements. It has projected the annualized cost for all respondents to be: Annualized Capital/Startup Costs-Staffing requirements to review and prepare an interconnection agreement = \$642,600. (238 respondents x \$150 hourly rate x 18 hours per respondent).

The OMB regulations require OMB to approve certain information collection requirements imposed by agency rule.²⁴ Accordingly, pursuant to OMB regulations, the Commission is providing notice of its proposed information collections to OMB.

Title: FERC-516, Electric Rate Schedule Filings

Action: Proposed Information Collection.

OMB Control No.: 1902-0096

The applicant shall not be penalized for failure to respond to this collection of information unless the collection of information displays a valid OMB control number.

Respondents: Business or other for profit.

Frequency of Responses: One-time implementation.

Necessity of Information: The proposed rule would revise the requirements contained in 18 CFR Part 35. The Commission is seeking to revise its standardized interconnection procedures and agreements to include wind generation plants. In particular, the Commission will propose that public utilities add to their standard interconnection agreements the technical requirements for the interconnection of wind

²⁴ Id.

generation plants. The proposed rule would require that each public utility that owns, operates, or controls transmission facilities participate in one-time filings incorporating the technical requirements into their own open access transmission tariffs. Internal Review: the Commission has assured itself, by means of internal review, that there is specific, objective support for the burden estimates associated with the information collection requirements. The Commission's Office of Market, Tariffs and Rates will use the data included in filings under Section 203 and 205 of the Federal Power to evaluate efforts for interconnection and coordination of the U.S. electric transmission as well as for general industry oversight. These information requirements conform to the Commission's plan for efficient information collection, communication, and management within the electric power industry. Interested persons may obtain information on the reporting requirements by contacting: Federal Energy Regulatory Commission, 888 First Street, N.E., Washington, D.C. 20426, Attention: Michael Miller, Office of the Executive Director, phone: (202) 502-8415, fax: (202) 273-0873, e-mail: michael.miller@ferc.gov. Comments on the proposed requirements of the subject rule may also be sent to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, D.C. 20503, Attention: Desk Officer for the Federal Energy Regulatory Commission, phone: (202) 395-4650.

Environmental Analysis

28. The Commission is required to prepare an Environmental Assessment or an Environmental Impact Statement for any action that may have a significant adverse effect on the human environment.²⁵ The Commission has categorically excluded certain actions from this requirement as not having a significant effect on the human environment. Included in the exclusion are rules that are clarifying, corrective, or procedural, or that do not substantially change the effect of the regulations being amended.²⁶ The exclusion also includes information gathering, analysis, and dissemination.²⁷ The rules proposed in this NOPR would update and clarify the application of the Commission's standard interconnection requirements to wind generation plants. Further, this NOPR involves information gathering, analysis, and dissemination regarding the interconnection of wind generators. Therefore, this NOPR falls within the categorical exemptions provided in the Commission's Regulations, and as a result neither an environmental impact statement nor an environmental assessment is required. Additionally, we note that this proposed rule will help the development and interconnection of wind plants, eliminating the airborne and other emissions that would result from constructing fossil fuel generating plants instead.

²⁵ Order No. 486, Regulations Implementing the National Environmental Policy Act, 52 Fed. Reg. 47897 (Dec. 17, 1987), FERC Stats. & Regs. Preambles 1986-1990 ¶ 30,783 (Dec. 10, 1987).

²⁶ 18 CFR § 380.4(a)(2)(ii) (2004).

²⁷ 18 CFR § 380.4(a)(5) (2004).

Regulatory Flexibility Act Certification

29. The Regulatory Flexibility Act of 1980 (RFA)²⁸ generally requires a description and analysis of final rules that will have significant economic impact on a substantial number of small entities.²⁹ The Commission is not required to make such analyses if a rule would not have such an effect.

30. The Commission does not believe that this proposed rule would have such an impact on small entities. Most filing companies subject to the Commission's jurisdiction do not fall within the RFA's definition of a small entity. Further, the filing requirements contain standard generator interconnection procedures and agreement for interconnecting generators larger than 20 MW, which exceeds the threshold of the Small Business Size Standard of NAICS. Therefore, the Commission certifies that this rule will not have a significant economic impact on a substantial number of small entities.

²⁸ 5 U.S.C. § 601-612 (2000).

²⁹ The RFA definition of "small entity" refers to the definition provided in the Small Business Act, which defines a "small business concern" as a business that is independently owned and operated and that is not dominant in its field of operation. 15 U.S.C. § 632 (2000). The Small Business Size Standards component of the North American Industry Classification System defines a small electric utility as one that, including its affiliates, is primarily engaged in the generation, transmission, and/or distribution of electric energy for sale and whose total electric output for the preceding fiscal years did not exceed 4 million MWh. 13 CFR § 121.201 (Section 22, Utilities, North American Industry Classification System, NAICS) (2004)).

Comment Procedures

31. The Commission invites comments on the matters and proposals in this notice, including any related matters or alternative proposals that commenters may wish to discuss. Comments are due **[insert date 30 days after publication in the FEDERAL REGISTER]**. Reply comments will be due 30 days thereafter. Comments must refer to Docket No. RM05-4-000, and must include the commenters' name, the organization represented, if applicable, and address.

32. Comments may be filed electronically via the eFiling link on the Commission's web site at <http://www.ferc.gov>. The Commission accepts most standard word processing formats and commenters may attach additional files with supporting information in certain other file formats. Commenters filing electronically do not need to make a paper filing. Commenters that are not able to file comments electronically must send an original and 14 copies of their comments to Federal Energy Regulatory Commission, Office of the Secretary, 888 First Street, N.E., Washington, D.C. 20426.

33. All comments will be placed in the Commission's public files and may be viewed, printed, or downloaded remotely as described in the Document Availability section below. Commenters on this proposal are not required to serve copies of their comments on other commenters.

Document Availability

34. In addition to publishing the full text of this document in the Federal Register, the Commission provides all interested persons an opportunity to view and/or print the contents of this document via the Internet through FERC's Home Page

<http://www.ferc.gov>) and in FERC's Public Reference Room during normal business hours (8:30 a.m. to 5:00 p.m. Eastern time) at 888 First Street, N.E., Room 2A, Washington, D.C. 20426.

35. From FERC's Home Page on the Internet, this information is available in the Commission's document management system, eLibrary. The full text of this document is available on eLibrary in PDF and Microsoft Word format for viewing, printing, and/or downloading. To access this document in eLibrary, type the docket number excluding the last three digits of this document in the docket number field.

36. User assistance is available for eLibrary and the FERC's website during normal business hours. For assistance, please contact FERC Online Support at 1-866-208-3676 (toll free) or 202-502-6652 (e-mail at FERCOnlineSupport@FERC.gov), or the Public Reference Room at 202-502-8371, TTY 202-502-8659 (e-mail at public.referenceroom@ferc.gov).

List of Subjects in 18 C.F.R. Part 35

Electric power rates; Electric utilities.

By direction of the Commission.

Linda Mitry,
Deputy Secretary.

In consideration of the foregoing, the Commission proposes to revise Part 35, Chapter I, Title 18 of the Code of Federal Regulations, as follows.

PART 35 – FILING OF RATE SCHEDULES

1. The authority citation for part 35 continues to read as follows:

Authority: 16 U.S.C. 791a-825r, 2601-2645; 31 U.S.C. 9701; 42 U.S.C. 7101-7352.

2. In § 35.28, the first sentences of currently existing paragraphs (f)(1) and (f)(1)(ii) are revised, a new paragraph (f)(1)(ii) is added, currently existing paragraphs (f)(1)(ii) and (f)(1)(iii) are renumbered to account for new paragraph (f)(1)(ii), all to read as follows:

§ 35.28 Non-discriminatory open access transmission tariff.

* * * * *

(f) Standard generator interconnection procedures and agreements.

(1) Every public utility that is required to have on file a non-discriminatory open access transmission tariff under this section must amend such tariff by adding the standard interconnection procedures and agreement contained in Order No. 2003, FERC Stats. & Regs. ¶ 31,146 (Final Rule on Generator Interconnection), as amended by the Commission in Order No. _____, FERC Stats. & Regs. ¶ _____ (Final Rule on Interconnection for Wind Energy and Other Alternative Technologies), or such other

interconnection procedures and agreement as may be approved by the Commission consistent with the Final Rule on Generator Interconnection.

(i) The amendment to implement the Final Rule on Generator Interconnection required by the preceding subsection must be filed no later than January 20, 2004.

(ii) The amendment to implement the Final Rule on Interconnection for Wind Energy and other Alternative Technologies required by the preceding subsection must be filed no later than [insert 60 days after publication in the FEDERAL REGISTER].

(iii) Any public utility that seeks a deviation from the standard interconnection procedures and agreement contained in Order No. 2003, FERC Stats. & Regs. ¶ 31,146 (Final Rule on Generator Interconnection), as amended by the Commission in Order No. _____, FERC Stats. & Regs. ¶ _____ (Final Rule on Interconnection for Wind Energy and Other Alternative Technologies), must demonstrate that the deviation is consistent with the principles of the Final Rule on Generator Interconnection.

[NOTE: THE ATTACHMENTS WILL NOT BE PUBLISHED IN THE CODE OF FEDERAL REGULATIONS]

APPENDIX:

APPENDIX G

INTERCONNECTION REQUIREMENTS FOR WIND GENERATORS

Appendix G sets forth additional requirements and provisions specific to wind generating plants.

A. Standards Applicable to Wind Generators.

i. Low Voltage Ride-Through (LVRT) Standard

Wind generating plants shall demonstrate the ability to remain online during voltage disturbances up to the time periods and associated voltage levels set forth in Figure 1, below. The requirements apply to voltage measured at the high voltage side of the wind plant substation transformer(s). The figure shows the ratio of actual to nominal voltage (on the vertical axis) over time (on the horizontal axis). Before time 0.0, the voltage at the transformer is the nominal voltage. At time 0.0, the voltage drops. If the voltage remains at a level greater than 15 percent of the nominal voltage for a period that does not exceed 0.625 seconds, the plant must stay online. Further, if the voltage returns to 90 percent of the nominal voltage within 3 seconds of the beginning of the voltage drop (with the voltage at any given time never falling below the minimum voltage indicated by the solid line in Figure 1), the plant must stay online. The Interconnection Customer may not disable low voltage ride-through equipment while the wind plant is in operation.

Two key features of this proposed regulation are:

1. A wind generating plant must have LVRT capability down to 15 percent of the rated line voltage for 0.625 seconds;
2. A wind generating plant must be able to operate continuously at 90 percent of the rated line voltage, measured at the high voltage side of the wind plant substation transformer(s).

The wind generating plant may ask the Transmission Provider for a variation of the parameters of this regulation, and the Transmission Provider may agree to such a variation provided it does so on a comparable and not unduly discriminatory basis among wind generators. The Transmission Provider may waive the low voltage ride-through requirement on a comparable and not unduly discriminatory basis for all wind plants.

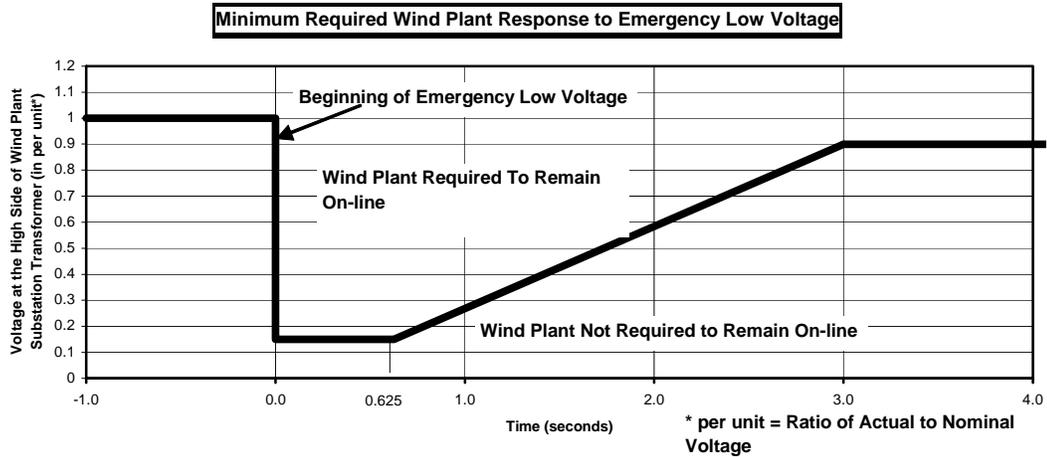


Figure 1 Proposed low voltage ride-through requirement

ii. Supervisory Control and Data Acquisition (SCADA) Capability

The wind plant shall provide SCADA capability to transmit data and receive instructions from the Transmission Provider. The Transmission Provider and the wind plant Interconnection Customer shall determine what SCADA information is essential for the proposed wind plant, taking into account the size of the plant, its characteristics, location, and importance in maintaining generation resource adequacy and transmission system reliability in its area.

iii. Power Factor Design Criteria (Reactive Power)

A wind plant shall maintain a power factor within the range of 0.95 leading to 0.95 lagging, measured at the high voltage side of the wind plant substation transformer(s). The power factor range requirement can be met by using, for example, power electronics designed to supply this level of reactive capability (taking into account any limitations due to voltage level, real power output, etc.) or fixed and switched capacitors if agreed to by the Transmission Provider, or a combination of the two. The Interconnection Customer shall not disable power factor equipment while the wind plant is in operation. Wind plants shall also be able to provide sufficient dynamic voltage support in lieu of the power system stabilizer and automatic voltage regulation at the generator excitation system if the Interconnection System Impact Study shows this to be required for system reliability.

The Transmission Provider may agree to waive or defer compliance with the reactive power standard. However, any such waiver or exemption must be considered a non-conforming agreement pursuant to section 11.3 of the LGIP.