

# Transmission Update

March 21, 2005

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## Summary

- ✓ Welcome to the new *NWCC Transmission Update*! On March 1, 2005, Kevin Porter of Exeter Associates led the first Transmission Update Conference Call, which featured expert speakers providing their insights into key transmission issues affecting wind energy, with an opportunity for discussion and questions. In contrast with past *RTO Updates*, this brief is being distributed following the call to conference call participants, other NWCC members and participants, and to interested NWCC observers.
- ✓ This edition will focus on recent activities that have been underway at the Federal Energy Regulatory Commission (FERC). In particular, the call focused on FERC's recently released NOPR on wind interconnection and the upcoming BPA/FERC workshop in Portland, Oregon, on March 16th and 17th, concerning conditional firm transmission service.
- ✓ In January, FERC issued a proposed rule on interconnecting wind generators larger than 20 MW in capacity. The proposed rule would be an appendix to FERC's Large Generator Interconnection Rule, otherwise known as Order 2003.
- ✓ On December 1, 2004 FERC held a technical conference titled "Assessing the State Of Wind Energy In Wholesale Markets" in Denver, CO. After the meeting, FERC issued a list of questions related to wind energy and asked for comments by January 28th. AWEA, the Edison Electric Institute, the Electric Power Supply Association, various utilities, the NWCC, and some wind energy companies were among those that provided comments.
- ✓ The Renewable Northwest Project (RNP) provided an overview of Bonneville Power Administration's (BPA) proposal for Conditional Firm Transmission Product and the steps leading up to the proposal. Proposals for conditional firm transmission service are aimed at providing transmission for generators for most hours of the year when transmission is available, but generally not during the peak demand hours when transmission may be constrained.
- ✓ The call also covered updates on important regional transmission issues in PJM, MISO, West, and with NERC, all of which are included in this edition of the *NWCC Transmission Update*.

## FERC

### **AWEA Perspective on the FERC Interconnection/ Grid Code Amendment**

In January 2005, FERC issued a proposed appendix to FERC's Large Generator Interconnection Rule (Order 2003) on interconnecting wind generators larger than 20 MW in capacity.

When FERC issued its proposed large-scale generator interconnection rule in 2002, FERC required generators to have final design details and layouts before filing for interconnection, and the pro forma interconnection provisions assumed interconnecting synchronous generators with the equipment design and characteristics known in advance. The American Wind Energy Association (AWEA) submitted comments to FERC to the effect that wind turbines are generally non-synchronous, and that because of the multitude of turbine designs and configurations, the design of a wind project depends at least in part on the needs of the

transmission provider. In issuing Order 2003, FERC initially exempted wind generators from reactive power requirements, but asked for proposals for interconnection provisions for wind generators. The wind industry made their “Grid Code” filing in May 2004, and a technical conference was held at FERC in September 2004.

AWEA’s Grid Code filing and the FERC proposal are based on the European E.On standard, named after the German utility. Wind generators would be required to have low-voltage ride-through capability to withstand system faults and not trip off-line. AWEA also offered to accept the reactive power requirement previously waived for wind generators to meet a power factor standard of 0.95 leading and 0.95 lagging. AWEA’s filing and the proposed FERC rule allow transmission providers to waive these provisions if reliability would not be impacted. Both the transmission provider and wind generators would also have to include SCADA equipment for data collection to improve utility real-time understanding of wind production.

FERC declined to support AWEA’s recommendation to allow wind generators to enter the interconnection queue and pay interconnection fees without providing the exact layout and detailed equipment characteristics of the wind project. On the conference call, Mike Jacobs of AWEA acknowledged that not having all plant-specific information for interconnection is unconventional, but it is necessary for wind since the exact location and specification of the turbines may not be determined until construction is ready to begin, long after the wind project should be interconnected. Furthermore, the design and layout of the wind project may depend on the transmission provider’s need. As an example, to meet the power factor requirements, wind generators could use turbines designed to meet the power factor requirement or rely on static and dynamic devices at the substation. AWEA hopes to explain this point more clearly in their March 2nd comments to FERC.

It is expected that FERC will rule upon the wind interconnection NOPR between spring and summer 2005, and transmission providers, RTOs, and ISOs will have to make filings at FERC amending their transmission tariffs to incorporate the wind interconnection provisions. These filings will be subject to comments by stakeholders, and to rulings by FERC. Parties with existing interconnection agreements will not be affected by the proposed rules.

To a certain extent, the wind interconnection NORP reflects the recognition that wind energy is becoming a viable energy resource, and that certain measures are necessary to ensure that wind will make a meaningful contribution to the grid. Although parties may disagree on the details, there appears to be wide agreement that wind needs different interconnection provisions than standard generators. The FERC wind interconnection rule, when issued, should make it easier for more wind capacity to get interconnected.

**For more information on the FERC’s interconnection grid code:**

**Mike Jacobs**, Eastern Representative, **American Wind Energy Association**, provided AWEA’s perspective on this issue for the March 1 call. [mjacobs@awea.org](mailto:mjacobs@awea.org), (202) 383-2517.

FERC Press Release, “FERC Proposes Rule For Wind Power Interconnection”, January 19, 2005, Available at <http://www.ferc.gov/press-room/pr-current/01-19-05-wind.asp>.

Federal Energy Regulatory Commission, Interconnection for Wind Generators and Other Alternative Technologies, Docket No. RM05-4-000, January 24, 2005. Available at <http://www.ferc.gov/whats-new/comm-meet/011905/E-1.pdf>.

## **FERC December 1, 2004 Technical Conference**

FERC held a technical conference on wind energy on December 1, 2004, in Denver, titled “*Assessing The State Of Wind Energy In Wholesale Markets*”. After the meeting, FERC issued a list of questions related to wind energy and asked for comments by January 28th. AWEA, the Edison Electric Institute, the Electric Power Supply Association, various utilities, the NWCC, and some wind energy companies were among those that provided comments. Many of these comments suggested that some of the issues FERC raised are important to wind energy but are also generic to the electric power industry as a whole, such as the elimination of transmission rate pancaking (i.e., imposing a transmission charge for each transmission system that is crossed for an electric power transaction).

Two topics of discussion at the December 1st Technical Conference are likely subject to some follow-up action. These two topics are conditional firm transmission, discussed later in this update, and Southern California Edison’s (SCE) proposal for a “renewable resources trunk facility”.

SCE’s “renewable resources trunk facility” proposal is designed to get large amounts of wind out of the Tehachapi region and is driven, at least in part, by the California renewables portfolio standard. The California RPS calls for 20% renewable energy by 2017, but California’s 2004 Integrated Energy Policy Report Update recommended accelerating the 2017 date to 2010, and to adopt a 33% RPS by 2020. Indeed, state RPS policies appear to be prompting discussions of transmission additions or upgrades, in order to access renewable energy resources to satisfy a state RPS. A key question is whether FERC can take state policies such as the RPS into account, or even defer to state policies in ruling upon a renewable resource trunk facility proposal. In addition, a broader discussion is taking place on how to encourage fuel diversity, and that in turn is driving discussions for transmission expansion. One example is FERC’s scheduling of a technical conference on coal on May 13, 2005, in Charleston, West Virginia.

Also, the Western Interstate Energy Board (WIEB, affiliated with the Western Governor’s Association) is examining the usage of existing transmission lines in the West and whether these lines can be more utilized. A small group of transmission planners and other interested parties have had periodic conference calls and are putting together a study proposal for the Seams Steering Group Western Interface (SSG-WI), who will be undertaking a transmission and resource planning study this year.

Discussions on the call focused on methods for wind-interested stakeholders to continue engaging with FERC as it moves forward on a number of wind-related issues. The Utility Wind Interest Group (UWIG) and others have been engaged in follow-up conversations with FERC. FERC is seeking out the best information possible from a variety of sources and experts in the industry on wind energy, and UWIG staff and representatives of several other groups had a conference call with FERC staff on energy imbalances and wind power forecasting.

It is likely that FERC will make some proposals to remove obstacles to wind energy that were identified as the December 1<sup>st</sup> Technical Conference, such as energy imbalance penalties, although the timing of that is unclear. One possible outcome is for FERC to exempt wind generators from energy imbalance penalties as long as wind generators are using state-of-the-art wind forecasting. Other industry developments will eventually come to FERC for action, such as SEC’s renewable resource trunk facility and, perhaps, conditional firm transmission.

### **For more information on the FERC December 1, 2004, Technical Conference:**

**Mike Jacobs**, Eastern Representative, **American Wind Energy Association**, provided AWEA’s perspective on this issue for the March 1 call. [mjacobs@awea.org](mailto:mjacobs@awea.org), (202) 383-2517.

The agenda, presentations and post-technical conference comments can be found at <http://www.ferc.gov/EventCalendar/EventDetails.aspx?ID=1368&CalType=%20&Date=12%2f1%2f2004&CalendarID=0>.

The Federal Energy Regulatory Commission Notice, Agenda, and Staff Paper for the December 1, 2004 Technical Conference on Wind Energy are available at <http://www.ferc.gov/EventCalendar/Files/20041122142848-ad04-13.pdf/>

**Bonneville Power Administration's Proposal for Conditional Firm Transmission Product**

The Bonneville Power Administration (BPA) has issued a proposal for a Conditional Firm Transmission Product. In general, proposals for conditional firm transmission service are aimed at providing transmission for generators for most hours of the year when transmission is available, but typically not during the peak demand hours when transmission may be constrained. On the March 1, 2005 call, Natalie McIntire from the Renewable Northwest Project ([natalie@rnp.org](mailto:natalie@rnp.org)) provided an overview of BPA's proposal for Conditional Firm Transmission Product and the steps leading up to the proposal. Terrin Pearson of BPA ([tpearson@bpa.gov](mailto:tpearson@bpa.gov)) was scheduled to be on the call but had to cancel because of illness.

Currently, on a contractual basis, BPA is transmission constrained and cannot offer firm transmission service on some paths. BPA can offer non-firm transmission service, short-term firm or seasonal firm transmission service, but the short-term nature of non-firm service and short-term firm (one year or less) and the unspecified number of hours of potential curtailment for seasonal firm transmission service make it difficult for power developers to secure financing. For actual transmission operations, BPA is not constrained except for a few hours per year. Conditional firm is intended to be in-between non-firm and firm, with conditional firm being curtailed before firm transmission service but having a higher curtailment priority than non-firm transmission service. BPA is looking at capping the number of hours a conditional firm transmission customer would be curtailed annually, but that methodology is not determined yet. Conditional firm transmission service customers would remain in the interconnection queue for long-term point-to-point firm transmission service, and would be converted to that service if it becomes available.

In addition to BPA, the **Rocky Mountain Area Transmission Study (RMATS)** also examined the potential for conditional firm transmission. RMATS includes Colorado, Idaho, Montana, Utah, and Wyoming and was originally established by the governors of Wyoming and Utah to assess the feasibility of investing in new transmission to either access remote coal and wind resources or to export generation to other areas in the West. A RMATS report published in 2004 found that some transmission lines in the West are congested only 20 to 50 hours per year.

BPA posted its proposal on its website and received some public comments. RNP is currently modifying the proposal and once the proposal is modified, a 60-day internal review at BPA will take place. Assuming BPA approves the proposal, BPA will do a mini-rate case, modify their computers to accommodate the additional rate schedules and update their tariffs. A mini-rate case would only involve conditional firm transmission service, similar to the mini-rate case BPA conducted a few years ago to eliminate the 100 mills/kWh imbalance charge for wind energy. BPA conducts a more involved rate case every two years, and as part of that, assesses the costs of electric service across all rate classes.

The Market Interface Committee of the Western Electricity Coordinating Committee (WECC) is also looking into conditional firm transmission service. **A WECC meeting on transmission occurred on March 3rd and 4th in Las Vegas** and was aimed at comparing the RMATS' and BPA conditional firm proposals.

A key issue is whether conditional firm service would impact firm transmission customers. That issue ties into determining how many hours conditional firm could be curtailed. If set

too low, the number of curtailment hours may be exhausted, and if transmission congestion occurs, conditional firm and firm transmission customers would have the same curtailment priority. However, conditional firm service could mean more revenues to BPA from increased transmission sales, but how to quantify this is unclear.

Another question is how transmission constraints across multiple lines would be considered in determining the amount of available capacity for conditional firm service. Here again, a methodology has yet to be developed, but one option is to quantify the number of hours that each transmission line is congested, sum them up, and present the total as the number of hours that will not be available for conditional firm service. As one person commented, the chances that multiple transmission lines may be congested at the same time may be relatively small, and summing up all the potential constrained hours may be too restrictive.

Conditional firm transmission service and other innovative transmission services will be the focus of a **two-day workshop that FERC is co-sponsoring with BPA and WECC in Portland, Oregon, on March 16th and 17th**. The agenda is available at <http://www.ferc.gov/EventCalendar/EventDetails.aspx?ID=1660&CalType=%20&Date=3%2f16%2f2005&CalendarID=0>.

Many key methodological issues remain with conditional firm transmissions service, and if this concept spreads, there may be some interesting innovation and experimentation with transmission service. Perhaps more importantly, conditional firm may allow for the development of new generating capacity, including wind, while the longer-term processes of planning, siting, financing, and building transmission proceeds. Still to be determined is whether others in the electric power industry will embrace conditional firm, and how FERC will rule on a conditional firm tariff if it is petitioned to do so.

**For more information on the BPA Conditional Firm Tarrif and the March 16-17 FERC meeting in Portland, OR:**

Bonneville Power Administration Transmission Business Line's proposal for a Conditional-Firm Product, January 19, 2005 is available at [http://www.transmission.bpa.gov/Business/Customer\\_Forum\\_and\\_Feedback/Business\\_Practices\\_Technical\\_Forum/documents/conditional\\_firm\\_proposal.pdf](http://www.transmission.bpa.gov/Business/Customer_Forum_and_Feedback/Business_Practices_Technical_Forum/documents/conditional_firm_proposal.pdf).

Comments on BPA's proposal can be found at [http://www.transmission.bpa.gov/Business/Customer\\_Forum\\_and\\_Feedback/Business\\_Practices\\_Technical\\_Forum/documents/CondFirm\\_comments\\_Initial.pdf](http://www.transmission.bpa.gov/Business/Customer_Forum_and_Feedback/Business_Practices_Technical_Forum/documents/CondFirm_comments_Initial.pdf).

Materials for the Federal Energy Regulatory Commission March 16th and 17th workshop can be found at <http://www.ferc.gov/EventCalendar/EventDetails.aspx?ID=1660&CalType=%20&Date=3%2f16%2f2005&CalendarID=0>. The agenda for the workshop includes a good comparison table of BPA's conditional firm transmission product with those discussed in the RMATS report.

## **Regional News and Issues**

### **PJM**

- Kevin Porter announced that PJM is interested in learning more about wind forecasting and is hosting a workshop on March 3<sup>rd</sup> to hear from various industry experts.

**For more information about this wind forecasting effort in PJM, contact Kevin Porter at [porter@exeterassociates.com](mailto:porter@exeterassociates.com).**

## MISO

- The Midwest ISO is launching its “Day 2” Market on April 1<sup>st</sup>, 2005. The Day 2 Market will include real-time energy imbalance services and a market-based congestion management system that will feature hourly clearing prices based on the locational marginal pricing (LMP) structure like that used in PJM, New York, and New England.

**For more information on MISO’s Day 2 market, please see** “*Midwest ISO Formally Certifies Its Market Readiness*,” Midwest ISO Press Release, February 16, 2005. Available at [http://mktweb.midwestiso.org/publish/Document/10b1ff\\_101f945f78e\\_-7b470a48324a/prs%20rel%20-%20certification%20of%20%20market%20readiness%20-16-05.pdf?action=download&\\_property=Attachment.t](http://mktweb.midwestiso.org/publish/Document/10b1ff_101f945f78e_-7b470a48324a/prs%20rel%20-%20certification%20of%20%20market%20readiness%20-16-05.pdf?action=download&_property=Attachment.t)

## The West

- Several state legislators (New Mexico, Kansas, Montana, Wyoming, North Dakota, South Dakota, Utah) are considering transmission infrastructure authorities to support investments in transmission upgrades or expansion. One issue raised was whether the infrastructure authority has funds for operations and conduct feasibility studies before making any decisions to invest in new transmission infrastructure. The Wyoming Governor has proposed \$5 million in operating funds for the Wyoming Infrastructure Authority. Call participants pointed out that North Dakota’s proposed transmission infrastructure authority legislation does not include funds for operations. One suggested outcome is for Wyoming to collaborate with other states, allowing other states to commit funds if they see benefits.

**More information on the Wyoming Infrastructure Authority can be obtained at** <http://www.wyia.info>.

## NERC

- The North American Electric Reliability Council (NERC) has assembled a task force on wind generators. The Wind Generator Task Force was formed to determine whether existing NERC standards need to be modified, or whether a new NERC standard needs to be created in order to address reliability issues, if any, in interconnecting wind generators. This task force is only making a go/no go decision on whether to change or create a NERC standard, and not on the specifics of such a standard. It is estimated that this process will take a year. A meeting was held in San Antonio during the last week in February, with discussion on NERC filing comments on the wind interconnection NOPR at FERC. Call participants involved in this task force reported that NERC staff feel that the ability of wind turbines to ride through shorter periods of time at zero voltage and providing clearing time for faults near the project is more important than the longer ride-through capability at 15% voltage (called for in FERC’s proposed rule). Also, NERC is exploring whether the reactive power factor values identified in the grid code is sufficient.

**More information is available at** <http://www.nerc.com/~filez/wgtf.html>.  
Or contact: Rob Sims of SeaWest WindPower Inc, [rsims@seawestwindpower.com](mailto:rsims@seawestwindpower.com).

## **Next Update: April 26, 2005**

**The next NWCC Transmission Update will be held on April 26 at 1 pm Eastern.**

Please email Kevin ([porter@exeterassociates.com](mailto:porter@exeterassociates.com)) or Miles Keogh ([mkeogh@resolv.org](mailto:mkeogh@resolv.org)) with any suggestions for topics or ways to improve the call.

**Many thanks to Mike Jacobs (AWEA), Natalie McIntire (RNP) and Terrin Pearson (BPA) for their assistance in planning this update and leading call discussions.**