

## NERC Standards Process and Wind Power

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NERC standards development is a participatory process. With 186 approved standards and 55 standards development projects it is difficult to precisely determine which standards are of unique importance to wind and require active participation. Each standard has multiple requirements and the practical impacts of these requirements on wind plants in each region are not always obvious. AWEA continuously monitors standards development activity<sup>1</sup> but it is possible for the monitoring process to miss an important issue. Determining which standards are uniquely important to wind is complicated by the fact that a standard's applicability can change during the standard's development or updating process and a standard that previously did not apply to wind can suddenly impose significant requirements. If you have a standards concern, or if you think that AWEA is not closely tracking an important standard please let Michael Goggin ([mgoggin@awea.org](mailto:mgoggin@awea.org) – 202-383-2531) or Brendan Kirby know ([kirbybj@ieee.org](mailto:kirbybj@ieee.org) – 865-250-0753) know.

This paper provides a brief discussion of the NERC standards development and updating process. It also provides an assessment of which standards are uniquely important for wind power to provide guidance on which part of the NERC standards development processes the wind industry should especially focus. AWEA's role is to help the industry make sure that all standards are technically justified, improve reliability, are technology neutral, and are non discriminatory.

### NERC Standards Development Process

Developing a new standard or revising an existing standard begins with submission of a Standards Authorization Request (SAR). Many SARs involve more than one standard. Anyone can submit a SAR. NERC staff reviews the SAR proposal and, if it is approved, passes it on to a SAR drafting team to refine the SAR. The SAR is then submitted to industry voting and approval.<sup>2</sup>

Once a SAR is approved, a standards Project is established and a Standard Drafting Team (SDT) composed of industry experts is formed. The team drafts the new standard and/or revises the existing standards included in the Project. SDT team meetings are open and "observers" are typically welcome. In fact, observers can usually participate fully in the SDT activities, including offering draft standard language and engaging in the

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<sup>1</sup> Brendan Kirby participates on the NERC Standards Committee for AWEA

<sup>2</sup> A full description of the NERC standards process can be found at [www.NERC.com](http://www.NERC.com). This brief discussion is only intended to provide a rough outline of the process.

discussions. Observers cannot vote, however. The inability to vote is not as large a constraint as might be assumed. The draft standards that come out of the project must go to industry for approval. SDTs typically recognize that someone willing to participate in a standard Project likely represents a significant industry segment. If the observer's concerns are not considered during standard drafting they will likely show up again when the proposed standard is submitted to industry for voting and approval. NERC voting is weighted by industry segment so a single segment (large industrial customers, for example) cannot force through a standard that favors their segment. Standards that are approved by industry are then submitted to the NERC Board of Trustees (BOT), the Federal Energy Regulatory Commission (FERC), and the Canadian Provinces for approval before they become effective.

### **NERC Standards Projects With Critical Wind Concerns**

Wind generators are, of course, concerned with all NERC standards that apply to generators. The list presented here is limited to those standards projects with unique wind related concerns.

NERC standards projects are referred to by project number and project name. Standards often take several years to draft or update.

#### **Project 2007-05 – Balancing Authority Controls**

This project is updating six standards:

- BAL-002-0 — Disturbance Control Performance
- BAL-004-0 — Time Error Correction
- BAL-004-1 — Time Error Correction
- BAL-005-0 — Automatic Generation Control
- BAL-005-0b — Automatic Generation Control
- BAL-006-1 — Inadvertent Interchange

The concern for wind is a potential requirement that all generators be equipped with Automatic Generation Control (AGC)

BAL-004 and BAL-012 are expected to be posted for comment in July 2009.

#### **Project 2007-09 – Generator Verification**

This project is updating six standards:

- MOD-024-1 — Verification of Generator Gross and Net Real Power Capability
- MOD-025-1 — Verification of Generator Gross and Net Reactive Power Capability
- MOD-026-1 — Verification of Models and Data for Generator Excitation System Functions

- MOD-027-1 — Verification of Generator Unit Frequency Response
- PRC-019-1 — Coordination of Generator Voltage Regulator Controls with Unit Capabilities and Protection
- PRC-024-1 — Generator Performance During Frequency and Voltage Excursions

This project is of significant concern for wind and AWEA is supporting participation in every SDT meeting.

**PRC-024** is establishing voltage and frequency ride through requirements for all generators. As of this writing the draft standard is only a relay setting standard but, based on FERC Staff input, the SDT is considering converting the standard into a plant performance standard. Wind generators already must meet performance requirements imposed by FERC order 661A so converting to a performance standard is not as significant for wind as for other technologies. AWEA is advocating for a technology neutral standard and for grandfathering for existing generators.

**MOD-026 and MOD-027** was drafted to exempt wind based on generator size. FERC Staff suggested that the standards should apply to wind. The SDT is now considering what types of generator “exciter” (MOD-026) and governor (MOD-027) testing should be required for non-synchronous machines.

**PRC-019** Similar concern to MOD-026

### **Project 2007-11 – Disturbance Monitoring**

This project involves the updating of PRC–002-1 — Define Regional Disturbance Monitoring and Reporting Requirements and the retirement of PRC–018-1 — Disturbance Monitoring Equipment Installation and Data Reporting.

PRC-002 will only apply to generating units that are >500 MVA and generating plants that are >1500 MVA. A possible concern for wind is that generation plants >1500 MVA must monitor each generator breaker with a sequence of events recorder (R2). Data recording (R5) is more reasonable in identifying transformers at 200kV etc. R2 should be changed to match R5.

Posting for comments is expected in late fall 2009.

### **Project 2007-12 – Frequency Response**

This project is concerned with the declining frequency response throughout North America. A new standard is being proposed to collect data to analyze the problem. The immediate wind concern is possible monitoring requirements for all generators. Future

wind concerns are with possible a possible requirement to provide inertia or provide matched load shed.

### **Project 2008-01 – Voltage and Reactive Control**

This project will involve four standards:

- VAR–001-1 — Voltage and Reactive Control
- VAR–001-1a — Voltage and Reactive Control
- VAR–002-1 — Generator Operation for Maintaining Network Voltage Schedules
- VAR–002-1a — Generator Operation for Maintaining Network Voltage Schedules

The possible concern for wind is a potential requirement to inform the Transmission Operator (TO) of the real-time status of each generator. The SAR is expected in July 2009.

The draft SAR is expected to be posted in July 2009.

### **Project 2009-05 – Resource Adequacy Assessment**

This project involves six standards:

- MOD-011-0 Regional Steady-State Data Requirements and Reporting Procedures
- MOD-014-0 Development of Steady State System Models
- TPL-005-0 Regional and Inter-Regional Self-Assessment Reliability Reports
- MOD-017-1 Aggregated Actual and Forecast Demands, Net Energy for Load
- MOD-018-0 Reports of Actual and Forecast Demand Data
- MOD-016-1 Actual and Forecast Demands, Net Energy for Load, Controllable DSM

Regions are to create metrics on resource adequacy and perform resource adequacy assessments. It is not clear why there should not be a continental metric. It is also not clear how wind will be treated.

### **Cyber Security**

All of the Cyber Security projects are of potential concern. The determination of “Critical Assets” and “Critical Cyber Assets” is still uncertain.

- Project 2008-06 – Cyber Security