NERC
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION

MOD C Project

Associated Directives

The "MOD C" project focuses on closing out directives from FERC Order 693 with regards to reliability standards for the demand data included in the MOD standards. The standards involved are:

- MOD-016-1.1 – Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, Controllable Demand-Side Management
- MOD-017-0.1 - Aggregated Actual and Forecast Demands and Net Energy for Load
- MOD-018-0 – Treatment of Nonmember Demand Data and How Uncertainties are Addressed in the Forecasts of Demand and Net Energy for Load
- MOD-019-0.1 – Reporting of Interruptible Demands and Direct Control Load Management
- MOD-020-0 – Providing Interruptible Demands and Direct Control Load Management Data to System Operators and Reliability Coordinators
- MOD-021-1 – Documentation of the Accounting Methodology for the Effects of Demand-Side Management in Demand and Energy Forecasts

NERC is looking to solicit volunteers for an ad-hoc group to provide insight into the industry issues associated with the standards listed above. Once this project begins the Standard Development Process phase it is slated to be presented to the NERC Board of Trustees in November 2013.

For further reference, the applicable directives and the associated standard are listed below for your review. For your convenience the directive language has been highlighted.

MOD-016-1.1 - Documentation of Data Reporting Requirements for Actual and Forecast Demands, Net Energy for Load, Controllable Demand-Side Management

1232. Supported by many commenters, **the Commission directs the ERO to modify MOD-016-1 and expand the applicability section to include the transmission planner, on the basis that under the NERC Functional Model the transmission planner is responsible for collecting system modeling data, including actual and forecast load, to evaluate transmission expansion plans**. We disagree with EEI that this Reliability Standard should not be applied to the transmission planner because load-related data for controllable DSM is not only needed for distribution and transmission operations, but is also necessary for the transmission planner to take controllable DSM into account in planning the transmission system. Requirement R1.1 relates to data submittal, and requires data to be consistent with that supplied for the TPL-005 and TPL-006 standards, which clearly apply to transmission planners. We approve the ERO's

definition in the glossary of DSM as "all activities or programs undertaken by a Load-Serving Entity or its customers to influence the amount or timing of electricity they use." Only activities or programs that meet the ERO definition, with the modification directed below, may be treated as DSM for purposes of the Reliability Standards. Recognizing the potential role that industrial customers who do not take service through an LSE and load aggregators, for example, may play in meeting the Reliability Standards, **we direct the ERO to modify the definition of DSM. Specifically, we direct the ERO to add to its definition of DSM "any other entities" that undertake activities or programs to influence the amount or timing of electricity they use without violating other Reliability Standard Requirement.**

> **Demand Side Management** (from NERC Glossary of Terms)
> The term for all activities or programs undertaken by Load-Serving Entity or its customers to influence the amount or timing of electricity they use.

MOD-017-0.1 - Aggregated Actual and Forecast Demands and Net Energy for Load

1249. **The Commission also directs the ERO to modify the Reliability Standard to require reporting of temperature and humidity along with peak load because actual load must be weather normalized for meaningful comparison with forecasted values.**[361] In response to MidAmerican's observation that it sees little value in collecting this data, we believe that collecting it will allow all load data to be weather-normalized, which will provide greater confidence when comparing data accuracy, which ultimately will enhance reliability. As a result, we reject Xcel's proposal that the standard be revised to include only the generic term "peak producing weather conditions" because it is too generic for a mandatory Reliability Standard.

> [361] See Brattle Group Report on PJM Load Forecast Model, available at http://www.pjm.com/planning/res-adequacy/load-forecast.html.

1250. We also reject Alcoa's proposal that the reporting of temperature and humidity along with peak loads should apply only to load that varies with temperature and humidity because it essentially is a request for an exemption from the requirements of the Reliability Standard and should therefore be directed to the ERO as part of the Reliability Standards development process. We agree, however, with APPA that certain types of load are not sensitive to temperature and humidity. **We therefore find that the ERO should address Alcoa's concerns in its Reliability Standards development process.**

> 1240. Xcel states that in many areas of the country, humidity is not a weather-indicator for peak load. Xcel therefore suggests that instead of including a reporting requirement for humidity, the standard be revised to include a more generic term, such as "peak producing weather conditions."

Alcoa requests that the Commission clarify that these requirements would only apply to load that varies with temperature and humidity.[359]

[359] Alcoa states that because its smelting load (the vast majority of its load) does not vary in accordance with temperature and humidity, comparing Alcoa's load forecasts to actual loads taking this information into account would be burdensome without being useful.

1251. **The Commission adopts the NOPR proposal directing the ERO to modify the Reliability Standard to require reporting of the accuracy, error and bias of load forecasts compared to actual loads with due regard to temperature and humidity variations.** This requirement will measure the closeness of the load forecast to the actual value. We understand that load forecasting is a primary factor in achieving Reliable Operation. Underestimating load growth can result in insufficient or inadequate generation and transmission facilities, causing unreliability in real-time operations. Measuring the accuracy, error and bias of load forecasts is important information for system planners to include in their studies, and also improves load forecasts themselves.

1252. The Commission agrees with APPA that accuracy, error and bias of load forecasts alone will not increase the reliability of load forecasts, and, as a result, will not affect system reliability. Understanding of the differences without action based on that understanding would not change anything. Therefore, **we direct the ERO to add a Requirement that addresses correcting forecasts based on prior inaccuracies, errors and bias.**

1255. **We agree with FirstEnergy that transmission planners should be added as reporting entities, and direct the ERO to modify the standard accordingly.** We agree that in the NERC Functional Model, the transmission planner is responsible for collecting system modeling data including actual and forecast demands to evaluate transmission expansion plans.

1256. The Commission disagrees in general with MISO's recommendation to allow some exceptions to the requirement to provide hourly demand data. However, the metering for some customer classes may not be designed to provide certain types of data. **The Commission therefore directs the ERO to consider MISO's concerns in the Reliability Standards development process.**

1245. MISO recommends that the Commission direct NERC to change the requirement of this standard so that aggregated actual hourly demand data (at the balancing authority level) are to be provided within 30 calendar days of a request from NERC. MISO believes that load aggregated at this level should be sufficient for the modeling activities associated with system reliability. MISO

> understands that hourly data is collected by those utilities that have balancing authority responsibilities, and that these utilities can report aggregated hourly loads for their responsibility area within 30 days. MISO notes that some balancing authority utilities provide energy services to smaller municipal or distribution cooperative utilities where the metering system records only the peak demand and total energy supplied over approximately 30 days. MISO cautions that the balancing authority will usually have hourly data for demand and energy within a segment of the network, but may have no hourly metering on a specific customer served by that segment.

MOD-018-0 - Treatment of Nonmember Demand Data and How Uncertainties are Addressed in the Forecasts of Demand and Net Energy for Load

1265. Regarding TAPS's concern that small entities should not be required to comply with MOD-018-0 because their forecasts are not significant for system reliability purposes, **the Commission directs the ERO to address this matter in the Reliability Standards development process.**

> 1262. TAPS reiterates a similar concern it expressed with regard to MOD-017-0. TAPS notes that uncertainty in a small entity's forecast is insignificant. TAPS recommends that load forecast uncertainty should be addressed at an aggregate level on a regional basis (as is often done in the establishment of reserve obligations).

MOD-019-0.1 - Reporting of Interruptible Demands and Direct Control Load Management

1276. **The Commission adopts the NOPR proposal directing the ERO to modify this standard to require reporting of the accuracy, error and bias of controllable load forecasts.** This requirement will enable planners to get a more reliable picture of the amount of controllable load that is actually available, therefore allowing planners to conduct more accurate system reliability assessments. The Commission finds that controllable load can be as reliable as other resources, and therefore should also be subject to the same reporting requirements. Although we recognize that verifying load control devices and interruptible loads may be complex, we do not believe that it is overly so. **Further, we believe that the ERO, through its Reliability Standards development process can develop innovative solutions to the Commission's concern.** We also note that EEI is concerned about such testing at times of peak load. We clarify that we are not requiring the testing to be conducted at peak load conditions. Consequently, we reject the proposals of EEI, FirstEnergy and International Transmission to discard the requirement for reporting of the accuracy, error and bias of controllable load forecasts.

1277. **We direct the ERO to include APPA's proposal in the Reliability Standards development process to add a new requirement to MOD-019-0 that would oblige resource planners to analyze differences**

between actual and forecasted demands for the five years of actual controllable load and identify what corrective actions should be taken to improve controllable load forecasting for the 10-year planning horizon.

> 1270. APPA proposes that NERC consider modifying MOD-019-0 to include new requirements for reporting on the accuracy, error and bias of controllable load forecasts. APPA further believes that NERC should consider adding requirements that would require resource planners to analyze differences between actual and forecasted demands for the five years of actual controllable load required in MOD-019-0 and identify what corrective actions were taken to improve controllable load forecasting for the 10-year planning horizon.

MOD-020-0 - Providing Interruptible Demands and Direct Control Load Management Data to System Operators and Reliability Coordinators

1287**. We adopt the proposal to direct the addition of a requirement for reporting of the accuracy, error and bias of controllable load forecasts because we believe that reporting of this information will provide applicable entities with advanced knowledge about the exact amount of available controllable load, which will improve the accuracy of system reliability assessments.** The Commission finds that controllable load in some cases may be as reliable as other resources and therefore must also be subject to the same reporting requirements. We recognize that determining the precise availability and capability of direct load control is a difficult management and customer relations exercise, but we do not believe that it will be overly so. **Further, we believe that the ERO, through its Reliability Standards development process can develop innovative solutions to the Commission's concern.** Regarding LPPC's suggestion that this requirement should be region-specific and should only apply to entities that separately forecast interruptible loads, we note that if a region does not forecast interruptible loads, this Reliability Standard does not apply.

MOD-021-1 - Documentation of the Accounting Methodology for the Effects of Demand-Side Management in Demand and Energy Forecasts

1298. We agree with FirstEnergy and SMA that standardization of principles on reporting and validating DSM program information will provide consistent and uniform evaluation of demand response to facilitate system operator confidence in relying on such resources, which will further increase accuracy of transmission system reliability assessment and consequently enhance overall reliability. We direct the ERO to modify this Reliability Standard to allow resource planners to analyze the causes of differences between actual and forecasted demands, and to identify any corrective actions that should be taken to improve forecasted demand responses for future forecasts. **Therefore, we adopt the NOPR proposal and direct the ERO to modify MOD-021-0 by adding a requirement for standardization of principles on reporting and validating DSM program information.**

1294. FirstEnergy and SMA support the Commission's proposal to require consistent and uniform methods for reporting and validating demand-side information. SMA notes that this will provide more consistent and uniform evaluation of demand response data to facilitate system operator confidence in relying on such resources for various reliability purposes. In addition, APPA believes that NERC should consider adding requirements to MOD-021-0 that would provide information to allow resource planners to analyze the causes of differences between actual and forecasted demands, and to identify any corrective actions that should be taken to improve forecasted demand responses for future forecasts. APPA believes that all of these proposals should be submitted to NERC as the standards-setting body with technical expertise, and vetted through its Reliability Standards development process, rather than being imposed by Commission fiat.