

Attachment 9

Recommendation to the Executive Committee of the North American Energy Standards Board (NAESB) – Wholesale Electric Quadrant (WEQ)

Business Practices for a Framework for Measurement and Verification of Wholesale Electricity Demand Response

December 2, 2008

Requesters: DSM-EE Subcommittee

Request No.: 2008 AP Item 5(a)

Review and Develop Business Practice Standards to Support DR and DSM-EE Programs



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ

December 2, 2008
Requesters: DSM-EE Subcommittee
Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

1. RECOMMENDED ACTION:

- X Accept as requested
Accept as modified below
Decline

EFFECT OF EC VOTE TO ACCEPT RECOMMENDED ACTION:

- X Change to Existing Practice
Status Quo

2. TYPE OF DEVELOPMENT/MAINTENANCE

Per Request:

- X Initiation
X Modification
Interpretation
Withdrawal
X Principle
X Definition
X Business Practice Standard
X Document
Data Element
Code Value
X12 Implementation Guide
X Business Process Documentation

Per Recommendation:

- X Initiation
X Modification
Interpretation
Withdrawal
X Principle
X Definition
X Business Practice Standard
X Document
Data Element
Code Value
X12 Implementation Guide
X Business Process Documentation

3. RECOMMENDATION

SUMMARY:

The standards support the measurement and verification characteristics of Demand Response programs administered for application in the wholesale market and may be the subject of individual tariffs filed with and approved by the Federal Energy Regulatory Commission.

RECOMMENDED STANDARDS:

DISCLAIMER: This document contains draft information on standards for wholesale electricity Demand Response products and services in markets administered by Independent System Operators and Regional Transmission Organizations (hereinafter referred to as "System Operator"). The information contained within this draft is not intended to replace applicable tariff, market rules, operating procedures, protocols or manuals, for wholesale Demand Response, and in the event of a conflict, the latter documents shall have precedence over these standards.

Contact information: Eric Winkler, Ph.D., ISO New England, 413-540-4513, ewinkler@iso-ne.com

WEQ-015 Business Practices for Wholesale Electricity Demand Response Programs - Please see attached documentation.



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

December 2, 2008

Requesters: DSM-EE Subcommittee

Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

4. SUPPORTING DOCUMENTATION

a. Description of Request:

Develop business practices to support demand side management and energy efficiency programs in the wholesale and retail electric markets.

b. Description of Recommendation:

For the first phase, develop business practices to support the measurement and verification aspects of the wholesale market demand response programs.

c. Business Purpose:

The business practices may be used by the administrators of wholesale demand response programs to add market transparency and understanding in the application of the measurement and verification characteristics of those programs.

d. Commentary/Rationale of Subcommittee(s)/Task Force(s):

- **April 11, 2007:** Several representatives of the NAESB WEQ, REQ, and RGQ as well as representatives of the US Department of Energy, US Environmental Protection Agency, FERC, and other industry experts met at the Department of Energy offices in Washington, D.C. to discuss the NAESB effort to draft business practices for Demand Side Management and Energy Efficiency. Ongoing Energy Efficiency and DSM projects and programs by other groups (such as NAPEE) were reviewed by the meeting attendees. The following resolution outlines the scope of the initial effort by NAESB to draft business practice standards for these topics: It was decided that NAESB should begin its standards development focus on measurement and verification of energy savings and peak demand reduction from both a wholesale and retail electric market perspective. A future schedule of meetings for DSM and Energy Efficiency should be posted on the NAESB website shortly.
- **May 24, 2007:** 75 NAESB members, FERC, DOE, EEI, ISO and State regulatory personnel, experts in DSM and energy markets participants (22% more than the first meeting) met in person and by conference telephone at NAESB headquarters in Houston to refine the scope of Phase 1 activities, agreeing on a specific list of tasks and assigning subgroups of volunteers to work on each task. At this meeting, no less than 28 individuals spoke to the group.
- **June 18, 2007:** 51 NAESB members, FERC, DOE, EEI, ISO and State regulatory personnel, experts in DSM and energy markets participants met in person and by conference telephone at BGE offices in Baltimore to further refine the scope of Phase 1 activities by reviewing the initial task list and revising it with more detailed deliverable requirements and dates, and with identification of base documents to support completing each task.
- **July 26, 2007:** 46 NAESB members, FERC, DOE, EEI, ISO and State regulatory personnel, experts in DSM and energy markets participants met in person and by conference telephone at AGA offices in Washington DC to present deliverables of existing demand response measurement and verification protocols and a list of 41 possible topics and subtopics for NAESB model



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

December 2, 2008

Requesters: DSM-EE Subcommittee

Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

business practices. The task force reviewed all 41 possibilities, deciding whether to draft MBPs and which ones can be grouped together.

- **September 14, 2007:** The results of the meeting including possible standards text were sent out for comment including notes, considerations and possible standards text. Comments were requested on each of the nine standards development areas including whether the remarks were directed to wholesale or retail markets, pre program evaluation or post implementation evaluation, or to DSM or EE projects.
- **September 25, 2007:** A DSM-EE meeting was held in Austin, Texas hosted by ERCOT. The purpose of the meeting was to review the comments, determine the level of progress made towards the task list and determine if adjustments to the task, focus or schedule were needed. When reviewing the comments it was determined to focus in five areas specific to demand response programs, and develop business practice standards that would prove helpful – (1) DR programs administered by ISOs and RTOS in the wholesale markets, (2) DR programs administered by utilities in wholesale markets, (3) DR programs administered by utilities in the retail markets, (4) a glossary to support the DR programs, and (5) a preamble to put the business practice standards in context. To focus on the DR programs, each of the three areas outlined will develop a matrix that describes the aspects of the DR programs in effect today, planned, or has been in effect in the past.
- **November 6, 2007:** Several of the NAESB leadership met with Commissioners Kerr and Ervin of NC to gain further understanding of expectations for DSM-EE NAESB activity for electricity for the retail markets.
- **November 11, 2007:** NAESB participated in a panel on DSM-EE at the NARUC Annual Meeting in Anaheim.
- **November 30, 2007:** Meeting hosted by Dominion in Richmond. During the meeting, each of the five groups described the progress made and plans to date. Drafts of the three matrices were reviewed, as was a draft glossary and outline for the preamble. It is possible that the two wholesale matrices will be combined. The calendar for 2008 was also set. The next meeting is scheduled for January 23 in Baltimore hosted by BGE.
- **December 3, 2007:** A meeting was held with Commissioner Mason of Ohio to gain further understanding of expectations for DSM-EE NAESB activity for natural gas for the retail markets.
- **January 23, 2008:** The group met in Baltimore to review progress on the two matrices, the preamble and the glossary. The wholesale matrix for DR programs administered by ISOs and RTOs was reviewed. Data is being placed in five separate categories -Initial Testing and Auditing, Ongoing Testing and Auditing, Triggering; Construction, Statistical Analysis, Performance and Baselines. The matrix for retail DR programs is lagging but several companies have provided or agreed to provide data – including BGE, Dominion, ConEd, Alabama Power and ComVerge. Procedures for how to collect the data was discussed with both interviews online and distributed surveys discussed. Both the preamble and glossary while first drafts are available are dependent on the work of the matrices and cannot be further developed until after more progress has been made on the matrices.



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

December 2, 2008

Requesters: DSM-EE Subcommittee

Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

- **March 28, 2008:** The group met in Houston to review progress on the two matrices. The wholesale matrix for DR programs administered by ISOs and RTOs was reviewed. The matrix had expanded significantly to provide for more comparability for responses. 45 DR programs have been identified and the data is now being verified. A template for the type of standards to be expected from this effort was reviewed. The retail matrix now has additional data and several interviews were conducted online, with the conclusion that it is the preferred way to gather data. The retail group is to set up a face-to-face meeting in May to review the matrix and make changes before sending it out to utilities for interviews.
- **May 30, 2008** – The group met in Holyoke to continue review progress on the two matrices. The wholesale matrix for DR programs administered by ISOs and RTOs was reviewed. The matrix had expanded significantly to provide for more comparability for responses. With the 45 DR programs identified, the group is now consolidating the data to higher levels from the more specific items collected. With the consolidation, the business practices should be drafted. The outline for the business practices has been prepared. The retail matrix now has contributions from 11 DR programs and the matrix structure is being validated against flow charts of the programs. Once the matrix structure is validated, online interviews will be held. It was determined to concentrate on dispatchable DR programs first.
- **July 30, 2008** – The group met in Carmel, Indiana hosted by ACES Power to review the progress made in the two efforts. With the 45 DR programs identified, the wholesale group has consolidated the data to higher levels and draft language is being developed around four product types, energy, capacity, regulation and reserves which incorporate information from various ISO/RTOs, as well as other entities. For the retail effort, the group is relying on work from AEIC regarding process flow and applying that flow to DR programs in place. From the flows, draft standards are being prepared. Once the draft standards are prepared, efforts will be to collect through interviews information from other utilities, geographically diverse and administering programs different from those already documented. Through the interviews it is expected that we would validate both the matrix and the draft standards. The retail group is initially focusing on dispatchable DR programs. Coordination is also underway with NERC on the development of a DR survey and with the AEIC. Work will soon begin with both groups to include the glossary and the preamble text.
- **October 3, 2008** – The group met in Austin, Texas hosted by ERCOT to review progress made in development of M&V standards for retail and wholesale DR programs. A recommendation of business practice standards for the wholesale market was reviewed by the group. After discussion, it was the intent that the recommendation be distributed for a two week informal comment period. The comments would be discussed at the December meeting including any suggested changes. After discussion on December 2, the recommendation will either be voted out of subcommittee and would proceed to a formal comment period and Executive Committee consideration, or the recommendation would continue to be modified by the subcommittee through another round of informal comments. For retail, the subgroup has collected detailed data on some DR programs underway. After review of the wholesale effort, it was discussed that the retail subgroup would hold a two day session to determine whether to proceed at the level defined in the wholesale recommendation, or proceed to define more prescriptive standards.
- **December 2, 2008** – The group met in Birmingham hosted by Alabama Power to review comments and vote on the recommendation for Wholesale Electric Quadrant standards for M&V



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

December 2, 2008

Requesters: DSM-EE Subcommittee

Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

characteristics for DR products and services. After considerable discussion, and several votes to amend the recommendation the recommendation with the amendments put forward by the ISOs and RTOs and three separate amendments addressing titling, applicability, and additional specificity for the definition of Baseline, the motion to adopt the revised recommendation was approved with significant support. with 86.5 percent approval by balanced vote. All WEQ segments were present and voting. The revised recommendation will go out for a thirty day comment period and is now considered a work product of the WEQ EC. The abbreviated update report was given for the Retail market effort. The Retail group plans to use the WEQ revised recommendation as a foundation for their work.

e. Additional Background documentation

- DSM-EE NAESB page for meetings and materials: <http://www.naesb.org/dsm-ee.asp>
- Presentation of the wholesale recommendation given on October 3: ISO presentation - <http://www.naesb.org/pdf3/dsmee100308w7.pdf>
- Presentation on the NAESB process to be used – given on October 3: <http://www.naesb.org/pdf3/dsmee100308w8.pdf>

[At a later time a supporting document with clarifying information will be provided as a Technical Implementation Business Practice]



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

**December 2, 2008
Requesters: DSM-EE Subcommittee
Request No.: 2008 AP Item 5(a)**

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

Business Practices for a Framework for Measurement and Verification of Wholesale Electricity Demand Response

Introduction

1. Measurement and Verification Standards

These Measurement and Verification (M&V) standards are intended to facilitate Demand Response in wholesale electricity markets by providing a common framework for the following:

- Transparency: accessible and understandable M&V requirements for Demand Response products;
- Accountability: criteria that will enable the System Operator to accurately measure performance of Demand Response resources; and
- Consistency: standards applicable across all wholesale electricity markets.

2. Applicability of Measurement and Verification Standards:

ISO/RTO Administered Markets

These standards are applicable only to Independent System Operator-Regional Transmission Organization administered markets in North America. The standards reflect business practices applicable to measurement and verification of wholesale market Demand Response services including the following four product/service categories¹:

Energy Service

A type of Demand Response service in which Demand Resources are compensated based solely on Demand reduction performance during a Demand Response event.

Capacity Service

A type of Demand Response service in which Demand Resources are obligated over a defined period of time to be available to provide Demand Response upon deployment by the System Operator.

Reserve Service

A type of Demand Response service in which Demand Resources are obligated to be available to provide Demand reduction upon deployment by the System Operator, based on reserve capacity requirements that are established to meet applicable reliability standards.

¹ The terms Product(s) or Service(s) may be used interchangeably in these standards.



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

December 2, 2008

Requesters: DSM-EE Subcommittee

Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

Regulation Service

A type of Demand Response service in which a Demand Resource increases and decreases Load in response to real-time signals from the System Operator. Demand Resources providing Regulation Service are subject to dispatch continuously during a commitment period. Demand Resources providing Regulation Service automatically respond to changes in grid frequency (similar to the governor action on a generator), and also are subject to continuous dispatch based on instructions from the System Operator (similar to Automatic Generation Control). Provision of Regulation Service does not correlate to Demand Response Event timelines, deadlines and durations.

These standards establish Demand Response M&V criteria. They do not establish requirements related to the compensation, design, operation, or use of Demand Response services. In these regards, System Operators are not required to offer these Services and may not currently offer each of these Services. Terms that are capitalized in these standards have the meanings ascribed to them in the Definitions of Terms section.

For purposes of these Measurement and Verification standards, Demand Response does not include Measurement and Verification of energy efficiency or permanent Load reduction.

Tariff Conflict and NERC Standards:

In the event of a conflict between these business practices and the System Operator's Tariffs, market rules, operating procedures, protocols or manuals, the Tariff, market rules, operating procedures, protocols or manuals shall have precedence. Terms defined in the Definition of Terms do not modify or supersede market rule or tariff definitions that apply to the compensation, design, operation, or use of Demand Response services. Additionally, all entities supplying Demand Response Services shall comply with applicable NERC reliability standards.

Non-ISO/RTO Markets:

These standards do not apply in markets administered by non-ISO/RTOs. Wholesale Demand Response standards applicable to non- ISO/RTO markets will be developed when required.



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

**December 2, 2008
Requesters: DSM-EE Subcommittee
Request No.: 2008 AP Item 5(a)**

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

3. Overview of the Standards

These M&V standards establish criteria for the use of equipment, technology, and procedures to quantify the Demand Reduction Value delivered. Standards developed may include commonalities among product types. The following outline of standards is applicable to the four Demand Response product categories.

General	Advance Notification
	Deployment Time
	Reduction Deadline
	Release/Recall
	Normal Operations
	Demand Resource Availability Measurement
	Aggregation
	Transparency of Requirements
Telemetry	Telemetry Requirement
	Telemetry Accuracy
	Telemetry Interval
	Other Telemetry Measurements
	Communication Protocol
	Governor Control Equivalent
	On-Site Generation Telemetry Requirement
After-The-Fact Metering	After-the-Fact Metering Requirement
	Meter Accuracy
	Details of Meter/Equipment Standards
	Meter Data Reporting Deadline
	Meter Data Reporting Interval
	Clock / Time Accuracy
	Validating, Editing & Estimating (VEE) Method
	On-Site Generation Meter Requirement
Performance Evaluation	Rules for Performance Evaluation



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

**December 2, 2008
Requesters: DSM-EE Subcommittee
Request No.: 2008 AP Item 5(a)**

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

Performance Evaluation Methodology

For each Demand Response service, a performance evaluation methodology is used to determine the Demand Reduction Value provided by a Demand Resource. The standards include descriptions of acceptable Baselines and alternative performance measurements that are appropriate for each of the four types of Demand Response services. The table below provides an outline of the applicable criteria for performance evaluation methodologies.

Baseline Information	Baseline Window
	Calculation Type
	Sampling Precision and Accuracy
	Exclusion Rules
	Baseline Adjustments
	Adjustment Window
Event Information	Use of Real-Time Telemetry
	Use of After-The-Fact Metering
	Performance Window
	Measurement Type
Special Processing	Highly-Variable Load Logic
	On-Site Generation Requirements

These standards do not specify detailed characteristics of performance evaluation methodologies, but rather provide a framework that may be used to develop performance evaluation methodologies for specific Demand Response services. This approach is believed to be most appropriate at this time as development of performance evaluation methodologies and baseline calculations continues to mature. The following methodology types are applicable to wholesale Demand Response Services:

Maximum Base Load: A performance evaluation methodology based solely on a Demand Resource's ability to reduce to a specified level of electricity demand, regardless of its electricity consumption or demand at Deployment.

Meter Before / Meter After: A performance evaluation methodology where electricity consumption or demand over a prescribed period of time prior to Deployment is compared to similar readings during the Sustained Response Period.

Baseline Type-I: A Baseline performance evaluation methodology based on a Demand Resource's historical interval meter data which may also include other variables such as weather and calendar data.

Baseline Type-II: A Baseline performance evaluation methodology that uses statistical sampling to estimate the electricity consumption of an Aggregated Demand Resource where interval metering is not available on the entire population.



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

December 2, 2008
Requesters: DSM-EE Subcommittee
Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

Metering Generator Output: A performance evaluation methodology, used when a generation asset is located behind the Demand Resource's revenue meter, in which the Demand Reduction Value is based on the output of the generation asset.

Performance Evaluation Type	Valid For Service Type			
	Energy	Capacity	Reserves	Regulation
Maximum Base Load	✓	✓	✓	
Meter Before / Meter After	✓	✓	✓	✓
Baseline Type-I	✓	✓	✓	
Baseline Type-II	✓	✓	✓	
Metering Generator Output	✓	✓	✓	✓



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ

December 2, 2008

Requesters: DSM-EE Subcommittee

Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

Definition of Terms

DEMAND RESPONSE EVENT TERMS

Illustration of Timing of a Demand Response Event

The illustration below represents the terms for timing events and time durations applicable to the characteristics of a Demand Response Event. The definitions of the ten elements in the illustration are the basis for describing the Timing of a Demand Response Event. The applicability of these elements to a Demand Response Service is dependent on the Service type. The System Operator shall specify whether any or all of the elements illustrated in the Timing Demand Response Event figure are applicable. In some cases, some elements will not be applicable; the inclusion of the elements establish a requirement for said elements.

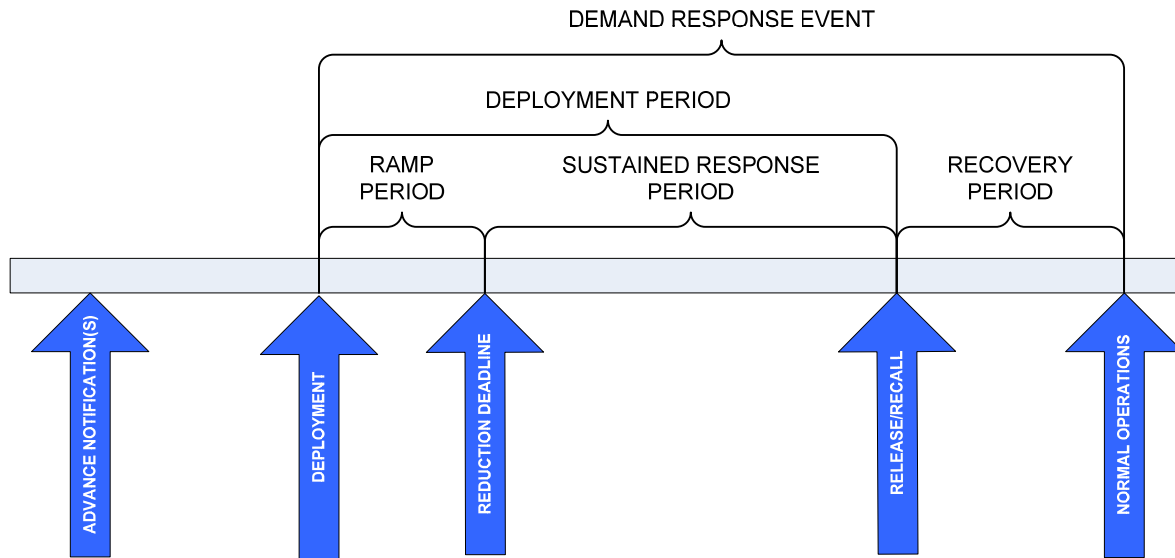


Figure 1. Timing of a Demand Response Event

The following terms refer to the above Figure 1.

Advance Notification(s)

One or more communications to Demand Resources of an impending Demand Response Event in advance of the actual event.

Demand Response Event

The time periods, deadlines and transitions during which Demand Resources perform. The System Operator shall specify the duration and applicability of a Demand Response Event. All deadlines,



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

December 2, 2008

Requesters: DSM-EE Subcommittee

Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

time periods and transitions may not be not applicable to all Demand Response products or services.

Deployment

The time at which a Demand Resource begins reducing Demand on the system in response to an instruction.

Deployment Period

The time in a Demand Response Event beginning with the Deployment and ending with the Release/Recall.

Normal Operations

The time following Release/Recall at which a System Operator may require a Demand Resource to have returned its Load consumption to normal levels, and to be available again for Deployment.

Ramp Period

The time between Deployment and Reduction Deadline, representing the period of time over which a Demand Resource is expected to achieve its change in Demand.

Recovery Period

The time between Release/Recall and Normal Operations, representing the window over which Demand Resources are required to return to their normal Load .

Reduction Deadline

The time at the end of the Ramp Period when a Demand Resource is required to have met its Demand Reduction Value obligation.

Release/Recall

The time when a System Operator or Demand Response Provider notifies a Demand Resource that the Deployment Period has ended or will end.

Sustained Response Period

The time between Reduction Deadline and Release/Recall, representing the window over which a Demand Resource is required to maintain its reduced net consumption of electricity.

GENERAL TERMS

Adjustment Window

The period of time prior to a Demand Response Event used for calculating a Baseline adjustment.

After-the-Fact Metering

Interval meter data separate from Telemetry that is used to measure Demand Response. May not apply to Demand Resources under Baseline Type II (Non-Interval Meter).

Aggregated Demand Resource



RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ

December 2, 2008

Requesters: DSM-EE Subcommittee

Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

A group of independent Load facilities that provide Demand Response services as a single Demand Resource.

Baseline

A Baseline is an estimate of the electricity that would have been consumed by a Demand Resource in the absence of a Demand Response Event. The Baseline is compared to the actual metered electricity consumption during the Demand Response Event to determine the Demand Reduction Value. Depending on the type of Demand Response product or service, Baseline calculations may be performed in real-time or after-the-fact. The System Operator may offer multiple Baseline models and may assign a Demand Resource to a model based on the characteristics of the Demand Resource's Load or allow the Demand Resource to choose a performance evaluation model consistent with its load characteristics from a predefined list. A baseline model is the simple or complex mathematical relationship found to exist between Baseline Window demand readings and Independent Variables. A baseline model is used to derive the Baseline Adjustments which are part of the Baseline, which in turn is used to compute the Demand Reduction Value. Independent variable is a parameter that is expected to change regularly and have a measurable impact on demand. Figure 2. below illustrates the concept of Baseline relative to a Demand Response Event.

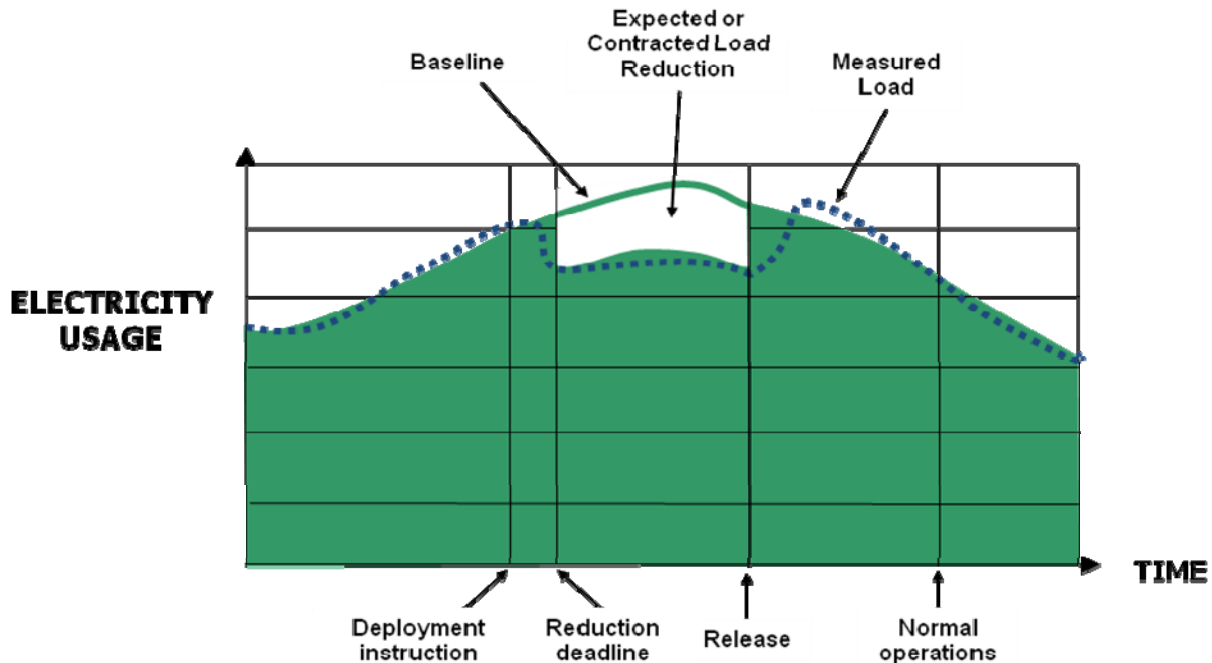


Figure 2. Illustration of Baseline Concept.



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

December 2, 2008

Requesters: DSM-EE Subcommittee

Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

Baseline Adjustment

An adjustment that modifies the Baseline to reflect actual conditions immediately prior to or during a Demand Response Event to provide a better estimate of the energy the Demand Resource would have consumed but for the Demand Response Event. The adjustments may include but are not limited to weather conditions, near real time event facility Load, current Demand Resource operational information, or other parameters based on the System Operator's requirements.

Baseline Type-I (Interval Metered)

A Baseline performance evaluation methodology based on a Demand Resource's historical interval meter data which may also include other variables such as weather and calendar data.

Baseline Type-II (Non-Interval Metered)

A Baseline performance evaluation methodology that uses statistical sampling to estimate the electricity consumption of an Aggregated Demand Resource where interval metering is not available on the entire population.

Baseline Window

The window of time preceding and optionally following, a Demand Response Event over which the electricity consumption data is collected for the purpose of establishing a Baseline. The applicability of this term is limited to Meter Before/Meter After, and Baseline Type-I and Type-II.

Capacity Service

A type of Demand Response service in which Demand Resources are obligated over a defined period of time to be available to provide Demand Response upon deployment by the System Operator.

Demand Response Provider

The entity that is responsible for delivering Demand reductions from Demand Resources and is compensated for providing such Demand Response products in accordance as specified by the System Operator.

Demand

The rate at which electric energy is delivered to or by a system or part of a system, generally expressed in kilowatts or megawatts, at a given instant or averaged over any designated interval of time; and the rate at which energy is being used by the customer (NERC Definition).

Demand Reduction Value

Quantity of reduced electrical consumption by a Demand Resource, expressed as MW or MWh.

Demand Resource

A Load or aggregation of Loads capable of measurably and verifiably providing Demand Response.



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

December 2, 2008

Requesters: DSM-EE Subcommittee

Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

Demand Response

A temporary change in electricity consumption by a Demand Resource in response to market or reliability conditions. For purposes of these standards, Demand Response does not include energy efficiency or permanent Load reduction.

Energy Service

A type of Demand Response service in which Demand Resources are compensated solely based on their performance during a Demand Response Event.

Highly-Variable Load

A Load with a fluctuating or unpredictable electricity consumption pattern.

Load

An end-use device or customer that receives power from the electric system (NERC Definition).

Maximum Base Load

A performance evaluation methodology based solely on a Demand Resource's ability to reduce to a specified level of electricity Demand, regardless of its electricity consumption or Demand at Deployment.

Meter Before / Meter After

A performance evaluation methodology where electricity Demand over a prescribed period of time prior to Deployment is compared to similar readings during the Sustained Response Period.

Meter Data Recording Interval

The time between electricity meter consumption recordings.

Meter Data Reporting Deadline

The maximum allowed time from the end of a Demand Response Event (Normal Operations) to the time when meter data is required to be submitted for performance evaluation and settlement. The Meter Data Reporting Deadline may be either relative (a number of hours/days after Normal Operations) or fixed (a fixed calendar time, such as end-of-month).

Metering Generator Output

A performance evaluation methodology, used when a generation asset is located behind the Demand Resource's revenue meter, in which the Demand Reduction Value is based on the output of the generation asset.

Performance Window

The period of time in a Demand Response Event analyzed by the System Operator to measure and verify the Demand Reduction Value for a Demand Resource.



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

**December 2, 2008
Requesters: DSM-EE Subcommittee
Request No.: 2008 AP Item 5(a)**

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

Ramp Rate

The rate, expressed in megawatts per minute, that a generator changes its output. (NERC Definition) Demand Resource ramp rate is the rate, expressed in megawatts per minute, that a Demand Resource changes its Load.

Regulation Service

A type of Demand Response service in which a Demand Resource increases and decreases Load in response to real-time signals from the System Operator. Demand Resources providing Regulation Service are subject to dispatch continuously during a commitment period. Provision of Regulation Service does not correlate to Demand Response Event timelines, deadlines and durations as depicted in Figure 1.

Reserve Service

A type of Demand Response service in which Demand Resources are obligated to be available to provide Demand reduction upon deployment by the System Operator, based on reserve capacity requirements that are established to meet applicable reliability standards.

System Operator

A System Operator is a Balancing Authority, Transmission Operator, or Reliability Coordinator whose responsibility is to monitor and control an electric system in real time (based on NERC definition). The System Operator is responsible for initiating Advance Notifications, Deployment, and Release/Recall instructions.

Telemetry

Real-time continuous communication between a Demand Resource or Demand Response Provider and the System Operator.

Telemetry Interval

The time unit between communications between a Demand Resource or Demand Response Provider and a System Operator.

Validation, Editing and Estimation

The process of taking raw meter data and performing validation and, as necessary, editing and estimation of corrupt or missing data, to create validated data. (VEE guidelines are published in the Edison Electric Institute's Uniform Business Practices for Unbundled Electricity Metering, Volume Two, Published 12/05/00, http://www.naesb.org/REQ/req_form.asp)

Business Practice Requirements:

Provision of Wholesale Electric Demand Response Energy Products

Applicability

The Standard applies to any entity that administers wholesale Demand Response Energy Products.



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

December 2, 2008

Requesters: DSM-EE Subcommittee

Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

Purpose

The purpose of this Standard is to ensure that participants in wholesale electric markets in which these Products are administered receive uniform access to information that will enable them to participate in said markets.

015-1.0 GENERAL

- **Advance Notification**

The System Operator shall specify any requirements for the Advance Notification instruction.

- **Deployment Time**

The System Operator shall specify the time at which Demand Resources must begin reducing Demand on the system.

- **Reduction Deadline**

The System Operator shall specify the Reduction Deadline.

- **Release/Recall**

The System Operator shall specify the time at which Demand Resources shall be instructed to begin restoring Load.

- **Normal Operations**

The System Operator shall specify Normal Operations.

- **Demand Resource Availability Measurement**

Not applicable to Energy Service unless otherwise specified by the System Operator.

- **Aggregation**

The System Operator shall specify any requirements for aggregated Demand.

- **Transparency of Requirements**

Any specific requirements shall be defined in a System Operator's tariff, market rules, operating procedures, protocols or manuals and shall be posted in a publicly accessible location.

015-1.1 TELEMETRY

- **Telemetry Requirement**

The System Operator shall specify any requirements for real-time Telemetry, including, but not limited to: the use of real-time Telemetry, the entity or entities responsible for installing and maintaining Telemetry equipment and collecting and communicating Telemetry data.

- **On-Site Generation Telemetry**

If on-site generation is present behind the primary Telemetry point, real-time Telemetry data shall be required to measure performance of the generator unless otherwise specified by the System Operator.



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

December 2, 2008

Requesters: DSM-EE Subcommittee

Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

- **Telemetry Accuracy**

The System Operator shall specify the accuracy of the real-time Demand measurement to be expressed as a percentage of full scale, not to exceed 3.0% .

- **Telemetry Interval**

The System Operator shall specify the Telemetry Interval at a value not to exceed 5 minutes.

- **Other Telemetry Measurements**

The System Operator shall specify any additional Telemetry data requirements.

- **Communication Protocol**

The System Operator shall specify the Telemetry communication protocol.

- **Governor Control Equivalent**

Not applicable to Energy Service unless otherwise specified by the System Operator.

015-1.2 AFTER-THE-FACT METERING

- **After-the-Fact Metering Requirement**

After-the-Fact Metering is required unless otherwise specified by the System Operator.

- **Meter Accuracy**

The System Operator shall specify the accuracy of the After-the-Fact Metering not to exceed 3% of full scale.

- **Details of Meter/Equipment Standards**

Meter/Equipment standards shall meet or exceed industry standards equivalent to ANSI C12 unless otherwise specified by the System Operator.

- **Meter Data Reporting Deadline**

The System Operator shall specify the Meter Data Reporting Deadline.

- **Meter Data Reporting Interval**

The System Operator shall specify the Meter Data Reporting Interval at a value not to exceed 1 hour.

- **Clock / Time Accuracy**

The System Operator shall specify the clock and time accuracy. Clock and time meter/equipment standards shall meet or exceed industry standards equivalent to ANSI C12 unless otherwise specified by the System Operator.

- **Validating, Editing & Estimating (VEE) Method**

The System Operator shall specify VEE requirements.



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

**December 2, 2008
Requesters: DSM-EE Subcommittee
Request No.: 2008 AP Item 5(a)**

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

- **On-Site Generation Meter Requirement**

The System Operator shall specify additional metering requirements if on-site generation is present behind the primary metering point.

015-1.3 PERFORMANCE EVALUATION

- **Rules for Performance Evaluation**

Performance shall be evaluated through the use of one of the following methods unless otherwise specified by the System Operator:

- Maximum Base Load
- Meter Before / Meter After
- Baseline Type-I
- Baseline Type-II
- Metering Generator Output

Business Practice Requirements:

Provision of Wholesale Electric Demand Response Capacity Products

Applicability

The Standard applies to any entity that administers the wholesale Demand Response Capacity Products.

Purpose

The purpose of this Standard is to ensure that participants in wholesale electric markets in which these Products are administered receive uniform access to information that will enable them to participate in said markets.

015-1.4 GENERAL

- **Advance Notification**

The System Operator shall specify any requirements for the Advance Notification instruction.

- **Deployment Time**

The System Operator shall specify the time at which Demand Resources must begin reducing Demand on the system.

- **Reduction Deadline**

The System Operator shall specify the Reduction Deadline.

- **Release/Recall**

The System Operator shall specify the time at which Demand Resources shall be instructed to begin restoring Load.

- **Normal Operations**

The System Operator shall specify Normal Operations.



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

**December 2, 2008
Requesters: DSM-EE Subcommittee
Request No.: 2008 AP Item 5(a)**

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

- **Demand Resource Availability Measurement**

The System Operator shall specify any requirements for measuring the capability of a Demand Resource to meet its obligation.

- **Aggregation**

The System Operator shall specify any requirements for aggregated Demand Resources.

- **Transparency of Requirements**

Any specific requirements shall be defined in a System Operator's tariff, market rules, operating procedures, protocols or manuals and shall be posted in a publicly accessible location.

015-1.5 TELEMETRY

- **Telemetry Requirement**

The System Operator shall specify any requirements for real-time Telemetry, including, but not limited to: the use of real-time Telemetry, the entity or entities responsible for installing and maintaining Telemetry equipment and collecting and communicating Telemetry data.

- **On-Site Generation Telemetry**

If on-site generation is present behind the primary Telemetry point, real-time Telemetry data shall be required to measure performance of the generator unless otherwise specified by the System Operator.

- **Telemetry Accuracy**

The System Operator shall specify the accuracy of the real-time Demand measurement to be expressed as a percentage of full scale, not to exceed 3.0% .

- **Telemetry Interval**

The System Operator shall specify the Telemetry Interval at a value not to exceed 5 minutes.

- **Other Telemetry Measurements**

The System Operator shall specify any additional Telemetry data requirements.

- **Communication Protocol**

The System Operator shall specify the Telemetry communication protocol.

- **Governor Control Equivalent**

Not applicable to Capacity Service unless otherwise specified by the System Operator.

015-1.6 AFTER-THE-FACT METERING

- **After-the-Fact Metering Requirement**

After-the-fact Metering is required unless otherwise specified by the System Operator.



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

December 2, 2008

Requesters: DSM-EE Subcommittee

Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

- **Meter Accuracy**

The System Operator shall specify the accuracy of the After-the-Fact Metering not to exceed 3% of full scale.

- **Details of Meter/Equipment Standards**

Meter/Equipment standards shall meet or exceed industry standards equivalent to ANSI C12 unless otherwise specified by the System Operator.

- **Meter Data Reporting Deadline**

The System Operator shall specify the Meter Data Reporting Deadline.

- **Meter Data Reporting Interval**

The System Operator shall specify the Meter Data Reporting Interval at a value not to exceed 1 hour.

- **Clock / Time Accuracy**

The System Operator shall specify the clock and time accuracy. Clock and time meter/equipment standards shall meet or exceed industry standards equivalent to ANSI C12 unless otherwise specified by the System Operator.

- **Validating, Editing & Estimating (VEE) Method**

The System Operator shall specify VEE requirements.

- **On-Site Generation Meter Requirement**

The System Operator shall specify additional metering requirements if on-site generation is present behind the primary metering point.

015-1.7 PERFORMANCE EVALUATION

- **Rules for Performance Evaluation**

Performance shall be evaluated through the use of one of the following methods unless otherwise specified by the System Operator:

- Maximum Base Load
- Meter Before / Meter After
- Baseline Type-I
- Baseline Type-II
- Metering Generator Output



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

**December 2, 2008
Requesters: DSM-EE Subcommittee
Request No.: 2008 AP Item 5(a)**

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

Business Practice Requirements:

Provision of Wholesale Electric Demand Response Reserve Products

Applicability

The Standard applies to any entity that administers the wholesale Demand Response Reserve Products.

Purpose

The purpose of this Standard is to ensure that participants in wholesale electric markets in which these Products are administered receive uniform access to information that will enable them to participate in said markets.

015-1.8 GENERAL

- **Advance Notification**

The System Operator shall specify any requirements for the Advance Notification instruction.
- **Deployment Time**

The System Operator shall specify the time at which Demand Resources must begin reducing Demand on the system.
- **Reduction Deadline**

The System Operator shall specify the Reduction Deadline.
- **Release/Recall**

The System Operator shall specify the time at which Demand Resources shall be instructed to begin restoring Load.
- **Normal Operations**

The System Operator shall specify Normal Operations.
- **Demand Resource Availability Measurement**

The System Operator shall specify any requirements for measuring the capability of a Demand Resource to meet its obligation.
- **Aggregation**

The System Operator shall specify any requirements for Aggregated Demand Resources.
- **Transparency of Requirements**

Any specific requirements shall be defined in a System Operator's tariff, market rules, operating procedures, protocols or manuals and shall be posted in a publicly accessible location.



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

December 2, 2008

Requesters: DSM-EE Subcommittee

Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

015-1.9 TELEMETRY

- **Telemetry Requirement**
- The System Operator shall specify any requirements for real-time Telemetry, including, but not limited to: the use of real-time Telemetry, the entity or entities responsible for installing and maintaining Telemetry equipment and collecting and communicating Telemetry data
- **On-Site Generation Telemetry**
If on-site generation is present behind the primary telemetry point, real-time Telemetry data shall be required to measure performance of the generator unless otherwise specified by the System Operator.
- **Telemetry Accuracy**
The System Operator shall specify the accuracy of the real-time Demand measurement to be expressed as a percentage of full scale, not to exceed 3.0% .
- **Telemetry Interval**
The System Operator shall specify the Telemetry Interval at a value not to exceed 5 minutes.
- **Other Telemetry Measurements**
The System Operator shall specify any additional Telemetry data requirements.
- **Communication Protocol**
The System Operator shall specify the Telemetry communication protocol.
- **Governor Control Equivalent**
Not applicable to Reserve Service unless otherwise specified by the System Operator.

015-1.10 AFTER-THE-FACT METERING

- **After-the-Fact Metering Requirement**
After-the-fact Metering is required unless otherwise specified by the System Operator.
- **Meter Accuracy**
The System Operator shall specify the accuracy of the After-the-Fact Metering not to exceed 3% of full scale.
- **Details of Meter/Equipment Standards**
Meter/Equipment standards shall meet or exceed industry standards equivalent to ANSI C12 unless otherwise specified by the System Operator.
- **Meter Data Reporting Deadline**
The System Operator shall specify the Meter Data Reporting Deadline.



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

December 2, 2008

Requesters: DSM-EE Subcommittee

Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

- **Meter Data Reporting Interval**

The System Operator shall specify the Meter Data Reporting Interval at a value not to exceed 1 hour.

- **Clock / Time Accuracy**

The System Operator shall specify the clock and time accuracy. Clock and time meter/equipment standards shall meet or exceed industry standards equivalent to ANSI C12 unless otherwise specified by the System Operator.

- **Validating, Editing & Estimating (VEE) Method**

The System Operator shall specify VEE requirements.

- **On-Site Generation Meter Requirement**

The System Operator shall specify additional metering requirements if on-site generation is present behind the primary metering point.

015-1.11 PERFORMANCE EVALUATION

- **Rules for Performance Evaluation**

Performance shall be evaluated through the use of one of the following methods unless otherwise specified by the System Operator:

- Maximum Base Load
- Meter Before / Meter After
- Baseline Type-I
- Baseline Type-II
- Metering Generator Output

Business Practice Requirements:

Provision of Wholesale Electric Demand Response Regulation Products

Applicability

The Standard applies to any entity that administers the wholesale Demand Response Regulation Products.

Purpose

The purpose of this Standard is to ensure that participants in wholesale electric markets in which these Products are administered receive uniform access to information that will enable them to participate in said markets.

015-1.12 GENERAL

- **Advance Notification**

Not applicable to Regulation Service unless otherwise specified by the System Operator.



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

December 2, 2008

Requesters: DSM-EE Subcommittee

Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

- **Deployment Time**
Not applicable to Regulation Service unless otherwise specified by the System Operator.
- **Reduction Deadline**
Not applicable to Regulation Service unless otherwise specified by the System Operator.
- **Release/Recall**
Not applicable to Regulation Service unless otherwise specified by the System Operator.
- **Normal Operations**
Not applicable to Regulation Service unless otherwise specified by the System Operator.
- **Demand Resource Availability Measurement**
Not applicable to Regulation Service unless otherwise specified by the System Operator.
- **Aggregation**
The System Operator shall specify any requirements for aggregated Demand Resources.
- **Transparency of Requirements**
Any specific requirements shall be defined in a System Operator's tariff, market rules, operating procedures, protocols or manuals and shall be posted in a publicly accessible location.

015-1.13 TELEMETRY

- **Telemetry Requirement**
The System Operator shall specify any requirements for real-time Telemetry, including, but not limited to: the use of real-time Telemetry, the entity or entities responsible for installing and maintaining Telemetry equipment and collecting and communicating Telemetry data.
- **On-Site Generation Telemetry**
If on-site generation is present behind the primary Telemetry point, real-time Telemetry data shall be required to measure performance of the generator unless otherwise specified by the System Operator.
- **Telemetry Accuracy**
The System Operator shall specify the accuracy of the real-time Demand measurement to be expressed as a percentage of full scale, not to exceed 3.0% .
- **Telemetry Interval**
The System Operator shall specify the Telemetry Interval at a value not to exceed 5 minutes.
- **Other Telemetry Measurements**
The System Operator shall specify any additional Telemetry data requirements.



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

**December 2, 2008
Requesters: DSM-EE Subcommittee
Request No.: 2008 AP Item 5(a)**

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

- **Communication Protocol**

The System Operator shall specify the Telemetry communication protocol.

- **Governor Control Equivalent**

Demand Resources providing Regulation Service shall automatically respond to grid frequency deviations, similar to governor action provided by generation resources, unless otherwise specified by the System Operator.

015-1.14 AFTER-THE-FACT METERING

- **After-the-Fact Metering Requirement**

After-the-fact Metering is required unless otherwise specified by the System Operator.

- **Meter Accuracy**

The System Operator shall specify the accuracy of the After-the-Fact Metering not to exceed 3% of full scale.

- **Details of Meter/Equipment Standards**

Meter/Equipment standards shall meet or exceed industry standards equivalent to ANSI C12 unless otherwise specified by the System Operator.

- **Meter Data Reporting Deadline**

The System Operator shall specify the Meter Data Reporting Deadline.

- **Meter Data Reporting Interval**

The System Operator shall specify the Meter Data Reporting Interval at a value not to exceed 1 hour.

- **Clock / Time Accuracy**

The System Operator shall specify the clock and time accuracy. Clock and time meter/equipment standards shall meet or exceed industry standards equivalent to ANSI C12 unless otherwise specified by the System Operator.

- **Validating, Editing & Estimating (VEE) Method**

The System Operator shall specify VEE requirements.

- **On-Site Generation Meter Requirement**

The System Operator shall specify additional metering requirements if on-site generation is present behind the primary metering point.

015-1.15 PERFORMANCE EVALUATION

- **Rules for Performance Evaluation**

Performance shall be evaluated using telemetry data and additionally through the use of one of the following methods unless otherwise specified by the System Operator:



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

December 2, 2008

Requesters: DSM-EE Subcommittee

Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

- Meter Before / Meter After
- Metering Generator Output



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

December 2, 2008

Requesters: DSM-EE Subcommittee

Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

Business Practice Requirements

Maximum Base Load Evaluation

015-1.16 BASELINE INFORMATION

There are no Baseline calculations defined for Maximum Base Load evaluations. The Maximum Base Load Evaluation methodology shall be associated with a demand reduction obligation compared to the Demand Resource's average Load or as specified by the System Operator.

015-1.17 EVENT INFORMATION

- **Use of Real-Time Telemetry**

The System Operator shall specify if real-time Telemetry data is to be used to measure performance.

- **Use of After-The-Fact Metering**

After-the-fact metering shall be used to measure performance, unless otherwise specified by the System Operator.

- **Performance Window**

The Performance Window shall be the Sustained Response Period (Reduction Deadline through Release/Recall) unless otherwise specified by the System Operator.

- **Measurement Type**

During the Performance Window, the Demand Resource must maintain its electricity consumption at or below the Maximum Base Load. The criteria used to evaluate performance shall be one of the following unless otherwise specified by the System Operator:

- a) Peak Demand
- b) Average Demand

015-1.18 SPECIAL PROCESSING

The System Operator shall specify any special processing rules.

Business Practice Requirements

Meter Before / Meter After

015-1.19 BASELINE INFORMATION

- **Baseline Window**

The System Operator shall specify the Baseline Window.



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

December 2, 2008

Requesters: DSM-EE Subcommittee

Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

- **Calculation Type**

During the Baseline Window, the energy consumption or Demand of the Demand Resource shall be evaluated using one of the following measurements unless otherwise specified by the System Operator:

- a) Instantaneous
- b) Maximum
- c) Average

- **Sampling Precision and Accuracy**

Sampling is not permitted for this performance evaluation type, unless otherwise specified by the System Operator.

- **Exclusion Rules**

The System Operator shall specify any exclusion rules.

- **Baseline Adjustments**

The System Operator shall specify any event-day adjustments.

- **Adjustment Window**

No Adjustment Window is used for this model unless otherwise specified by the System Operator.

015-1.20 EVENT INFORMATION

- **Use of real-time Telemetry**

The System Operator shall specify if real-time Telemetry data is to be used to measure performance.

- **Use of After-The-Fact Metering**

After-the-fact metering shall be used to measure performance, unless otherwise specified by the System Operator.

- **Performance Window**

The Performance Window shall be the Sustained Response Period (Reduction Deadline through Release/Recall) unless otherwise specified by the System Operator.

- **Measurement Type**

During the Performance Window, the Demand Resource shall be evaluated using one of the following measurements unless otherwise specified by the System Operator:

- a) Instantaneous
- b) Maximum
- c) Average



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

**December 2, 2008
Requesters: DSM-EE Subcommittee
Request No.: 2008 AP Item 5(a)**

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

015-1.21 SPECIAL PROCESSING

- **Highly-Variable Load Logic**

The System Operator shall specify any performance evaluation requirements for Highly-Variable Loads.

- **On-Site Generation Requirements**

The System Operator shall specify any performance evaluation requirements for on-site generation.

Business Practice Requirements

Baseline Type-I (Interval Meter)

015-1.22 BASELINE INFORMATION

- **Baseline Window**

The System Operator shall specify the Baseline Window.

- **Calculation Type**

The System Operator shall specify the method of developing the Baseline value using, but not limited to, the following calculation types:

- a) Maximum
- b) Average
- c) Regression

- **Sampling Precision and Accuracy**

Sampling is not permitted for this Performance Evaluation type, unless otherwise specified by the System Operator.

- **Exclusion Rules**

The System Operator shall specify any rules for excluding data from the Baseline Window. Exclusion rules may be based on, but are not limited to the following:

- a) Historical Demand Response Events
- b) Testing/Audit Periods
- c) Calendar data
- d) Outages
- e) Weather emergencies or force majeure events
- f) Usage threshold
- g) Known, discrete load additions or reductions that have occurred during the Baseline Window

- **Baseline Adjustments**

The System Operator shall specify any rules for Baseline Adjustments. Adjustment rules may be based on, but are not limited to the following:

- a) Temperature



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

December 2, 2008

Requesters: DSM-EE Subcommittee

Request No.: 2008 AP Item 5(a)

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

- b) Humidity
- c) Calendar data
- d) Sunrise/Sunset time
- e) Event day operating conditions

- **Adjustment Window**

The System Operator shall specify the Adjustment Window.

015-1.23 EVENT INFORMATION

- **Use of Real-Time Telemetry**

The System Operator shall specify if real-time Telemetry data is to be used to measure performance.

- **Use of After-The-Fact Metering**

After-the-fact metering shall be used to measure performance, unless otherwise specified by the System Operator.

- **Performance Window**

The System Operator shall specify the Performance Window.

- **Measurement Type**

During the Performance Window, the Demand Resource shall be evaluated using one of the following measurements unless otherwise specified by the System Operator:

- a) Maximum
- b) Average
- c) Regression

015-1.24 SPECIAL PROCESSING

- **Highly-Variable Load Logic**

The System Operator may specify performance evaluation requirements for Highly-Variable Loads.

- **On-Site Generation Requirements**

The System Operator may specify performance evaluation requirements for on-site generation.

Business Practice Requirements

Baseline Type-II (Non-Interval Meter)

015-1.25 BASELINE INFORMATION

- **Baseline Window**

The System Operator shall specify the Baseline Window.



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

**December 2, 2008
Requesters: DSM-EE Subcommittee
Request No.: 2008 AP Item 5(a)**

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

- **Calculation Type**

The System Operator shall specify the method of developing the Baseline value using, but not limited to, the following calculation types:

- a) Maximum
- b) Average
- c) Regression

- **Sampling Precision and Accuracy**

The System Operator shall specify sampling precision and accuracy requirements.

- **Exclusion Rules**

The System Operator shall specify any rules for excluding data from the Baseline Window. Exclusion rules may be based on, but are not limited to the following:

- a) Historical Demand Response Events
- b) Testing/Audit Periods
- c) Calendar data
- d) Outages
- e) Weather emergencies or force majeure events
- f) Usage threshold
- g) Known, discrete load additions or reductions that have occurred during the Baseline Window

- **Baseline Adjustments**

The System Operator shall specify any rules for Baseline Adjustments. Adjustment rules may be based on, but are not limited to the following:

- a) Temperature
- b) Humidity
- c) Calendar data
- d) Sunrise/Sunset time
- e) Event day operating conditions

- **Adjustment Window**

The System Operator shall specify the Adjustment Window.

015-1.26 EVENT INFORMATION

- **Use of Real-Time Telemetry**

The System Operator shall specify if real-time Telemetry data is to be used to measure performance.

- **Use of After-The-Fact Metering**

After-the-fact metering or other energy measurement technology shall be used to measure performance, as a supplement to real-time Telemetry unless otherwise specified by the System Operator.

- **Performance Window**



**RECOMMENDATION TO NAESB EXECUTIVE COMMITTEE
For Quadrant: WEQ**

**December 2, 2008
Requesters: DSM-EE Subcommittee
Request No.: 2008 AP Item 5(a)**

Review and develop business practice standards to support DR and DSM-EE programs

Proposed Standards approved by the subcommittee on December 2, 2008

The System Operator shall specify the Performance Window.

- **Measurement Type**

During the Performance Window, the Demand Resource shall be evaluated using one of the following measurements unless otherwise specified by the System Operator:

- a) Maximum
- b) Average
- c) Regression

015-1.27 SPECIAL PROCESSING

The System Operator shall specify any special processing rules.

Business Practice Requirements

Metering Generator Output

015-1.28 BASELINE INFORMATION

The System Operator shall specify Baseline calculations for Metering Generator Output.

015-1.29 EVENT INFORMATION

- **Use of Real-Time Telemetry**

The System Operator shall specify if real-time Telemetry data is to be used to measure performance.

- **Use of After-The-Fact Metering**

After-the-fact metering on the generator and optionally on the associated Load shall be used to measure performance unless otherwise specified by the System Operator.

- **Performance Window**

The System Operator shall specify the Performance Window.

- **Measurement Type**

During the Performance Window, the Demand Resource shall be evaluated using the total measured generation output unless otherwise specified by the System Operator.

015-1.30 SPECIAL PROCESSING

The System Operator shall specify any special processing rules.