FERC Order 676

Standards for Business Practices and Communication Protocols for Public Utilities

Issued: 2006-04-25 (Order 676)
Revised: 2010-04-15 (Order 676-F)

“…incorporate by reference business practice standards adopted by the Wholesale Electric Quadrant of the North American Energy Standards Board (NAESB) to categorize various demand response products and services and to support the measurement and verification of these products and services in wholesale electric energy markets.”
Event Timing

(based on terminology from NAESB M&V Standards)
Example Demand Event

![Example Demand Event Graph]

- **DEPLOYMENT**
- **REDUCTION DEADLINE**
- **NORMAL OPERATIONS**
- **RELEASE / RECALL**
Performance Evaluation Models

1. **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.

*(based on terminology from NAESB M&V Standards)*
Maximum Base Load
2. **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.

*(based on terminology from NAESB M&V Standards)*
Meter Before / Meter After

DEPLOYMENT

NORMAL OPERATIONS

REDUCTION DEADLINE

RELEASE / RECALL

Demand [kW]

Hour Ending
3. **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.

4. **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.

*(based on terminology from NAESB M&V Standards)*
Baseline: Historical Data Analysis

![Graph showing historical energy demand analysis over 24 hours. The graph compares different days against a baseline. Each day is represented with a different color and marker style. The x-axis represents hour ending, ranging from 1 to 24, and the y-axis represents demand in kW, ranging from 0 to 25. The baseline is shown as a blue line, while specific days are shown with various colored markers and lines.](#)
Baseline: Baseline vs. Event Day

![Graph showing baseline vs. event day demand with key phases labeled: deployment, reduction deadline, normal operations, release/recall.]

Hour Ending
Demand [kW]
EVENT DAY DEMAND
BASELINE
DEPLOYMENT
REDUCTION DEADLINE
NORMAL OPERATIONS
RELEASE / RECALL

/* Additional textual content and notes about the graph */
Baseline: Morning Adjustment

[Graph showing demand comparison with baseline and adjusted baseline, highlighting a morning adjustment window.]
Baseline: Calculated Reduction

![Graph showing calculated reduction and event day demand over 24 hours.]

- **CALCULATED REDUCTION**
- **EVENT DAY DEMAND**

<table>
<thead>
<tr>
<th>Hour Ending</th>
<th>Demand [kW]</th>
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Baseline Model Variations

- **Historical Metering Selection**
  - Duration of “Look-Back” Window
  - Exclusion of Prior Event Days
  - “Like-Day” Selection, e.g.
    - Mon, Tue, Wed, Thu, Fri, Sat, Sun, Holiday (8x Day-Types)
    - Weekdays, Weekends/Holidays (2x Day-Types)
  - Treatment of Resource Outages
  - Removal of Statistical Highs & Lows

- **Event-Day Adjustments**
  - Temperature or Load Point
  - Additive or Multiplicative
  - Symmetric or Asymmetric
5. **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.

*(based on terminology from NAESB M&V Standards)*