

Contract H1WM Development Proposal for 2010 Load Data Normalization

Regional Dialogue Policy Implementation
Workshop

November 7, 2007



2010 Load Data Normalization Overview

- To determine a customer's load that is eligible for Contract HWM calculation, the 2010 Measured Load Data is first normalized for several factors and then reduced by the amount of the customer's 2010 resources identified in its Subscription contract.
- The 2010 Measured Load Data will be normalized for:
 - Force Majeure-type Events
 - Anomalous Load Data
 - Irrigation Load Variations from Average
 - Weather (non-irrigation load only)



Force Majeure-type Events Adjustment

- Load may be adjusted for *force majeure*-like events - those anomalous events beyond the control of a utility that affected its FY 2010 load to the point that the load data should be adjusted.
 - This is a separate concept from the contract provisions relating to force majeure events that effect the performance of the contract.
- There will be a high threshold. Little-to-no use of this adjustment is expected.
 - Threshold considerations will include the type of event, ability of the customer to mitigate effect, amount of the adjustment at issue as a percentage of the utility's load and duration of effect on load.
- Criteria and process for adjustment claim, determination and adjustment will be developed in the TRM rate case.



FY 2010 Load Data Adj. (cont.)

Anomalous Load Adjustment

- If necessary, adjustments may be made to address anomalous changes in load.
- Intended to address:
 - One-off, short term load events that should not be locked in for CHWM purposes and may not meet the criteria for force majeure-type adjustment.
 - Load trends or events that are counter to expectation and advantage one utility over others in attaining a higher CHWM.
- Need to determine criteria for notification, claim, determination and adjustment.
- Awareness of unforecasted load increases and unusual power consumption through FY 2010 will help ensure equitable HWMs.
 - Examples: Irrigation load not matching weather patterns; unusual retail pricing to high-load customers; overall load growth in excess of projections, etc.



Weather Normalization

- Long-Term Customer Load Forecasts will be developed utilizing the Agency Load Forecasting System
 - General Model form for Load Forecasts
 - $CL = aW + bX + e$
 - Where:
 - CL is customer energy load
 - W represents weather variables
 - X represents non-weather variables
 - a represents the weather impact coefficients
 - b represents the non-weather impact coefficients
 - e represents the error term



Weather Normalization

- Customer 2010 Actual Total Retail load will be weather normalized utilizing
 - Weather impact coefficients from forecast models
 - 2010 actual weather variables
 - Historical average weather variables

- Weather normalization adjustment to customer total retail load uses the difference between the 2010 actual weather variables and the historical average of the same weather variables.

- The product of this difference and the customer weather coefficients will be the weather normalized load adjustment.

- The adjustment will be applied to the customer 2010 Actual Total Retail Load to determine the 2010 Weather-Adjusted Total Retail Load.



Weather Normalization

2010 Weather-Adjusted Total Retail Load =
 $a \times (\text{WeatherNormal} - \text{Weather2010}) +$
2010 Actual Total Retail Load

Where:

a – coefficient for weather impact

WeatherNormal – historical average of weather variables

Weather2010 – 2010 actual weather variables



Degree Days in Weather Normalization

CDD = Cooling Degree Day

HDD = Heating Degree Day

- $CDD_{CB} = \text{Max}(0, \text{TEMP} - \text{CB})$
- $HDD_{HB} = \text{Max}(0, \text{HB} - \text{TEMP})$
- Cooling Base, CB = 60°, 65° or 70°
- Heating Base, HB = 50°, 55°, 60° or 65°
- TEMP = Average of Daily Maximum and Minimum Temperature



CDD Weather Adjustment

- CDD Adjustment = $a_{\text{CDD}} * (\text{CDD}_{\text{Normal}} - \text{CDD})$
- a_{CDD} = CDD Coefficient = 7.0 MW/CDD
- 2010 Actual CDD = 375
- Normal CDD = 400
- CDD Adjustment = $7.0 * (400 - 375) = 175 \text{ MW}$

Coefficients and Loads are Examples Only and Do Not Reflect Any Individual Customer



HDD Weather Adjustment

- HDD Adjustment = $a_{\text{HDD}} * (\text{HDD}_{\text{Normal}} - \text{HDD})$
- a_{HDD} = HDD Coefficient = 11.0 MW/HDD
- 2010 Actual HDD = 1900
- Normal HDD = 1880
- HDD Adjustment = $11.0 * (1880 - 1900) = -220 \text{ MW}$

Coefficients and Loads are Examples Only and Do Not Reflect Any Individual Customer



Example Calculation

- 2010 Actual TRL = 5000 MW
- 2010 Weather Adjusted TRL =
2010 Actual TRL + CDD Adjustment + HDD Adjustment
- 2010 Weather Adjusted TRL =
5000 MW + 175 MW – 220 MW =
4955 MW

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Irrigation Normalization

- Customers with significant Irrigation load submit their actual load annually for Irrigation credits
- Irrigation loads will be normalized by calculating a three year average of customer submitted irrigation load.
- The 2010 Actual Irrigation load will be subtracted from the customer's 2010 Actual Total Retail Load.
- The remaining Net Retail Load will be weather adjusted
- Sum of the normalized Irrigation load and weather normalized Net Retail Load will be the 2010 Normalized Total Retail Load



Example Calculation with Irrigation

- 2010 Actual TRL = 5000 MW
- 2010 Actual Irrigation Load = 1000 MW
- Normal Irrigation Load = 950 MW

2010 Weather Adjusted TRL =
2010 Actual TRL – 2010 Actual Irrigation Load +
CDD Adjustment + HDD Adjustment +
Normal Irrigation Load

2010 Weather Adjusted TRL =
5000 MW – 1000 MW + 175 MW – 220 MW + 950 MW =
4905 MW

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