Appendix C

Utah Workgroups I-II
Load Research and Peak-Hour Forecasting Methods

Original Division Issues List
May 19, 2010

Load Research Sampling.

- The residential class sample design was prepared in the 1990s and may be dated.
- The sample data were collected throughout the base year, which was the 12 months ending December 2008.
- The Company used a stratified random sample design rather than a simple random sampling. Is anyone challenging sampling using the stratified random sample design?
- Each sample is supposed to be designed to estimate load within plus or minus 10 percent of actual, 90 percent of the time to meet a PURPA standard.
- Do sample data provide load estimates consistent with billing data? What is the accuracy of the monthly forecasts? Of the annual forecasts?
- Should monthly or annual (or some other period) forecasts be used?
- Irrigation customer sample data are drawn from customers who actively irrigated in the previous 2 years. These estimates are expanded to the entire irrigation class, which is then compared to actual billed energy. Do sample data provide load estimates consistent with actual usage?
- Is the proper weather adjustment used to reflect peak usage?

Sum of Class and Jurisdictional Peak Load Forecasts.

- The load forecast methods for class and jurisdictional loads.
- The method used to align the historic calendar with the forecast calendar.
- Do the class load forecasts developed in the cost of service (COS) study equal the Utah jurisdictional load forecast?
- The calibration of class loads to jurisdictional loads.
- The Company's second cost of service study submitted as rebuttal testimony.
    - Differences between direct (first) and rebuttal (second) COS studies.
    - Acceptability of the rebuttal (second) method going forward.
    - Adjustments to rebuttal (second) method that might improve it.

Utah Workgroups I-II
Load Research and Peak-Hour Forecasting Methods
Issues List
June 3, 2010

REEDER Comments – May 26, 2010.

Load Research Sampling.

- The residential class sample design was prepared in the 1990s and may be dated.
- The sample data were collected throughout the base year, which was the 12 months ending December 2008.
- The Company used a stratified random sample design rather than a simple random sampling. Are the strata appropriately designed?
- Is the number of samples adequate?
- Each sample is supposed to be designed to estimate load within plus or minus 10 percent of actual, 90 percent of the time to meet a PURPA standard.
- Do sample data provide load estimates consistent with billing data? What is the accuracy of the monthly forecasts? Of the annual forecasts?
- How does month-to-month movement of customers between strata affect the accuracy of the load research data?
- Should monthly or annual (or some other period) forecasts be used?
- Should appliance saturation of the sample customers be determined and compared to the estimated appliance saturation of the population, and appropriate adjustments made?
- Irrigation customer sample data are drawn from customers who actively irrigated in the previous 2 years. These estimates are expanded to the entire irrigation class, which is then compared to actual billed energy. Do sample data provide load estimates consistent with actual usage?
- Itron report issues?

Sum of Class and Jurisdictional Peak Load Forecasts.

- Does the sum of the class load forecasts developed in the cost of service (COS) study equal the Utah jurisdictional load forecast?
- The calibration of class loads to jurisdictional loads.
- The Company's second cost of service study submitted as rebuttal testimony.
    - Differences between direct (first) and rebuttal (second) COS studies.
    - Acceptability of the rebuttal (second) method going forward.
    - Adjustments to rebuttal (second) method that might improve it.

Determination of Hourly Loads

- The load forecast methods used for class and jurisdictional loads.
- The method used to align the historic calendar with the forecast calendar.
- Is the proper weather adjustment used to reflect peak usage?

- What are the weather (temperature, humidity, etc.) attributes that cause utility peak loads to occur, and how should historic actual and forecasted jurisdictional and class loads be determined/adjusted in order to properly reflect class demands under peak conditions?
- Influence of normalization on peak determination.
- Normalization of demand metered loads.
- Location of weather stations.

Utah Workgroups I-II
Load Research and Peak-Hour Forecasting Methods
Issues List

OCS Comments – May 26, 2010.

Load Research Sampling.

- The residential class sample design was prepared in the 1990s and may be dated.
- The sample data were collected throughout the base year, which was the 12 months ending December 2008.
- The Company used a stratified random sample design rather than a simple random sampling. Is anyone challenging sampling using the stratified random sample design?
- Each sample is supposed to be designed to estimate annual load within plus or minus 10 percent of actual, 90 percent of the time to meet a PURPA standard.
- Was the sample designed to estimate class monthly loads?
- Do sample data provide either annual or monthly load estimates consistent with billing data? What is the accuracy of the monthly forecasts? Of the annual forecasts?
- Should monthly or annual (or some other period) forecasts be used?
- Irrigation customer sample data are drawn from customers who actively irrigated in the previous 2 years. These estimates are expanded to the entire irrigation class, which is then compared to actual billed energy.
    - Could omitting the "inactive" customers from the sampling bias the resulting class load estimates?
    - Do sample data provide annual load estimates consistent with actual annual usage?
    - Do sample data provide monthly load estimates consistent with actual monthly usage?
    - Given the highly variable loads of the irrigation customers, is it possible to develop reliable load research data for this class? How?
- Appropriateness of adjustments of sample data to derive COSS load data, including calibration of load-research estimates to actual monthly usage when difference is greater than 10%.
- Is the proper weather adjustment used to reflect peak usage?

Sum of Class and Jurisdictional Peak Load Forecasts.

- The load forecast methods for class and jurisdictional loads.
- The method used to align the historic calendar with the forecast calendar.
- Should the class load forecasts developed in the cost of service (COS) study add up to the Utah jurisdictional load forecast?
- The calibration of class loads to jurisdictional loads.
- The Company's second cost of service study submitted as rebuttal testimony.

    - Derivation of the rebuttal COSS load data and allocators.
    - Differences between direct (first) and rebuttal (second) COS studies, other than coincident-peak contribution estimates.
    - Acceptability of the rebuttal (second) method going forward.
    - Adjustments to rebuttal (second) method that might improve it.
- Alternative methods, including RMP's original method with improvements.