OCS Presentation for Working Groups I & II

Purpose of Working Group I & II

Issues not yet covered

Why the Gap?

Other loads

Losses not due to Utah retail load

Different methods, different results

Statistical errors and data issues

Purpose of Working Groups I and II

In Docket 09-035-23, the Commission mandated WG I and II to:

- Examine the reliability of the research load data and consider ways of improving it (Order at 117-118).

- Consider the COSS issues raised by RMP's filing of a rebuttal COSS, in particular, to

  - examine the Company's load forecast methods, both for jurisdictional and sum of class loads,

  - revisit the "recalibration" issue, and

  - examine how weather normalization should be treated in peak load forecasts. (Order at 122)

Issues Not Yet Covered In This Working Group

- Does the Company have a specific proposal for deriving future demand allocation factors?

  - Does it propose to use the method used in its Rebuttal COSS in DN 09-035-23?

  - Is a single historical year's actual load shape appropriate for allocating costs for future years?

  - How could the rebuttal method be improved?

- The reasonableness of the Company's rebuttal cost of service study.

  - How did RMP derive the rebuttal COSS load data and allocators?

  - Why did the non-CP demand estimates (contribution to Utah NCP, class NCPs) change between the direct and rebuttal COS studies.

    ▸ RMP's rebuttal did not even mention, let alone explain, the changes in all of the other class peak factors.

- Can the method supporting the original COSS in DN 09-035-23 be improved?

- Is there a third choice?

Gap between Jurisdictional and Class Total CPs

There should be a gap.

- The Utah jurisdiction includes real load that is not COSS retail-class load.

- The COSS method does not account well for losses at peak due to transfers through or out of Utah.

- The JAM and COSS use different methods to forecast jurisdictional load.

- Various error sources will differ for the two methods.

Utah Jurisdiction:
Including Real Load that Is Not COSS Retail-Class Load

Certain customer loads (electric furnace loads serviced under schedule 21, backup loads serviced under schedule 31, and the partial requirement loads) are reflected in jurisdictional peaks but not in the sum of retail class peaks.

The UIEC's presented a table comparing Utah monthly CPs from RMP's JAM versus those the total retail class CPs used in the Rebuttal COSS (filed in Docket 09-035-23). As shown on the next slide, adding in just the omitted loads has a noticeable affect on the 12CP jurisdictional versus retail-class differences. In particular,

- on average over the 12 monthly peaks, the class total exceeds the jurisdictional CP.

- the gap in October, 39%, is even more of an outlier.

Correcting the Gap Analysis

Month	UIEC Presentation 8/12				UIEC Table Plus Omitted Loads		
	Total Utah Jurisdictional CP MW Used in JAM	Sum of Class CPs from Rebuttal COS Study	Class Total Exceeds (is less than) Jurisdictional	% Difference	Omitted Loads (UIEC 10.22) MW	Class-Jurisdictional Gap	
						MW	%
Jan	3,079	2,918	-161	-5%	163	2	0%
Feb	3,123	2,896	-227	-7%	175	-52	-2%
Mar	2,860	2,900	40	1%	76	116	4%
Apr	2,794	3,001	207	7%	34	241	9%
May	3,591	3,661	70	2%	168	238	7%
Jun	3,952	4,005	53	1%	40	93	2%
Jul	4,169	3,746	-423	-10%	25	-398	-10%
Aug	4,113	3,761	-352	-9%	31	-321	-8%
Sep	3,799	3,563	-236	-6%	40	-196	-5%
Oct	2,656	3,655	999	38%	27	1,026	39%
Nov	3,390	3,218	-172	-5%	159	-13	0%
Dec	3,442	3,327	-115	-3%	155	40	1%
Tot	40,968	40,651	-317	-1%	1,093	776	2%
Ave	3,414	3,388	-26	-1%	91	65	2%

Losses Within Utah
But Not Due to Utah Retail Sales

Includes:

- Sales to other states

- Muni and coop loads in Utah

- Power flowing from Arizona or Wyoming, through Utah, to Idaho and beyond

Wholesale losses within Utah may be significant components of the CP "gap."

- What analysis is required to estimate these losses?

- Has RMP attempted to measure these losses?

- Can we develop some rough idea of the significance of these losses?

JAM and COSS Use Fundamentally Different Methods to Forecast Coincident Peaks

- RMP's rebuttal class COS study in Docket No. 09-035-23 retained this inconsistency.

  - The jurisdictional monthly CPs and their dates and times are based on weather-normalized forecasts.

  - The rebuttal COSS derives class CPs by estimating 2008 class load at the time of the 2008 monthly system peak.

    ▸ The date and time of the CP and class loads on that peak reflect actual base-year weather.

  - Class peak load is adjusted for monthly sales growth, increasing forecast peak if base-year energy was low, even if base-year weather at peak was normal or extreme.

- With these inconsistencies, variation in the base-year weather from one rate case to the next will change:

  - the size and direction of the gap

  - the outcome of the COSS

Data Issues

- Use of billing rather than calendar month sales data

- Metering errors on large customers

  - Missing and extrapolated data

  - Time errors

- Need to estimate border loads

  - into Utah and out of Utah

  - from and to other PacifiCorp territory (Wyoming and Utah)

  - from and to other utilities (muni, coop, other states)

Statistical Errors in Forecast Regressions and Calculations

Errors may occur in any of the steps of forecasting of the monthly jurisdictional CPs

- Forecast of jurisdictional NCP and sales

- Forecast of daily energy

  ⬩ from regression of adjusted border load data on weather and binary variables.

- Forecast of hourly jurisdictional load data

  ⬩ from regression of adjusted border hourly load data on *predicted* daily energy, weather and binary variables.

  ⬩ predicted daily energy variable is weather-normalized.

- Calibration of forecasted hourly sales against forecasted NCP and sales

  ⬩ Form a load duration curve.

  ⬩ Shift the load curve up to match forecasted NCP and rotate curve to match forecasted energy.

  ⬩ Deconstruct the load duration curve back into hourly load data.

- Sum the jurisdictional hourly loads to determine the monthly system CPs.

Similarly, errors may occur in each of the monthly class load forecasting steps

- Depends on how class loads are to be forecast.

Adequacy of Load-Research Data

- RMP's samples are designed to meet PURPA standard only for annual class energy.

- Samples are too small to accurately estimate

  - monthly energy,

  - class NCP, and

  - class contribution to monthly system and state coincident peak.

- Increase the load-research sample sizes to

  - improve the accuracy of its load projections.

  - permit the weather-normalization of retail class load data.

Treatment of Irrigation Class

- Anomalous class

  - very small total load

  - highly variable load from year to year

    ▶ crop rotations

    ▶ temperature and rainfall variation

  - highly variable load from customer to customer

- The load research data is far from meeting PURPA standards, or even reproducing actual sales.

- Increasing sample size may not do much to improve the reliability of the data.

  - Even if this class were 100% metered, its actual (small) contribution to system loads might be unpredictable.

COS Study Recommendations

- Reduce inconsistencies in approach to forecasting jurisdictional and retail-class peaks. For example:

  - Both the jurisdictional and the retail class energy and peak forecasts should be based on weather-normalized load data.

  - With each COSS filing, RMP should provide

    - Data on load included in Utah for the JAM that is not included in retail class loads.

    - Estimates of losses included in Utah for the JAM that may be due to wholesale transactions and interstate transfers.

- Increase sample sizes for sampled classes: Schedules 1, 6, 23 and probably irrigation.

- Apply the average retail rate change to the irrigation class until much better load data are available.