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160825 DRAFT 2016 Regulation Reserve Study

This document is the draft report detailing the methodology and results of estimating the regulation reserve required to maintain PacifiCorp's system reliability and comply with North American Electric Reliability Corporation (NERC) reliability standards.

- The files below labeled with "DRAFT DATA" contain data and calculations described in this report along with unit cost data used to derive rates.
- The files below labeled with "DRAFT XDATA" are large (>25 MB) workbooks containing five-minute deviation and 30-minute compliance calculations.

160825 DRAFT DATA1 2015 reserves held [16.3 MB, redacted]

This workbook shows the actual reserves held in calendar year 2015.

- The "2015 Reserve Study" worksheet shows the actual reserves held in 2015 before unit adjustments.
- The "2015 Reserve Study with adj" worksheet contains the following adjustments:
 - Removed the regulation reserve at Carbon plant that retired April 2015;
 - Removed spinning, supplemental, and regulation reserve associated with Hermiston Power Purchase Agreement that expired in June 2016;
 - Removed reserve attributable to Cool Keeper from regulation and supplemental pool of reserves; and
 - Removed the supplemental reserve by Seattle City Light (SCL) Stateline contract that self-supplies operating reserves and thus has no embedded cost basis.
- The "10-min" and "Regulation" worksheets have been redacted because of confidential, unit-specific operating data, but the first hour of observations is included to demonstrate the calculations. The "Unit Summary" worksheet summarizes the redacted detail data .

160825 DRAFT DATA2 Load forecast [3.0 MB]

This workbook shows the calculation of hourly reserves needed for load based on deviations from schedule.

- The "Forecast" worksheet has an hourly view of the calculated regulation reserve need.
- The "BAAL" worksheet shows the probability of exceeding the BAAL given the size of the regulation reserve shortfall .

- The “Issues” worksheet shows the probability of a reliability violation during those hours when the forecasted regulation reserve was less than the deviation and other details related to data quality.
- Figures used in the study report are also included in this workbook.

160825 DRAFT DATA3 VER forecast [3.7 MB]

This workbook shows calculation of the hourly reserves needed for VERs based on deviations from schedule.

- The “Forecast” worksheet has an hourly view of the calculated regulation reserve need
- The “BAAL” worksheet shows the probability of exceeding the BAAL given the size of the regulation reserve shortfall.
- The “Issues” worksheet shows the probability of a reliability violation during those hours when the forecasted regulation reserve was less than the deviation and other details related to data quality.
- Figures used in the study report are also included in this workbook.

160825 DRAFT DATA4 Non-VER forecast [3.5 MB]

This workbook shows calculation of the hourly reserves needed for non-VERs based on deviations from schedule.

- The “Forecast” worksheet has an hourly view of the calculated regulation reserve need
- The “BAAL” worksheet shows the probability of exceeding the BAAL given the size of the regulation reserve shortfall.
- The “Issues” worksheet shows the probability of a reliability violation during those hours when the forecasted regulation reserve was less than the deviation and other details related to data quality.
- Figures used in the study report are also included in this workbook.

160825 DRAFT DATA5 Portfolio forecast [4.9 MB]

This workbook shows calculation of the hourly reserves needed for non-VERs based on deviations from schedule.

- The “Shortfalls” worksheet shows the probability of a reliability violation during those hours when the forecasted regulation reserve was less than the deviation.
- The “Forecast” worksheet has an hourly view of the calculated regulation reserve need accounting for diversity effects of all classes.
- The “BAAL” worksheet shows the probability of exceeding the BAAL given the size of the regulation reserve shortfall.

160825 DRAFT DATA6 VER 15-min forecast [3.9 MB]

This workbook shows calculation of the different hourly reserves needed for VERs based on deviations from schedules updated every 15 minutes.

160825 DRAFT DATA7 BAAL lim - EIM flex [16.3 MB]

This workbook shows the BAAL limits for every five minute interval during the 2015 test year.

- The “Summary” worksheet shows exceedance distributions.
- The “Flex Credit” worksheet shows calculation of the EIM flexibility reserve benefit .
- Figures used in the study report are also included in this workbook.

160825 DRAFT DATA8 Study figures [<1 MB]

This workbook summarizes data for figures used in the study report.

160825 DRAFT DATA9 Cost of service [1.8 MB]

This workbook contains data and calculations related to the development of costs for the resources providing reserve service along with rate calculations.

- The “Rate Summary” worksheet summarizes the rate calculations.
- The “Attachment A” worksheet develops the fixed charge rate (“FCR”) which includes the rate of return on common equity, income taxes, operations & maintenance (or “O&M”), administration and general (or “A&G”), and taxes other than income taxes. The FCR is then multiplied by the gross plant balance (installed cost) of each generating plant providing the respective service to calculate annual carrying costs of the units on the “Attachment B (p.2-4)” worksheet.
- The “Attachment C” worksheets calculate the unit-specific Schedule 2 (reactive service) credit applied in “Attachment B (p.2-4)” worksheet.
- Additional worksheets show data calculated in other workbooks.

160825 DRAFT Schedule 3 tariff redline

This document contains proposed tariff redlines for Schedule 3.

160825 DRAFT Schedule 3A tariff redline

This document contains proposed tariff redlines for Schedule 3A.

160825 DRAFT Schedule 5 tariff redline

This document contains proposed tariff redlines for Schedule 5.

160825 DRAFT Schedule 6 tariff redline

This document contains proposed tariff redlines for Schedule 6.

160825 DRAFT XDATA10 Load deviations [41.4 MB]

This workbook contains the five minute deviations for load, and the calculation of the 30-minute sustained deviation relevant to BAL-001-2 compliance in each hour.

160825 DRAFT XDATA11 Non-VER deviations [40.1 MB]

This workbook contains the five minute deviations for non-VERs, and the calculation of the 30-minute sustained deviation relevant to BAL-001-2 compliance in each hour.

160825 DRAFT XDATA12 Portfolio deviations [26.8 MB]

This workbook contains the combined five minute deviations for load, non-VERs, and wind, and the calculation of the 30-minute sustained deviation relevant to BAL-001-2 compliance in each hour.

160825 DRAFT XDATA13 VER 15-min deviations [52.2 MB]

This workbook contains the five minute deviations for wind from Fifteen-Minute Market (FMM) schedules, and the calculation of the 30-minute sustained deviation relevant to BAL-001-2 compliance in each hour.

160825 DRAFT XDATA14 VER deviations [38.9 MB]

This workbook contains the five minute deviations for wind, and the calculation of the 30-minute sustained deviation relevant to BAL-001-2 compliance in each hour.

160825 DRAFT XDATA15 Proxy Load Base Schedules PACE [35.5 MB]

This workbook contains the development of proxy base schedules for PACE load.

160825 DRAFT XDATA16 Proxy Load Base Schedules PACW [25.1 MB]

This workbook contains the development of proxy base schedules for PACW load.