

Exhibit No. ____ (YKGM-7)
Docket No. UE-050684
Witness: Yohannes K.G. Mariam

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,

Complainant,

v.

PACIFICORP, d/b/a Pacific Power &
Light Company,

Respondent.

DOCKET NO. UE-050684

EXHIBIT TO
TESTIMONY OF

YOHANNES K.G. MARIAM

STAFF OF
WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION

RE: PACIFICORP GENERAL RATE CASE

PacifiCorp's Responses to Staff Data Request No. 203, Docket No. UE-032065

November 3, 2005

UE-032065/PacifiCorp
May 18, 2004
WUTC Staff Data Request 203

WUTC Staff Data Request No. 203

Re: Weather Normalization –Adjustment 3.1

- a. Please provide evidence such as a research study published in a peer-reviewed journal or company sponsored study that demonstrate or justify disaggregation of HDD and CDD into shoulder, winter and summer months. Further, please provide the statistical output from the weather normalization analysis that shows the robustness of the estimates or output (R square, DF, MSE, etc.).
- b. Please provide work papers or evidence, in excel and hard copy format, that show how the billing cycle data were converted into calendar months.
- c. Please provide the 30-year normal temperature HDD and CDD used to normalize KWH usage by residential and commercial customers in Walla Walla, Sunnyside and Yakima service areas.

Response to WUTC Staff Data Request No. 203

- a. The Company had a report completed by Research Triangle Institute (RTI) in the 1980's that identified this process; however over the course of time the report has not been retained. Using piecewise linear regression is not an unusual technique to use to fit data that has changing slopes across the range of data. It is described in detail in the book Introduction to Linear Regression Analysis by Douglas C. Montgomery and Elizabeth A. Peck starting on page 189. The original statistical output for the regressions used in developing the current weather normalization models has not been retained. We have no statistical output to provide R Square, DF, MSE, etc.
- b. It is difficult to convert billing cycle data into calendar months. When measuring the effect of independent variables on kwh, the Company converts the calendar data to a billing cycle representation. Attachment WUTC 203 b on enclosed CD demonstrates how using the daily temperatures, the Company creates billing cycle HDD and CCD variables. These billing cycle independent variables are then modeled with the billing cycle usage data. Once the relationship is established through statistical techniques, the coefficient representing the relationship can then be used with the calendar month independent variables as well as the billing month independent variables. For example, in January, the effect of weather on the billing month can be obtained by multiplying the temperature coefficient by the billing month HDD. Likewise the January calendar effect can be obtained by multiplying the temperature coefficient by the calendar month HDD.
- c. The requested information is provided as Attachment WUTC 203 c on the enclosed CD.

Responder: Reed C. Davis
Witness: Mark R. Tallman