ENERGY DIVISION (ED) DATA REQUEST
ED-SDGE-DR-04
A.17-12-013
SDG&E 2018 Residential Rate Design Window
Date Received: April 2, 2018
Date Submitted: April 16, 2018

Question 1:

In Leslie Willoughby's testimony, Chapter 4, page LW-15, she describes how SDG&E's consultant derived an estimated load impact for SDG&E's Mass Default TOU. She states that "assumed elasticity values [were] derived from the statewide SPP study (line 6)." What are these values and how were they determined? Does "statewide SPP study" refer to the 2016-2017 residential opt-in TOU pilots conducted in PG&E, SCE and SDG&E service territories, or to the California Statewide Pricing Pilot conducted from 2003-2004? If the latter, why were those results used instead of the opt-in TOU pilot results?

SDG&E Response:

The "statewide SPP study" refers to the California Statewide Pricing Pilot conducted from 2003-2004, and not the recent Opt-In TOU Pilot study. The reason is because at the time this testimony was drafted the Opt-In TOU Pilot study was not yet completed, therefore, no price elasticities were derived.

The assumed elasticity values include "daily" elasticities, which describe how customers adjust their overall usage level in response to the change in the average price level. The assumed elasticity values were developed as part of an earlier study by Christensen Associates Energy Consulting. The primary source for the values is the California Statewide Pricing Pilot (SPP), please see "ExAnteDocumentation_20171128.docx, and Q4_ResponseSupport".

ExAnteDocumentation_20171128.docx

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Question 1.b:

In Leslie Willoughby's testimony, Chapter 5, page LW-15, she states [t]hat "simulated reference loads" were used in the calculation of8 load impact estimates. How were the simulated reference loads produced?

SDG&E Response:

The reference loads were simulated using coefficients estimated from ordinary least squares (OLS) regression models with data from October 2016 through September 2017. Separate models were estimated for each of four customer types (by climate zone and CARE status), seasons (summer and winter), and weekdays vs. weekends. The resulting estimated coefficients were combined with forecast weather conditions (by month, day type, and weather type) to simulate the reference loads. The simulated load profiles were created for all day types and customer types listed below.

Customer Types
- CARE vs. non-CARE
- Inland vs. Coastal

Separate percentage load impacts are simulated by the following day/hour types:
- TOU pricing period
- Average weekday, system peak day, average weekend day;
- Month of year;
- 1-in-2 or 1-in-10 weather conditions; and
- CAISO or SDG&E-specific peak conditions

The regression model of the following form is estimated for each customer type (climate zone, CARE status, and weekday/weekend), and season:

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$$kW_t = \alpha + \sum_{i=2}^{24}(\beta_i^h \times h_{i,t}) + \sum_{i=1}^{24}(\beta_i^{Weather} \times h_{i,t} \times Weather_t) + \sum_{i=2}^{24}(\beta_i^{MON} \times h_{i,t} \times MON_t) + \sum_{i=2}^{24}(\beta_i^{FRI} \times h_{i,t} \times FRI_t) + \sum_{i=2}^{5}(\beta_{i,t}^{DTYPE} \times DTYPE_{i,t}) + \sum_{i=1}^{12}(\beta_i^{Month} \times Month_{i,t}) + e_t$$

Table 1: Descriptions of Terms included Regression Equation

Variable Name / Term	Variable / Term Description
kW_t	the demand in hour *t*
The various β's	the estimated parameters
$h_{i,t}$	a dummy variable for hour *i*
$Weather_t$	the weather variables selected using our model screening process
MON_t	a dummy variable for Monday
FRI_t	a dummy variable for Friday
$DTYPE_{i,t}$	a series of dummy variables for each day of the week
$MONTH_{i,t}$	a series of dummy variables for each month
e_t	the error term

The specific weather variables used in the model varied by season. In the summer models, we used the temperature humidity index (THI) and cooling degree hours (CDH) with a 65 °F temperature threshold. In the winter models, we included cooling degree days (CDD), heating degree days (HDD), CDH, and heating degree hours (HDH), all with a 60 °F temperature threshold. The calculation of each of these weather variables is included in "ExAnteDocumentation_20171128.docx".

ExAnteDocumentation_20171128.docx