ORA DATA REQUEST
ORA-SDGE-053-MRK
SDG&E 2019 GRC – A.17-10-007
SDG&E RESPONSE
DATE RECEIVED: DECEMBER 7, 2017
DATE RESPONDED: DECEMBER 20, 2017

Exhibit Reference: SDG&E-38, page KES-1
SDG&E Witness: Kenneth E. Schiermeyer
Subject: Electric Customer Forecast

Please provide the following:

1. Regarding SDG&E's response to data request ORA-SDG&E-006-MRK, ORA requested that SDG&E provide copies of the output from each statistical model and working spreadsheets backing up the forecasts in Table KES-1 so that every number in that table could be traced as to what data inputs contributed to that number and how these data inputs were manipulated to achieve that number. ORA has been unable to closely correlate the numbers in the spreadsheet "DR ORA-SDG&E-006 Q1 Attachment_SDG&E-38-WP WithFormulas" with any numbers in Table KES-1. For instance, the number 1,304,891 for 2019 residential customers does not match any number (or average of numbers) in the tab ResRegFcastM of the spreadsheet provided. Can SDGE&E explicitly describe how the number 1,304,891 was derived from the numbers in this tab or any other tab in the spreadsheet? This should also be done for the remaining entries in the table referring to 2019.

SDG&E Response 1:

Each number can be traced in the 'WithFormulas' spreadsheet provided in response to data request ORA-SDG&E-006-MRK. Using that spreadsheet, SDG&E recommends ORA start with the first tab, 'M-Cust(HistAndFcast).'

In tab 'M-Cust(HistAndFcast),' you will notice, for example, the average of cells Y87:Y98 (Column Y=Residential) yields the average number of total residential customers listed in Table KES-1, or 1,304,891. Please note, the residential customer numbers provided in Table KES-1 also include customers associated with a few master-metered residential rate schedules (DM, DS, DT) and individually metered residential EV customers. Adding these customers to the regression model output, after adjusting for the portion of Orange County that SDG&E serves, yields SDG&E's total residential customers.

To further clarify, the 12-month average of 'Residential' customers is 1,304,891. As the formula indicates, this is the sum of all residential rate schedules for SDG&E: DR (including EV), DRLI, DM, DS and DT. For 2019, SDG&E's average residential customers comprise (rounded to nearest integer):

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SDG&E Response 1:-Continued

Schedule DR	1,039,979 (Includes 249 individually metered residential EV customers, see formula)
Schedule DRLI	260,761
DR/DRLI Sum	1,300,739
Schedule DM	3,482
Schedule DS	234
Schedule DT	436
Residential	1,304,891

Please note, the residential regression models use individually metered customers for San Diego County, as these customers are most correlated to San Diego County housing starts. The individual metered customer data used in the residential regression model is based on rate schedules DR and DRLI because those rate schedules account for 99.7% of the residential sector. Therefore, taking the 12-month average of column L on the 'ResRegFcastM,' or 'DRDRLI (SDGE Modeled)' customers yields 1,300,490. Adding 249 individually metered EV customers equals 1,300,739, the same as the DR/DRLI Sum above.

Given the number of detailed rate schedules that are forecasted in this GRC, the following is a simple guide to 'tracing' Table KES-1 customer levels with the 'WithFormulas' spreadsheet:

Residential	1,304,891	see column Y in 'M-Cust(HistAndFcast) = Schedules DR (w/EV), DRLI, DM, DS, DT
Small Commercial	133,240	see column L in 'M-Cust(HistAndFcast)' = Schedule A
Med/Lg Com/Ind	20,746	see column AA in 'M-Cust(HistAndFcast)' = Schedules AD, ALTOUC, ALTOUI, A6TOU, Resale
Agriculture	3,938	see column AB in 'M-Cust(HistAndFcast)' = Schedules PA, PATOU, PAT1
Lighting	5,576	see column AC in 'M-Cust(HistAndFcast)' = Schedules DWL, OL1R, OL1C, LS1, LS2, LS3

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2. The tab ResRegFcastM of the spreadsheet provided has two columns NEW DRDRLI(SD) and NEW DRDRLI(SD&E) which seem to represent monthly increments of new customers. Can SDG&E explain what these two columns represent and how they differ?

SDG&E Response 2:

There are three 'NEW' columns representing monthly increments of new customers: 1) 'SD' represents DR and DRLI customer additions for San Diego County, 2) 'OC' represents DR and DRLI customer additions for the small portion of Orange County that SDG&E serves and 3) 'SDGE' is the sum of 'SD' + 'OC,' i.e., the DR and DRLI customer additions for the entire SDG&E service territory.

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3. The numbers in the two columns NEW DRDRLI(SD) and NEW DRDRLI(SD&E) refer to the tab RegAndNRDataQ. Can SDGE&E explicitly describe how the numbers for 2019 in these two columns were derived from the numbers in the tab RegAndNRDataQ? ORA is aware that SDG&E has provided complicated Excel formulas for this purpose, but is seeking a more easily understandable description showing how specific numbers in the tab RegAndNRDataQ were gathered together to yield the 2019 numbers in the two columns NEW DRDRLI(SD) and NEW DRDRLI(SD&E) of the tab ResRegFcastM. A few specific examples should suffice.

SDG&E Response 3:

The 'ResRegAndFcastQ' tab compiles all the data that is used in the residential regression model to run the regression and produce forecasted incremental residential customers. The regression results summary output is listed in cells A1:I22, and includes most of the statistical concepts ORA previously requested, such as T-stats, P-values, standard errors, etc.

The final data used in the residential regression model is generally derived in the 'RegAndNRDataQ' tab, and previous tabs as follows:

'NewDRDRLI-SD' (dependent variable) is historically derived by calculating the number of quarterly customer additions for San Diego County. The 'NewDRDRLI-SD' forecast is derived from the regression coefficients and below-listed independent variables. For history or forecast, adding the small Orange County portion ('OC') results in the SDG&E total service territory data.

Q2, Q3 and Q4 are binary variables for the corresponding quarters. 'Q4_2003FIRE' is a binary variable when homes were lost in San Diego due to a significant fire in the 4th quarter of 2003.

'WGT_HUSTS' is the primary driver of the residential regression model. Historical and forecasted housing start data is obtained from both Global Insight (Col V) and Moody's (Col W). The raw historical data is slightly adjusted (see column P) to reflect more accurate construction activity as measured by California's Homebuilding Foundation/CIRB (Construction Industry Research Board). Lastly, a 4-quarter moving average of the blended/adjusted housing start data is calculated by taking 25% of the current and previous three quarters.

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4. The tab RegAndNRDataQ seems to be, at least partially, the output from a statistical model. Can SDG&E explain what statistical package it used to produce this output? Does the tab REGAndNRDataQ contain the input to the statistical model used by SDG&E?

SDG&E Response 4:

No statistical model was used to produce any of the data provided on tab 'RegAndNRDataQ.'
The data in red font was inputted (Cols G-J are binary variables, Cols N-O are permit information from CIRB and the Census, and Cols V-Z and AB-AD are economic data from Global Insight and Moody's). All other columns (in black font) are Excel calculations.

Note: no other statistical model/software was used in any of this forecast process. Everything used to produce this customer forecast is contained in the previously provided Excel workbook in response to data request ORA-SDG&E-006-MRK, including using Excel's Data/Regression add-in to develop the residential regression model.