TURN DATA REQUEST-084
SDG&E-SOCALGAS 2019 GRC – A.17-10-007/8
SDG&E_SOCALGAS RESPONSE
DATE RECEIVED: JULY 25, 2018
DATE RESPONDED: JULY 30, 2018

Data Requests: SDG&E-237 and SDG&E-238 – Rebuttal Testimony on Gas & Electric Customer Forecasts

1. Referring to the statement on page RMP-3 of **SDG&E-237** at lines 18-20 ("As a final step, the model forecasts are calibrated to match up with the last recorded actuals so the forecast and the historical trend are consistent."):
Please explain what "calibrated" means, including but not limited to a

a. Please explain what "calibrated" means, including but not limited to a calculation of how model forecasts are adjusted.
b. Please confirm and explain whether the "calibration" for this GRC occurred through 2016, using actual connections through that year.
c. Please explain whether and why SDG&E's gas meter forecast model is calibrated based on annual actuals, monthly actuals, or both.
d. If your response to part (c) includes "annual actuals," please indicate whether that refers to recorded annual averages of monthly meter counts, year-end meter counts, or something else.

Utility Response 1a:

Calibration involves systematic adjustment of the model forecast so that model outputs more accurately align with the most recent historical data used in the model.

Referenced in the response to Question 1 of ORA-SDGE-DR-059-MRK and the accompanying Excel formatted file called "ORA SDGE 059 MRK_Q1_GRC FORECAST_QUARTERLY TO ANNUAL.xls," the model calibrates the start of the forecast (2017) to the most recent recorded data at the time the forecast was made (2016).

The referenced calibration constants .00503, .007019, etc., are growth rates of the residential units. Once a fitted relationship is established, a comparison is made between the historical data and the predicted values for the most recent observed historical period. As a final step, the model forecasts are calibrated with the last recorded actuals so the forecast and historical trend are consistent. The derivation of the growth factors is shown in tab "Residential Regression Output.xls" of the separately attached worksheet. The calibration was exclusively applied to the residential market.

Utility Response 1b:

Confirmed.

Please refer to "ORA-SDGE-059-MRK Final.pdf" Question 1 and the accompanying Excel formatted file called "ORA SDGE 059 MRK_Q1_GRC FORECAST_QUARTERLY TO ANNUAL.xls" (Row 25-27 of tab Annual GRC).

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Utility Response 1c:

SDG&E's gas meter forecast was calibrated to the 2016 annual actual recorded data. At the time the forecast was prepared, SDG&E only had data up through December 2016. The calibration is performed in order to bring the forecast more in line with SDG&E's actuals.

For more details, please refer to "ORA-SDGE-059-MRK Final.pdf" Question 1 and the accompanying Excel formatted file called "ORA SDGE 059 MRK_Q1_GRC FORECAST_QUARTERLY TO ANNUAL.xls" in the tab named Annual GRC.

Utility Response 1d:

The annual actual numbers consist of an average of the monthly meter counts.

For additional detail, please refer to "ORA-SDGE-059-MRK Final.pdf" Question 1 and the accompanying Excel formatted file called "ORA SDGE 059 MRK_Q1_GRC FORECAST_QUARTERLY TO ANNUAL.xls."

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2. Referring to Figure RMP-1 on page RMP-4 of **SDG&E-237**:

a. Please provide recorded gas meters in each month of 2018 to date (January through May), as well as SDG&E's "Raw, Uncalibrated Gas Meter Forecast" and "Final, Filed 2019 Gas Meter forecast" for each of those months. Explain the methodology used to calculate the monthly forecast for each month included in your response (such as a single data point, an average of the past 12 months, disaggregation of quarterly data, etc.).

b. Is there any reason why one would expect SDG&E's raw, uncalibrated gas meter forecast to be more accurate for May 2018 than for 2018 in total? Please explain the basis for your answer.

c. Is there any reason why one would expect SDG&E's raw, uncalibrated gas meter forecast to be less accurate for May 2018 than for 2018 in total? Please explain the basis for your answer.

d. Is there any reason why one would expect SDG&E's forecast reflecting post-model calibration to be more accurate for May 2018 than for 2018 in total? Please explain the basis for your answer.

e. Is there any reason why one would expect SDG&E's forecast reflecting post-model calibration to be less accurate for May 2018 than for 2018 in total? Please explain the basis for your answer.

Utility Response 2a:

The requested data can be found in Rows 4 – 12 of the attached Excel formatted spreadsheet, "TURN-DR-084_SDGE GAS CUST GROWTH.xlsx."

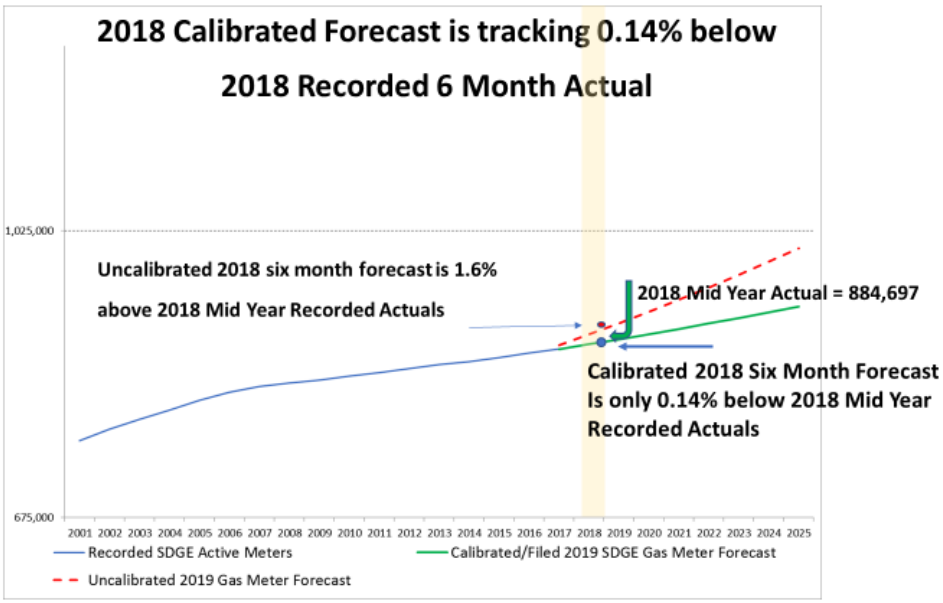
Please note that the final, filed 2019 GRC gas customer forecast is the calibrated forecast, and Global Insight economic data was one of several inputs. The final, filed and calibrated forecast was only prepared on an annual basis.

In the spreadsheet "TURN-DR-084_SDGE GAS CUST GROWTH.xlsx," Row 13 has the 2018 recorded 6-month average. SDG&E has included additional information starting in Row 14. While SDG&E has provided the information requested, it does not believe 2018 recorded data should be used to represent a Test Year (TY) 2019 gas customer forecast.

Row 16 shows the 6-month average for the calibrated and uncalibrated forecasts.

Please note that if this 2018 recorded data is to be considered as an additional information point, the data show that the recorded 6-month actual 2018 gas meter count for SDG&E is tracking very closely to SDG&E's calibrated forecast. The 2018 6-month actual number is coming in above the calibrated forecast being used in this proceeding.

Utility Response 2a: - Continued



Utility Response 2b:

No. There is no reason to expect SDG&E's uncalibrated gas meter forecast to be more accurate for May 2018 than for 2018 in total. For any given year, SDG&E would not consider a single month of data to more accurately represent the forecast than an entire 12-month period because the measured recorded data exhibits seasonality. Averaging 12 months of recorded data removes the seasonality observed throughout the year.

Utility Response 2c:

As explained in response to Question 2b, no.

Utility Response 2d:

No. There is no reason to expect SDG&E's calibrated gas meter forecast to be more accurate for May 2018 than for 2018 in total.

For any given year, SDG&E would not consider a single month of data to more accurately represent the forecast than an entire 12-month period because the measured recorded data exhibits seasonality. Averaging 12 months of recorded data removes the seasonality observed throughout the year.

SDG&E's calibrated gas meter forecast used in the 2019 GRC was provided at an annual level.

Utility Response 2e:

As explained in response to Question 2d, no.

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3. Referring to **SDG&E-238**: Please confirm that SDG&E did not "calibrate" the model forecasts of electric meters to historical data in preparing its electric customer forecast, as SDG&E did in preparing its gas customer forecast (see SDG&E-237, p. RMP-3).

Utility Response 3:

Correct. SDG&E did not "calibrate" the forecast of electric meters.

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4. Referring to Table KES-2 on page KES-3 of **SDG&E-238**:

a. Please confirm that the "actual May 2018 level" shown in this table reflects a single data point (May 2018), as opposed to an annualized average over the preceding 12 months.

b. Please explain the methodology used to derive the three forecasts of May 2018 electric customers, such as whether the figures provided reflect a single data point, the cumulative impact of monthly customer additions over some period of time, a calculation based on quarterly data, an average of a series of data points, etc. Please fully explain your response.

c. Please provide a Table with the actual number of residential customers in May 2014, May 2015, and May 2016, as well as the TY 2016 forecast of residential customers for May 2014, May 2015, and May 2016, that SDG&E relied on in its TY 2016 GRC in preparing its annual electric customer forecasts. Please provide all supporting workpapers, calculations, and assumptions.

Utility Response 4a:

Correct. The "actual May 2018 level" reflects a single data point (monthly level of customers for May 2018) that was used by SDG&E for the sole purpose of rebutting TURN's contention that "SDG&E is likely to over-forecast" by using a blend of Global Insight and Moody's data, as indicated on page KES-3, lines 7-12 of Exhibit SDG&E-238. Please note that SDG&E used May 2018 because it was the most current actual information to compare the electric customer forecast with actual information prior to the filing of SDG&E's rebuttal testimony on June 18, 2018. SDG&E does not contend that a single data point, nor 2018 data, should be used to represent a Test Year (TY) 2019 electric customer forecast.

Utility Response 4b:

All three May 2018 forecasts and May 2018 actuals represent a single point in time. SDG&E used May 2018 because it was the most current actual information to compare the electric customer forecast with actual information prior to the filing of SDG&E's rebuttal testimony on June 18, 2018. Please see the response to Question 4a. Please note, when SDG&E prepares an electric customer forecast, all details are included in the workpapers. This includes all forecasted monthly data points for every rate schedule, quarterly additions, annual customer averages, etc. For example, the Test Year 2019 residential customer level of 1,304,891 (see Excel Workpapers 'DR-TURN-SEU-010-Q1-Q11-Attachment-SDG&E-38-WP-WithFormulas&AnnualTab.xlsx,' 'Annual' tab, cell B9) is simply the average of the 12 months (see tab 'M-Cust(HistAndFcast),' cells Y87:Y98).

The methodology used to derive the three forecasts of May 2018 electric customers provided in rebuttal testimony (Exhibit SDG&E-238), Table KES-2, is identical to the methodology used to derive the electric forecast SDG&E presented in direct testimony (Exhibit SDG&E-38) of this GRC filing. The three May 2018 forecasts only differ in the housing starts used in each scenario (Global Insight only, 50/50 blend of Global Insight and Moody's, and Moody's only).

Utility Response 4b:-Continued

Full documentation of the methodology can be found in SDG&E's workpapers and in the responses to TURN Data Request 22, Q3, as noted in footnotes 9, 10, and 11 in the rebuttal testimony of Kenneth E. Schiermeyer.

For ease of reviewing, these three Excel workpapers are also included in this data request response:

- May 2018 forecast using a 50/50 blend of Global Insight's and Moody's housing starts: Please see the included file 'DR-TURN-SEU-010-Q1-Q11-Attachment-SDG&E-38-WP-WithFormulas&AnnualTab.xlsx'
- May 2018 forecast using only Global Insight's housing starts: Please see included file 'DR-TURN-SEU-010-Q1-Q11-Attachment-SDG&E-38-WP-WithFormulas&AnnualTab-Global-Husts-H&F.xlsx'
- May 2018 forecast using only Moody's housing starts: Please see included file 'DR-TURN-SEU-010-Q1-Q11-Attachment-SDG&E-38-WP-WithFormulas&AnnualTab-Moodys-Husts-H&F.xlsx'

Also, please note the forecasted level of May 2018 residential customers presented in Table KES-2 can be found in Excel tab 'M-Cust(HistAndFcast),' cell Y79 of their respective scenario's Excel workpapers.

Utility Response 4c:

Please see the response to Question 4a. Listed below is a table comparing the data requested. The actual number of residential customers can be found in the workpapers for this GRC, 'DR-TURN-SEU-010-Q1-Q11-Attachment-SDG&E-38-WP-WithFormulas&AnnualTab.xlsx,' on Excel tab 'M-Cust(HistAndFcast),' cells Y31, Y43 and Y55. Supporting workpapers, calculations, and assumptions related to the TY 2016 GRC forecast can be found in the SDG&E TY 2016 Electric Customer Forecast workpapers (provided in TURN DR-010, Q6), which are also separately attached in this data request. Please see included pdf file named 'November 2014 - TY 2016 GRC Phase 1 -SDG&E-31_KSchiermeyer_Elec Customer_Workpapers.pdf' on page labeled 6 (pdf page 7) under the column labeled 'Residential.'

SDG&E ELECTRIC RESIDENTIAL CUSTOMERS			
	May 2014	May 2015	May 2016
Actuals	1,255,171	1,263,002	1,270,607
TY 2016 Forecast	1,255,971	1,268,496	1,284,593

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5. Referring to **SDG&E-238**, p. KES-2, lines 19-20 ("TURN's proposal only considers the performance of the past few years as a method to selectively predict future residential customers."): Please provide SDG&E's average annual Residential and Total electric customers, separately, for each year from 2009-2013 (akin to the data provided on p. 7 of SDG&E-37-WP, but limited to residential and total).

Utility Response 5:

This information was provided to TURN in DR-010, Q6 in the TY 2016 Electric Customer Forecast workpapers (please see page labeled 5-6 under the column labeled 'Residential.' For your convenience, listed below is a table with the data requested.

SDG&E AVERAGE ANNUAL ELECTRIC CUSTOMERS					
	2009	2010	2011	2012	2013
Residential	1,221,215	1,228,817	1,235,733	1,242,152	1,249,227
Total	1,375,326	1,382,924	1,390,704	1,397,678	1,405,218