TURN DATA REQUEST
TURN Data Request, TURN-SDGE- 002
A.17-12-013
(SDG&E 2018 Residential Rate Design Window)
Phase IIB
Date Received: September 28, 2018
Date Submitted: October 12, 2018

TURN Data Request TURN-SDG&E-002

The following requests relate to SDG&E's *Prepared Supplemental Testimony of Benjamin A. Montoya* served September 26, 2018 ("SDG&E Supplemental Testimony"). Provide all requested workpapers in electronic Excel-compatible format with all data and formulae intact and functioning.

1) Please provide all data and workpapers supporting SDG&E's estimates of the impacts on Greenhouse Gas (GHG) emissions of its proposed changes to residential rate design shown in SDG&E's Supplemental Testimony.

SDG&E Response:

Please see attached spreadsheets.
Contains Confidential information.
Please contact Michelle Somerville (msomerville@semprautilities.com)

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2) If not provided in response to Question 1 above, please provide all data and workpapers supporting the data cited below in SDG&E's Supplemental Testimony:
    a. "Market Prices", "Gas Price", and "Base CO2 Price ($/tonne)"cited in table on p. BAM-2.
    b. Marginal GHG Emission Rates shown in table on pp. BAM-3 to BAM-4.
    c. Net Load Impacts shown in table on p. BAM-5.
    d. GHG Emissions Impacts shown in table on pp. BAM-5 to BAM-6.
    e. GHG Cost Impact shown in table on p. BAM-6.

SDG&E Response:

The workpapers provided in response to Question 1 are responsive to the following computations as detailed below. All responses refer to the respective locations of the computations in each of the workpapers.

a. "Market Prices", "Gas Price", and "Base CO2 Price ($/tonne)"cited in table on p. BAM-2.

   See tab "Calcs" column "C" for Market Prices, Column "E" for Gas Price and Column "G" for Base CO2 price in all workpapers except the ACC method where the value is shown in cell "G3".

b. Marginal GHG Emission Rates shown in table on pp. BAM-3 to BAM-4.

   See tab "Tables" rows 3-13 to see the GHG emission rate tables that are shown on BAM-3 and BAM-4. The hourly marginal GHG emissions rates that are aggregated in these tables are calculated for 2020 on the "Calcs" tab column "Y".

c. Net Load Impacts shown in table on p. BAM-5.

   See tab "Tables" rows 26-32 to see the Net Load Impacts tables that are shown on BAM-5. The hourly net load impacts that are aggregated in these tables are calculated on the "TOU" tab column "I".

d. GHG Emissions Impacts shown in table on pp. BAM-5 to BAM-6.

   See tab "Tables" rows 16-22 to see the GHG Emissions Impact tables that are shown on BAM-5 and BAM-6. The hourly GHG impacts that are aggregated in these tables are calculated on the "TOU" tab column "J".

e. GHG Cost Impact shown in table on p. BAM-6.

There is no workpaper for this calculation. The GHG Impact column in this table is a summary of each of the total GHG Emissions Impacts for each of the four scenarios taken from the tables on BAM-5. The GHG Cost Impact column is calculated by multiplying each GHG Impact by the 2020 CO2 price in the ACC model of $18.91/tonne.

3) If not provided in response to Question 1 above, please provide all data and workpapers used to develop the estimated hourly loads used to compute the results shown in the tables on pp. BAM-3 to BAM-6 of SDG&E's Supplemental Testimony.

SDG&E Response:

Please refer to attachments (all saved inside zipped file)

- Ex_ante_documentation_20181002.docx
- SDG&E Default TOU Ex-Ante Load Impact Protocol Tables_20181002.xlsx

SDG&E did not directly assume the Time-of-Use (TOU) load impacts. Rather, the load impacts were simulated using a Constant Elasticity of Substitution (CES) model. This model requires as inputs TOU rates, assumed elasticity values (which define how responsive customers are to TOU prices), and reference load profiles (the customer loads in the absence of the TOU rate). The assumed TOU rates and elasticities are contained in "ExAnteDocumentation_20181002.docx".

- The simulated results are shown in "SDG&E Default TOU Ex-Ante Load Impact Protocol Tables_20181002.xlsx" workbook under estimated load impacts (kWh/hour). The estimated TOU impacts are differentiated by the following customer types:

- CARE vs. non-CARE
- Inland vs. Coastal

In addition, 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 time frame between October 2016 to September 2017 was used as the inputs. A sample of 14,000 residential customers were randomly selected and analyzed in the regression model. The sample does not include any CARE/FERA eligible customers in the hot climate zones.

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4) Please provide the following information regarding SDG&E's support for the use of a low-efficiency heat rate limit to adjust the Incremental Market Heat Rates (IMHRs), as discussed on pp. BAM-2 and BAM-3 of SDG&E's Supplemental Testimony.
   a. State whether SDG&E agrees with this convention for treating IMHRs greater than an assumed low-efficiency gas heat rate, and explain why or why not.
   b. Explain SDG&E's understanding of why IMHRs computed based on CAISO Day-Ahead energy prices may exceed an assumed low-efficiency gas heat rate.

SDG&E Response:

a. SDG&E agrees with this convention because it is the most representative of the actual dispatch of natural gas-fired resources on the system. We believe continuing to use IMHR's above the low-efficiency limit may overstate GHG emissions. As stated in the 2016 SGIP advanced Energy Storage Impact Evaluation, Appendix A, p. A-12, the IMHR "relationship holds for a reasonable range of prices but breaks down when prices are extremely high or low. Particularly high market prices can reflect other factors in the market such as unplanned outages or transmission constraints. If [this] approach is applied to these extremely high market prices, the implied marginal generator would have a heat rate that exceeds anything believed to physically exist in the CAISO."

b. There are a number of reasons which would cause calculated IMHR's based on CAISO Day-Ahead energy prices to exceed an assumed low-efficiency gas heat rate. Generally, as customer load exceeds the generation supply available provided by the portfolio of resources with heat rates up to and including the low-efficiency heat rate, the marginal price will increase causing resources with higher heat rates to be dispatched. In addition, a higher IMHR could reflect unplanned outages and transmission constraints, thus calling on additional resources to be dispatched or signaling that supply should come from alternative transmission paths. A higher IMHR does not necessarily reflect the dispatch of a higher marginal heat rate resource.