

TURN DATA REQUEST
TURN-SDG&E-DR-08
SDG&E SB 350 TRANSPORTATION ELECTRIFICATION PROPOSALS (A.17-01-020)
SDG&E RESPONSE
DATE RECEIVED: October 4, 2017
DATE RESPONDED: October 10, 2017

DATA REQUEST

Follow Up to the Cross Examination of J.C. Martin

Data Request Number: TURN-08

Date Sent: October 4, 2017

Please provide an electronic response to the following question. A hard copy response is unnecessary. The response should be provided on a CD sent by mail or as attachments sent by e-mail to the following:

Elise Torres
The Utility Reform Network
785 Market Street, Suite 1400
San Francisco, CA 94103
etorres@turn.org

Eric Borden
The Utility Reform Network
785 Market Street, Suite 1400
San Francisco, CA 94103
eborden@turn.org

For each question, please provide the name of each person who materially contributed to the preparation of the response. If different, **please also identify the SDG&E witness who would be prepared to respond to cross-examination questions regarding the response.**

For any questions requesting numerical recorded data, please provide all responses in working Excel spreadsheet format if so available, with cells and formulae functioning. For any question requesting documents, please interpret the term broadly to include any and all hard copy or electronic documents or records in SDG&E's possession.

1. Regarding SDG&E's load shift benefits analysis presented in response to TURN-01, question 10, please provide all assumptions regarding EV driver response to GIR price signals, including but not limited to the following. Please explain all assumptions.
 - a. The percentage of time or charging sessions under the "with program scenario" participating customers are assumed to charge off-peak?

TURN DATA REQUEST
TURN-SDG&E-DR-08
SDG&E SB 350 TRANSPORTATION ELECTRIFICATION PROPOSALS (A.17-01-020)
SDG&E RESPONSE
DATE RECEIVED: October 4, 2017
DATE RESPONDED: October 10, 2017

SDG&E Response (Prepared by JC Martin):

The assumptions regarding EV driver response to GIR prices signals are described in Exhibit SDG&E-08 (Prepared Testimony of J.C. Martin). For a general description of the methodology, please see SDG&E-08 Section II.C starting on page JCM-7 at line 6. For additional details on the assumptions please see SDG&E-08 E3 Technical Appendix, Section 2.1.2 PEV Charging Optimization starting on page 3 of the appendix.

The percentage of time under the “with program scenario” participating customers are assumed to charge super off-peak is 100% of the time for a BEV vehicle and 99.6% of the time for a PHEV40 vehicle charging on the GIR rate with a L2 charger (please see attached workbook “TURN DR-08.xls,” worksheet “Analysis,” Table Q1a). Super Off-Peak is used in this response since off-peak is not defined in the GIR rate. The GIR rate used to optimize EV charging defines Super Off-Peak as 12am-6am weekdays and 12am-2pm weekends and holidays.

- b. If participating customers under the “with program scenario” are expected to respond to negative prices during periods of solar overgeneration.

SDG&E Response (Prepared by JC Martin):

Yes, EV drivers are expected to respond to GIR price signals to minimize their electricity bills subject to the physical and behavioral constraints included in SDGE-08 E3 Technical Appendix, Table 1, on page 4.

- i. If yes, the percentage of time or charging sessions under the “with program scenario” participating customers are assumed to respond to negative prices during period of solar overgeneration.

SDG&E Response (Prepared by JC Martin):

For this response, SDG&E assumes that solar overgeneration occurs when CAISO Day-Ahead energy prices are zero (\$0/kWh), since the marginal energy price series used in the analysis do not drop below zero (please see attached workbook “TURN DR-08.xls,” worksheet “Marginal Energy Prices”). The marginal energy price series includes 502 hours with solar overgeneration (\$0/kWh), a BEV vehicle charges 67 hours during solar overgeneration, and a PHEV40 vehicle charges 92 hours during solar overgeneration. This translates to a BEV vehicle charging during 13.3% and a PHEV40 charging during 18.3% of solar overgeneration hours (please see attached workbook “TURN DR-08.xls,” worksheet “Analysis,” Table Qbi). Note that 135 (26.9%) of the 502 solar overgeneration hours in this analysis occur on weekends during the Super Off-Peak hours (12am-2pm). Please see attached workbook “TURN DR-08.xls,” worksheet “Over Gen”.

TURN DATA REQUEST
TURN-SDG&E-DR-08
SDG&E SB 350 TRANSPORTATION ELECTRIFICATION PROPOSALS (A.17-01-020)
SDG&E RESPONSE
DATE RECEIVED: October 4, 2017
DATE RESPONDED: October 10, 2017

- ii. Does this assume the EVs are plugged into the EVSE during times of solar overgeneration? If yes, what percentage of vehicles are estimated to be plugged into the EVSE?

SDG&E Response (Prepared by JC Martin):

Yes, EVs are plugged into the EVSE during some of the solar overgeneration hours defined as hours when CAISO Day-Ahead energy prices are zero (\$0/kWh). All EVs (BEVs and PHEV40s) are plugged into the EVSE and available for charging using the availability constraint described in SDGE-08 E3 Technical Appendix, Table 1, on page 4. The hours the BEVs and PHEV40s are plugged to the EVSE and available to charge are detailed in the attached workbook “TURN DR-08.xls,” worksheet “Vehicle Availability.”

Note that 135 (26%) of the 502 solar overgeneration hours in this analysis occur on weekends during the Super Off-Peak hours (12am-2pm).

- c. If participating customers under the “with program scenario” are expected to respond to CAISO day-ahead prices.

SDG&E Response:

Yes, EV drivers are expected to respond to GIR price signals (which includes CAISO day-ahead prices) to minimize their electricity bills subject to the physical and behavioral constraints included in SDGE-08 E3 Technical Appendix, Table 1, on page 4. Responding to CAISO day-ahead prices includes both charging as well as not-charging (e.g., waiting for lower price hours, or avoiding higher price hours).

- i. If yes, the percentage of time or charging sessions under the “with program scenario” participating customers are assumed to respond to CAISO day-ahead prices.

SDG&E Response (Prepared by JC Martin):

A BEV vehicle charges 535 hours per year (6.1% of the time) and a PHEV40 vehicle charges 1,110 hours per year (12.7% of the time). Please see attached workbook “TURN DR-08.xls,” worksheet “Analysis,” Table Q1ci.