TURN DATA REQUEST
TURN-SDG&E-DR-07 (AMENDED RESPONSES TO Q1a and Q1b)
SDG&E SB 350 TRANSPORTATION ELECTRIFICATION PROPOSALS (A.17-01-020)
SDG&E RESPONSE
DATE RECEIVED: September 13, 2017
DATE RESPONDED: September 22, 2017 (Q5 - September 20, 2017)
Amended Responses to Q1a and Q1b – September 29, 2017

DATA REQUEST

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:

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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.

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1. SDG&E's response to DR TURN-01, question 10(c), states "This workbook shows the net marginal electricity supply cost benefit of Level 2 charging with the GIR rate, relative to Level 1 charging with the DR and EV-TOU-2 rate." Related to this response and the accompanying workpaper:

    a. What percentage of EV drivers in the "absent program" case are on a "DR" and/or "tiered" rate?

    SDG&E Response (provided by J.C. Martin):

    Seventy percent of EV drivers in the "absent program" case are assumed to charge under the Schedule DR (tiered rate) at home.

    b. What percentage of EV drivers in the "absent program" case are on the EV-TOU-

2 rate?

SDG&E Response (provided by J.C. Martin):

Thirty percent of EV drivers in the "absent program" case are assumed to charge under the Schedule EV-TOU-2 at home.

c. Please provide the assumptions regarding the percentage of load charged on peak separately for the DR (tiered) rate and EV-TOU-2 rate. Please explain how these were derived and provide a supporting Excel workbook that demonstrates any calculations or assumptions. Please also provide the definition of "on-peak" including the specific time period.

SDG&E Response (provided by J.C. Martin):

The percentage of load charged "on-peak" for the DR rate is 6.4% for Battery Electric Vehicle (BEVs) and 6.2% for Plug-in Hybrid Vehicles (PHEVs). The percentage of load charged "on-peak" for EV-TOU-2 rate is 1.3% for BEVs and 1.5% for PHEVs. The percentage of load charged "on-peak" for the whole house Grid Integrated Rate (GIR) is 0.0% for both BEVs and PHEVs. Please see workpaper attached to TURN DR-01 Q10 response "Res Results Scenario A with TURN DR1 Q10dc Analysis," worksheet "AdditionalMetrics" - "on-peak" in this workpaper is defined as kWh Charged in the top 145 hours. See also TURN Data Request DR-03 Q4b response including the associated workpaper "TURN DR-03 Residential Load Shapes Q3Q4.xlsx."

d. If all customers in the "absent program" case were on the EV-TOU-2 rate (0% of customers on the DR or tiered rate) what would the load shifting benefit of SDG&E's program be? Please provide the same calculation with this new assumption included in the workpaper attached to DR-01 "Res Results Scenario A with TURN DR1 Q10dc Analysis."

SDG&E Response (provided by J.C. Martin):

The workpaper attached to DR-01 "Res Results Scenario A with TURN DR1 Q10dc Analysis" relates to SDG&E's original Residential Charging program described in opening testimony. Additional analysis of SDG&E's opening testimony program is not relevant at this time, since SDG&E's proposed modified Residential Charging Program now includes three rate options, including an EV-

Only GIR, while the original program required a whole-house residential GIR that is now withdrawn.

To accommodate TURN's request, SDG&E would need to have E3 modify their PEV Grid Impacts model to accommodate the design of the modified Residential Program. SDG&E did not update or modify the E3 model for rebuttal testimony due to the time required to carefully consider intervenor testimony, develop the modified program, and prepare rebuttal testimony.

e. If all customers in the "absent program" case were on a whole house TOU rate please provide the load shifting benefits of the program. Please provide the same calculation with this new assumption included in the workpaper attached to DR-01 "Res Results Scenario A with TURN DR1 Q10dc Analysis." Please describe and provide all supporting workpapers and studies for assumptions regarding on-peak EV load on a whole house TOU rate.

SDG&E Response (provided by J.C. Martin):

Please see response to Q1d.

2. SDG&E's opening testimony, Chapter 8, Appendix A, p. 24, states:

SDG&E provided the following assumption for the breakdown of the retail rates under which free riders would receive service in the absence of the program:

- 70% Schedule DR: Domestic Service (tiered)
- 30% Schedule EV-TOU-2: Domestic Time-of-Use for Households with Electric Vehicles

In aggregate, SDG&E supplied the assumptions that 42% of participants would be on the DR schedule absent the program, and 58% of participants would otherwise be on a time-of-use rate.

a. Please explain how and where these different assumptions (70%/30% and 42%/58% DR vs. TOU rates, respectively) are used in the net impacts analysis.

SDG&E Response (provided by J.C. Martin):

The Reference Case EV adoption for the net impacts analysis assumes that 70% charge at home under Schedule DR and 30% under Schedule EV-TOU-2. The Reference Case results are subtracted from the gross Program Case results to provide the net impacts included in opening testimony Chapter 8.

SDG&E assumes the aggregate residential rate participation will be 58% TOU and 42% DR by 2020-2025. The reason the rate breakdown is different between the aggregate participation and the Reference Case is the assumption that the reference case excludes 40% of EV drivers on TOU using L2 chargers, since they would not be eligible for the program.

The reference case charging rate percentages (EV-TOU-2 vs DR) were derived from three assumptions: 1) The aggregate residential rate participation by 2020-2025 is assumed to be 58% TOU and 42% DR; 2) about 40% of EV customers are on TOU rates and using L2 chargers, therefore would not be eligible for the program; and 3) the trendline projection of EV adoption + Power Your Drive (PYD) program EV adoption would total 51,131 EVs in 2025 without SDG&E's program. The calculations for the reference case using these three assumptions are included in workpapers, see "Reference Case (Final).xlsx" provided in Data Response TURN-SDG&E-DR-02 Q22 on March 3, 2017.

b. Please explain how these assumptions effect the results of SDG&E's cost-effectiveness analysis.

SDG&E Response (provided by J.C. Martin):

Please see response to question 2a above.

c. Please explain and describe which assumption is used in the "reference case" – 70% of EV drivers on a tiered rate or 42% on a tiered rate?

SDG&E Response (provided by J.C. Martin):

Please see response to question 2a above.

3. The rebuttal testimony of JC Martin at page JCM-8 states "Default TOU is an assumption already included in the Reference Case which is used to calculate net impacts."
   a. Please confirm and explain whether the net impacts analysis assumes 70% of participants would be on a tiered rate and 30% on a TOU rate as stated in opening testimony, Chapter 8, Appendix A, p. 24. Please explain the response.

SDG&E Response (provided by J.C. Martin):

Confirmed. Please see response to question 2a.

b. Please confirm that the load shifting benefits analysis referenced in question 1 and provided in DR-01 attachment "Res Results Scenario A with TURN DR1 Q10dc Analysis" does not incorporate a "default TOU" scenario whereby virtually no customers will be on a tiered rate absent the program.

SDG&E Response (provided by J.C. Martin):

No, this is not correct. The load shifting benefits analysis provided in DR-01 incorporates "default TOU" with an assumption of TOU opt-out to the tiered DR rate (see SDG&E Rebuttal Testimony J. Martin, p. JCM-8 footnote 41), where 42% of residential customers by 2020-2025 will be on tiered rates.

c. Please confirm that in fact "Default TOU," defined as defaulting all or most customers from tiered rates onto default TOU rates, has not been considered in SDG&E's cost-effectiveness or load-shifting benefit analysis because 70% of participants would have been on a tiered rate absent SDG&E's program. Please explain the response.

SDG&E Response (provided by J.C. Martin):

No, this is not correct. SDG&E's benefit analysis workpapers acknowledge that in 2019 SDG&E will start to default customers to TOU, assume by 2020-2025 42% of residential customers will be on tiered rates, and assume that EV drivers on TOU using L2 chargers would not be eligible for the program. Please also see response to question 2a above.

4. In the rebuttal testimony of Cynthia Fang, Tables CF- 1 and 2 present rate impacts of the Modified Residential Charging Program and the Illustrative Case. Please reproduce these tables to provide the rate impacts through the last year of installation for the program, 2026.

SDG&E Response (provided by Cynthia Fang):

Please see the attached file, titled "TURN DR07 Q4" for rate impact of both the modified Residential Charging Program and the Illustrative Case.

The following questions relate to the Rebuttal testimony of Randy Schimka.

5. Please provide the Excel workpapers with all assumptions for Tables RS-1 and RS-2.

   SDG&E Response (provided by Randy Schimka):

   Please see spreadsheets "TURN DR7 Q5 Table RS-1.xlsx" and TURN DR7 Q5 Table RS-2.xlsx"

   a. Please define and explain in detail what activates, equipment, etc. each line item in the tables covers or refers to.

      SDG&E Response (provided by Randy Schimka):

      Table RS-1: 100% Utility Ownership

      EV Costs and Installation: This line represents the cost for the utility allowance for 90,000 EVSE, and the installation allowance for 90,000 units.

      Panel Upgrades: This line represents the cost for 1,800 DAC panel upgrades (material and installation).

      IT Costs: This line represents the IT costs necessary to integrate with SDG&E's billing system.

      Customer Engagement: This line represents funding to pay for marketing materials, as well as education and outreach events and materials for the program.

      Advertising: This line represents funding to pay for advertising and publicity for the program.

      Measurement and Evaluation: This line represents funding to produce periodic project reports that are required and a final project report at the end of the 5 years

of enrollment and 6th year of installation.

Billing Support: This line supports funding for 5 years of a single billing employee contractor to support the program.

SDG&E Clean Transportation PM: This line supports funding for 6 Project Management contractor employees for 5 years.

Maintenance (Service Calls): This line represents one service call for each of the 90,000 installations spread over 5 years for 90,000 240-volt circuits and 90,000 EVSE.

Table RS-2: 50% Utility Ownership

EV Costs and Installation: This line represents the cost for the utility allowance for 45,000 EVSE, and the installation allowance for 90,000 units.

Panel Upgrades: This line represents the cost for 1,800 DAC panel upgrades (material and installation).

IT Costs: This line represents the IT costs necessary to integrate with SDG&E's billing system.

Customer Engagement: This line represents funding to pay for marketing materials, as well as education and outreach events and materials for the program.

Advertising: This line represents funding to pay for advertising and publicity for the program.

Measurement and Evaluation: This line represents funding to produce periodic project reports that are required and a final project report at the end of the 5 years

of enrollment and 6th year of installation.

Billing Support: This line supports funding for 5 years of a single billing employee contractor to support the program.

SDG&E Clean Transportation PM: This line supports funding for 6 Project Management contractor employees for 5 years.

Maintenance (Service Calls): This line represents one service call for each of the 90,000 installations spread over 5 years for 90,000 240 volt circuits and 45,000 EVSE (at $250 per site for the utility-owned sites and $200 per site for the customer-owned sites), as well as the extended warranty estimate of $50 for each of the 45,000 customer-owned EVSE.

Utility EVSE allowance 45K Customer Owned: This line represents the expensed allowance for 45,000 Customer-owned EVSE.

b. For the EVSE Costs and Installation line item please provide and explain which portions of the total relate to the allowances for EVSE, installation and SDG&E's installation of the 240-volt circuit.

SDG&E Response (provided by Randy Schimka):

Table RS-1: 100% Utility Ownership for 90,000 units

EVSE allowance for 90,000: $47,250,000 + 8% tax = $51,030,000

EVSE Installation: $129,937,500 + 15% contingency = $149,428,125

240-volt circuit: Included with EVSE installation number above

Total: $200,458,125

Table RS-2: 50% Utility Ownership for 90,000 units

EVSE allowance for 45,000: $23,625,000 + 8% tax = $25,515,000

EVSE Installation for 90,000: $129,937,500 + 15% contingency = $149,428,125

240-volt circuit: Included with EVSE installation number above

Total: $174,943,125

6. On page RS-13 SDG&E states "L1 charging using a standard 120-volt outlet can have safety issues for customers." Please provide additional information about this statement including the following:

   a. The number and percentage of EV drivers in SDG&E's territory that have experienced a safety issue due to L1 charging.

      SDG&E Response (provided by Randy Schimka):

      SDG&E doesn't know the number of EV drivers in SDG&E's territory that have experienced a safety issue due to L1 charging.

   b. The number and percentage of EV drivers in California that have experienced a safety issue due to L1 charging.

      SDG&E Response (provided by Randy Schimka):

      SDG&E doesn't know the number of EV drivers in California that have experienced a safety issue due to L1 charging.

      However, as outlined in Randy Schimka's rebuttal testimony in footnote 44 on page RS-13, there is one example presented of anecdotal evidence from an online driver forum that discusses an L1 charging safety issue.

      In addition, in Attachment 5 in Randy Schimka's rebuttal testimony on page RS-A5-1, there are two excerpts from the Chevy Volt Owner's Manual that outline Chevy's Level 1 safety recommendations and warnings.

   c. The number and percentage of EV drivers in California that have experienced a safety issue due to L2 charging.

SDG&E Response (provided by Randy Schimka):

SDG&E doesn't know the number of EV drivers in California that have experienced a safety issue due to L2 charging.

d. To SDG&E's knowledge has anyone in California or SDG&E's territory been injured by a L1 or L2 charging station? Please explain and provide all relevant sources.

SDG&E Response (provided by Randy Schimka):

SDG&E has no information about injuries related to L1 or L2 charging stations.

However, as outlined in Randy Schimka's rebuttal testimony in footnote 44 on page RS-13, there is one example presented of anecdotal evidence from an online driver forum that discusses an L1 charging safety issue.

In addition, in Attachment 5 in Randy Schimka's rebuttal testimony on page RS-A5-1, there are two excerpts from the Chevy Volt Owner's Manual that outline Chevy's Level 1 safety recommendations and warnings.

e. To SDG&E's knowledge has anyone in California or SDG&E's territory experienced property damage as the result of a L1 or L2 charging station? Please explain, provide estimated costs and provide all relevant sources.

SDG&E Response (provided by Randy Schimka):

SDG&E doesn't have direct information of anyone in California that has experienced property damage as a result of L1 or L2 charging.

However, as outlined in Randy Schimka's rebuttal testimony in footnote 44 on page RS-13, there is one example presented of anecdotal evidence from an online driver forum that discusses an L1 charging safety issue.

In addition, in Attachment 5 in Randy Schimka's rebuttal testimony on page RS-A5-1, there are two excerpts from the Chevy Volt Owner's Manual that outline

Chevy's Level 1 safety recommendations and warnings.

f. What resources does SDG&E currently provide customers to mitigate safety issues with installation of Level 1 and Level 2 charging stations? Please provide all links and documents.

SDG&E Response (provided by Randy Schimka):

SDG&E meets with customers that ask for information about installing charging stations. The information presented is tailored to the needs of the customer, and is mostly verbal in nature. When applicable, SDG&E provides information about the EVITP training program for contractors (http://evitp.org/). SDG&E also discusses the Power Your Drive program when appropriate, and the various safety aspects of that program (UL listed or NRTL tested EVSE, trained contractors, CPUC oversight with Safety & Enforcement Division, etc.).

g. What electrical appliance is the number one cause of safety incidences in SDG&E's territory?

SDG&E Response (provided by Randy Schimka):

SDG&E does not have this information.

7. Regarding Tables RS-1 and RS-2, pages RS-15 and RS-16:

a. Both tables show a proposed budget of $22,500,000 for "Maintenance (Service Calls)" under both a 100% ownership and 50%/50% Ownership scenario. Please explain what this cost is for and provide support for how it was developed.

SDG&E Response (provided by Randy Schimka):

These costs are outlined in the spreadsheets for Question 5.

For the 100% ownership scenario, the $22,500,000 is comprised of an estimated $250 for one service call over the five-year period for each of the 90,000 sites. The service call will cover maintenance for the 240-volt circuit that feeds the EVSE, as well as the maintenance for the EVSE itself (which will most likely be a swap-out).

For the 50% ownership scenario, the $22,500,000 is comprised of two different components, as follows:

- 45,000 utility owned sites – one service call that covers maintenance of the 240-volt circuit and EVSE @ $250.
- 45,000 customer owned sites – one service call that covers maintenance of the 240-volt circuit @ $200 and $50 paid to the EVSP for the extended warranty on the EVSE.

The overall estimated cost for maintenance in the 50% ownership scenario equals the same overall estimated cost for maintenance in the utility ownership scenario ($22,500,000).

b. Why is the "Maintenance (Service calls)" cost the same under the 100% ownership and 50% ownerships scenario? Based on the statement that under the customer ownership scenario where the "customer chooses to own and maintain the EVSE" and "the customer will be responsible for contacting the EVSP for repair …" it seems the costs should be lower, please explain this discrepancy. (P. RS-7)

SDG&E Response (provided by Randy Schimka):

Please see the cost breakdown in question 7a above. The 50% ownership scenario cost estimate is the same as the 100% utility ownership scenario because the customer-owned scenario includes an extended warranty payment to the EVSP.

Adding an extended warranty for customer owned units could provide additional coverage to make the customer ownership choice compare more equitably to the utility ownership choice.

c. In Table RS-2 please explain what costs the line item "Utility EVSE Allowance 45K Customer Owned" includes.

   i. Does this include the warranty costs for the customer owned EVSE? Please explain.

SDG&E Response (provided by Randy Schimka):

Please see spreadsheet in response for question 5 above. In Table RS-2, the utility EVSE allowance 45K customer owned line item is the $500 allowance for the single family and multifamily EVSE, as well as the $600 allowance for DAC customers who choose to own their own EVSE. This line item does not cover maintenance.

8. Regarding page RS-6 states "In either case, SDG&E would still install, own, and maintain the 240-volt circuit from the customer's electric panel to the EVSE."

   a. Does this mean that SDG&E employee will install the 240-volt circuit and not the licensed and trained contractor who will install the EVSE?

SDG&E Response (provided by Randy Schimka):

No, a contractor (qualified by SDG&E) will perform the installation of the circuit and the EVSE.

   b. Does the $1,425 or $1,500 (for DAC and low-income customers) installation allowance include the cost of SDG&E installing the 240-volt circuit?

SDG&E Response (provided by Randy Schimka):

The installation allowance includes the cost of the contractor installing the 240-volt circuit.

   c. Is the permit discussed on pages RS-11 – RS-12 necessary for the installation of the 240-volt circuit or the installation of the EVSE?'

SDG&E Response (provided by Randy Schimka):

Yes, the permit is required for both aspects of the job (especially if the wiring goes directly into the EVSE). The inspector won't sign off on the job, for example, unless he/she can see that the installed EVSE is safety certified (UL listed or NRTL tested).

d. On page RS-12 it states that the contractor will "perform load calculations" to determine if the "charging station load can be added to the existing electric panel and not overload it", will SDG&E do similar load calculations before installing the 240-volt circuit?

SDG&E Response (provided by Randy Schimka):

The contractor will perform the load calculations, apply for the permit, and perform the installation work of the 240-volt circuit and the EVSE.

e. Attachment 2 lists the average cost installation detail which includes the item "Install 40 amp charging circuit & EVSE", is this in addition to the 240-volt circuit SDG&E will install and run from the customers electric panel to the EVSE?

    i. Please explain the difference between the 240-volt circuit and the 40 amp charging circuit?

SDG&E Response (provided by Randy Schimka):

The 40-amp charging circuit and 240-volt circuit are one and the same and will be installed by the contractor.

f. Do the EV Project L2 EVSE installation costs discussed on page RS-11 assume the 240-volt circuit has already been installed?

SDG&E Response (provided by Randy Schimka):

No, the EV Project L2 EVSE installation costs also include the installation of the 240-volt circuit.

9. Page RS-7 states: "For customers who choose SDG&E to own and maintain the EVSE, SDG&E will repair or replace failed units. In the case where the customer chooses to own and maintain the EVSE, SDG&E will contribute a fixed amount to the EVSP at the time of purchase for an extended warranty for the customer (if needed)." Under the scenario where the customer owns the EVSE:

   a. Please define and explain what extended warranty means? How many years must the warranty be valid for?

      SDG&E Response (provided by Randy Schimka):

      Adding an extended warranty for customer owned units could provide additional coverage to make the customer ownership choice compare more equitably to the utility ownership choice.

      As discussed in Randy Schimka's rebuttal testimony on page RS-7, footnote 24, SDG&E plans to discuss this issue with the PAC and clarify more details about the extended warranty payment and the length of the warranty.

   b. Will SDG&E contribute a fixed amount for an extended warranty if a warranty is included in cost of EVSE?

      SDG&E Response (provided by Randy Schimka):

      Yes, SDG&E would contribute a fixed amount for an extended warranty for customer-owned EVSE as discussed above in response 9a.

   c. How will SDG&E ensure the warranty is purchased?

SDG&E Response (provided by Randy Schimka):

SDG&E would pay the Electric Vehicle Service Provider for the extended warranty for customer-owned EVSE. SDG&E plans on discussing this issue with the PAC to get input before finalizing the project solution for maintenance.

d. If a warranty is purchased why do ratepayers need to pay for maintenance costs? Please explain how the purchase of a warranty affects SDG&E's calculation of maintenance costs.

SDG&E Response (provided by Randy Schimka):

The extended warranty would only apply to customer-owned EVSE. SDG&E will be providing maintenance for the utility-owned EVSE.

e. How much does SDG&E expect this fixed amount to be, please explain and provide any supporting documentation. Will the amount vary if the EVSE comes with a warranty but not an "extended warranty" that meets SDG&E's specifications?

SDG&E Response (provided by Randy Schimka):

SDG&E budgeted $50 additional for an extended warranty that would apply only to customer-owned EVSE. The amount budgeted for this extended warranty is not expected to vary. The RFP process will attempt to standardize the original manufacturer's warranty across the various products that are qualified (and might require some EVSE to have their sale price adjusted) so that customers will be able to choose from among EVSE that will have approximately the same manufacturer warranty terms. Then the extended warranty for customer-owned EVSE would start after the manufacturer's warranty runs out. This topic will be discussed with the PAC for additional input.

f. Has SDG&E considered limiting the RFP to EVSE's that include a standard warranty?

SDG&E Response (provided by Randy Schimka):

All EVSE equipment currently comes with a warranty of some sort. SDG&E's observation in the marketplace is that these warranties range between 1 and 3 years. SDG&E envisions the RFP to require a manufacturer warranty of some sort to participate, and if possible would like to standardize on similar warranty terms for the qualified EVSE.

g. How would removing the extra payment to EVSPs for warranties affect the overall cost of the program?

SDG&E Response (provided by Randy Schimka):

Since SDG&E budgeted $50 for the extended warranty that would apply to 45,000 customer-owned EVSE, eliminating the warranty would save $2,250,000.

h. Is the cost for warranties included in Table RS-1 and/or RS-2? If so please explain which line item it is represented under and the amount in each table.

SDG&E Response (provided by Randy Schimka):

The answer to this question is covered in the response to Question 7 above.