NDC DATA REQUEST
NDC-SDG&E-DR-02
SDG&E TRANSPORTATION ELECTRIFICATION MD/HD and V2G PROPOSALS (A.18-01-012)
SDG&E RESPONSE
DATE RECEIVED: June 6, 2018
DATE RESPONDED: June 20, 2018

1. For each vehicle class in the MD/HD Program, provide an estimate of EVSE costs as a percentage of total costs. Provide workpapers and explain the assumptions used to calculate these estimates.

   SDG&E Response:
   SDG&E did not conduct this calculation as part of the application. The EVSE cost as a percentage of the total installation cost at a given site can vary depending on the make-up and footprint of the location and the number of EVSEs supported at that location.

2. SDGE states that the MD/HD Program "will support customers based upon their commitment to procure and use EVs in their operations" (Ch.2 at HJR-8).

   a. What is the minimum number of EVs that customers must commit to procure and use before they are eligible to participate in the MD/HD Program? Please specify any different commitments for different vehicle classes.
   b. If there is no minimum commitment, how will SDGE weight one customer's willingness to procure and use more EVs over another customer?

   SDG&E Response:
   a. The program does not require a minimum vehicle commitment.
   b. SDG&E will weigh each customer's request on several factors including number of vehicles procured, location and cost of site, and if the procurement of a vehicle or vehicles could lead to greater EV adoption in the future.

3. SDGE requests authority to waive the standard qualifying process for customers in certain instances, and provides as an example, if proprietary EVSE for a particular vehicle is not networked, or the vehicle itself can provide networked EVSE functionality (Ch.2 at HJR-11, FN 14).

   a. Please explain the full extent of the authority to waive the standard qualifying process that SDGE is requesting, including additional examples of when it may be used.
   b. In the hypothetical situation where a customer needs proprietary EVSE that is not networked, what are other factors that would be significant in SDGE's decision to include or exclude such a customer from the MD/HD Program?

   SDG&E Response:
   a. Because the MD/HD EV market is relatively nascent and rapidly evolvingSDG&E believes it is prudent to have flexibility in determining which EVSEs are eligible. SDG&E believes too stringent of requirements could stifle competition and innovation.

SDG&E is seeking authority to qualify EVSE on a case by case basis and provide a waiver if the inclusion of certain EVSE will encourage EV adoption and reduce GHG emissions.

b. SDG&E believes that safety and reliability are core requirements for any application. Additionally, SDG&E will consider whether similar units had been deployed elsewhere and have had success or failures. SDG&E will also consider if supporting the deployment could lead to additional EV adoption and GHG reduction.

4. What is the cost of the ten on-route chargers for EV transit buses included in the MD/HD Program? (Ch.2 at HJR-12, FN 16). Provide workpapers and explain assumptions used to arrive at this cost estimate.

SDG&E Response:
The direct cost of the ten on-route chargers is $2M. Please see confidential attachment titled "Final – Confidential – Unredacted – MD HD Cost Estimate 100 Percent utility ownership". The cost of the chargers can be found in the Estimate On Route tab. The workpapers were provided to NDC in response to their first data request – response to Question 6.

5. SDGE states that "On-route chargers can allow a transit bus with a relatively small battery to run continuously throughout the day" (Ch.2 at HJR-12).
    a. Please explain how SDGE defines "a transit bus with a relatively small battery".
    b. Provide an estimate of the percent of EV transit buses currently in operation in SDGE's service territory that fit SDGE's definition of "a transit bus with a relatively small battery". If a reasonable estimate is not available, please explain if SDGE believes that most EV transit buses currently in operation in SDGE's service territory fit their definition of having relatively small batteries, and the basis for that belief.

SDG&E Response:

a. SDG&E has not quantified an exact threshold for small versus large battery. However, electric bus battery capacity has a wide range. A bus with a smaller battery is typically cheaper and lighter. The trade-off is less range per charge. An on-route charger allows the bus to stay in service longer throughout the day.
b. SDG&E is not aware of any electric transit buses in SDG&E's service territory.

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6. For the average EV transit bus currently in operation in SDGE's service territory, what is SDGE's assumption regarding the number of miles that can be traveled on a single charge? How was this assumption reached?

   SDG&E Response:
   SDG&E is not aware of any EV transit buses in SDG&E's service territory.

7. For the average transit bus (internal combustion and EV) currently in operation in SDGE's service territory:
   a. What is SDGE's assumption regarding the total number of miles that are traveled in a normal day? How was this assumption reached?
   b. What is SDGE's assumption regarding the number of miles that are traveled on a single route, before the bus returns to the depot?

   SDG&E Response:
   a. SDG&E has not made any assumptions on this matter.
   b. SDG&E has not made any assumptions on this matter.

8. In the V2G Pilot, are school buses required to remain charging during the mid-day hours, or are they available for use, such as for field trips? If buses are available for use, please estimate the costs to the school if one bus is used during one day, and does not have energy stored to sell to the CAISO market that evening.

   SDG&E Response:
   School buses will not be required to remain in the bus lot during the day. For the purposes of this pilot, the school will not receive a financial benefit from the sale of electricity to CAISO markets and therefore there is no revenue loss or cost to school.

9. SDGE states that "The software engineering needed to make one bus V2G capable only needs to be performed for the first bus. The other nine buses included in the Pilot will take advantage of the economy of scale benefit of utilizing the same software engineering upgrade without significant added costs". (Ch.3 at DMG-11).
   a. Is the "software engineering needed to make one bus V2G capable" (referenced above) the same "software to bid the resources into the CAISO", listed in Ch.3 Attachment A, Paragraph 16.d. as costing $452,461? If not, please explain the difference.

b. Is the "software to bid the resources into the CAISO", listed in Ch.3 Attachment A, Paragraph 16.d. as costing $452,461 the same as the "Licensing and Analysis" item, listed in Ch.3 at DMG-14, *Figure 4: V2G Pilot Direct Cost Detail*, also costing $452,461? If not, please explain the difference.
c. Please explain how SDGE determined that the $452,461 price to develop software was reasonable. If the Licensing and Analysis is a different cost, please also explain how SDGE determined that that costs was reasonable.

SDG&E Response:
a. Executing a V2G pilot requires hardware and software modifications. The hardware and software to modify the bus and charging stations is not the same as to bid into CAISO markets. However, the $452,461 estimate includes both.
b. Yes.
c. The software will be licensed and leveraged from Kisensum. The licensing and analysis cost was part of the First Priority GreenFleet bid. It includes analysis pre-deployment, during deployment and post-deployment.

10. Regarding the proposals from entities that responded to the RFI and participated in the RFP for the V2G pilot:
    a. Were any proposals less expensive overall than the FP GreenFleet proposal? If so, why were they not selected over FP GreenFleet?
    b. Did any proposal use EV buses that were capable of V2G with less expensive modifications than are necessary in the FP GreenFleet proposal? How much was the cost of using EV buses already V2G capable, versus the modified EV buses from FP GreenFleet?
    c. Did any proposal estimate costs to develop software to bid energy stored in the EV buses into the CAISO market as less than $452,651? If so, how much were the other estimates?

SDG&E Response:
The RFP is not final. Parties have not signed a final contractual agreement. SDG&E conducted the RFI and RFP to help develop a V2G proposal.
a. **Confidential Market Sensitive Information Provided Under NDA**: [redacted]

b. SDG&E is not aware of other commercially available EV school buses that are V2G capable in their default setting.
c. The $452,651 estimate is not only for the software to bid energy storage in the EV buses into the CAISO. See response to Question 9.

11. SDGE indicated that FP GreenFleet will only "conduct monitoring for one year after installation" (Ch.3 at DMG-12).
    a. Will any monitoring, analysis, or reporting of data from the V2G Pilot be conducted after the one year following installation?
    b. How much would it cost for FP GreenFleet to continue monitoring for an additional one year? For an additional three years? For an additional five years?
    c. Will monitoring include any analysis on the effect of V2G on EV battery life, health, capacity, and/or replacement cycle?

    SDG&E Response:
    a. SDG&E intends to only collect data for one year.
    b. SDG&E has not scoped out the cost for additional years of monitoring.
    c. Yes; impacts on battery life and impacts to the battery under V2G operations will be analyzed.

12. For the MD/HD Program, SDGE estimated the dollar amounts and percentage increase of annual bill impacts for typical residential customers in 2020 and 2023, under both the 100% utility owned EVSE and 50% utility owned EVSE scenarios (Ch.4 at KCG-2, KCG-3-4). Please provide similar bill impact estimates for typical small, medium, and large commercial and industrial customers.

SDG&E Response:
Small, medium and large commercial and industrial (C&I) customers have varying load profiles and different customer characteristics and therefore there is no "typical" customer for these customer classes. The testimony of SDG&E Witness Kellen Gill provides illustrative class average rate impacts which reflects the anticipated change to rates and therefore bills for customers in those classes on average.