San Diego Gas & Electric
2020 Test Year General Rate Case, Phase 2
Application (A.) 19-03-002

Joint Advance Rate Parties (OhmConnect, Inc., California Solar & Storage Association, and California Energy Storage Alliance)
Data Request No. 2

Residential Customer Class

1. Using EV-TOU 5 as a basis and 2019 CAISO wholesale pricing data, create a real-time pricing rate that is revenue neutral across the residential class. By revenue neutral, we mean that SDG&E would receive the same revenue on an annual basis from all residential customers assuming no change in the quantity or timing of usage. The rate should have the following characteristics.
    a. The UDC component should be identical to EV-TOU 5
    b. The RTP rate should have the same CARE and non-CARE fixed charges
    c. The commodity rate should include a component to cover SDG&E's costs of procuring and delivering electricity from renewable sources used to comply with SDG&E's RPS obligation. SDG&E should allocate a set percentage of RPS energy to each interval according to the percentage of RPS-eligible renewable energy in SDG&E's portfolio during the calendar year. The portion of the total kWh consumed by a customer in each billing interval covered by the RPS allocation will be charged according the cost of RPS energy. Electricity consumed above the RPS allocation will be billed at the real-time price described in bullet "f" below. The RPS allocation of electricity should be shaped to ensure that most customers will consume more than the RPS allocation in each billing interval. The price and/or shape of the RPS allocation could be fixed across the year or could vary by time to better match the timing and cost of the renewable generation in SDG&E's portfolio.
    d. The commodity rate should include a component to cover any above-market energy costs from non-renewable sources that would appear in SDG&E's PCIA charges.
    e. The commodity rate should include the generation capacity cost associated with each TOU period in EV-TOU 5.
    f. The summer on-peak generation capacity costs should be disaggregated into the cost to serve the top 50 hours, cost to serve hours 51 – 150, and cost to serve all other hours. The cost to serve the top 50 hours and hours 51 – 150 should be designed as two different dynamic rate components (similar to OG&E's Variable Peak Pricing tariff) called on a day-ahead basis.
    g. Remaining generation energy costs will be recovered from a real-time pricing component using CAISO's fifteen-minute market prices CA SDG&E's Default Load Aggregation Point, grossed up for losses in the distribution system.
2. Calculate the reduction in revenues SDG&E would collect assuming the top 10% of residential customers who would benefit the most from the rate designed in response to Question 1 opt-in to the rate with no change in their electricity usage. What is the amount by which each

residential non-RTP customer's bill would need to increase on an annual basis to cover the revenue shortfall?

3. For 2019, identify the 600 fifteen-minute intervals with the highest DLAP-level fifteen-minute prices.
4. For the following questions (5 through 12), assume uptake of RTP by 10% of the residential customer base in each baseline territory. Assume that the customers adopting RTP have, as a group, average load profiles and total consumption for their respective baseline territories.
5. For each of the 600 intervals identified in #3, estimate the total reduction in peak kWh consumed assuming actual load is curtailed by: (i) 25% and (ii) 50%. Additionally, estimate the reduction in SDG&E peak kW for 2019 resulting from these assumed load shifts.
6. For each of the curtailment scenarios in #4, assume 100% of the curtailed load is shifted to: the lowest-priced intervals on the same day or no more than 12 hours subsequent to the high-priced intervals.
7. For the load curtailed in #5, estimate SDG&E's avoided costs. In the avoided cost calculation, include the differences between the high- and low-priced wholesale energy purchased as well as the avoided Resource Adequacy benefits that accrue in two years resulting from RTP-induced reductions in peak load as reflected in future load forecasts. The future avoided RA value may be discounted to the current year using SDG&E's standard discount rate.
8. Estimate the avoided greenhouse gases that result from the RTP participants' load shifting.
9. Estimate the reduced revenue from the RTP participants compared to the revenues SDG&E would have received if the customers had remained on TOU-DR1 and had not modified the timing of their electricity consumption.
10. [The following load-shift estimates based on low-priced intervals are a lower priority.] For 2019, identify the 600 fifteen-minute intervals with the lowest DLAP-level fifteen-minute prices.
11. For each of the 600 intervals identified in #10, estimate the total increase in consumption assuming actual load is increased by: (i) 25% and (ii) 50%. To what extent does the increase in consumption reduce curtailment of solar energy?
12. For each of the curtailment scenarios in #11, assume 100% of the curtailed load is shifted to: the highest-priced intervals on the same day.
13. For the load curtailed in #5, estimate SDG&E's avoided costs. In the avoided cost calculation, include the differences between the high- and low-priced wholesale energy purchased as well as the avoided Resource Adequacy benefits that accrue in two years resulting from RTP-induced reductions in peak load as reflected in future load forecasts. The future avoided RA value may be discounted to the current year using SDG&E's standard discount rate.
14. Estimate the avoided greenhouse gases that result from the RTP participants' load shifting.
15. Estimate the reduced revenue from the RTP participants compared to the revenues SDG&E would have received if the customers had remained on TOU-DR1 and had not modified the timing of their electricity consumption.

<u>Non-Residential Customer Class</u>

16. Using AL-TOU as a basis and 2019 CAISO wholesale pricing data, create a real-time pricing rate that is revenue neutral across the general service class. By revenue neutral, we mean that SDG&E would receive the same revenue on an annual basis from all general customers assuming no change in the quantity or timing of usage. The rate should have the following characteristics.

a. The basic service fee, demand charge, and energy charge components of the UDC should be identical to AL-TOU.
b. The commodity rate should include a component to cover SDG&E's costs of procuring and delivering electricity from renewable sources used to comply with SDG&E's RPS obligation. SDG&E should allocate a set percentage of RPS energy to each interval according to the percentage of RPS-eligible renewable energy in SDG&E's portfolio during the calendar year. The portion of the total kWh consumed by a customer in each billing interval covered by the RPS allocation will be charged according the cost of RPS energy. Electricity consumed above the RPS allocation will be billed at the real-time price described in bullet "f" below. The RPS allocation of electricity should be shaped to ensure that most customers will consume more than the RPS allocation in each billing interval. The price and/or shape of the RPS allocation could be fixed across the year or could vary by time to better match the timing and cost of the renewable generation in SDG&E's portfolio.
c. The commodity rate should include a component to cover any above-market energy costs from non-renewable sources that would appear in SDG&E's PCIA charges.
d. The commodity rate should include the generation capacity cost associated with each TOU period in AL-TOU.
e. The summer on-peak generation capacity costs should be disaggregated into the cost to serve the top 50 hours, cost to serve hours 51 – 150, and cost to serve all other hours. The cost to serve the top 50 hours and hours 51 – 150 should be designed as two different dynamic rate components called on a day-ahead basis.
f. Remaining generation energy costs will be recovered from a real-time pricing component using CAISO's fifteen-minute market prices CA SDG&E's Default Load Aggregation Point, grossed up for losses in the distribution system.

17. Calculate the reduction in revenues SDG&E would collect assuming the top 10% of general service customers who would benefit the most from the rate designed in response to Question 1 opt-in to the rate with no change in their electricity usage. What is the amount by which general service non-RTP customers' bills would need to increase on an annual basis to cover the revenue shortfall?
18. For the following questions (19 through **Error! Reference source not found.**), assume uptake of RTP by 10% of the general service (AL-TOU) customer base. Assume that the customers adopting RTP have, as a group, average load profiles and total consumption for this customer class.
19. For each of the 600 intervals identified in #18, estimate the total reduction in peak kWh consumed assuming actual load is curtailed by: (i) 25% and (ii) 50%. Additionally, estimate the reduction in SDG&E peak kW for 2019 resulting from these assumed load shifts.
20. For each of the curtailment scenarios in #19, assume 100% of the curtailed load is shifted to: the lowest-priced intervals on the same day or no more than 12 hours subsequent to the high-priced intervals.
21. For the load curtailed in #19, estimate SDG&E's avoided costs. In the avoided cost calculation, include the differences between the high- and low-priced wholesale energy purchased as well as the avoided Resource Adequacy benefits that accrue in two years resulting from RTP-induced reductions in peak load as reflected in future load forecasts. The future avoided RA value may be discounted to the current year using SDG&E's standard discount rate.

22. Estimate the avoided greenhouse gases that result from the RTP participants' load shifting.
23. Estimate the reduced revenue from the RTP participants compared to the revenues SDG&E would have received if the customers had remained on AL-TOU and had not modified the timing of their electricity consumption.
24. [The following analyses are a lower priority.] For each of the 600 intervals identified in #10, estimate the total increase in consumption assuming actual load is increased by: (i) 25% and (ii) 50%. To what extent does the increase in consumption reduce curtailment of solar energy?
25. For each of the curtailment scenarios in #11, assume 100% of the curtailed load is shifted to: the highest-priced intervals on the same day.
26. For the load curtailed in #5, estimate SDG&E's avoided costs. In the avoided cost calculation, include the differences between the high- and low-priced wholesale energy purchased as well as the avoided Resource Adequacy benefits that accrue in two years resulting from RTP-induced reductions in peak load as reflected in future load forecasts. The future avoided RA value may be discounted to the current year using SDG&E's standard discount rate.
27. Estimate the avoided greenhouse gases that result from the RTP participants' load shifting.
28. Estimate the reduced revenue from the RTP participants compared to the revenues SDG&E would have received if the RTP customers had remained on AL-TOU and had not modified the timing of their electricity consumption.