

# SDG&E, SCE, and PG&E Standard Review Proposals for Transportation Electrification Investments Pursuant to SB 350

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**Energy Division Staff Summary Document**

July 3, 2017

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## Introduction

Energy Division staff presents this summary document to review the transportation electrification projects that the utilities proposed to be included in the Commission's standard review process. These projects will be discussed during a July 11, 2017 workshop held at the Commission. This document is intended to (1) serve as reference material for the workshop discussion by organizing and summarizing the utility proposals by program area; and (2) identify topics of discussion for the workshop to help stakeholders prepare their comments.

## Light Duty Charging Infrastructure Proposals

### SDG&E Residential Charging Program

- Budget: \$226 million
- Duration: One year to conduct RFP for EVSPs and marketing campaign, followed by a five-year enrollment and installation period, with flexibility to extend installations one additional year to meet time/labor constraints.
- Scope: 90,000 Level 2 EVSEs

SDG&E is proposing to install, own, maintain and operate an estimated 90,000 Level 2 electric vehicle service equipment (EVSE) in residential customers' homes over a five- to six-year period. The 90,000 target is based on the utility's share of the state's overall zero-emissions vehicle goal, minus the number of electric vehicles that are already expected to be adopted without the proposed program.<sup>1</sup> SDG&E is estimating that the average installation cost (not including the EVSE) will be \$1,425, including all materials and labor,<sup>2</sup> and it plans to cap the amount it spends on an individual EVSE installation based on customer type:

- \$1,000 for single family homes
- \$1,125 two- to four-unit multi-unit dwellings
- \$1,500 for disadvantaged communities

At least 20 percent of the charging stations (~18,000) would be set aside for disadvantaged communities. SDG&E states that if a customer is no longer using the EVSE installed through this program, the utility will remove it and repurpose it "in a timely manner."<sup>3</sup>

SDG&E will partner, through a competitive bidding process, with third-party electric vehicle service providers and certified electrical installers in an effort to expand participation in the market.

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<sup>1</sup> SDG&E Testimony in Support of its SB 350 Application, A.17-01-020, Chapter 4, pg. RS-6-7

<sup>2</sup> SDG&E Testimony in Support of its SB 350 Application, A.17-01-020, Chapter 4, pg. RS-5

<sup>3</sup> SDG&E Testimony in Support of its SB 350 Application, A.17-01-020, Chapter 4, pg. RS-20

SDG&E is also proposing a new Residential Grid-Integration Rate (GIR), discussed in more detail below, which would apply to all customers participating in the program. The GIR is designed to be a whole-house dynamic rate that uses CAISO day-ahead hourly rates to send pricing signals that encourage off-peak charging and load management. SDG&E states that L2 charging equipment is necessary to best capture the flexibility and benefits of its proposed residential GIR.

SDG&E intends to collect data on EV charging behavior, the ability to influence it through rates and overall energy use behavior under dynamic rates throughout the project. It will also track actual program costs, actual installation costs, annual growth in EV adoption, and annual growth of the program by region. SDG&E estimates the program will result in annual CO<sub>2</sub> reductions of 123,226 metric tons.

The utility plans to work with the same Program Advisory Council that is advising it on its existing light-duty EV infrastructure pilot program that was approved through D.16-01-045, which focuses on installing EVSE at workplaces and multi-unit dwellings.<sup>4</sup> The PAC will provide guidance on the implementation plan and other program details, and SDG&E will give the council regular progress reports.

### **PG&E Fast Charge Program**

- Budget: \$22.4 million: \$20.1 million in capital and \$2.3 million in expense
- Duration: 5 years
- Scope: 52 sites with 234 charge points

PG&E proposes to implement a make-ready infrastructure program for customers interested in hosting direct current fast chargers (DCFC) for light-duty vehicle use. The proposed Fast Charge Program could cost \$22.4 million over five years to deploy make-ready infrastructure for DCFC at up to 52 sites, or 234 charging points.<sup>5</sup>

PG&E states that fast charging plazas can provide charging options those that may not have access to home or workplace charging and also facilitate longer trips by allowing EV drivers faster opportunities to recharge away from home.<sup>6</sup> It aims to improve the business case for investing in DCFCs by owning and operating the make-ready infrastructure.

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<sup>4</sup> SDG&E Testimony in Support of its SB 350 Application, A.17-01-020, Chapter 4, pg. RS-20

<sup>5</sup> PG&E Testimony in Support of its SB 350 Application, A.17-01-022, pg. 4-1. PG&E notes that the costs for the DCFC program are uncertain, due to uncertainties regarding the size and pace of market demand and the precise sites and vehicles that will need make-ready infrastructure over the limited 5-year program period. PG&E states that the forecast costs for the program and estimated demand for the project should not be considered forecasts of the actual market demand for make-ready infrastructure and DCFC infrastructure sites that will be served by the program. *Id.*, pg. 4-12.

<sup>6</sup> PG&E Testimony in Support of its SB 350 Application, A.17-01-022, pg. 4-4

PG&E completed a research project<sup>7</sup> which helped identify priority areas for DCFC sites in its service area, based on projected demand. It will use the outcome of this project to help inform the siting of DCFC it supports through this proposed program. PG&E states that the report, as of October 2015, identified over 13,000 potential site hosts where available distribution capacity may be sufficient to support two DCFCs without significant utility infrastructure upgrades.<sup>8</sup> All potential DCFC installations would have to go through the standard service planning process to verify current available capacity, including additional capacity not previously identified.

Each site where PG&E installs a DCFC make-ready will include a separate meter from the site host's existing service for the charging equipment.

PG&E is assuming it could install make ready infrastructure at about 8-12 sites per year over the five-year program, and the power available through the charging points could range from 50kW to 350kW, based on the needs of site hosts and charging network developers. Each site will be required to offer at least one CHAdeMO and one CCS charging connector to help maximize site utilization.

PG&E also plans to offer a rebate of up to \$25,000 per charger for sites located in disadvantaged communities, in an effort to encourage greater deployment in those communities.

PG&E did not provide estimates on the Fast Charge program's potential to reduce greenhouse gas emissions, given the uncertain forecasts of actual market demand for the vehicles and vehicle utilization. It plans to submit annual reports to the CPUC on the progress of the program and will collect and report deployment, operational and other descriptive metrics associated with the sites supported by the program.<sup>9</sup>

## Discussion Questions about Light-Duty Charging Infrastructure Proposals

1. Will the projects increase access to transportation electrification for disadvantaged communities and provide other benefits to disadvantaged, low- and moderate-income communities, including increased employment opportunities?
2. Are there opportunities for these projects to incentivize the purchase of used electric vehicles?
3. Will the portfolios enable consumer choice, encourage private investment, and adequately mitigate any unfair competition with nonutility enterprises that might result from the proposed projects/investments?

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<sup>7</sup> Results and mapping tool available at: [https://www.pge.com/en\\_US/about-pge/environment/what-we-are-doing/electric-program-investment-charge/direct-current-electric-vehicle-fast-chargers.page](https://www.pge.com/en_US/about-pge/environment/what-we-are-doing/electric-program-investment-charge/direct-current-electric-vehicle-fast-chargers.page).

<sup>9</sup> PG&E Testimony in Support of its SB 350 Application, A.17-01-022, pg. 4-12

4. Is SDG&E's proposal to own infrastructure within a customer's personal residence appropriate? Are there any concerns with SDG&E's ability to monitor and access the infrastructure to ensure safety and utilization?
5. The CPUC approved SDG&E's Power Your Drive pilot in January 2016, and SDG&E is currently working on implementation. SDG&E's testimony stated that it will leverage learnings and processes from this pilot to inform its Residential Charging Program.
  - a. What lessons learned can be applied?
  - b. Has SDG&E's EVSE procurement process been effective at fostering a competitive market and providing customer choice?
  - c. Will EVSE Power Your Drive EV service provider participants need to go through another RFP process to participate in the Residential Charging Program?
6. Do the proposals minimize the risk of stranded assets and ensure the assets will be used and useful?
7. Are the proposed projects in the interest of ratepayers as described in Public Utilities Code § 740.8?<sup>10</sup>
8. Are the utilities sufficiently leveraging nonutility funding, the results of previous pilots, resources for technical assistance, and local government partnerships?
  - a. Are there any other project partners or resources the utilities should consider?
  - b. PG&E mentions using the results of an Electric Program Investment Charge (EPIC) project for the Fast Charge program. Are there any other EPIC or state-funded research and development projects that the utilities should leverage?
9. Is the scale of the programs appropriate, or should they be phased over time? Are the budgets and tenure of the proposals appropriate for the technology investments proposed?
10. Do the proposals account for the potential load impacts of the projects and adequately address grid integration?
11. How have the utilities included union/labor groups in proposals?

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<sup>10</sup> direct benefits that are specific to ratepayers, consistent with both of the following:

- (a) Safer, more reliable, or less costly gas or electrical service, consistent with Section 451, including electrical service that is safer, more reliable, or less costly due to either improved use of the electric system or improved integration of renewable energy generation.
- (b) Any one of the following:
  - (1) Improvement in energy efficiency of travel.
  - (2) Reduction of health and environmental impacts from air pollution.
  - (3) Reduction of greenhouse gas emissions related to electricity and natural gas production and use.
  - (4) Increased use of alternative fuels.
  - (5) Creating high-quality jobs or other economic benefits, including in disadvantaged communities identified pursuant to Section 39711 of the Health and Safety Code.

## Medium- and Heavy-Duty Infrastructure Proposals

### PG&E FleetReady

- Budget: \$210 million: \$184 million in capital and \$26 million in expense
- Duration: Five years from the date of first installation, from 2018 through 2022, subject to budget
- Scope: 788 make ready installations with 8,800 charge points for medium-duty, heavy-duty, and off-road<sup>11</sup>

PG&E proposes to provide make ready infrastructure for non-light-duty electric vehicles<sup>12</sup> for customers who commit to purchasing electric vehicles. PG&E would own, operate and maintain the make-ready infrastructure, but not the charging equipment. PG&E selected sectors where it expects that utility ownership of make-ready infrastructure will accelerate adoption of TE and vehicles are commercially available or vehicle retrofits are possible. PG&E does not propose to include Class 2 or 3 forklifts, for example, because it asserts that there are few, if any, viable non-electric options for such applications. The make ready includes every component from the distribution circuit up to the stub for the EVSE or idle-reduction equipment. PG&E will provide a new service connection with meters and panels exclusively for the make ready installation. PG&E proposes that ongoing operation and maintenance costs following the five-year program window would be captured in subsequent general rate cases.

To forecast the number of sites in PG&E territory that would participate in the program, PG&E first developed a reference case EV adoption forecast for the non-light-duty sector by: developing a state-wide forecast;<sup>13</sup> estimating PG&E's share of each sector;<sup>14</sup> and determining the number of sites based on sector-specific data on attach rate and charge points per site.<sup>15</sup> PG&E forecasts a reference case of 788 sites requiring charging infrastructure, and has scaled its program to meet this level of vehicle adoption. Based on site characteristics, PG&E developed load impacts per site and sector.<sup>16</sup>

Customers must meet the following eligibility requirements for PG&E to preapprove the customer for participation:

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<sup>11</sup> PG&E notes that the actual number of installations may vary, and may be more or less than the amount included in its reference case, depending on many factors, including, but not limited to, demand, location, and actual costs, all of which are highly uncertain due to the nascent state of the non-light-duty EV market. PG&E's actual program costs will not exceed its authorized costs and resulting revenue requirements. *Id.*, pg. 3-4.

<sup>12</sup> PG&E defines non-light-duty electric vehicles as: Medium Duty: Light-heavy-duty trucks and Medium-duty trucks (EMFAC Categories LHD1, LHD2, and MDV); Heavy Duty: Trucks, Medium-heavy-duty trucks, Heavy-heavy-duty trucks, Buses, Commuter Bus, School and Other Bus (EMFAC Categories MHDT, HHDT, SBUS, UBUS, and OBUS); and Off-Road: Airport Ground Support Equipment, Port cargo handling equipment, Transport refrigeration units, Truck stop electrification, Forklifts (class 1), and Other non-light-duty vehicles. See PG&E Testimony in Support of its SB 350 Application, Table 3-2.

<sup>13</sup> PG&E Testimony in Support of its SB 350 Application, A.17-01-022, Tables 3-3 and 3-4.

<sup>14</sup> PG&E Testimony in Support of its SB 350 Application, A.17-01-022, Table 3-5.

<sup>15</sup> PG&E Testimony in Support of its SB 350 Application, A.17-01-022, Table 3-7.

<sup>16</sup> PG&E Testimony in Support of its SB 350 Application, A.17-01-022, Table 3-9.

- Demonstrate commitment to near-term procurement of eligible vehicles, EVSE, and associated safety equipment.
- Provide data related to vehicle and EVSE usage.
- Maintain the equipment for the expected useful life of the vehicle and/or EVSE.
- Demonstrate a long-term electrification plan for any requests to upsize infrastructure to accommodate future TE growth.<sup>17</sup>

Additionally, PG&E proposes to provide \$16 million in financial incentives for disadvantaged communities and beach head sectors.<sup>18</sup> PG&E estimates that 25% of program participants will be in DACs. PG&E is proposing to offer a 75% rebate on EVSE costs to DACs for a total of up to \$10 million in incentives. PG&E identifies public transit buses and school buses as beach head sectors. PG&E proposes to provide eligible projects \$15,000 towards the cost of an EVSE, which is about 20% of the cost; for 400 electric buses, this totals up to \$6 million in incentives.

PG&E will also conduct outreach and education to: promote awareness by owners and operators of non-light-duty fleets and their potential EVSE suppliers of the benefits of electricity as a fuel; ensure fleet owners, utility customers, and EVSE suppliers are aware of the FleetReady program; and inform fleet owners, customers, and site hosts about additional support PG&E can provide to assist customers in conversion to electric vehicles.<sup>19</sup>

PG&E proposes to submit an annual report with data on program deployment, site operation, and descriptive program information.<sup>20</sup>

PG&E quantified CO<sub>2</sub> and NO<sub>x</sub> benefits of its program if the EV adoption in its 2025 reference case occurs.<sup>21</sup> In its 2025 reference case, about 34,725 medium- and heavy-duty on-road and off-road vehicles could be adopted in its service territory, resulting in a reduction of about 341,622 tons of CO<sub>2</sub>, and NO<sub>x</sub> emissions reductions of 1.90 tons/day.

### **SCE Medium- and Heavy-Duty Charging Infrastructure**

- Budget: \$554 million: \$22 million in expense, \$532 million in capital
- Duration: 5 years
- Scope: make ready installations and rebates for medium- and heavy-duty. While SCE did not establish a minimum number of vehicles or sites supported by the proposed program, their cost estimates assumed 18,234 vehicles at 930 sites with 10,491 charge points.

<sup>17</sup> PG&E Testimony in Support of its SB 350 Application, A.17-01-022 at 3-10 to 3-11.

<sup>18</sup> PG&E defines “beach head” sectors as sectors where developments are likely to promulgate EV innovation and accelerated deployment.

<sup>19</sup> SCE Testimony in Support of its SB 350 Application, A.17-01-021, at 3-3.

<sup>20</sup> SCE Testimony in Support of its SB 350 Application, A.17-01-021, Table 3-15.

<sup>21</sup> PG&E Response to ED data request 1, Q008 and ED data request 2, Q010

SCE proposes to provide the electric infrastructure, up to and including the make-ready stub, to serve charging equipment for medium- and heavy-duty vehicles.<sup>22</sup> SCE proposes to model several aspects of the program after its Charge Ready Pilot for light-duty infrastructure, but notes that charging the non-light-duty segment may require significantly higher levels of kW demand that are in turn more expensive. Participating customers will purchase the EVSE and be responsible for installing and maintaining it as well as acquiring and maintain eligible electric vehicles.<sup>23</sup> Customers must agree to take service on an eligible TOU rate and participate in the pilot for 5 years.<sup>24</sup>

SCE intends to form an advisory board to provide guidance on program implementation, and provide quarterly status reports. SCE will also provide information in its annual SB 350 portfolio report and in a project close out report.<sup>25</sup>

SCE proposes to provide a rebate to cover 100% of the base cost of the charging equipment and installation for eligible customers. To qualify for the program and rebate, charging equipment must meet certain technical standards and energy efficiency recommendations and be listed by a nationally recognized testing laboratory.<sup>26</sup> For segments without standardized charging equipment, SCE will work with the customer to determine if it can provide the make ready infrastructure, but will not provide a rebate on charging equipment.<sup>27</sup>

### **Discussion Questions for Medium- and Heavy-Duty Infrastructure Proposals**

1. Is utility make-ready infrastructure the most cost-effective way to increase adoption of transportation electrification in the medium- and heavy duty sectors?
2. Do the proposals avoid stranded costs, including installing standardized charging connectors where feasible?
3. Are the proposed projects in the interest of ratepayers as described in Public Utilities Code § 740.8?
4. Will the proposed projects provide benefits to disadvantaged communities? If so, how?
5. Are the utilities sufficiently leveraging nonutility funding, partnerships, and the results of previous pilots, resources for technical assistance, local governments?
  - a. Is there a plan to incorporate lessons learned from the priority review projects?
  - b. Are there any other project partners or resources the utilities should consider?
6. Is the scale of the programs appropriate, or should they be phased over time?
7. How have the utilities included union/labor groups in proposals?
8. Do the proposals account for the potential load impacts of the projects and adequately address grid integration?

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<sup>22</sup> SCE Testimony in Support of its SB 350 Application, A.17-01-021, at 52.

<sup>23</sup> Class 2-8 trucks as well as non-road cargo handling equipment and buses are eligible, as detailed in Appendix C of the Testimony.

<sup>24</sup> SCE Testimony in Support of its SB 350 Application, A.17-01-021, at 55.

<sup>25</sup> SCE Testimony in Support of its SB 350 Application, A.17-01-021 at 98.

<sup>26</sup> SCE Testimony in Support of its SB 350 Application, A.17-01-021, at 55.

<sup>27</sup> SCE Testimony in Support of its SB 350 Application, A.17-01-021, at 55.

9. PG&E is proposing additional financial incentives for “beach head” sectors. Are there specific sectors within medium- and heavy-duty that both utilities should focus on first, or should they allow any sector to participate, even if the technology is less developed?

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## EV Rate Proposals

### SDG&E Residential Grid Integration Rate

- Budget: revenue neutral<sup>28</sup>
- Duration: no end date specified
- Scope: participants of SDG&E's proposed Residential Charging program must take service on the rate. Rate is also available to all residential customers.

SDG&E is proposing a new Residential grid integration rate (GIR) that it developed based on rate design principles the Commission adopted for the purposes of residential rate reform.<sup>29</sup> The utility's current time-of-use rates are only being used by 38 percent of EV owners. The utility wants more customers to adopt variable rates to minimize the stress of added EVs on the grid and also help customers understand how they can reduce energy costs by changing their energy consumption patterns.

The Residential GIR includes the following components:

- Grid-integration charge, based on a customer's maximum annual demand
- Hourly base rate that includes a day-ahead price signal from CAISO
- Dynamic adders to reflect the cost of energy used during the system and circuit peak hours.<sup>30</sup>

A monthly, fixed grid-integration charge (GIC) will recover customer costs and 80 percent of distribution demand costs. SDG&E intends to base the GIC on a customer's maximum annual demand, with an exemption for demand that occurs during the super-off peak period.<sup>31</sup> Program participants would receive a discount on the GIC that declines annually over the first five years of the program. SDG&E says this discount would help customers adjust to the new rate structure.<sup>32</sup>

The distribution dynamic adder will recover the remaining 20 percent of distribution demand costs and is intended to provide a price signal that encourages customers to avoid using energy during circuit peak hours.<sup>33</sup>

The commodity dynamic adder will recover 50% of generation capacity costs and is intended to provide a price signal that encourages customers to avoid using energy during system peak hours.<sup>34</sup> The remaining 50% of generation capacity costs will be recovered as a part of the hourly base rate.

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<sup>28</sup> If one rate is revenue-neutral to another it means that if all customers on the otherwise applicable rate switched to the new rate, the utility would collect the same amount of revenue from those customers on the new rate as they would have on the current rate.

<sup>29</sup> In D.15-07-001 at 28.

<sup>30</sup> SDG&E Testimony in Support of its SB 350 Application, A.17-01-020, Chapter 5 at CF-14.

<sup>31</sup> Super-off peak is defined as midnight to 6am on weekdays and midnight to 2pm on weekends and holidays. SDG&E Testimony in Support of its SB 350 Application, A.17-01-020, Chapter 5 at CF-20, footnote 22.

<sup>32</sup> SDG&E Testimony in Support of its SB 350 Application, A.17-01-020, Chapter 5 at CF-20.

<sup>33</sup> SDG&E Testimony in Support of its SB 350 Application, A.17-01-020, Chapter 5 at CF-19.

<sup>34</sup> SDG&E Testimony in Support of its SB 350 Application, A.17-01-020, Chapter 5 at CF-17.

SDG&E will recover all rate components<sup>35</sup> - except the distribution, commodity and total rate adjustment components - consistent with SDG&E's standard residential rate schedule, Schedule DR.<sup>36</sup>

Grid Integration Charge	
(kW)	(\$/Mo.)
0-3	29.49
3-6	48.05
6-9	66.61
9+	94.45

+

Hourly Base Rate	
	(¢/kWh)
Super Off Peak	7.013
Other Times	13.543
+	
CAISO Day Ahead Hourly Price	

+

Dynamic Adders	
	(¢/kWh)
System Top 150 Hours	69.348
Circuit Top 200 Hours	18.780

Figure 1. Illustrative Pricing Components of Residential Grid Integration Rate<sup>37</sup>

## SCE Commercial Electric Vehicle Rates

- Budget: revenue neutral
- Duration: 10 year period from rate effective date
- Scope: current and new commercial customers with any type of electric vehicle

SCE proposes commercial EV rates to apply to customers of three different sizes. The rates will be applicable to new and existing EV customers including electric vehicles, vessels, trains, boats, or other equipment that are mobile sources of air pollution and GHG emissions.

- TOU-EV-7: Monthly maximum demand  $\leq$  20 kW
- TOU-EV-8: Monthly maximum demand  $\geq$  21 kW,  $\leq$  500 kW
- TOU-EV-9: Monthly maximum demand  $>$  500 kW

The rates will have a five-year introductory period, during which SCE will not assess monthly demand charges. After the five-year period, SCE will phase in demand charges, and at the end of the 10<sup>th</sup> year, the rate schedules will reflect stable demand charges that will be lower than what new EV customers would pay on their otherwise applicable non-EV commercial rate today. These rates are designed to be revenue neutral in comparison to general service rates. The rate will begin at the same time for all

<sup>35</sup> SDG&E identifies 10 rate components in Testimony at CF-11.

<sup>36</sup> SDG&E Testimony in Support of its SB 350 Application, A.17-01-020, Chapter 5 at CF-25.

<sup>37</sup> SDG&E Testimony in Support of its SB 350 Application, A.17-01-020, Chapter 5 at CF-26.

customers, e.g. the 5 year introductory period will start on a certain date, so if a customer takes service on the tariff one year after that date, they will have 4 years of the introductory period.

The rates have the following components as shown in Table 1 below:

- Customer (fixed) charges – monthly customer charge equal to the customer charges in the otherwise applicable commercial tariff
- Energy rates
  - Years 1-5: volumetric TOU rate will recover all generation and distribution costs
  - Years 6-10: volumetric TOU rates will recover all generation costs and a declining amount of distribution and transmission capacity costs
  - Years 11+: volumetric rate will recover all generation costs and 40% of distribution capacity costs
- Demand charges - for facilities-related demand (FRD) to cover costs related to transmission and distribution capacity
  - Years 1-5: No demand charges
  - Years 6-10: increase the demand charge for distribution and transmission capacity costs each year.
  - Years 11 and on: Demand charge will collect 60% of all distribution capacity costs and 100% of transmission capacity costs.

Table 1. Charges by Rate Component over Time

Charges	Year of Rate in Effect						
	1-5	6	7	8	9	10	11+
Customer	Fixed based on otherwise applicable commercial tariff						
Energy	100% G 100% DC 100% TC	100% G 90% DC 83% TC	100% G 80% DC 66% TC	100% G 70% DC 49% TC	100% G 60% DC 32% TC	100% G 50% DC 15% TC	100% G 40% DC 0% TC
Demand	0	10% DC 17% TC	20% DC 34% TC	30% DC 51% TC	40% DC 68% TC	50% DC 85% TC	60% DC 100% TC

G = generation costs; DC = distribution capacity costs; TC = transmission capacity costs

SCE proposes the same TOU periods as in its pending Rate Design Window application.<sup>38</sup> The TOU periods are stated in below in Table 2, and shown in comparison to SCE’s existing commercial EV rates. SCE states that the new EV rate design aligns price signals with SCE’s highest and lowest marginal cost hours and accounts for EV customer’s preferences and abilities to respond.<sup>39</sup>

Proposed benefits of the rates:

- Reduced distribution-related demand charges relative to current EV and non-EV rates
- Attractive volumetric rates during daytime super-off-peak periods and overnight

<sup>38</sup> A.16-09-003.

<sup>39</sup> SCE Testimony in Support of its SB 350 Application, A.17-01-021 at 75.

- Lower summer season charges to mitigate seasonal bill volatility

SCE estimates that the new TOU-EV-8 rate will provide on average 30% lower bills for medium-duty vehicles and 15% lower bills for heavy-duty vehicles in comparison to their otherwise applicable tariffs.<sup>40</sup>

### Discussion Questions for Rate Proposals

1. Are the proposed rates in the interest of ratepayers as described in Public Utilities Code § 740.8?
2. Are the utilities sufficiently leveraging the results of previous pilots in CA and elsewhere?
  - a. SDG&E has a current opt-in TOU pilot with a similar structure to its GIR proposal.<sup>41</sup> Has SDG&E learned anything from deployment of this rate to help in its GIR rate design? When will any additional lessons learned from the TOU pilot rate be available?
3. Will these rates increase levels of EV adoption?
  - a. Do they allow customers to charge vehicles with rates that would be lower than conventional fuels?
  - b. Do they appropriately account for customers that may be unable to solely charge during off-peak hours?
  - c. SDG&E proposes a Grid Integration Charge that ranges from about \$30-\$90 per month. Does this level of fixed charge provide customers enough opportunity to reduce charging costs?
4. Do the rates facilitate the integration of renewables? Are the time of use periods set appropriately to reflect grid conditions?
5. Do the rates reflect general rate design principles such as cost causation and revenue neutrality?
6. Will the rates provide clear and understandable price signals to customers?
  - a. For SDG&E's proposal, is it reasonable to expect residential customers to continue to respond to hourly day-ahead prices over a sustained time period? Are there any studies to support this?
7. How will SCE communicate with customers that take service on the new commercial EV rates during the first five years when there is no demand charge to let them know what their rates otherwise would be? Are there concerns that customers would get used to no demand charges and would have a difficult time adapting to them once they are phased in?

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<sup>40</sup> SCE Testimony in Support of its SB 350 Application, A.17-01-021 at 77.

<sup>41</sup> TOU-DR-E3 has a \$10 monthly fee, a base rate, an hourly day-ahead commodity rate, and dynamic hourly day-ahead adders [http://regarchive.sdge.com/tm2/pdf/ELEC\\_ELEC-SCHEDS\\_TOU-DR-E3.pdf](http://regarchive.sdge.com/tm2/pdf/ELEC_ELEC-SCHEDS_TOU-DR-E3.pdf).

Table 2. SCE's Current and Proposed Commercial EV Rates

Rate	Status	Demand	TOU Periods	Features
TOU-EV-3	Approved	≤ 20kW	On-Peak: noon – 6 pm, weekdays except holidays Mid-Peak: 8 am –noon; 6 pm – 11 pm, weekdays except holidays Off-Peak: 11 pm – 8 am	Option B of this rate includes demand charges where the TOU-EV-3 account is only charged incremental Facilities-Related Demand (FRD) charges when the account registers a demand greater than the primary account
TOU-EV-4	Approved	> 20 kW and ≤ 500kW	On-Peak: noon – 6 pm, weekdays except holidays Mid-Peak: 8 am –noon; 6 pm – 11 pm, weekdays except holidays Off-Peak: 11 pm – 8 am	This rate includes demand charges where the TOU-EV-4 account is only charged incremental FRD charges when the account registers a demand greater than the primary account
TOU-EV-6	Approved	> 500kW	On-Peak: 2 pm – 8 pm, weekdays except holidays Super Off-Peak: 10 pm – 8 am Off-Peak: All other hours	This rate includes demand charges where the TOU-EV-6 account is only charged incremental FRD charges when the account registers a demand greater than the primary account
TOU-EV-7	Proposed in A.17-01-021	≤ 20kW	Winter (Oct-May) Off-Peak: 9pm – 8am Super-Off-Peak: 8am – 4pm Mid-Peak: 4pm – 9pm  Summer (June-Sept) Off-Peak: 9pm– 4pm, weekdays & weekends On-Peak: 4pm– 9pm, weekdays Mid-peak: 4pm – 9pm, weekends	The rate will phase in demand charges over a 10-year period. Five year introductory period with no demand charge, only volumetric TOU energy charge and customer charges. In years 6-10, SCE will phase in demand charges by initiating and increasing the facilities-related demand charge by 10% each year. In year 11, the schedule will reflect stable demand charges that collect 60% of all distribution capacity costs; the remaining 40% will be collected through TOU energy charges.
TOU-EV-8	Proposed in A.17-01-021	> 20 kW and ≤ 500kW	Same as TOU-EV-7	Same as TOU-EV-7
TOU-EV-9	Proposed in A.17-01-021	> 500kW	Same as TOU-EV-7	Same as TOU-EV-7