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

Energy Division Discussion Paper

May 11, 2017

Contents

1. Introduction

1.1. Purpose

Energy Division staff presents this discussion paper to review the transportation electrification projects that the utilities proposed to be included in the Commission's "priority review" process. These projects will be discussed during the May 17, 2017 workshop held at the Commission. This document is intended to (1) organize and summarize the utility proposals by topic area to provide a reference document for discussion and (2) identify topics of discussion for the workshop to help stakeholders prepare their comments.

Each subsection of this document outlines issues for parties to consider and provide additional feedback on. Parties can use the workshop discussion to help develop their written briefs that they will submit after the workshop.

Note: This document is not meant to identify all possible topics for party input on all 17 priority review projects. The written briefs will be the venue for a fuller discussion. In developing the discussion questions presented in this document, Energy Division staff attempted to identify some of the major party concerns that we thought should be best addressed through a discussion format.

1.2. Procedural Background on Senate Bill 350 Transportation Electrification Applications

Senate Bill (SB) 350 (Statutes of 2015, Chapter 547) directed the Commission, in consultation with the Air Resources Board and Energy Commission, to direct the electric utilities to "file applications for programs and investments to accelerate widespread transportation electrification to reduce dependence on petroleum, meet air quality standards, achieve the goals set for in the Charge Ahead California Initiative[1]…and reduce emissions of greenhouse gases to 40 percent

[1] Legislation establishing the Charge Ahead California Initiative states the following goals: "place in service at least 1,000,000 zero-emission and near-zero-emission vehicles by January 1, 2023, to establish a self-sustaining California market for zero-emission and near-zero-emission vehicles in which zero-emission and near-zero-emission vehicles are a viable mainstream option for individual vehicle purchasers, businesses, and public fleets, to increase access for disadvantaged, low-income, and moderate-income communities and consumers to zero-emission and near-zero-emission vehicles, and to increase the placement of those vehicles in those communities and with those consumers to enhance the air quality, lower greenhouse gases, and promote overall benefits for those communities and consumers." Available at: http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=HSC&division=26.&title=&part=5.&chapter=8.5.&article.

below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050." The programs should minimize overall costs and maximize overall benefits. It directs the Commission to approve, or modify and approve, those proposals that are consistent with SB 350, do not unfairly complete with nonutility enterprises, include performance accountability measures, and are in the interest of ratepayers.

The interest of ratepayers is defined as follows:[2]

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.

In response to SB 350 and the September 14, 2016 Assigned Commissioner Ruling in Rulemaking (R.) 13-11-007[3], each of the three large investor-owned utilities (San Diego Gas & Electric Company (SDG&E); Southern California Edison Company (SCE); and Pacific Gas and Electric Company (PG&E)) filed separate applications (Application (A.) 17-01-020, A.17-01-021, and A.17-01-022, respectively) on January 20, 2017, requesting authorization and approval to carry out various proposed transportation electrification projects.

[2] California Public Utilities Code Section 740.8.

[3] The Assigned Commissioner's Ruling in R.13-11-007 directed the utilities to file applications supporting transportation electrification. Public Utilities Code Section 237.5 defines "Transportation Electrification" as "the use of electricity from external sources of electrical power, including the electrical grid, for all or part of vehicles, vessels, trains, boats, or other equipment that are mobile sources of air pollution and greenhouse gases and the related programs and charging and propulsion infrastructure investments to enable and encourage this use of electricity."

On April 13, 2017, the Administrative Law Judges issued a Scoping Memo identifying the scope and schedule for the Commission's consideration of SDG&E's, SCE's, and PG&E's applications. The Scoping Memo ordered that the three utility proceedings be consolidated and that the Commission first review the projects the utilities proposed for the "priority review" process. The Scoping Memo identified the following steps to review the priority review projects.

Table 1. Timeline for Priority Review Projects

May 17, 2017	Energy Division staff holds a public workshop to discuss the proposed priority review projects
May 24, 2017	Energy Division staff provides parties with a common briefing outline for priority review project issues
June 16, 2017	Parties submit concurrent opening briefs on the priority review projects
July 10, 2017	Parties submit concurrent reply briefs on the priority review projects
September 2017	Proposed decision on priority review projects

Additional information about Senate Bill 350 and links to the utilities' applications can be found on the Commission website: www.cpuc.ca.gov/sb350te.

1.3. Overview of SDG&E, SCE, and PG&E Applications

PG&E, SCE, and SDG&E each filed an application with the CPUC to request approval of a portfolio of investments in transportation electrification. In total, the utilities requested approximately $1 billion in funding to implement these proposals over several years.

PG&E's A.17-01-022 requested a total of $253 million: $20 million for five priority review projects, allowing funds to shift between projects if necessary, and $232 million for two standard review projects. PG&E does not provide estimates for the amount of greenhouse gas (GHG) and criteria pollutants that could be reduced through its full proposal, but includes plans to measure and report emissions reductions that result from the projects. PG&E requests to establish a balancing account, with one subaccount for the priority review projects, and authority to recover the actual revenue requirements up to the level of the forecasted total capital and expense expenditures.[4] PG&E proposes to recover the full costs of its proposed programs annually in distribution rates until the revenue requirements can be included in its 2023 or subsequent General Rate Case (GRC), with the exception of the ongoing operations and maintenance costs

[4] PG&E Testimony at 6-1.

for any infrastructure that is installed prior to 2020, which it is proposing to recover through its 2020 GRC.[5]

SCE's A.17-01-021 requested a total of $574 million: $19.5 million for six priority review projects and $554 million for one standard review program. It is also proposing to adopt a three-tiered electric vehicle rate to support fleet and away-from-home charging. SCE estimates its proposed portfolio if fully implemented could reduce CO_2 emissions by 6.7 million metric tons (MMT). SCE proposes establishing a balancing account to record the actual TE Portfolio revenue requirements each month. SCE is proposing to include a forecasted annual revenue requirement for the full cost of its proposed programs in its distribution rates for at least five years, or until the costs can be included in a future GRC. It also proposes that the actual incurred costs of its proposed programs should not be subject to an after-the-fact reasonableness review.[6]

SDG&E's A.17-01-020 requested a total of $244 million: $18.2 million for six priority review projects and $223 million for one standard review project. SDG&E has also developed three different grid-integrated rates for residential, commercial, and public charging applications. SDG&E estimates the seven proposals combined could reduce CO_2 emissions by nearly 4 MMT, emissions of nitrogen oxides by 360 MT and emissions of volatile organic compounds by 425 MT over the lifetime of the projects. SDG&E is proposing to establish a Clean Transportation Priority Balancing Account to record all of the costs associated with its priority review projects, address the disposition of any under or over-collected balances through Tier 2 advice letters filed in October of each year, and close the account in its post-2019 GRC.[7]

2. Discussion of Proposed Priority Review Projects

The September 14, 2016, Assigned Commissioner Ruling specified a "priority review" process to expedite the review of smaller, shorter duration, non-controversial proposals. Priority review projects are limited to no more than $4 million per project, with a total funding limit of $20 million per utility. The Commission will consider all other proposals through its standard review process.

Appendix A to the Ruling stated that priority review projects should target non-infrastructure as well as infrastructure pilots and programs and should experiment in diverse market segments to

[5] PG&E SB 350 TE application at 4-8.

[6] SCE SB 350 TE application at 8-9.

[7] SDG&E Testimony in support of its SB 350 TE application, chapter 7.

inform the eventual design of scaled programs that will be crucial to achieve substantial reductions in criteria air and GHG pollutants from the on-road light, medium and heavy duty, off-road, maritime, aviation, and rail sectors in the near term.

To facilitate review and discussion, Energy Division has grouped each of the 17 priority review proposals into the following categories as shown in Appendix A:

- On-road medium- and heavy-duty charging infrastructure
- Off-road charging infrastructure
- Residential charging infrastructure
- Public fast charging
- Electric taxi or ridesharing incentives
- Customer education and outreach
- Open request for proposals

The April 13, 2017, Scoping Memo included a list of questions and issues establishing the scope of the priority review projects.

1. Do the proposed priority review projects meet the SB 350 requirements for TE? (See §§ 740.12, 740.3, and 740.8; Health and Safety Code § 44258 and following; ACR at 25-26)
2. Is there a need to amend the priority review projects, and what should be the process to accomplish that?
3. Do the priority review projects meet the criteria set forth in the ACR?
4. Do the priority review projects address safety concerns set forth in §§ 740.8(a) and 740.12(b)?
5. Have the priority review projects addressed the rate design issues raised by various parties? (e.g., demand charges, mandatory vs. optional participation.)
6. What specific ratepayer benefits will result from the proposals? (See § 740.8)
7. Are the proposed priority review projects reasonable and in the ratepayers' interests? (See §§ 740.3 and 740.8)
8. What kind of data gathering, reporting, and evaluation requirements should be imposed?
9. What kind of cost recovery mechanisms (e.g., balancing account) should be adopted for these priority review proposals?
10. Do the proposed priority review projects adequately address low-income communities and moderate-income communities? (See SB 350 and SB 1275 Charge Ahead California)

To focus the discussion at the workshop, participants should review these broader scoping questions along with the more specific issues identified below for each priority review project category. For some pilots, Energy Division has identified additional questions related

specifically to that pilot that we do not plan to address during the workshop, but that parties may respond to in written briefs.

2.1 Residential infrastructure

Energy Division proposes the following workshop discussion questions related to the one priority review proposal to support residential infrastructure:

1. How should the rebate amount be calculated?
2. Should the rebate be subject to an income cap, or should the rebate be tiered, to more directly assist low- and moderate-income customers?
3. Should a specific target be established for customers in disadvantaged and low- and moderate-income communities?
4. Is the pilot in the interest of ratepayers? If not, can it be modified?

2.1.1 SCE Residential Make-Ready Pilot ($4 million) [8]

SCE is proposing a program to offer rebates to residential customers to help cover the costs of hiring electricians, installing new circuits, and associated permitting for installing the make-ready infrastructure needed to install an electric vehicle charger. The rebate would not cover the cost of electric vehicle chargers. The rebate will be offered in two tiers, one for customers subscribing to SCE's whole-house time-of-use (TOU) rate and one for customers subscribing to a separately-metered EV TOU rate plan. For the separately-metered rate, SCE states that it does not anticipate a submetering protocol will be adopted by the time this project would launch, so it is proposing to install a new utility meter parallel to each existing customer's meter to separately measure their EV energy consumption.[9] SCE plans to provide customers with educational materials to help them select the best rate for their energy usage. SCE estimates that 5,000 customers could participate in the rebate pilot project.

SCE proposes to collect and report a number of metrics associated with its residential infrastructure pilot, including the number of participants by customer segment (single-family residence, multi-unit dwelling, disadvantaged community) and number of customers that are left unserved if the pilot's budget is exhausted before all interested customers are served. SCE also plans to track and report costs associated with electrical work and permitting. It will also measure and report customer preference between the whole-house TOU rate and the separately-

[8] SCE Testimony in support of its SB 350 TE application at 29.

[9] SCE response to Energy Division data request 1 at 32.

metered TOU rate, load profiles including adherence to off-peak periods and overall customer satisfaction with the pilot program and TOU rates.[10]

Additional Pilot-Specific Questions for Consideration

1. Should the rebate only apply to customers who buy electric vehicles after SCE launches the pilot?

2.2 Public Direct-Current Fast-Charging (DCFC)

Energy Division proposes the following workshop discussion questions related to the two public direct-current fast-charging priority review proposals:

1. SCE proposes to install DCFC stations in densely-populated urban areas that are not near highways, in an effort to serve residents of multi-unit dwellings that may not have charging options at home, and states that it will specifically target disadvantaged communities. SDG&E states that it is targeting disadvantaged communities through its Electrify Local Highways proposal because the Caltrans sites it intends to target are in or adjacent to disadvantaged communities. Do these two programs adequately target and provide benefits for low- and moderate-income and disadvantaged communities? Should specific targets or provisions be adopted to ensure those communities benefit from these programs?
2. Site hosts of SCE's DCFC stations will be required to take service on a TOU rate and participate in a demand response program. SDG&E is proposing a new public grid-integrated rate aimed at incentivizing customers to charge during off-peak hours. Do these proposed rates represent adequate load management planning? Should any other load management criteria be required? How will the rates in these programs help stabilize the grid and support renewables integration?
3. SCE aims to support five DCFC sites and SDG&E is proposing to install, own and operate charging stations at four Caltrans sites. How could these programs be scaled up if successful?
4. Have the utilities provided sufficient justification for equipment ownership and mitigated any adverse impacts on competitive markets?
5. Is the pilot in the interest of ratepayers? If not, can it be modified?

[10] SCE testimony in support of its SB 350 TE application at 33.

2.2.1. SCE Urban DCFC Pilot ($3.98 million) [11]

SCE is proposing a pilot project to help deploy fast-charging sites in urban areas. SCE would install and maintain utility-owned make-ready infrastructure, offer rebates for DCFC stations, and collect and report data about the sites' utilization to guide future programs. Site owners would have to agree to participate in a demand response program to be eligible for the rebates. SCE aims to support five DCFC sites clustered in urban areas with up to five dual-port charging stations at each site, for a total of 50 ports. The project intends to support sites that would provide fast charging options for people that do not have access to home or overnight charging.

For its DCFC program, SCE proposes to monitor and report the number of charging events, times of use and duration of charging, as well as the stations' load profiles, adherence to off-peak periods and participation in demand response events.[12]

Additional Pilot-Specific Questions for Consideration

1. What type of site selection criteria should be adopted to ensure the DCFC clusters are serving multi-unit dwellings (MUD)?
2. How can SCE assess whether the DCFC clusters increase EV adoption in the MUD sector?

2.2.2. SDG&E Electrify Local Highways Project ($4 million) [13]

SDG&E is proposing a partnership with Caltrans through which the utility would install, own, operate and maintain 20 Level 2 (L2) charging stations and two DCFC stations at four Caltrans-owned park-and-ride locations that are all open 24 hours a day, seven days a week. All customers of the charging stations at the Caltrans sites will be eligible to sign up for SDG&E's proposed public charging grid integration rate. Customers could also utilize credit card charging equipment to use the stations. Existing SDG&E customers could have their charging costs applied to their SDG&E bill.[14] SDG&E estimates that each of the four sites could fully charge up to 30 vehicles to charge at each site each day. Caltrans has prioritized four locations within or adjacent to disadvantaged communities and are already scheduled to undergo upgrades or construction.[15]

[11] SCE testimony in support of its SB 350 TE application at 38.

[12] SCE testimony in support of its SB 350 TE application at 41.

[13] SDG&E testimony in support of its SB 350 TE application, chapter 3 at RS-17.

[14] SDG&E response to Energy Division data request 1 at 17.

[15] SDG&E response to Energy Division data request 1 at 15.

SDG&E proposes to monitor the usage data from the charging stations at the Caltrans sites to study charging patterns at long-duration, public locations. It also proposes to use the program to test hourly, grid-integrated pricing in the public domain and test standards set for public charging signage and rate displays. The utility intends to share data collected through the program with the CPUC and other stakeholders.[16] SDG&E proposes that pilot participants will take service on their proposed Public Grid-Integrated Rate as described in Section 2.8 below.

Additional Pilot-Specific Questions for Consideration

1. How can SDG&E ensure the DCFC and L2 chargers are well-utilized, given many parkers at Caltrans stations may be commuters that do not have to travel far between home and the parking lot?

2.3 Taxi and Ridesharing Proposals

Energy Division proposes the following workshop discussion questions related to the two taxi/ridesharing priority review proposals:

1. SCE proposes to pay incentives to rideshare drivers that exceed a certain number trips in a given time period, and SDG&E proposes a variety of incentives to encourage taxi/shuttle/rideshare drivers to use electric vehicles, including installing infrastructure and providing a fuel credit. Do these proposals provide clear incentives for drivers to purchase electric vehicles and increase electric vehicle miles traveled?
2. Is it appropriate for a utility to install, own and operate L2 charging stations at TNC/taxi/rideshare drivers' homes given the utility's lack of insight into how long those customers may remain TNC/taxi/rideshare drivers? Does placing a utility-owned asset within an enclosed residential facility create a new liability for the utility that could impact ratepayers?
3. Are incentives to taxi/shuttle/rideshare companies an appropriate use of ratepayer funds? How would these programs serve the interest of ratepayers?
4. How could these programs directly benefit low- and moderate-income and disadvantaged communities?
5. How could these programs be scaled up if successful? Are there other potential sources of funding to provide these types of incentives?
6. Are the pilots in the interest of ratepayers? If not, can they be modified?
7. Do these pilots meet the environmental and other objectives in SB 350?

[16] SDG&E testimony in support of its SB 350 TE application, chapter 3 at RS-18.

2.3.1 SDG&E Green Taxi/Shuttle/Rideshare Program ($3.5 million) [17]

SDG&E proposes to partner with taxi, shuttle and rideshare companies for a multi-pronged pilot project. SDG&E intends to: (1) install grid-integrated DCFC and L2 charging stations at the lots of taxi and rideshare companies, (2) install L2 charging stations at driver homes (3) offer incentives for vehicle procurement and fueling and (4) provide a grid-integrated rate. The charging infrastructure installed through this pilot would only be available to program participants, and all participants of this program would be required to sign up for SDG&E's proposed public grid-integrated rate, as described in Section 2.8 below.

SDG&E proposes to study the charging patterns, location requirements and operational needs specific to taxi/shuttle/rideshare services and whether the proposed public grid integration rate encourages off-peak charging. SDG&E intends to incorporate solar/energy storage in at least one location. The project would consist of up to five sites, each with one DCFC and two L2 charging stations. According to SDG&E, the project and incentives could support up to four new EV taxis, four new electric shuttles and 50 TNC/rideshare EVs.

For its green taxi/shuttle/rideshare program, SDG&E has proposed a monitoring and evaluation plan to determine whether the grid-integrated rate can be effectively integrated with taxi/rideshare/shuttle use patterns; factors that increase utilization rates of the charging equipment; the optimal ratio of DCFC and Level 2 charging facilities for taxi/rideshare/shuttle companies; and whether the project results in increased EV adoption among taxi/rideshare/shuttle companies.[18]

Additional Pilot-Specific Questions for Consideration

1. Would it be more effective for SDG&E to focus on one use case rather than several different ones as described in this proposal?

2.3.2 SCE EV Driver Rideshare Reward Pilot ($4 million) [19]

SCE is proposing pilot project that would offer a monetary reward to licensed rideshare or taxi drivers that use an EV and exceed a specified number of rides in a given time period. SCE will conduct outreach to promote the pilot to existing and potential EV drivers and monitor and evaluate the charging needs of EV rideshare drivers. SCE proposes to target customers in disadvantaged communities by directing them to existing low-income electric vehicle purchase

[17] SDG&E testimony in support of its SB 350 TE application, Chapter 3 at RS-61.

[18] SDG&E testimony in support of its SB 350 TE application, chapter 3 at RS-76.

[19] SCE testimony in support of its SB 350 TE application at 34.

incentives. Of the total program budget, $2.8 million would go towards providing $200 driver incentives, which would equate to 14,409 rebates over a 12-year period.[20]

SCE proposes to track and report the number of program participants by vehicle type and whether the drivers are operating or living in a disadvantaged community. It also plans to conduct a survey and report the results regarding benefits and challenges of using an EV for ridesharing. SCE also plans to tally and report the number and amounts of incentives paid and total number of miles traveled.[21]

Additional Pilot-Specific Questions for Consideration

1. Would these monetary incentives encourage the adoption of electric vehicles by rideshare drivers that otherwise would not?
2. Should the program be limited to one incentive payment per driver?

2.4.Onroad medium- and heavy-duty infrastructure

Energy Division proposes the following workshop discussion questions related to the five priority review proposals to support on-road medium- and heavy-duty infrastructure:

1. Each utility is proposing one or two pilots for medium/heavy duty on-road infrastructure. Are there enough differences between the pilots, so that each utility is testing or learning something that can be shared with the other utilities, rather than duplicating efforts? How should all of the lessons learned for this sector be coordinated and shared?
2. PG&E and SCE propose to deploy and own make-ready infrastructure in their pilots, while SDG&E proposes to own the electric vehicle service equipment (EVSE) as well. For PG&E's fleet pilot, it proposes to own any potential charge management and energy storage systems on behalf of its participating customers. Have the utilities provided sufficient justification for equipment ownership and mitigated any adverse impacts on competitive markets?
3. SDG&E's fleet pilot proposes installing all charging infrastructure without requiring a host participation payment; SCE's transit pilot and PG&E's fleet pilot propose installing the make-ready infrastructure and providing the site host a partial rebate on the EVSE; PG&E's school bus pilot will install the make-ready infrastructure, but not provide a rebate on the EVSE. In all cases, the participating customer will need to procure the electric vehicles. Is this enough of a commitment from the customer? Is it reasonable for ratepayers to cover all other costs?

[20] SCE response to Energy Division data request 1 at 39.

[21] SCE testimony in support of its SB 350 TE application at 37.

4. SDG&E states that it expects contracts with the site host to be for 10 years. How long should the utilities require participating customers to agree to use and keep charging infrastructure? How will the utilities ensure access to the sites to maintain infrastructure?
5. SDG&E's fleet pilot proposes two of three targeted UPS sites will be located in disadvantaged communities. SCE and PG&E do not state specific goals for serving disadvantaged communities for their pilots. Do the pilots appropriately benefit low-income and disadvantaged communities? Should any of the proposed EVSE rebates be tiered to encourage adoption in DACs?
6. If successful, how could these pilots be scaled in the future?
7. Are the pilots in the interest of ratepayers? If not, can they be modified?

2.4.1 SCE Electric Transit Bus Make-Ready Program ($3.98 million)[22]

SCE will support government transit agencies with in-depot or on-route charging by installing and maintaining utility-owned make-ready infrastructure and providing charging station rebates. Any of the 16 transit agencies in SCE's territory could apply for the program.[23] The customer must take service on a time-of-use rate. SCE estimates it could serve up to 20 charge ports and rebates through the project, and reduce annual emissions by about 1,600 MT CO_2, 8 MT NOx and 0.13 MT PM.

SCE proposes to issue a final pilot report with actual costs.

2.4.2. PG&E Medium- or Heavy-Duty Fleet Customer Demonstration ($3.4 million)[24]

PG&E proposes to partner with a customer that operates a fleet of medium- or heavy-duty vehicles and assist the customer in deploying EVs by providing: (1) utility-owned make-ready charging infrastructure, (2) an incentive for EV chargers, and (3) technical assistance in rate optimization and demand management. PG&E would provide technical assistance to help the customer reduce electricity costs on their existing rate. It expects this pilot would support 2-10 new electric vehicles.

PG&E will develop a handbook for other fleets based on lessons learned. PG&E proposes a final pilot report including: total cost of ownership evaluation, cost and savings of demand mitigation strategies, customer success and willingness to expand electric fleet, GHG/PM savings in comparison to existing fleet, and lessons learned.

[22] See SCE Testimony at 42.

[23] SCE Data Response to Energy Division Question 13.

[24] See PG&E Testimony at 2-2.

2.4.3. PG&E Electric School Bus Renewables Integration Pilot ($3.4 million)[25]

PG&E proposes to partner with a school customer to provide incentives for managed charging and provide utility-owned make-ready infrastructure to support 2-5 school buses. School buses are ideal for integrating with solar production because they have predictable duty cycles: they are in use for routes in the morning and afternoon, but parked and available to charge during mid-day. PG&E states that it will explore opportunities to manage the charging of the buses so they charge when possible during times with excess renewable energy mid-day. Incentives to charge during mid-day could include participation in a demand response program, or some other mechanism.

PG&E proposes a final pilot report including: total cost of ownership evaluation, customer success and willingness to expand electric fleet, GHG/NOx savings compared to existing fleet, battery degradation and effects of charging cycles on battery life, and success of strategies aimed at shifting EV charging to periods of over-generation.

Additional Pilot-Specific Questions for Consideration

1. What principles or criteria should PG&E consider in developing the proposed incentives for buses to charge in response to grid conditions?
2. Are existing demand response programs appropriate for school bus load and usage patterns, or would PG&E need to develop another incentive to manage school bus charging?
3. What existing work with electric school buses should PG&E's pilot leverage?

2.4.4. SDG&E Fleet Delivery Services ($3.7 million)[26]

SDG&E proposes to partner with UPS and other fleet delivery service providers to help study their specific EV charging needs. SDG&E will: (1) provide charging infrastructure at six locations, (2) develop load management plans to minimize grid impacts, and (3) gather and analyze data on usage patterns and other operational needs specific to delivery fleets. It will install 20 Level 2 stations[27] and one DC fast charger at each location. The project could support up to 90 electric fleet delivery vehicles (60 for UPS and 30 for another fleet), which could result in an estimated annual GHG reduction of 894 MT CO_2. SDG&E proposes to own all of the charging equipment, but would not require a participation payment, under the assumption that

[25] See PG&E Testimony at 2-10.

[26] See SDG&E Testimony Chapter 3 at RS-43.

[27] SDG&E anticipates participating vehicles will use standard Level 2 connectors. (SDG&E Data Response to Energy Division Question 3).

participants will need to procure more expensive electric vehicles to participate in the pilot. SDG&E expects a contract with the site host for 10 years.[28] SDG&E would install data loggers on the vehicles to collect data on miles driven, speed, energy consumed, etc. SDG&E would own and maintain all components of the assets for the FERC lifespans of the assets.[29]

Participating fleets would use SDG&E's proposed commercial grid integration rate (GIR) as described in Section 2.8 below. The commercial GIR would also be available to commercial customers that are not participating in this pilot.

SDG&E proposes to work with CALSTART to conduct the pilot evaluation. To analyze vehicle performance and energy use, CALSTART would develop a data collection test plan and complete quarterly and final reports. CALSTART would also assess grid impacts of the pilot, and develop future grid impact scenarios based on demand assessment and future growth.

2.4 Off-road infrastructure

Energy Division proposes the following workshop discussion questions related to the five priority review proposals to support off-road infrastructure:

1. Are these projects located in areas – airport, port, truck stop – that will appropriately benefit disadvantaged communities?
2. SDG&E's two pilots propose owning the EVSE, while SCE's propose owning the make-ready infrastructure only. It is unclear exactly which components PG&E would own in the truck stop proposal. Have the utilities provided sufficient justification for equipment ownership and mitigated any adverse impacts on competitive markets?
3. For how long should the utilities require participating customers to agree to use and keep charging infrastructure? How will the utilities ensure access to the sites to maintain infrastructure?
4. All of the proposals are specific to certain vehicle types. What is the potential to scale the pilots, and will scaling bring meaningful levels of benefits? Do the lessons learned from these specific applications translate to other sectors?
5. Are the pilots in the interest of ratepayers? If not, can they be modified?

[28] SDG&E further states that it would be responsible for maintaining all components of the assets involved in the project per the FERC lifespans of the assets. (SDG&E Data Response to Energy Division Question 2).

[29] SDG&E Data Response to Energy Division Question 2.

2.4.1 SDG&E Airport Ground Support Equipment ($2.8 million).[30]

SDG&E will increase the number of charging ports available to ground support equipment (GSE) vehicles at the San Diego International Airport. In 2014, the airport had 540 total pieces of GSE equipment. It will install and own up to 45 new charge ports estimated to support 90 new electric GSE vehicles and retrofit some existing ports with metering and enabling technology. The EVSE are for lead-acid batteries and are called "industrial chargers." According to SDG&E, they typically do not come from the manufacturer with built-in utility grade submeters,[31] so SDG&E proposes to install load research meters alongside each EVSE. The airport and some of its vendors will seek other funding to procure the electric GSE. The supported GSE will include baggage tractors, cargo belt loaders, pushback tractors and forklifts. SDG&E states that "transportation electrification leaders such as Southwest Airlines represent the majority of electric GSE ownership at SDIA, and prefer rations of one charger per two vehicles."[32]

Table 2 Summary of SDG&E Proposed Installations

	Existing at Airport	SDG&E Proposal	Total
Charge Ports	50	45 new (plus 15 retrofits)	95
Electric GSE	120	90 new	210

The project will also incorporate the airport's onsite 5.5MW of solar PV when developing optimized charging schedules. The project will reduce annual GHG emissions by an estimated 1,174 MT CO_2.

SDG&E proposes a final report in which it will identify kWh consumption by electric GSE by hour, grid needs, customer needs, bill impacts, and GSE load.

2.4.2 SDG&E Medium/Heavy-Duty and Forklift Port Electrification ($2.4 million).[33]

SDG&E proposes to install, operate and own EV charging infrastructure, load research meters, and data loggers within the San Diego Unified Port District tidelands. It expects to conduct 30-40 installations and collect consumption, charging and operational data to support future MD/HD grid-integration projects. SDG&E's current consumption, charging, and operational data for MD/HD and forklift EVs is insufficient to determine how best to integrate these load into the

[30] See SDG&E Testimony Chapter 3 at RS-3.

[31] SDG&E Data Response to Energy Division Question 8.

[32] SDG&E Data Response to Energy Division Question 1.

[33] See SDG&E Testimony Chapter 3 at RS-32.

grid. The port has grant funding to buy 17 MD/HD EVs and electric forklifts. If fully utilized those vehicles could result in an estimated annual GHG reduction of 228 MT CO_2. SDG&E states that the majority of these projects are located within disadvantaged communities.

SDG&E proposes a final pilot report, including anonymized / aggregated data and graphs such as energy consumption relative to time, demand, and lessons learned.

2.4.3 SCE Port of Long Beach Rubber Tire Gantry Crane Electrification Project ($3.04 million).34

SCE will install make-ready infrastructure to serve nine cranes at the Port of Long Beach. Traditional RTG cranes have electric lift and propulsion drives, with electric energy generated by on-board diesel reciprocating engines. SCE's proposed electric conversion would remove the engine and attach a long electrical cord that connects directly to the grid. The cranes would be powered by corded propulsion infrastructure, not a battery. The customer would take service on a time-of-use rate.

SCE will not design or install the infrastructure until the Port secures other funding to convert the cranes from diesel to electric power. SCE proposes to complete a final report that discusses pilot costs.

Additional Pilot-Specific Questions for Consideration

1. In addition to the time-of-use rate, should any other load management strategies be required of the crane operators?

2.4.4 SCE Port of Long Beach ITS Terminal Yard Tractor Project ($0.5 million).[35]

SCE proposes to install make-ready infrastructure to serve 24 charging ports for new electric yard tractors. The International Transportation Service Terminal has a fleet of 120 diesel-powered yard tractors and is seeking South Coast Air Quality Management District funding to buy 68 electric yard tractors. The project will support these tractors and help accelerate their deployment.

SCE proposes to complete a final report that discusses pilot costs.

Additional Pilot-Specific Questions for Consideration

1. Should SCE require any load management strategies for the yard tractors or should this pilot only focus on assessing baseline usage?

[34] SCE Testimony at 46.

[35] SCE Testimony at 49.

2.4.5 PG&E Idle-reduction Technology Customer Demonstration ($3.4 million).[36]

PG&E will demonstrate idle-reduction technologies (for truck stop electrification or truck refrigeration units)[37] and develop a handbook for other fleets based on lessons learned. It will provide: (1) at least 15 electrified parking spaces at one parking site, (2) incentives to encourage idle-reduction, and (3) technical assistance in rate optimization and demand management. For truck stop electrification, PG&E is considering a single system technology, which provides conditioned air and electric access to the vehicle through a window attachment, and dual system technology, which provides electricity directly to the truck through an electrical connector.

PG&E proposes a final report including: total cost of ownership evaluation, cost and savings of demand mitigation strategies, customer success and willingness to expand electric fleet, GHG/PM savings compared to existing fleet, and lessons learned. Single system technologies do not require any special equipment on the truck, but dual system technologies do. PG&E does not plan to include any truck retrofits as part of this pilot, but has requested flexibility within the budget if this is necessary.[38]

Additional Pilot-Specific Questions for Consideration

1. What lessons learned from existing truck stop electrification work is relevant for PG&E's pilot design?
2. What kind of commitment from the site host, or study of customer interest/demand, will PG&E require before deploying infrastructure?
3. What type of incentives, or driver engagement, would PG&E need to conduct to ensure drivers are using the installed equipment? How will PG&E monitor whether the equipment is being used?
4. The EPRI Report *Initial Data for Non-Light-Duty Electric Transportation Options* that PG&E cites states that "several truck stop electrification installations have been decommissioned over the last few years…including one in Ripon, CA." Are there any lessons learned on the economic operations or challenges for the existing truck stops?

[36] PG&E Testimony at 2-8.

[37] PG&E has referenced the following EPRI study in development of its non-light-duty pilots, including the Idle-Reduction Pilot: Initial Data for Non-Light-Duty Electric Transportation Options. Available at: https://publicdownload.epri.com/PublicDownload.svc/product=000000003002009754/type=Product.

[38] PG&E Data Response to Energy Division Question 26.

2.5 Education and Outreach

Energy Division proposes the following workshop discussion questions related to the two education and outreach priority review proposals:

1. PG&E proposes developing a web-based portal to provide information about home charging, and SDG&E is proposing a dealership education and outreach program to inform car salespeople about the benefits of electric vehicles. Are these programs necessary in addition to existing public information and dealership outreach programs? How would the additional information these proposals provide accelerate electric vehicle adoption?
2. How could these education and outreach programs specifically target disadvantaged communities, low- and middle-income communities and multi-unit dwellings?
3. If these projects are successful in encouraging electric vehicle adoption, how could they be scaled up? How should success of these programs be measured, in terms of driving new electric vehicle adoption? Is there funding available to expand them other than additional ratepayer funding?

2.5.1 SDG&E Dealership Incentives Program ($1.7 million)[39]

SDG&E will partner with car dealerships to promote EV purchases by providing training to approximately 200 sales people and up to 1,500 cash incentives for EV sales/leases. It is proposing to award $250 to participating sales people and $250 to participating dealerships for each EV sold during the program. SDG&E estimates it could promote the purchase of an additional 1,500 EVs over the year-long project.

SDG&E proposes to use this project as a baseline to determine if, after a year of the dealership education and incentives program, there have been increased sales of electric cars in its territory. It also intends to study and report how many drivers sign up for the residential grid-integrated rate during the project period, to determine the success of point-of-sale outreach and education about time-variant rates.[40]

[39] SDG&E Testimony in support of its SB 350 TE applications, Chapter 3 at RS-79.

[40] SDG&E testimony in support of its SB 350 TE application, Chapter 3 at RS-88.

Additional Pilot-Specific Questions for Consideration

1. Would the program be effective without the monetary incentives to dealers and salespeople?
2. How will SDG&E be able to measure the effectiveness in increasing EV sales without any data on specific dealerships' EV sales before the pilot?
3. What has SDG&E learned in its existing work with Plug-in America and salespeople that can be leveraged for this pilot?

2.5.2 PG&E Home EV Charger Information Resource Project ($1.8 million) [41]

PG&E is proposing to develop and support a web-based information portal to help customers understand home charging needs. The portal will include a list of commercially-available residential chargers and a database of local, licensed electricians.

PG&E proposes to track website usage statistics, which it says will help evaluate usefulness of the information provided.[42] It also intends to track participation by qualified installers.[43]

Additional Pilot-Specific Questions for Consideration

1. Does the website need to continue in operation after the initial year period to provide benefits and increase adoption? If so, what measures should PG&E track and report to assess whether the website is beneficial?

2.6 Open Request for Proposals (RFP)

Energy Division proposes the following workshop discussion questions related to PG&E's proposed request for proposals:

1. What criteria would be necessary to ensure the Open RFP results in PG&E funding a project that meets all of the requirements of SB 350 and the ACR?
2. The Electric Program Investment Charge (EPIC) program already funds clean energy research, demonstration and deployment projects that support California's energy policy goals and promote greater electricity reliability, lower costs, and increased safety. Additionally, the September 2016 Assigned Commissioner Ruling states that the Commission may request another round of utility proposals by 2020. Is it necessary to approve an additional venue for PG&E to explore TE pilots?

[41] PG&E Testimony in support of its SB 350 TE application at 2-15.

[42] PG&E response to Energy Division data request 1, question 41.

[43] PG&E Testimony in support of its SB 350 TE application at 2-18.

3. How could an Open RFP be structured to allow the Commission sufficient oversight into the projects to be funded? Is the proposed external advisory committee sufficient and do stakeholders have the bandwidth to participate in such a committee?

2.6.1 PG&E Open RFP for TE Projects ($8.2 million) [44]

PG&E proposes to form an external advisory committee to develop a request for proposals for additional innovative TE project ideas from third parties. It proposes to spend up to $8.2 million on projects that result from this RFP, which is the remaining priority review budget left after subtracting the estimated costs of its other three proposed priority review projects. PG&E does not propose any specific monitoring or reporting plan for its Open RFP.

2.7 Rate Designs for Priority Review Proposals

SDG&E is proposing to have two new grid-integrated rates (GIR) apply to participants in three of its priority review programs. It developed the proposed GIRs using the rate design principles the Commission adopted in D.15-07-001 for residential rate design.[45] SDG&E states that its GIRs are designed to reflect cost-causation to ensure vehicle charging occurs in a grid integrated manner.[46]

SDG&E is proposing a new commercial GIR that will apply to participants in its Fleet Delivery Services program, which will include a monthly fixed grid integration charge that is based on the customer's maximum annual demand, an hourly base rate based on CAISO day ahead prices, and dynamic adders based on the top system and circuit hours annually. The fixed grid integration charge would recover 80 percent of distribution demand costs, and is intended to ensure that participants on the GIR will continue to contribute to the maintenance and operating costs of distribution resources.[47] The dynamic adders would cover the other 20% of distribution demand costs and are also intended to provide a price signal to encourage customers to charge during off-peak hours. SDG&E also proposed a fixed monthly incentive to reduce a portion of the grid integration component over an initial period of five years.[48]

[44] PG&E Testimony in support of its SB 350 TE application at 2-18.

[45] SDG&E Testimony in support of its SB 350 TE Application, chapter 5, pg. CF-4

[46] SDG&E Testimony in support of its SB 350 TE Application, chapter 5, pg. CF-13 referencing D.15-07-001 at 28.

[47] SDG&E Testimony in support of its SB 350 TE Application, chapter 5, pg. CF-19

[48] SDG&E Testimony in support of its SB 350 TE Application, chapter 5, pg. CF-24

SDG&E is proposing a new public charging GIR, based on its medium/large commercial and industrial rate schedule AL-TOU,[49] that would apply to all drivers that utilize the charging stations installed through the Electrify Local Highways and Green Taxi/Shuttle/Rideshare programs. The public charging GIR would not include any fixed grid-integration charge, because there would be no single dedicated customer associated with the charging sites. SDG&E is proposing to instead recover distribution-related costs through the base energy rates applied to the public charging stations. The public GIR would also apply peak pricing signals via dynamic adders, which would recover a portion of generation and distribution capacity costs.[50] SDG&E intends to display its dynamic hourly rate at its public charging stations on the electric vehicle service equipment.[51] For the Electrify Local Highways program, the charging stations will include an option to pay by credit card to allow anyone to utilize the equipment. The Green Taxi/Shuttle/Rideshare program participants will be required to have a customer of record for each site that agrees to take service on the Public GIR tariff.

1. SDG&E states that it designed its proposed GIRs following the 10 rate design principles the Commission adopted in the residential rate reform proceeding. Are these the appropriate rate design principles for SDG&E's proposed commercial and public GIRs? Should the rates align with the Commission's Distributed Energy Resources Action Plan vision for rates and tariffs?[52]
2. Should the rates be designed to be revenue-neutral? If so, are they?
3. Do the rates promote integration of renewables?
4. Do the rates encourage increased transportation electrification by providing the opportunity for EV drivers/operators to fuel their vehicle with electricity that is affordable in comparison to more polluting alternatives?
5. Does the rate give clear and understandable price signals to allow customers to manage their charging in response to price signals?
6. For the Commercial GIR, does the Grid-Integration monthly fixed charge, which recovers 80% of distribution demand-related costs based on a customer's maximum annual demand, align with cost-causation principles and allow customers sufficient opportunity to reduce energy costs by shifting when they charge?

[49] http://regarchive.sdge.com/tm2/pdf/ELEC_ELEC-SCHEDS_AL-TOU.pdf .

[50] SDG&E testimony in support of its SB 350 TE application, chapter 5, CF-27.

[51] SDG&E testimony in support of its SB 350 TE application, chapter 3, RS-20

[52] The Commission's Distributed Energy Resources Action Plan is available at: http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/About_Us/Organization/Commissioners/Michael_J._Picker/DER%20Action%20Plan%20(5-3-17)%20CLEAN.pdf.

7. How could the proposed GIR adequately address the needs of fleet operators and taxi/rideshare drivers, which may need to routinely charge during peak hours to continue operations?
8. Will displaying the dynamic hourly charging cost on the charging stations provide enough information for drivers to manage their charging to avoid peak pricing at long-term parking sites?
9. Do most existing models of charging stations include the technology necessary to display a dynamic hourly rate?
10. Is it reasonable for the Grid-Integrated Rates to apply to customers that are not pilot participants?

3 Data collection and reporting

The September 14, 2016, Assigned Commissioner's Ruling called for the utilities' transportation electrification applications to meet the objectives and legislative findings defined by SB 350 and related Public Utilities Code sections. One of the objectives highlighted in the ruling is the requirement established under Public Utilities Code section 740.12(b) that each of the proposed projects and investments to include performance accountability measures to track the progress of the proposals to ensure they are contributing to the adoption of transportation electrification in a timely manner.[53]

Another regulatory requirement established in the ACR is that the transportation electrification applications should provide anonymous and aggregated data for evaluation.

Energy Division proposes the following workshop discussion questions related to data collection and reporting:

1. Should the performance accountability measures be used to ensure the utilities implemented the priority review projects as proposed, or should they also measure other project outcomes?
2. What types of performance accountability measures, including safety measures, are appropriate for the utilities to include in their final reports of the priority review projects?
3. Should the performance accountability measures be standardized for all projects and investments or more project-specific?
4. Should the utilities develop and use a common, final reporting template for all pilots to more easily share information with stakeholders?

[53] ACR at 15-16.

5. What type of data should be collected for all proposals that could be anonymized and aggregated for further study? Do the metrics including the reporting of the utilities' existing light-duty infrastructure pilots[54] serve as a good example?
6. Are there specific datasets that should be collected for specific project types that would be most useful to study?
7. Should there be data collected that is not anonymized and aggregated, but only made available to state agencies or researchers?
8. How could the utilities quantify and report the actual GHG and air pollutant emissions reductions from the pilots?
9. SDG&E proposes using its existing Program Advisory Council for its Power Your Drive pilot to also address SB 350 implementation issues. Is this an effective proposal to allow stakeholders to provide input on program implementation? Should the other utilities provide a similar venue for stakeholders to provide ongoing feedback?

[54] SDG&E Power Your Drive, SCE Charge Ready, and PG&E EV Charge Network.

Attachment 1. Overview of Priority Review Proposals