Recent studies have shown the degradation of air quality in San Diego County, culminating with the American Lung Association's grade of "F" in air quality for San Diego County in the organization's last two-year's "State of the Air" report.[199] For these reasons, SDG&E believes its residential transportation sector represents a prime target for GHG emissions reductions.[200]

SDG&E's focus in residential charging aims to achieve a key goal of SB 350, reducing emissions of greenhouse gases by 40 percent below 1990 levels by 2030, and 80 percent below 1990 levels by 2050.[201] Our modified approval of SDG&E's investment into the single-family and small MUD residential sector will still provide increased access to EV charging infrastructure in addition to stimulating innovation and competition in the TE market.[202] Furthermore, we are allowing SDG&E to seek to increase the target after there has been some demonstration of the success of the RCP. In addition to achieving substantial environmental benefits, SDG&E's RCP aims to produce data concerning the current and future utilization of residential charging infrastructure.[203] SDG&E should report the actual emission reduction benefits associated with its RCP as described in Section 10 on Data Collection and Reporting.[204]

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[199] Exhibit SDGE-09 at LB-6, citing Report Card California, American Lung Association, *available at*: http://www.lung.org/our-initiatives/healthy-air/sota/city-rankings/states/california/(2017); *see also* State of the Air 2017: San Diego/Imperial County Regional Summary, *available at*: http://www.lung.org/local-content/california/documents/state-of-the-air/2017/sota-2017_ca_san-diego.pdf.

[200] Exhibit SDGE-09 at LB-6.

[201] Section 740.12(a)(1)(D).

[202] Section740.12(1)(a)(F).

[203] Section740.12(c).

[204] Exhibit SDGE-11 at RS-4.

3.4. Impact on Disadvantaged Communities

SDG&E's RCP aims to provide benefits to both DAC customers as well as those of lower-income.[205] SDG&E and the Joint Parties support the suggestion to deploy 25 percent of the total number of EVSE stations in DACs, an increase from the 20 percent originally proposed.[206] SDG&E's proposal to provide higher allowances for EVSE and installation costs in DACs will provide economic benefits to DACs consistent with § 740.12.[207] SDG&E's commitment to allocate $5.5 million in total direct costs for fund electric panel upgrades for DAC customers and a goal of at least 40 percent of overall program costs be spent with DBE firms, aims to facilitate access by DACs to TE infrastructure.

EDF contends one of the most important deliverables of SDG&E's RCP is delivery of air quality and other benefits to DACs, those communities hit the hardest by emissions from the transportation sector.[208] EDF is encouraged by the dedication of the individual utilities to setting minimum targets in DACs, and encourages the Commission to accept SDG&E's minimum deployment goal of 25 percent.[209]

SDG&E's commitment to tracking and reporting on DAC and non-DAC annual EVSE growth aims to provide the Commission with valuable data about the future EV markets to ensure widespread TE.[210]

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[205] NRDC Reply Brief at 10, SB 350 and SB 1275 Charge Ahead California Initiative.

[206] Exhibit SDGE-11 at RS-4; DAC in this context "is per the Cal-Enviroscreen Tool 3.0, using the SDG&E service territory definition."

[207] NRDC Reply Brief at 10 to 11, referencing Exhibit SDGE-11 at RS-4to RS-8.

[208] EDF Opening Brief at 6.

[209] EDF Opening Brief at 6, citing Exhibit SDGE-11 at RS-3 and Exhibit Joint-11 at 3.

[210] Exhibit SDGE-11 at RS-4.

We agree with SDG&E that its proposed RFPs to select EVSE models and installation contractors create opportunities for all EVSE market participants, including those who may be too small to compete against the dominant EVSE providers. Moreover, we see the potential for the proposed RFP for installation contractors to create economic opportunities in DACs, including the potential for job growth within DACs.

3.5. Summary of Program Modifications

While there is disagreement over program design, it is important to note that parties share a similar goal of encouraging the deployment of smart EV infrastructure at residential locations, particularly in DACs.[211] One of the crucial questions surrounding SDG&E's RCP is how best to design a RCP which seeks to minimize overall costs and maximize overall benefits.[212] Because of this, careful consideration and thought has been given to the record and scope of this proceeding.[213] Moreover, we have modified[214] SDG&E's RCP to ensure the goals of SB 350 are achieved without placing a burden on ratepayers.

As addressed in Sections 3.1.1 and 3.1.2 in more detail, we eliminate any utility ownership of the charging infrastructure (either make-ready or EVSE) on the customer side of the meter. This change results in saving both in regards to the total capitalized costs and savings in utility operation and maintenance (O&M) of the equipment on a going forward basis. As discussed throughout

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[211] Exhibit CP-4 at 7.

[212] Section 740.12(b).

[213] Exhibit CP-4 at 7; § 740.12(b).

[214] Section 740.12(b): "The commission shall approve, or modify and approve, programs and investments of transportation electrification, including those that deploy charging infrastructure, via a reasonable cost recovery mechanism..."

Section 3.1, SDG&E's claimed benefits for utility ownership do not exceed the ongoing costs associated with SDG&E owning the customer-side infrastructure, including the proposed 48.9 percent overhead that would be applied to the direct costs of the L2 chargers installed through the program. A properly structured up-front rebate program that gives customers a choice of qualified infrastructure and installation vendors will achieve the same benefits SDG&E associates with its utility ownership model. This modification aligns with the goals of SB 350, and ensures SDG&E will not usurp the EVSE and EVSP markets.[215]

Turning next to the debate of allowance versus rebate, the distinction is one of semantics. Parties agree on the importance of providing up-front monetary incentives to participants in the RCP in order to reduce barriers to EV charging infrastructure and adoption. We agree with ChargePoint that the residential sector offers a good opportunity to test an upfront rebate method. We agree that SDG&E should build on its own prior experience administering robust energy efficiency and customer generation rebate programs to implement a program that can be not only a model for other utilities in California, but for the rest of the country. As such, SDG&E should work with its PAC to identify the most effective way to provide customers with an up-front rebate for both the EVSE and EVSE installation. Once the EVSE and associated customer-side infrastructure is installed, the customer will own and maintain it.

Although discussed in more detail in Section 8, we have modified SDG&E's budget to eliminate the line item for EVSE maintenance costs, since SDG&E will not own this equipment. SDG&E's modified budget in its rebuttal

[215] Section 740.12(a)(1)(F).

testimony did not reflect any ratepayer cost savings associated with reduced ongoing maintenance for the percentage of customers that could elect to own and operate their own EVSE.[216] Instead, SDG&E proposed to cover an extended warranty on the EVSE for any customers that elected to own the EVSE.[217] SDG&E should ensure the EVSPs it qualifies to participate in the program offer appropriate warranties, and should not need to provide monetary support for those warranties. The EVSE installed through SDG&E's RCP is the property of the participating customers, who will be responsible for the maintenance of the charging stations in their homes. SDG&E's $22.5 million budget for EVSE maintenance and service-calls is therefore eliminated from the adopted RCP budget.

SDG&E should file an implementation plan via a Tier 3 AL reflecting the above-authorized budget for a five-year rebate program not to exceed 60,000 EVSE installations for unique customers, to be open for customer-enrollment by mid-2019. This implementation plan should carefully identify the adopted program modifications discussed throughout this section. The implementation plan should include the following:

1. Planned upgrades to the Marketplace website
    a. Methods to inform customers of available rebates on qualified EVSE
    b. Outreach and education plans to direct customers to the rebate program on the Marketplace website
    c. Step-by-step process for customers to participate in the RCP

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[216] Exhibit SDGE-11 at RS-15 and RS-16.

[217] Exhibit SDGE-11 at RS-7.

2. Terms and conditions for SDG&E's qualified installers that ensure customer protections
3. Description of how SDG&E will communicate with customers on the installation process and subsequent billing of balance above EVSE and installation rebate amounts.
4. Participant eligibility requirements
    a. Proof of recent lease or purchase
    b. Methods to encourage low- and middle-income customer participation
5. Timeline for program launch and implementation
6. The resolution of any outstanding concerns SDG&E has raised regarding liability by identifying contractual protections that define the customers' responsibility through clear participation requirements

Although modified, SDG&E's approved RCP should still create a seamless experience for participating customers, just as the utility proposed in its rebuttal testimony. A customer visiting SDG&E's Marketplace website to enroll in the RCP program should first be prompted with a list of qualified equipment options (EVSE). After selecting, the authorized rebate amount should automatically be applied to the total cost of the EVSE to show customers their respective cost for the EVSE (i.e. any costs over the rebate amount).

In consultation with its PAC, SDG&E should develop a process for procuring the EVSE, soliciting and contracting with qualified installers, and ensure installers are compensated after the installer provides proof of the EVSE installation. SDG&E should ensure customers fully understand that they will be responsible for the balance of installation costs, above the established rebate amount for the installation service. SDG&E should bill the customers directly for the balance of any costs associated with the purchase and installation of their EVSE. Both the list of EVSEs and qualified installers will be managed by SDG&E. SDG&E

would be in charge of testing the EVSE to ensure it meets the requisite metering requirements and work with the EVSE installer to ensure its installation and deployment are completed safely and efficiently.

While we find tremendous value in testing and learning from the approved RCP, it is unclear whether SDG&E and other parties also find value in this program. Accordingly, while we authorize SDG&E to implement the RCP as modified by this decision, SDG&E may file an Advice Letter withdrawing the RCP.[218] If SDG&E chooses to implement the RCP as approved in this decision, SDG&E may also explore the option of a companion incentive mechanism. As discussed in Section 16, and referenced in Ordering Paragraphs 4 and 5, we allow SDG&E to meet and confer with parties to consider what additional incentive mechanism is appropriate in relation to the deployment of SDG&E's RCP. Appendix B to this decision provides guidance to SDG&E and parties in developing the framework for an incentive, that will be submitted via a Tier 3 Advice Letter to the Commission's Energy Division.

If SDG&E chooses to implement the RCP as modified herein, it may file a Tier 3 AL by the end of third year of program implementation to request to scale-up the RCP above 60,000 unique customers based on RCP success and market conditions. The Tier 3 AL should include at a minimum:

1. Results of the initial RCP program to date, including:
    a. Total number of EVSE installed
    b. Comparison of estimated versus actual costs of infrastructure installation

[218] Ordering Paragraph 4.

c. Comparison of estimated versus actual cost of eligible EVSE

d. Evidence that small, locally-owned, and diverse businesses are providing EVSE and installation services through the program;

e. Any barriers that prevented customers from being able to participate in the rebate program

f. Methods identified to address any barriers to customer participation

g. Evidence that low- and moderate-income customers are participating in the program

2. Current estimate of EVs in its territory;
3. Current breakdown of make, model, and model year of EVs adopted by program participants;
4. Evidence that L2 residential rebates drive incremental EV adoption; and
5. Updated modeling showing that offering more rebates will continue to support incremental EV adoption.

To provide customer choice, SDG&E should conduct an ongoing Request for Qualifications (RFQ) to qualify L2 EVSE and corresponding network services from which customers can choose. SDG&E should leverage its existing Marketplace website so residential customers can research the qualified EVSE, compare prices and capabilities, and read customer reviews. Aligning with the goal of providing safe and reliable service to its customers,[219] all qualified L2 EVSE should be networked, include metering capabilities, and be certified by a NRTL. Vendors should provide SDG&E with their EVSE pricing to include on the Marketplace website.

[219] Section 740.8.

To ensure customers are provided with safe and reliable service,[220] SDG&E should use the RFP process to select qualified contractors that meet pre-defined requirements to install the EVSE and any make-ready infrastructure on the customer side of the meter. Customers can then choose one of the qualified installers through SDG&E's Marketplace website. SDG&E would not own any installed infrastructure on the customer's side of the meter, nor would SDG&E rate base this investment. SDG&E should ensure that all participating installers meet safety requirements, provide proof they are licensed, insured, bonded, and provide a minimum warranty for their work.

The ACR requested parties to this proceeding to provide information opposing or supporting the adoption of a standard VGI communications protocol to ensure utility-supported infrastructure does not become obsolete when the state has a viable, economic vehicle-to-grid market established.[221] SDG&E did not propose to adopt a standard communication protocol for its RCP.

As directed by the ACR and § 740.2, § 740.3(e), and § 8362, the CPUC worked with CEC, CARB, CAISO, and the Governor's Office of Business and Economic Development, to convene a working group in 2017 to evaluate the existing communication protocols for VGI. The working group, comprised of more than 150 international stakeholders, considered all communications protocols currently in use to communicate pricing signals and responses to

[220] Section 740.8.

[221] ACR at 28-29.

pricing signals between the utility or other energy provider and the EV.[222] Based on the deliverables created by the working group, Energy Division staff determined it is premature to require the ratepayer-supported infrastructure include a specific protocol, but recommended a set of minimum hardware requirements be considered for certain applications of EVSE.[223] Those minimum hardware requirements were developed with working group feedback, and to be considered by the Commission for inclusion in future proceedings.

Along with the draft Energy Division staff report issued on February 23, 2018 in R.13-11-007, we issued a ruling soliciting feedback on whether the minimum hardware requirements be included in L2 EVSE installed in residences. If the final report establishes that the minimum hardware requirements should apply to residential EVSEs, SDG&E should ensure the EVSEs it qualifies for its RCP program meets those requirements if it is feasible for the timing of the RCP program implementation.

SDG&E should establish measures to avoid free-ridership scenarios and stranded assets. SDG&E should work with its PAC to ensure its program outreach materials reach customers considering EV adoption. Such outreach efforts should encourage incremental EV sales.[224] SDG&E should also work with its PAC to identify strategies to ensure ratepayer subsidized infrastructure

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[222] All documentation associated with the VGI Communications Protocol Working Group is available at www.cpuc.ca.gov/vgi.

[223] Details about the working groups' process and deliverables are available in the draft Vehicle Grid Integration Communication Protocol Working Group Energy Division Staff Report available at http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M211/K654/211654688.PDF.

[224] Section 740.12(a)(1)(H).

remains in use after it is installed.[225] SDG&E should also require RCP participants to enroll in one of SDG&E's EV TOU rates, in order to achieve the maximum grid benefits of managed charging.[226] These modifications should not deter RCP participation, but should create a clearer path toward EV adoption and maximum GHG emission reduction benefits.[227]

In order to achieve SB 350's goals of increased TE access in DACs and low-and-moderate income communities,[228] SDG&E should reserve 25 percent of its approved RCP funds for customers in DACs. SDG&E should target its data collection and reporting to identify challenges and successes to growth of the EV adoption and L2 infrastructure DACs.[229]

Finally, SDG&E should provide participating customers the choice between its existing EV-only and whole-house TOU rates and its proposed Residential GIR, if implemented. SDG&E should identify measures that most effectively communicate pricing to residential customers and collect data on customer responsiveness to dynamic price signals. SDG&E should evaluate customer responsiveness to its Residential GIR and its two ongoing dynamic rate pilots to identify which methods of communicating price signals to customers are most effective.[230]We direct SDG&E to review its existing EV TOU rates and

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[225] Section 740.12(c).

[226] Section 740.12(a)(1)(G).

[227] *See* generally, § 740.12.

[228] Section 740.12(a)(1)(C).

[229] Exhibit SDGE-04 at RS-21.

[230] SDG&E SCHEDULE TOU-DR-E3 is a pilot dynamic rate available to residential customers participating in the residential TOU opt-in program, available at http://regarchive.sdge.com/tm2/pdf/ELEC_ELEC-SCHEDS_TOU-DR-E3.pdf. SDG&E's Power Your Drive program as approved in D.16-01-045 includes a dynamic rate for EV charging

Footnote continued on next page

revise them to include time-differentiated distribution charges to provide stronger price signals to encourage customers to charge during off peak hours. As discussed in Section 3.2.4. SDG&E proposed revisions to its EV TOU rates should be filed via a Tier 3 Advice Letter within six months of this decision.

All of the below charted program modifications still aim to provide customers with a turn-key solution that addresses both financial and logistical barriers faced new and future EV drivers.[231]

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at workplaces and multi-unit dwellings, available at http://regarchive.sdge.com/tm2/pdf/ELEC_ELEC-SCHEDS_VGI.pdf.

[231] Exhibit SDGE-10 at PP-11, citing Exhibit SDGE-11 at RS-10 to RS-11.

Table 5. SDG&E's Residential Charging Program Approved with Modifications

• SDG&E should file an implementation plan for a 5-year rebate program not to exceed 60,000 rebates for EVSE, to be open for customer enrollment no later than mid-2019.
• SDG&E will conduct an ongoing Request for Qualifications (RFQ) process to qualify EVSE for customers to choose from.
• SDG&E will provide additional incentives to DACs and CARE/FERA customers; 25 percent of program funds will be reserved for DACs.
• Leverage SDG&E's existing Marketplace website so residential customers can research qualified EVSE, compare prices and capabilities, and read customer reviews.
• All eligible EVSE should be networked, have metering capabilities, and be certified by a NRTL.
• In consultation with its PAC, SDG&E should develop a process for procuring the EVSE, soliciting and contracting with qualified installers, and ensure installers are compensated after the installer provides proof of the EVSE installation.
• SDG&E will identify qualified installers that meet pre-defined requirements and allow customers to select from qualified installers through the SDG&E marketplace.
• All participating installers must meet safety requirements, and prove they are licensed, insured, bonded, and provide a minimum warranty for their work.
• Participants should provide proof of EV purchase or lease with six months of SDG&E's program implementation. Qualifying lessees should have a minimum of eighteen-months left on their lease term.
• Participants should be required to enroll in the Residential GIR or one of SDG&E's existing EV TOU rates.
• SDG&E should meet and confer with parties to consider what additional incentive mechanism is appropriate in relation to the deployment of SDG&E's RCP within the framework outlined in Appendix B.

4. SDG&E's Commercial Grid Integration Rate

SDG&E proposed three rates in its application, designed to "ensure that charging occurs in a manner consistent with electric grid conditions and provides customers with price signals to incent behavior which minimizes

incremental system and local capacity needs."[232] SDG&E intended all three rates to be considered as part of the priority review process. The Commission approved SDG&E's Public Grid GIR in D.18-01-024 for limited use at the public charging stations SDG&E owns and operates in its Green Shuttle PRP pilot.[233] However, due to the substantive modifications SDG&E made to its Commercial and Residential GIR proposals, the Commission did not address these two rates in the priority review phase of this proceeding.[234]

In its rebuttal testimony, SDG&E modified its Commercial GIR to apply only to SDG&E's Fleet Delivery Services PRP.[235] We do not believe SDG&E needs to implement a new rate solely to apply to the participating fleets in the approved pilot program, particularly as the utility is still testing its dynamic Power Your Drive rate for commercial business accounts. SDG&E's Commercial GIR is denied. As stated in D.18-01-024, SDG&E should work with the participating fleets to determine which of its existing commercial TOU rates is most suitable for their charging needs at the time of program implementation.[236]

5. PG&E's DC Fast Charging Make-Ready Program

PG&E requests authority to spend up to $22.4 million for its Direct Current Fast Charger Make-Ready Program (Fast Charge) over five years. As proposed, the program is designed to: (1) help meet a portion of PG&E's estimated need for up to 916 fast chargers in its service area by 2025, (2) reduce driver range

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[232] Exhibit SDGE-5 at CF-2.

[233] D.18-01-024 at 111.

[234] D.18-01-024 at 43.

[235] D.18-01-02 4 at 43.

[236] D.18-01-024 at 111.

anxiety, and (3) increase access to charging for customers, especially those lacking ready access to home charging, needing charging stations in transportation corridors for longer trips, or for access to ridesharing.[237] PG&E proposes to provide PG&E-owned make-ready infrastructure at approximately 52 sites in its service area, to support installation of an estimated 234 DCFC stations, at locations that encourage transportation electrification and minimize grid impacts.[238] As proposed, all Fast Charge sites must be publicly accessible, and all chargers must use either CHAdeMo and/or CCS charging connector standards, with at least one of each connector per site to maximize usefulness to drivers, and be capable of charging at power levels of 50 kilowatts (kW) or greater.[239] To enable multiple business models and provide flexibility for site hosts and operators, PG&E's customer of record at Fast Charge sites may be the site host, an EVSP, or another third party.[240]

In stipulations with NRDC, CUE, Plug-In America, Greenlining Institute, Sierra Club, UCS, and the Alliance of Automobile Manufacturers, PG&E agreed to:

- Extend reporting requirements for an additional five years, which will ensure the Commission and stakeholders benefit from data associated with stations installed toward the end of the program;[241]

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[237] Exhibit PGE-1 at 4-6.

[238] Exhibit PGE-1 at 2-1.

[239] Exhibit PGE-1 at 4-10 to 4-11.

[240] Exhibit PGE-1 at 4-10 to 4-11.

[241] Exhibit Joint-2 at 2.

- Propose rates optimized for DC Fast Charging applications within 6-12 months of a decision in A.17-01-020 et al.;[242]
- Take on-site load management technologies into account when scoring potential DC Fast Charging sites;[243] and
- Adopt rate signals or other load management techniques to ensure EV load facilitates the integration of renewable energy.[244]

5.1. Impact on Transportation Electrification and Emissions Reduction

D.16-12-065 rejected PG&E's prior fast charging proposal as not sufficiently targeted at demonstrated EV market needs. PG&E's current Fast Charge request takes into account other fast charging station installations and relies on "the empirical results of an expert market analysis of [direct current fast charging] DCFC needs" and potential locations in PG&E's service area to establish a scaled-down program for utility installation of a limited amount of make-ready infrastructure[245] to support fast charging stations at high priority locations which support both high-need and reliable coverage across PG&E's service territory.[246] PG&E indicates its goal is to "make a significant contribution to the needs of PG&E customers and EV owners and drivers by providing

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[242] Exhibit Joint-2 at 1.

[243] Exhibit Joint-2 at 1-2.

[244] Exhibit Joint-2 at 2.

[245] The utility-owned make-ready infrastructure will include the distribution circuit, transformer, service drop, conductor, connectors, conduit, electric meter, and circuit breaker panel up to the charger stub. In addition, PG&E will install appropriate safety equipment at the site (e.g., lighting, parking lot painting, and bollards) and ensure the site meets relevant state and local ADA requirements. (Exhibit PGE-1 at 4-9)

[246] PG&E Opening Brief at 6, citing Exhibit PGE-1 at 4-6 to 4-8.

make-ready infrastructure for access to fast charging stations where home and office charging is unavailable, thereby accelerating adoption of EVs."[247]

TURN recommends PG&E's Fast Charge program be reduced by more than 60 percent, to $7.6 million, to support 90 fast charging stations compared to PG&E's requested 234 charging stations.[248] ORA recommends PG&E's Fast Charge program should be reduced by over 80 percent, to $3.9 million for five dual-port, 150 kW DCFC stations.[249]

TURN argues that the estimates in the Electric Program Investment Charge (EPIC) 1.25 study[250] that PG&E relied on to determine DCFC availability in its territory are too conservative.[251] TURN also argues that PG&E's claims that fast charging is needed to serve apartment dwellers and that drivers prefer fast charging should be tested before full-scale deployment.[252] Because fast charging technology is not as developed or standardized as other charger types and DCFC infrastructure is not compatible with all EVs, TURN claims Fast Charge poses increased risks for stranding ratepayer investment.[253] ORA similarly argues that Fast Charge is too big because, among other things, PG&E 1) fails to consider

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[247] PG&E Opening Brief at 6-7.

[248] TURN Opening Brief at 1.

[249] ORA Opening Brief at 2.

[250] Exhibit PGE-1 at 4-6, footnote 8, citing PG&E (2016) EPIC 1.25 – Develop a Tool to Map the Preferred Locations for DC Fast Charging, Based on Traffic Patterns and PG&E's Distribution System, to Address EV Drivers' Needs While Reducing the Impact of PG&E's Distribution Grid – Final Report. Available at https://www.pge.com/pge_global/common/pdfs/about-pge/environment/what-we-are-doing/electric-program-investment-charge/EPIC-1.25.pdf.

[251] TURN Opening Brief at 9-14.

[252] TURN Opening Brief at 18-19.

[253] TURN Opening Brief at 4-7.

that Tesla may open its fast charging network to other EVs, 2) fails to consider fast chargers likely to be deployed under the VW settlement,[254] 3) does not account for EVs that are incompatible with fast charging, 4) does not account for other uncertainties that could reduce demand for fast charging, and 5) includes 350 kW fast chargers that are not technologically feasible.[255]

We find that Fast Charge's program scale is based on credible research and forecasting from electric transportation research experts at UC Davis, Ricardo and E3 in the form of the EPIC 1.25 study, and TURN and ORA have offered no qualified expert opinion that contradicts this research. The EPIC 1.25 research identified 300 prioritized areas of expected high-demand for fast charging and estimated that between 574 and 916 additional fast chargers are needed to meet expected vehicle charging demand in those areas above and beyond the approximately 300 DCFCs already operational in PG&E's service territory.[256] Using the mid-range forecast provided by the research, 754 new fast chargers in PG&E's service territory are needed to meet 2025 fast charging demand, of which PG&E proposes to provide ratepayer funded make-ready infrastructure to support approximately 234 fast chargers.

Consistent with PG&E's assertion that additional fast charging infrastructure is needed to electrify the ridesharing industry, General Motors,

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[254] Appendix C of *United States of America v. Volkswagen AG et al.*, Case No. 16-cv-295 (N.D. Cal.) requires Volkswagen to invest $2 billion in zero-emissions vehicle infrastructure, including $800 million in California, over a 10-year period. VW has indicated some of its initial investments will include fast-charging stations for light-duty electric vehicles along transportation corridors. More information is available at https://www.arb.ca.gov/msprog/vw_info/vsi/vw-zevinvest/vw-zevinvest.htm.

[255] ORA Opening Brief at 10-16.

[256] Exhibit PGE-1 at 4-6.

based on data generated by its work on ride-sharing programs, has concluded that "the most significant learning has been the need for more DCFCs, with drivers often experiencing queuing at urban locations."[257]

We do not find merit in TURN's arguments against PG&E's assumption that fast charging could be used by apartment and MUDs that may have no other charging options. TURN essentially claims that, since the majority of EV charging is currently residential, fast charging is unnecessary at locations outside the home.[258]

PG&E provided factual testimony regarding the number of California residents who live in apartments and other MUDs.[259] TURN has not refuted those figures, and the logical conclusion that follows is that if we want the significant portion of the population that uses vehicles and lives in apartments and other MUDs, to switch to electric vehicles, they will need alternative charging options, including fast-charging stations that are near their residences or paths of travel. Likewise, as EV range increases and EV drivers take longer trips away from their homes in their EVs, the need for fast charging increases.[260] We agree with PG&E that accelerating the adoption of EVs in California, as mandated by SB 350, requires charging access for those without access to home charging. PG&E's Fast Charge program will collect data to help assess whether the barriers to adopting electric vehicles for MUD residents can be adequately addressed by providing nearby fast-charging options.

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[257] Reply Brief of General Motors, LLC, on the Priority Review Proposals at 3-4.

[258] TURN Opening Brief at 14.

[259] Exhibit PGE-2 at 2-2.

[260] Exhibit PGE-1 at 4-4 to 4-5.

5.2. Impact on Disadvantaged Communities

PG&E will conduct marketing, education and outreach to encourage participation in the program and will target participation in DACs by providing up to $25,000 per DCFC in rebates to cover a portion of the charger cost for sites located in DACs.[261] PG&E proposes to target a minimum of 25 percent of make-ready infrastructure investments to support fast charging in DACs.[262] With the exception of TURN, who recommends reducing the proposed rebate available for fast charging stations to Fast Charge site hosts located in DACs, all other parties support PG&E's rebate proposal for site hosts in DACs to encourage greater deployment of EVs in DACs.[263]

TURN argues that PG&E has not demonstrated the need for its proposed $25,000 rebate to site hosts located in DACs. Instead TURN proposes a $10,000 rebate for site hosts in DACs, which TURN says "balances costs with the intent to provide greater financial incentive to DACs in order to comply with the goal of SB 350 to increase access to transportation electrification in DACs."[264] TURN does not provide evidence of why a $10,000 rebate is more appropriate than a $25,000 rebate for Fast Charge site hosts located in DACs.

We find that the evidence supports a $25,000 rebate, rather than the $10,000 suggested by TURN. "DCFC installation costs vary widely. For example, the cost to install about 100 DCFCs in numerous cities across the United

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[261] Exhibit PGE-1 at 4-9, 4-12.

[262] Exhibit PGE-2 at 1-12: 26.

[263] *See* ORA Opening Brief at 17, ChargePoint Opening Brief at 8, EDF Opening Brief at 6-7, Greenlining Opening Brief at 9, NRDC et al. Opening Brief at 14, SBUA Opening Brief at 5-6.

[264] TURN Opening Brief at 22.

States varied from $8,500 to over $50,000, with a median cost of $22,626."[265] Additional evidence was provided that while the basic cost of a DC fast-charging station is about $10,000 to $15,000, the total equipment cost, in a study of Washington state stations, averaged $58,000, reflecting the auxiliary services and features needed for a publicly accessible unit, including warranty, maintenance, customer authentication, and networking with point-of-sale capabilities to collect payment from customers. Installation costs can also vary because of other enhanced safety and security measures that are often required by local permitting authorities, such as lighting and revenue-grade meters. Those options can add up to $90,000 to the basic cost of the fast-charging equipment itself. Additional costs might also be incurred if multiple plugs are required for compatibility.[266] For these reasons, we adopt a maximum rebate of $25,000 not to exceed the full cost of the EVSE and installation costs.

Various parties proposed specific approaches to marketing Fast Charge to potential site hosts or geographic areas.[267] Rather than prescribe in this decision how PG&E should market this program, we direct PG&E to ensure that its PAC includes representatives from disadvantaged communities, small and diverse business enterprises to ensure that these perspectives are represented during implementation.

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[265] Exhibit JP-1 at 17 citing Idaho National Lab Report: Consideration for Corridor and Community DC Fast Charging Complex System Design, Idaho National Lab, May 2017, at 11. https://avt.inl.gov/sites/default/files/pdf/reports/DCFCChargingComplexSystemDesign.pdf

[266] *See* National Academy of Sciences: Overcoming Barriers to Deployment of Plug-in Electric Vehicles, chapter 5 at 92, as cited in TURN-01 at 3. https://www.nap.edu/download/21725.

[267] ChargePoint Opening Brief at 8, SBUA Opening Brief at 4-6, Greenlining Opening Brief at 3 and 9.

One of the most important deliverables of these proposals is to see delivery of air quality and other benefits to disadvantaged communities, often hardest hit by emissions from the transportation sector.[268] Moving forward, prioritization of transportation electrification investments—along with targeted marketing, outreach, and education that is relatable and accessible to disadvantaged communities will be critical to moving the plug-in electric vehicle (PEV) market beyond the early-adopter segment.[269] Greenlining notes "[r]esearch suggests that DC fast chargers are best sited at locations where EV drivers can consume additional goods and services (e.g. restaurant, grocery store, etc.) while waiting for their cars to charge, this, in turn can likely provide economic co-benefits to businesses.[270]

We agree with PG&E that greater access to faster chargers in DACs can make EV ownership in those communities more attainable and can bring other economic benefits to those communities as well.[271] SBUA notes that this "would be especially valuable for small businesses located in disadvantaged communities facing poor air quality because these businesses would be significantly benefiting their own surrounding neighborhoods by helping them move toward EV adoption and a cleaner environment."[272] For these reasons,

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[268] EDF Opening Brief at 6.

[269] Greenlining Opening Brief at 7.

[270] Greenlining Opening Brief at 9. *See* similar comments in NRDC et al. Opening Brief at 14.

[271] *See* for example, Exhibit TURN-01 at 27:8-10.

[272] SBUA Opening Brief at 6.

PG&E should select at least 25 percent of the site hosts to be located in or adjacent to DACs.[273]

5.3. Impact on Competition

No party raises concerns about PG&E's proposed Fast Charge program having an adverse impact on non-utility competition. Fast Charge conforms to the September 14, 2016 ACR instructions to leverage non-utility funding by requiring the site host at all sites located outside of disadvantaged communities to cover the entire cost of the DCFC equipment, network services, O&M. Lowering up-front installation costs through utility investment in and ownership of make-ready infrastructure improves the business case for investment in DCFCs. As PG&E states, "[u]tility make-ready investments will amplify the scale of future charger deployments by allowing public and private funding to be repurposed toward more chargers instead of make-ready costs, providing for even greater access for drivers." As described by GPI/CEC, by subsidizing only the make-ready infrastructure, PG&E's program will allow third parties and site owners to rapidly build out DCFCs where it makes the most sense to do so.

That said, we want to ensure that the program is facilitating participation from multiple EVSPs. As currently designed, there is nothing to prevent one EVSP from dominating the partnership with PG&E early on in the program implementation by providing the EVSE and services at the majority of make-ready sites. To ensure that the program is maximizing participation from multiple EVSPs, PG&E should review site selection with its PAC and include updates on diversity in EVSP participation in its program reporting.

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[273] PG&E agrees that 25 percent would be an appropriate stretch goal in Exhibit PGE-2 at 1-12:26-28.

5.4. Summary of Program Modifications

TURN argues that Fast Charge does not achieve the goals of SB 350 because it would not minimize costs and maximize benefits as required by SB 350 and would likely result in stranded costs.[274] ORA argues that, given the uncertainty in market demand for fast charging and rapid changes in charging station and car technologies, PG&E should not be allowed to invest such a large amount of ratepayer funds ($22.4 million) for full deployment.[275]

We disagree with TURN and ORA. As the Joint Parties note, "It is essential for the EV market to move beyond single family detached homes to scale up to meet long-term climate and air quality goals... Access to DC Fast Charging stations can provide those consumers in market segments who cannot charge at home, such as those who live in multi-unit dwellings, with the ability to purchase or lease EVs."[276] We agree with PG&E that many of the 45 percent (as of the year 2000) of Californians who rent, live in apartment or condo buildings, and use street parking have more limited options for EV charging and access to faster charging can eliminate a barrier to EV adoption.[277]

Because different types of chargers result in different power draws, which impacts the type of make-ready infrastructure that is needed, for site cost estimation purposes, PG&E developed three models of Fast Charge site deployments: 5 DCFCs at 50 kW each; 5 DCFCs at 150 kW; or 3 DCFCs at

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[274] TURN Opening Brief at 3 to 5.

[275] ORA Opening Brief at 9.

[276] Exhibit JP-1 at 16.

[277] PG&E Opening Brief at 8.

350 kW.[278] The three deployment types assume different levels of power requirements to account for current charging standards (50-150 kW) and expected developments for high-powered fast charging of up to 350 kW, which automakers and equipment manufacturers are actively working toward.[279] In developing its proposed budget, PG&E assumed 25 percent of the sites participating in Fast Charge would have infrastructure to support 50 kW chargers, 50 percent of the sites would support 150 kW chargers, and 25 percent of the sites would support 350 kW chargers.

PG&E emphasizes that the site types were developed to guide cost estimation and that PG&E does not anticipate all sites will fit within the defined site types. "Instead this program aims to be flexible to meet the needs of site hosts and charging network developers, and adapt with fast charging technology standards and driver preferences."[280]

We agree that PG&E's program should provide site hosts with the flexibility to choose the power level of EVSE most appropriate for their sites with 50 kW the minimum charging capability of the selected EVSE. While we support the choice of the site host to select their EVSE power level, given the current trends of increasing battery size and higher powered charging stations, it is prudent for PG&E to install the customer-side electric infrastructure necessary to support EVSE of 150 kW or larger at all DCFC sites in the Fast Charge program to account for the possibility that the site host may wish to upgrade to

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[278] Exhibit PGE-1 at 4-8, 4-8 to 4-12.

[279] Exhibit PGE-1 at 4-11, citing Car and Driver (2016), First U.S. 350-kW Charging Station Will Allow Speedy L.A.–Vegas EV Road Trips, http://blog.caranddriver.com/first-u-s-350-kw-charging-station-will-allow-speedy-l-a-vegas-ev-road-trips/.

[280] PG&E Opening Brief at 12.

higher-powered EVSE in the future. This will prevent stranded utility assets and the potential for expensive infrastructure upgrades if the customer decides to install a higher power level EVSE in the future. As TURN notes, "[t]his reflects the industry trend and consumer preference of moving towards faster charging (along with improving battery technology) and the related ratepayer risk of stranded or underutilized assets."[281] TURN notes that VW's investment in DCFC will be at power levels ranging from 150-350 kW.[282] Though more expensive on a per site basis today, make-ready infrastructure to support 150 kW EVSE is already projected by PG&E to be less expensive on a per kW basis, as much of the cost of site development is tied to trenching and laying conduit.[283] Additionally, establishing higher capacity infrastructure mitigates the inevitable future cost of upgrading supporting distribution infrastructure to higher power levels.[284]

TURN suggests PG&E should ensure all make-ready infrastructure installed through the Fast Charge program can support 120 kW or higher powered EVSE, citing a study of Tesla superchargers.[285] As ChargePoint notes, 150 kW better aligns with current trends in DCFC design.[286] We support ChargePoint and TURN's recommendation to install infrastructure capable of higher power levels, and require PG&E install make-ready infrastructure to

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[281] TURN Opening Brief at 22.

[282] Exhibit TURN-01 at 4, footnote 11.

[283] Exhibit PGE-3 at Tab 2.

[284] Exhibit TURN-01 at 5.

[285] Exhibit TURN-01 at 4.

[286] ChargePoint Opening Brief at 6.

support 150 kW or higher power level EVSE for all DCFC sites because minimizing charging time is critically important to driver experience.

Site hosts should not be required to install an EVSE of 150 kW or higher, but as ChargePoint notes, "there is no risk of 'stranding' make-ready infrastructure built to support higher power DCFC technologies, and there is value for ratepayers in considering emerging trends in EVs and EV charging technologies."[287] Even if the site host chooses a higher capacity EVSE, "[a] charger's ability to deliver power exceeding the on-board capacity of the vehicle using the charger does not mean that the EV cannot use the charger."[288]

PG&E states that a cost contingency of 25 percent is needed to account for unforeseen costs associated with the significant site variation that may arise in implementing its program.[289] At the same time, PG&E argues its program budget is right-sized because it will only be driven by customer need.[290] ORA cites prior Commission decisions lowering requested contingency levels to 5-to-10 percent in D.10-04-028, citing D.06-11-048.[291] As previously noted, we require the utility to install make-ready infrastructure to support at least 150 kW power level EVSE, which has a higher cost than the mix of capacities included in its budget estimates.[292] Due to the higher costs associated with the adopted

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[287] ChargePoint Opening Brief at 5-6.

[288] ChargePoint Opening Brief at 5-6.

[289] PG&E Reply Brief at 19.

[290] PG&E Reply Brief at 7. *"Actual fast charging demand and customer need, not PG&E's forecast, will control Fast Charge make-ready infrastructure deployment and costs, within the overall budget cap."* (Emphasis in original)

[291] Exhibit ORA-1 at 12.

[292] Exhibit PGE-3 Tab 2.

program (specifically installation of 150 kW make-ready and above), we approve PG&E's budget with the 25 percent contingency as proposed.

For these reasons we adopt a program similar in scope and scale to that proposed by PG&E with a target to install make-ready to serve 52 sites, as modified by PG&E's rebuttal testimony and stipulations, and a requirement that all customer-side make-ready infrastructure support a minimum of 150 kW charging equipment unless cost-prohibitive. Site hosts located in DACs will be eligible for a maximum rebate of $25,000, not to exceed the full cost of the EVSE and installation costs, to be applied to each EVSE purchase and 25 percent of the site hosts should be located in or adjacent to DACs. We do not adopt TURN's proposed Performance Accountability Metric that focuses on site utilization statistics to drive site selection as this approach would likely make it harder to site DCFC make-ready investments in DACs. We direct PG&E to work with its PAC and the program evaluator to develop and implement a survey to determine whether the DCFC stations installed through the Fast Charge program are serving the needs of customers in MUDs that have no other charging options. Program funding is summarized in Table 10 in Section 8.

6. Medium- and Heavy-Duty Vehicle Charging Programs

Because PG&E and SCE both propose programs that focus on medium- and heavy-duty vehicle electrification, we consider them together. First we describe each program as proposed, then identify common or similar changes that the utilities have made to the programs over the course of this proceeding. Then we discuss the programs' expected impacts on transportation electrification and emissions reductions, disadvantaged communities, and competition. This is followed by a discussion of our proposed program modifications and a summary of the adopted programs.

6.1. Proposed Programs Described

6.1.1. PG&E's Fleet Ready Program

With a proposed budget of $210 million,[293] this program targets make-ready infrastructure to support fleets of medium- and heavy-duty vehicles at, for example, municipal bus transit depots, warehouses and seaports. Over a five-year period from the date of first installation, PG&E plans to provide (1) utility-owned make-ready infrastructure at 700 sites for up to 8,800 charging points,[294] (2) O&M of installed infrastructure, and (3) education and outreach to customers regarding the benefits of EVs. PG&E also proposes to offer rebates to disadvantaged communities and "beach head" sectors.[295] 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.

PG&E proposes to provide make-ready infrastructure for non-light-duty electric vehicles[296] for customers who commit to purchasing electric vehicles.

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[293] $184 million in capital and $26 million in expense.

[294] Exhibit PGE-1 at 3-45. 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. Exhibit PGE-1 at 3-4.

[295] Beach head sectors are sectors where developments are likely to promulgate EV innovation and accelerated deployment.

[296] 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

Footnote continued on next page

PG&E would own, operate and maintain the make-ready infrastructure, but not the charging equipment (EVSE). 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 O&M costs following the five-year program window would be captured in subsequent General Rate Cases (GRCs).

PG&E believes because FleetReady will support make-ready electric infrastructure, it will minimize costs that can be a significant deterrent to deployment of EVs for customers such as transit agencies, delivery service providers, and other trucking and fleet companies. On the other hand, to ensure that costs are reasonable, FleetReady is limited to make-ready infrastructure and thus leverages other funding sources by requiring significant cost sharing and "skin in the game by EV owners and operators who will be responsible for the purchase costs of the vehicles and the charging stations to supply the vehicles."[297]

To forecast the number of sites in PG&E's service 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;[298] estimating PG&E's share of each sector;[299] and determining the number of sites

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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* Exhibit PGE-1, Table 3-2.

[297] PG&E Opening Brief at 5.

[298] Exhibit PGE-1, Tables 3-3 and 3-4.

[299] Exhibit PGE-1, Table 3-5.

based on sector-specific data on attach rate and charge points per site.[300] PG&E developed forecasts for high, low, and reference vehicle adoption levels. Its reference case represented about 35-40 percent of the high adoption scenario for its service territory during the FleetReady program period.[301] The reference case suggests 788 sites will require charging infrastructure and PG&E requested cost recovery to provide make-readies for up to 700 of those sites, or up to 8,800 charging ports, over its limited five-year program.[302] Based on site characteristics, PG&E developed load impacts per site and sector for the purposes of estimating program costs.[303]

PG&E emphasizes that the actual number and type of sites that will participate in the program will vary from its forecasted estimates and actual costs per site may vary from the expected costs due in part to the nascent state of the non-light-duty EV market.[304] PG&E states that its program will remain within its approved budget, and "to the extent PG&E's actual costs are lower than anticipated, PG&E will return in rates any uncommitted and unspent funds at the end of the five-year program."[305]

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

- Demonstrate commitment to near-term procurement of eligible vehicles, EVSE, and associated safety equipment.

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[300] Exhibit PGE-1, Table 3-7.

[301] Exhibit PGE-1 at 3-23.

[302] Exhibit PGE-1 at 3-45 and 3-6.

[303] Exhibit PGE-1 at 3-27 and Table 3-9.

[304] Exhibit PGE-1 at 3-4.

[305] Exhibit PGE-1 at 3-4.

- 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.[306]

To assure significant penetration in disadvantaged communities, PG&E proposes to provide $16 million in financial incentives for disadvantaged communities and beach head sectors. PG&E estimates that 25 percent of program participants will be in DACs. PG&E is proposing to offer a 75 percent 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. $15,000 is approximately 20 percent of the cost for a transit bus sized charging point,[307] so $6 million in beach head incentives translates to 400 charging points for transit.[308]

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.[309]

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[306] Exhibit PGE-1 at 3-10 to 3-11.

[307] Exhibit PGE-1 at 3-35.

[308] Exhibit PGE-1 at 3-36.

[309] Exhibit PGE-1 at 3-3.

PG&E proposes to submit an annual report with data on program deployment, site operation, and descriptive program information.[310]

The ratemaking for FleetReady is based on a traditional one-way balancing account in which any over-collection of costs is returned to customers at the end of the program or disposed of by Commission decision, and any under-collection may not be recovered from customers unless the Commission expressly approves.[311] PG&E expects to spend $9.9 million, or 4 percent of its budget, for an education and outreach effort that takes advantage of its Business Energy Solutions representatives, which have existing relationships with its commercial customer-base and the marketing, education and outreach materials developed as part of its light-duty EV infrastructure program to avoid duplication of resources.[312] Both the representatives' expertise and the outreach materials will need to be adapted to focus on medium- and heavy-duty TE.

PG&E proposes to convene a PAC to provide advice on program implementation,[313] and to issue an annual report on data collection and monitoring that will include metrics like number of sites deployed, number of vehicles supported by the deployed infrastructure, utilization rates, and costs. Its annual reports will also include any identified barriers it is facing in the program and strategies it is using to overcome those barriers.[314]

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[310] Exhibit PGE-1, Table 3-15.

[311] Exhibit PGE-1 at 6-2.

[312] Exhibit PGE-1 at 3-39.

[313] PG&E Opening Brief at 35.

[314] Exhibit PGE-1 Table 3-15.

6.1.2. SCE's Medium- and Heavy-Duty Vehicle Charging Infrastructure Program

In its $554 million budget,[315] SCE proposes to install, own, and operate the electric infrastructure, up to and including the make-ready stub, to serve charging equipment for medium- and heavy-duty vehicles.[316] SCE also proposes to provide a rebate to cover the costs of the charging equipment and its installation at participating sites.[317] SCE models 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. 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.[318]

To participate in SCE's program, non-residential customers must own or lease, or be the customer on record for, the participating site; agree to provide SCE continuous access to the site; agree to participate in data collection and surveys; take service on an eligible TOU rate; and agree to maintain the charging equipment for at least five years.[319] Sites must also include an appropriate location to deploy charging equipment for eligible vehicle types in a cost-effective manner, as determined by SCE.[320]

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[315] $532 million in capital and $22 million in expense.

[316] Class 2-8 trucks as well as non-road cargo handling equipment and buses are eligible, as detailed in Appendix C of the Testimony.

[317] Exhibit SCE-1 at 51.

[318] Exhibit TURN-02, Appendix 3 at 20.

[319] Exhibit SCE-1 at 53-54.

[320] Exhibit SCE-1 at 54.

Eligible vehicles include Class 2-8 trucks, ranging from delivery vehicles and refuse trucks to semi-trucks; non-road cargo handling equipment such as forklifts and port equipment; transportation refrigeration units for semi-truck trailers; and buses used for public transit or schools.[321]

Although participating customers will purchase the EVSE and be responsible for installing and maintaining it, as well as acquiring and maintaining eligible electric vehicles, SCE proposes to provide a rebate to cover 100 percent of the base cost of the charging equipment and installation for eligible customers. SCE proposes to capitalize and recover the rebates over a 10-year period.[322] To qualify for the program and rebate, charging equipment must meet certain technical standards and energy efficiency recommendations and be listed by a NRTL.[323] 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.[324] Customers must agree to take service on an eligible TOU rate and participate in the pilot for five years.[325] These customers would be eligible for new, optional rates that are described in Section 7 below.

SCE proposes to use its Business Customer Division to target non-residential customers that may meet the program requirements, leverage its Transportation Electrification Program Management organization to manage site

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[321] Exhibit SCE-E at C-1.

[322] Exhibit SCE-5 and 6, at 2.

[323] Exhibit SCE-1 at 55.

[324] Exhibit SCE-1 at 55.

[325] Exhibit SCE-1 at 55.

evaluation and construction,[326] and utilize its broader market education campaign funded through SCE's Charge Ready proceeding to inform customers about the program's details.[327] SCE states that non-solicited customers may also apply to the program, which will be promoted on the utility's website.[328]

SCE intends to form an advisory board to provide guidance on program implementation, provide quarterly status reports and information in its annual SB 350 portfolio report and in a project close out report.[329] SCE proposes to provide quarterly status reports to the CPUC and its program advisory board that include information about customer interest and satisfaction; procedural updates on processes such as procurement, time, and cost management; post-deployment impacts; and lessons learned executing the program. The status reports may also include recommendations to modify or improve the program from the program advisory board.[330]

6.1.3. Common Program Modifications Based on Joint Testimony and Stipulations

In rebuttal testimony and in stipulations with multiple parties, PG&E and SCE agreed to make a number of modifications to their proposed programs. As summarized in the NRDC et al. Opening Brief, consistent with recommendations made by NRDC, CUE, Plug-In America, The Greenlining Institute, Sierra Club, EDF, the East Yard Communities for Environmental

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[326] Exhibit SCE-1 at 55.

[327] Exhibit SCE-2 at 10-11.

[328] Exhibit SCE-1 at 55.

[329] Exhibit SCE-1 at 98.

[330] Exhibit SCE-1 at 56.

Justice, the Center for Community Action and Environmental Justice (represented by Earthjustice), UCS, Siemens, Tesla, CALSTART, and Office of Ratepayer Advocates (ORA), PG&E and SCE will:

- Extend reporting requirements for an additional five years, which will ensure the Commission and stakeholders benefit from data associated with stations installed toward the end of the program;[331]
- Make specific commitments to deployments in DACs (PG&E will reserve 15 percent of its capital budget for installations benefiting DACs, with a stretch goal of 25 percent, while SCE will reserve 40 percent of its budget for investments in DACs and in charging infrastructure to support electric transit buses, with a provision in place to release unused funds if there is insufficient demand at the halfway mark of the program);[332]
- Conduct proactive outreach to encourage representatives from DACs to participate in PACs;[333]
- Target marketing, education, and outreach efforts at DACs and account for barriers to adoption that are specific to DACs;[334]
- Support Women-, Minority- and Service-Disabled-Veteran-Owned Businesses spending goals;[335]
- Commit to new rate proposals and make rate design modifications (PG&E will file rate proposals optimized for commercial charging applications within 6-12 months of a decision in A.17-01-020 et al., while SCE will make extensive

[331] Exhibit Joint-2 at 2; Exhibit Joint-11 at 2.

[332] Exhibit PGE-2 at 1-12; Exhibit Joint-11 at 3.

[333] Exhibit Joint-13 at 1; Exhibit Joint-11 at 2.

[334] Exhibit PGE-2 at 1-12; Exhibit SCE-2 at 11.

[335] Exhibit Joint-13 at 1; Exhibit Joint-11 at 2.

modifications to its current rate proposals discussed in Section 7 below);[336]

- Take on-site load management technologies into account when scoring potential site hosts;[337]
- Adopt price signals or other load management techniques to help ensure EV charging facilitates the integration of renewable generation;[338]
- Target "customers who operate various vehicle types, including but not limited to transit buses, school buses, delivery and service trucks, on and off-road port and railyard trucks (including, but not limited to, truck stop electrification and transport refrigeration units), forklifts, power take-off units, airport shuttles, and off-road equipment;"[339] and
- Allow customers to participate using existing service connections when there is sufficient unused capacity, which should improve program cost-effectiveness and avoid the assessment of potentially duplicative demand charges.[340]

6.2. Impact on Transportation Electrification and Emissions Reduction

FleetReady and SCE's Medium- and Heavy-Duty Vehicle Charging Infrastructure Program target the non-light duty vehicle sector which is the source of significant GHG, nitrogen oxide (NOx) and other emissions, but which is seriously lagging behind the light-duty vehicle sector in the adoption and deployment of ZEVs. PG&E provided illustrative CO_2 and NO_x benefits of its

[336] Exhibit Joint-2 at 1; Exhibit Joint-12.

[337] Exhibit Joint-2 at 1-2; Exhibit Joint-11 at 1.

[338] Exhibit Joint-2 at 2; Exhibit Joint-11 at 1-12.

[339] Exhibit Joint-13 at 1; Exhibit Joint-11 at 2-3.

[340] Exhibit Joint-2 at 1; Exhibit Joint-11 at 1.

program if the EV adoption in its 2025 reference case occurs.[341] In its 2025 reference case, about 34,725 medium- and heavy-duty on-road and off-road vehicles are adopted in its service territory. The estimated emissions reductions associated with both existing and new deployments of non-light-duty electric vehicles in PG&E's service territory would be about 341,622 tons of CO_2, and NO_x emissions or 1.90 tons/day in 2026, if the adoption rate of the reference case is achieved.[342]

SCE used modeling from the CARB and independent consultants to develop a reference case scenario of light-, medium-, and heavy-duty vehicle adoption supported by its full TE portfolio proposed in Application (A.) 17-01-022. It forecasts that in 2030, electric sector greenhouse gas emissions would increase by approximately 1.6 million metric tons, and the replacement of conventional vehicles with electric vehicles would reduce greenhouse gas emissions by about 26.2 million metric tons, resulting in a net 24.6 million metric tons reduced.[343]

Several parties supported phased projects, rather than allowing the utility to move forward with multi-year projects. For example, Clean Energy Fuels states "given the diversity of the MD/HD vocations and the varying levels of commercial maturity of MD/HD vehicles, Clean Energy proposes smaller, phased SRPs with a mechanism to avoid gaps in funding beneficial projects."[344] ORA asks the Commission to split the medium- and heavy-duty programs into

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[341] Exhibit PGE-1 at 3-47.

[342] Exhibit PGE-1 at 3-7.

[343] Exhibit SCE-1 at D-9.

[344] Clean Energy Fuels Opening Brief at 5.

two phases with the first phase limited to 10 percent of the originally proposed size and scope for each utility: $21 million for PG&E and $55.4 million for SCE.[345] Utilities would have the option of filing a separate Phase 2 application.[346] Clean Energy Fuels and ORA point to the nascent nature of the technologies eligible for the program, and the fear that ratepayer funds will be spent on stranded assets.[347] According to TURN, PG&E's and SCE's programs should be reduced to $81 million over four years, with $15 million of the budget reserved exclusively for electric buses; and subject to sector-specific cost caps so that funds may not be shifted among sectors.[348]

EDF believes a phased approach will result in a substantial gap between phases and that "[s]uch a gap will cause uncertainty about the longevity of the program - and, likely, an unwillingness on the part of prospective program participants to engage in significant numbers. This is for the simple reason that monetary and temporal investments by the customer seem far less attractive if it is not clear that the program will continue, or that the utility will be able to continue to provide services in the gap between Phases."[349] This problem is exacerbated in the medium- and heavy-duty market, where vehicle acquisition and operational changes require long lead times.[350] "A shorter program, or a program with a significantly reduced budget, will not provide customers with

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[345] Exhibit ORA-2 at 6.

[346] ORA Opening Brief at 1-2.

[347] ORA Opening Brief at 33; Clean Energy Fuels Opening Brief at 4.

[348] TURN Opening Brief at 34-35.

[349] EDF Reply Brief at 2-3.

[350] Exhibit SCE-2 at 3-4.

the certainty they need to invest in electrification," and could "jeopardize customers' ability to leverage incentive programs for vehicle acquisition." [351] ORA witness Gariffo agreed "[t]hat a time gap could result in changing the EV purchasing decision of a potential participant"[352] considering fleet electrification and that availability of an infrastructure program could affect customers' purchasing decisions for electric vehicles.[353]

The EJ Parties sum up another major flaw with the phased approach and narrow budgets proposed by ORA and TURN.

> [I]t is clear … [they] would prefer that utilities stick to traditional investments, and that they are not convinced investing in widespread transportation is sensible policy. The problem with many of their arguments, however, is that these are policy objections that are not theirs to make. The legislature, after its own consideration and debate, concluded that "[i]t is the policy of the state and the intent of the legislature to encourage transportation electrification as a means to achieve ambient air quality and the state's climate goals."
>
> Indeed, the legislature took the additional step of expressly directing agencies to take the legislature's specific findings into account - meaning that the debate on these policy choices has ended. Specifically, the legislature found that "reducing emissions of greenhouse gases to 40 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050 will require widespread transportation electrification" and such "widespread transportation electrification requires electrical corporations to increase access to the use of electricity as a transportation fuel." These findings, moreover, are based on a

[351] SCE Reply Brief at 5, citing Exhibit SCE-2 at 3-4.

[352] RT 1357.

[353] RT 1359.

> long list of analyses from ARB and others. ORA's and TURN's generalized complaints that the SCE and PG&E have failed to demonstrate how investment in electric vehicle make-ready infrastructure will provide benefits ask the Commission to reject the legislature's findings and policy recommendations, and ignore the multiple findings of various agencies that electrification of nearly all transportation sources is necessary to meet our environmental and health goals and that utility investment in charging infrastructure is key.[354]

In addition, ORA and TURN argue that the utilities have not demonstrated that the proposed programs are in the interest of ratepayers, necessary, or the most effective means of accelerating transportation electrification, citing Pub. Util. Code § 740.12(b) for these "requirements." The EJ Parties point out that no such requirements are found in the statute, only that "[p]rograms proposed by electrical corporations shall seek to minimize overall costs and maximize overall benefits" and that "SB 350 sets no thresholds for assessing cost-effectiveness, and does not require a quantitative cost-benefit analysis to show that the costs are outweighed by the benefits."[355]

The EJ Parties suggest, and we agree, that the utility medium- and heavy-duty programs generally propose to provide make-ready infrastructure to an appropriate number of sites, striving to "maximize the benefits of transportation electrification by targeting medium- and heavy-duty vehicles and equipment. These vehicles and equipment create significant levels of pollution, disproportionately impact disadvantaged communities, are ripe for electrification, are the targets of other public investment for electrification,

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[354] EJ Parties Reply Brief at 8-9, citations omitted.

[355] EJ Parties Reply Brief at 11.

provide platforms for technology development that will promote transfer to other categories, and are primed for acceleration from utility infrastructure investment."[356] We agree with the "utilities, transit agencies, and technology providers...that the time is now to invest in the success of transportation electrification." [357]

"While the Commission should, of course, ensure that these programs are well-designed and maximize benefits, approaching these proposals with too much trepidation will not enable the sort of growth in electrified transport needed to facilitate achievement of critical clean energy and climate goals."[358]

However, we do agree with TURN that there is a major disparity in the cost estimates for different types of installations by PG&E and SCE. SCE's total proposed budget is more than double what PG&E has proposed, even though its costs are based on only 32 percent more site installations.[359] While SCE does forecast more medium-duty vehicles using each medium-duty site than PG&E, SCE's cost estimates assume ten fewer medium-duty sites than PG&E.[360] The number of sites is the main driver of infrastructure costs. TURN calculates that SCE's per site costs are around $400,000 per site versus $150,000 for PG&E, not including contingency costs,[361] and TURN was not able to identify what planning assumption is driving the higher costs for SCE. SCE's site cost estimates are

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[356] EJ Parties Reply Brief at 11.

[357] EJ parties Reply Brief at 6.

[358] EDF Reply Brief at 3.

[359] Exhibit PGE-3 at Tab 12 page 10; Exhibit TURN-02 at Appendix 2. We note that more than half of SCE's proposed sites are forklift sites.

[360] Exhibit TURN-02, Appendix 2.

[361] TURN Opening Brief at 42.

generally 2 to 4 times higher than PG&E's.[362] [363] First, like TURN, we prefer PG&E's approach to selectively target rebates, because it is most likely to influence GHG emission reductions where they are needed most.[364] We also agree SCE's proposal to provide rebates to cover 100 percent of the base cost of EVSE for all of the sites participating in its program is excessive.[365]

We agree with PG&E that its forecast unit costs and site-specific costs for make-ready electric infrastructure are also based on unit cost forecast methods routinely used and approved in the Commission's GRCs for comparable electric infrastructure costs, as well as in the Commission's recent Phase I EV decisions.[366] For these reasons, our adopted budget relies on PG&E's cost estimates as described below.

6.3. Impact on Disadvantaged Communities

As acknowledged by PG&E, "California's disadvantaged communities (DAC) are often the most affected by the harmful environmental impacts associated with the transportation sector."[367] PG&E proposes that 15 percent of the approved capital budget be reserved for medium- and heavy-duty

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[362] Exhibit TURN-02, Appendix 2; Exhibit PGE-3.

[363] As noted in Section 16, SCE identified a significant budget modeling error after filing its opening and reply comments to the proposed decision. SCE was directed to file amended opening and reply comments in a May 17, 2018 Email Ruling addressing this mathematical error. SCE's budget modeling and cost estimates introduced as part of the evidentiary record to this proceeding were not relied upon in reaching this decision. Moreover, SCE's amended comments clarifying its mathematical error did not influence the substantive changes to the proposed decision.

[364] TURN Opening Brief at 43.

[365] Exhibit TURN-02 at 15.

[366] PG&E Reply Brief at 22.

[367] Exhibit PGE-1 at 1-19:5-6.

applications located in DACs, in line with D.16-12-065, which established PG&E's light-duty vehicle infrastructure pilot.[368] ORA states that it "supports PG&E's general approach, but recommends a hard target of 25 percent because this percentage is representative of PG&E's customer base."[369] PG&E agreed with ORA that 25 percent would be an appropriate "stretch goal."[370]

SCE has committed to reserve 40 percent of its total program funding for deployment in DACs.[371] TURN recommends that a minimum of 40 percent of sites in both PG&E and SCE's programs be located in disadvantaged communities defined as the top 25 percent statewide census tracts as identified by the CalEnviroScreen 3.0 tool. TURN also recommends that rebates be provided only for charging stations at sites located in DACs and to transit agencies, consistent with PG&E's proposal. "TURN supports PG&E's proposal to cap the amount of the rebates for sites in DACs at 75 percent of the estimated charger cost for the specified vehicle sector."[372] TURN argues that SCE's proposal to provide a rebate for 100 percent of the base cost is excessive, "given the significant level of subsidy already proposed by the utilities," including "available incentives for vehicle purchases."[373] TURN suggests that providing rebates for charging stations at DAC sites ensures the 40 percent target is achievable.

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[368] D.16-12-065 at 33-34.

[369] ORA Opening Brief at 30, citations omitted.

[370] Exhibit PGE-2 at 1-12.

[371] Exhibit JP-11 at 3.

[372] TURN Opening Brief at 56.

[373] Exhibit TURN-02 at 15.

TURN suggests that if "this requirement proves unachievable then the utility could submit an advice letter to the Commission seeking a modification to the requirement, detailing why the utilities' efforts failed to produce the required deployment. However, TURN believes the 40 percent minimum requirement is reasonable as a minimum requirement."[374]

Under cross-examination, SCE witness Renger testified that the majority of sites in its program are expected to be located in DACs.[375] In addition, 30 percent of SCE's population lives in DACs[376] and SCE's service territory includes substantial land in DACs, especially in urban areas and freight corridors.[377] Through May 2017, 47 percent of the charge ports requested for SCE's light-duty Charge Ready program are located in DACs.[378] In addition, SCE's service territory has approximately 45 percent of the disadvantaged communities in California.[379]

Based on this evidence, a 40 percent target for SCE appears easily achievable. PG&E's service territory has significantly fewer DACs in it. In prior decisions, the Commission granted PG&E the discretion to target the top 25 percent of census tracts identified by CalEnviroScreen in its service territory, rather than on a statewide basis, to increase the number of eligible DAC sites for program participation. Based on the differences in PG&E's service territory, we

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[374] TURN Opening Brief at 56.

[375] RT 381:21-24.

[376] RT 472:8-13.

[377] Exhibit SCE-1 at 14, Figure II4.

[378] Exhibit TURN-02 at 7.

[379] Exhibit SCE-1 at 13, footnote 25.

adopt 25 percent as its DAC target using the top 25 percent in its service territory.

We find it reasonable for PG&E and SCE to offer rebates on EVSE for sites supporting transit and school buses. Each utility should set the rebate levels for transit and school bus EVSE in consultation with its PAC, not to exceed 50 percent of the cost of the EVSE. The rebate should not exceed the cost the site host pays for the EVSE after accounting for any other funding sources used for EVSE procurement. Regarding DACs, TURN notes it is not clear these site hosts require additional subsidy. "As TURN has pointed out in the past, the fact that a site is located in a 'disadvantaged community' does not mean the commercial customer itself is financially disadvantaged. TURN expects that large corporations will be a large recipient of the subsidies at hand; many likely may have distribution centers, warehouses, etc. in disadvantaged communities."[380]

To address these concerns, we direct PG&E and SCE to develop a rebate amount in consultation with its PAC, not to exceed 50 percent of EVSE costs, to apply to participants in DACs so long as the customer is not on the Fortune 1000 list. We expect the utilities to work with their PACs to develop further requirements for participants located in DACs to be eligible for a partial EVSE rebate. Although providing relatively small rebates (the average cost of chargers for sectors other than transit is between $5,000 and $15,000)[381] to large commercial customers that happen to be located in a DAC may be unlikely to influence their decision to pursue transportation electrification, we find the potential for air quality benefits to DACs worth the additional incentive. The

[380] TURN Opening Brief at 56, footnote 199.

[381] Exhibit PGE-1 at 3-34, Table 3-13.

emissions reductions benefits would be broad, and could encourage program participation by sites in DACs even above the DAC targets we establish for each utility.

SCE proposes reserving the funds for 2.5 years for DACs at which time any unused funds could be used for other sites interested in participating,[382] whereas TURN suggests reserving funds for a four-year, phase 1 period.[383] We will allow 50 percent of the uncommitted but reserved DAC funds to be released at the beginning of year 4 of a five-year program, if the utility has not achieved 60 percent of its target in DAC locations and it has exceeded 80 percent of its non-DAC targets by the end of year 3. Any remaining funds that are unallocated after year 4 may be spent in any location. This will ensure that the environmental and public health benefits of electrifying the MD/HD sector are realized, which would also benefit residents of DACs.

6.4. Impact on Competition

Sections 740.3(c) and 740.12(b) require the Commission to ensure that the transportation electrification programs it approves do not allow the utilities to unfairly compete with nonutility enterprises.

In both PG&E and SCE's medium- and heavy-duty programs, the utilities propose to only own make-ready infrastructure, but not to own the EVSE. The utilities will allow customers to choose their own EVSE models, EVSE installation vendors, and any network services providers.[384] For example, as part of FleetReady, PG&E will coordinate and collaborate with non-utility EVSPs and

[382] Exhibit JP-11 at 3.

[383] TURN Opening Brief at 45.

[384] Exhibit SCE-1 at 54; Exhibit PGE-1 at 3-12.

station owners and operators who will be providing the EV chargers and retail charging services for the program; for that reason PG&E believes it will not be competing with non-utilities to provide chargers or retail charging services.[385] Likewise, SCE's proposed programs will follow "the same market-neutral approach demonstrated in its Charge Ready Pilot Program. This approach consists of deploying electric infrastructure that the utility owns and maintains while participating customers (i.e., site hosts) select, own, operate, and maintain qualified charging equipment."[386]

The make-ready infrastructure will be designed and installed at participating sites by the contractors selected by the utilities' Program Management Office, which will coordinate "execution among vendors and contractors hired for the program."[387] SCE will use a request for proposal process to select contractors.[388] Similarly, "the customer would have to commit to the use of qualified and certified union labor for make-ready installation," to be eligible for PG&E's FleetReady infrastructure rebate for make-ready infrastructure on a customer's existing service connection.[389] It is clear that there will be ample opportunity for non-utility entities to participate in the market to install make-ready infrastructure to support charging stations. Additionally, we direct the utilities to conduct a competitive process to identify electrical

[385] PG&E Opening Brief at 44.

[386] SCE Opening Brief at 22.

[387] Exhibit SCE-1 at 56; Exhibit PGE-1 at 3-36.

[388] Exhibit SCE-1 at 97.

[389] Exhibit PGE-2 at 1-21.

contractors that are qualified to perform make-ready installations. This will ensure the market continues to grow for all qualified installers.

No party expresses concerns about the impact of these programs on the market for charging equipment. When qualifying charging equipment, SCE plans to rely on adopted efficiency and safety standards to define its requirements and accept a large number of vendors and charging equipment models, as SCE has done for its Charge Ready Pilot Program.[390] Participating customers, not SCE, ultimately select the qualified charging equipment they need for their operations.[391] SCE suggests, and we agree, that "[t]his approach allows customers to select equipment that works best for their charging needs, and encourages third-party market participants to provide a variety of established and innovative technologies to meet customer demand."[392]

PG&E states its cost estimates are designed only to support the installation of the make-ready infrastructure, and that it "has not endeavored to estimate the cost of EV chargers and network operations equipment, which will be borne by customers and/or third parties."[393]

For these reasons, we find that the PG&E and SCE medium- and heavy-duty transportation electrification programs do not allow unfair competition with non-utility enterprises for the provision of electrical charging equipment.

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[390] SCE Opening Brief at 22.

[391] Exhibit SCE-1 at 97.

[392] SCE Opening Brief at 22.

[393] PG&E Opening Brief at 29.

The primary concerns around unfair competition with non-utility enterprises revolve around whether the utility will compete unfairly with non-utility enterprises by installing make-ready infrastructure on the customer side of the meter. TURN argues that PG&E and SCE propose to serve 100 percent of the market for make-ready infrastructure for electric MD-HD and off-road vehicles.[394] Clean Energy Fuels posits that the utility proposals make the utilities "the only game in town for the installation of the infrastructure between the customer meter and the make-ready stub"[395] with much of the costs for the programs being spent on customer-side (behind the meter) infrastructure. TURN argues that behind the meter investment is "not the traditional domain of regulated utilities and is more appropriately, in most cases, best served by private contractors and paid for by the sites themselves to deter anti-competitive effects due to utility involvement. The fact that the utilities are able to fully recover the costs of this infrastructure, plus a rate of return, from ratepayers allows them to provide the infrastructure at no cost to the site host which further exacerbates the negative competitive impacts of the programs."[396] According to Clean Energy Fuels, "expansion of the utility reach narrows the ability of others to compete in providing TE infrastructure other than the charger itself. If the utility is able to provide incentives paid for with ratepayer funds for the installation of infrastructure on the customer side of the meter that are not available to other competitors, these incentives will always leave the utility with

[394] TURN Opening Brief at 82.

[395] Exhibit CEF-1 at 18: 2-4.

[396] TURN Opening Brief at 82.

the lowest priced offering. If others are unable to compete on price, simple economics are likely to drive customers to opt for utility programs."[397]

We disagree with TURN's analysis that the proposed programs represent 100 percent of the market for make-ready infrastructure for electric medium- and heavy-duty and off-road vehicles. PG&E's reference case, for example, represented approximately 35-40 percent of the high adoption scenario for its service territory, not 100 percent.[398] The record shows that PG&E's 2025 projection of 34,000 medium- and heavy-duty vehicles added as a result of its proposed program, using ORA's methodology, is substantially below the 2025 adoption rate in the Phase 3 ICF International Transportation Electrification Assessment (TEA) Report, which provides a projection of 50,350 medium- and heavy-duty vehicles in 2025.[399] Because the utilities will qualify third party contractors to perform much of the make-ready installation work, we disagree with Clean Energy Fuels that utility support of make-ready installation on the customer side of the meter will limit competition.

In light of the objectives of SB 350 to accelerate the movement to an electrified transportation sector, we find that the modified programs will not unfairly compete with non-utility enterprises by allowing utility involvement in the installation of make-ready infrastructure both on the utility side and the customer side of the meter. However, as further described below, we will modify the programs to allow the customer the choice of ownership for the behind-the-meter infrastructure.

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[397] Clean Energy Fuels Opening Brief at 29.

[398] Exhibit PGE-1 at 3-21.

[399] Exhibit Joint-8 at 3.

6.5. Program Modifications and Summary of Adopted Program

PG&E's FleetReady forecast costs are based on publicly available scenarios for EV adoption and technology site-specific data for non-light duty vehicle sectors,[400] and are dependent on actual customer demand and customer deployment of non-light duty EVs, creating a direct link between projects funded by the program and accelerated adoption of EVs.[401] Consistent with the Commission's guidance in its Phase I EV decision, D.16-12-065, we find that PG&E has focused FleetReady on make-ready infrastructure that include cost-sharing and collaboration with non-utility EV service equipment providers.

As Clean Energy Fuels points out, the proposed program and vehicle mix, for both PG&E and SCE's programs, is based on a number of studies "including the ICF International TEA study and studies prepared by the CARB and California Energy Commission. These forecasts are then scaled by PG&E's roughly estimated share of each sector."[402] Clean Energy Fuels argues that this approach makes the forecasts highly generalized, and aggregated across sectors with very different cost estimates.

We agree that the proposed programs do not include the normal level of detail that provides us comfort that an upfront reasonableness determination, for the scale of the programs proposed, is appropriate. Because the utilities have not surveyed customers for market interest or provided utility specific forecasts for uptake in particular sectors or vehicle vocations, we adopt substantial

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[400] Exhibit PGE-1 at 3-13 to 3-21.

[401] Exhibit PGE-1 at 3-4, 3-21.

[402] Clean Energy Fuels Opening Brief at 7, citations omitted. Clean Energy Fuels makes the same point with respect to SCE at 10.

modifications to the proposed programs to ensure value to ratepayers while simultaneously accelerating investment in transportation electrification. However, in consideration of the longer MD/HD EV procurement cycles, we do not find the short term program approaches proposed by TURN and ORA will result in substantial transportation electrification, so we establish a five-year program for both utilities.

Appendix C details the assumptions and calculations we use to establish program budgets for PG&E and SCE.

The calculations assume a certain number of sites in each sector to reflect our sector priorities; however, we do not require the utility to adhere to this specific sector mix, we use it only for purposes of developing the adopted budget. We agree with TURN that "[i]deally, investments would be selected that maximize emissions reductions for each ratepayer dollar, with particular emphasis on how to accelerate emissions reductions in disadvantaged communities"[403] which is why we have increased the assumed adoption rate in three vehicle sectors that have particular impact on disadvantaged communities. For example, VTA suggests that the vehicle forecasts on which PG&E's proposed budget is based greatly underestimates the expected vehicle adoption ranges for transit buses.[404] In addition, the electric transit bus sector is poised for expansion, given the number of electric bus options available to fleet operators. The high upfront cost of infrastructure remains a key barrier for fleets choosing to electrify. Focusing support initially on bus electrification could support more rapid EV adoption than other sectors where fewer vehicle options are currently

[403] TURN Opening Brief at 30.

[404] VTA Opening Brief at 7.

available.[405] Therefore, we also support PG&E's proposal to offer $15,000 rebates to sites installing electric public transit or school bus charging infrastructure, or about 50 percent of the total charger cost.[406] We direct PG&E and SCE to annually evaluate the rebate level with its PAC to ensure it is appropriate.

We conclude, consistent with ORA and TURN's recommendations, that a 35 percent contingency is not necessary for the make-ready installations because it is distribution infrastructure that the investor-owned utilities (IOUs) have decades of experience installing and upgrading to accommodate new or increased loads.[407] We instead assume a 10 percent contingency to establish the budget. We adopt PG&E's proposal to use 4 percent of its budget for education.[408]

Table 7. CPUC Approved Budget Assumptions for FleetReady Program

Infrastructure Subtotal	***$148,546,450***
Program Management	$14,854,645
Contingency	$14,854,645
PG&E Education	$5,941,858
Transit and School Bus Rebates	$37,350,000
DAC Rebates	$14,777,063
Non Infrastructure Subtotal	***$87,778,211***
Program Total - PG&E	**$236,324,661**

Table 8. CPUC Approved Budget Assumptions for SCE's Medium/Heavy Duty Charging Infrastructure Program

Infrastructure Subtotal	***$201,754,185***

[405] Exhibit PG&E-1 at 3-34.

[406] Exhibit PGE-1 at 3-35.

[407] ORA Opening Brief at 49; Exhibit TURN-01 at 15.

[408] Exhibit PGE-1 at 3-39.

Program Management	$20,175,419
Contingency	$20,175,419
Transit and School Bus Rebates	$64,620,000
DAC Rebates	$35,931,200
Non Infrastructure Subtotal	***$140,902,037***
Program Total - SCE	**$342,656,222**

Utility investments in make-ready infrastructure to serve the medium- and heavy-duty transportation sector within the adopted budget will be considered *per se* reasonable provided:

- For PG&E, a minimum of 700 make-ready installations are fully contracted for by 2024 and 6,500 additional vehicles are electrified that are directly attributable to the authorized program achieved by site hosts procuring at least two EVs or converting at least two diesel fueled vehicles to electric;
- For SCE, a minimum of 870 make-ready installations are fully contracted for by 2024 and 8,490 additional vehicles are electrified that are directly attributable to the authorized program achieved by site hosts procuring at least two EVs or converting at least two diesel fueled vehicles to electric;
- a minimum of 15 percent of the infrastructure budget serves transit agencies (in each service territory);
- a maximum of 10 percent of the infrastructure budget serves forklifts (in each service territory);
- a minimum of 25 percent of the infrastructure budget serves vehicles operating at ports and warehouses in SCE's territory;
- a minimum of 40 percent of the infrastructure budget results in installations in DACs in SCE's territory;
- a minimum of 25 percent of the infrastructure budget results in installations in DACs in PG&E's territory;
- rebate levels for transit and school bus EVSE are established in consultation with the utility's respective PAC. Rebate levels should not exceed 50 percent of the charger cost;

- rebate levels for EVSE installed at sites in DACs are established in consultation with the utility's respective PAC. Rebate levels should not exceed 50 percent of the charger cost; and
- a maximum of 10 percent of the infrastructure budget is spent on program administration (by each utility).

A vehicle-only target could be met through a focus on sites able to deploy a large electric fleet, while a site-only target could encourage a focus on customers that intend to deploy only one or two electric vehicles. By establishing both a vehicle and site minimum target, we are encouraging the utilities to strike a balance between sites with limited resources or a small number of total vehicles necessary and sites adopting a large number of electric vehicles in the near-term.

If the utility program meets all of these criteria with the full budget expenditure, we consider the program costs to be *per se* reasonable, meaning utility spending on these activities would only be subject to review of the utility's prudent administration of the approved program not on whether the program itself was reasonable to pursue. If the utility program does not meet all of these criteria, the utility must include its program costs in its subsequent GRC for the Commission to review the reasonableness of costs. Under this approach, utilities would record and recover program costs in rates prior to review for reasonableness, and the Commission would only conduct a reasonableness review of costs after the fact if program performance does not meet the criteria described above and are therefore not *per se* reasonable. Given the limited experience of the utilities in supporting electrification of the medium- and heavy-duty sectors, we understand that actual site costs may differ from forecasts. We allow PG&E and SCE, if necessary and after consultation with Energy Division staff and its PAC, to file a Tier 3 Advice Letter after at least two years of program

implementation to request to adjust the program budget and metrics used to determine *per se* reasonableness. The Advice Letter must include:

1. A summary of program status to date;
2. A breakdown of utility-side, customer-side, and other costs, by sector;
3. A description of the major cost drivers for utility-side and customer-side infrastructure; and
4. An explanation of any site cost caps the utility used to determine customer eligibility for the program or other metrics the utility used to control program costs.

This approach limits the risk of ratepayer funds being stranded, as technology for the MD/HD sector is changing rapidly. TURN and ORA both argue that the charging options that exist today may not be compatible with the next generation of EVs as rationale to substantially scale back both PG&E and SCE's programs, however, while we agree that particular EVSE might become obsolete, if properly sized, it is hard to find that make-ready infrastructure investments would become similarly obsolete. We agree with NRDC that the "risk of stranded assets is minimized by the fact both SCE and PG&E's medium and heavy-duty programs are designed such that investments will generally only be made when there are willing partners in the form of site-hosts, fleet managers, and others who will be making matching investments, especially in the vehicles themselves."[409] As PG&E notes, if demand for their standard review projects "is less than the approved revenue requirements during the five-year period of the

[409] NRDC Reply Brief at 7.

respective program, PG&E will return in rates any unspent funds to customers pursuant to guidance from the Commission."[410]

For market sectors where there is no standard charging equipment, SCE proposes that customers could participate in the program, but would be responsible for the full cost of buying and installing the proprietary or made-to-order EVSE.[411] SCE suggests it would help such customers evaluate what equipment the customer may need. This is an appropriate safeguard of ratepayer funds because proprietary or made-to-order technologies are generally not scalable and may result in stranded assets if the company that manufactures them goes out of business or decides to change their technology significantly. We adopt this participation approach for both utilities, and encourage SCE and PG&E to explore options for standard EVSE connectors wherever possible.

We agree with TURN that ratepayers should not fund charging infrastructure that supports the adoption of only one electric vehicle,[412] as proposed by SCE[413] and PG&E,[414] however we will allow the utilities to commit funds for that site host's participation contingent upon the site host's commitment for procurement of at least two new EVs or electrification of at least 2 existing vehicles. TURN suggests that host sites that commit to adopting a higher number of EVs in the near- and medium-term should be prioritized for

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[410] Exhibit PGE-01 at 1-3.

[411] Exhibit SCE-1 at 55.

[412] Exhibit TURN-1 at 8.

[413] Exhibit TURN-02, Appendix 3, TURN-SCE-02, Question 12.

[414] Exhibit PGE-2 at 1-17.

program participation, and we agree.[415] Participating customers should be required to fully participate in the program, including financially, as much as they are able to, and those that are able and willing to transition to electric vehicles in the near-term should be given a priority for participation.

Rebates to support EVSE purchases will be treated as an expense, not capital assets, and would only be available to sites that support electric transit or school buses or are located in DACs. Ratepayer-supported infrastructure in these sectors is more likely to result in broader benefits because the vehicles traverse through entire neighborhoods that will benefit from reduced emissions, are used by the general public, and may help stimulate the development of drivetrains for other medium- and heavy-duty sectors

Tesla and TURN indicated that rather than assuming that a new separately-metered circuit would be needed, there may be opportunities for some customers to use their existing service connections to participate in the medium- and heavy-duty programs.[416] "PG&E does not believe that it is feasible for PG&E to maintain partially owned make-ready infrastructure because it would be impossible to identify which components of the make-ready are PG&E's and which are the customers'."[417] If the Commission decides that customers with existing capacity at their sites should have the ability to use their existing service connection within the FleetReady Program, PG&E requests that up to 20 percent of the FleetReady capital budget be made available to customers who "demonstrate that their site has existing capacity for the proposed EV

[415] TURN Opening Brief at 54.

[416] Exhibit Tesla-1 at 1-2; Exhibit TURN-07 at 9.

[417] PG&E Opening Brief at 44-45.

charger installation in the form of rebates treated as a capitalized utility regulatory asset with return on rate base, in the amount of up to 80 percent of the site installation cost. To be eligible for such rebates, the customer would have to commit to the use of qualified and certified union labor for make-ready installation, and the customer would be subject to all other FleetReady participation criteria."[418]

We agree with Tesla and TURN that if using a customer's existing service connection is the lowest-cost option for a specific site, and the customer would prefer to use its existing service connection, that is the option PG&E and SCE should support. There should not be a cap limiting the amount of the two utilities' budgets that would support a rebate of up to 80 percent of the customer-side infrastructure installation cost to support the EVSE. Any rebates provided to customers for make-ready installation on their existing service connections should be treated as expenses.

VTA suggests that "the program design be flexible enough to include only the utility side of the meter instead of requiring that the work include both sides of the meter up to the stub for the EV Charger."[419] Participating customers should be allowed the choice of whether to own, operate, and maintain the make-ready infrastructure installed behind the customer meter; if the customer chooses customer ownership, the customer must manage and pay for the installation of the customer-side infrastructure and use state licensed labor to perform the installation. The customer must submit to PG&E its site plans and estimated site construction costs and state its commitment to operate and

[418] Exhibit PGE-2 at 1-21.

[419] VTA Opening Brief at 5.

maintain the facilities consistent with relevant national, state, and local electrical standards for their site.[420] The utility shall provide a rebate to the customer for customer-side infrastructure the customer installs. The rebate should be the lesser of: (a) 80 percent of customer's actual installation costs or (b) 80 percent of the average utility direct cost for installing the customer-side make-ready infrastructure in the relevant sector.[421] The rebate should be treated as an expense.

It is reasonable to require program participants to maintain and operate the EVSE for the vehicles they are purchasing for program participation for at least 10 years[422] and require site hosts to provide the utility with data for at least five years after the EVSE is installed.

As modified, PG&E and SCE's proposed Medium and Heavy-Duty Vehicle Charging Programs satisfy Pub. Util. Code § 740.3, § 740.8, and § 740.12 and should be approved.

7. SCE Commercial Rates

In its application, SCE proposed commercial EV rates to apply to new and existing EV customers of three different sizes.[423] SCE also proposes to modify its Rule 1 definition of electric vehicles, to be consistent with the broader definition

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[420] Including but not limited to: National Fire Protection Association (NFPA) 70 § 625-626, NFPA 70B Chapter 34, and any additional local requirements.

[421] Referencing Exhibit PGE-2 at 1-21.

[422] California Transit Association states that the useful life of a heave-duty transit bus is at least 12 years or 500,000 miles. (California Transit Association Opening Brief at 6.) *See* also Exhibit SCE-1 at 54.

[423] TOU-EV-7: Monthly maximum demand ≤ 20 kW; TOU-EV-8: Monthly maximum demand ≥ 21 kW, ≤ 500 kW; TOU-EV-9: Monthly maximum demand > 500 kW. See Exhibit SCE-1 at 60-82.

of transportation electrification established in SB 350, such that the new rates would be applicable to electric vehicles, vessels, trains, boats, or other equipment that are mobile sources of air pollution and GHG emissions. The proposed rates are consistent with SCE's proposed TOU periods in its 2016 Rate Design Window, A.16-09-003, which is pending a Commission decision. These TOU periods include a winter super-off-peak period from 8am to 4pm every day and a summer off-peak period from 9:00 p.m. - 4:00 p.m. every day.[424]

For a defined five-year implementation period, the proposed rates would not include a demand charge, and SCE would recover costs primarily through energy charges. For TOU-EV-7, which applies to customers of lower demand, SCE would provide Option A, a volumetric TOU rate without a demand charge, and Option B, which phases in a demand charge.[425] For rates that include a demand charge, the demand charge would be introduced in year six, annually increasing to full cost by year 11.[426] At least 40 percent of distribution costs will be recovered through volumetric TOU rates in year 11 and beyond, so the time at which the demand occurs will have some impact on how much the customer pays for distribution costs.[427]

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[424] Exhibit SCE-1 at 70.

[425] Exhibit SCE-1 at 67:16 to 68:2.

[426] Exhibit SCE-1 at 64.

[427] Exhibit SCE-1 at 76-77 and Exhibit Joint-12. Under the Stipulation, the distribution grid component for the new EV rates should be the lower of the percentage of design demand distribution costs related to the grid component adopted in the Phase 2 decision, or 60 percent of the design demand distribution marginal costs.

Table 9. Summary of SCE's Proposed Commercial EV Rates

Tariff	Monthly Maximum Demand	Application of Demand Charges
TOU-EV-7	20 kW	Option A: No Demand Charges Option B: Phased in, beginning year 6
TOU-EV-8	21-500 kW	Phased in, beginning year 6
TOU-EV-9	500 kW	Phased in, beginning year 6

ORA served testimony supporting TOU-EV-7 Option A while recommending that some peak-related transmission costs (50 percent until a full study can be completed) be removed from the Option B demand charge.[428] As described in Exhibit JP-5, other parties raised similar concerns about transmission cost recovery and challenged the manner by which SCE would implement the demand charge.

Shortly after testimony was served, parties entered into settlement discussions. Following the close of evidentiary hearings, a group representing the diverse interests of ratepayers, environmental organizations, manufacturers, and union finalized a stipulation that outlined an agreed upon methodology for SCE's rate design.[429] These parties recommend that the Commission use the stipulation as the basis for determining commercial EV rates because it includes modifications to SCE's original proposal that will aid in accelerating EV adoption including:

1. For distribution costs, a maximum of 60 percent of costs that can be recovered through the demand charge;

[428] ORA Opening Brief at 50.

[429] Exhibit Joint-12.

2. Creates Option A and Option B for TOU-EV-7;
3. For TOU-EV-7, the final line transformer (FLT) 50 kilovolt ampere (kVA) or above costs will not be included in the demand charge, but will instead be recovered through energy rates and/or the customer charge;[430]
4. SCE will assess the demand charge on the difference between the EV meter demand and host site meter demand on the condition that the EV's monthly peak demand exceeds the site host's peak demand for co-located accounts;[431]
5. Allocates 30 percent of transmission costs to volumetric rates and 70 percent to demand charges, and will update this allocation once SCE completes a transmission marginal cost study during SCE's Phase 2 GRC; and
6. SCE will propose a DCFC rate and an event-based rate no later than its 2021 GRC Phase 2 proceeding.

On brief, ORA commends the treatment of transmission costs as an improvement from SCE's initial proposal to recover 100 percent of transmission costs through the demand charge. It will enable customers to appropriately see a portion of transmission costs in the TOU rates which will provide customers further incentive to charge during the off-peak or super off-peak instead of the on-peak period. This demand charge mitigation will facilitate customers to focus more on the TOU rates, which offer a better proxy of conditions on the transmission, generation and distribution systems."[432] However, we are

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[430] FLT costs are currently recovered through the customer charge for small commercial customers.

[431] As described in ORA Opening Brief, footnote 302, "[c]o-located accounts refers to any customer that has at least two meters. This is the case for all customers on the new EV rates, because they will have at least one "host site" meter (i.e. main business meter) that is billed on their otherwise applicable tariff plus one separate EV meter that is billed on the new EV rates."

[432] ORA Opening Brief at 51.

concerned that it may be inappropriate to set transmission rate design through a stipulation rather than through a GRC and subsequent filing with the Federal Energy Regulatory Commission (FERC). In light of state policy encouraging TE, we will adopt the transmission related proposals in the SCE Stipulation on a temporary 3-year basis, provided SCE files a Single Issue 205 filing with the FERC for approval of the 70/30 proxy temporary rates. Therefore, we accept the proposal to use a proxy allocation of 30 percent of transmission costs allocated to volumetric rates and 70 percent allocated to demand charges pending FERC approval. The proxy transmission rates may not take effect until SCE receives FERC approval for its proposed 70/30 split. SCE should also take the appropriate steps of completing a transmission cost causation study[433] in its GRC phase 2 or Rate Design Window and then filing this request with the FERC before applying this transmission rate design on a more permanent basis. Further, any introduction of time-dependent transmission rates should not be limited to EV rates but should encompass non-residential transmission rates generally.

[433] The stipulation calls for a "complete transmission marginal cost study." Such a study would fall under the rubric of a cost causation study. However, transmission marginal cost studies are uncommon, possibly because transmission projects are large and infrequent, making them unconducive to a marginal cost analysis. A cost-causation study of transmission must recognize that transmission facilities must be sized to accommodate maximum expected power flow, and will help ensure that, even in cases where peak demand is not the primary driver, analysis of the investments will have a peak demand-related component. Finally, because FERC does not use marginal costs in its rate filings, it may be best to avoid marginal cost terminology and simply characterize the transmission study as a "transmission cost causation study."

In the event FERC does not approve the 70/30 proxy split proposed in Joint-12, SCE should implement its proposed commercial EV rates using the transmission cost allocation currently approved by FERC.

ORA describes its position that the "the proposed billing provision with respect to [demand] charges is a significant improvement over SCE's original proposal."[434] ORA argues that "SCE's original proposal was to simply assess the demand charge based on the high non-coincident demand of the EV meter. However, this would have overestimated customers' demands, because it ignores the fact that the highest demand the grid sees is the combined (i.e. concurrent) demand of the host site meter and the EV meter."[435] As modified by the Joint Stipulation, the new billing provision accounts for the coincidence of the EV meter's and the main business meter's combined maximum demands resulting in a rate design that significantly reduces the financial impacts from demand charges. Tesla is supportive of this modification but recommends clarification to confirm that this structure would only apply to a customer's delivered load. Tesla suggests, for instance, "if a customer installs storage that reduces the EV peak, there should be no penalty.... Tesla encourages resolution on this question within the final approved program rate design."[436] The issue Tesla raises would occur if the customer's storage system were behind the meter that measures the facility load, but not the EV load, thereby reducing the facility's metered demand, and potentially increasing the incremental EV demand to which a demand charge is applied. While we recognize the challenge

[434] ORA Opening Brief at 51.

[435] ORA Opening Brief at footnote 304.

[436] Tesla Opening Brief at 9 to 10.

this could pose to customers with existing storage, the customer would still have the opportunity to reduce their facilities-related demand charge by curtailing their EV charging during peak periods. Developing new technology or algorithms to net out the storage on one meter from the EV load on a separate meter is out of scope of this proceeding. Additionally, this would not be an issue if the storage were behind the same meter as the EV load. Therefore, for the purposes of SCE's rates, the facilities-related demand charge should apply to the metered load as stated in the stipulation.

Finally, ORA strongly supports the Joint Stipulation's recommendation to recover the 50 kVA and above FLT costs through the customer charge and/or energy rates "because it accounts for small commercial customers' lower sophistication and lack of experience regarding demand charges, and it will not deter them from using higher level chargers (which draw more power) and/or generally increasing their EV demand. By reducing the impact of demand charges, these terms will encourage more EV load and allow customers to focus on the TOU price signals."[437]

Some of the benefits of proposed rates (as modified) to EV owners or operators are reduced distribution-related demand charges relative to current EV and non-EV rates, attractive volumetric rates during daytime super-off-peak periods and overnight, and lower summer season charges to mitigate seasonal bill volatility. After the phase-in period is complete, SCE states that its "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

[437] ORA Opening Brief at 52.

rates today."[438] SCE also expects the availability of the new rates to put "downward pressure on non-participating customers' rates," because the new rates will attract new load, and the incremental load will contribute to the recovery of fixed system costs.[439]

For these reasons, we adopt SCE's Commercial Electric Vehicle Rate proposal as modified by the Joint Stipulation set forth in Exhibit Joint-12, excluding the proposed treatment of transmission costs, which should be addressed in SCE's GRC Phase 2. We approve the requirement that SCE propose a DCFC rate, or adjustment to a then-existing rate, targeted to the DCFC segment, no later than its 2021 GRC Phase 2 proceeding.[440] We authorize SCE to file a Tier 2 Advice Letter within 90 days of the adoption of this decision to revise its Rule 1 definition of electric vehicle and establish three new tariff schedules: TOU-EV-7, TOU-EV-8, and TOU-EV-9. Because the Commission has not issued a decision in SCE's Rate Design Window application, A.16-09-003, which in part addresses updated TOU periods, SCE should revise its TOU periods, if necessary, pending the outcome of a decision in that proceeding. SCE should also update its tariffs, as necessary, pending the results of the transmission cost study in its next GRC Phase 2.

8. Authorized Project Funding and Cost Recovery

Section 740.12(b) allows the TE programs and investments proposed by the utility to be recovered through a reasonable cost recovery mechanism if they are consistent with § 740.12, do not unfairly compete with nonutility enterprises as

[438] SCE Opening Brief at 5.

[439] Exhibit SCE-1 at 78.

[440] Exhibit Joint-12 at 3.

required under § 740.3, include performance accountability measures, and are in the interests of ratepayers as defined in § 740.8.

Table 10 summarizes the funding approved by utility and cost category based on the modified programs described above.

Table 10. Funding Approved for Authorized Transportation Electrification Standard Review Projects

Transportation Electrification Project	Capital	Expense	Total
San Diego Gas & Electric Company			
Residential Charging Program	$16,230,000	$120,675,000	$136,905,000
Evaluation		$5,476,200	$5,476,200
Total	**$16,230,000**	**$126,151,200**	**$142,381,200**
Southern California Edison Company			
Medium/Heavy Duty Infrastructure Program	$241,610,552	$101,045,670	$342,656,222
Commercial EV Rate Design	-	-	-
Evaluation		$13,706,249	$ 13,706,249
Total	**$241,610,552**	**$114,751,919**	**$356,362,471**
Pacific Gas and Electric Company			
FleetReady Program	$177,859,849	$58,464,812	$236,324,660
Fast Charge Program	$20,070,177	$2,323,864	$22,394,041
Evaluation		$10,348,748	$10,348,748
Total	**$197,930,026**	**$71,137,424**	**$269,067,449**

Budgets reflect modifications approved in this decision based on the utilities' proposed budgets provided in: Exhibit PG&E-1, Attachment 2, Exhibit SDG&E-3, Appendix A – Detailed Project Costs, Exhibit SCE-01 at 51

This decision addresses the appropriate ratemaking treatment for recovery of the costs for the authorized transportation electrification projects. As described below, each utility plans to create a new balancing account to record approved project costs and revenues and use existing regulatory accounts to ensure that under- or over-collections are amortized annually in distribution rates.

8.1. SDG&E Proposed Ratemaking for Authorized RCP

In its rebuttal testimony, SDG&E proposed to establish a one-way, interest bearing balancing account to record revenues associated with the authorized revenue requirement and operating and maintenance incremental costs for the RCP.[441] SDG&E proposes to maintain a rolling balance through the installation period (2019-2025, with some carry over into 2026 for late customer enrollments).[442] After the program installation period is complete, SDG&E would annually return any over-collected balance through the amortization process that is part of the Tier 2 Advice Letter SDG&E files each October in its electric regulatory account update. The annual true-up process would occur until any undepreciated balances are included in SDG&E GRC.[443]

SDG&E seeks approval of the revenue requirement calculated on the approved capital and O&M costs for 2018-2019 and the years until the projects' associated assets can be rolled into the next appropriate GRC. SDG&E would roll forward any undepreciated book value of plant balances associated with its RCP for recovery in its post-2019 GRC.[444] SDG&E proposes the TE revenue requirement be recovered through distribution rates. Final disposition and closure of the balancing account would be addressed in SDG&E's post-2019 GRC, which SDG&E expects to file in 2020, covering 2022-2024.

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[441] Exhibit SDGE-14 at NGJ-1.

[442] Exhibit SDGE-14 at NGJ-2.

[443] Exhibit SDGE-14 at NGJ-2.

[444] Exhibit SDGE-7 at NGJ-2.

8.2. SCE Proposed Ratemaking for Authorized Project Costs

SCE proposes a Transportation Electrification Portfolio Balancing Account (TEPBA) to "record the actual O&M expenses, payroll taxes, and capital revenue requirement (i.e., depreciation, return on rate base, property taxes, and income taxes) in the TEPBA associated with the activities as approved by the Commission for the TE Portfolio pilot projects and standard review programs."[445]

> SCE proposes to include in distribution rates a forecast annual revenue requirement effective January 1 of each year, for at least five years, or until the TEPBA-related costs are included in a future general rate case (GRC). To help ensure that customers only pay the actual TE Portfolio revenue requirements, SCE proposes to transfer the revenue requirement recorded in the TEPBA to the distribution sub-account of the BRRBA [Base Revenue Requirement Balancing Account] on an annual basis. Using this approach, any difference between the forecast TE Portfolio revenue requirements included in rate levels and the actual recorded TE Portfolio revenue requirements will be trued up in the BRRBA. This proposed ratemaking provides that no more and no less than the reasonable revenue requirements associated with the TE Portfolio activities will ultimately be collected from customers. Any over-collection recorded in the BRRBA at the end of each year will be refunded to customers in the subsequent year. Similarly, any undercollection recorded in the BRRBA at the end of each year will be recovered from customers in the subsequent year.[446]

SCE also requests the Commission preemptively deem as reasonable "any actual incurred costs, as long as consistent with the adopted scope of activities

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[445] Exhibit SCE-1 at 101.

[446] Exhibit SCE-1 at 101.

and within cost levels adopted by the Commission."[447] It proposes that if costs exceed the approved budgets, SCE would file an application or use some other regulatory mechanism to request approval to recover the additional costs.[448]

8.3. PG&E Proposed Ratemaking for Authorized Project Costs

PG&E proposes a Transportation Electrification Balancing Account (TEBA) with separate subaccounts for its FleetReady and Fast Charge programs.[449] Recording the "forecast cost for each ... will allow PG&E to recover the actual revenue requirements up to the level of the forecast total capital and expense expenditures"[450] for the term of the SB 350 TE program. On an annual basis the revenue requirements recorded in the TEBA subaccounts "would be trued-up by transferring the subaccount balance in the TEBA to the [Distribution Revenue Adjustment Mechanism] DRAM as part of the Annual Electric True-up [AET] process at the end of the year for rates effective January 1 of the following year."[451] This would then result in either an over- or under-collection, which would then be amortized in rates up to the authorized forecast costs. PG&E requests an upfront finding that spending for the proposed TE projects at or below the forecast cost is reasonable.

8.4. Analysis

TURN suggests that the utilities recover all costs not directly related to distribution hardware through the Public Purpose Program (PPP) charge, rather

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[447] Exhibit SCE-1 at 101.

[448] Exhibit SCE-1 at 101.

[449] Exhibit PGE-1 at 6-1.

[450] Exhibit PGE-1 at 4 to 5.

[451] Exhibit PGE-1 at 8.

than through distribution costs, as the utilities collect the PPP charge on an equal cents per kWh basis, whereas they recover distribution costs based on their respective marginal cost revenues.[452] TURN provides examples of specific infrastructure and activities that should be included in the PPP charge, including any behind-the-transformer equipment, rebates, and program implementation costs. TURN suggests that its proposal is appropriate because the program is in the public interest and provides benefits to all ratepayers, like the EPIC and Self-Generation Incentive Program (SGIP) which are funded through the PPP. TURN asserts that using the PPP for cost recovery would lessen the bill impacts for residential customers.[453] ORA supports TURN's recommendation to recover SDG&E's RCP costs through its PPP rather than through distribution costs.[454]

PG&E opposes TURN's proposal to recover program costs through the PPP rates, stating that "Infrastructure costs should be based on the function they perform."[455] PG&E implies that while it is true that the SB 350 TE programs help meet public policy goals, the same could be said "for a large majority of electric investment in distribution and generation infrastructure over the last 15 years where the bulk of infrastructure investment has at its premise support of a clean energy future."[456]

PG&E also notes that recovering the SB 350 TE programs' distribution infrastructure costs through the PPP would be contrary to the cost recovery

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[452] TURN Opening Brief at 72 and 121.

[453] TURN Opening Brief at 73.

[454] ORA Opening Brief at 75.

[455] Exhibit PGE-2 at 3-5.

[456] Exhibit PGE-2 at 3-5.

process approved for similar infrastructure costs in D.16-12-065 for PG&E's EV Infrastructure and Education Program.[457]

SCE also opposes the proposal to recover costs through PPP rates, because its "revenue allocation is conducted at the functionalized system level prior to the rate design process."[458] SCE states that it "will not specify that specific expenditures are made on behalf of specific customer groups."[459] SCE argues that EPIC and SGIP are recovered through the PPP because they do not involve traditional distribution assets, while its proposed TE programs do.[460]

SDG&E recommends recovery of costs through distribution rates, since they believe the costs are distribution-related; but they are amenable to "adopting TURN's and ORA's proposal to use a PPP allocation factor to determine the allocation of SB 350 costs to customer classes, and would specifically suggest the EPIC allocation factor proposed in Assembly Bill 628."[461]

We agree with the utilities that the costs associated with their SRPs are related to the distribution system and are appropriately recovered through distribution rates. SB 350 found that "deploying electric vehicles should assist in grid management, integrating generation from eligible renewable energy resources, and reducing fuel costs for vehicle drivers who charge in a manner consistent with electrical grid conditions."[462] Electric vehicles provide

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[457] Exhibit PGE-2 at 3-6; D.16-12-045, Ordering Paragraph 4.

[458] Exhibit SCE-2 at 34.

[459] Exhibit SCE-2 at 34.

[460] SCE Reply Brief at 20-21.

[461] SDG&E Reply Brief at 29.

[462] Section 740.12.(a)(1)(G).

opportunities for grid integration and enhanced distribution system management.

TURN also recommends the Commission reject PG&E and SCE's proposals to be allowed to request recovery of additional costs if "demand outstrips the overall budget,"[463] stating that the Commission should set a firm cap on spending for the programs' approved scope of activities, and make clear that "there will be no opportunity for recovery of within-scope activities that exceed the budget or for out of scope activities."[464] ORA also opposes the utilities' request to seek recovery of costs over the approved budgets or an after-the-fact review of out-of-scope activities.[465] We agree.

Each utility is authorized to file a Tier 1 Advice Letter updating its existing transportation electrification one-way balancing account[466] to include the programs approved today either as a new subaccount in the case of PG&E and SCE or within the balancing account for SDG&E. The utilities should record the revenue requirement associated with the SRPs on a monthly basis, and the balances of each balancing account should be transferred annually to a distribution account for amortization in distribution rates. Each utility may use its existing regulatory accounts and Advice Letter procedures for this annual amortization. The next year's forecast revenue requirement should be included in rates as follows:

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[463] TURN Opening Brief at 75, Exhibit PGE-2 at 1-4.

[464] TURN Opening Brief at 75.

[465] Exhibit ORA-2 at 2-8.

[466] Established through SDG&E Advice Letter 3178-E, SCE Advice Letter 3734-E, and PG&E Advice Letter 5222-E.

- SDG&E should use its Annual Electric Regulatory Account Update, filed as a Tier 2 Advice Letter in October and its consolidated end-of-year Tier 1 Advice Letter in late December.
- SCE should use the existing, annual Tier 2 Advice Letter process for its ChargeReady light-duty EV program.
- PG&E, as proposed in its testimony, should include this as part of its AET, filed as a Tier 2 Advice Letter by September 1, and a supplemental Tier 1 Advice Letter in late December.

This decision approves a budget, as detailed in Table 10, associated with the direct costs for each SRP. The utility may record the revenue requirements up to the authorized direct costs for each project. The approved budgets are not fungible across priority review or standard review projects. At the end of the projects, any forecasted costs that were included in rates but were not spent should be returned to customers through rates.

SDG&E's and SCE's proposals for transferring ongoing costs into their GRC are approved. PG&E's proposal to phase operations and maintenance costs into its 2020 GRC, before including capital costs in its 2023 GRC, is denied. PG&E should continue recording all costs associated with the SRPs in its new balancing account until its 2023 GRC.

Given the annual Advice Letter process and Commission oversight over project implementation, we will not require any after-the-fact cost reasonableness reviews. The SRP costs will be deemed reasonable and approved for recovery through the Advice Letter process if they are within the project-specific budget limits approved in Table 10, and consistent with the approved project scope. Costs incurred for each project up to the authorized level will be considered per se reasonable subject only to the utility's prudent administration of the project; costs above authorized level will be borne by shareholders.

9. Program Advisory Councils

Each utility has an existing Program Advisory Council (PAC)[467]to provide them guidance during implementation of their ongoing light-duty infrastructure pilots.[468] D.18-01-024 extended the applicability of each of these PACs to the approved PRPs. We further direct the utilities to use these PACs to provide feedback and guidance during implementation of the standard review projects. The utilities should finalize implementation details for the approved projects based on feedback from its PAC. The utilities may determine how to best structure and segment their PAC meetings given the broad range of programs included in each. Each utility's PAC should meet quarterly following the Commission's approval of the projects and throughout the implementation and design phase of the projects. Utilities can continue the PAC meetings at their discretion once project construction or implementation has begun. The PACs shall include a diverse set of stakeholders with expertise relevant to the PRPs, including CCAs. Each utility shall, at a minimum, solicit participation through the service list for this proceeding.[469]

PAC participants are generally responsible for attending all meetings or phone calls, providing feedback on program implementation based on their specific expertise, providing relevant data and lessons learned from the field, and providing input on any programmatic changes necessary to improve program efficacy.

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[467] SCE calls its PAC an Advisory Board but for simplicity here, we use the term PAC.

[468] SDG&E's Power Your Drive pilot as approved in D.16-01-045, SCE's Charge Ready pilot as approved in D.16-01-023, and PG&E's EV Charge Network as approved in D.16-12-065.

[469] D.16-01-045, Attachment 2, Appendix A includes details on the composition and activities of the PAC.

If a utility identifies any modifications necessary to effectively implement the programs approved in this decision, it should propose those modifications via a Tier 2 Advice Letter after reviewing the changes with their PAC.

10. Data Gathering Requirements

The Commission will review the results of the SRPs along with information collected from the utilities' already approved infrastructure programs to determine the effectiveness of utility investments in transportation electrification. To facilitate this evaluation, we adopt the same data collection and reporting requirements that D.18-01-024 required for the PRPs to ensure standardization in reporting.

Each utility is required to submit an annual report and a final report for each of their approved projects, and serve this to the service list for this proceeding. The reports should use the report template and data collection template available on the CPUC website (http://www.cpuc.ca.gov/sb350te/) under the "reporting requirements" section of this page.

The templates include:

- A final report template in Microsoft Word format that includes report headings and descriptions of the information that should be included in the report. This reporting information is common across all projects. Additional, project specific information is included as an appendix to this template.
- A data reporting template in Microsoft Excel that has several tabs for the utilities to report various quantitative data. The first tab of the file contains instructions on how to complete the files. Each utility should complete this file and submit it in Excel format along with its annual and final reports.
- Additionally, each utility must ensure that it reports, or helps a site host to report, all publicly-accessible charging stations to

the US Department of Energy's Electric Vehicle Charging Station Locations mapping tool.[470]

11. Evaluation

Section 740.12(c) requires the Commission to review data concerning current and future TE adoption and charging infrastructure utilization prior to authorizing the utilities to collect new TE program costs. The evaluation process should, at a minimum, investigate and identify the following:

(1) Whether the utilities' TE investments meet the stated purposes of accelerating widespread transportation electrification, reducing dependence on petroleum, meet air quality standards, achieve the goals of the Charge Ahead California Initiative, and reduce greenhouse gas emissions.

(2) Whether the TE investments maximized benefits and minimized costs.

(3) Learnings from analysis of data collected during program implementation including:

   a. Infrastructure utilization data;

   b. Number of incremental electric vehicles adopted;

   c. Actual costs associated with the electrification of various sectors;

   d. Actual emissions reductions associated with TE investments; and

   e. Actual grid impacts associated with TE investments.

D.18-01-024 directed the utilities to collectively fund a budget equal to four percent of their total approved project budgets from all ratepayers, to conduct an RFP to hire an evaluator that will review the results of the PRPs

[470] Available at: https://www.afdc.energy.gov/fuels/electricity_locations.html#/find/nearest?fuel=ELEC.

approved in that decision.[471] The decision further directed PG&E, SDG&E, and SCE to coordinate evaluation efforts with PacifiCorp, Liberty Utilities, and Golden State Water Company (Bear Valley Electric Service Division) to capture economies of scale for purposes of evaluating the PRPs. In this decision, we direct the utilities to again contribute four percent of their total approved SRP budgets to support this evaluation effort and extend it to the standard review projects' results.

As directed in D.18-01-024, the utilities must submit a joint Tier 1 AL providing a status update on implementation of and data available from the programs authorized in this decision within two years of the date of this decision. Based on the progress of the projects at that time, the Commission will determine whether one evaluation can capture all of the approved projects' results or whether separate evaluations will be needed due to timing or other differences in the data available from the programs. The expectation is for the evaluation efforts specific to the SRPs to commence by early- or mid-2021.

12. Safety Considerations

The Commission's focus on ensuring utilities provide safe and reliable service is an overarching focus in the emerging TE industry. Section 740.8 defines the "interests" of ratepayers to mean: direct benefits that are specific to ratepayers consistent with safer, more reliable or less costly gas or electrical service consistent with § 451. The ACR directed that TE Applications should promote driver, customer and worker safety.[472] Safety and Enforcement Division

[471] D.18-01-024 at 97.

[472] ACR, Section 3.8.

(SED) staff issued a data request to better understand how the utilities are addressing these objectives. Based on the responses, SED staff developed a draft Safety Requirements Checklist for the TE programs, available on www.cpuc.ca.gov/sb350te under the "SB 350 TE Reporting Requirements" section of this page.

The Safety Requirements Checklist is intended to consolidate current standards and requirements in one place and to ensure the utility infrastructure is installed and operated safely and does not adversely affect reliability of electrical service.

The Safety Requirements Checklist will be revised and circulated to the service list of this proceeding after it is finalized. While the Commission may later amend and update the Safety Requirements Checklist for future proceedings, the final version that circulated to this proceeding's service list will be applicable to the programs approved in this decision through the duration of their implementation.

No later than 18 months after today's decision is approved, the sponsoring utility for each project must file a Tier 1 Advice Letter describing their compliance efforts with the safety requirements included in the checklist. Utilities' safety efforts should include all safety precautions the utility and its PAC determine are necessary for the specific program being implemented including or beyond those listed in the Safety Requirements Checklist. The Advice Letter must contain an attestation signed by the Project Manager. Each utility should file a final safety attestation, using the same template developed for the PRPs, along with their final report for each SRP.

The Commission will review utility compliance with the Safety Requirements Checklist and may conduct inspections or audits to confirm

compliance. The sponsoring utility must have all compliance documentation available should the Commission determine an inspection or audit is necessary.

13. Categorization and Need for Hearing

In Resolution ALJ 176-3392, the Commission preliminarily categorized this proceeding as ratesetting, and preliminarily determined that hearings were necessary. Evidentiary hearings were held September 25-28, 2017 and October 2-5 and 9-11, 2017 for the Standard Review Project portion of this proceeding. The April 13, 2017 Scoping Ruling confirmed the categorization as ratesetting.

14. Outstanding Procedural Matters

The CPUC affirms all rulings made by the assigned Commissioner and assigned Administrative Law Judge (ALJ). All motions not previously ruled on are deemed denied.

15. Assignment of Proceeding

Carla J. Peterman is the assigned Commissioner. ALJs Michelle Cooke and Sasha Goldberg are the Presiding Officers.

16. Comments on Proposed Decision

The proposed decision of ALJs in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code and comments were allowed under Rule 14.3 of the Commission's Rules of Practice and Procedure. Opening Comments were filed on April 19, 2018 by: SDG&E, PG&E, SCE, ORA, TURN, SBUA, Coalition of California Utility Employees, CALSTART, Clean Energy Fuels Corp., NDC, Joint Parties, Tesla, EDF, ChargePoint, Siemens, GPI

and CEC, UCAN, CCA Parties[473], California Transit Association, CCAEJ and EYCEJ, Greenlots, SDAP, and Greenlining. Reply comments were filed on April 24, 2018 by: SDG&E, PG&E, SCE, ORA, TURN, EDF, SBUA, City of Long Beach California, Siemens, NDC, Tesla, UCAN, ChargePoint, Joint Parties, SDAP, Clean Energy Fuels Corp., CCAEJ and EYCEJ and Greenlots.

In response to comments, changes have been made throughout the decision to improve clarity. A few changes however, we feel necessary to discuss and highlight below.

In response to comments on SDG&E's RCP, we have revised the decision to make the implementation of the RCP optional.[474] While the Commission finds there is tremendous value in testing SDG&E's RCP and evaluating the purported environmental benefits, it is unclear whether SDG&E and other parties do. Several parties provided comments on the proposed decision's treatment of rebates as expenses and/or the modification to shift SDG&E's method of delivery for its RCP to a rebate program.[475] These parties expressed concern that this decision removes *incentives* for SDG&E to invest in TE, because rebates are treated as expenses. The ACR explicitly directed the utilities to file the instant applications and specified that "to meet SB 350 goals, the utilities must also invest in non-infrastructure program on which they may not earn a rate of return on investment under the traditional ratemaking approach" and that "the electric utilities may propose…how the utility can be incentivized for undertaking TE

[473] The CCA Parties consist of: Marin Clean Energy, Sonoma Clean Power, City of Lancaster, and Silicon Valley Clean Energy.

[474] Ordering Paragraph 3.

[475] *See Generally*, Opening Comments of SDG&E; Reply Comments of EMeter, a Siemens Business; Reply Comments of Greenlots.

projects and investments..." using performance-based ratemaking or other incentive structures.[476] Rather than exploring other program delivery models or solutions that do not require complete utility ownership and ratebasing of behind-the-meter infrastructure, SDG&E designed its RCP with traditional ratemaking principles.[477] While the Commission supports a role for the IOUs in accelerating TE, the Commission does not believe that capitalizing all EV charging infrastructure is always necessary to remove barriers to widespread electrification. Furthermore, the Commission expects additional applications from IOUs to support widespread TE and it is unclear if persistent capitalization of TE infrastructure will lead to unaffordable rates for all ratepayers if done at scale to meet the State's TE goals.

However, in response to comments and consistent with the goals of SB 350, the scope and record of this proceeding,[478] and Commission authority, we

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[476] ACR at 30 to 31.

[477] Consistent with previous transportation electrification decisions, we allow the utilities to rate base customer-side and utility-side infrastructure that the utility owns and operates consistent with the following rationale: a utility's rate base represents the value of its property that is used and useful in rendering utility public service. Because rate base is the foundation upon which the company's earnings, or rate of return is based, elements included in rate base are of special concern in the ratemaking process and subject to additional scrutiny by regulatory authorities. Including only utility property prudently incurred and devoted to providing utility service ensures that present utility customers pay only for the costs associated with the benefits received and prevents current ratepayers from subsidizing service to future customers. Operating expense are generally the ordinary non-capital expenses that are reasonable and necessary for the utility's operation. (*See* D.16-12-065 at 62).

[478] Exhibit TURN-04 at 20 to 22; Reply Comments of ORA referencing Exhibit ORA-3; Opening Comments of Natural Resources Defense Council, Plug-In America, The Coalition of Utility Employees, Sierra Club, Environmental Defense Fund, UCS, Greenlots, Siemens, and EMotorWerks at 15.

will allow SDG&E to meet and confer with parties to develop a companion incentive mechanism within the parameters outlined in Appendix B.

In response to comments on SCE's Medium/Heavy Duty Charging Infrastructure program, we have increased the budget and program goals to reflect a higher number of sites in several sectors, as detailed in Appendix C, with a focus on vehicles that will be deployed at ports and warehouses.[479] We recognize that SCE's service territory has a higher number of sites served by port equipment and warehouse operations than PG&E's service territory, and have adjusted SCE's program budget to reflect those differences. These substantive changes were made regardless of the mathematical modeling error identified in SCE's Amended Opening and Reply Comments that resulted in a decrease of $142 million to SCE's requested budget.[480] We base our modifications on the evidentiary record, and non-utility parties' comments.

Given the evolving TE market, alternative approaches to ratemaking may make sense in the future proposals and proceedings. In addition to seeing the goals of SB 350 achieved, the Commission wants to learn from this decision's authorized investments and how best to incentivize both utilities, ratepayers, and customers in the future. Because California stands at the forefront of TE investment and planning, we want to encourage our investor-owned-utilities to think differently and creatively about how to deliver TE investments.

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[479] *See*, generally, opening comments from the Joint Parties, Tesla, CUE, CTA, CalSTART, Greenlining, and the EJ Parties.

[480] SCE Amended Filing on May 17, 2018.

Findings of Fact

1. Light-duty vehicles comprise 97 percent of all registered vehicles in San Diego County and are responsible for approximately 80 percent of combined on-road and off-road GHG emissions.

2. Recent studies show the degradation of air quality in San Diego County, culminating with the American Lung Association's grade of "F" in air quality for San Diego County in the organization's last two-year's "State of the Air" report.

3. To calculate program size, SDG&E assumed that its service territory makes up approximately 10 percent of California's 1.5 million-vehicle goal, narrowing SDG&E's target to 150,000 ZEVs. SDG&E subtracted the projected number of ZEVs in its territory in 2020 (29,691) from 150,000 vehicles to get a remaining market of 120,309 additional ZEVs that need to be on the road in SDG&E's territory by 2025.

4. SDG&E's 90,000 figure ignores the natural progression of EV adoption that will occur from 2020 to 2025 in SDG&E's service territory.

5. SDG&E's 90,000 figure excludes the 3,000 to 3,500 utility-owned EVSE that were already approved in D.16-01-045.

6. SDG&E's 90,000 figure omits 14,000 current SDG&E EV drivers not enrolled in EV TOU Rates.

7. As proposed, SDG&E's 90,000 L2 EVSE deployment goal actually constitutes 87 percent of the projected vehicles needed to meet the Governor's ZEV goals.

8. SDG&E's RCP will encourage adoption of EVs by making L2 charging stations more accessible by daily commuters.

9. Installing L2 EVSE at a residential home is not as complicated as the installation of EVSE in other sectors.

10. Utility ownership of the charging infrastructure dramatically drives up costs, in comparison to alternative ownership models.

11. A key barrier to EV adoption is upfront installation costs.

12. Qualifying networked L2 EVSE should have common communication capabilities through WiFi or cellular and be capable of responding to price signals, recording interval energy consumption, and allow for accurate billing of EV-only tariffs.

13. TURN estimates SDG&E's modified RCP will cost between $677 to $750 million; which translates to ratepayers paying over $7,500 to $8,300 per L2 EVSE installed.

14. SDG&E's average EVSE allowance ($500) and installation allowance ($1,425) are reasonable.

15. Under the Sonoma Clean Power program, customers can go to Sonoma Clean Power's website to order an eligible L2 station; customers are then required to pay the sales tax and a $50 handling fee.

16. SDG&E's current Marketplace website allows customers to compare prices and read customer reviews when deciding what EVSE they would like to purchase.

17. A rebate program that allows the residential customer to select EVSE from pre-qualified providers creates a good environment for market growth, technical innovation and competition on price, product features and service.

18. Free-riders are those who already own an EV, and providing rebates to those drivers would not result in additional EV adoption.

19. A recent survey revealed majority of EV drivers in California are relatively wealthy with 76 percent of surveyed drivers having a household income of more

than $100,000 per year, compared to California's average household income of $65,000.

20. 96 percent of proposed RCP funds will benefit what is already the most successful consumer market for EV adoption, single-family residences.

21. L1 charging will not generate the same opportunities for managed charging associated with L2 charging, such as improving SDG&E's load factor, integrating renewables, and reducing fuel costs.

22. Managed charging has load shifting and load shaping benefits that can reduce upward pressure on rates for all ratepayers.

23. L2 charging can prevent range anxiety amongst EV drivers.

24. Networked L2 charging can provide customers with the flexibility to participate in Demand Response programs.

25. Networked L2 chargers have the potential to record interval consumption data enabling drivers to more easily respond to "real time signals" and EV-only TOU rates.

26. Charging capabilities need to align with the increase of EV battery ranges.

27. By withdrawing the requirement that residential participants must take service on the GIR, SDG&E feels that concerns about including CAISO day-ahead pricing are addressed.

28. SDG&E's existing EV TOU rates fail to account for the fact delivery charges vary by time-of-use period.

29. SDG&E should continue to leverage its Clean Transportation Department's customer engagement efforts to target current and future EV drivers, as well as partner with stakeholders to share information about the RCP.

30. SDG&E should work with its PAC to develop program marketing materials that are geared toward both DAC and non-DAC communities.

31. SB 350 has clear objectives to increase EV adoption and charging access in DACs.

32. PG&E's Fast Charge aims to: (1) help meet a portion of PG&E's estimated need for up to 916 fast chargers in its service area by 2025, (2) reduce driver range anxiety, and (3) increase access to charging for customers, especially those lacking ready access to home charging, needing charging stations in transportation corridors for longer trips, or for access to ridesharing.

33. PG&E's Fast Charge program size takes into account other fast charging station installations and relies on the empirical results of an expert market analysis of DCFC needs and potential locations in PG&E's service area.

34. TURN and ORA offer no qualified expert opinion that contradicts PG&E's EPIC 1.25 study.

35. The EPIC 1.25 research identified 300 prioritized areas of expected high-demand for fast charging in PG&E's territory and estimated that between 574 and 916 additional fast chargers are needed to meet expected vehicle charging demand in those areas above and beyond the approximately 300 DCFCs already operational in PG&E's service territory.

36. Using the mid-range forecast provided by the EPIC 1.25 study, 754 new fast chargers in PG&E's service territory are needed to meet 2025 fast charging demand, of which PG&E proposes to provide ratepayer funded make-ready infrastructure to support approximately 234 fast chargers.

37. Additional fast charging infrastructure is needed to electrify the ridesharing industry.

38. The most significant learning on ridesharing programs has been the need for more DCFCs, with drivers often experiencing queuing at urban locations.

39. DCFC installation costs vary widely. The cost to install DCFCs in numerous cities across the United States varied from $8,500 to over $50,000, with a median cost of $22,626.

40. In a Washington state study, DCFC stations averaged $58,000, reflecting the auxiliary services and features needed for a publicly accessible unit, including warranty, maintenance, customer authentication, and networking with point-of-sale capabilities to collect payment from customers.

41. DCFC installation costs can also vary because of other enhanced safety and security measures that are often required by local permitting authorities, such as lighting and revenue-grade meters.

42. One of the most important deliverables of PG&E's Fast Charge program is to see delivery of air quality and other benefits to disadvantaged communities, often the hardest hit by emissions from the transportation sector.

43. Prioritization of transportation electrification investments—along with targeted marketing, outreach, and education that is relatable and accessible to disadvantaged communities - will be critical to moving the PEV market beyond the early-adopter segment.

44. Greater access to faster chargers in DACs can make EV ownership in those communities more attainable and can bring other economic benefits to those communities as well.

45. No party raises concerns about PG&E's proposed Fast Charge program having an adverse impact on non-utility competition.

46. It is essential for the EV market to move beyond single-family detached homes to scale up to meet long-term climate and air quality goals. Access to DC fast charging stations can provide those consumers in market segments who

cannot charge at home, such as those who live in multi-unit dwellings, with the ability to purchase or lease EVs.

47. Many of the 45 percent (as of the year 2000) of Californians who rent, live in apartment or condo buildings, and use street parking have more limited options for EV charging and access to faster charging can eliminate a barrier to EV adoption.

48. It is prudent for PG&E to install the customer-side electric infrastructure necessary to support EVSE of 150 kW or larger at each DCFC site that supports corridor charging in the Fast Charge program, even if a lower capacity EVSE is installed, to account for the possibility that the site host may wish to upgrade to higher-powered EVSE in the future.

49. Even if the site host chooses a higher capacity EVSE, a charger's ability to deliver power exceeding the on-board capacity of the vehicle using the charger does not mean that the EV cannot use the charger.

50. All customer-side make-ready infrastructure installed in PG&E's Fast Charge program should support a minimum of 150 kW charging equipment.

51. To forecast the number of sites in PG&E's service territory that would participate in the FleetReady Program, PG&E first developed a reference case EV adoption forecast for the non-light-duty sector by: developing a state-wide forecast; estimating PG&E's share of each sector; and determining the number of sites based on sector-specific data on attach rate and charge points per site.

52. PG&E emphasizes that the actual number and type of sites that will participate in the FleetReady program will vary from its forecasted estimates and actual costs per site may vary from the expected costs due in part to the nascent state of the non-light-duty EV market.

53. PG&E's FleetReady and SCE's Medium- and Heavy-Duty Vehicle Charging Infrastructure Program are targeted at the non-light duty vehicle sector which is the source of significant GHG, NOx and other emissions, but which is seriously lagging behind the light-duty vehicle sector in the adoption and deployment of zero-emission vehicles.

54. The estimated emissions reductions associated with both existing and new deployments of non-light-duty electric vehicles in PG&E's service territory would be about 341,622 tons of CO2, and NOx emissions or 1.90 tons/day in 2026, if the adoption rate of the reference case is achieved.

55. SCE forecasts that in 2030, electric sector greenhouse gas emissions would increase by approximately 1.6 million metric tons, and the replacement of conventional vehicles with electric vehicles would reduce greenhouse gas emissions by about 26.2 million metric tons, resulting in a net 24.6 million metric tons reduced.

56. SCE's total proposed budget was more than double what PG&E has proposed, even though its costs as proposed were based on only 32 percent more site installations.

57. In amended comments on the proposed decision, SCE identified a calculation error that reduced its proposed budget by $142 million.

58. We prefer PG&E's approach to selectively target rebates, because it is most likely to influence GHG emission reductions where they are needed most.

59. SCE's proposal to provide rebates to cover 100 percent of the base cost of EVSE for all of the sites participating in its program is excessive.

60. PG&E's forecast unit costs and site-specific costs for make-ready electric infrastructure are also based on unit cost forecast methods routinely used and

approved in the Commission's GRCs for comparable electric infrastructure costs, as well as in the Commission's recent EV decisions.

61. Providing rebates for publicly-accessible and residential charging equipment in DACs serves residents in those communities whose air quality and socioeconomic status determined the DAC designation.

62. Providing relatively small rebates (the average cost of chargers for sectors other than transit is between $5,000 and $15,000) to large commercial customers that happen to be located in a DAC is unlikely to influence their decision to pursue transportation electrification.

63. The make-ready infrastructure will be designed and installed at participating sites by the contractors selected by the utilities' Program Management Office, which will coordinate execution among vendors and contractors hired for the program.

64. When qualifying charging equipment, SCE plans to rely on adopted efficiency and safety standards to define its requirements and accept a large number of vendors and charging equipment models, as SCE has done for its Charge Ready Pilot Program.

65. The fact that the utilities are able to fully recover the costs of this infrastructure, plus a rate of return, from ratepayers allows them to provide the infrastructure at no cost to the site host.

66. Focusing support initially on bus electrification could support more rapid EV adoption than other sectors where fewer vehicle options are currently available.

67. SCE's proposed Commercial EV TOU periods include a winter super-off-peak period from 8am to 4pm every day and a summer off-peak period from 9:00 p.m. – 4:00 p.m. every day.

68. Some of the benefits of SCE's proposed rates to EV owners or operators are reduced distribution-related demand charges relative to current EV and non-EV rates, attractive volumetric rates during daytime super-off-peak periods and overnight, and lower summer season charges to mitigate seasonal bill volatility.

69. Reducing the impact of demand charges aims to encourage more EV load and allow customers to focus on the TOU price signals.

70. SCE expects the availability of the new rates to put downward pressure on non-participating customers' rates, because the new rates will attract new load, and the incremental load will contribute to the recovery of fixed system costs.

71. Any introduction of time-dependent transmission rates should not be limited to EV rates but should encompass non-residential transmission rates generally.

72. One of the objectives of deploying the standard review proposals is to gather information and share lessons learned in nascent sectors.

73. The purpose of standardized reporting is to ensure that each utility collects the necessary data to analyze each project upon its completion to show how well it has met the goals of SB 350.

74. Standardizing the data collection and reporting process will enable the greatest sharing of information across utilities and with interested stakeholders.

75. Ensuring utilities provides safe and reliable service is an overarching focus in the emerging TE industry.

Conclusions of Law

1. Increasing access for disadvantaged and low- and moderate-income communities to enhanced air quality and lower GHG emissions promotes the overall benefits of TE to these communities, consistent with § 740.12(a)(1).

2. SDG&E fails to establish how the benefits of its proposed RCP under the utility ownership model justify the increased costs to ratepayers.

3. SDG&E fails to prove why utility ownership of the charging infrastructure is necessary to improve the delivery of the RCP's objectives in proportion to the higher costs associated with utility ownership. This is equally true for the EVSE and the make-ready infrastructure on the customer-side of the meter.

4. Denying SDG&E the ability to own any of the charging infrastructure on the customer side of the meter should not hinder SDG&E's ability to offer customers incentives for installing L2 charging stations, encourage the adoption of time-variant rates, and provide the Commission with valuable data to help shape future TE policy.

5. A target of 60,000 participants will enable SDG&E to meet 50 percent of the projected EV adoption need in its service territory, and strikes a balance between the costs to ratepayers and the overall benefits of the RCP, in addition to competitive concerns.

6. Deploying 60,000 L2 EVSE will assist in grid management, a primary objective of SB 350, by encouraging charging during off-peak and super off-peak periods when the grid is underutilized.

7. Networked L2 EVSE will provide SDG&E and the Commission with valuable data concerning the current and future trends of EV charging patterns and their effect on grid reliability, a necessity in evaluating the success and scalability of SDG&E's RCP.

8. SDG&E's planned reporting will provide valuable information on charging load profiles and EVSE utilization, complying with § 740.12(c).

9. The 60,000 EVSE deployment goal not only helps to ensure SDG&E does not dominate the EVSE and EVSP market, it also provides a more concentrated goal to base GHG emission reduction analyses on.

10. SDG&E's proposal to provide DACs higher allowances for EVSE and installation costs will provide economic benefits to DACs consistent with § 740.12.

11. SDG&E's commitment to allocate $5.5 million in total direct costs to fund electric panel upgrades for DAC customers and SDG&E's goal of at least 40 percent of overall program costs be spent with DBE firms, aims to facilitate access by DACs to TE infrastructure.

12. By providing rebates to offset the EVSE and permitting fees associated with installing electric vehicle chargers, SDG&E's RCP will incentivize EV ownership.

13. If SDG&E chooses to implement the RCP as approved in this decision, SDG&E may also explore the option of a companion incentive mechanism.

14. PG&E's Fast Charge program scale is based on credible research and forecasting from electric transportation research experts at UC Davis, Ricardo and E3 in the form of the EPIC 1.25 study.

15. Accelerating the adoption of EVs in California, as mandated by SB 350, requires charging access for those without access to home charging.

16. The record on PG&E's Fast Charge program supports a maximum rebate of $25,000 per DCFC in DACs not to exceed the full cost of the EVSE and installation costs.

17. PG&E should ensure that its PAC includes representatives from disadvantaged communities, small and diverse business enterprises to ensure that these perspectives are represented during implementation.

18. PG&E should select at least 25 percent of the site hosts to be located in DACs, consistent with its rebuttal testimony recommendation.

19. PG&E's Fast Charge conforms to the ACR instructions to leverage non-utility funding by requiring the site host at all sites located outside of disadvantaged communities to cover the entire cost of the DCFC equipment, network services, O&M.

20. PG&E should install make-ready infrastructure to support at least 150 kW power level EVSE, which has a higher cost than the make-ready infrastructure to support 50 kW EVSE included in its budget estimates.

21. TURN's proposed Performance Accountability Metric that focuses on site utilization statistics to drive site selection would likely make it harder to site DCFC make-ready investments in DACs.

22. PG&E and SCE should continue to extend reporting requirements for an additional five years, which will ensure the Commission and stakeholders benefit from data associated with stations installed toward the end of the program.

23. A 40 percent target for SCE's MD/HD program in DACs appears easily achievable.

24. PG&E should target 25 percent of its MD/HD program in DACs using the top 25 percent in its service territory.

25. It is reasonable for PG&E and SCE to offer rebates on EVSE for sites supporting transit and school busses but not generally for commercial customers targeted by these programs that happen to be located in DACs.

26. To ensure the environmental and public health benefits of electrifying the MD/HD sector are achieved, any remaining funds that were reserved for DACs

but remain unallocated after year 4 can be spent in any location in PG&E's and SCE's service territory.

27. There will be ample opportunity for non-utility entities to participate in the market to install make-ready infrastructure to support charging stations.

28. To ensure the market continues to grow for all qualified installers, PG&E and SCE should conduct a competitive process to identify electrical contractors that are qualified to perform make-ready installations.

29. In light of the objectives of SB 350 to accelerate the movement to an electrified transportation sector, PG&E and SCE's medium-and heavy-duty programs will not unfairly compete with non-utility enterprises by allowing utility involvement in the installation of make-ready infrastructure both on the utility side and the customer side of the meter.

30. Consistent with the Commission's guidance in its Phase I EV decisions, PG&E has focused FleetReady on make-ready infrastructure that include cost-sharing and collaboration with non-utility EV service equipment providers.

31. Because PG&E and SCE have not surveyed customers for market interest or provided utility specific forecasts for uptake in particular sectors or vehicle vocations, we should adopt substantial modifications to the proposed programs to ensure value to ratepayers while simultaneously accelerating investment in transportation electrification.

32. If demand for PG&E's standard review projects is less than the approved revenue requirements during the five-year period of the respective program, PG&E should return in rates any unspent funds to customers pursuant to guidance from the Commission.

33. Making participants responsible for the full cost of buying and installing the proprietary or made-to-order EVSE is an appropriate safeguard of ratepayer

funds because proprietary or made-to-order technologies are generally not scalable and may result in stranded assets if the company that manufactures them goes out of business or decides to change their technology significantly.

34. Offering a 100 percent rebate for the EVSE purchase to all participants, as proposed by SCE, is not scalable, and it is unclear whether there would be any benefit for any ratepayers other than the participating customers that receive the rebates, and for that reason we limit rebates to the transit bus and school bus sectors.

35. Each utility should set the rebate levels for transit and school bus EVSE in consultation with its PAC, not to exceed 50 percent of the cost of the EVSE.

36. The rebate should not exceed the cost the site host pays for the EVSE after accounting for any other funding sources used for EVSE procurement.

37. The potential air quality benefits to DACs is worth the additional costs associated with an EVSE rebate.

38. The emissions reductions benefits associated with increased medium- and heavy-duty EV adoption should be broad, and providing a rebate for purchase of EVSE in DACs should encourage program participation by sites in DACs even above the DAC targets we establish for each utility.

39. A vehicle-only target could be met through a focus on sites able to deploy a large electric fleet, while a site-only target could encourage a focus on customers that intend to deploy only one or two electric vehicles. By establishing both a vehicle and site minimum target, we are encouraging the utilities to strike a balance between sites with limited resources or a small number of total vehicles necessary and sites adopting a large number of electric vehicles in the near-term.

40. Customers should be allowed the choice of whether to own, operate, and maintain infrastructure installed behind the meter; if the customer chooses