

Decision **PROPOSED DECISION OF ALJ GOLDBERG** (Mailed 7/27/2020)

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Application of Southern California
Edison Company (U338E) for
Approval of its Charge Ready 2
Infrastructure and Market Education
Programs.

Application 18-06-015

**DECISION AUTHORIZING SOUTHERN CALIFORNIA EDISON
COMPANY'S CHARGE READY 2 INFRASTRUCTURE
AND MARKET EDUCATION PROGRAMS**

TABLE OF CONTENTS

Title	Page
DECISION AUTHORIZING SOUTHERN CALIFORNIA EDISON COMPANY'S CHARGE READY 2 INFRASTRUCTURE AND MARKET EDUCATION PROGRAMS.....	2
Summary	2
1. Background	2
1.1. Charge Ready 2: Procedural Background	5
2. Statutory and Regulatory Guidelines.....	6
3. Issues Before the Commission.....	10
4. Charge Ready Phase 2	12
4.1. Make-Ready Expansion Program.....	13
4.1.1. Technical Components.....	14
4.1.2. Rebate and Participation Structure	17
4.1.3. DCFC Component	20
4.1.4. Future Needs	21
4.1.5. DAC Target.....	21
4.1.6. Cost Components.....	22
4.2. Own and Operate Program	24
4.2.1. Lessons Learned from Phase 1 Pilot.....	24
4.2.2. Customer and Site Eligibility	25
4.2.3. Cost Components.....	26
4.3. New Construction Rebate Program	27
4.3.1. Rebate Structure	28
4.3.2. Customer and Site Eligibility	29
4.3.3. Cost Components.....	31
4.4. Infrastructure Forecast Models	32
4.4.1. SCE Forecast	32
4.4.1.1. Vehicle Forecast	35
4.4.1.2. Port Need	35
4.4.2. TURN Forecast	38
4.4.2.1. Vehicle Forecast	39
4.4.2.2. Port Need	39
4.5. Analysis of Infrastructure Programs and Recommended Modifications	42
4.5.1. Forecast.....	42

4.5.1.1.	Analysis of Vehicle Forecast	43
4.5.1.2.	Scaling Statewide Vehicle Forecast to SCE's Territory	45
4.5.1.3.	Projected Mix of Vehicles	46
4.5.1.4.	Determining the Necessary Amount of Charging.....	46
4.5.2.	Cost Estimates	51
4.5.3.	Port Minimums	55
4.5.4.	Capitalization of Behind-the-Meter Infrastructure	59
4.5.5.	Rebate Levels	61
4.5.6.	Own and Operate Program Modifications.....	65
4.5.7.	New Construction Rebate Program	70
4.5.8.	DCFC	74
4.5.9.	MUD Target.....	79
4.5.10.	DAC Target.....	81
4.5.11.	Small Business Participation	83
4.5.12.	TOU Rates, Demand Response, and Technical Requirements.....	84
4.5.13.	CCA Participation.....	89
4.5.14.	Site Prioritization	93
4.5.15.	Job Creation	93
4.6.	Marketing, Education and Outreach Portfolio	95
4.6.1.	EV Awareness Campaign.....	95
4.6.2.	Customer Education Program	96
4.6.3.	TE Advisory Services Expansion.....	97
4.7.	Analysis of Marketing, Education and Outreach Programs	98
5.	Authorized Program Funding and Cost Recovery	101
5.1.	Proposed Balancing Account	102
5.2.	Proposed Reasonableness Review	103
5.2.1.	Per Se Reasonableness Metrics.....	104
5.3.	Cost Deflation and Reasonableness Determination.....	106
5.4.	Proposed Cost Recovery and Forecast Updates.....	107
6.	TE Advisory Board	110
7.	Data Gathering Requirements.....	110
8.	Evaluation	114
9.	Safety Considerations	116
10.	Outstanding Procedural Matters	117
11.	Categorization and Need for Hearing.....	117
12.	Comments on Proposed Decision.....	117

13. Assignment of Proceeding	119
Findings of Fact	119
Conclusions of Law	126
ORDER	130
Comparison of CEC ZEV Adoption Scenarios and SCE's Adoption Forecast.....	8

Appendix A – Forecast Assumptions and Budget Tables

Appendix B – California Zero-Emission Vehicle Adoption Forecasts

**DECISION AUTHORIZING SOUTHERN CALIFORNIA EDISON COMPANY'S
CHARGE READY 2 INFRASTRUCTURE AND MARKET EDUCATION
PROGRAMS**

Summary

This decision is another step toward meeting California's goal of attaining a 40 percent reduction of greenhouse gas emissions from 1990 levels by 2030 and an 80 percent reduction by 2050. Among other things, today's decision approves \$436 million in funding to support approximately 37,800 electric vehicle charge ports in Southern California Edison Company's service territory. The \$436 million comprises approximately \$417.5 million for charging infrastructure, \$14.5 million for marketing, education and outreach, and \$4.3 million for an evaluation of the Charge Ready 2 infrastructure and market education programs. The resulting number of ports includes Level 1, Level 2, and direct current fast chargers.

This proceeding is closed.

1. Background

The instant application is the second phase of Southern California Edison Company's (SCE) Charge Ready and Market Education Program. For a complete understanding of how SCE designed the second phase of its electric vehicle (EV) charging infrastructure program, we discuss the first phase of SCE's charge ready programs.

1.1. Charge Ready Phase 1 Pilot

On October 30, 2014, SCE filed its Charge Ready and Market Ready Phase 1 application (Phase 1 Pilot). SCE proposed a two-phase program in the Phase 1 Pilot application: (1) a one-year pilot to deploy up to 1,500 charging stations and complementary marketing, education and outreach in support of electric

transportation (Phase 1); and (2) a four-year deployment of the remaining charging stations, up to 30,000 and broader EV education and outreach (Phase 2).¹ SCE estimated Phase 1 of its application would cost approximately \$22 million, and a larger second Phase would cost \$333 million (in \$2014).²

The Commission authorized the Phase 1 Pilot, with modifications in by D.16-01-023.³ Among other things, D.16-01-023 approved SCE's revenue requirement request of up to \$22 million (\$2014) in support of the Phase 1 Pilot.

Pursuant to D.16-01-023, SCE filed quarterly program reports highlighting milestones within the Phase 1 Pilot. After submitting its fourth quarter report for 2017, SCE filed a Petition for Modification (PFM) on March 5, 2018, requesting an additional \$22 million to extend the Phase 1 Pilot until a second phase application could be fully reviewed by the Commission.

SCE explained that the need for additional funding Phase 1 was due to the expectation that it would fully commit the funds authorized in D.16-01-023 by mid-2018. SCE estimated the bridge funding could support a minimum of 1,000 charge ports during the period between approval of the PFM and Commission consideration of a phase 2 application. Ultimately, the Commission granted SCE's PFM in December 2018. The decision

¹ Decision (D.) 16-01-023 at 2; Application (A.)14-10-014 at 1 to 2.

² For reference, this equates to roughly \$366M in 2020\$; According to the U.S. Bureau of Labor Statistics, \$1 in January 2014 is approximately equivalent to \$1.10 in May 2020.

³ Among other things, D.16-01-023 modified the proposed Settlement to include the guiding principles proposed by SCE in its original filed application and modified the proposed rebate amounts associated with the varying charging station locations.

(D.18-12-006) included the requirement that 20 percent of the installations under the bridge funding be at multi-unit dwellings (MUDs) and reduced the port minimums for MUDs from ten to five.

In total as of Q1 2020,⁴ SCE had reserved funding for 1,301 charge ports at 81 sites through its original Pilot funding and had reserved funding for an additional 1,454 ports at 67 sites through the bridge program approved in D.18-12-006. These are primarily Level 2 but with some Level 1 chargers throughout its territory. Of the original Pilot program, 48 percent of the 81 sites are in disadvantaged communities (DACs), and 46 percent of the Bridge funded sites are in DACs; 1,003 of these ports at 65 sites had completed construction as of August 2018. As of Q1 2020, 90 projects with a total of 1,496 charge ports had completed construction. Out of the original pilot's approved charging ports, 64 percent are at workplaces, three percent are at MUDs, 11 percent are for fleets, and 22 percent are at destination centers. Phase 1 exceeded the requirement for a minimum of ten percent deployment in disadvantaged communities (DACs), as required by D.16-01-023. SCE noted the average cost per charging port for the Phase 1 Pilot was \$13,374 (\$12,629 in 2014\$).

SCE identified several Phase 1 Pilot challenges, including: (1) the ability to reach MUD customers; (2) the high port minimum for projects

⁴ Charge Ready Pilot Quarterly Report, 1st Quarter, 2020 (June 2020) *available at*: https://www.sce.com/sites/default/files/inline-files/Q1%202020%20Charge%20Ready%20Pilot%20Quarterly%20Report_Final.pdf

(minimum ten ports for non-DAC sites and minimum five ports for DAC sites); (3) communicating the rebate model to customers effectively; and (4) longer than expected timelines for customer approvals. SCE frames these challenges as “lessons learned” which the utility used to design the second phase of Charge Ready.

1.1. Charge Ready 2: Procedural Background

SCE filed the instant application on June 26, 2018, appearing on the Commission’s Daily Calendar on July 10, 2018. Protests were filed by Small Business Utility Advocates (SBUA), Public Advocates Office (Cal Advocates), California Choice Energy Authority (CCEA), and The Utility Reform Network (TURN). Responses were filed by Lyft, Inc. (Lyft), Tesla, Inc. (Tesla), California Energy Storage Alliance (CESA), ChargePoint, Inc. (ChargePoint), and the Electric Vehicle Charging Association. Joint Responses were filed by the Green Power Institute (GPI) and Community Environmental Council (CEC), and the Natural Resources Defense Council, The Coalition of California Utility Employees (CUE), Plug In America, Sierra Club, Union of Concerned Scientists (UCS), eMeter a Siemens Business (Siemens), Greenlots, Electric Motor Werks, Inc. (eMotorWerks), EVBox Inc., American Honda Motor Co. Inc., General Motors LLC, the Association of Global Automakers Inc., and the Alliance of Automobile Manufacturers (*Collectively*, The Joint Parties). EVgo Services LLC (EVgo) and the National Diversity Coalition/National Asian American Coalition (NDC) motioned for and were granted party status via ruling. On September 7, 2018, the assigned Administrative Law Judge (ALJ) convened a prehearing conference (PHC). During the PHC Pacific Gas and Electric

Company (PG&E) and the Greenlining Institute requested and were granted party status on the record.⁵

On October 29, 2018, the assigned commissioner⁶ issued the Scoping Memo and Ruling (Scoping Ruling) setting forth the schedule and scope for this proceeding. Among other things, the Scoping Ruling confirmed the preliminary determination that evidentiary hearings were required.⁷ Intervenor testimony was served on November 30, 2018, and rebuttal testimony was served on December 21, 2018.⁸

A technical workshop, addressing many of the programmatic elements for Charge Ready was held on January 14, 2019. SCE hosted a community meeting in its service territory on March 7, 2019 where over 30 members of the public were in attendance.

Evidentiary hearings were held from January 28, 2019 to February 1, 2019 at the Commission's San Francisco hearing rooms. Following the close of hearings, the ALJ issued an email ruling memorializing briefing dates and some housekeeping matters.⁹ Opening briefs were filed on March 15, 2019 and reply

⁵ PHC Transcript at 12 and 13.

⁶ On February 13, 2019 this proceeding was reassigned from Commissioner Carla J. Peterman to Commissioner Clifford Rechtschaffen. Commissioner Peterman has since retired from the Commission.

⁷ Scoping Ruling at 9.

⁸ See Email Ruling (November 2, 2018).

⁹ See Email Ruling (February 4, 2019).

briefs on April 12, 2019. This matter stood submitted with the filing of reply briefs.

2. Statutory and Regulatory Guidelines

In § 740.12(a)(1), the Legislature found, among other things, that widespread transportation electrification is needed to achieve the goals set forth in the Charge Ahead California Initiative,¹⁰ and to reduce emissions of GHG “to 40 percent below 1990 levels by 2030 and to 80 percent below 1990 levels by 2050....”¹¹ The Legislature also found that “[a]dvanced clean vehicles and fuels are needed to reduce petroleum use, to meet air quality standards, to improve public health, and to achieve greenhouse gas emissions reductions goals,” and that widespread transportation electrification “requires electrical corporations to increase access to the use of electricity as a transportation fuel.”

Public Utilities Code Section (Pub. Util. Code §) 237.5¹² defines “Transportation Electrification” (TE) as the use of electricity from external sources of electrical power, including the electrical grid, for all or part of vehicles,

¹⁰ The goals of the Charge Ahead California Initiative “are to place in service at least 1,000,000 zero-emission and near-zero-emission vehicles by January 1, 2023, to establish a self-sustaining California market for zero-emission and near-zero-emission vehicles in which zero-emission and near-zero-emission vehicles are a viable mainstream option for individual vehicle purchasers, businesses, and public fleets, to increase access for disadvantaged, low-income, and moderate-income communities and consumers to zero-emission and near-zero-emission vehicles, and to increase the placement of those vehicles in those communities and with those consumers to enhance the air quality, lower greenhouse gases, and promote overall benefits for those communities and consumers.” (Health and Safety Code § 44258.4.)

¹¹ The 2030 reductions are mandated in Health and Safety Code § 38566, and the 2050 reductions are set forth in Governor Schwarzenegger’s Executive Order S-3-05.

¹² Unless otherwise stated, all code section references are to the Public Utilities Code.

vessel, trains, boats, or other equipment that are the mobile sources of air pollution and greenhouse gases and the related program charging, and propulsion infrastructure investment to enable and encourage this use of electricity.

The Legislature recognized the impact of TE, and found at § 740.12(a)(1), in part:

(C) Widespread TE requires increased access for disadvantaged communities, low- and moderate-income communities, and other consumers of zero-emission and near-zero-emission vehicles, and increased use of those vehicles in those communities and by other consumers to enhance air quality, lower greenhouse gases emissions, and promote overall benefits to those communities and other consumers.

(F) Widespread TE should stimulate innovation and competition, enable consumer options in charging equipment and services, attract private capital investments, and create high-quality jobs for Californians, where technologically feasible.

(G) 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.

(H) Deploying electric vehicle charging infrastructure should facilitate increased sales of electric vehicles by making charging easily accessible and should provide the opportunity to access electricity as a fuel that is cleaner and less costly than gasoline or other fossil fuels in public and private locations.

The Legislature directed the Commission to consider those findings, among others, set forth in § 740.12(a)(1) when “designing and implementing regulations, guidelines, plans, and funding programs to reduce greenhouse gas emissions.”

Pursuant to § 740.12(b):

- The proposed TE programs shall seek to minimize overall costs and maximize overall benefits.
- The Commission shall approve, or modify and approve, TE programs and investments, including those that deploy charging infrastructure, through a reasonable cost recovery mechanism.
- The approval, or modification and approval, of the programs and investments must be consistent with § 740.12, not unfairly compete with nonutility enterprises as required by § 740.3(c), include performance accountability measures, and be in the interests of ratepayers as defined in § 740.8.

Section 740.8 defines the interests of ratepayers as follows:

As used in Section 740.3 or 740.12, “interests” of ratepayers, short- or long-term, mean direct benefits that are specific to ratepayers, consistent with both of the following:

- (a) Safer, more reliable, or less costly gas or electrical service, consistent with Section 451, including electrical service that is safer, more reliable, or less costly due to either improved use of the electric system or improved integration of renewable energy generation.
- (b) Any one of the following:
 - (1) Improvement in energy efficiency of travel;
 - (2) Reduction of health and environmental impacts from air pollution;

- (3) Reduction of greenhouse gas emissions related to electricity and natural gas production and use;
- (4) Increased use of alternative fuels; and
- (5) Creating high-quality jobs or other economic benefits, including in disadvantaged communities identified pursuant to Section 39711 of the Health and Safety Code.

In addition, § 740.3(c) requires the “costs and expenses of those programs are not passed through to electric or gas ratepayers unless the commission finds and determines that those programs are in the ratepayers’ interest.”

Furthermore, § 740.12(c) requires that before the Commission can authorize “an electrical corporation to collect new program costs related to transportation electrification in customer rates,” the Commission “shall review data concerning current and future electric transportation adoption and charging infrastructure utilization....”¹³

3. Issues Before the Commission

As identified in the Scoping Ruling, the issues before the Commission are:

- 1. Do the results of the Phase 1 Pilot Report justify the investment priorities, size and scope of the programs proposed in the Charge Ready 2 (CR2) application?
- 2. Does CR2 meet the goals of SB 350 and requirements for Transportation Electrification from the September 14, 2016

¹³ Section 740.12(c) also states: “If market barriers unrelated to the investment made by an electric corporation prevent electric transportation from adequately utilizing available charging infrastructure, the commission shall not permit additional investments in transportation electrification without a reasonable showing that the investments would not result in long-term stranded costs recoverable from ratepayers.”

- Assigned Commissioner Ruling (ACR)? Should CR2 be modified in any way to comply with these requirements?
- a. Does CR2 support widespread Transportation Electrification and align with California's zero emissions vehicles initiatives and the state's greenhouse gas emissions reduction target?
 - b. Does the proposed utility ownership of electric vehicle service equipment adversely impact competition?
 - i. Does the proposed utility ownership of electric vehicle service equipment promote adoption among multi-unit family dwellings or government entities?
 - c. What type of performance accountability measures should CR2 have?
 - d. Is CR2 reasonable and in the ratepayers' interest? (*See* Pub. Util. Code §§ 740.3 and 740.8)
 - i. Is CR2 an appropriate use of ratepayer funds?
 - ii. Do the proposed projects equitably benefit ratepayers as a whole, and not just those participating customers?
 - iii. What specific ratepayer benefits will result from CR2? (*See* Pub. Util. Code § 740.8)
 - e. Does CR2 address demand charges and effective load management?
 - f. Does CR2 leverage funding by other sources?
 - g. Does CR2 address the safety concerns set forth in Pub. Util. Code §§ 740.8(a) and 740.12(b)?
 - h. Does CR2 propose measures for vehicle-grid integration?
3. What is the appropriate cost recovery mechanism for CR2 (*e.g.*, future cost recovery in general rate cases; treating

- rebates as a capital addition; balancing account; Advice Letter tier)?
- a. Should the utility be allowed ownership of any charging infrastructure proposed?
 - b. Should a utility performance incentive be considered?
4. What data gathering, reporting, and evaluation requirements should be imposed? How does CR2 incorporate lessons learned from Phase 1, and how should the data collection and evaluation of CR2 be aligned with ongoing data gathering and reporting from the Phase 1 Pilot participants?
 5. Does CR2 adequately address low-income communities and moderate-income communities? (*See* SB 350 and SB 1275 Charge Ahead California)
 6. Does CR2 adequately address hard-to-reach customers, such as small businesses?
 7. What role does direct current fast chargers play in serving MUDs?
 8. Does CR2 align with the Commission's Distributed Energy Resources Action Plan?

4. Charge Ready Phase 2

SCE requests \$760.1 million (in 2018 dollars (\$2018)) for a four-year program of charging infrastructure installation and education and outreach programs. CR2 is comprised of three infrastructure programs and one comprehensive marketing, education, and outreach (ME&O) portfolio. The three infrastructure programs included in SCE's application are¹⁴:

¹⁴ Exhibit SCE-1 at 31 to 32.

1. Charge Ready Make-Ready Expansion (~\$596.2 million): Install make-ready infrastructure across workplaces, MUDs, destination centers, governmental locations, and fleets capable of supporting 32,000 charging ports in SCE's service territory over a four-year period. Include additional direct current fast charging (DCFC) stations at select sites if certain criteria are satisfied.
2. Charge Ready Own and Operate (~\$28 million): Offer a turnkey option, where in addition to the make-ready, SCE will own and operate charging stations deployed in MUDs and governmental locations. Participation capped at an estimated 4,230 charge ports (35 percent of MUD participation forecasted in the Make-Ready Expansion program).
3. Charge Ready New Construction Rebate (~\$66.1 million): Offer an incentive to MUD sites that exceed mandatory CALGreen and local jurisdiction building code by installing EV charging stations. SCE designed the rebate to cover the incremental cost to move a site from "EV capable" to full installation of EV charging stations.¹⁵ The rebate program will support an estimated 16,000¹⁶ additional charging ports at MUDs under construction during the four-year program duration.

¹⁵ Exhibit SCE-1 at 32, footnote 67: "EV Capable" is defined by CALGreen Section 5.106.5.3 as the service panel or subpanel(s) circuit directory shall identify the reserved overcurrent protective device space(s) for future EV charging...and...the raceway termination [shall be] permanently and visibly marked as "EV Capable".

¹⁶ As discussed in Section 4.3, these figures changed with SCE's Rebuttal testimony.

SCE's proposed ME&O portfolio includes three distinct programs to address EV adoption barriers and customer needs.¹⁷ The three ME&O programs designed by SCE are¹⁸:

1. EV Awareness Campaign (\$28.7 million): leveraging mass media channels, a web content refresh, and launch of a new EV Ambassador network;
2. Customer Education Program (\$8M): new online self-service tools, ride-and-drive events, and education and training materials for industry stakeholders (e.g., dealerships, architects, and developers); and
3. TE Advisory Services Expansion (\$4.8 million): Expanding TE Advisory Service deployed concurrently with the Phase 1 Pilot.

SCE provides that the EV Awareness Campaign and Customer Education Program will primarily target potential individual/residential adopters of light-duty EVs.¹⁹ The TE Advisory Services will serve business customers adopting light-, medium-, or heavy-duty EVs, or those providing EV charging services to their constituents (tenants, employees, visitors, customers, or fleets).²⁰

4.1. Make-Ready Expansion Program

SCE requests \$596.2 million over four-years to implement the Make-Ready Expansion program. Under Make-Ready Expansion, SCE plans to install

¹⁷ Exhibit SCE-1 at 62.

¹⁸ Exhibit SCE-1 at 62.

¹⁹ Exhibit SCE-1 at 62.

²⁰ Exhibit SCE-1 at 62.

make-ready infrastructure for MUDs, workplaces, fleets and destination centers²¹ to serve approximately 32,000 charging ports for light-duty EVs.²² The objective of the Make-Ready Expansion program is to accelerate the adoption of plug-in EVs in SCE territory through deployment of make-ready infrastructure to serve Level 1 (L1),²³ Level 2 (L2)²⁴ and DCFC²⁵ stations.²⁶

SCE plans to offer participating customers rebates for charging infrastructure and the charging station, also called electric vehicle service equipment (EVSE). SCE believes a four-year timeframe provides stable funding that can incentivize vendors to develop products, promote competition, reduce costs, and give potential site hosts time to deploy charging infrastructure.²⁷ The four-year period will provide an initial pathway needed to scale-up EV adoption to support 2030 GHG reduction goals.²⁸

²¹ Exhibit SCE-1 at A-7; “Destination Centers” referred to as sports arenas or malls.

²² Exhibit SCE-1 at 32.

²³ Exhibit SCE-1 at Appendix F-1 defines “L1 Charging” as providing 1 to 5 miles of range per 1 hour of charging using 120VAC electrical service.

²⁴ Exhibit SCE-1 at Appendix F-1 defines “L2 Charging” as providing 10 to 20 miles or range per 1 hour of charging using 240VAC or 208VAC electrical service. L2 charging is faster than L1 because it delivers a higher power level to the battery through the EVSE.

²⁵ Exhibit SCE-1 at Appendix F-1 defines “DCFC” as charging 20kW and higher using direct current. Direct-Current (DC) fast charging provides 50 to 70 miles of range per 20 minutes of charging with an electrical output ranging between 50 to 120 kW. A charging station that rapidly charges a car battery by connecting it directly to a higher power, direct-current source.

²⁶ Exhibit SCE-1 at 38.

²⁷ Exhibit SCE-1 at 50.

²⁸ Exhibit SCE-1 at 50.

4.1.1. Technical Components

SCE defines “make-ready” as the service connection and supply infrastructure to support EV charging comprised of the electrical infrastructure from the distribution circuit to the stub of the EVSE. Make-ready can include equipment on the utility-side (*e.g.* transformer) and customer-side (*e.g.*, electrical panel, conduit, and wiring of the meter).²⁹ The “in-front-of-the-meter” portion of these installations include a separately-metered circuit together with utility transformer upgrades, service drop, panel, trenching, wiring, conduit, step-down transformers, and other equipment, as needed.³⁰ “Behind-the-meter” infrastructure may include, but is not limited to, electrical panels, conduit, and wires as well as civil construction work in compliance with various regulations including the California Building Code’s accessibility requirements for public and common use under the Americans with Disabilities Act (ADA).³¹ For clarity, behind-the-meter (BTM) is typically not owned/operated by a utility so the “front-of-the-meter assets” are the ones that are typically capitalized, while capitalizing customer-side (BTM) make-ready infrastructure is an exception that prior TE decisions have authorized.

SCE proposes to include a broad range of qualified charging station models and network service providers from multiple suppliers as part of the

²⁹ Exhibit SCE-1 at 8, footnote 1; Appendix E-1.

³⁰ Exhibit SCE-1A at 25.

³¹ Exhibit SCE-1A at 25.

Make-Ready Expansion program.³² SCE proposes to issue a Request for Information (RFI) to third-party suppliers, including qualified Women Minority Disabled Veteran Business Enterprise (WMDVBE) suppliers, to cover procuring, installing, operating networking and maintenance of the EVSE.³³ As part of the RFI, suppliers will have to demonstrate capabilities to supply qualified stations in appropriate volumes, and to provide maintenance and network-related services either through the charging station or through a kiosk or gateway.³⁴

To qualify for a charging station rebate, SCE requires the EVSE to be evaluated against established standards, comply with technical standards and efficiency recommendations, and be listed by a nationally recognized testing laboratory.³⁵ SCE cites SAE J2836 and IEEE 2030 as potential established standards against which the charging station may be evaluated. SCE includes SAE Standards J1772, J2894, J2847, J3068, and Title 20 as potential technical and energy efficiency standards qualified charging stations would need to comply with.³⁶ For DCFCs, SCE requires the stations adhere to the basic requirements of a DC-based EVSE, which includes approved DC standard charging connectors and being capable of charging at 50 kilowatts (kW) or greater.³⁷ SCE testifies that charging at power levels of 50 kW is desirable and provides flexibility for mass

³² Exhibit SCE-1 at 42.

³³ Exhibit SCE-1 at 42.

³⁴ Exhibit SCE-1 at 42.

³⁵ Exhibit SCE-1 at 42.

³⁶ Exhibit SCE-1 at 42 and Appendix F-1.

³⁷ Exhibit SCE-1 at 42.

market vehicles that have smaller batteries and may not have the cooling provisions to be able to support a higher voltage.³⁸

SCE will not provide a rebate for charging equipment if it does not meet the technical requirements listed above. SCE provides, “for those applications where charging equipment does not meet the technical requirements, SCE will not provide a rebate, but plans to work with customers and suppliers to evaluate the equipment to ensure safe and reliable operation that meets the functional requirements of the program. If SCE approves equipment that does not meet the technical requirements, the customer may participate in the program and receive the make-ready infrastructure but will not receive a rebate for the charging stations.”³⁹ For these customers, SCE plans to offer a rebate for the make-ready infrastructure but not for the charging station(s).⁴⁰

4.1.2. Rebate and Participation Structure

SCE requires that a minimum of two-ports per site be installed to participate in CR2.⁴¹ SCE proposes to offer a rebate to cover part of the costs of charging equipment that meets SCE’s functional and installation requirements for the Make-Ready Expansion program.⁴² For qualified L1 and L2 charging stations, SCE proposes to provide a rebate of up to \$2,000 per charge port, while

³⁸ Exhibit SCE-1 at 42 to 43, footnote 93.

³⁹ Exhibit SCE-1 at 43.

⁴⁰ Exhibit SCE-1 at 43.

⁴¹ Exhibit SCE-1 at 40.

⁴² Exhibit SCE-1 at 33.

providing up to \$27,000 for DCFC stations.⁴³ Rebates will be determined at SCE's discretion and not exceed up to 100 percent of the cost of the charging stations and their installation, and rebate levels may be updated as needed throughout the program, based on the market costs for L1, L2, and DCFC stations.⁴⁴

SCE proposes to offer customers the choice to manage and pay for the installation of the customer-side infrastructure with a rebate of up to 80 percent of the installation costs.⁴⁵ SCE explains this rebate structure aligns with the rebate offered in SCE's medium-duty and heavy-duty program, approved in D.18-05-040.⁴⁶ There, the Commission directed SCE to provide customers who opt to install, own, operate, and maintain the customer-side infrastructure, with a rebate of up to 80 percent of the customer-side infrastructure installation cost.⁴⁷

Participating customers⁴⁸ are responsible for procuring, installing and maintaining their selected charging stations in good working order for five years

⁴³ Exhibit SCE-1 at 33.

⁴⁴ Exhibit SCE-1 at 33.

⁴⁵ Exhibit SCE-1 at 33.

⁴⁶ D.18-05-040 is the Commission's decision on the standard review transportation electrification programs for SCE and PG&E.

⁴⁷ Exhibit SCE-1 at 33; Referencing D.18-05-040 at 149, 160 to 161.

⁴⁸ Exhibit SCE-1 at 39: Participating customers must own, lease, or manage the premises where the charging stations are installed in the Make-Ready Expansion Program. Participating customers, if not the owner of the premises at which the EVSE is to be installed, must obtain written consent from the property owners to participate.

after the initial installation.⁴⁹ SCE revised the ten-year requirement from the Phase 1 Pilot to a five-year requirement for the Market-Ready Expansion program based on feedback from participating pilot customers.⁵⁰ Participating customers will be required to provide SCE with the rights-of-way across public or private property and obtain any necessary permits satisfactory to SCE.⁵¹ Participating customers will be permitted to change or update their charging stations and networking service provider throughout the useful life of the underlying EVSE at cost to the customer.⁵²

To obtain the rebate, to offset charging station costs, customers will be required to purchase and install qualified EVSE in the quantity approved by SCE.⁵³ All EVSE, Electric Vehicle Network Service Providers (EVNSPs), suppliers, and installation contractors must be approved by SCE.⁵⁴ Customers must have an Edison SmartConnect meter or interval data recorder (IDR) meter dedicated to registering charging site loads.⁵⁵ SCE requires all charging site load to be separately metered from any other load served at the premises or be measured by another equivalent way to verify charging load.⁵⁶

⁴⁹ Exhibit SCE-1 at 34.

⁵⁰ Exhibit SCE-1 at 34, footnote 72.

⁵¹ Exhibit SCE-1 at 39.

⁵² Exhibit SCE-1 at 43.

⁵³ Exhibit SCE-1 at 39.

⁵⁴ Exhibit SCE-1 at 39.

⁵⁵ Exhibit SCE-1 at 39.

⁵⁶ Exhibit SCE-1 at 39.

SCE provides that the customer of record (*e.g.*, site host, electric vehicle service provider (EVSP)) be required to take service on one of SCE's time-differentiated (or time-of-use (TOU) rates).⁵⁷ SCE clarifies that the customer of record will have the flexibility to in turn set pricing and parking restrictions for drivers charging at their site.⁵⁸ SCE will encourage participating customers to pass SCE's TOU rate through directly to drivers, but participating customers may elect to implement their own pricing plans.⁵⁹ Consistent with 740.12(a)(1)(G)⁶⁰ and (H)⁶¹ SCE plans to educate participating customers to ensure that end-use pricing is easy for drivers to understand and provides the opportunity for drivers to access electricity that is less costly than gasoline.⁶² Under either billing option, customers will be required to participate in a demand response program.⁶³ SCE will require participating customers to report

⁵⁷ Exhibit SCE-1 at 39.

⁵⁸ Exhibit SCE-1 at 39.

⁵⁹ Exhibit SCE-1 at 39 to 40.

⁶⁰ Cal. Pub. Util. Code § 740.12(a)(1)(G) states 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.

⁶¹ Cal. Pub. Util. Code § 740.12(a)(1)(H) states that deploying electric vehicle charging infrastructure should facilitate increased sales of electric vehicles by making charging easily accessible and should provide the opportunity to access electricity as a fuel that is cleaner and less costly than gasoline or other fossil fuels in public and private locations.

⁶² Exhibit SCE-1 at 40.

⁶³ Exhibit SCE-1 at 40.

prices charged to drivers utilizing their sites.⁶⁴ SCE plans to provide this information to its advisory board annually.⁶⁵

SCE plans to create a methodology to expedite deployment at high-priority sites.⁶⁶ SCE includes customer segment, expected number of EVs served, site costs, existing transformer capacity, location near DACs, and public accessibility, as site classification factors that will determine prioritization.⁶⁷

4.1.3. DCFC Component

As part of the Make-Ready Expansion program, SCE proposes offering rebates to a limited number of participating sites to install DCFCs.⁶⁸ SCE plans to offer a flat rebate (up to \$27,000) for qualified DCFC stations, and cap participation at 205 ports, approximately five percent of sites served by CR2. The charging station rebate amount will be determined at SCE's discretion, up to 100 percent of the cost of the charging stations and their installation, and updated as needed throughout the program, based on market costs for DCFC.⁶⁹ Similar to the site prioritization criteria above, SCE plans to determine DCFC site eligibility based on proximity to customers needing charging, proximity to MUDs, site host

⁶⁴ Exhibit SCE-1 at 40.

⁶⁵ Exhibit SCE-1 at 40; *See* Section 6 for TE Advisory Board.

⁶⁶ Exhibit SCE-1 at 40.

⁶⁷ Exhibit SCE-1 at 40.

⁶⁸ Exhibit SCE-1 at 40.

⁶⁹ Exhibit SCE-1 at 33.

agreement for public access, location in a DAC, access for low-income customers, cost of charging for drivers, and/or site size.⁷⁰

4.1.4. Future Needs

As part of the Make-Ready Expansion program, SCE proposes to work with customers to plan for future site growth.⁷¹ As part of this effort, SCE may install hardware with additional capacity (*e.g.*, panels and transformer pads) and infrastructure to accommodate future charging stations (*e.g.*, trenching, conduit, wire) and electrical needs.⁷² SCE testifies that having infrastructure pre-installed will allow the charging stations to be added “easily” at a later date.⁷³ SCE explains that customers will be required to provide a commitment to install additional charging stations within a defined time period.⁷⁴ SCE plans to work with customers and electrical contractors to identify locations within the participating customers’ parking lots to deploy charging stations economically.⁷⁵ SCE will evaluate a location’s proximity to transformers, length of trenching, available transmission and distribution capacity, and ease of access for EV drivers, to determine whether the location would be suitable to participate in the Make-Ready Expansion program.⁷⁶

⁷⁰ Exhibit SCE-1 at 40 to 41.

⁷¹ Exhibit SCE-1 at 41.

⁷² Exhibit SCE-1 at 41, referencing Appendix C to SCE-1.

⁷³ Exhibit SCE-1 at 41.

⁷⁴ Exhibit SCE-1 at 41.

⁷⁵ Exhibit SCE-1 at 41.

⁷⁶ Exhibit SCE-1 at 41 to 42.

4.1.5. DAC Target

SCE proposes a minimum of 30 percent of the ports deployed under the Make-Ready Expansion program in DACs. SCE will identify these communities by using the California Environmental Protection Agency's (CalEPA) California Communities Environmental Health Screening Tool 3.0 (CalEnviroScreen 3.0) or its latest version.⁷⁷ CalEPA itself designates the "highest scoring 25 percent of census tracts from CalEnviroScreen 3.0 as DACs."⁷⁸ While the Phase 1 Pilot had a ten percent DAC target, SCE believes the 30 percent target is achievable given the pilot's success in installing approximately 50 percent of charging ports in DACs.⁷⁹ SCE will enforce the two-port requirement for both DAC and non-DAC locations, in participating in the Make-Ready Expansion program.⁸⁰ SCE proposes to reserve funds to cover 30 percent of the charging port deployment in DACs, with the option to release unused funds to any eligible customer site after two years of program implementation.⁸¹ SCE will release the funds if there is insufficient DAC demand after two years of Make-Ready Expansion program deployment.⁸²

⁷⁷ Exhibit SCE-1 at 49.

⁷⁸ NDC Opening Brief at 19.

⁷⁹ Exhibit SCE-1 at 49.

⁸⁰ Exhibit SCE-1 at 49.

⁸¹ Exhibit SCE-1 at 49.

⁸² Exhibit SCE-1 at 49.

4.1.6. Cost Components

SCE developed its cost estimates for Make-Ready Expansion by using data from the Phase 1 Pilot. Similar to cost component treatment in D.18-05-040, SCE requests the Commission approve a 10 percent contingency in its utility-side and customer-side infrastructure costs.⁸³ SCE additionally requests ongoing O&M costs after the four-year duration of Make-Ready Expansion be captured in a subsequent General Rate Case (GRC).⁸⁴

A breakdown of all of the cost components are listed in the table below:

CAPITALIZED COSTS	EXPLANATION
Utility-Side Costs	These costs include labor, materials (transformer, cable, duct), and design and permitting costs up to the utility meter.
Customer-Side-Costs	These costs include customer site design, planning, engineering, construction (including trenching), labor, and materials from the SCE meter to the stub out.
Contingency	SCE requests a 10 percent contingency in its utility-side and customer-side infrastructure costs.
O&M COSTS	
Rebate	SCE proposes providing a rebate up to \$2,000 per charge port for L1 or L2 EVSE and up to \$27,000 for DCFCs at all sites. Rebates will not exceed 100

⁸³ Exhibit SCE-1 at 48; referencing D.18-05-040.

⁸⁴ Exhibit SCE-1 at 47 to 48.

	percent of the total cost of the charging station and installation.
Labor	Forecasted labor captures all operations required to implement the scale and scope of the infrastructure programs outside of capitalized labor. Labor estimates include procurement, customer enrollment, infrastructure deployment, program management and post-deployment customer support and operations.
Other Non-Labor	Preparation of reports and marketing materials.
Ongoing O&M	SCE requests O&M costs after the 4-year program duration to be captured in a subsequent General Rate Case.

4.2. Own and Operate Program

To supplement the Make-Ready Expansion program, SCE proposes the Own and Operate program.⁸⁵ Under Own and Operate, SCE will offer customers in MUDs and governmental locations a “turnkey” option where SCE owns and operates the charging stations on their sites.⁸⁶ SCE proposes to cap participation in the Own and Operate program at 4,230 ports or approximately 35 percent of forecasted MUD participation.⁸⁷ SCE based this number on a previous Commission Decision authorizing PG&E to own up to 35 percent of the total

⁸⁵ Exhibit SCE-1 at 55.

⁸⁶ Exhibit SCE-1 at 50.

⁸⁷ Exhibit SCE-1 at 50 to 51.

vehicle charging stations in MUDs.⁸⁸ Under Own and Operate, site hosts will be required to meet the same contractual needs as the Make-Ready Expansion program, and pay for all electricity charges, but will not be obligated to purchase or maintain the charging stations.⁸⁹

4.2.1. Lessons Learned from Phase 1 Pilot

SCE designed the Own and Operate program to address the types of challenges experienced by MUD and governmental sites in the Phase 1 Pilot, which had trouble enrolling participants in these two segments. From the pilot, SCE learned one of the main challenges for MUDs was lack of interest from building owners in paying for site upgrades.⁹⁰ For governmental locations, one of the main challenges was those sites required a long lead-time for charging station purchase due to the agencies' procurement processes.⁹¹ SCE testifies that while most customers averaged 44 business days to provide the required charging station procurement documents, federal and university customers took an average of 65 business days.⁹² In an effort to minimize delays and encourage participation by these customer segments, SCE proposes offering governmental entities a model where the utility owns and operates the charging station selected by the customer.⁹³

⁸⁸ Exhibit SCE-1 at 51, footnote 102; referencing D.16-12-065 at 38 and 83.

⁸⁹ Exhibit SCE-1 at 51.

⁹⁰ Exhibit SCE-1 at 51.

⁹¹ Exhibit SCE-1 at 51.

⁹² Exhibit SCE-1 at 51.

⁹³ Exhibit SCE-1 at 51 to 52.

4.2.2. Customer and Site Eligibility

In addition to the customer and site eligibility requirements outlined for the Make-Ready Expansion program, sites under the Own and Operate model must qualify as a MUD, government-owned or government-leased property.⁹⁴ Parking lots, parking structures, and street side parking spaces will be evaluated for charging station deployment under Own and Operate.⁹⁵ In addition to the above requirements, SCE will use the same site eligibility criteria for Own and Operate as listed for the Make-Ready Expansion program.⁹⁶

Similar to the Make-Ready Expansion program, the customer of record (e.g., site host or EVSP) will be required to take service on one of SCE's TOU rates, but customers will have flexibility to set pricing and parking restrictions for drivers charging at their site.⁹⁷ SCE plans to encourage Own and Operate customers to pass SCE's TOU rate through directly to drivers, but participating customers may elect to implement their own pricing plans.⁹⁸

4.2.3. Cost Components

SCE developed its cost estimates for Own and Operate using Phase 1 Pilot information.⁹⁹ The particular cost components are reflected in the table below.

⁹⁴ Exhibit SCE-1 at 52.

⁹⁵ Exhibit SCE-1 at 52.

⁹⁶ Exhibit SCE-1 at 52.

⁹⁷ Exhibit SCE-1 at 52 to 53.

⁹⁸ Exhibit SCE-1 at 53.

⁹⁹ Exhibit SCE-1 at 54.

Cost	Explanation¹⁰⁰
Utility-Side Costs	Captured in Make-Ready Expansion
Customer-Side Costs	Captured in Make-Ready Expansion; charging station costs based on average cost of EVSE in Phase 1 Pilot
Contingency	SCE requests to include a 10 percent contingency in its utility-side and customer-side infrastructure costs
Charging Station O&M	Costs are based on pilot and include Software, ADA, functionality, cellular service contract, maintenance contract, back office support and payment transaction fees.
Other Capitalized Costs	Easement-related expenses, charging equipment testing to verify EVSE accuracy, and all capitalized labor.
Labor	Costs comprised of procurement, customer enrollment, infrastructure deployment, program management and post-deployment customer support and operations.
Other non-labor O&M	Development of back-office software to manage Own and Operate, preparation of reports, station testing and creation of marketing materials.

¹⁰⁰ Exhibit SCE-1 at 54 to 55.

SCE provides that ongoing O&M costs after the four-year program duration would be captured in a subsequent GRC.¹⁰¹

4.3. New Construction Rebate Program

SCE requests \$64 million over four years to implement the New Construction Rebate program, which will provide rebates to developers of new MUD buildings, to encourage MUD developers to install operational charging stations during construction.¹⁰² SCE testifies the New Construction Rebate is to address the lack of charging infrastructure in MUDs.¹⁰³

SCE explains current CALGreen building code requires that all new MUDs “facilitate future installation and use of EV chargers.”¹⁰⁴ SCE testifies new construction MUDs built in jurisdictions that have adopted the CALGreen building code are required to dedicate a percentage of the planned parking spaces to EV parking and be ready to install EV charging in those spaces. They must include a raceway capable of accommodating 208/240 volt circuit dedicated to EV charging.¹⁰⁵ The 208/240 volt circuit is an electrical system service capacity sufficient to charge all EVs.¹⁰⁶ SCE proposes providing rebates to new construction MUD developments for exceeding CALGreen building code by

¹⁰¹ Exhibit SCE-1 at 55.

¹⁰² Exhibit SCE-1 at 57.

¹⁰³ Exhibit SCE-1 at 55.

¹⁰⁴ Exhibit SCE-1 at 55 to 56; 2016 California Green Building Standard Code, Part 11, Chapter 4.106.4.

¹⁰⁵ Exhibit SCE-1 at 56.

¹⁰⁶ Exhibit SCE-1 at 55 to 56.

installing the remaining electrical infrastructure and EVSE so that the new building has operational EV charging capabilities upon completion.¹⁰⁷

4.3.1. Rebate Structure

SCE believes the New Construction Rebate program complements the other infrastructure programs within the CR2 portfolio because it targets only new construction.¹⁰⁸ In opening testimony, SCE proposed to provide a rebate of up to \$4,000 per port for the completed installation of either L1 or L2 charging stations, provided that the installation is in excess of the most stringent mandatory code for each site's jurisdiction.¹⁰⁹ In rebuttal, the utility stated it would be amenable to reducing new construction rebates to \$3,500 based on arguments raised by the Joint Parties and TURN.¹¹⁰ The rebate will not exceed 100 percent of the installation and charging station costs, and if necessary SCE can reduce the rebate amount in consultation with its TE Advisory Board.¹¹¹ SCE estimates the \$3,500 per port rebate would fund 18,285 ports, if the total budget of \$64 million is approved.¹¹²

SCE clarifies that only the cost of additional infrastructure and charging stations in excess of the most stringent mandatory code will be applied toward

¹⁰⁷ Exhibit SCE-1 at 56.

¹⁰⁸ Exhibit SCE-1 at 56.

¹⁰⁹ Exhibit SCE-1 at 56.

¹¹⁰ Exhibit SCE-2 at 26.

¹¹¹ Exhibit SCE-1 at 56.

¹¹² Exhibit SCE-2 at 27.

the rebate amount.¹¹³ For example, if mandatory code requires the full installation of charging stations, then sites would receive the rebate only for additional charging stations installed beyond the minimum requirement.¹¹⁴

4.3.2. Customer and Site Eligibility

SCE designed the New Construction Rebate Program to address, as the utility testifies, “a critically underserved population,” the residents of MUDs.¹¹⁵ SCE asserts new charging strategies need to be deployed to increase access to charging and reduce barriers to EV adoption amongst the MUD customer segment.¹¹⁶ Because the current CALGreen building code does not require the installation of charging stations, new MUD sites may remain underserved in SCE’s view.¹¹⁷ SCE testifies “with approximately 19,000 new MUD housing units constructed each year in southern California, the opportunity for new construction MUD sites to included operational charging stations is massive.” SCE’s New Construction Rebate program proposes to support approximately 13 percent of the new MUD construction infrastructure need.¹¹⁸

Similar to Make-Ready Expansion and Own and Operate, New Construction Rebate participants must own, lease, or manage the premises

¹¹³ Exhibit SCE-1 at 58.

¹¹⁴ Exhibit SCE-1 at 58.

¹¹⁵ Exhibit SCE-1 at 56.

¹¹⁶ Exhibit SCE-1 at 56.

¹¹⁷ Exhibit SCE-1 at 57.

¹¹⁸ Exhibit SCE-1 at 57

where the charging stations are installed.¹¹⁹ If the participating customer is not the owner of the property, SCE requires they obtain written consent from the property owner to participate.¹²⁰ All participants must provide SCE with the rights-of-way across public or private property and obtain any necessary permits.¹²¹

SCE will consider a site eligible to participate in the New Construction Rebate program if it exceed the most stringent applicable mandatory code (state or local).¹²² Exceeding the code will be measured by (1) installing additional infrastructure and operational charging stations on top of required EV Capable requirements as defined in CALGreen or other relevant local requirements; or (2) installing additional infrastructure and operational charging stations in excess of the minimum number of required EV spaces defined in CALGreen or other relevant local requirements.¹²³

Participating sites in the New Construction Rebate Program must be located within SCE service territory and take service from SCE.¹²⁴ SCE will require all EV charging stations to be installed prior to receiving a rebate of up to

¹¹⁹ Exhibit SCE-1 at 57.

¹²⁰ Exhibit SCE-1 at 57.

¹²¹ Exhibit SCE-1 at 57.

¹²² Exhibit SCE-1 at 58.

¹²³ Exhibit SCE-1 at 58.

¹²⁴ Exhibit SCE-1 at 57.

\$3,500¹²⁵ for each hardwired¹²⁶ port.¹²⁷ SCE requires the EVSE to connect to a separate SCE meter for either revenue or statistical metering, or be measured by another equivalent way to verify charging load.¹²⁸ Eligible charging stations must be certified by a nationally recognized testing lab and installed by a qualified, licensed contractor in accordance with local codes, permitting and inspection requirements.¹²⁹

Similar to the other two infrastructure programs, the customer of record will be required to take service on one of SCE's TOU rates.¹³⁰ The customer will have flexibility to set pricing and parking restrictions for drivers charging at its site.¹³¹ SCE will encourage participating customers to pass through SCE's TOU rate directly through to drivers, but ultimately customers may implement their own pricing plans.¹³² SCE plans to report on the prices charged to the drivers.¹³³

4.3.3. Cost Components

SCE developed its cost estimates for New Construction Rebate using components from the same customer-side contract request for proposal (RFP)

¹²⁵ Exhibit SCE-2 at 26.

¹²⁶ Exhibit SCE-1 at 57: SCE clarifies "hardwired" to mean wall-mounted or pedestal-mounted.

¹²⁷ Exhibit SCE-1 at 57.

¹²⁸ Exhibit SCE-1 at 57.

¹²⁹ Exhibit SCE-1 at 57.

¹³⁰ Exhibit SCE-1 at 58.

¹³¹ Exhibit SCE-1 at 58.

¹³² Exhibit SCE-1 at 58.

¹³³ Exhibit SCE-1 at 58.

data used in the Make-Ready Expansion program and also from Phase 1 Pilot data¹³⁴ Relevant cost components include materials and labor needed to take a site from EV Capable to full installation, and charging station and connectivity costs from the pilot.¹³⁵

4.4. Infrastructure Forecast Models

The forecast SCE used to develop CR2 and what modeling assumptions the utility used is a focal point in this proceeding. While several parties support the scope of CR2, including Lyft, UCS, and GPI/CEC some parties are critical of SCE's analysis and resulting port need recommendations. TURN, Cal Advocates and NDC are critical of the utility's proposal, recommending various alternatives to adjust the size and scope of CR2. The sections below provide an overview of the modeling assumptions SCE and TURN use to illustrate the appropriate size and scope of CR2's infrastructure programs.

4.4.1. SCE Forecast

In November 2017, SCE released *The Clean Power and Electrification Pathway* white paper (SCE Pathway), a proposed approach to achieving California GHG emissions and air pollution reduction goals. While multiple paths exist for California to meet its 2030 climate goals, SCE believes all feasible paths must significantly reduce the emissions from the transportation sector.¹³⁶ SCE found the most feasible path to reducing emissions from the transportation sector to be

¹³⁴ Exhibit SCE-1 at 59.

¹³⁵ Exhibit SCE-1 at 59 to 60.

¹³⁶ Exhibit SCE-1 at 18.

an electric grid supplied by 80 percent carbon-free energy, more than 7 million EVs on California roads, and nearly one-third of space and water heaters powered by electricity.¹³⁷

The SCE Pathway includes 132 million metric tons (MMT) of GHG abatement from the California Air Resources Board (CARB) Scoping Plan, in addition to 12 MMT of abatement obligations projected to be met by cap-and-trade offsets.¹³⁸ SCE used four criteria to select GHG abatement measures for the SCE Pathway including: (1) GHG abatement potential; (2) marginal abatement costs; (3) measure feasibility (availability of technology, infrastructure requirements, economies of scale, consumer preference, timing of deployment); and (4) technologies that will continue to support GHG reductions beyond 2030 to help California achieve its 2050 GHG target.¹³⁹ The SCE Pathway applied the Energy and Environmental Economics (E3) Pathways model for deep decarbonization scenarios, as well as internally-developed economic adoption and renewable generation optimization models.¹⁴⁰

Using the E3 Pathways Model, SCE examined the “incremental” GHG abatement required beyond strategies captured by the CARB Scoping Plan¹⁴¹ and

¹³⁷ Exhibit SCE-1 at 18.

¹³⁸ Exhibit SCE-1 at Appendix B-15.

¹³⁹ Exhibit SCE-1 at Appendix B-15.

¹⁴⁰ Exhibit SCE-1 at Appendix B-15.

¹⁴¹ Exhibit SCE-1 at Appendix B-23, defines the “CARB Scoping Plan” as the 2017 climate change scoping plan update that establishes a proposed framework of action for California to achieve 40 percent GHG emissions reduction by 2030 compared to 1990 levels. The key programs under the proposed plan are the Cap-and-Trade market, the Low Carbon Fuels

projected cap-and-trade offsets to meet California's 2030 GHG reduction goals.¹⁴² For the light-duty sector, SCE assumed that economic adoption alone drives 2 million of the 7 million EVs necessary in 2030, requiring state and federal support for charging infrastructure and vehicles. SCE additionally assumed that increasing EV adoption to at least 7M EVs requires the extension of existing state and federal subsidies, in addition to improved technology/lower costs, purchase incentives, charging availability, and consumer education.¹⁴³

SCE's charging station infrastructure needs estimates are derived from the "National Plug-In Electric Vehicle Infrastructure Analysis" developed by the National Renewable Laboratory (NREL) in September 2017.¹⁴⁴ The NREL analysis assessed charging infrastructure to support national and regional deployment of Battery Electric Vehicles (BEV) and Plug-in Hybrid Electric Vehicles (PHEV) throughout the United States.¹⁴⁵ The NREL study used the Electric Vehicle Infrastructure Projection (EVI-Pro) tool, which optimizes infrastructure needs based on driving/charging simulations, spatial/temporal processing EVSE shared use potential, and scaling to account for vehicle densities.¹⁴⁶ To develop CR2's infrastructure estimates, SCE leveraged NREL's

Standard, movement toward cleaner vehicles, increasing electricity generation from renewable sources and strategies for methane emission reduction from agriculture.

¹⁴² Exhibit UCS-2 at 3; SCE-1 at Appendix B-15.

¹⁴³ Exhibit SCE-1 at Appendix B-18.

¹⁴⁴ Exhibit SCE-1 at Appendix C-1.

¹⁴⁵ Exhibit SCE-1 at Appendix C-1.

¹⁴⁶ Exhibit SCE-1 at Appendix C-1.

modeling results with some modified assumptions for SCE's service territory.¹⁴⁷

This EVSE infrastructure assessment is how SCE established the number of residential charging ports (L1 and L2), public and work ports (L2), and DCFC necessary to support 2.6 million EVs in SCE's territory by 2030.¹⁴⁸

The Make-Ready Expansion program size of 32,000 ports represents approximately 35 percent of the incremental market need.¹⁴⁹ SCE distinguishes the incremental need (92,000 ports) from the total market need (154,000 ports) to estimate the number of ports needed from 2018 to 2023.¹⁵⁰ SCE assumes that the market or other programs will install the ports to make-up the difference between the total market need (154,000) and incremental market need (92,000).¹⁵¹

4.4.1.1. Vehicle Forecast

SCE's analysis suggests that reaching California's goals will require 7 million light-duty EVs on California roads by 2030, with approximately 2.6 million in SCE's service territory.¹⁵² SCE developed a forecast on vehicle adoption for the utility's unique service territory. The forecast is comprised of four vehicle types (PHEV20, PHEV50, BEV100, BEV250) consistent with those found in the NREL 2017 report.¹⁵³ SCE clarifies that the results of this EVSE

¹⁴⁷ Exhibit SCE-1 at Appendix C-1.

¹⁴⁸ Exhibit SCE-1 at Appendix C-1.

¹⁴⁹ Exhibit SCE-2 at 9, footnote 28.

¹⁵⁰ Exhibit SCE-2 at 9, footnote 28.

¹⁵¹ Exhibit SCE-2 at 9, footnote 28.

¹⁵² Exhibit SCE-1 at 35.

¹⁵³ Exhibit SCE-1 at Appendix C-2.

infrastructure needs assessment represents an approximation of the charging stations necessary to support a mixed population of BEVs and PHEVs, and that uncertainty remains.¹⁵⁴ SCE testifies that because infrastructure needs will depend on the types of vehicles adopted, deviations from the vehicle forecast will change the total requirements.¹⁵⁵ Additionally, limited data on port sharing and utilization, adds to the uncertainty in total ports needed.¹⁵⁶

4.4.1.2. Port Need

SCE used internal modeling and a series of census data points to scale the total forecasted infrastructure need for CR2.¹⁵⁷ While the program size analysis derives specific port numbers for each customer segment, SCE admits the results are not intended to set segment-specific goals for CR2's infrastructure programs.¹⁵⁸ Instead, these segment targets were aggregated to determine a total port goal for CR2.¹⁵⁹ SCE explains the ultimate deployment goal will depend on customer interest, participation and other programmatic targets.¹⁶⁰

For the MUD target, SCE used the incremental port growth forecasted from 2020 to 2023.¹⁶¹ This method assumes that other market forces would

¹⁵⁴ Exhibit SCE-1 at Appendix C-6.

¹⁵⁵ Exhibit SCE-1 at Appendix C-6.

¹⁵⁶ Exhibit SCE-1 at Appendix C-6.

¹⁵⁷ Exhibit SCE-1 at Appendix D-1.

¹⁵⁸ Exhibit SCE-1 at Appendix D-1.

¹⁵⁹ Exhibit SCE-1 at Appendix D-1.

¹⁶⁰ Exhibit SCE-1 at Appendix D-1.

¹⁶¹ Exhibit SCE-1 at Appendix D-1.

satisfy the incremental port need between today and the launch of CR2.¹⁶² SCE's infrastructure model estimates incremental port need in MUDs to be 72,723 ports.¹⁶³ Because SCE proposes a minimum installation of two ports per site, only sites with enough parking spaces to be reserved as "EV only" are assumed to be participants.¹⁶⁴ SCE chose to reduce the total incremental forecast by the proportion of MUD sites with more than 20 parking spaces.¹⁶⁵ SCE determined that 17 percent of MUD sites within the utility's service territory contained more than 20 parking spaces.¹⁶⁶ With this data, the total MUD port forecast was reduced to 12,089.¹⁶⁷

For the workplace- / away-from-home charging target, SCE used the same incremental growth methodology as in developing the MUD target. SCE chose not to further reduce the incremental results for away-from-home charging during the program for two main reasons. First, port deployment in the Charge Ready Phase 1 Pilot was overwhelmingly concentrated in these segments, 97 percent of the installations were at workplaces and public sites. Second, SCE believes this market segment will continue to be a major contributor to deployments in CR2 as customers find EV adoption possible with access to

¹⁶² Exhibit SCE-1 at Appendix D-1.

¹⁶³ Exhibit SCE-1 at Appendix D-1.

¹⁶⁴ Exhibit SCE-1 at Appendix D-1.

¹⁶⁵ Exhibit SCE-1 at Appendix D-1.

¹⁶⁶ Exhibit SCE-1 at Appendix D-1.

¹⁶⁷ Exhibit SCE-1 at Appendix D-1 to D-2.

away-from-home charging.¹⁶⁸ SCE's infrastructure model estimates incremental need in away-from-home locations to be 12,912 ports at workplaces and 6,790 at other public locations, for a total of 19,703 ports.¹⁶⁹ The 19,703 port figure represents a 42 percent reduction from SCE's cumulative work/public charging estimates.¹⁷⁰ SCE explains the 42 percent reduction was to address the Phase 1 pilot's 97 percent installation rate at workplaces and public sites.¹⁷¹

For the DCFC target, SCE used census data to estimate the number of commercial sites that could be interested in installing DC fast charging ports.¹⁷² SCE assumed that sites with 50 or more employees (therefore, more than 50 parking spaces) would be interested in DCFC at their workplace.¹⁷³ Applying these assumptions, SCE calculated that 5.4 percent of businesses in the utility's service territory have 50 or more employees.¹⁷⁴ SCE applied the 5.4 percent to the total away-from-home ports estimate, and then assumed a simple 80/20 split of sites that would install one port versus those that would install two.¹⁷⁵ This modeling results in average installation of 1.2 ports per site.¹⁷⁶

¹⁶⁸ Exhibit SCE-1 at Appendix D-2.

¹⁶⁹ Exhibit SCE-1 at Appendix D-2.

¹⁷⁰ Exhibit SCE-1 at Appendix D-2.

¹⁷¹ Exhibit SCE-1 at Appendix D-2.

¹⁷² Exhibit SCE-1 at Appendix D-3.

¹⁷³ Exhibit SCE-1 at Appendix D-3.

¹⁷⁴ Exhibit SCE-1 at Appendix D-3.

¹⁷⁵ Exhibit SCE-1 at Appendix D-3.

¹⁷⁶ Exhibit SCE-1 at Appendix D-3.

SCE testifies that its modeling and analysis of charging infrastructure needed to support EV adoption and deployment in SCE's service territory to meet the 2030 GHG goals is consistent with SB 350 requirements.¹⁷⁷ SCE believes its forecast is better than TURN's because SCE's forecast addresses the urgency of reducing GHG emissions.¹⁷⁸

4.4.2. TURN Forecast

TURN provides its own competing analysis of charging station "need" within SCE's service territory, over a four-year period. Instead of 790,000 EVs by 2023 TURN recommends using the most recent CEC mid forecast, or 590,000 EVs by 2023 to calculate the amount of charge ports needed in SCE's service territory.¹⁷⁹ Ultimately, TURN's analysis results in an overall program size of 29,044 ports at MUDs, workplaces and destination centers for a total cost of \$253 million over a four-year period.¹⁸⁰ The \$253 million is comprised of \$245 million for infrastructure and related costs, and \$8 million for program marketing and advisory services.¹⁸¹ Below is an overview of TURN's analysis and data assumptions.

4.4.2.1. Vehicle Forecast

TURN scrutinizes the assumptions SCE used to develop port targets. TURN explains the 790,000 EVs by 2023 forecast far exceeds the CEC's high

¹⁷⁷ Exhibit SCE-2 at 3.

¹⁷⁸ Exhibit SCE-2 at 3.

¹⁷⁹ TURN Opening Brief at 16; Exhibit TURN-1 at 21, figure 8.

¹⁸⁰ TURN Opening Brief at Summary of Recommendations.

¹⁸¹ TURN Opening Brief at footnote 1.

forecast, which incorporates the most recent data on a variety of parameters.¹⁸² For forecasting purposes, TURN recommends adoption of the most recent CEC mid forecast, TURN calculates that this would result in 590,000 EVs in SCE's service territory by 2023 based on applying the 32 percent of the total state adoption.¹⁸³ TURN suggests SCE's forecast fails to incorporate other private and public entities' deployment of charging stations throughout the four-year program period.¹⁸⁴ Incorporating the CEC mid forecast of 590,000 EVs by 2023 in SCE's service territory and subtracting the number of currently-deployed workplace/public ports (6,000) and expected deployment from public and private entities, TURN's analysis yields a result of 7,000 total ports.¹⁸⁵ to be subsidized by ratepayers from 2020-2023 to meet the needs of EV drivers.¹⁸⁶ TURN's recommendation for 7,000 workplace/public ports represents more than a 100 percent increase in the amount of charging infrastructure deployed to-date in these segments.¹⁸⁷

4.4.2.2. Port Need

While TURN finds that SCE's model, along with using more reasonable assumptions, appropriately guides investment targets for workplace and away-from-home charging, TURN contends the model does not accurately reflect the

¹⁸² Exhibit TURN-1 at 19; TURN Opening Brief at 16.

¹⁸³ Exhibit TURN-1 at Figure 7; TURN Opening Brief at 16.

¹⁸⁴ TURN Opening Brief at 16.

¹⁸⁵ Exhibit TURN-1 at 21 to 22; TURN Opening Brief at 17.

¹⁸⁶ TURN Opening Brief at 17.

¹⁸⁷ TURN Opening Brief at 17.

need for the MUD segment.¹⁸⁸ TURN argues the calculation of MUD ports SCE uses is arbitrary and does not reflect deployment need to achieve state EV adoption goals.¹⁸⁹ TURN explains, the number of single family homes in SCE's territory is 3.4M million,¹⁹⁰ which is, more than sufficient to meet SCE's share of state EV adoption goals through 2023 and even 2030.¹⁹¹ TURN believes SCE's forecast fails to address the actual need for MUDs because the modeling does not account for the amount of residential charging that can be served through residential charging at single family homes.¹⁹²

TURN rebuts SCE's modeling for workplace and public charging infrastructure needs assessment by explaining how the utility's assessment found that 87 percent of vehicles on the road could be replaced by a low cost EV available today, even without the possibility to recharge during the day.¹⁹³ This is confirmed with SCE's own modeling, in which over 80 percent of the infrastructure supported is actually for PHEVs to increase eVMT (electric vehicle miles traveled), rather than BEVs to ensure trips can be completed by stranded drivers.¹⁹⁴ While TURN does not dispute the fact that workplace and public

¹⁸⁸ TURN Opening Brief at 13.

¹⁸⁹ TURN Opening Brief at 13 to 14; Exhibit TURN-1 at 12.

¹⁹⁰ Exhibit TURN-2 at 57; TURN Opening Brief at 14.

¹⁹¹ TURN Opening Brief at 14.

¹⁹² TURN Opening Brief at 14.

¹⁹³ TURN Opening Brief at 14 to 15; Exhibit TURN-1 at 15.

¹⁹⁴ TURN Opening Brief at 15.

charging stations are important markets to support, it believes investments should appropriately reflect the risk and reward of ratepayer subsidies.¹⁹⁵

TURN recommends higher subsidy levels for MUDs, also with reserved funding for this sector.¹⁹⁶ TURN supports utility ownership of charging stations at MUDs in DACs along with required minimums and a “cap” on deployment.

¹⁹⁷ In conjunction with the New Construction Rebate program, TURN recommends ratepayers fund 22,000 ports for the MUD segment.¹⁹⁸ The 22,000-port target for MUDs is a very large increase over the 35 ports that SCE deployed in the Phase 1 Pilot.¹⁹⁹

In total, TURN recommends a budget to support 29,000 ports at workplaces, public and MUD locations.²⁰⁰ In combination with this port target, TURN recommends different unit cost estimates, performance accountability measures, greater leveraging funds from site hosts, and one-way balancing accounts to ensure funding is reserved for the intended customer segment and program purpose.²⁰¹ TURN testifies these recommendations will ensure the MUD and workplace/public charging deployment investments minimize costs and maximize overall benefits to ratepayers.

¹⁹⁵ TURN Opening Brief at 15.

¹⁹⁶ TURN Opening Brief at 17.

¹⁹⁷ TURN Opening Brief at 17.

¹⁹⁸ TURN Opening Brief at 17.

¹⁹⁹ TURN Opening Brief at 17.

²⁰⁰ TURN Opening Brief at 17.

²⁰¹ TURN Opening Brief at 17.

4.5. Analysis of Infrastructure Programs and Recommended Modifications

Generally, parties' arguments focused on how SCE's proposal (1) meets or fails to meet the goals and guidance of SB 350 and (2) incorporates or fails to incorporate lessons learned from the Phase 1 Pilot. Our authorization of the CR2 program with accompanying program modifications and policy recommendations are derived from our analysis and review of the parties' arguments.

We aim to strike a balance between SCE's proposal and the modifications proposed by intervening parties. Ultimately, we do not want the following program modifications and policy recommendations to work against SCE's ability to implement and run a successful widespread charging program in support of the goals of SB 350. Similarly, we do not want the following policy recommendations to hinder participation among the various market and customer segments CR2 aims to engage.

4.5.1. Forecast

In comparing SCE and the CEC's "mid" forecast models, we are unpersuaded that either is the right forecast. While SCE claims its modeling will help meet broader GHG reduction goals, ultimately the utility states "[m]ultiple paths exist for California to meet its 2030, and ultimately 2050, climate goals..." Moreover, utilization of too high of a vehicle projection could result in under-used assets and over-subsidization of the market, funded by ratepayers. Under-used assets will ultimately not contribute to reductions in GHG emissions or in meeting our climate goals.

	SCE	TURN
Vehicle Forecast in SCE's Territory	790,127 EVs by 2023	590,000 EVs by 2023 ²⁰²
<i>Model used for Vehicle Forecast</i>	<i>SCE Pathway</i>	<i>California Energy Commission 2018 Mid Forecast</i> ²⁰³
Resulting Port Need for CR2	Approx. 50,282 ports ²⁰⁴	Approx. 29,044 ports
Make-Ready Expansion Port Count	~32,000 ports (up to 4,230 for Own & Operate)	~13,044 ports
<i>Number of Needed MUD Ports</i>	12,089 ports	6,044 ports ²⁰⁵ (up to 2,500 for Own & Operate)
<i>Number of Needed Workplace and Public Ports</i>	19,703 ports	7,000 ports
<i>Number of DCFC Ports</i>	205 ports	0 ports
New Construction Port Count	18,285 ports	16,000 ports
Estimated Infrastructure Programs' Costs	\$718.6M ²⁰⁶	~\$245M

As discussed below, we utilize the California Energy Commission's Aggressive scenario and methodology to recommend program size and port needs for SCE's CR2 infrastructure programs. Applying the California Energy Commission's Aggressive scenario, we adopt a vehicle forecast of approximately 760,000 EVs in SCE's service territory by 2023 based on a realistic but high estimate of EV adoption that may be achieved by the end of CR2.²⁰⁷

²⁰² Implies a statewide adoption of around 1.8M EVs in 2023.

²⁰³ Transportation Energy Demand Forecast, 2018-2030.

²⁰⁴ SCE originally proposed a program size of 48,000 ports, but since modified the New Construction program up from 16,000 to 18,285 ports.

²⁰⁵ TURN requests a minimum requirement of 40% spending in MUDs.

²⁰⁶ Exhibit SCE-1 at 5: the Core Programs, so everything excluding the ME&O programs, would be \$718.6M.

²⁰⁷ The infrastructure modeling assumptions used in this proceeding, are specific to the CR2 application.

4.5.1.1. Analysis of Vehicle Forecast

In determining which vehicle adoption model to use, we compare SCE's pathway with the California Energy Commission's Zero Emission Vehicle (ZEV) adoption scenarios. Those scenarios are: Low, Mid, which TURN recommends using, High, Aggressive and Bookend. As shown in Appendix B, the California Energy Commission's High Scenario also does not project California meeting its goal of 5 million ZEVs by 2030.²⁰⁸ However, the Aggressive Scenario does have the State meeting this goal, and slightly exceeding it. For this reason, the Aggressive Scenario is adopted for evaluating the forecasted number of EVs in SCE's territory in 2023 and 2030.²⁰⁹

A primary concern with SCE's vehicle forecast and assumptions, is that SCE's forecast does not align with California's 5 million ZEV goal. Optimizing investment is important to meeting GHG emissions reduction goals since the building of the infrastructure itself is not a measure of GHG reduction. Thus, the projected number of vehicles should more closely align with California State goals.

Conversely, TURN's vehicle forecast is too low when compared to the state goal. The California Energy Commission's Mid Scenario that TURN leverages projects approximately 1.9 ZEVs adopted by 2023 and 3.6 million by 2030 statewide. This forecast does have California meeting its 1.5 million ZEVs by 2025 goal but does not have the state meeting its 5 million ZEVs by 2030 goal.

²⁰⁸ The CEC's Aggressive case is designed to mirror the high case until 2025.

²⁰⁹ See Appendix A.

Similarly, TURN's forecast is too unambitious and could potentially inhibit the ability to meet the 5 million ZEVs by 2030 goals.

While we choose to adopt the California Energy Commission's Aggressive Scenario to scale CR2, we recognize this is still an ambitious scenario for EV adoption. It is important to note that the Aggressive Scenario is an optimistic EV penetration scenario, in that it assumes all existing TE incentives are extended, prices for vehicles are low, and all classes of EVs are available. We note that, though we are scaling back SCE's original proposal, the authorized program is still ambitious in comparison to most of the California Energy Commission's adopted forecasts.

4.5.1.2. Scaling Statewide Vehicle Forecast to SCE's Territory

To determine the proportion of the statewide vehicle forecast that Charge Ready 2 should address, SCE proposes to first assign 38 percent of the total number of projected vehicles to its territory. This is based on the fact that 38 percent of the state's passenger vehicles are located in SCE's territory. That calculation leads to approximately 790,000 EVs in SCE territory by 2023 and approximately 2.7 million by 2030.

In testimony, TURN pushed back on this assumption, arguing that SCE is overstating the proportion of EVs it will likely have in the territory. TURN argues that only 32 percent of the statewide forecast of vehicles should be apportioned to SCE's territory since this is the percentage of EVs, not of all passenger vehicles, that are located in SCE's territory. By applying this logic, TURN approximates that there will be 590,000 EVs in SCE's territory by 2023.

While we recognize TURN's argument that EV adoption trends may point to SCE's territory continuing towards accounting for 32 percent of total EVs in the state, we are unpersuaded that their forecasted percentage is any better founded than SCE's argument that EV adoption in the future will generally mirror passenger vehicle adoption. As such, we take 38 percent of the statewide Aggressive Scenario model to forecast the number of EVs in SCE's territory in 2023 and 2030—approximately 760,000 EVs in 2023 and 1.9 million in 2030.

4.5.1.3. Projected Mix of Vehicles

Another concern with SCE's vehicle forecast is the assumption around the projected mix of vehicles. SCE assumes within its EV forecast that the mix of battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs) will remain about constant from 2018 through 2030. While TURN identifies concerns around the mix of PHEVs and BEVs in SCE's analysis, it does not adjust its recommendation for its own EV forecast or resulting port need.

However, the mix of PHEVs and BEVs within the California Energy Commission modeling, shown in Appendix B, assumes a lower proportion of PHEV's in the future than SCE assumes. The number of PHEVs is already declining and thus it is reasonable to make the assumption that we will likely see a rise in the proportion of BEVs. SCE's assumption likely overestimates the percent of vehicles that will be PHEVs in the future.

This assumption is important because it influences the number of charging ports needed. As discussed in more detail below, the NREL model and EVI-Pro that both SCE and TURN use to calculate the needed workplace and public Level 2 charging can vary greatly based on the number of PHEVs or the level of

support for PHEVs that is projected, based on the assumption that more PHEVs leads to a larger projection of away from home charging need. If the Commission were to adopt SCE's assumption around the mix of vehicles, it could result in under-used assets for workplace and public Level 2 charging, and over-subsidization of these market. Under-used assets would not contribute as much reduction in GHG emissions but would burden ratepayers with additional cost.

4.5.1.4. Determining the Necessary Amount of Charging

SCE's charging needs assessment takes the projection around EV adoption and calculates the need for away from home charging—or workplace and public locations—using the methodology from the NREL's "National Plug-in Electric Vehicle Infrastructure Analysis", which leverages EVI-Pro. There are several key factors that raise concerns with SCE's assumptions around its charging needs assessment for away from home charging:

- 1. Portion of Charging Assumed to Occur Away From Home**—SCE uses the NREL study's assumptions around how much EV charging will take place at home, but changes the assumption that 80 to 88 percent of charging will occur at home through 2030. SCE assumes more will be done away from home to minimize grid impacts, and assumes that away from home charging will be between 17 and 25 percent of all charging. However, this is aspirational rather than based on data. While it would be good to encourage more daytime charging to minimize grid impacts, making that assumption without the data to support it could result in under-used assets.
- 2. PHEV support**—Per TURN's testimony, a majority of the calculated infrastructure requirement in workplace and public locations is for PHEVs. SCE makes the assumption

that PHEV drivers will charge away from home to maximize eVMT rather than allowing the vehicle to run on gasoline until the driver can charge at home. Again, this is aspirational rather than based on data. It seems reasonable to assume most drivers will choose convenience over the maximization of eVMT.

3. **Amount of Charging That Can be Installed at Workplace and Public Sites**—After estimating the incremental need for workplace and public charging from 2020-2023—SCE estimates 19,703 ports needed—SCE chose not to reduce that number despite physical constraints such as number of parking spaces. This could lead to an inflated number of installations at workplaces and public sites.
4. **Accounting for Public and Private Development of Charging Stations**—Per TURN's testimony, SCE does not sufficiently account for public and private development of charging stations in its territory. This may have the effect of also overestimating the need for charging during the program period.

To address these concerns, we take a closer look at the methodology within the NREL study. The portion of the NREL study relevant to this needs assessment takes a nationwide look at charging needs and attachment rates, which is used to estimate the number of Level 2 plugs in these sectors needed per 1,000 EVs. This attachment rate can vary greatly depending on different inputs and assumptions.²¹⁰

²¹⁰ For illustrative purposes, the attachment rate varies based on the type of location. For cities, towns, and rural areas the NREL study sees a range of attachment rates—36 ports per 1,000 PEVs in cities, 54 in towns, and 79 in rural areas. The NREL study largely focuses on a scenario with an attachment rate of approximately 40 plugs per 1,000 PEVs.

The attachment rate is highly sensitive to PHEVs. The assumed level of support provided to drivers of PHEVs can greatly impact the needed away from home infrastructure. The NREL study states, “[t]he sensitivity of PHEV support reveals that non-residential L2 charging is modeled almost exclusively as supporting PHEVs, where providing full support (maximizing eVMT for all PHEV owners) results in over 1,100,000 plugs [per 15 million PEVs] and providing no PHEV support drops the non-residential L2 plug requirement to under 63,000.” This indicates that depending on the level of PHEV support projected, the attachment rate can range from approximately 4.2 L2 ports per 1,000 PEVs to 73 ports per 1,000 PEVs.

The percent of assumed charging that takes place at home versus away from home also has an influence on the attachment rate. The study presumes that most drivers will prefer to charge at home and thus assumes that 82 to 88 percent of charging will take place at home. A decrease in the amount of charging happening at residential locations from 88 percent to 82 percent results in charging requirements increasing from 600,000 to 1,100,000 for non-residential L2 ports. Thus, even within this range of assumed home charging, shifts in the assumption can change the attachment rate from approximately 40 to 73 ports per 1,000 PEVs.

SCE proposes an attachment rate for away from home charging of approximately 43 L2 ports per 1,000 PEVs. While TURN acknowledges that the attachment rate could be reduced to account for lower PHEV support, it does not make that adjustment within testimony.

We find it reasonable to reduce the attachment rate based on the significant variation possible within the NREL model, discussed above, SCE's overly optimistic forecast surrounding of the proportion of charging taking place away from home in the coming years, and the support needed for PHEV drivers. Accounting for these factors and significant variation in attachment rates the Commission finds it reasonable to reduce the assumed attachment rate for this needs assessment to 40 L2 chargers per 1,000 PEVs.

If we adjust for less PHEV support (i.e. less utilization of EV chargers by PHEVs), assuming that drivers will not always maximize eVMT at the cost of convenience, and we account for the ranges for the other two cited assumptions, an attachment rate of 40 is reasonable.²¹¹ Many of the vehicle attributes modeled through these scenarios, have been different in actual experience. EVI-Pro is designed to be conservative. For example, it assumes that we will not commonly have BEVs with 200-mile range until 2025, but we are already seeing 200 mile range BEVs commonly available today which has the effect of driving down these models' need for away from home charging.

By applying the attachment rate of 40 to the vehicle forecast we get an away from home charging need of 30,400 ports.

SCE and TURN both scale down the number of charging ports at workplaces and public locations based on what they calculate from their needs assessment. As discussed in Section 4.4, SCE scales down to a total of 19,703 away from home charge ports—12,912 at workplaces and 6,790 at destination

centers. SCE chooses not to reduce this number further but ascribes the full amount of incremental away from home charge ports to the Charge Ready 2 program.

TURN by contrast takes its estimated 25,399 ports needed to support charging away from home and reduces it based on the number of public and workplace charge ports expected to be deployed between 2019 and 2023. By estimating the existing SCE workplace and public ports (6,000), the estimated California Energy Commission deployment (12,032), the Electrify America deployment (194), and privately funded workplace and public deployment (254), TURN subtracts 18,481 ports from the total needed. This results in 6,918 away from home ports, which TURN rounds up to 7,000 ports.

The Commission finds TURN's approach to reducing the overall need by the expected public and workplace charge ports expected to be deployed during the program to be reasonable with one adjustment. We do not adopt TURN's estimate of privately funded stations. This number seems speculative and is not included in our estimation. Thus, working from our estimate of 30,400 ports to support away from home charging, we subtract 18,226 ports (18,481 minus 254) which results in 12,174 ports (30,400 minus 18,226). Given this approach is already utilizing an aggressive model for EV adoption, we round down to get 12,000 ports in these locations for CR2.

To determine the number of ports at MUDs that SCE should build through CR2, SCE calculates the total needed ports at MUDs to be 120,000 and determines the incremental port growth needed from 2020-2023 as 72,723. SCE subsequently takes 17 percent of this number based on the number of MUD parking lots

assumed to have 20 or more parking spaces. This results in a total MUD port target of 12,089 for the Make Ready Expansion program.

Conversely, TURN states that it “assumes around half of the MUD ports as SCE’s proposal, as demand for this segment needs to be proven but should increase from pilot results due to higher incentive levels offered and greater EV adoption in coming years...”²¹² This results in a 6,044 MUD ports for the Make Ready Expansion program, or approximately 46 percent of the overall ports within this program.

We determine the appropriate scaling of the MUD investment by applying the same recommended percentage of the overall Make Ready Expansion program ports. Focusing 46 percent of the program to MUD ports results in, 10,200 ports. In sum, we determine that 22,000 ports, comprised of 10,200 MUD and 12,000 workplace/destination center is a reasonable size and investment for the Make-Ready Expansion program.

4.5.2. Cost Estimates

Cal Advocates and TURN assert SCE’s costs per port are too high (\$19,000 inclusive of contingencies), while SCE testifies it developed cost estimates for CR2 by using Phase 1 Pilot results and a detailed analysis of specific activities contributing to the Phase 1 Pilot implementation.²¹³

Cal Advocates contends SCE’s cost estimates should be reduced because they are higher than the per port costs SCE bore in the Phase 1 Pilot.

²¹² TURN Amended Testimony at 40.

²¹³ See Sections 4.1.1 to 4.1.3 for a detail of each infrastructure program’s cost estimates.

Cal Advocates highlights the additional site cost adders SCE includes in workpapers: (1) need for line extension, new meter, and service from existing grid infrastructure to the site; (2) Americans with Disabilities Act (ADA) access path with ramp; (3) surface mount conduit; (4) service from existing transformer; and (5) other miscellaneous cost adders.²¹⁴ Using SCE's workpapers, Cal Advocates estimates the make-ready per port cost to be approximately \$16,273 per port (excluding the rebate for the EVSE).²¹⁵ Cal Advocates explains that this average per port cost for CR2 is more costly than the Phase 1 Pilot installation costs of \$12,525 (\$14,097 in 2018\$) per port.²¹⁶ Although SCE claims it incorporated lessons learned from the Phase 1 Pilot that reduce cost estimates, Cal Advocates asserts the utility fails to explain how it did so.²¹⁷

Using the same workpapers, TURN estimates SCE's per port costs to be around \$20,000.²¹⁸ TURN explains this figure does not include the total revenue requirement, including profit, taxes, and other loaders that increase SCE's per port cost.²¹⁹ TURN attributes the high per port cost to SCE's emphasis on the highest cost sites on which the utility bases its cost estimates and resulting program budget totals.²²⁰ TURN's analysis of SCE's budget revealed that the

²¹⁴ Cal Advocates Opening Brief at 6 to 7.

²¹⁵ Cal Advocates Opening Brief at 7; Exhibit Cal Advocates-1 at 1 to 3.

²¹⁶ Cal Advocates Opening Brief at 7, footnote 26.

²¹⁷ Cal Advocates Opening Brief at 7.

²¹⁸ TURN Opening Brief at 17.

²¹⁹ TURN Opening Brief at 17 to 18.

²²⁰ TURN Opening Brief at 18.

utility assumed a lot of deployment at low-port sites, driving unit and overall costs significantly higher than is necessary to achieve port deployment goals.²²¹ TURN suggests that SCE's budget assumes 37 percent of sites would have four to six ports, while 84 percent have four to 13 ports per site.²²² TURN recommends the Commission adopt a unit cost estimate based on a reasonable site mix and a rebate program for low-port sites to ensure these sites can participate in the program but do not drive a disproportionate share of ratepayer costs.²²³

SCE maintains TURN and Cal Advocates cost estimate arguments are arbitrary. In rebuttal, SCE clarifies, "Although these hypothetical distributions appear to reduce the total cost of the program, they are either incorrect or not supported by data, and therefore do not reflect a realistic forecast for participation."²²⁴ SCE argues that, because costs accrue based on the components required to construct a site (*e.g.* mobilization, trenching), it is important to realistically forecast the number and type of sites CR2 can support.²²⁵ SCE attributes increased per-port costs due to the special construction work required to serve large sites (*e.g.*, lengthy deployment distances through parking lots or parking structures, high-voltage transformers and switchgear needed to maintain adequate power and voltage to end-point EVSEs, distribution panels

²²¹ TURN Opening Brief at 18.

²²² TURN Opening Brief at 18; Exhibit TURN-1 at 26.

²²³ TURN Opening Brief at 18.

²²⁴ Exhibit SCE-2 at 12.

²²⁵ Exhibit SCE-2 at 12.

placed at even intervals throughout the site, deployment on multiple floors of parking structures, triggered seismic and structural requirements for conduit and equipment mounting).²²⁶ Similarly, SCE argues TURN's methodology is flawed given that its allocation is "loosely based on actual" Phase 1 Pilot data.²²⁷

While TURN and Cal Advocates attempt to demonstrate that total program costs can be driven down by forecasting greater participation from large sites, ultimately we find their per-port cost assumptions fail to incorporate data from the Phase 1 Pilot. TURN bases its per port cost recommendations on a different program and rebate model and Cal Advocates provides costs that are not an "apples-to-apples" comparison; ultimately both fail to show how either approach accounts for the various cost components SCE attributes to its increase in per-port cost estimates.

However, we do find the broader argument surrounding TURN and Cal Advocates' recommendations of SCE's per port cost estimate to be reasonable and supported by the Phase 1 Pilot data. Utilizing SCE's workpapers, the utility projects a per port cost of nearly \$19,000 (including contingencies) for the L1 and L2 ports within the Make-Ready Expansion program. While we understand that installation costs can fluctuate, depending on the site, we are unpersuaded this amount is appropriate given the average of \$13,731 per port amount for the Phase 1 Pilot. However, we recognize that certain costs have increased since the 2016 Phase 1 Pilot, and therefore adopt a higher per-port

²²⁶ Exhibit SCE-2 at 12.

²²⁷ Exhibit SCE-2 at 12.

average cost compared to the pilot. Based on the Phase 1 Pilot cost estimates, and consideration of TURN and Cal Advocate's arguments SCE should use an average per port cost of \$15,000 for the Make-Ready Expansion program.

4.5.3. Port Minimums

SCE proposes a program-wide two-port minimum for sites participating in the Make-Ready Expansion program. Parties are split in their support of that requirement, with some recommending different port minimums to reflect site and customer segments. Ultimately, SCE believes that a higher minimum would decrease the participation of MUDs, a segment that faces higher barriers to adoption.²²⁸ Some parties also recommend adopting both minimum and average ports-per-site requirements for the program to allow SCE flexibility in implementation while ensuring ratepayer savings.

Cal Advocates opposes imposing a two-port minimum contending it will increase CR2's overall program costs.²²⁹ Instead, Cal Advocates recommends the Commission set higher port minimums for particular segments or a higher program-wide minimum.²³⁰ Cal Advocates recommends a minimums of five ports per site at DACs, and ten ports per site at non-DACs.²³¹

For program-wide minimums Cal Advocates provides the following illustrative example: if the adopted average was 14 ports per site, SCE would be

²²⁸ Exhibit SCE-1 at 40.

²²⁹ Cal Advocates Opening Brief at 20; SBUA Reply Brief at 6.

²³⁰ Exhibit Cal Advocates-1 at 1-7.

²³¹ Exhibit Cal Advocates-1 at 1-7.

allowed to include a two-port site for every 20-port site it included in the program (a two-port site creates a “deficit” of 12 ports, whereas each 20-port site creates a “surplus” of six ports).²³² Cal Advocates testifies this would allow SCE to keep economies of scale while still allowing SCE flexibility to install smaller port sites.²³³ Using the same program-wide averages as the Phase 1 Pilot ensures comparable costs per installation.²³⁴ Cal Advocates recommends the Commission set higher average site requirements for non-DACs than for DACs.²³⁵ The average port per site requirements may have the unintended effect of reducing DAC participation, if SCE can find larger sites at non-DACs than at DACs.²³⁶

NDC recommends that CR2 maintains the Phase 1 Pilot requirements of a ten port minimum for non-DACs and five-port minimum for DACs to prevent unreasonably favoring non-DAC deployment.²³⁷ NDC suggests the two-port minimum is unsupported by the Phase 1 Pilot, given that DACs average 12 ports per site, and non-DACs averaged 20 ports.²³⁸ NDC supports the two-port minimum for MUDs only.

²³² Exhibit Cal Advocates-1 at 1-11.

²³³ Exhibit Cal Advocates-1 at 1-11.

²³⁴ Exhibit Cal Advocates-1 at 1-11.

²³⁵ Exhibit Cal Advocates-1 at 1-11.

²³⁶ Exhibit Cal Advocates-1 at 1-11.

²³⁷ NDC Opening Brief at 23.

²³⁸ NDC Opening Brief at 23.

SBUA believes a 100 percent rebate for customers installing five or fewer ports should be approved instead of a two-port minimum requirement.²³⁹ Similar to the rebate for customers in DACs, SBUA suggests the Commission limit the 100 percent rebate for customers installing five or fewer ports to the following customer types: single family residences, MUDs, and small businesses.²⁴⁰ This recommendation excludes workplaces and destination centers. SBUA notes that if the Commission denies its rebate proposal, SBUA supports reducing the minimum port requirement to two ports.²⁴¹ SBUA believes the two-port minimum would allow small business customers and other customers with financial and space restrictions to participate even if they cannot accommodate or afford numerous EV chargers on their premises.²⁴²

TURN recommends the Commission adopt a unit cost estimate based on a reasonable site mix and rebates for low-port sites.²⁴³ TURN testifies SCE's budget fails to capture the economies of scale that can be leveraged from deploying infrastructure at high-port sites because it assumes such a high number of low-port sites.²⁴⁴ SCE assumes that 37 percent of sites will have 4 to 6 ports, and that 84 percent of sites will have 4 to 13 ports.²⁴⁵ TURN proposes

²³⁹ SBUA Reply Brief at 5.

²⁴⁰ SBUA Reply Brief at 6.

²⁴¹ SBUA Reply Brief at 6.

²⁴² SBUA Reply Brief at 6.

²⁴³ TURN Opening Brief at 18.

²⁴⁴ TURN Opening Brief at 19.

²⁴⁵ TURN Opening Brief at 20, referencing Exhibit TURN-1 at 26.

offering workplaces and public sites that install five or fewer ports a \$16,000 per port rebate, whereby all construction and procurement of charging stations is facilitated by the site hosts.²⁴⁶ TURN explains, for sites that can utilize on-site infrastructure (*e.g.*, existing panel, service drop or onsite transformers) the \$16,000 per port rebate will cover a large portion of these costs.²⁴⁷ TURN feels this approach may prove to be a simpler process than a utility run deployment.

While we agree with many of the objectives and program design elements SCE proposed, we remain unconvinced that a two-port minimum is warranted based on the evidentiary record. And while we are hesitant to set port minimums below those set for the Phase 1 Pilot (five ports for DACs sites, 10 ports for non-DAC sites), we understand costs fluctuate based on specifics of site type, and resulting port installation. Instead of adopting minimum port requirements for each customer segment, we adopt a minimum port requirement of four ports per site for those sites supporting L1 or L2 EVSE. A four-port minimum for L1/L2 sites, and 2-port minimum for DCFCs²⁴⁸ ensures that sites can accommodate more than two vehicles at a time and allows for flexibility across different sites and customer segments. The four-port minimum ensures ratepayer investments are maximized for overall benefits, consistent with §§ 740.3 and 740.8.

²⁴⁶ TURN Opening Brief at 21.

²⁴⁷ TURN Opening Brief at 21.

²⁴⁸ See Section 4.5.8

However, we understand the need for flexibility for this metric as SCE works to enroll sites for the CR2 program. Accordingly, after 12 months of customer enrollment, SCE may file a Tier 2 advice letter with the Commission's Energy Division that addresses a revision to the minimum port requirement. At a minimum the advice letter must include: (1) how many potential MUD locations and small business customers have committed to installing four or more ports; (2) how many potential MUD locations and small business customers do not qualify because of limited capacity; (3) how many potential DAC locations have committed to installing four or more ports, broken down by customer type; (4) how many potential DAC locations do not qualify because of limited capacity; and (5) how costs for lower port sites compare to higher port sites.

4.5.4. Capitalization of Behind-the-Meter Infrastructure

SCE believes CR2 appropriately minimizes overall costs and maximizes overall benefits to ratepayers.²⁴⁹ SCE's proposal, including packaged site designs, site feasibility reviews, use of customer distribution facilities, streamlined processes, and larger contractor procurement pools, are all areas where the utility asserts it incorporated lessons learned from the Phase 1 Pilot.²⁵⁰

TURN does not support SCE's proposal to capitalize behind the meter (BTM) costs.²⁵¹ TURN does not dispute that this treatment is suitable for utility-

²⁴⁹ SCE Opening Brief at 9.

²⁵⁰ SCE Opening Brief at 9.

²⁵¹ TURN Opening Brief at 29.

side costs, but contends the capitalization of all of these costs is entirely unnecessary to accomplish the goals of CR2.²⁵² While work is generally contracted to non-utility vendors, TURN argues the cost recovery treatment (capitalization vs. expense) does not impact the ability of these vendors to deploy BTM and utility-side infrastructure.²⁵³ TURN ultimately recommends that all BTM costs should be expensed, not capitalized.²⁵⁴

We are not persuaded that a complete rejection of SCE's proposal is warranted based on the evidentiary record. Similar to our rationale in D.18-05-040, where the Commission directed PG&E and SCE to offer site hosts the option to own, operate, and maintain the BTM infrastructure, we authorize SCE to offer site hosts participating in CR2 the same option. Further, we encourage SCE to target 15 percent of Make-Ready Expansion under the site host ownership option. We are hesitant to set a binding target of 15 percent for the Make-Ready Expansion because of ongoing changes in the TE market. After two years of customer-enrollment, SCE must file a Tier 1 advice letter that at a minimum addresses how many of the contracted Make-Ready sites select the site-host ownership option, whether SCE anticipates meeting or exceeding the 15 percent target, and any challenges toward meeting this target. Because the Make-Ready Expansion program targets a different customer segment than the

²⁵² TURN Opening Brief at 29.

²⁵³ TURN Opening Brief at 29.

²⁵⁴ TURN Opening Brief at 3.

programs approved in D.18-05-040, we are interested in knowing why site-hosts elect the customer or utility ownership option.

In D.18-05-040, the Commission determined infrastructure cost for BTM investments did not need to be capitalized for SDG&E to achieve the objectives of its residential charging program (RCP). That decision is distinguishable for many reasons. First, the RCP aimed to address a different customer segment, it was exclusively for single-family residences versus the segments targeted here. Second, SDG&E proposed to capitalize the cost of the EVSE, in addition to the supporting charging infrastructure. And third, the RCP was not developed from lessons learned from a pilot or “test phase,” unlike CR2. Ultimately, SDG&E declined to implement the RCP because from their perspective the program as modified by D.18-05-040, lacked the necessary regulatory incentive to invest in the charging infrastructure.²⁵⁵ By encouraging SCE to target a portion of the Make-Ready Expansion for site-host ownership, reduces the capitalization of customer-side infrastructure, because the equipment will be owned by the site-host and not the utility.

4.5.5. Rebate Levels

A contentious area of this proceeding has been the amount SCE should rebate participating customers to offset the costs of the EVSE they purchase. Both Cal Advocates and TURN recommend the Commission reject SCE’s proposal to provide 100 percent rebates to participating customers, and recommend setting

²⁵⁵ SCE Reply Brief at 28.

lower EVSE rebates.²⁵⁶ SBUA takes a different approach, recommending that SCE set rebate levels to reflect barriers to TE adoption that small businesses face.²⁵⁷

In rebuttal, SCE claims substantial rebates are necessary and appropriate to encourage widespread EV adoption, particularly in MUDs and DACs.²⁵⁸ At a minimum, SCE requests the 100 percent rebate be maintained for MUDs and DACs where customers face more significant barriers to EV adoption.²⁵⁹ SCE provides that it would be amenable to reducing charging station rebates in other customer segments to pilot levels (*i.e.* 25 percent for non-DAC workplaces, fleets, and destination centers), citing that these may not face as significant barriers to acquiring and installing the charging stations as MUD and DAC customers.

TURN believes the more direct and equitable approach to ensuring, customers in DACs have access to EV charging is to require public charging, destination centers, and workplace/fleet sites pay for all charging station costs (no rebates) as well as 10 percent of customer-side infrastructure costs regardless of whether they are located in a DAC.²⁶⁰ TURN opines that leveraging funds from these participating sites is not only reasonable, but allows the ratepayer investment to go further and support more charging infrastructure.²⁶¹ As

²⁵⁶ Exhibit SCE-2 at 26; Exhibit TURN-1 at 30; Exhibit Cal Advocates-1 at 1.

²⁵⁷ SBUA Reply Brief at 3.

²⁵⁸ Exhibit SCE-2 at 26.

²⁵⁹ Exhibit SCE-2 at 26.

²⁶⁰ TURN Opening Brief at 22.

²⁶¹ TURN Opening Brief at 22.

witness Borden testifies, “ensuring customers pay a portion of customer-side costs aligns customer and ratepayer interest-namely, customers will have a financial incentive to reduce these costs as much as possible.”²⁶² To account for this, TURN recommends offering workplace and public sites that wish to install five or fewer ports at a \$16,000 per port rebate, with all construction and procurement of the EVSE is facilitated by the site host.²⁶³ As discussed in Section 4.5.3, the \$16,000 per port rebate will cover a large portion of the costs and may provide a faster process than a utility-run deployment.²⁶⁴

SBUA contends SCE’s proposed rebate levels fail to address financial obstacles small businesses face in participating in TE programs.²⁶⁵ SBUA explains that excluding small businesses that are not located in DACs will leave this customer base underserved and hinder widespread TE.²⁶⁶ At the same time, well-resourced businesses located within DACs would qualify for SCE’s proposed rebate, which is not a reasonable use of ratepayer funds.²⁶⁷ To combat this, SBUA recommends SCE determine eligibility based on the customer type: SF residences, MUDs, and small business.²⁶⁸ SBUA recommends wealthier customers within a DAC be offered a rebate covering up-to 25 percent of the

²⁶² TURN Opening Brief at 22, citing Exhibit TURN-1 at 31.

²⁶³ TURN Opening Brief at 21.

²⁶⁴ TURN Opening Brief at 21.

²⁶⁵ SBUA Reply Brief at 3.

²⁶⁶ SBUA Reply Brief at 3.

²⁶⁷ SBUA Reply Brief at 3.

²⁶⁸ SBUA Reply Brief at 3 to 4.

infrastructure costs.²⁶⁹ SBUA believes this “cap” on the level of funding for wealthier customers would leverage private funding sources, in compliance with the ACR.²⁷⁰

To account for the significant number of New Construction Rebates that will encourage MUD participation and for alignment with SB 350’s DAC goals, Cal Advocates recommends the Commission adopt the same rebate levels from the Phase 1 Pilot (i.e. 100 percent for DACs, 50 percent for non-DAC MUDs, and 25 percent for all other market segments).²⁷¹

Recognizing the lessons learned from the Phase 1 Pilot, and the various market segments that were reached, we are not convinced that a flat rebate is necessary to accomplish the goals of CR2 and the objectives of SB 350. Accordingly, we adopt the same rebate levels as were set in the Phase 1 Pilot. SCE should set rebate levels at 100 percent for DACs, 50 percent for non-DAC MUDs, and 25 percent for all other market segments. We agree that the MUD segment has an increased focus with the Own and Operate and New Construction Rebate programs within CR2. The 100 percent rebate for DACs ensures these customers can participate when they otherwise could be financially unable to do so. SCE should be flexible to move rebate levels up or down as the program is implemented, so that site hosts who are willing to contribute more to

²⁶⁹ SBUA Reply Brief at 4.

²⁷⁰ SBUA Reply Brief at 4.

²⁷¹ Cal Advocates Reply Brief at 4.

installation costs be allowed to do so.²⁷² This flexibility will allow SCE to meet an average unit cost of \$15,000 per port.²⁷³

In the interest of applying lessons learned from the Phase 1 Pilot, SCE should employ the base cost methodology that it used within the pilot to determine the base cost off-of which SCE can determine the site-specific rebate amounts. SCE should work with its TE Advisory Board to determine rebate levels. SCE should annually evaluate charging infrastructure subsidy levels and charging station rebate levels with its TE Advisory Board and include adjustments in the CR2 annual program report. SCE should seek to reduce the subsidy down to zero over the course of the program if there is sufficient demand in the workplace segments.²⁷⁴

SBUA's caution that "wealthier" customers may be eligible for a 100 percent rebate if located in a DAC, raises an issue of equity. We want to ensure that locations in DACs are truly in need, if provided a 100 percent rebate. Accordingly, SCE should work with its TE Advisory Board to ensure potential DAC sites are not on the Fortune 1000 list. SCE should offer those DAC sites that are on the Fortune 1000 list 25 percent rebate levels, consistent with the "all other market segments."

We additionally find TURN's "low port rebate" proposal appropriate. . Accordingly, SCE is directed to develop a "low port rebate" up to \$16,000 per

²⁷² TURN Opening Comments at 5.

²⁷³ TURN Opening Comments at 5.

²⁷⁴ TURN Opening Comments at 5 to 6.

port in consultation with its TE Advisory Board, for sites installing four or fewer ports.

Within 30 days of the date of adoption of this decision, SCE must file a Tier 2 Advice Letter with the Commission's Energy Division to reflect the rebate amounts and base cost methodology authorized in Section 4.5.5, and the resulting budget changes. If offering L1 as an option, a separate base cost should be determined. SCE must annually evaluate charging infrastructure subsidy levels and charging station rebate levels with its TE Advisory Board to ensure the amount is appropriate. SCE must report on the information it gathers on prices participating customers charge to drivers to its TE Advisory Board and the Commission's Energy Division.

4.5.6. Own and Operate Program Modifications

Parties question the necessity of the SCE ownership option, titled the Own and Operate Program.²⁷⁵ As addressed in Section 4.2, SCE proposes to offer customers in MUDs and government location the option for the utility to own and operate the EVSE on their sites. SCE believes this "turnkey" option will make it easier for customers to participate because they will not have to purchase or maintain the EVSE they receive. SCE also proposes that in addition to traditional parking lots and parking structures, Charge Ready Own and Operate will allow for the economic deployment of charging stations at street side parking spaces.²⁷⁶

²⁷⁵ Cal Advocates Reply Brief at 6.

²⁷⁶ Exhibit SCE-1 at 45.

NDC suggests that the SCE ownership model for potential government sites is unwarranted based on the Phase 1 Pilot results.²⁷⁷ NDC notes, the only specific issue SCE raises in direct testimony to substantiate the request to offer government locations the own and operate option is that government sites experienced delays in procuring charging stations.²⁷⁸ Utilizing SCE's modeling, but including *all* government locations (rather than just universities and other public sites) participating in the Phase 1 Pilot, yields an average government procurement period of 49 days.²⁷⁹ Using the same methodology, NDC calculates the average procurement period for a non-government participant to be 44 days.²⁸⁰ Ultimately, NDC suggests the real difference between the average procurement period for government versus all customer locations is only five days.²⁸¹

In lieu of a turnkey option for government locations, NDC recommends MUDs be allowed to participate in the Own and Operate program.²⁸² NDC supports this recommendation pointing to data sourced by Cal Advocates, which illustrates the utility-ownership model achieved a 39 percent deployment rate in MUDs in SDG&E service territory.²⁸³ While NDC recognizes the differences

²⁷⁷ NDC Opening Brief at 5.

²⁷⁸ NDC Opening Brief at 5, referencing Exhibit SCE-1 at 44.

²⁷⁹ NDC Opening Brief at 8.

²⁸⁰ NDC Opening Brief at 8.

²⁸¹ NDC Opening Brief at 8.

²⁸² NDC Opening Brief at 15.

²⁸³ NDC Opening Brief at 15; Exhibit Cal Advocates-1 at 1-26.

between SCE and SDG&E's service territory, the intervenor ultimately believes offering utility ownership to MUDs will increase MUD participation.²⁸⁴

Additional recommendations include: 100 percent EVSE rebates for all MUDs, a reduced two-port minimum requirement (as opposed to five), and no maximum parking space cap.²⁸⁵

Cal Advocates urges the Commission to reject all SCE ownership of EVSEs at both government locations and MUDs. Cal Advocates points to D.18-12-006 (Phase 1 Pilot PFM decision) in which the Commission set specific deployment targets for MUDs and lowered the MUD port minimum as a means to increase MUD participation.²⁸⁶ Cal Advocates believes the Commission should wait for data showing whether the programmatic changes adopted in D.18-12-006 increase MUD participation prior to authorizing SCE to own EVSE at MUDs through Own and Operate.²⁸⁷

ChargePoint argues that the Own and Operate option is structurally biased in favor of utility ownership. ChargePoint argues that this option is not actually market neutral nor does it satisfy the statutory obligation to avoid unfair competition because the value of the package of products and services provided to site hosts would differ significantly depending on whether they chose utility

²⁸⁴ NDC Opening Brief at 15.

²⁸⁵ NDC Opening Brief at 15.

²⁸⁶ Cal Advocates Reply Brief at 6.

²⁸⁷ Cal Advocates Reply Brief at 6.

or site host ownership.²⁸⁸ ChargePoint argues that this flaw can be corrected by establishing financial parity between ownership options.²⁸⁹ This can be accomplished by providing participating site hosts that opt out of the utility ownership option a rebate that covers the cost of both the charging station and operations (network fees) and maintenance equivalent in value to what the site host opting for utility ownership receives.²⁹⁰

We are unpersuaded utility ownership at government sites is necessary to support the goals of CR2. SCE proposes the “turnkey” option to minimize “long” lead-time faced by federal and university sites to provide the right procurement paperwork. However, in comparing the lead time it takes average customers (44 business days) to provide procurement paperwork to that of federal/university customers (65 business days) we are unconvinced the time savings outweighs the additional cost of utility ownership of EVSE. SCE has not demonstrated how EV adoption will increase with utility owned EVSE at these sites, and we therefore reject SCE’s proposal to own such equipment at government sites.

However, we do think there is merit in offering a turnkey option to MUDs. A turnkey solution would assist MUD building owners who would like to offer charging stations to their residents, but may be financially unable to do so. As ChargePoint discusses in its opening and reply briefs, “it is clear from the record

²⁸⁸ ChargePoint Opening Brief at 7.

²⁸⁹ ChargePoint Opening Brief at 8.

²⁹⁰ ChargePoint Opening Brief at 9.

that for many MUD owners the obstacle is solely or primarily financial.”²⁹¹

Although Cal Advocates’ recommends reviewing data on SCE’s MUD deployment through the bridge funding period prior to authorizing the Own and Operate program, we ultimately find it reasonable for SCE to offer its turnkey option to MUDs within DACs. We are unpersuaded that reviewing MUD deployments under the bridge funding period will lead to an alternative finding, as the latest Phase 1 Pilot Report SCE had installed 3 ports in MUDs through the initial pilot funding and had 32 sites with reserved funding through the bridge funding period.²⁹² In an effort to maximize ratepayer benefits under the turnkey option, SCE may offer its turnkey option to only MUDs located in DACs. Offering a utility-ownership model for MUDs in DACs provides the Commission with a more focused approach to addressing the multiple obstacles to MUD participation in CR2 and will invest the funds in areas where they are most needed.²⁹³

We agree with ChargePoint that exclusively offering a turnkey model, would fail to satisfy § 740.12(a)(1) (F), whereby TE investments should stimulate innovation and competition, and enable consumer options in charging equipment and services. Because the value of the package of products and services provided to site hosts would differ significantly depending on whether

²⁹¹ ChargePoint Reply Brief at 6.

²⁹² See Pilot Phase 1 Pilot Report (June 2020) available at <https://docs.cpuc.ca.gov/SearchRes.aspx?DocFormat=ALL&DocID=338729629>.

²⁹³ ChargePoint Reply Brief at 7.

they chose utility or site host ownership, we find it reasonable to establish financial parity between ownership options given the directive in § 740.12(a)(1)(F). However, to ensure there is neutrality between the utility-ownership option, and site-host ownership option, we adopt TURN's recommendation and cap participation for the approved utility-ownership model at an estimated 2,500 charge ports in the Make-Ready Expansion program.

We are sensitive to the additional budget burden placed by the maintenance and networking fee rebate which SCE estimates would increase the total program budget by over \$9.6 million.²⁹⁴ Therefore, we direct the program cap of 2,500 charge ports to apply to both the Own and Operate and maintenance and network fee rebate options. In other words, site hosts will be given the option to elect utility ownership or a rebate for maintenance and network fees. Once 2,500 sites elect either, all subsequent MUDs in DACs will not be eligible for either utility ownership nor the rebate for maintenance and network fees. We expect the rebate option to be lower cost for ratepayers than Own and Operate as rebate costs are treated as expense and not amortized over time. Thus, the program budget should not increase.

Similar to the directive above, SCE should include this rebate proposal in a Tier 2 advice letter to the Commission's Energy Division.

Additional program recommendations for the Own and Operate portion include SCE's proposal to allow street side parking in lieu of traditional parking

²⁹⁴ SCE Opening Comments at 10.

lots or structures, so long as these spaces are located street side to serve MUD residents. .

4.5.7. New Construction Rebate Program

Under the New Construction Rebate Program, SCE will provide a rebate not to exceed 100 percent of the installation and charging station costs for new construction MUDs. Many parties are supportive of this program and recommend authorization. SCE requests \$64 million over four years to run the New Construction Rebate program. Although originally requesting up to \$4,000 per port, in rebuttal testimony, SCE requests authority to offer a rebate of up to \$3,500 per port. SCE estimates the \$3,500 per port rebate would fund 18,285 ports if the total \$64 million is approved.

SBUA recommends SCE be provided flexibility to provide the higher rebate amount if necessary.²⁹⁵ SBUA recommends that any unspent funds be diverted to commercial centers that would primarily serve small businesses.²⁹⁶ To illustrate, SBUA explains that SCE could place restrictions, such as requiring over half of the tenants in the development project be small businesses.²⁹⁷

Cal Advocates strongly supports SCE's New Construction Rebate proposal. Cal Advocates explains rebates for new construction are a more cost-effective approach to installing charging infrastructure compared to retrofitting

²⁹⁵ SBUA Reply Brief at 4.

²⁹⁶ SBUA Reply Brief at 4.

²⁹⁷ SBUA Reply Brief at 4.

existing sites through the Make-Ready Expansion program.²⁹⁸ Cal Advocates supports the \$3,500 per port rebate amount, illustrating how the program meets SB 350's requirement that TE programs seek to minimize overall costs and maximize overall benefits.²⁹⁹ In addition to the lower per port rebate amount, Cal Advocates recommends the new construction rebates be tracked in a separate one-way balancing account.³⁰⁰ The one-way balancing account ensures that the program budget established for these rebates is appropriately allocated and is not exceeded.³⁰¹

TURN supports the New Construction Rebate program, offering "these rebates are a more cost-effective approach to installing charging infrastructure than retrofitting existing sites..."³⁰² TURN believes the lower rebate amount (\$3,500 per port) meet SB 350's requirement that TE programs "seek to minimize overall costs and maximize overall benefits."³⁰³ TURN recommends SCE establish a separate one-way balancing account to ensure the program budget established for these rebates is appropriately allocated and is not exceeded.³⁰⁴

SCE explains that a separate one-way balancing account for the new construction rebates is unnecessary, as the utility plans to provide details of all

²⁹⁸ Cal Advocates Opening Brief at 6.

²⁹⁹ Cal Advocates Opening Brief at 6.

³⁰⁰ Cal Advocates Opening Brief at 6.

³⁰¹ Cal Advocates Opening Brief at 6; Exhibit TURN-1 at 34.

³⁰² TURN Opening Brief at 6.

³⁰³ TURN Opening Brief at 6.

³⁰⁴ TURN Opening Brief at 19.

CR2 program capital expenditures and O&M expenses by program categories in annual reports.³⁰⁵ SCE provides, “[A]lthough a balancing account provides a formal mechanism for cost recovery and review of the recorded revenue requirements, under most circumstance it is not the most useful format for reviewing cost details. In addition to annual spring reporting, SCE will present a full showing of CR2 recorded costs, including rebates in its annual ERRA Review proceedings, and this showing of recorded costs will reflect the revenue requirements recorded in the CR2 sub-account in the CRPBA.”³⁰⁶

We find the New Construction Rebate program to be in the interest of ratepayers as it seeks to minimize overall costs, by being a rebate or expense driven program, and maximize overall benefits, because these rebates will allow new MUD developments to offer charging to their residents. However, we agree with many of the points raised by NDC, Cal Advocates and TURN, that the overall budget of the CR2 program is substantial.³⁰⁷ At this time, we decrease the budget of the New Construction Rebate Program by \$10 million for a total budget of \$54 million. It is reasonable for SCE to work with new construction developers and offer a rebate of up to \$3,500 per port, but not to exceed 100 percent of the installation and EVSE costs, to encourage MUD developers to exceed the current building codes to build infrastructure to support EV charging.

³⁰⁵ SCE Reply Brief at 30; referencing Exhibit SCE-2 at 45.

³⁰⁶ SCE Reply Brief at 31.

³⁰⁷ NDC Opening Comments at 1.

Lyft suggests the Commission should further consider whether the new construction rebates could be extended to new public housing developments or deed restricted MUD housing.³⁰⁸ We find this to be reasonable, considering the scoping memo's inclusion of consideration for low-income customers. This may prove to be an additional avenue to provide incentives and improve access to EV charging for low-income customers. We find this suggestion to fit within the question of whether the proposed projects equitably benefit ratepayers. Accordingly, SCE should work with local governments and planning agencies to identify appropriate public housing developments for the New Construction Rebate program consistent with §§ 740.3 and 740.8. SCE should report on these efforts within its Annual Reports.

We additionally carry-over our proposed DAC target for the Make-Ready Expansion program, and direct the utility to target 50 percent of the ports offered under the New Construction Rebate Program to be in DACs. A 50 percent DAC target for the New Construction Rebate Program should ensure these rebates fund new construction projects in locations with different socio-economic characteristics throughout SCE's service territory.

We understand there are many variables that may affect the efficacy of this program and there may be need for flexibility if the \$3,500 per port amount is no longer an appropriate amount to offer to participants. Accordingly, we direct SCE to work with its TE Advisory Board to evaluate the rebate levels for

³⁰⁸ Exhibit Lyft-1 at 11.

the New Construction Rebate program annually, and update via Tier 2 AL if necessary. Regardless, SCE should annually file a Tier 2 advice letter with the Commission's Energy Division to report on the effectiveness of the New Construction Rebate program. At a minimum the AL must include: whether relevant State or regional building codes have changed; whether building code changes have affected the need or efficacy of this program; and how effective the program is at reaching low-income developments. SCE may utilize this AL filing to request any necessary program modifications for the New Construction Rebate program authorized by this decision.

In lieu of adopting a separate one-way balancing account, we authorize SCE to track costs related to the New Construction Rebate Program in the balancing account authorized in Section 5 on this decision. SCE should separately list the details of the New Construction Rebate Program in annual reports. SCE should present a full showing of CR2 recorded costs, including the new construction rebates in its annual ERRR Review proceedings, and this showing of recorded costs will reflect the revenue requirements recorded in the CR2 sub-account in the CRPBA

4.5.8. DCFC

As discussed in Section 4.1, SCE proposes to offer a flat rebate (up to \$27,000) for qualified DCFC stations, and cap participation at 205 ports. The charging station rebate amount will be determined at SCE's discretion and will be up to 100 percent of the cost of the charging stations and their installation, and could be updated as needed throughout the program, based on market costs for DCFC. For DCFCs, SCE requires the stations be capable of charging at

50 kilowatts (kW) or greater.³⁰⁹ SCE testifies that charging at power levels of 50 kW is more appropriate and provides flexibility for mass market vehicles that have smaller batteries and may not have the cooling provisions to be able to support a higher voltage.³¹⁰

TURN does not support ratepayer funded DCFCs as part of the CR2 portfolio, recommending that fast charging stations should be addressed in a future proceeding.³¹¹ While the Commission approved the installation of five DCFC sites in urban areas under the Urban DCFC Cluster Pilot in 2018, the results of that pilot have not been fully evaluated by the Commission.³¹² TURN believes approving DCFCs as part of the CR2 portfolio would render the ratepayer subsidies approved in D.18-01-024 for the Urban DCFC Cluster Pilot meaningless.³¹³

In contrast, the Joint Parties support funding DCFC, explaining that greater access to public away-from-home fast charging is critical for MUD and DAC customers.³¹⁴ The Joint Parties explain that DCFC would further support widespread TE, and ultimately lead to the success of CR2.³¹⁵ Although the Joint Parties agree with some of the site prioritization concerns of other parties, they

³⁰⁹ Exhibit SCE-1 at 42.

³¹⁰ Exhibit SCE-1 at 42 to 43, footnote 93.

³¹¹ Exhibit TURN-4 at 5.

³¹² Exhibit TURN-4 at 5.

³¹³ Exhibit TURN-4 at 5.

³¹⁴ Joint Parties Reply Brief at 3.

³¹⁵ Joint Parties Reply Brief at 3.

ultimately recommend approval of SCE's DCFC component. The Joint Parties explain that drivers who lack access to residential charging can use DCFCs to meet their charging needs faster than L2 charging.³¹⁶ The Joint Parties support an opportunity for parties to review and comment on the proposed prioritization criteria SCE develops for the DCFC component of the Make-Ready Expansion program.³¹⁷ Finally, to ensure that MUD and DAC customers are able to consistently and equitably access these publicly available stations, the Joint Parties request the Commission adopt requirements for credit card readers at these sites.³¹⁸

Cal Advocates recommends several siting criteria for DCFCs. First, DCFCs could be prioritized as sites with short dwell times (less than two hours) to mitigate the occurrence of vehicles parking in DCFC spots for longer than necessary to charge.³¹⁹ Second, SCE should apply any lessons learned from the Urban DCFC Cluster Pilot, approved in D.18-01-024.³²⁰ Third, SCE should be required to establish criteria to prioritize locations in or near DACs.³²¹

ChargePoint recommends SCE site DCFCs at short-dwell locations to maximize utilization.³²² ChargePoint stresses there is a demand benefit to siting

³¹⁶ Joint Parties Reply Brief at 3.

³¹⁷ Joint Parties Reply Brief at 3 to 4.

³¹⁸ Joint Parties Reply Brief at 4.

³¹⁹ Cal Advocates Opening Brief at 24.

³²⁰ Cal Advocates Opening Brief at 24 to 25.

³²¹ Cal Advocates Opening Brief at 25.

³²² ChargePoint Opening Brief at 5; Cal Advocates Reply Brief at 5.

DCFCs at locations accessible to MUDs.³²³ Ultimately, we agree that having this recommendation in place will ensure the CR2 portfolio provides cost-effective and direct benefits that are in the interest of ratepayers are required by SB 350.³²⁴ ChargePoint additionally recommends DCFC sites include at least one CCS and one CHAdeMO connector to ensure accessibility and optimize usage.³²⁵

While we understand parties' concerns over SCE's DCFC proposal, we ultimately find that the inclusion of DCFC is within scope of this proceeding. We agree with the Joint Parties, that DCFCs presents a faster option for residents without access to home charging, to fuel their vehicles. We also agree with ChargePoint that DCFC is not appropriate for the long-dwell locations that the Make-Ready Expansion targets. We find that DCFC is more appropriate for short-dwell locations, and should not necessarily be collocated with L2 sites within this program. Similarly, we agree there should be a review process in place for parties to comment on the site prioritization plans for DCFCs. Accordingly, we authorize SCE to implement the DCFC component of the Make-Ready Expansion program, with the following modifications:

- (1) Site Prioritization: Prior to implementation, SCE must file a Tier 3 AL with the Commission's Energy Division that details the site prioritization criteria it will apply to determine where to site the DCFC ports. This should reflect the lessons learned to date from the Urban DCFC Clusters pilot. At a minimum, the site prioritization

³²³ ChargePoint Opening Brief at 4; Cal Advocates Reply Brief at 5.

³²⁴ Cal Advocates Reply Brief at 5.

³²⁵ ChargePoint Opening Comments at A-2.

criteria must include: (a) a plan and criteria of how to site DCFCs at short-dwell locations to maximize utilization; (b) a plan and criteria for siting 30 percent of ports in DACs; (c) a plan and criteria for siting 25 percent of ports to serve residents of MUDs, including definitions for how to define areas that are dense with MUDs; (d) input from and plan for continued collaboration with local community-based organizations (CBOs) on siting criteria; and (e) an assessment of customer-side make-ready infrastructure ownership necessity.

- (2) **Rebate Structure** -- Prior to implementation, SCE must file a Tier 3 AL to propose an updated rebate model that is reflective of the program modifications, the target locates described above, and the differentiated rebate amounts for L2 that are discussed in Section 4.5.5. This should also reflect lessons learned to date from the Urban DCFC Clusters Pilot.
- (3) **Updated Budget and Target Site Count** -- Prior to implementation, within the Tier 3 AL filing on rebate structure, discussed above, SCE include an updated budget based on the updated rebate model and program modifications. Within this AL, SCE should also describe how many ports and sites SCE will target through this program. We expect SCE to build at least 205 ports with this budget.
- (4) **Load Management** -- Prior to implementation, outline a load management plan for DCFC sites, as this may differ from the plan to leverage TOU and Demand Response for L2 sites.
- (5) **Infrastructure Specifications** -- Similar to our rationale in D.18-05-040, for PG&E's Fast Charge program, we direct SCE to install make-ready infrastructure to support EVSE of 150kW for its DCFC component of the Make-

Ready Expansion program.³²⁶ Although SCE is authorized to provide rebates for DCFC capable of charging at 50kW or greater, the higher capacity requirement for the make-ready infrastructure accounts for the possibility that the site host may wish to upgrade to higher-powered DCFC(s) in the future.

Although the Urban DCFC Cluster Pilot is still underway, SCE should implement any lessons learned from the pilot thus far. SCE should align its data reporting and collection for the DCFC component of CR2 with that of the Urban DCFC Cluster Pilot project. At a minimum, SCE must report on (1) number of charging events, and their times and duration; (2) load profiles and adherence to off-peak periods; and (3) demand response participation levels.³²⁷

4.5.9. MUD Target

Although offering all three infrastructure programs to MUDs, SCE proposes to target only 15 percent of the total ports deployed for the Make-Ready Expansion Program at MUDs. TURN and NDC support enhanced incentives to the MUD market segment, which they consider to be underserved citing to the Phase 1 Pilot results. TURN and NDC assert that MUD deployment will result in incremental EV adoption and provide ratepayers with direct program benefits.³²⁸

³²⁶ D.18-05-040 at 74: “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 to support EVSE of 150kW 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 higher-powered EVSE in the future.”

³²⁷ D.18-01-024 at 56.

³²⁸ TURN Opening Brief at 14.

NDC recommends there be a stronger focus on improving MUD participation on the premise that with increasing EV battery range, residential at-home charging will continue to grow as the most important market segment that supports increased EV adoption.³²⁹ Moreover, NDC notes that MUD participation comprised only three percent³³⁰ of EVSE deployment in the Phase 1 Pilot, the lowest rate of pilot participation³³¹ NDC explains this low participation resulted even with MUDs subject to the same ten-port minimum deployment and four percent maximum parking space cap as workplaces, but eligible for a higher 50 percent rebate on EVSE.³³² MUD participation in the Phase 1 Pilot was twice as high in non-DACs than in DACs.³³³ NDC notes the low MUD participation occurred in DAC locations even with 100 percent EVSE rebates and lower port-minimums (five versus ten).³³⁴

TURN recommends reserving a portion of the Make-Ready Expansion budget to support deployment in MUDs. TURN recommends 40 percent of the Make-Ready Expansion program, measured by number of ports, be deployed at MUDs.³³⁵ Under TURN's modeling, this means that around 5,000 ports for \$86

³²⁹ NDC Opening Brief at 13.

³³⁰ NDC Opening Brief at 13: Three percent deployment should be viewed in comparison to the percentage of EVSE deployment for fleets (ten percent), destination centers (23 percent), and workplaces (64 percent).

³³¹ NDC Opening Brief at 13.

³³² NDC Opening Brief at 14.

³³³ NDC Opening Brief at 14.

³³⁴ NDC Opening Brief at 13 to 14.

³³⁵ Exhibit TURN-1 at 41.

million should be reserved for MUD deployment.³³⁶ TURN believes the set-aside still provides flexibility, because some of TURN's recommended Make-Ready Expansion budget may be used to deploy charging infrastructure at workplaces.³³⁷ Under its modeling, TURN recommends a Make-Ready Expansion budget of \$169 million. If only \$86 million is set aside for MUDs, this leaves \$84 million for workplace and public infrastructure which TURN estimates could fund 8,200 workplace/public ports using TURN's unit cost assumptions.³³⁸

We agree that the deployment of charging infrastructure for the MUD customer segment will likely result in incremental EV adoption and provide ratepayers with direct program benefits. Ultimately, CR2 should have a stronger focus on improving MUD participation and accessibility. In Opening Comments, SCE addresses how already ambitious the 30 percent MUD target is. SCE should strive to site 40 percent of the ports for the Make-Ready Expansion program at MUDs. We adopt the 30 percent target for per se reasonableness metrics to account for the utility's concern over meeting the 40 percent target. Accordingly, SCE shall site 30 percent of the ports for the Make Ready Expansion program at MUDs.

Based on the Phase 1 Pilot results, SCE needs to continue efforts to reach the MUD customer segment. The 40 percent MUD target in addition to our

³³⁶ Exhibit TURN-1 at 41.

³³⁷ Exhibit TURN-1 at 41.

³³⁸ Exhibit TURN-1 at footnote 98.

directive that the Own and Operate program be offered only to MUDs in DACs, should ensure the MUD customer segment achieves higher participation than the Phase 1 Pilot rate. These recommended modifications promote the objectives of SB 350, and aims to provide equitable ratepayer benefits consistent with Pub. Util. Code §§ 740.3 and 740.8.

4.5.10. DAC Target

SCE proposes a 30 percent DAC target, for charge ports deployed under the Make-Ready Expansion. The utility proposes this target based on the Phase 1 Pilot's success in installing almost 50 percent of charge ports in DACs.³³⁹ While parties are supportive of this 30 percent DAC target, some question SCE's proposal to release reserved-DAC funds to any eligible customer site at the end of two-years of program implementation.

NDC supports adopting SCE's proposed use of the state-wide DAC definition, and the revised 25 percent EVSE rebates for non-DAC and 100 percent EVSE rebates for DACs and MUDs.³⁴⁰ In addition, NDC recommends setting a DAC target of 60 percent of all ports deployed under CR2, even if the Commission were to adopt an overall smaller program size.³⁴¹

TURN recommends an increased focus and subsidies for MUDs in DACs.³⁴² TURN testifies the 30 percent target should be easily achievable, given

³³⁹ Exhibit SCE-1 at 49.

³⁴⁰ NDC Opening Brief at 25.

³⁴¹ NDC Opening Brief at 25.

³⁴² TURN Opening Brief at 14.

the high number of DACs in SCE's service territory and the fact that 50 percent of charge ports deployed through the Phase 1 Pilot are in DACs.³⁴³ However, because the majority of the DAC deployments through the Phase 1 Pilot were at workplaces and public locations, TURN maintains wealthy businesses and/or commuters received the benefits of these ratepayer investments and not the actual residents of DACs.³⁴⁴ Accordingly, TURN recommends the Commission require at least 15 percent of all make-ready charging station ports be deployed at MUDs in DACs.³⁴⁵ TURN believes this approach ensures DAC residents receive direct benefits from this ratepayer investment.³⁴⁶ Additionally, TURN recommends SCE ratepayers pay for maintenance costs (over ten years) for customer-side station infrastructure of MUDs in DACs, to remove any financial disincentive for these sites to participate.³⁴⁷

We find merit in many of the arguments put forward on the issue of what the appropriate DAC target should be, ultimately determining whether CR2 adequately addresses low-income communities and moderate-income communities. Given SCE's success in installing approximately 50 percent of ports in the Phase 1 Pilot in DACs, we find SCE's proposed 30 percent DAC target to be low and unrepresentative of the equity provisions of SB 350 and

³⁴³ TURN Opening Brief at 27.

³⁴⁴ TURN Opening Brief at 27; Exhibit TURN-1 at 41.

³⁴⁵ TURN Opening Brief at 27.

³⁴⁶ TURN Opening Brief at 27.

³⁴⁷ TURN Opening Brief at 27.

SB 1275. Accordingly, we adopt a 50 percent DAC target for the Make-Ready Expansion program. If SCE is not on track to reach the 50 percent DAC target, SCE may file an advice letter to request to divert these funds.

Regardless, at the end of two-years of customer enrollment, SCE must file Tier 2 advice letter that at a minimum addresses: (1) how many sites in DACs have signed-up for the programs, (2) what efforts have been made to work with sites in DACs, and (3) how many sites are interested but are not in a DAC.

Because the Phase 1 Pilot struggled to reach MUD goals, we additionally adopt TURN's recommendation that at least 15 percent of the Make-Ready Expansion charge ports to be deployed at MUDs in DACs. Mandating SCE to site 15 percent of the Make-Ready Expansion ports at MUDs in DACs, ensures the benefits from these investments are received by DAC residents themselves, and aligns with our directives in Section 4.5.5 on rebate levels.

These targets should be viewed as a floor rather than a ceiling. SCE is encouraged to go above these minimums if feasible and cost effective.

4.5.11. Small Business Participation

SBUA has a unique voice amongst the parties in this proceeding, being the only party to address barriers that small business customers face in adopting TE infrastructure. SBUA recommends that the proposals designed to help MUD and DAC customers be extended to underserved small commercial customers, such as small business owners.³⁴⁸ SBUA explains that while "SCE does not propose specific strategies designed to address barriers faced by small business

³⁴⁸ SBUA Reply Brief at 2.

customers... SCE has...recognized that small businesses are likely to have many of the same concerns and barriers to participation as MUDs.”³⁴⁹

In line with whether CR2 adequately addresses hard-to-reach customers, SCE should work with its TE Advisory Board to develop site criteria that targets small business customers. SCE should collaborate with SBUA and other intervenors to develop strategies to address barriers small business customers face to participate in CR2. Similar to the Commission’s orders in D.18-09-034, SCE should gather data on what barriers small businesses face within the TE market.³⁵⁰

4.5.12. TOU Rates, Demand Response, and Technical Requirements

For each program within the CR2 infrastructure portfolio, SCE explains the customer will have flexibility to set pricing and parking restrictions for drivers charging at its site.³⁵¹ Although SCE will encourage participating customers to pass through SCE’s TOU rate directly through to drivers, customers may implement their own pricing plans. In rebuttal, SCE explains the utility is amenable to the Joint Parties’ recommendation of establishing a default arrangement that the site host reflect TOU price signals aligned with SCE’s TOU rates in the charges they develop for drivers using the charging station.³⁵² SCE testifies that passing on a TOU price signal would be the default arrangement for

³⁴⁹ SBUA Reply Brief at 2.

³⁵⁰ D.18-09-034 at 57 to 58.

³⁵¹ Exhibit SCE-1 at 58.

³⁵² Exhibit SCE-2 at 27.

participating site hosts, while allowing site hosts to opt-out of this arrangement.³⁵³ SCE believes this will promote charging in a manner consistent with grid conditions, in addition to allowing drivers to realize fuel cost savings, and preserving flexibility for a site's particular needs.³⁵⁴

We find it reasonable that SCE requires site hosts to take service on a TOU rate, with preference for the site host taking service on SCE's commercial EV rate.³⁵⁵

We find SCE's proposal to offer TOU rates, e NRDC's proposal to establish a default arrangement that the site hosts pass through TOU price signals³⁵⁶ to drivers, and SCE's proposal to make site-hosts participate in the CR2 demand response (DR) program reasonable and consistent with § 740.12(a)(1)(G). SCE should work with any sites that opt out of the default agreement to pass TOU pricing to establish load management tactics in order to reduce any grid impacts from sites. SCE should report on the tactics used and the number of sites and location type that opt out of passing through TOU signals within their annual report. In addition, SCE should annually report on the peak load of sites that have elected to opt out of the default TOU pricing arrangement.

³⁵³ Exhibit SCE-2 at 27.

³⁵⁴ Exhibit SCE-2 at 27.

³⁵⁵ SCE currently offers three commercial EV rates that vary based on customer demand: TOU-EV-7 (for customers with maximum charging demands of 20kW or less); TOU-EV-8 (for customers with maximum charging demands of 20-500kW); and TOU-EV-9 (for customers with charging demands that exceed 500kW).

³⁵⁶ NDC Opening Comments at 4.

Further, the Commission seeks to support interoperability. All EVSEs deployed through CR2—either site host owned or utility owned—**must support open standards**, and should, if practical, be capable of high-level communications, as defined in the final report from the 2017 VGI Working Group.

We additionally find it reasonable for SCE to require all site hosts installing L1 or L2 charging through Make-Ready Expansion to participate in the Charge Ready DR program. SCE should file a Tier 2 AL with the Energy Division within 60 days of this decision to describe the implementation plan for its Charge Ready DR program. This AL should at minimum include the following:

1. Lessons learned – SCE should identify lessons learned from their Charge Ready DR pilot and how these are being updated to meet the load management needs of the larger scale CR2 program
2. Communications capabilities and technology requirements –
 - a. SCE should describe the communications capabilities participating EVSEs will need to meet in order to effectively participate in the CR2 DR program, and how to the best of SCE's ability this accounts for any anticipated communications developments.
 - b. SCE should outline how the participating EVSE/EVSP technology and communications requirements will incorporate Vehicle Grid Integration (VGI) Working Group guidance.
 - c. SCE should describe how it will ensure consistency with communication capabilities across EVSPs and qualified technology (e.g. ability to receive communication signals, ability to directly communicate with the driver, and the ability to throttle charging).

- i. If SCE chooses to continue to allow the EVSPs to manage the driver relationship, then SCE should develop a plan for how signals can be passed through to drivers consistently across the CR2 DR program.
 - ii. SCE should describe how it will ensure a consistent protocol on timing and method by which EVSPs notify customers of a DR event.
- d. SCE should describe how each participating EVSP will be capable of allowing drivers themselves to opt-out of DR events.
- e. SCE should identify any potential communication challenges that may create barriers or hurdles for implementing VGI-related communication strategies identified through the VGI Working Group and Commission guidance to implement Pub. Util. Code § 740.16, and propose strategies or methods for overcoming any identified communication related barriers were feasible.
- 3. Timing – SCE should outline how long it will take to implement the full-scale DR program and whether CR2 charging stations will be eligible to participate in the Charge Ready DR pilot prior to the DR program's implementation.

Further, SCE should copy this service list when submitting its DR program implementation advice letter. Since SCE did not include the New Construction sites within its DR requirements, within this same Tier 2 AL SCE should also include a proposed plan for load management for all New Construction sites. This plan should encourage charging at off-peak hours.

For the Phase 1 Pilot, SCE qualified EVSEs to participate in the program through an RFQ. For CR2 however, SCE plans to qualify some stations and own

others. For transparency, SCE should outline its qualification process for EVSEs under the site-host ownership option and the procurement process for utility-owned EVSEs. The qualification and procurement processes should include a streamlined process for pre-qualifying or deeming qualified vendors and equipment already for the Phase 1 Pilot if they meet the technical requirements for CR2. Within 60 days of the date of adoption of this decision, SCE must file a Tier 1 advice letter with the Commission's Energy Division outlining these processes, in addition to the technical, data collection, and warranty requirements for participating EVSE vendors.

One qualification wrinkle, we wish to highlight is SCE's proposal to allow site hosts to install EVSE that are not qualified by SCE.³⁵⁷ SCE explains, for charging equipment that does not meet the technical requirements, SCE will not provide a rebate, but plans to work with customers and suppliers to evaluate the EVSE to ensure safe and reliable operation.³⁵⁸ If SCE approves equipment that does not meet the technical requirements, the customer may participate in CR2 and receive the make-ready infrastructure but will not receive a rebate for the EVSE itself.³⁵⁹ Because these site hosts will still receive ratepayer-funded rebates for the make-ready infrastructure, we find it appropriate to require EVSEs under the site-host-ownership option to be qualified by SCE. It is essential that EVSEs deployed through CR2 work to manage load. Without installing qualified

³⁵⁷ Exhibit SCE-1 at 41.

³⁵⁸ Exhibit SCE-1 at 41.

³⁵⁹ Exhibit SCE-1 at 41.

EVSEs, SCE would not be able to ensure that site hosts can participate in SCE's DR program and thus effectively manage load.

SCE testifies that participating customer will be required to maintain charging station operability and communication functionality for five years after installation.³⁶⁰ Customers will be permitted to change or update their charging stations and networking service provider throughout the useful life of the underlying infrastructure at their own cost.³⁶¹ This is a change from the Phase 1 Pilot's requirement of maintaining the equipment for 10 years. We do not find the proposal to reduce the maintenance requirement from ten years to five to be a reasonable ratepayer investment, consistent with §§ 740.3 and 740.8. SCE additionally does not provide sufficient rationale for this change from the Phase 1 Pilot. Given the length of time this equipment will remain in ratebase and the expected lifetime of this infrastructure in the Phase 1 Pilot (assumed ten years), SCE should uphold the same ten-year maintenance requirement for qualified EVSEs for CR2. SCE should reflect any budgetary changes based on this directive in its advice letter filing.

4.5.13. CCA Participation

CalChoice argues SCE should provide funding and carve outs to the City of Lancaster (Lancaster), one of CalChoice's member cities.³⁶² CalChoice argues that CR2 should set aside 50 sites for installation in locations Lancaster identifies,

³⁶⁰ Exhibit SCE-1 at 41.

³⁶¹ Exhibit SCE-1 at 41.

³⁶² Exhibit SCE-2 at 22.

and allow Lancaster to own 100 ports and receive a 100 percent rebate on those ports. CalChoice also argues that the City of Lancaster should receive \$300,000 of SCE's CR2 ME&O budget, that marketing should be competitively neutral, and that SCE should work with Lancaster to cobrand ME&O materials.

SCE testifies that funding carve outs and setting aside a specific number of sites and ports is unnecessary because CR2 is designed to benefit all SCE customers, whether those customers receive generation services from SCE, CCAs or electric service providers.³⁶³ Reserving a specific number of sites for Lancaster could hinder CR2 implementation. SCE explains the utility would essentially be forced to stop accepting participant applications if SCE has to reserve funding for 50 unknown sites with unknown costs, per CalChoice's recommendations.³⁶⁴ SCE additionally opposes setting aside 100 charge ports out of the SCE's Own and Operate portion of Make-Ready Expansion for CalChoice.³⁶⁵ SCE does not see an issue if participating customers negotiate to have Lancaster own and operate their particular charging stations.³⁶⁶

CalChoice's proposal for cobranding and competitive neutrality within marketing is reasonable considering the energy provider's positive relationship with its own customers. Cobranding and competitively neutral marketing were required within another Commission authorized TE program. In D.16-12-065,

³⁶³ Exhibit SCE-2 at 22.

³⁶⁴ Exhibit SCE-2 at 22.

³⁶⁵ Exhibit SCE-2 at 22 to 23.

³⁶⁶ Exhibit SCE-2 at 22 to 23.

the Commission adopted PG&E's EV Charge Network program, and allowed it additional participation and collaboration with the CCAs in PG&E's service territory. This is a reasonable approach to increasing Lancaster's participation and visibility within the CR2 portfolio, as well as other CCAs within SCE's service territory that seek to participate in this manner. However, given the modifications to the ME&O budget, discussed in Section 4.6, and the fact that CR2 will be fully funded through SCE's distribution charges, which are paid by all customers, we do not find it to be within ratepayers' interest to receive a full \$300,000 of the marketing budget. We do think there is an opportunity for SCE to work with Lancaster on developing cobranding like PG&E's EV Charge Network program and we encourage SCE to work with Lancaster to develop competitive neutral marketing.

The Commission does not find it reasonable for Lancaster to own 100 ports and receive a 100 percent rebate on those ports. CR2 will be fully funded through its distribution charges, which are paid by all customers for programs that are available to benefit all customers.³⁶⁷ Thus, customers within Lancaster's territory should be subject to the same ownership requirements, siting requirements, and rebate caps as all other participating customers.

Finally, CalChoice requests that CR2 programs "be available to all customers on an equal basis."³⁶⁸ As SCE confirmed in response to CalChoice's

³⁶⁷ Exhibit SCE-2 at 23.

³⁶⁸ Exhibit SCE-2 at 24; Citing CalChoice-1 at 18.

protest of the CR2 application, CR2 is available and marketed to all eligible customers, regardless of whether they are bundled or unbundled customers.³⁶⁹

As to Lancaster's request to reserve 50 CR2 sites within its service territory, we are unconvinced such a set aside is reasonable or warranted based on the evidentiary record. Reserving 50 sites could result in a disproportionate amount of program funds supporting charging locations within Lancaster's territory, instead of focusing on the MUD and DAC targets set for the Make-Ready Expansion Program. A set aside for Lancaster could potentially result in overly costly sites within Lancaster's territory participating over other more cost-effective sites. We do see value in SCE working with Lancaster informally to identify potential sites within Lancaster's territory. While this is not a set aside of sites, collaboration could result in high utilization sites that meet the CR2 program objectives.

As SCE clarifies in rebuttal, "Although SCE does not agree that CalChoice's proposed modifications are necessary or appropriate, SCE applauds Lancaster's efforts to encourage and facilitate [TE]. SCE also acknowledges that Lancaster is well-situated to identify and communicate with customers in its jurisdiction that may be a good fit for [CR2]. SCE anticipates using third parties to implement many aspects of its ME&O, and looks forward to continuing collaborating with Lancaster, who may be able to act as a vendor in the program (similar to other community-based organizations)."³⁷⁰

³⁶⁹ Exhibit SCE-2 at 24.

³⁷⁰ Exhibit SCE-2 at 24.

Acknowledging SCE's amenability to use third parties to implement aspects of CR2's ME&O, we again encourage SCE to work with Lancaster to collaborate extending CR2 to CCA customers. Moreover, we direct SCE to work with Lancaster to identify if any locations within Lancaster's service territory qualifies for a site-host ownership option under CR2, whereby Lancaster would own and operate the make-ready infrastructure.

Accordingly, within 180 days of adoption of the instant decision, SCE should file a Tier 2 advice letter with the Commission's Energy Division, that at a minimum addresses: (1) SCE's plan to incorporate cobranding and competitively neutral marketing; and (2) SCE and Lancaster's implementation plan to allow Lancaster to own charging stations on behalf of its customers, at no additional subsidy level to the program.

We will note that the Commission is looking at the issue of CCA participation in TE programs and resulting equity concerns at a more in-depth level in the Rulemaking (R.) 18-12-006. We invite CalChoice to contribute to the CCA matters within the draft Transportation Electrification Framework.³⁷¹ Moreover, our decision on the CCA component for CR2 is specific to the instant decision. Future TE proceedings will be evaluated on their merits, and not be bound by the CCA directive in the instant decision.

³⁷¹ Draft Transportation Electrification Framework, available at <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M326/K281/326281940.PDF>.

4.5.14. Site Prioritization

Cal Advocates recommends the Commission adopt meaningful site prioritization criteria consistent with the goals of SB 350.³⁷² Cal Advocates recommends SCE be required to: (1) establish criteria for strategically siting EVSEs to better ensure high utilization rates; (2) prioritize the siting of DCFCs to provide accessible charging for MUD residents; (3) establish criteria for prioritizing low-cost sites and to set parameters for cost prohibitive sites; (4) develop prioritization criteria based on the expected number of EVs to be served and the expected number of new EVs to be adopted in the areas; and (5) develop criteria to prioritize locations in or near DACs.³⁷³ Cal Advocates recommends an advice letter process to give the Commission and parties the opportunity to review and comment on the site prioritization criteria SCE develops in consultation with the TE Advisory Board.³⁷⁴

The Commission finds this to be reasonable. In addition to the site prioritization criteria advice letter described in Section 4.5.8 focused on the deployment of DCFC, SCE should also work with its TE Advisory Board to develop site prioritization criteria for its deployment of L1 and L2 chargers.

4.5.15. Job Creation

SCE anticipates CR2 will create many jobs for electricians, engineers, and construction workers.³⁷⁵ SCE plans to contract for engineering, design and

³⁷² Cal Advocates Reply Brief at 6.

³⁷³ Cal Advocates Reply Brief at 5.

³⁷⁴ Cal Advocates Reply Brief at 6.

³⁷⁵ Exhibit SCE-1 at 86.

construction services.³⁷⁶ SCE additionally highlights its participation in the Commission's voluntary supplier diversity program (Commission General Order 156) which sets a goal of procuring 21.5 percent of the company's annual spend on goods and services from WMDVBEs.³⁷⁷ Moreover, SCE's Pathway touches upon the future benefits of clean energy jobs for California.³⁷⁸ The data sourced to develop the pathway suggests the approach under the Pathway will create highly skilled, middle-income jobs to introduce and service new technologies.³⁷⁹

Pub. Util. Code § 740.8 defines "interests" of ratepayers, to mean direct benefits that are specific to ratepayers consistent with several goals, among them the creation of "high-quality jobs or other economic benefits" including in, DACs. In §740.12(a)(1)(F) the Legislature found widespread TE should create high-quality jobs for Californians, where technologically feasible. Because CR2 is ratepayer funded program, benefits must be realized by those funding the investment, the ratepayers. One of these direct or realized benefits should be the creation of jobs resulting from the investment. Although SCE "anticipates" job growth and creation as a direct benefit of the CR2 investment, a more transparent analysis of the number and type of jobs resulting from this TE investment is warranted consistent with § 740.12(a)(1)(F).

³⁷⁶ Exhibit SCE-1 at 86.

³⁷⁷ Exhibit SCE-1 at 86.

³⁷⁸ Exhibit SCE-1 at B-10.

³⁷⁹ Exhibit SCE-1 at B-10.

To better understand the incremental job growth and development attributable to ratepayers' investment in CR2, SCE must include the following information in its annual report on the CR2 programs: number of jobs created by CR2, the classifications of the new jobs, training required by those jobs, and average hourly wage and any workforce development or job training offered in association with CR2. The reporting must include the number of jobs created in DACs and their average hourly wage, in addition to any contractual jobs with WMDVBES.³⁸⁰

4.6. Marketing, Education and Outreach Portfolio

SCE proposes to address EV adoption barriers and customer needs through three discrete marketing, education, and outreach programs (ME&O) described below.³⁸¹ All three programs will include engagement with DAC customers who face socioeconomic barriers and live or work in areas with a concentrated amount of air pollution, largely caused by fossil-fueled vehicles.³⁸²

4.6.1. EV Awareness Campaign

SCE states the EV Awareness Campaign will primarily target potential individual/residential adopters of light-duty EVs.³⁸³ SCE states the EV Awareness campaign will use mass media, direct marketing, outreach to local community organizations, and a new EV ambassador network to encourage EV awareness.

³⁸⁰ Exhibit SCE-1 at 86.

³⁸¹ A.18-06-015 at 10-11.

³⁸² Exhibit SCE-1 at 55-56.

³⁸³ Exhibit SCE-1 at 55.

Mass media would involve social media, display ads, search engine marketing, mobile marketing, content marketing, radio, print ads, and outdoor advertising. SCE would tailor the ads to target specific customer segments (*e.g.* DACs, MUDs). SCE will ensure adequate coverage in key languages spoken in SCE's service territory.³⁸⁴ Direct marketing will be transmitted through email newsletters. SCE will plan outreach through community- and faith-based organizations, to help communicate with disadvantaged and low- or moderate-income customers. Finally, SCE will begin to build a network of EV Ambassadors to participate in ride-and-drive events, provide testimonials, and answer questions about EVs and EV operations in their daily lives.³⁸⁵

SCE estimates this program will cost \$28.7M (2018 \$).³⁸⁶

4.6.2. Customer Education Program

The Customer Education Program will also primarily target potential individual/residential adopters of light-duty EVs.³⁸⁷ The Customer Education Program will provide new online self-service tools, education and training materials, ride-and-drive events, mobile-optimized tools and experiential events.³⁸⁸

SCE contends that mobile-optimized customer tools will help potential consumers understand that while the upfront cost of an EV is typically higher,

³⁸⁴ Exhibit SCE-1 at 56-57.

³⁸⁵ Exhibit SCE-1 at 57-58.

³⁸⁶ Exhibit SCE-1 at 66.

³⁸⁷ Exhibit SCE-1 at 55.

³⁸⁸ Exhibit SCE-1 at 59.

when factoring in all costs over the vehicles lifetime, including fueling, maintenance, and repair, EVs will often offer a similar or more financially attractive option.³⁸⁹ SCE also plans to develop educational tools that help consumers identify and select an EV that meets their needs.³⁹⁰ Finally, SCE intends to host hands-on experiences where potential consumers may drive EVs.³⁹¹

SCE estimates the cost of this program to be \$8 million (2018 \$).³⁹²

4.6.3. TE Advisory Services Expansion

Through this program, SCE seeks to provide technical education, and hands-on support for commercial, government, and fleet-operators.³⁹³ The TE Advisory Services Expansion will serve business customers adopting light-, medium-, or heavy-duty EVs, or provide EV charging services to their constituents.³⁹⁴ This program will specifically target small, medium, and large commercial fleet operators, school districts, transit agencies, cities and counties, workplaces, and public charging locations, multi-unit dwelling owners, and homeowners' association representatives.³⁹⁵

³⁸⁹ Exhibit SCE-1 at 59.

³⁹⁰ Exhibit SCE-1 at 59.

³⁹¹ Exhibit SCE-1 at 60.

³⁹² Exhibit SCE-1 at 66.

³⁹³ Exhibit SCE-1 at 61.

³⁹⁴ Exhibit SCE-1 at 55.

³⁹⁵ Exhibit SCE-1 at 61.

SCE seeks to provide educational events such as demonstrations, driver training classes, and ride-and-drive events at SCE's Energy Education Centers in Irwindale and Tulare.³⁹⁶ SCE also seeks to provide fleet assessments and site feasibility assessments through this program. Finally, SCE seeks to provide grant writing services and support to customers and fleet operators.³⁹⁷

SCE estimates this program will cost \$4.8 million (2018 \$).³⁹⁸

4.7. Analysis of Marketing, Education and Outreach Programs

Cal Advocates and TURN recommends rejecting SCE's EV Awareness Campaign because it does not reflect lessons learned from the Phase 1 Pilot.³⁹⁹ TURN suggests that the EV Awareness Campaign is duplicative as it fails to coordinate with local, state, and industry educational programs for EV adoption.⁴⁰⁰ Further, TURN argues that the program is not designed in sufficient detail to allow for review or approval, and does not include program accountability measures or evaluation criteria to measure the impact on EV adoption. Similarly, Cal Advocates contends SCE fails to demonstrate its broad EV awareness programs leverage non-ratepayer funded EV ME&O programs, as directed by the ACR and SB 350.⁴⁰¹ As an example, Electrify America is pursuing

³⁹⁶Exhibit SCE-1 at 61.

³⁹⁷ Exhibit SCE-1 at 62.

³⁹⁸ Exhibit SCE-1 at 66.

³⁹⁹ TURN Opening Brief at 41.

⁴⁰⁰ TURN Opening Brief at 41.

⁴⁰¹ Cal Advocates Opening Brief at 39.

a \$27 million broad ME&O campaign in California along the same timeline as CR2.⁴⁰²

Cal Advocates does support approval of the TE Advisory Services because it builds upon lessons learned from the Phase 1 Pilot and targets customers eligible to participate in CR2.⁴⁰³ The services range from initial awareness to training, hands-on experience, TE-related assessments performed by SCE or its vendors, and grant writing support.⁴⁰⁴ Cal Advocates recommends approval of the TE Advisory Services because it targets customers eligible to participate in CR2, such as small, medium and larger commercial fleet operators, school districts, transit agencies, cities and counties, workplaces and public charging locations with employee/visitor parking, and MUD owners, managers, and homeowners' association representatives.⁴⁰⁵

For the program-specific marketing program, for which SCE proposed a budget of \$9.7M, TURN recommends a \$2.6 million budget, an approximately 45 percent reduction to the proposed budget.⁴⁰⁶ This reduction reflects TURN's proposed program size, and resulting marketing program size.⁴⁰⁷ Cal Advocates

⁴⁰² Cal Advocates Opening Brief at 39.

⁴⁰³ Cal Advocates Opening Brief at 44.

⁴⁰⁴ Cal Advocates Opening Brief at 44.

⁴⁰⁵ Cal Advocates Opening Brief at 44.

⁴⁰⁶ TURN Opening Brief at 41.

⁴⁰⁷ TURN Opening Brief at 41.

recommends the Commission authorize SCE to promote awareness of and enrollment in CR2 through its marketing program.⁴⁰⁸

In contrast, GPI/CEC recommend an increased focus on ME&O for CR2.⁴⁰⁹ GPI provides, “the lack of general awareness about EVs and their benefits remains a major barrier...in a recent national survey, 54 percent of respondents could not name a single [PEV], only 13 percent of respondents reported to have ever been in a [PEV], and 59 percent of respondents, thought [BEVs] were not as good as gasoline vehicles.”⁴¹⁰ In order to address this lack of public awareness, GPI/CEC recommends the need for both targeted and broad education and outreach efforts.⁴¹¹

SCE contends its proposed ME&O programs are necessary to accelerate EV adoption within SCE’s service territory and are critical to achieving statewide clean energy goals.⁴¹² SCE believes its ME&O programs will overcome key barriers in consumer awareness that impact EV adoption, including lack of familiarity with EVs, lack of understanding about the cost of EVs, range anxiety, misperception about the safety of EVs, and concern about the performance of EVs.⁴¹³ SCE asserts that consumers trust utilities to give them accurate

⁴⁰⁸ Cal Advocates Opening Brief at 44.

⁴⁰⁹ GPI Opening Brief at 4.

⁴¹⁰ GPI Opening Brief at 11.

⁴¹¹ GPI Opening Brief at 12.

⁴¹² SCE Reply Brief at 22.

⁴¹³ SCE Reply Brief at 22.

information about EVs more so than they trust information from the government or the auto industry.⁴¹⁴

Several parties provide alternative recommendations than those made by Cal Advocates, TURN and GPI/CEC on the ME&O programs. For example, Lyft recommends that SCE work with TNCs to help educate Southern California drivers about EV benefits.⁴¹⁵ Lyft opines that TNCs can assist SCE with EV education to its drivers and provide info on EV benefits and programs, so ME&O efforts should include the TNC driver population.⁴¹⁶ Several other parties are generally supportive of SCE's ME&O proposals, including CESA, Joint Parties, and ChargePoint. SBUA is also supportive of the ME&O programs, but recommends SCE work to target small business customers who may otherwise be a hard to reach customer segment.

While we understand the general need for broad ME&O activities, SCE fails to show how \$41.5 million is needed to support CR2 program goals. We find that SCE does not demonstrate how its broad EV awareness programs leverage non-ratepayer funded EV ME&O programs. SCE fails to demonstrate why the proposed level of funding is needed, why SCE is well suited to lead these efforts, why these efforts should be funded by ratepayers, and around what specific actions and goals the programs would be framed. As stated in the ACR,

⁴¹⁴ SCE Reply Brief at 22; referencing Exhibit SCE-2 at 31 to 32.

⁴¹⁵ Exhibit Lyft-1 at 6

⁴¹⁶ Exhibit Lyft-1 at 9 and 11: "Lyft suggests that a positive partnership and collaboration with SCE in its EV Awareness Campaign and in the Customer Education Program may serve the mutual EV adoption goals of SCE and Lyft."

utilities' TE program(s) do not need to propose a standalone education and outreach program, especially when those programs already exist. Cal Advocates and TURN show that SCE could coordinate with existing broad EV awareness campaigns such as those conducted by Electrify America and Veloz, instead of starting one from scratch.

Accordingly, we find SCE's EV Awareness and Customer Education proposals fail to meet the criteria identified in the Phase 1 Pilot or the guidance set forth in the ACR for TE education programs.

For the TE Advisory Services Expansion portion of SCE's ME&O program, we agree with Cal Advocates, that the proposal builds upon lessons learned from the Phase 1 Pilot and targets customers eligible to participate in CR2. To reach more than just potential fleet or government site hosts, SCE should expand its advisory services to reach other hard to reach customer segments, such as MUD and small business customers. To reach these customers, SCE is authorized the \$4.8 million for its TE Advisory Services Expansion, and the \$9.7M to promote awareness of and enrollment in CR2 through its marketing program.

We find these recommended program modifications will balance parties' recommendations and maximize ratepayer's investments.

5. Authorized Program Funding and Cost Recovery

SCE requests authority to recover revenue requirements up to \$760.1M (2018\$) in direct capital expenditures and O&M expenses related to CR2,

including marketing, education, and outreach.⁴¹⁷ SCE proposes to record the revenue requirements in its existing Charge Ready Program Balancing Account (CRPBA) and requests costs up to the cost cap not be subject to an after-the-fact reasonableness review.⁴¹⁸ The below sections address the details of SCE's proposed cost recovery and alternative proposals by parties.

5.1. Proposed Balancing Account

SCE established the CRPBA to track costs associated with the Phase 1 Pilot. For the Phase 1 Pilot, SCE was authorized to recover \$22 million (in 2014 dollars) in direct capital and O&M costs.⁴¹⁹ The Commission authorized SCE to recover an additional \$22 million in bridge funding for the Phase 1 Pilot in December 2018.⁴²⁰ For CR2, SCE requests to record the actual revenue requirement each month in a separate subaccount in the CRPBA.⁴²¹ SCE will record the actual O&M, payroll taxes, and capital-related revenue requirement (*e.g.*, depreciation, return on rate base, property taxes, and income taxes) in the CRBPA CR2 subaccount.⁴²²

SCE requests to transfer the revenue requirement recorded in the CRBPA to the distribution sub-account of the Base Revenue Requirement Balancing

⁴¹⁷ Exhibit SCE-1 at 92.

⁴¹⁸ Exhibit SCE-1 at 92.

⁴¹⁹ Exhibit SCE-1 at 93.

⁴²⁰ *See generally*, D.18-12-006.

⁴²¹ Exhibit SCE-1 at 93.

⁴²² Exhibit SCE-1 at 93.

Account (BRRBA) at the end of each year.⁴²³ All revenue requirements associated with CR2 below the cap of \$760.1M (2018\$, direct spend) that are recorded in the BRRBA as of year-end will be recovered from customer through distribution rates in the subsequent year.⁴²⁴

All recorded incremental costs will include provisions for overhead loadings on direct labor dollars, to account for items such as benefits and payroll taxes.⁴²⁵ Overhead loading factors will be based on authorized rates.⁴²⁶ To the extent a particular labor loading is currently accounted for in another balancing account (*e.g.*, Pensions, Post-Employment Benefits Other Than Pensions “PBOPS, Medical, Dental and Vision), SCE will not include these labor loadings in the recorded operation of the CRPBA.⁴²⁷ SCE explains that, interest expense will accrue each month in the CRPBA at the three-month commercial paper rate until the year-end transfer of the CRPBA balance to the BRRBA.⁴²⁸

5.2. Proposed Reasonableness Review

SCE proposes if the CR2 actual direct capital and O&M expenditures, including ME&O expenses, are both consistent with the scope and within the

⁴²³ Exhibit SCE-1 at 93 to 94.

⁴²⁴ Exhibit SCE-1 at 94.

⁴²⁵ Exhibit SCE-1 at 94.

⁴²⁶ Exhibit SCE-1 at 94, Footnote 184.

⁴²⁷ Exhibit SCE-1 at 94, Footnote 94.

⁴²⁸ Exhibit SCE-1 at 94.

cost levels adopted by the Commission, those expenditures be deemed reasonable and not subject to an after-the-fact reasonableness review.⁴²⁹

SCE proposes the recorded operation of the CRPBA CR2 subaccount be reviewed by the Commission in SCE's annual April 1 ERRR Review Application.⁴³⁰ This is the balancing account review process adopted for the Phase 1 Pilot and the SB 350 Standard Review Projects. SCE suggests that adopting the same balancing account review will ensure that all entries to the account are stated correctly and are consistent with prior Commission decisions.⁴³¹ SCE feels Commission review procedures for CR2 costs should be limited to ensuring that all recorded costs are associated with activities as defined and adopted by the Commission in the instant proceeding.⁴³²

This decision approves a budget, as detailed in Appendix A, associated with the direct costs for each program within the CR2 application. The approved budgets are not fungible across program segments, without approval from the Commission. At the end of the four-years, any forecasted costs that were included in rates but were not spent should be returned to customers through rates.

⁴²⁹ Exhibit SCE-1 at 94 to 95.

⁴³⁰ Exhibit SCE-1 at 95.

⁴³¹ Exhibit SCE-1 at 95.

⁴³² Exhibit SCE-1 at 95.

5.2.1. Per Se Reasonableness Metrics

Parties raise various concerns about SCE's proposed costs and balancing account review.

SCE's programmatic investments shall be tracked in CRPBA CR2 subaccount. SCE's costs will be considered *per se* reasonable provided: (1) at least 15 percent of Make-Ready Expansion ports are under the site host ownership option; (2) the Own and Operate program is capped at 2,500 ports for MUDs in DACs; (3) a minimum of 30 percent of the Make-Ready Expansion ports are located at MUDs; (4) a minimum of 50 percent of the Make-Ready Expansion ports are located within DAC; (5) SCE does not exceed an average per port cost of \$15,000 for the Make-Ready Expansion Program; (6) the budget spent on DCFCs is limited to \$13.9M, as described in Appendix A, with at least 30 percent of ports located in DACs and 25 percent serving MUDs; and (7) the New Construction Rebate Program is limited to \$54M, at no more than \$3,500 per port.

If CR2 meets all of these criteria within the budget, 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, SCE 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 there are some variables in terms of customer interest and siting availability, we understand there may be unforeseen challenges. We allow SCE, if necessary and after consultation with Energy Division staff and SCE's TE Advisory Board, to file a Tier 3 Advice Letter after at least eighteen months of program implementation to request to adjust the 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 site type;
3. A breakdown of the number of ports and sites deployed to date, differentiated by site type and location.
4. A description of the major cost drivers for utility-side and customer-side infrastructure;
5. An explanation of any site cost caps the utility used to determine customer eligibility for the program, reductions in the rebate or incentive level to meet the cost cap, or other metrics the utility used to control program costs; and
6. An explanation of efforts taken to deploy the target number of ports and sites in the target site types, and any challenges to customer interest.

This approach provides flexibility for on-going changes in the TE market. In addition, it limits the risk of ratepayer funds being stranded if forecast and EV growth patterns change dramatically over the next two years.

5.3. Cost Deflation and Reasonableness Determination

Because actual O&M expenses and direct capital expenditures will be recorded in nominal dollars over four years of program spend (plus start-up costs in 2019, prior to implementation of the four-year program), these costs will have to be deflated for price inflation between 2018 and later years.⁴³³ SCE proposes to accomplish this by deflating the recorded capital and O&M costs by the same inflation indexes used to escalate costs from 2018 levels to nominal dollars used in forecasting.⁴³⁴ SCE proposes to use two deflation factors: the Handy-Whitman Capital Cost Index for capital and IHS Markit (formerly IHS Global Insight) Electric O&M A&G cost index for O&M.⁴³⁵ In the annual April 1 ERRR Review proceeding, SCE will seek review of the operation of the CRPBA, and, following completion of the fourth and final year of Charge Ready 2, SCE will include testimony demonstrating that Charge Ready 2 expenditures did not exceed authorized amounts.⁴³⁶ SCE will use the actual, published inflation indexes to deflate recorded costs back to 2018 dollar levels to compare actual O&M expenses and direct capital expenditures to the forecast spend.⁴³⁷

⁴³³ Exhibit SCE-1 at 95.

⁴³⁴ Exhibit SCE-1 at 95.

⁴³⁵ Exhibit SCE-1 at 95.

⁴³⁶ Exhibit SCE-1 at 95.

⁴³⁷ Exhibit SCE-1 at 95.

5.4. Proposed Cost Recovery and Forecast Updates

SCE requests to include in distribution rates a forecast of CR2 revenue requirement for each year up until the time the CR2 revenue requirements are included in SCE's General Rate Case (GRC) request (*e.g.*, the 2024 or 2028 GRC).⁴³⁸ SCE currently files an advice letter each year to determine the Phase 1 Pilot revenue requirement to be included in distribution rates for the following year.⁴³⁹ SCE proposes to include the CR2 forecast revenue requirement in this same advice letter to be filed in November of each year beginning in November 2019. In one advice letter, SCE intends to seek approval to include in rates for the following year a forecast of revenue requirements for both the Phase 1 Pilot and CR2, as well as the revenue requirements for the SB 350 Priority Review Projects and Standard Review Project consistent with Section 6.4 in D.18-01-024 approving SCE's Priority Review Projects and Section 8.4 of D.18-05-040 approving SCE's Standard Review Project.⁴⁴⁰ In the annual advice letter, SCE will update the CR2 revenue requirement to reflect the prior year recorded capital expenditures, any forecast of capital expenditures in the following year, and the most recent adopted rate of return on rate base,⁴⁴¹

⁴³⁸ Exhibit SCE-1 at 96.

⁴³⁹ Exhibit SCE-1 at 96.

⁴⁴⁰ Exhibit SCE-1 at 96, footnote 186.

⁴⁴¹ Exhibit SCE-1 at 99: SCE calculated the return on rate base using SCE's current authorized rate of return of 7.61 percent established in D.17-07-005 and subsequently approved in Advice Letter 3665-E. On a recorded basis, SCE will update its rate of return on rate base to be consistent with the then-currently authorized rate of return.

franchise fees and uncontrollable rates, and tax rates.⁴⁴² SCE then plans to consolidate the changes in its distribution rates to reflect updated CR2 revenue requirements in conjunction with other authorized rate level changes in its January 1 consolidated revenue requirement and rate change advice letter.⁴⁴³

Instead of recovering costs through distribution rates, Cal Advocates and TURN recommend CR2 program costs be allocated to customer classes based on equal cents per kilowatt-hour (kW).⁴⁴⁴ Cal Advocates contend SCE's proposal disproportionately impacts residential customers and should be rejected.⁴⁴⁵ Instead, Cal Advocates recommends that costs allocated to customer classes using equal cents per kWh cost be collected from all customers via the public purpose program rates at a non-bypassable charge.⁴⁴⁶ Cal Advocates believes equal cent cost allocation is reasonable and appropriate because (1) it ensures all customers benefitting from climate change mitigation and air quality benefits pay equally, (2) it is consistent with cost allocation for other public purpose programs (e.g., PG&E's Natural Gas Vehicle programs) and (3) it better reflects TE program cost drivers.⁴⁴⁷

⁴⁴² Exhibit SCE-1 at 96.

⁴⁴³ Exhibit SCE-1 at 97.

⁴⁴⁴ TURN Opening Brief at 28; Cal Advocates Opening Brief at 2.

⁴⁴⁵ Cal Advocates Opening Brief at 45.

⁴⁴⁶ Cal Advocates Opening Brief at 45.

⁴⁴⁷ Cal Advocates Opening Brief at 45; Exhibit CalAdvocates-2 at 2-1 to 2-8.

Alternatively, EPUC agrees with SCE's proposal for cost recovery through distribution rates, not with the ratepayer advocates' proposal.⁴⁴⁸ EPUC contends the infrastructure required to support EV charging is functionally distribution infrastructure, the costs are thus functionally distribution costs and the appropriate cost recovery mechanism is through the distribution allocator and distribution rates.⁴⁴⁹

We are persuaded by the arguments raised by TURN and Cal Advocates that all customers benefit from the policy objectives the CR2 investment aims to accomplish. Moreover, with so many of these sites offering benefits to MUDs and DAC customers, the costs for the CR2 programs should be shared equally. Accordingly, cost recovery for the CR2 programs shall occur through distribution rates and allocated to customer classes on an equal cents per kWh basis to ensure that costs and benefits are shared equitably by all customers. The adopted cost recovery is specific to the CR2 infrastructure and ME&O programs authorized by the instant decision. Accordingly, SCE should record the revenue requirement associated with the CR2 programs on a monthly basis, and the balances of the balancing accounts should be transferred annually to a distribution account for amortization in distribution rates. SCE may use its existing regulatory accounts and advice letter procedures for this annual amortization, consistent with the annual Tier 2 advice letter filing for the Phase 1

⁴⁴⁸ EPUC Reply Brief at 13.

⁴⁴⁹ EPUC Reply Brief at 13.

Pilot, Section 6.4 in D.18-01-024 approving SCE's Priority Review Projects and Section 8.4 of D.18-05-040 approving SCE's Standard Review Project.

The Commission is looking at equity concerns and cost allocation principles with the TE rulemaking (R.18-12-006) and in its Draft Transportation Electrification Framework (TEF).⁴⁵⁰ As a result, this decision is not intended to be precedential on this issue of cost allocation. Any subsequent TE infrastructure funding will be subject to the cost allocation authorization made in that proceeding. The equity chapter of the TEF discusses the barriers certain communities and customers face in electrifying transport and notes that utility TE investments must place a particular emphasis on removing those barriers. It also offers some potential guidance on highest-priority equity TE investments. A decision on the TEF is scheduled for Q4 of 2020. Since that decision will post-date this one, we address the equity issues posed by this application here without relying on the TEF.

6. TE Advisory Board

A theme across CR2 is SCE's commitment to engaging with the existing TE Advisory Board implemented during the Phase 1 Pilot. The TE Advisory Board is comprised of customers and industry stakeholders who provide input, guidance, and suggestions on the execution and ongoing improvement of the

⁴⁵⁰ See Chapter 6, Equity, at <https://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442463904>.

CR2 portfolio.⁴⁵¹ SCE will accept new members, and the TE Advisory Board will continue to meet quarterly.⁴⁵²

7. Data Gathering Requirements

SCE plans to provide annual status reports to the Commission's Energy Division and other interested stakeholders on all three infrastructure programs.⁴⁵³ These reports will evaluate data across all program activities, including but not limited to: (i) customer enrollment and participation data (ii) program progress information; (iii) program installation costs; and (iv) customer usage data (*e.g.*, EV usage data, transactions per day).⁴⁵⁴ SCE plans to highlight the differences between SCE owned-and-operated sites and make-ready sites.⁴⁵⁵ SCE will report on differences between sites receiving the new construction rebate and other infrastructure components for CR2.⁴⁵⁶ The status reports will include updates on program progress, achievements and lessons learned.⁴⁵⁷

In addition to SCE's proposed data collection and reporting recommendations, Cal Advocates, TURN and NDC recommend additional data gathering requirements which we find reasonable for SCE.

⁴⁵¹ Exhibit SCE-1 at 50.

⁴⁵² Exhibit SCE-1 at 50.

⁴⁵³ Exhibit SCE-1 at 46, 54.

⁴⁵⁴ Exhibit SCE-1 at 54.

⁴⁵⁵ Exhibit SCE-1 at 54.

⁴⁵⁶ Exhibit SCE-1 at 59.

⁴⁵⁷ Exhibit SCE-1 at 59.

Cal Advocates recommends SCE report on its demand response program, coordination efforts with urban planners or government agencies, and GHG emission reductions attributable to CR2.⁴⁵⁸ We find these additional data gathering requirements essential to understanding the effects of CR2. However, it is also essential that any reporting on GHG emissions reductions and air quality benefits attributable to CR2 is done using a common methodology. SCE should ensure any GHG emissions reductions methodology is vetted with Energy Division. At a minimum, SCE should report and gather data necessary to determine GHG and air quality impacts in the future. TURN recommends implementing the same data collection requirements adopted for the Phase 1 Pilot, and the requirements adopted for the medium- and heavy-duty sector in D.18-05-040.⁴⁵⁹

The Commission and the evaluator (required in Section 8 below) will review the results of the CR2 program along with information collected from SCE's already approved infrastructure programs, to evaluate the effectiveness of utility investments in light-duty transportation electrification. To facilitate this evaluation, we adopt a modified version of the data collection and reporting requirements that the Commission originally adopted in D.18-01-024, and also required through D.18-05-040 based on TURN's recommendations. Energy Division has authority to develop or amend the data collection template to ensure the reporting captures all programmatic elements of the CR2 portfolio.

⁴⁵⁸ Cal Advocates Opening Brief at 36; referencing Cal Advocates-1 at 39.

⁴⁵⁹ TURN Opening Brief at 38.

Accordingly, SCE is required to file annual reports beginning 12 months from the date of adoption of this decision and a final program report following the four-year program duration. SCE shall file and serve these reports on 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 template includes:

- A final report template in Microsoft Word format that includes report headings and descriptions of the information that should be included in the report.
- 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. SCE should complete this file and submit it in Excel format along with its annual and final reports.
- Additionally, SCE 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.⁴⁶⁰
- SCE must also continue to update the publicly-available GIS map of its site locations, site types, and installation size consistent with its Phase 1 Pilot reporting.
- Other data that will be incorporated into the template may include, (1) any deferred distribution investments resulting from managed charging, (2) utilization data for all

⁴⁶⁰ Available at: https://www.afdc.energy.gov/fuels/electricity_locations.html#/find/nearest?fuel=ELEC.

deployed stations, (3) charging session data; (4) any ongoing O&M costs related to CR2 for which SCE seeks recovery outside of the program balancing accounts; (5) the average number of rebates provided and ports installed per new construction site; and (6) comparison and evaluation of different site host load management strategies.

- SCE should plan to report on site host load management strategies, including what price signal site hosts pass to the driver.

SCE must provide annual rate impacts associated with the authorized investments for CR2. SCE must also incorporate impacts of the CR2 demand response program into its distribution load forecasting and distribution planning processes consistent with the Commission's Distributed Energy Resources Action Plan.

SCE must also include a provision within the customer agreement and within its agreement with qualified participating vendors for the Make Ready Expansion, New Construction, and Own and Operate programs, including EVSPs, regarding giving SCE and its contracted evaluator access to data. This agreement should apply to any vendor participating in the CR2 program and any customer that receives a rebate or incentive. This data should include, but not be limited to, costs of infrastructure, charging usage and behavior, and O&M costs. This data should be supplied to SCE or the program evaluator when requested for evaluation purposes. If any vendor fails to comply with this data sharing requirement, SCE can remove that vendor, including an EVSP, from the list of qualified equipment and/or technology.

8. Evaluation

Pub. Util. Code §740.12(c) requires the Commission to review data concerning the current and future electric transportation adoption and charging infrastructure utilization prior to authorizing an electrical corporation to collect new program costs related to transportation in customer rates. TURN additionally recommends the Commission contract with a neutral third-party to collect data on incremental EV adoption due to CR2.⁴⁶¹

The evaluation process should, at a minimum investigate and identify the following:

- 1) EV adoption resulting from the Phase 1 Pilot and CR2 programs, which at minimum should include (a) surveys at workplaces and MUDs to identify how many employees/tenants adopt EVs after charging stations are installed; (b) surveys should ask employees and MUD residents whether charging station installation influenced their decision to buy an EV; (c) tracking of EV adoption should take place at the service territory level.⁴⁶²
- 2) Costs of the program, how they compare with other EV charging infrastructure programs nationally and in California.
- 3) Station utilization, over time and across site types, and if possible, the identification of barriers to higher utilization.
- 4) CR2 and Pilot charging station access for low- and moderate-income customers, customers residing in DACs, and MUD residents.

⁴⁶¹ TURN Opening Brief at 38; Exhibit TURN-1 at 44.

⁴⁶² TURN Opening Brief at 39.

- 5) Program benefits, which may include an analysis of GHG emissions abatement and air quality improvement.
- 6) Job creation resulting from CR2, including job training for low- and moderate-income customers and residents of DACs.

Consistent with TURN's recommendation, SCE should conduct a competitive solicitation to select a neutral third-party evaluator to conduct this work and consult with Energy Division regarding the scope of evaluations and deliverables. A neutral third-party evaluator will ensure accurate evaluation of the CR2 investment. SCE must contract with this third-party evaluator within the first year of program implementation to allow the evaluator to identify all data and information that must be collected throughout the program to ensure they can accurately assess progress toward program goals.

In opening comments, SCE requests a budget of \$16.8 to \$18.8 million, or four percent of the total budget authorized for CR2. TURN provides support for the third-party evaluator, but does not support SCE's proposed budget.

Although past TE programs have dedicated four percent of their budgets for evaluation efforts, these programs have been much smaller than CR2 and funded by several utilities. Accordingly, we find that one percent of the adopted budget is a more reasonable evaluation budget. SCE should impose a \$4.3 million budget for the third-party evaluation for CR2. SCE should coordinate with the Commission's Energy Division on evaluation metrics, consistent with Section 7 of the instant decision.

9. Safety Considerations

The Commission's focus on ensuring utilities provide safe and reliable service is an overarching focus in the emerging transportation electrification industry. § 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 SB 350 applications include a plan to ensure worker, customer, and driver safety. Additionally, the ACR directed that this safety plan be based on the draft safety checklist developed for the SB 350 standard review and priority review transportation electrification projects and contain any additional safety requirements specific to the proposed pilots. Safety and Enforcement Division (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.

No later than 18 months after today's decision is approved, SCE must file a Tier 1 advice letter with the Commission's Energy Division describing their compliance efforts. The advice letter must contain an attestation of compliance with these requirements, signed by the Project Manager. SCE should outline any

efforts that go beyond the Safety Checklist along with an explanation as to why these are appropriate and necessary from a safety perspective SCE should file a final safety attestation, using the same template developed for the priority and standard review transportation electrification projects in D.18-05-040, along with its annual report on CR2.

The Commission will review SCE's compliance with the Safety Requirements Checklist and may conduct inspections or audits to confirm compliance. SCE must have all compliance documentation available should the Commission determine an inspection or audit is necessary.

10. Outstanding Procedural Matters

The Commission affirms all rulings made by the assigned Commissioner and the assigned ALJ. All motions not previously ruled on are deemed denied.

While not every party's testimony and resulting briefs are explicitly cited to in this decision, each party provided a substantial contribution to the overall outcome, and program modifications adopted here. The Commission acknowledges and appreciates the work of the broad stakeholder participation in this transportation electrification proceeding.

11. Categorization and Need for Hearing

In Resolution ALJ 176-3419, the Commission preliminary categorized this proceeding as ratesetting, and preliminarily determined that hearings were necessary. Evidentiary hearings were held January 28, 2019 to February 1, 2019 at the Commission's San Francisco hearing rooms.

12. Comments on Proposed Decision

The ALJ's proposed decision 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 August 17, 2020 by SCE, TURN, Cal Advocates, SBUA, NDC, ChargePoint, Tesla, GPI/CEC, NRDC and Joint Parties, UCS, CUE, Cal Choice, EVgo, and CALSTART.. Reply comments were filed by SCE, TURN, Cal Advocates, SBUA, Tesla, ChargePoint, UCS, GPI/CEC, NDC, Cal Choice, and Alliance for Automotive Innovation on August 24, 2020. While clarifying edits have been made throughout the body of the decision, we discuss some of the larger changes to the proposed decision based on party comments here.

TURN urges the Commission to have all ratepayers bear the cost of the program on an equal cents per kilowatt hour basis. Cal Advocates agrees, and both point to ample information in the record supporting such allocation. We understand the difference between using the distribution allocator and the equal cents allocator has a material impact on residential customers. Moreover, we agree with TURN that the Commission should focus on the primary purpose of CR2, when determining the cost recovery and allocation methodology.⁴⁶³ The program benefits all Californians, but does not benefit residential ratepayers disproportionately to others, especially since the climate change and GHG benefits of EVs accrue to Californians. Therefore, revisions have been made to

⁴⁶³ TURN Opening Comments at 4 to 5.

ensure that costs associated with the CR2 program are recovered by allocating program costs on an equal cents per kWh basis.

In comments on the proposed decision, CUE contends that charging stations and other supporting equipment should be installed and constructed by Electric Vehicle Infrastructure Training Program (EVITP) certified electricians.⁴⁶⁴ CUE explains the Decision authorizing the Phase 1 Pilot required “all construction, installation, and maintenance of customer participant site infrastructure that is not performed by employees of SCE to be performed by contractor’s signatory to the International Brotherhood of electrical Workers who hold a valid California C-10 contractor’s license.”⁴⁶⁵ The Phase 1 Pilot additionally required that contractors needed to be certified under the Department of Energy’s EVITP program. While this designation may have been proper for the Phase 1 Pilot, we do not have an adequate record to impose such a directive necessary for CR2, especially given the current economic climate and the important of TE programs in improving that climate. Moreover, we do not want the EVITP or IBEW signatory requirement to place barriers to job opportunities for those contractors that hold a valid C-10 contractor’s license but do not meet these additional requirements. Accordingly, construction and installation for CR2 must be completed according to the parameters outlined in the Safety Considerations section of this decision.

⁴⁶⁴ CUE Opening Comments at 1.

⁴⁶⁵ CUE Opening Comments at 3; D.16-01-023 at 45 to 46.

13. Assignment of Proceeding

Clifford Rechtschaffen is the assigned Commissioner and Sasha Goldberg is the assigned ALJ in this proceeding.

Findings of Fact

1. SCE identified several Phase 1 Pilot challenges, including: (1) the ability to reach MUD customers; (2) the high port minimum for projects (minimum 10 ports for non-DAC sites and minimum 5 ports for DAC sites); (3) issues communicating the rebate model to customers effectively; and (4) longer than expected timelines for customer approvals.

2. As of Q1 2020 SCE reserved funding for 1,301 charge ports at 81 sites through its original Pilot funding and reserved funding for an additional 1,454 ports at 67 sites through the Bridge program.

3. Out of the Phase 1 Pilot, 48 percent of the 81 sites are in disadvantaged communities (DACs), and 46 percent of the Bridge funded sites are in DACs; 1,003 of these ports at 65 sites had completed construction as of August 2018. As of Q1 2020, 90 projects with a total of 1,496 charge ports had completed construction.

4. Out of the Phase 1 Pilot's approved charging ports, 64 percent are at workplaces, three percent are at MUDs, 11 percent are for fleets, and 22 percent are at destination centers.

5. Evidentiary hearings were held from January 28, 2019 to February 1, 2019 at the Commission's San Francisco hearing rooms.

6. This matter stood submitted with the filing of reply briefs on April 12, 2019.

7. In November 2017, SCE released *The Clean Power and Electrification Pathway* white paper (SCE Pathway), a proposed approach to achieving California GHG emissions and air pollution reduction goals.

8. SCE's most feasible path to reducing emissions from the transportation sector is an electric grid supplied by 80 percent carbon-free energy, more than 7 million EVs on California roads, and nearly one-third of space and water heaters powered by electricity.

9. TURN's analysis results in an overall program size of 29,044 ports at MUDs, workplaces and destination centers for a cost total cost of \$253 million over a four-year period.

10. In comparing SCE and the CEC's "mid" forecast models, we are unpersuaded that either is the right forecast.

11. The California Energy Commission's Aggressive scenario and methodology provide an appropriate basis for determining recommended program size and port needs for SCE's CR2 infrastructure programs.

12. Applying the California Energy Commission's Aggressive scenario, we adopt a vehicle forecast of approximately 760,000 EVs in SCE's service territory by 2023 based on a realistic but high estimate of EV adoption that may be achieved by the end of CR2.

13. The CEC's "mid" vehicle forecast is not adopted here.

14. The California Energy Commission's Mid Scenario that TURN leverages projects approximately 1.9 million ZEVs adopted by 2023 and 3.6 million by 2030 statewide.

15. SCE proposes to assign 38 percent of the total state forecast to its territory. This is based on the fact that 38 percent of the state's passenger vehicles are located in SCE's territory. That calculation leads to approximately 790,000 EVs in SCE territory by 2023 and approximately 2.7 million by 2030.

16. The NREL model and EVI-Pro that both SCE and TURN use to calculate the needed workplace and public Level 2 charging can vary greatly based on the number of PHEVs or the level of support for PHEVs that is projected.

17. The portion of the NREL study relevant to this needs assessment takes a nationwide look at charging needs and attachment rates, which is used to estimate the number of Level 2 plugs in these sectors needed per 1,000 EVs. This attachment rate can vary greatly depending on different inputs and assumptions.

18. It is reasonable to reduce the attachment rate based on the significant variation possible within the NREL model.

19. SCE's forecasts of the proportion of charging taking place away from home in the coming years and the support needed for PHEV drivers are overly optimistic.

20. Accounting for these factors and significant variation in attachment rates, the Commission finds it reasonable to reduce the assumed attachment rate for this needs assessment to 40 L2 chargers per 1,000 PEVs.

21. By applying the attachment rate of 40 to the vehicle forecast we get an away from home charging need of 30,400 ports, as shown in Appendix A.

22. SCE scales down to a total of 19,703 away from home charge ports—12,912 at workplaces and 6,790 at destination centers.

23. TURN takes its estimated 25,399 ports needed to support charging away from home and reduces it based on the number of public and workplace charge ports expected to be deployed between 2019 and 2023.

24. We do not adopt TURN's estimate of privately funded stations.

25. It is reasonable to adopt a target of 12,000 ports in these locations for CR2.

26. The authorized program is still ambitious in comparison to most of the California Energy Commission's adopted forecasts.

27. We determine the appropriate scaling of the MUD investment by applying the same recommended percentage of the overall Make Ready Expansion program ports.

28. Focusing 46 percent of the program to MUD ports results in 10,200 ports.

29. We determine that 22,200 ports, comprised of 10,200 MUD and 12,000 workplace/destination center is a reasonable size and investment for the Make-Ready Expansion program.

30. While TURN and Cal Advocates attempt to demonstrate that total program costs can be driven down by forecasting greater participation from large sites, ultimately we find their per-port cost assumptions fail to incorporate data from the Phase 1 Pilot.

31. We are unpersuaded SCE's estimated \$19,000 per port cost is appropriate given the average of \$13,731 per port found in the Phase 1 Pilot.

32. We recognize that certain costs have increased since the 2016 Phase 1 Pilot, and therefore adopt a higher per-port average cost compared to the pilot.

33. Based on the Phase 1 Pilot cost estimates and consideration of TURN and Cal Advocate's arguments, SCE should use an average cost of \$15,000 per port for the Make-Ready Expansion program.

34. A program-wide minimum of four ports per site for locations with Level 2 or Level 1 charging stations ensures that sites can accommodate more than two vehicles at a time and allows for flexibility across different sites and customer segments.

35. SCE should have flexibility to update the minimum port requirement metric as SCE works to enroll sites for the CR2 program.

36. Encouraging SCE to target a portion of the Make-Ready Expansion for site-host ownership on the customer-side of the meter reduces the capitalization of customer-side infrastructure, because the equipment will be owned by the site-host and not the utility.

37. Recognizing the lessons learned from the Phase 1 Pilot, and the various market segments that were reached, we are not convinced that a flat rebate is necessary to accomplish the goals of CR2 and the objectives of SB 350.

38. It is reasonable to maintain the same rebate levels as were set in the Phase 1 Pilot.

39. The MUD segment has an increased focus with the Own and Operate and New Construction Rebate programs within CR2.

40. The 100 percent rebate for DACs ensures these customers can participate, when they may otherwise be financially unable to do so.

41. We find TURN's "low port rebate" proposal appropriate for sites installing four or fewer Level 2/Level 1 ports.

42. The turnkey model at government locations fails to satisfy § 740.12(a)(1) (F), which requires TE investments to stimulate innovation and competition and enable consumer options in charging equipment and services.

43. To ensure there is neutrality between the utility-ownership option and site-host ownership option, it is reasonable to adopt TURN's recommendation and cap participation for the approved utility-ownership model at an estimated 2,500 charge ports in the Make-Ready Expansion program.

44. DCFC is more appropriate for short-dwell locations, and should not necessarily be collocated with L2 sites within the CR2 infrastructure programs.

45. A50 percent DAC target for the New Construction Rebate Program ensures these rebates fund new construction projects in different locations with different socio-economic characteristics throughout SCE's service territory.

46. Based on the Phase 1 Pilot results, SCE needs to continue efforts to reach the MUD customer segment. The 40 percent MUD target, in addition to our directive that the Own and Operate program be offered only to MUDs in DACs, should lead to a higher participation rate by the MUD customer segment than in the Phase 1 Pilot.

47. SCE will identify DACs utilizing the California Environmental Protection Agency's (CalEPA) California Communities Environmental Health Screening Tool 3.0 (CalEnviroScreen 3.0) or its equivalent.

48. A 50 percent DAC target for the Make-Ready Expansion program is reflective of the Phase 1 Pilot success, and representative of the equity provisions of SB 350 and SB 1275.

49. It is essential that EVSEs deployed through CR2 work to manage load. Without installing qualified EVSEs, SCE would not be able to ensure that site hosts can participate in SCE's DR program and thus effectively manage load.

50. Because the Phase 1 Pilot struggled to reach MUDs, SCE should target 15 percent of the Make-Ready Expansion charge ports to be deployed at MUDs in DACs to increase participation by this segment.

51. We do not find the proposal to reduce the maintenance requirement for EV infrastructure from 10 years to five to be a reasonable ratepayer investment, consistent with §§ 740.3 and 740.8.

52. CalChoice's proposal for cobranding and competitive neutrality within marketing is reasonable given Lancaster's positive relationship with its own customers.

53. The Commission is looking at the issue of CCA participation in TE programs and resulting equity concerns at a more in-depth level in R.18-12-006.

54. SCE's EV Awareness and Customer Education proposals fail to meet the criteria identified in the Phase 1 Pilot or the guidance set forth in the ACR for TE education programs because they do not leverage funding from other sources.

55. Encouraging SCE to site 15 percent of the Make-Ready Expansion ports at MUDs in DACs, ensures the benefits from these investments are received by DAC residents themselves.

56. The barriers faced by small business customers need to be furthered studied.

57. The infrastructure modeling assumptions used in this proceeding are specific to the CR2 application.

58. Establishing a default arrangement that site hosts pass through TOU price signals to drivers would promote charging in a manner that is consistent with grid conditions, offer the opportunity for drivers to realize fuel cost savings, and preserve flexibility to accommodate site host operational needs.

Conclusions of Law

1. Southern California Edison Company should annually evaluate charging infrastructure subsidy levels and charging station rebate levels with its TE Advisory Board to ensure the amount is appropriate. SCE should seek to reduce the subsidy down to zero over the course of the program if there is sufficient demand in the workplace segments.

2. SCE should employ the base cost methodology that it used within the pilot to determine the base cost off of which SCE can determine the site-specific rebate amounts. SCE should work with its TE Advisory Board to determine rebate levels.

3. SCE should develop a “low port rebate” in consultation with its TE Advisory Board, for sites installing fewer than four Level 2 ports.

4. In an effort to maximize ratepayer benefits under the turnkey option, SCE should offer its turnkey option only to MUDs located in DACs. Offering a utility-ownership model for MUDs in DACs provides the Commission with a more focused approach to addressing the multiple obstacles to MUD participation in CR2.

5. Consistent with TURN's recommended cap on the Own and Operate program, SCE should cap participation for its approved utility-ownership model at an estimated 2,500 charge ports in the Make-Ready Expansion program.

6. SCE's proposed customer ownership rebate for the Make-Ready Expansion program aligns with the rebate offered in SCE's medium-duty and heavy-duty program, approved in D.18-05-040.

7. Directing SCE to target 15 percent of the Make-Ready Expansion program under the site-host ownership option, should provide the Commission with data on why potential site-hosts elect the customer ownership option or vice versa.

8. The New Construction Rebate program as modified is in the interest of ratepayers as it seeks to minimize overall costs and maximize benefits.

9. SCE should work with local governments and planning agencies to identify appropriate public housing developments for the New Construction Rebate program consistent with §§ 740.3 and 740.8.

10. SCE should present a full showing of CR2 recorded costs, including the new construction rebates, in its annual ERRRA Review proceedings, and this showing of recorded costs will reflect the revenue requirements recorded in the CR2 subaccount in the CRPBA.

11. A program-wide minimum of four ports per site with locations with Level 2 and Level 1 charging stations, and a minimum of two stations per site for locations with DCFCs, should ensure ratepayer investments are maximized for overall benefits, consistent with §§ 740.3 and 740.8.

12. DCFC sites should include at least one CCS and one CHAdeMO connector to ensure accessibility and optimize usage.

13. A 50 percent DAC target for the New Construction Rebate Program should ensure these rebates fund new construction projects in different socio-economic locations throughout SCE's service territory.

14. SCE should annually file a Tier 2 advice letter with the Commission's Energy Division to report on the effectiveness of the New Construction Rebate program.

15. It is reasonable to establish financial parity between ownership options given the directive in § 740.12(a)(1)(F) to stimulate competition and customer charging option choices.

16. A rebate covering maintenance and networking fees should be a lower cost for ratepayers than Own and Operate as rebate costs are treated as an expense and not amortized over time.

17. Because CR2 is ratepayer funded program, benefits must be realized by those funding the investment, the ratepayers. One of these direct or realized benefits should be the creation of jobs resulting from the investment.

18. A more transparent analysis of the number and type of jobs resulting from this TE investment is reasonable, and consistent with § 740.12(a)(1)(F).

19. Consistent with our rationale in D.18-05-040 for PG&E's Fast Charge program, SCE should install make-ready infrastructure to support EVSE of 150kW for its DCFC component of the Make-Ready Expansion program to support higher-powered charging in the future.

20. SCE's proposed cost recovery and forecast should be modified to adopt an equal-cents-per-kWh allocator consistent with the discussion in Section 5.4. Any

subsequent infrastructure funding will be subject to the cost allocation authorization made in that proceeding.

21. SCE should use its existing regulatory accounts and advice letter procedures for annual amortization of recorded costs, consistent with the annual Tier 2 advice letter filing for the Phase 1 Pilot, Section 6.4 in D.18-01-024 approving SCE's Priority Review Projects and Section 8.4 of D.18-05-040 approving SCE's Standard Review Project.

22. The 40 percent MUD target should encourage the objectives of SB 350, and aims to provide equitable ratepayer benefits consistent with Pub. Util. Code §§ 740.3 and 740.8.

23. SCE should work with its TE Advisory Board to ensure potential DAC sites are not on the Fortune 1000 list.

24. SCE should offer those DAC sites that are on the Fortune 1000 list 25 percent rebate level, consistent with all other market segments.

25. SCE should not be bound to offer prescribed incentive levels if a site host is willing to pay more to qualify for the program. Evaluation of subsidy levels should be conducted on an annual basis.

26. Given SCE's success in installing approximately 50 percent of ports in the Phase 1 Pilot in DACs, we find SCE's proposed 30 percent DAC target to be low and unrepresentative of the equity provisions of SB 350 and SB 1275.

27. SCE should retain in CR2 the same ten-year maintenance requirement for equipment that was used in the Phase 1 Pilot for qualified EVSEs.

28. SCE should identify disadvantaged communities using the California Environmental Protection Agency's California Communities Environmental Health Screening Tool 3.0 (CalEnviroScreen 3.0) or its latest version.

29. In the interest of applying lessons learned from the Phase 1 Pilot, SCE should employ the base cost methodology that it used within the pilot to determine the base cost off of which SCE can determine the site-specific rebate amounts.

30. All motions not previously ruled on should be deemed denied.

O R D E R

IT IS ORDERED that:

1. Southern California Edison Company is authorized to implement the Charge Ready 2 Infrastructure and Market Education programs, pursuant to the modifications detailed in Sections 4.5 through 4.7 of this decision.

2. The funding for the Charge Ready 2 Infrastructure and Market Education programs as summarized in Appendix A is approved. Costs incurred for each program up to the authorized level will be considered *per se* reasonable subject only to Southern California Edison Company's prudent administration of the program. Costs above the authorized level must be borne by shareholders.

3. Within 30 days of the date of adoption of this Decision, Southern California Edison Company (SCE) shall file a Tier 2 Advice Letter with the Commission's Energy Division to establish a new subaccount in the Charge Ready Program Balancing Account (CRPBA) and to set the forecast requirement. SCE shall record all capital and direct costs associated with the Charge Ready 2

Market Infrastructure and Market Education programs in the CRPBA Charge Ready 2 subaccount.

4. After consultation with the TE Advisory Board, Southern California Edison Company may file a Tier 3 Advice Letter after eighteen months of program implementation to request adjustments to the approved program budgets and metrics used to determine *per se* reasonableness. At a minimum such an advice letter must include: (1) a summary of program status to date; (2) a breakdown of utility-side, customer-side, and other costs, by site type; (3) a breakdown of the number of ports and sites deployed to date, differentiated by site type and location; (4) description of the major cost drivers for utility-side and customer-side infrastructure; (5) 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; and (6) explanation of efforts taken to deploy the target number of ports and sites in the target site types, and any challenges to customer interest.

5. Southern California Edison Company's (SCE) investments for the Charge Ready 2 Market Infrastructure and Market Education programs within the adopted budgets in Appendix A will be considered *per se* reasonable provided: (1) at least 15 percent of Make-Ready Expansion ports are under the site host ownership option; (2) the Own and Operate program is capped at 2,500 ports for multiunit dwellings (MUDs) in disadvantage communities (DACs); (3) a minimum of 30 percent of the Make-Ready Expansion ports are located at MUDs; (4) a minimum of 50 percent of the Make-Ready Expansion ports are located within DAC; (5) SCE does not exceed an average per port cost of \$15,000

for the Make-Ready Expansion Program; (6) the budget spent on direct current fast chargers is limited to \$13.9 million, as described in Appendix A, with at least 30 percent of ports located in DACs and 25 percent serving MUDs; and (7) the New Construction Rebate Program is limited to \$54 million, at no more than \$3,500 per port.

6. Southern California Edison Company (SCE) may combine Advice Letters filings as required by this decision so long as: (1) the Advice Letter tiers are the same; (2) the combination does not result in the late filing of any advice letter(s); and (3) the combined advice letter filing includes all of the requisite information as detailed in Ordering Paragraphs 7 through 33 of this decision. SCE must consult with the Commission's Energy Division before combining advice letter filings.

7. Southern California Edison Company shall implement the Make-Ready Expansion Program consistent with the program modifications detailed in Sections 4.5.2 through 4.5.15 of this decision.

8. Consistent with Section 4.5.3, Southern California Edison Company may file a Tier 2 advice letter with the Commission's Energy Division to request a change to the minimum port requirement. At a minimum, the advice letter shall include: (1) how many potential multiunit dwellings (MUD) locations and small business customers have committed to installing four or more ports; (2) how many potential MUD locations and small business customers do not qualify because of limited capacity; (3) how many potential disadvantaged community (DAC) locations have committed to installing four or more ports, broken down by customer type; (4) how many potential DAC locations do not qualify because

of limited capacity; and (5) how costs for lower port sites compare to higher port sites.

9. Southern California Edison Company (SCE) shall target 15 percent of the Make-Ready Expansion program to use the site-host ownership option. After two years of customer-enrollment, SCE must file a Tier 1 advice letter that at a minimum addresses how many of the contracted Make-Ready sites select the site-host ownership option, whether SCE anticipates meeting or exceeding the 15 percent target, and any challenges toward meeting this target.

10. Prior to implementation, Southern California Edison Company (SCE) must file a Tier 2 Advice Letter to: (A) finalize the rebate levels approved in Section 4.5.5. SCE should finalize rebate levels for those sites not within a disadvantaged community, workplaces, fleets and destination centers with its TE Advisory Board, not to exceed 25 percent of the cost of the electric service vehicle equipment as determined by the base cost methodology utilized in the Phase 1 Pilot; and (B) reflect the authorized budget in Appendix A and the rebate amounts authorized for each customer segment in Section 4.5.5, and the resulting budget changes. SCE must annually evaluate infrastructure incentive levels and rebate levels with its TE Advisory Board to ensure the amount is appropriate.

11. Southern California Edison Company (SCE) shall implement the Own and Operate Program consistent with the program modifications detailed in Section 4.5.6. SCE shall offer its Own and Operate Program only to multiunit dwellings in disadvantaged communities. SCE shall offer a rebate of the cost of the maintenance and network fees to establish parity for the site host ownership

option. SCE shall cap the total participation of the Own and Operate Program and recipients of the additional rebate at 2,500 charge ports.

12. Southern California Edison Company shall implement the New Construction Rebate Program consistent with Section 4.5.7 of this decision.

13. Southern California Edison Company (SCE) must annually file a Tier 2 Advice Letter (AL) with the Commission's Energy Division to report on the effectiveness of the New Construction Rebate program. At a minimum the advice letter must include: whether relevant State or regional building codes have changed; whether building code changes have affected the need or efficacy of this program; whether there are other actors that may be better suited to manage new construction going forward; and how effective the program is at reaching low-income developments. SCE may utilize this AL filing to request any necessary program modifications for the New Construction Rebate program authorized by this decision.

14. Southern California Edison Company shall implement the direct current fast charging component of the Make-Ready Expansion program consistent with Section 4.5.8 of this decision.

15. Prior to implementation, Southern California Edison Company shall file a Tier 3 Advice Letter with the Commission's Energy Division that details the site prioritization criteria it will apply to determine where to site the direct current fast charger (DCFC) ports. The advice letter should reflect the lessons learned to date from the Urban DCFC Clusters pilot approved in Decision 18-01-024. At a minimum, the site prioritization criteria must include: (1) a plan of how to site DCFCs at short-dwell locations to maximize utilization;

(2) a plan for siting 30 percent of ports in DACs; (3) a plan for siting 25 percent of ports to serve residents of multiunit dwellings; and (4) an assessment of behind-the-meter infrastructure ownership, assessment of appropriate DCFC power level, and feedback from community stakeholders on siting locations.

16. Consistent with Section 4.5.8 of this decision, Southern California Edison Company (SCE) shall file a Tier 3 Advice Letter with the Commission's Energy Division with an updated budget based on the updated rebate model and program modifications. This advice letter should also describe how many ports and sites SCE will target through the direct current fast charging component of the Make-Ready Expansion program.

17. Southern California Edison Company (SCE) shall work with its TE Advisory Board to ensure potential disadvantaged community (DAC) sites are not on the Fortune 1000 list. SCE should offer those DAC sites that are on the Fortune 1000 list a 25 percent rebate, consistent with Section 4.5.5 of this decision.

18. Within 90 days of adoption of this decision, Southern California Edison Company shall file a Tier 2 Advice Letter with the Commission's Energy Division that describes the implementation plan for the Charge Ready 2 demand response program and its plan to enroll participants in demand response pursuant to Section 4.5.12 of this decision.

19. Within 60 days of adoption of this Decision, Southern California Edison Company shall file a Tier 1 Advice Letter with the Commission's Energy Division outlining the request for qualification (RFQ) processes for electric vehicle service equipment under the site-host and utility-ownership models, consistent with Section 4.5.12 of this decision.

20. Southern California Edison Company shall implement its proposed cost recovery and forecast updates consistent with the utility's proposal in Section 5.4 of this decision.

21. Within twelve months from the date of adoption of this decision Southern California Edison Company (SCE) shall file a Tier 3 Advice Letter that at a minimum provides: (1) how the adopted scope and size of the Charge Ready 2 infrastructure programs are appropriate given current electric vehicle demand in SCE's service territory; (2) what aspects of the program recommendations are not workable; and (3) whether there are any cost savings that SCE has identified in the first twelve months of program implementation.

22. Southern California Edison Company must target 30 percent of the ports for the Make-Ready Expansion program at multi-unit dwellings.

23. Southern California Edison Company (SCE) shall target 50 percent of the ports for the Make-Ready Expansion program in disadvantaged communities (DACs). SCE must identify these communities by using the California Environmental Protection Agency's California Communities Environmental Health Screening Tool 3.0 (CalEnviroScreen 3.0) or its latest version to determine the top 25 percent of communities that will be eligible for DAC funding. At the end of the two years of customer enrollment, SCE may file a Tier 2 Advice Letter that at a minimum addresses: (1) how many sites in DACs have signed-up for the programs, (2) what efforts have been made to work with sites in DACs, and (3) how many sites are interested but are not in a DAC.

24. Southern California Edison Company shall gather data on the Charge Ready 2 Infrastructure and Market Education Programs pursuant to the data

gathering requirements detailed in Section 7 of this decision. Pursuant to Section 7, Energy Division has authority to develop or amend the data collection template to ensure reporting captures all programmatic elements of the Charge Ready 2 Infrastructure and Market Education Programs.

25. Southern California Edison Company is authorized to offer customers the choice to manage and pay for the installation of the customer-side infrastructure with a rebate of up to 80 percent of the installation costs, as part of the Make-Ready Expansion Program. This applies to customers who opt to install, own, operate, and maintain the customer-side infrastructure, with a rebate of up to 80 percent of the customer-side infrastructure installation cost.

26. Southern California Edison Company (SCE) must work with its TE Advisory Board to develop a “low port rebate” for sites installing four or fewer ports. SCE must reflect the rebate amounts authorized and the resulting budget changes for the low port rebate in the Tier 2 Advice Letter filing requested in Ordering Paragraph 9 of this decision.

27. Southern California Edison Company must annually evaluate charging infrastructure subsidy levels and charging station rebate levels with its TE Advisory Board to ensure the amounts are appropriate.

28. Southern California Edison Company shall file a Tier 1 Advice Letter with the Commission’s Energy Division to reflect the program modifications to the TE Advisory Services Expansion authorized in Section 4.7 of this decision.

29. Southern California Edison Company shall recover approved costs for its Charge Ready 2 Infrastructure and Market Education Programs through electric customers’ distribution rates using an equal cents per kilowatt hour allocator.

30. Southern California Edison Company shall file annual reports with the Commission's Energy Division. These annual reports at a minimum must include: (1) costs of charging passed on to drivers utilizing Charge Ready 2 charging infrastructure; (2) the number and type of jobs attributable to the Charge Ready 2 Infrastructure and Market Education Programs' investment; (4) the number of jobs created in disadvantaged communities; (5) the number of jobs created with Women Minority Disabled Veteran Business Enterprise (WMDVBE) suppliers consistent with Commission General Order 156; and (6) load management tactics used and the number of sites that opt out of passing through time of use signals.

31. Within thirty days of adoption of this decision, Southern California Edison Company (SCE) must update the rate and bill impacts associated with the authorized investments for the Charge Ready 2 Infrastructure and Market Education Programs, including the full revenue requirement associated with the approved program, by serving this information on the service list to this proceeding. SCE must provide updates to the rate impacts in its annual report.

32. Southern California Edison Company shall establish the pass-through time-of-use (TOU) price signals to drivers as the default arrangement, while allowing site hosts to opt out of this arrangement and implement their own pricing plans. SCE must work with any sites that do not pass through TOU signals to establish load management tactics to reduce grid impacts from the sites and report on these load management tactics within its annual report. SCE must include its calculation of the peak load of sites that have elected to not pass through TOU pricing.

33. Within 180 days of the date of adoption of this decision, Southern California Edison Company (SCE) shall file a Tier 2 Advice Letter with the Commission's Energy Division, that at a minimum addresses: (1) SCE's plan to incorporate cobranding and competitively neutral marketing; and (2) SCE and Lancaster's implementation plan to allow Lancaster to own charging stations on behalf of its customers, at no additional subsidy level to the program.

34. No later than eighteen months after the first site installation, Southern California Edison Company (SCE) shall file a Tier 1 Advice Letter with the Commission's Energy Division describing its compliance efforts with the Safety Requirements Checklist outlined in Section 9 of this decision. The advice letter must contain an attestation of compliance with these requirements, signed by the Project Manager. SCE shall file a final safety attestation, using the same template developed for the priority and standard review transportation electrification projects in Decision 18-05-040, along with its annual report on Charge Ready 2.

35. Southern California Edison Company (SCE) shall conduct a competitive solicitation to select a neutral third-party evaluator pursuant to Sections 7 and 8 of the instant decision. SCE must consult with the Commission's Energy Division regarding the scope of the evaluations. SCE is authorized a budget of \$4.3 million to conduct an evaluation of the Charge Ready 2 Infrastructure and Market Education programs.

36. All motions not previously ruled on in this proceeding are deemed denied.

37. Application 18-06-015 is closed.

This order is effective today.

Dated _____, at San Francisco, California.

Appendix A

Budget Calculations for SCE Charge Ready 2 Programs

Budget Assumptions

The Commission addressed different components of SCE's Charge Ready 2 program budgets separately.

Make Ready Expansion (Level 2)

Based on SCE's workpapers, we pulled out the line-items related to Level 1/Level 2. First, we scaled this budget to the approved program size, and then scaled it further based on addressing the unit cost reduction.

To scale the budget based on unit cost, we first assume an average per port cost of \$15,000. Given the Phase 1 Pilot's per port average cost of \$13,731, an increase to \$15,000 will allow for some program modifications while also taking into consideration the lessons learned and cost savings that SCE cites to within its testimony.

From the assumption of the per port cost, we multiply this number by the total number of authorized ports—22,200. Then to determine the breakdown between Capital versus O&M costs, we take the percentage of the total costs from SCE's proposed budget to determine the percentage of capital versus O&M costs within the approved budget.

This provides us a broad budget to approve, but SCE should update and submit a more detailed budget following the approval of this decision.

Make Ready Expansion (DCFC)

Based on SCE's workpapers, we pulled out the line-items related to DCFC. We approve this budget separately from the Level 2 Make Ready Expansion budget since this program component is addressed separately within the decision. We approve this budget in full, with the assumption that the per port

costs may shift. SCE should update and submit this budget, including per port costs, following the approval of this decision.

Make Ready Expansion (Own and Operate)

Based on SCE's workpapers, SCE includes line-items within the Make Ready Expansion budget for incremental costs associated with the Own and Operate program. We assume this means that in addition to the per port cost for all Make Ready Expansion ports, those that are owned and operated by SCE will include this additional capital and O&M cost.

We take the assumptions from SCE's workpapers, and determine the assumptions SCE makes about per port capital and O&M costs by dividing these numbers by SCE's expected number of ports within the Own and Operate program—4,230. We then apply these per port costs to the approved number of Own and Operate ports—2,500.

New Construction Rebate

Based on the adjusted rebate level of up to \$3,500 per port, and the adjusted target number of ports discussed within the decision, we approve \$54 million for the New Construction Rebate.. This budget will be expensed.

Marketing, Education, and Outreach (ME&O)

Based on the discussion within the decision, we left the Charge Ready 2 program-specific marketing budget intact as well as the requested budget for the TE Advisory Services Expansion program. We eliminated the budget for SCE's proposed EV Awareness Campaign and the budget for the Customer Education Program.

Summary of CPUC Budget Assumptions for Total SCE Charge Ready 2 Program Portfolio

CR2 Infrastructure Programs	
Make Ready Expansion	\$363,523,669
-L1/L2	\$333,000,000
-DCFC	\$13,975,206
-Own & Operate	\$16,548,463
New Construction	\$54,000,000
TOTAL INFRASTRUCTURE BUDGET	\$417,523,699

CR2 ME&O Programs	
CR2 Program Specific Marketing	\$9,700,000
EV Awareness Campaign	\$0
Customer Education Program	\$0
TE Advisory Services	\$4,800,000
TOTAL ME&O BUDGET	\$14,500,000

CR2 Evaluation Budget	
Third-Party Evaluator Contract(s)	\$4,320,000

CR2 Total Capital vs. Expense

CR2 Capital Costs	
Make Ready Expansion	\$314,247,148
-L1/L2	\$296,236,800
-DCFC	\$8,435,880
-Own & Operate	\$9,574,468

TOTAL CAPITAL COSTS	\$314,247,148
CR2 O&M Costs	
Make Ready Expansion	\$49,276,521
-L1/L2	\$36,763,200
-DCFC	\$5,539,326
-Own & Operate	\$6,973,995
New Construction Rebate	\$54,000,000
ME&O Programs	\$14,500,000
Third-Party Evaluation	\$4,320,000
TOTAL O&M COSTS	\$122,096,521

Table 1. CPUC Budget Assumptions for SCE Charge Ready 2's Make Ready Expansion Program (Level 2)

L2 Make-Ready Budget — Capital Costs

	SCE's Proposed Budget: 31,791 ports⁴⁶⁶	Commission's Approved Budget:⁴⁶⁷ 22,200 ports
Utility Side Costs⁴⁶⁸	\$123,427,471	TBD
Customer Side Costs⁴⁶⁹	\$393,911,340	TBD
Non-Labor	\$2,057,500	TBD
Labor	\$16,952,980	TBD

⁴⁶⁶ These numbers come from the L1/L2 make-ready costs in SCE's Master Workpaper CR2 Portfolio (Four Year) tab, and removing the DCFC portion which is addressed separately.

⁴⁶⁷ Scaled to approved program size and with adjustments to the unit cost.

⁴⁶⁸ "Utility Side Costs" includes "Utility Work" and 10% contingency.

⁴⁶⁹ "Customer Side Costs" includes "A&E Admin Costs," "Customer Infrastructure," and 10% contingency.

CAPITAL TOTAL	\$536,349,291	\$296,236,800⁴⁷⁰
PER PORT CAPITAL TOTAL	~\$16,871	\$13,344

L2 Make-Ready Budget – O&M Costs

	CE's Proposed Budget: 31,791 ports	Commission's Approved Budget: 22,200 ports
Non-Labor	\$550,000	TBD ⁴⁷¹
Labor	\$10,901,490	TBD
Rebates	\$55,120,582	~\$26,773,200 ⁴⁷²
O&M TOTAL	\$66,572,072	\$36,763,200⁴⁷³
PER PORT O&M TOTAL	~\$2,094	\$1,656

L2 TOTAL COST	\$602,921,363	\$333,000,000
PER PORT TOTAL	~\$18,965	\$15,000

Table 2. CPUC Budget Assumptions for SCE Charge Ready 2's Make Ready Expansion Program (DCFC)

DCFC Make-Ready Budget – Capital Costs

	Commission Approved DCFC Budget
Utility Side Costs	\$7,037,345
<i>Utility Work (DCFC Adder)</i>	<i>\$6,397,586</i>

⁴⁷⁰ This total is based off of the percentage breakdown of O&M vs. Capital costs within SCE's budget—11.04% of the total budget is O&M and 88.96% is capital.

⁴⁷¹ SCE to submit detailed budget following approval of this decision.

⁴⁷² \$1,206 per port was the average rebate in the pilot. This average was applied here.

⁴⁷³ This total is based off of the percentage breakdown of O&M vs. Capital costs within SCE's budget—11.04% of the total budget was O&M and 88.96% was capital.

Contingency	\$639,759 (10%)
Customer Side Costs	\$1,398,535
<i>Customer Infrastructure (DCFC Adder)</i>	\$1,271,395
<i>Contingency</i>	\$127,140 (10%)
CAPITAL TOTAL	\$8,435,880

DCFC Make-Ready Budget – O&M Costs

	SCE's Proposed Budget
Rebate (DCFC)	\$5,539,326
O&M TOTAL	\$5,539,326

DCFC TOTAL COST	\$13,975,206
------------------------	---------------------

Table 3. CPUC Budget Assumptions for SCE Charge Ready 2's Make Ready Expansion Program (Own & Operate)

Own & Operate Incremental Budget – Capital and O&M Costs

	SCE's Proposed Budget – up to 4,230 ports	Commission Approved Budget – up to 2,500 ports
Capital (incremental) – Ownership Station Capital Costs	\$16,200,000 (~\$3,830 per port)	\$9,574,468
O&M – Ownership and Operation	\$11,800,000 (~\$2,790 per port)	\$6,973,995
TOTAL	\$28,000,000	\$16,548,463
PER PORT INCREMENTAL TOTAL	\$6,619	\$6,619

Table 4. CPUC Budget Assumptions for SCE Charge Ready 2's New Construction Rebate Program

New Construction Rebate Program Budget – O&M Costs

	Commission Approved New Construction Budget
--	--

Rebate (Expense)	\$54,000,000
NEW CONSTRUCTION TOTAL	\$54,000,000

Table 5. Budget Assumptions for SCE Charge Ready 2's Marketing, Education, and Outreach Program

ME&O Program Budget – O&M Costs

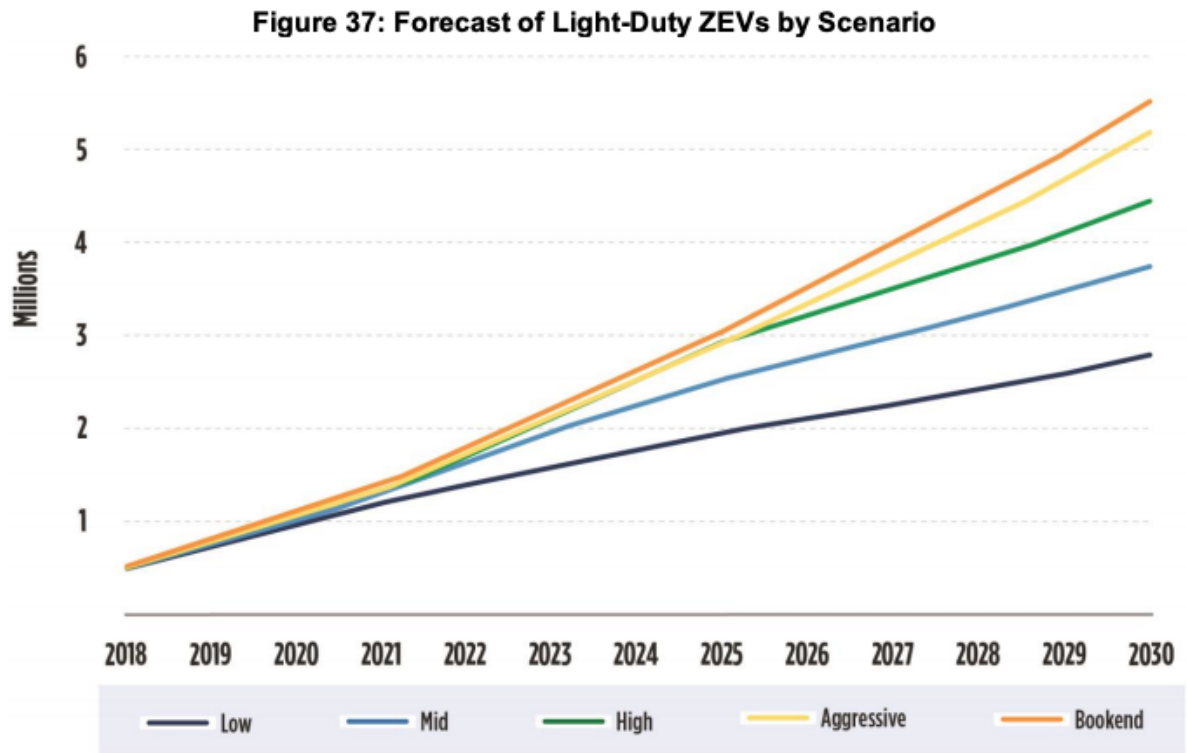
	SCE's Proposed Budget	Commission Adopted Budget
CR2 Program Specific Marketing	\$9,700,000	\$9,700,000
EV Awareness Campaign	\$28,700,000	\$0
Customer Education Program	\$8,000,000	\$0
TE Advisory Services	\$4,800,000	\$4,800,000
TOTAL	\$51,200,000	\$14,500,000

(END OF APPENDIX A)

APPENDIX B

CALIFORNIA ZERO-EMISSION VEHICLE ADOPTION FORECASTS

California Energy Commission (CEC) Forecast of Light-Duty Zero-Emission Vehicles (ZEVs) by Scenario



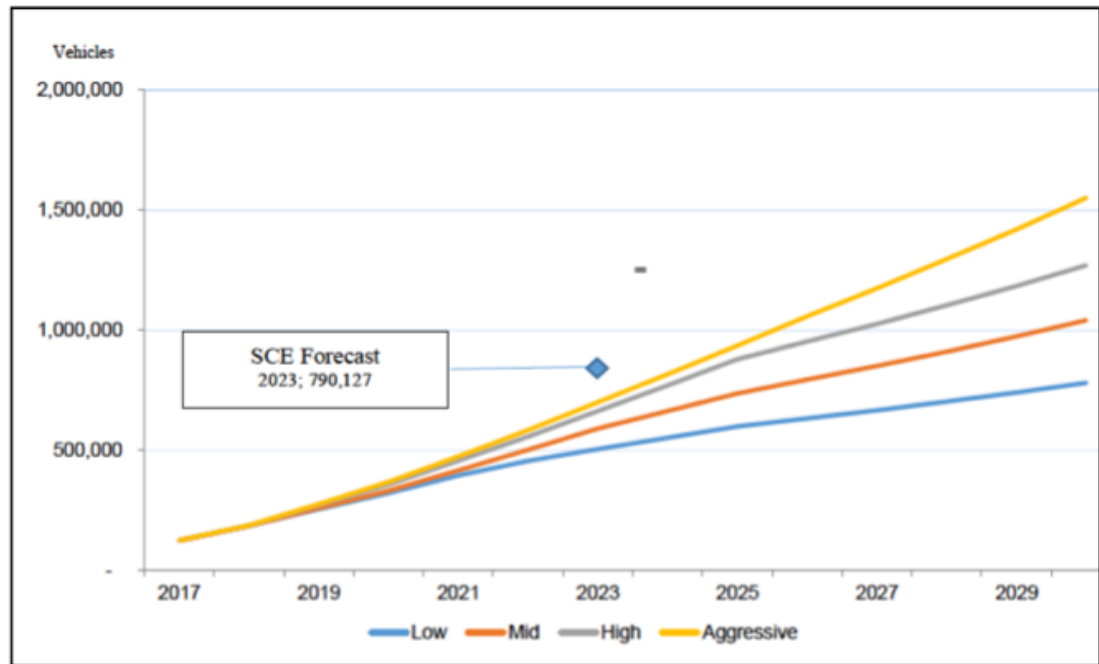
Source: CEC

1

Comparison of CEC ZEV Adoption Scenarios and SCE's Adoption Forecast

¹ California Energy Commission staff. 2020. Final 2019 Integrated Energy Policy Report. California Energy Commission. Publication Number: CEC-100-2019-001-CMF.

Figure 7. SCE EV Forecast vs. California Energy Commission EV Forecasts: Low, Mid, and High Scenarios



2

(END OF APPENDIX B)

² Exhibit TURN-1 at 19.