BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

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Application of Southern California Edison Company (U 338-E) for Approval of its Charge Ready and Market Education Programs.	A.14-10-014

SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) CHARGE READY PILOT AND MARKET EDUCATION PROGRAMS FINAL REPORT

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Dated: **September 21, 2022**

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SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) CHARGE READY PILOT AND MARKET EDUCATION PROGRAMS FINAL REPORT

Southern California Edison Company (SCE) hereby submits its Charge Ready Pilot Program and Market Education Programs Final Report, attached hereto as Attachment A. The information contained in this report supersedes all prior reports submitted by SCE.

Respectfully submitted,

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September 21, 2022

Attachment A

Charge Ready And Market Education Programs Final Report

Southern California Edison's (SCE)
Charge Ready and Market Education Programs

Final Report

May 2016-June 2022
Submitted September 21, 2022

PILOT REPORT

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CHARGE READY & MARKET EDUCATION PROGRAM REPORT

1.0 EXECUTIVE SUMMARY

The Charge Ready and Market Education programs were developed to support California's policies to reduce greenhouse gas (GHG) and air pollutant emissions and to help meet the state's zero-emission vehicle (ZEV) goals. The Charge Ready program deploys electric infrastructure to support light-duty electric vehicle (EV) charging at customer sites throughout Southern California Edison's (SCE's) service area.

On December 13, 2018, the California Public Utilities Commission approved SCE's request[1] for an additional $22M (2014$) to continue implementing the Charge Ready program. This Final Report will include key metrics on both the original pilot funding and the additional approved funding, referred to as "bridge" to separately track progress. Altogether, both the original pilot funding and the additional "bridge" funding is referred to collectively as the Charge Ready program.

Upon completion of the Charge Ready program, SCE has deployed infrastructure to support 2,745 charge ports at 146 customer sites, including 1292 charge ports (47%) at 68 sites located in Disadvantaged Communities (DACs),[2] significantly exceeding the program's goal of placing 10% of charge ports in DACs.

The Market Education program targeted car buyers to help them gain awareness of EVs and the benefits of fueling from the grid. The Market Education program also included SCE's Transportation Electrification Advisory Services, providing education and support related to electrifying fleets, EV charging, reducing GHG footprints, and other transportation electrification (TE) areas for business customers.

Both the Charge Ready and Market Education programs were designed in two phases, with a smaller-scope Phase 1 pilot to prepare for the broader Phase 2, Charge Ready Light Duty. This report covers Phase 1 of the Charge Ready and Market Education programs and demonstrates that the programs have achieved their objectives. Following the successful implementation of the Charge Ready and Market Education programs, SCE launched Phase 2, Charge Ready Light Duty, in July 2021.

The Charge Ready and Market Education programs supported California's GHG- and air-pollution-reduction goals by addressing the following issues resulting from insufficient EV infrastructure, especially in certain market segments.

- Range anxiety continues to be a key roadblock to expediting EV adoption. Access to charging at both home and work is a top priority for EV drivers with workplace charging serving a dual-role: 1) to advance adoption through consumer assurance on available away-from-home charging locations, and 2) to increase electric vehicle miles traveled.[3] SCE's Charge Ready program helped accelerate EV adoption by

[1] D.18.12.006.

[2] DACs were identified using the California Environmental Protection Agency's (CalEPA) California Communities Environmental Health Screening Tool (CalEnviroScreen 2.0).

[3] California Air Resources Board, "California's Advanced Clean Cars Midterm Review", January 2017, p. B64, B84-B86, available at https://www.arb.ca.gov/msprog/acc/mtr/acc_mtr_finalreport_full.pdf.

meeting a large portion of charging needs at long-dwell-time locations.

- The cost and complexity of deploying charging infrastructure at premises other than single-family homes is[4] another major barrier to EV adoption. For example, while customers with parking facilities may understand the benefits of offering EV charging to their tenants, they may not envision an obvious return on investment. Property owners and managers who provide parking may not have the time or motivation to gain an understanding of a new, complex, and potentially confusing market.
- Developing driver awareness of EVs and their benefits is one of the most important factors for increasing EV adoption and significantly growing the market. Not understanding EV benefits (individual, societal, and environmental) or the differences between internal combustion vehicles, battery EVs (BEVs) and plug-in hybrid EVs (PHEVs) significantly hinders EV adoption[5,6]. SCE, as a utility, together with other stakeholders, is uniquely equipped to meet the need for greater market education focused on the needs and interests of customers and drivers within the SCE service territory with a population of 15 million people.
- DACs face additional socioeconomic barriers as well as a concentrated amount of air pollution, mostly caused by petroleum-powered vehicles.[7] Education and outreach helped familiarize customers with available EV incentives and rebates that make EVs more affordable. Providing EV charging infrastructure plus education and outreach in these communities helped increase EV adoption and reduce harmful emissions.

1.1 Charge Ready Program Description

The Charge Ready program was developed to reduce barriers to EV adoption by deploying electric infrastructure to support construction of EV charging stations (EV supply equipment,

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[4] See "California Transportation Electrification Assessment; Phase 1: Final Report," prepared by ICG. International and E3, September 2014, Section 5.2, pp. 46-50, available at http://www.caletc.com/wpcontent/uploads/2014/09/CalETC_TEA_Phase_1-FINAL_Updated_092014.pdf [as of October 27, 2014]. Installing charging stations at businesses involves many more factors than home charging, and also includes a more expensive setup. Commercial Level 2 charging station installation costs are an average of $2,500, compared with residential Level 2 costs of $1,300 and residential Level 1 costs of only $200. See "Electric Vehicle Supply Equipment Installed Cost Analysis: 2013 Technical Report," Electric Power Research Institute (EPRI), December 6, 2013, pp. 18, 33, abstract available at http://www.epri.com/abstracts/Pages/ProductAbstract.aspx?ProductId=000000003002000577 [as of October 27, 2014]. As with businesses, charging station installation cost at multi-unit dwellings far exceeds that of single-family residences. Id., pp. 3-5, 3-6.

[5] National Renewable Energy Laboratory, "Consumer Views on Plug-in Electric Vehicles – National Benchmark Report", January 2017, p. 11, available at https://www.afdc.energy.gov/uploads/publication/consumer_views_pev_benchmark.pdf.

[6] International Council on Clean Transportation, "Literature review of electric vehicle consumer awareness and outreach activities", March 2017, p. 2, available at https://www.theicct.org/sites/default/files/publications/Consumer-EV-Awareness_ICCT_Working-Paper_23032017_vF.pdf.

[7] California Public Utility Commission, Zero-Emission Vehicles Fast Facts, available at http://www.cpuc.ca.gov/zev/.

or EVSE)[8] at locations where EVs are usually parked for at least four hours (i.e., long dwell-time locations). These locations provide adequate time for most EV drivers to fully recharge their vehicles with Level 1 and Level 2 charging stations.

The Charge Ready program was open to non-residential customers in the following long dwell-time location market segments:

- Workplaces
- Multi-Unit Dwellings (MUDs), such as apartment buildings
- Fleets
- Destination centers, such as sports arenas or malls

Through Charge Ready, SCE installed and paid all costs for make-ready stubs serving EVSE, and will continue to own and maintain that infrastructure, including:

- Electric distribution infrastructure, such as transformers, service lines, and meters dedicated to EV charging equipment deployed under the program.
- Customer-side infrastructure, such as panels, step-down transformers, wiring and conduits, and stub outs, to allow for EVSE installations.

Participating customers were responsible for procuring, installing, and maintaining qualified EVSEs, including electrical energy and networking costs, but received rebates to reduce the EVSE and installation costs.

To efficiently execute the Charge Ready program and inform stakeholders of progress achieved, SCE established a Program Advisory Council comprised of customers, industry stakeholders, and representatives of disadvantaged communities (DACs). The board provided useful input and guidance to SCE during the Charge Ready program implementation and execution.

1.2 Objectives

The objectives of the Charge Ready program were to inform and refine the design and cost estimates of the program, and to develop success measures for Phase 2, Charge Ready Light Duty.[9] Charge Ready program objectives included evaluating:

- Processes, including:
  - qualifying charging stations (for example, availability of Level 2 charging stations with load management and demand response (DR) capabilities);
  - procuring deployment-related services (such as sourcing qualified electrical contractors); and
  - assumptions about time and costs to deploy EV charging infrastructure at participating customer sites
- Post-deployment impacts, including assumptions about load expected from installed charging stations

[8] An EVSE may typically include one, two, or four charge ports, with varying costs and demand (kW), SCE uses charge port (rather than EVSE) as the preferred unit to provide detailed reporting about Charge Ready.

[9] Testimony In Support Of Southern California Edison Company's Charge Ready Application, Vol. 02 – Phase 1 Charge Ready And Market Education Pilot, p. 3.

As this report demonstrates, the Charge Ready program successfully achieved its objectives in accordance with the key guiding principles[10] that drove its implementation and execution.

1.3 Implementation

SCE launched the Charge Ready program in May of 2016. The original pilot immediately

generated significant interest, with 190 applications received within the first month. SCE stopped accepting new applications in January 2017 as all program funding was reserved for approved sites at that time. On March 9, 2018, SCE released unused funds reserved for completed sites and re-opened the pilot to new applications.

With the approval of Bridge funding on December 13, 2018, SCE allowed the submittal of applications until September 2019. SCE stopped accepting new applications from workplaces, fleets, and destination centers in May 2019 and applications from multi-unit dwellings in September 2019.

Participating customers were able to select EVSE from different approved models. At the time of this report, there are 76 approved models offered by sixteen SCE-qualified vendors, demonstrating SCE's commitment to offering a broad range of charging equipment options to participating customers.

SCE completed its first deployment in February 2017, in the City of Lynwood. It included six charge ports to support the City's new EV fleet.

Upon completion of the Charge Ready program, SCE has deployed infrastructure to support 2,745 charge ports at 146 customer sites, including 1292 charge ports (47%) at 68 sites located in DACs, significantly exceeding the goal of placing 10% of charge ports in DACs.

1.4 Market Education

SCE developed a Market Education campaign to generate awareness about EVs and the benefits of fueling from the grid, delivered to a broad audience of potential car buyers through a variety of complementary channels, including paid media (for example, radio) and direct messaging (such as email). SCE also developed specific efforts to target customers residing in DACs, including in-person outreach events around Earth Day and National Drive Electric Week.

In May 2019, SCE also launched the cars.sce.com EV shopping tool as a resource to educate customers about the benefits of EV ownership.

Under the Charge Ready Light Duty Program (Phase 2), SCE expanded TE Advisory Services to target hard to reach customer segments, such as multi-family, small businesses and medium- and heavy-duty (MDHD) fleet customers. To support the expansion of the program, SCE launched new TE Advisory Services[11] online content in July 2021. The dedicated TE Advisory Services web page includes detailed descriptions of the new program offerings, EV Readiness Studies, Grant Assistance, and Webinars. The new page receives an average of 502 page views a month to assist business customers in considering and planning for TE deployment through self-service online tools (for example, Charge Port Estimator), fact sheets (on topics such as managed charging through vehicle-grid integration).

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[10] See Section 2.2.2 of this report.

[11] Sce.com/TEAS.

1.5 Conclusions

The Charge Ready program successfully achieved its objectives. With infrastructure to support 2745 charge ports deployed, the Charge Ready program allowed SCE to develop and improve processes to qualify a broad range of charging stations with DR capabilities from multiple vendors. It also provided real-life data about the time and costs to deploy EV charging infrastructure at participating customer sites, and helped SCE refine the assumptions included in its initial plans.

In addition, the Charge Ready program confirmed customer interest in a program to deploy utility-owned infrastructure on the customer side of the meter to serve customer-owned charging equipment while maintaining market and technology neutrality, with high satisfaction expressed by participating customers.[12]

Phase 1 of the Market Education program demonstrated the need for greater public education about EVs and the benefits of fueling from the grid. The initial response to TE Advisory Services also confirmed a business customer interest for more technical assistance from a trusted energy advisor to help navigate the complexities of adopting and deploying TE technologies, resulting in an expansion of this program

SCE filed the application on June 26, 2018, to seek approval of Phase 2, Charge Ready Light Duty, with changes based on the lessons learned documented in this report. Charge Ready Light Duty was approved in September 2020 and launched in July 2021.

[12] Overall satisfaction of participating customers surveyed by SCE averaged 9.1 out of 10, with 100% of customers rating the program between 8 and 10.

2.0 CHARGE READY PROGRAM

2.1 Charge Ready Program Design

The Charge Ready program was designed to offer customers a comprehensive solution for the electrical infrastructure necessary to support EV charging. To remove barriers to deploying EV charging, as part of the Charge Ready program, SCE constructed the electric infrastructure needed to serve EVSE at participating customer locations and will continue to own and maintain that infrastructure. The Charge Ready program also offered customer participants a rebate to reduce the cost of acquiring and installing qualified EVSE. The rebates were calculated as a percentage of the EVSE base cost, as shown in the table below:

Table 2.1 Charge Ready Program Rebate Levels by Market Segment

Market Segment	Rebate (% Base Cost)[13]
All segments in DACs	100%
MUDs not in DACs	50%
All other segments (workplaces, fleets, and destination centers)	25%

Customer participants had to procure, operate, and maintain the charging stations in accordance with the terms and conditions of the Charge Ready program.

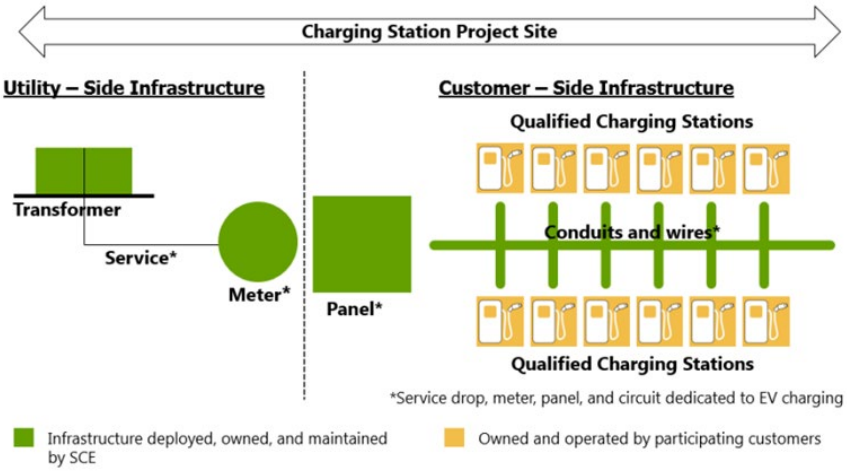
Customer participants established their own policies about charging station use (for example, access to charging stations and financial contributions from EV drivers). However, customers with Level 2 charging stations must participate in a Charge Ready DR Pilot.

SCE deployed electric infrastructure, on both the customer and utility sides of the electrical meter, to serve the charging stations at participating customer locations, up to and including the "make ready" stub.[14] Figure 2.1 shows a diagram of a Charge Ready Project Site.

[13] Charge Ready rebates, combined with other rebates or programs, cannot cover more than 100% of the charging station costs.

[14] Includes customer-side and utility-side infrastructure.

Figure 2.01 Charge Ready Model



SCE established a clear end-to-end process and aimed to support efficient charging station deployment while minimizing disruption for participating customers. SCE established procedures to determine the number of charging stations approved at each site, and deployed supporting infrastructure based on existing and anticipated EV adoption at each participating site. The customer participants, together with SCE, approved the final site plan. To participate in SCE's program, most sites had to support a minimum of ten charge ports. A minimum of five ports was required for sites in DACs.[15] With the approval of Bridge funding, SCE reduced the port minimum in MUD sites to be consistent with DAC sites at five ports. Participating customers had to procure qualifying charging stations and their installation directly from qualified suppliers for interconnection to SCE's supporting infrastructure. SCE offered a rebate for the procurement and installation of qualified charging stations, in an amount that reflected a percentage of the base cost[16] for functionalities established by SCE.

2.1.1 Customer and Site Eligibility

The program was open to SCE customers who met the following criteria:

Customer Eligibility

- Qualified as non-residential customers (business, government)
- Met the program's guidelines for EV adoption
- Owned, leased, or operated a long-dwell-time parking site (4+ hours)
- Provided a grant of easement from the property owner

[15] DACs were identified using the California Environmental Protection Agency's (CalEPA) California Communities Environmental Health Screening Tool (CalEnviroScreen 2.0).

[16] SCE defined the base cost as "The amount representing the best value for a Charging Station and its installation, as determined by SCE through primary or secondary market research." (Schedule CRPP). The base cost was determined by conducting an analysis for each of the charging station level categories using pricing information submitted by approved Charge Ready vendors. SCE evaluated several combinations to develop a fair comparison among single- and multiple- connector EVSEs. SCE determined a price per port for each of the qualified models and configurations and used the lowest price per port within each EVSE category, to determine the base costs.

- Delivered proof of purchase of qualified charging equipment
  Site Approval
- Granted by SCE on a first-come, first-served basis that met Charge Ready program cost thresholds
- Required agreement from customers on the number of charging stations and their site locations (as proposed by SCE)
- Required a minimum of ten charging stations (reduced to five in DACs) in up to 4% of parking spaces (unless existing adoption demonstrated higher demand)

In addition, program participants were required to own and operate qualified charging stations for at least 10 years, pay for operating costs (such as energy, maintenance, repairs, and the EV network), and provide usage data to SCE excluding Personally Identifiable Information (PII). Customers with Level 2 charging stations must also participate in a Charge Ready DR Pilot and any future DR program.

SCE focused its efforts on DACs, which are disproportionately affected by low EV adoption and the negative environmental impacts of gasoline- and diesel-powered vehicles. SCE managed the Charge Ready program to ensure a minimum of 10% of all charge port installations were deployed in DACs. Upon completion of the Charge Ready program, SCE installed 1,292 charge ports (47%) in DACs.

SCE targeted 20% of charge port installations under the bridge funding to serve multi-unit dwellings (MUDs). Upon completion of Charge Ready Bridge, SCE installed 24% of charging ports in multi-unit dwellings.

2.1.2 Charge Ready Program Objectives

The CPUC approved guiding principles for the Charge Ready program.[17] These principles are listed below as a reference, and the body of this report will describe how each of these requirements was successfully met.

Table 2.2 Charge Ready Program Objectives

Objective	Summary	Final Report Section
Guiding Principles		
1. Support the Governor's and California state goals, including:	The 2,745 charge ports deployed in the Charge Ready program provide grid-integrated infrastructure and support the acceleration and adoption of ZEVs. Based on meter data from participating customers, 16,968 metric tons (MT) of carbon dioxide equivalent (CO_2e) was reduced from the charging stations installed from February 2017 through January 2018. The Charge Ready program will likely further reduce GHG emissions through indirect benefits of the program, such as accelerated EV adoption.	Section 2.3 Section 2.7.4

[17] D.16-01-023, p. 7.

Objective	Summary	Final Report Section
A. Achieve installation of grid-integrated infrastructure to support 1 million ZEVs by 2020.[18] B. Accelerate the adoption of 1.5 million ZEVs by 2025.[19] C. Support clean air and climate change objectives.		
2. Support the acceleration of a competitive EV charging market and encourage innovation, while maintaining market-neutral customer engagement.	SCE developed a Request for Information (RFI) to find and approve charging stations that meet the Charge Ready program's requirements, reduce barriers for participants in procuring charging stations, and promote competition in the EV charging market. As more EV charging equipment reached the market, SCE changed its practice of manually testing each charging station in the lab and began conducting desktop reviews of every station ensuring that they met certain technical, functional and safety requirements.	Section 2.6.1
3. Maintain customer choice.	The Charge Ready program offered 76 models from 16 vendors, maintaining customer choice and market-neutral customer engagement.	Section 2.6.1
4. Remove barriers to deploying EV charging.	SCE constructs, owns, and maintains the electric infrastructure needed to serve EVSE at participating customer locations. The Charge Ready program also offered customer participants a rebate to reduce the cost of acquiring and installing qualified EVSE.	Section 2.2
5. Ensure the customer participant site infrastructure is installed and maintained in safe working order.	The Charge Ready program required SCE employees and subcontractors installing make-ready infrastructure to follow safety requirements. For infrastructure safety, all site plans were submitted to the appropriate Authority Having Jurisdiction (AHJ) for approval and permitting. Some AHJs required approval from multiple agencies, such as Building and Safety, Electrical, and Fire Department Planning. For charging station safety, all	Section 2.5.2

[18] Executive Order B-48-18 established a goal to put 5 million ZEVs in California by 2030.

[19] Executive Order B-48-18 established a goal to install 250,000 vehicle charging stations in California by 2025.

Objective	Summary	Final Report Section
	installations were per AHJ-approved plans, and were inspected by AHJ inspectors.	
6. Enable EV load management to support the grid in a manner that delivers benefits to all SCE customers.	SCE required DR capabilities for Level 2 charging stations and required customers selecting those charging stations to enroll in a DR program.	Section 2.6.1 and Section 4.0
7. Evaluate customer participant strategies that give EV drivers the opportunity to maximize fuel cost savings relative to conventional transportation fuels.	Based on analysis of the load profiles from the different segments, most charging takes place during morning hours except at MUDs where most charging occurs during evening hours. However, all segments show charging that can be reduced during peak times from 4pm to 9pm for Demand Response events.	Section 2.7.3
8. Manage program costs.	Establishing cost thresholds[20] for various segments to manage program costs and to fulfill and surpass demographic goals of 10% of infrastructure installed in DACs and the 20% target of installations in MUDs for bridge funding.	Section 2.11
9. Provide representative data (by different market segments, and across DACs, load management strategies, and pricing models) to allow for meaningful evaluation and comparisons, and to inform Phase 2 and future EV policy.	As Charge Ready installations were completed, SCE analyzed the utilization of EVSE and invited participants to complete load management and fee surveys in order to understand customer's load management and pricing strategies.	Section 2.7.34 Section 2.7.3
10. Identify and incorporate best practices for future EV infrastructure deployment.	SCE identified and recorded lessons learned, issue resolutions, and recommendations for our Charge Ready Light Duty program.	Section 2.6
11. Support SCE's company-wide Diversified Business Enterprise (DBE) spending goal of 40%.	In the Charge Ready program, to date 32% of spend was contracted with Diverse Business Enterprises (DBE). The Charge Ready program was previously at 100% DBE spend prior to conducting a second-round RFP to source	Section 2.4

[20] Using estimated costs.

Objective	Summary	Final Report Section
	additional general contractors to support the construction of EV infrastructure.	
12. Provide services in line with legislative goals (Senate Bill [SB] 535 [de León, 2013] and SB 1275 [de León, 2014]) to serve DACs and increase access to clean transportation.	SCE focused on DACs, which are disproportionately affected by low EV adoption and negative environmental impacts of gasoline- and diesel-powered vehicles. Upon completion of the Charge Ready program, SCE installed 1,292 charge ports (47%) in DACs.	Section 2.8
13.Complement other utility clean energy programs and other non-utility programs, such as those being implemented pursuant to the Charge Ahead California Initiative established by SB 1275, which will build consumer demand for clean energy and clean vehicles.	In addition to the Charge Ready Demand Response Pilot, Charge Ready also complemented other clean-energy programs, such as the California Clean Fuel Reward Program in which EV drivers may be eligible to receive a rebate.	Section 2.3
Settlement Agreement[21]		
1. Utilization for Level 1 and Level 2 EVSEs by Market Segment, including DACs.	As Charge Ready installations were completed, SCE collected data that includes information about charging sessions, average connection times, average charge times, and kWh consumed. Charging load is displayed on an hourly basis and displays various usage patterns on graphs 2.8 -2.18.	Section 2.7.3
2. Comparisons of different customer participant load profiles and load management strategies, including the use of price signals by customer participants to charging station users.	SCE's analysis of the load profiles from the different segments indicates that Destination Centers and Workplaces are potential candidates for the load shifting strategies, while Destination Centers and Fleets are likely candidates for traditional DR strategies. MUD load profiles will need to be analyzed when more sites are available to determine the load management strategies that work best for that segment. In the DR Pilot (see Section 4.0) load management will be utilized in all of the traditional and load shifting DR events.	Section 2.7.3
3. Information about charging station costs, levels and types of preferred features, and rebate amounts reserved or paid to date.	146 customers with 2745 charge ports have submitted their charging station procurement documents. The majority of participants selected Level 2 "B" charging station systems that have network capability provided by an external device (such as a kiosk or gateway), which is shared among multiple stations.	Section 2.6.2

[21] Application 14-10-014, Motion for Approval of Settlement Agreement, p. A-1.

Objective	Summary	Final Report Section
4. Conversion of EV charging hours into avoided GHGs and identification of other grid benefits and implications, as appropriate.	Based on meter data for participating customers, 16,968 metric tons (MT) of carbon dioxide equivalent (CO_2e) was reduced from the charging stations installed from February 2017 through July 2022. Further GHG reductions can be attributed to the Charge Ready program's indirect benefits, such as accelerated EV adoption.	Section 2.7.4
5. Insights learned by SCE about the effect of the program on the EVSE and EV market.	The 2,745 charge ports deployed in the Charge Ready program support the acceleration and adoption of ZEVs.	Section 2.3

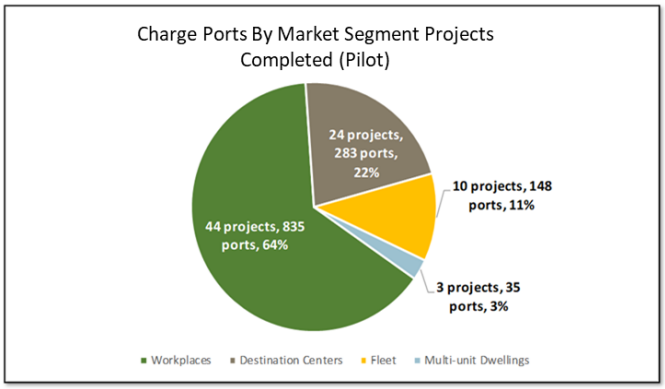
2.2 Charge Ready Program Operations

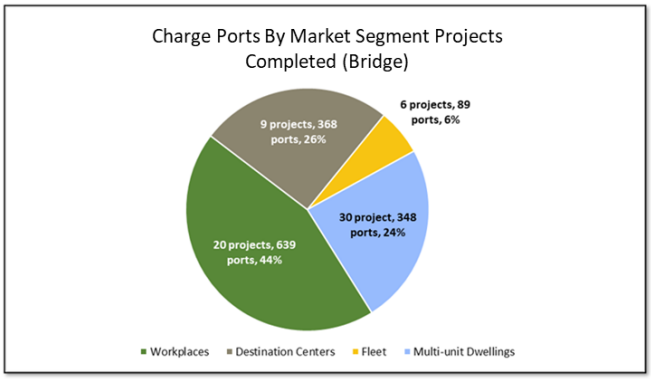
2.2.1 Enrollment and Deployment Status

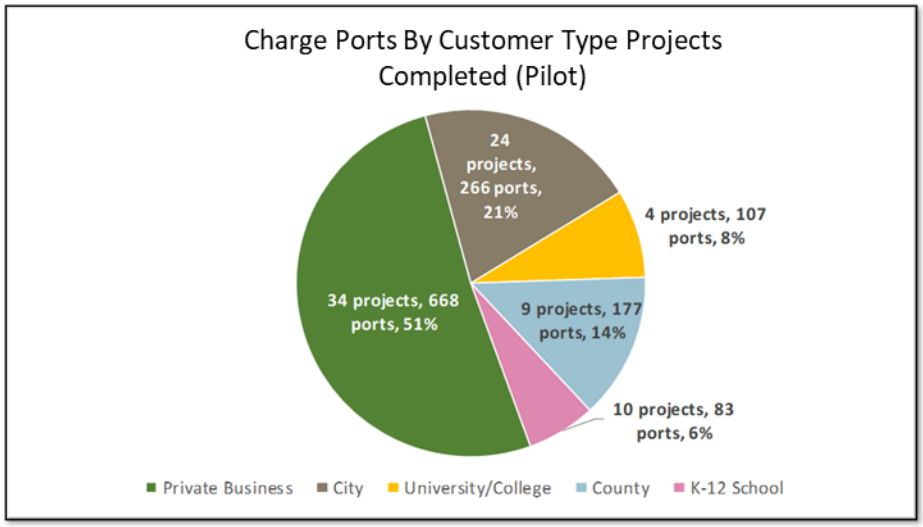
SCE committed funds for a total of 2,745 charge ports, with 47% located in DACs. Appendix C shows a breakdown of

the 2,745 charge ports by city and zip code. The following two figures provide the charge port distribution by market segment and customer type for the 2,745 charge ports:

Figure 2.02 Charge Ports by Market Segments







2.2.2 Application Process

The Charge Ready program's application process was designed to accommodate customer needs and promote customer choice. The process can be described in six stages: Engagement, Evaluation, Confirmation, Planning and Design, Construction, and Verification.

Process Overview

- **Engagement** began with a customer submitting an application indicating their interest in participating in the Charge Ready program. This application is called **Step 1 – Notice of Intent**.
- **Evaluation** followed the application submission. SCE conducted on-site assessments to evaluate the feasibility of deploying charging stations through the Charge Ready program.
- **Confirmation** of the customer's participation, including the customer's approval of the number of charging stations and deployment locations at each site (as proposed by SCE). SCE reserved funding (if available) upon receipt of **Step 2 – Agreement**, signed by the customer and property owner.[22]
- SCE then conducted **Planning and Design** for the approved site, while the customer participant procured qualified charging stations. At the end of the procurement period, customer participants had to provide the required proof of purchase using **Step 3 – Certification.**[23] In addition, customers who applied for charging stations for fleet EVs were also required to provide their DMV registrations, or evidence of vehicle purchase or lease.

[22] Charging stations were procured by customers only after the Step 2 Agreement was signed and SCE reserved funding.

[23] The Step 3 procurement and preliminary site design period began once customers executed their Step 2 agreements and funds were reserved for the customers' applications. This period allowed 30 calendar days from fund reservation, and customers were provided an additional 15 days if they submitted extension requests. SCE also offered, at its discretion, additional extensions if the customers were actively procuring charging stations. Customers who did not meet these timelines were subject to being placed onto a waitlist. SCE Account Managers encouraged customers to begin this process early to comply with the Charge Ready program's timelines.

- SCE then conducted **Construction** for the approved site. Before construction began, SCE held a pre-construction meeting with the customer participant. Once the infrastructure was completed and passed inspection, the customer participant's selected charging station vendor installed the charging stations.
- Finally, **Verification** took place to ensure the electric infrastructure and charging systems were deployed in accordance with approved plans (using **Step 4 – Walk-Through Report** and **Step 5 – Rebate Confirmation**); SCE then issued the rebate.

Waitlist Process

SCE established a waitlist for customers that did not meet program timelines, or whose applications exceeded funding availability. Waitlisted projects could move forward in the process if other projects with reserved funding dropped out of the program or if funding became available.

2.3 Successes

The Charge Ready program was met with enthusiasm by the marketplace. SCE's initial outreach resulted in 334 applications. The pilot was fully subscribed by January 2017 based on estimated costs. On March 9, 2018, SCE released unused funds reserved for completed sites and re-opened the pilot to new applications. With the approval of bridge funding on December 13, 2018, SCE allowed the submittal of applications until September 2019, when the Charge Ready program became fully subscribed.

The Charge Ready program has deployed infrastructure to support 2,745 charge ports. In a previous Pilot Report, SCE stated that it expected to install an additional 1,250 ports by the Charge Ready program's completion and ended up installing 1,804.

As an example of EV adoption, a Charge Ready participant, the facility manager of Cathay Bank in El Monte with 17 ports, confirmed that through their participation in the workplace segment several employees have started driving an EV that weren't doing so before the charging stations were installed. Charge Ready also complements other clean-energy programs outside of Charge Ready, such as the California Clean Fuel Reward Program,[24] in which EV drivers may be eligible to receive a rebate.

The Charge Ready program served as the basis for all of SCE's infrastructure programs to come. The program design and processes that were established through the Charge Ready program have been built upon and refined, resulting in a number of successful pilots and programs. In total, this program was a catalyst for EV acceleration and adoption.

2.4 Charge Ready Program Operations Lessons Learned and Potential Improvements

2.4.1 Customer Engagement and Evaluation

SCE reviewed customer applications and conducted on-site assessments to determine the feasibility of deploying charging stations. The following table shows lessons learned and recommendations to improve the customer engagement and evaluation stage of the Charge Ready program.

[24] https://www.scecleanfuel.com/.

Table 2.3 Customer Engagement and Evaluation Lessons Learned and Recommendations

Program Phase	Lessons Learned	Resolution/Recommendation
Site Assessment	Program Timing: Several schools were not able to conduct the program's EV survey (to help identify existing and future EV adoption at the site) during the summer months when they were not in session. Also, the pilot was launched in late May, and many businesses had already set their budget plans for the following year, creating a challenge for those interested in the program.	SCE proposed a four-year Charge Ready Light Duty program, which will resolve any seasonal/annual timing issues and will allow customers sufficient time to plan appropriately for participation.
Eligibility Requirement	SCE proposed deploying a maximum number of customer-site charging stations to meet anticipated use. For some DACs, maximum use supports the minimum program requirement of five charge ports. This presents a challenge for customers who prefer dual-port stations.	In DACs, customers who were approved for a maximum of five ports but selected dual-port stations were allowed to deploy six ports.
	The 10-charge-port-minimum requirement was a challenge for some customers in non-DACs.	As a part of Bridge funding, SCE reduced this number to five for multi-unit dwellings. SCE reduced minimum port count requirement to 4 ports in Charge Ready Light Duty and was approved to implement a program to target customers with fewer than four port installations.
	Some customer sites were not viable in the Charge Ready program due to high costs. Customers who are willing to pay excess costs were unable to do so.	SCE launched the Customer Side Make Ready Rebate offering as a part of Charge Ready Light Duty. This rebate allows customers to build the customer side of the meter infrastructure at their sites and receive a rebate from SCE to offset costs. This offering allows customers who are willing to pay excess costs to do so.
Application Support	Another challenge during implementation of the Charge Ready program was the lack of automation in processing applications. Follow-up e-mails and notifications to customers and their selected vendors were drafted and sent manually for each project.	SCE has automated processes in Charge Ready Light Duty where appropriate. Additionally, SCE developed a robust database for Charge Ready Light Duty that allowed for more automated communication to customers and processing of applications.

2.4.2 Application Process

SCE assisted customers through the Charge Ready program application process. After customers signed the Step 2 agreement and SCE reserved funding, customers submitted their Step 3 certification. The following table shows lessons learned and recommendations to improve the application process of the Charge Ready program.

Table 2.4 Application Process Lessons Learned and Recommendations

Program Phase	Lessons Learned	Resolution/Recommendation
Step 2 - Agreement	The Charge Ready program experienced varied and at times lengthy customer delays in executing the Step 2 Agreement. The average cycle time from site assessment completion to Step 2 Agreement completion was 72 business days under pilot funding. Upon completion of the Charge Ready program, this number was reduced to 61 business days.	Our solution to minimize these delays was to have a continuous dialogue between SCE Account Managers and customers.
	Some customers withdrew from the Charge Ready program after SCE incurred design costs for these withdrawn projects, which reduced the funding available to other customers who wanted to participate in the program.	SCE improved the Charge Ready program processes and future program design to minimize the design costs incurred before customers confirm their charging station procurement. To address this issue, SCE alerts the customer early on in the process that that the customer is liable for all costs incurred by SCE for the project after the participation agreement has been signed.
Step 3 - Procurement		
	After signing their program agreements, customers were required to provide proof of purchase of their charging stations within 30 calendar days. SCE found a majority of submissions to be incomplete or inaccurate.	SCE made changes to improve document completeness and accuracy. Customer form instructions were updated, charging station vendors were reminded of the requirements, and SCE's project management organization worked closely with customers to submit accurate documents.
	Most customers require more than 30 calendar days to procure the EVSE. Customers who submitted proof of purchase averaged 56 business days. Federal, university, K-12 school, and municipal customers took longer than average, while business, and county customers were faster than average (see Appendix for additional information on market segments). Most customers requested two extensions, with some needing additional extensions. As a result, SCE experienced delays in starting construction at these customers' sites.	SCE waitlisted customers who exceeded procurement deadlines, including extension deadlines. SCE considered different program requirements for government and institution customers to accommodate their unique internal processes. SCE allows participants in Charge Ready Light Duty 45 days to provide the proof-of-purchase for vehicle charging equipment designated for the project. To improve construction timelines, SCE adapted by purchasing some materials ahead of time to reduce lead times.
	A number of customers submitted incomplete procurement documents, which delayed deployment design completion and construction start.	For Charge Ready Light Duty, SCE holds an in-depth customer meeting soon after application that covers all required documentation, including the procurement requirements as well as having a continuous dialogue between SCE Account Managers and customers. Vendors are also trained on how to submit accurate documentation.

2.4.3 Pre-Construction Process

While the customers procured the charging stations, SCE completed and presented the deployment design to the customers. Once the customers approved the design and SCE received all supporting documents required with Step 3 - Certification, SCE completed other pre-construction requirements such as applying for permits and ordering materials. The following table shows lessons learned and recommendations to improve the pre-construction stage of the Charge Ready program.

Table 2.5 Pre-Construction Lessons Learned and Recommendations

Program Phase	Lessons Learned	Resolution/Recommendation
Requirements	Initially, SCE required a two-step process to obtain easements. First, property owners were asked to sign contingent easements that provided "blanket" easements over their entire properties. The intent of contingent easements was to move applications through the design and construction processes. Once the final design was complete and accepted by the customer participants, SCE amended the contingent easements to encompass only the charging station infrastructure locations. Several customers were resistant to executing contingent easements over their entire properties. Additionally, the contingent easements caused delays in receiving the customers' signed program agreements, due to additional time needed for customers' legal review.	In Q1 2016, as a process improvement, SCE bypassed the contingent easement and only required execution of the final easement. The final easement reflected the final charging station design and location. This process has continued on to our current programs.
	SCE experienced delays in executing final easements. Average cycle time was 63 business days; 37% of projects took more than 63 business days, and some took up to 284 business days, causing construction delays. For some customers, more time was needed for management and legal easement document review.	While the easement process was mentioned in the Charge Ready participation package and during Account Manager meetings with customers, for the future phase, SCE will place increased emphasis on the easement to ensure customers are comfortable with all language before entering into agreements. SCE will recommend customers' management and legal team review easements early in the process.
Site Design	Customer-requested re-designs for alternate charging station locations caused delays at a small number of sites, including some of the Charge Ready program's highest port sites.	SCE will explore limiting or defining the number of customer re-design requests allowed, and deadlines for such requests.
Pre-Construction	The Charge Ready program required a separate panel and separate service for the charging stations. This is more costly than using an existing panel and service line at the customer site.	For a future program, SCE will evaluate the feasibility of using customers' existing panels and service lines. This approach would be limited to customers with existing panels that can support new charging station load.
	Program requirements in the Charge Ready program did not facilitate use of planned and/or existing infrastructure at new construction sites. Capitalizing on construction already underway could reduce program costs significantly but coordination and	SCE evaluated program requirements and offerings to determine the most feasible and cost-effective way to deploy charging stations at new construction sites in Charge Ready Light Duty. These offerings may include but are not limited to rebates

Program Phase	Lessons Learned	Resolution/Recommendation
	contractual obligation agreements with developers will be key.	for sites that exceed CalGreen building code and early coordination with project developers to plan and deploy charging stations.
	Construction delays in meter panel manufacturing and delivery occurred early in the Charge Ready program. Panels were custom-ordered for each site, and for warranty purposes, the manufacturers had to build and fully test the panels. These meter panel delays caused initial site construction delays.	SCE started ordering meter panels early in the design process to avoid construction delays. SCE also expanded the number of meter panel manufacturers to ensure all sites could be supported. The SCE team also began awarding projects earlier in the scheduling and construction coordination process to mitigate this delay. The SCE team and Charge Ready general contractors also identified alternate sources for panel procurement, reducing material lead time. For a future program, SCE may bulk order standardized meter panels based on grouped site requirements to eliminate construction delays.

2.4.4 Construction

The overall average cycle time for infrastructure construction was 52 business days, not including charging station installation. Destination centers had an average cycle time of 57 days for infrastructure construction, workplace sites took 47 days, fleet sites 38 days, and MUD sites 64 days. The following table shows lessons learned and recommendations to improve the construction stage of the Charge Ready program.

Table 2.6 Construction Lessons Learned and Recommendations

Program Phase	Lessons Learned	Resolution/Recommendation
Resources	General contractor resource issues contributed to delays in SCE's ability to award construction projects.	In Q2 2017, SCE added an additional general contractor, for a total of three contractors, to support construction through the remainder of the Charge Ready program.
Construction	SCE experienced construction delays due to a handful of customer requests for specific outage dates or construction start delays at their sites.	SCE works with customers to commit to pre-scheduled outages earlier in the process.
Charging Station Installation	A charging station vendor challenged the infrastructure completed by SCE as it does not include the mounting fixture.	Standard charging station footprints could accommodate standardized make-ready infrastructure and mounting fixtures, which would lower overall costs.

2.4.5 Post-Construction

SCE conducted post-installation verification to confirm equipment installation and operability are consistent with approved plans. Once verified, SCE provided rebate checks to customers. The following table shows lessons learned and recommendations to improve the post-construction stage of the Charge Ready program.

Table 2.7 Post-Construction Lessons Learned and Recommendations

Program Phase	Lessons Learned	Resolution/Recommendation
Charging Station Maintenance	Some vendors left the marketplace post-purchase. Service and maintenance may not be available for the products offered by these vendors. Charge port data and cloud services may be impacted.	SCE allows customers to replace their EVSE with eligible chargers on the APL that are qualified for an equivalent Charge Ready program offering L2 charging stations.
Rebate	Delays were experienced in receiving the required final documentation from charging station vendors and customers.	SCE continually followed up with customers and their selected vendors on their missing documentation before releasing their charging station rebates.

2.4.6 MUDs

As expected, a prerequisite to working with MUDs is gaining support by the local Homeowner Associations (HOAs). However, MUDs also had other unique challenges regarding charge port installation for the Charge Ready program. Identified challenges are listed below:

Table 2.8 MUDs Lessons Learned and Recommendations

Lessons Learned	Resolution/Recommendation
Parking limitations were the most pervasive constraint for MUDs. Because most spaces were already assigned to residents, it was difficult for the owners or property managers to allocate sections of parking stalls for charging station installations.	SCE allowed parking lots adjacent to the MUD property to be eligible for the program if they can serve those MUD residents. However, this required increased coordination with different site hosts and added complexity to the program. SCE lowered the port count requirement to five under bridge funding.
For customer convenience, large MUD complexes often wanted to deploy charging stations throughout the grounds, rather than in single, defined areas. This required multiple service connections and exclusive infrastructure components resulting in high costs that exceeded Charge Ready program thresholds.	Under bridge funding, SCE communicated the requirement to deploy charging stations in a single cluster early in the process to prospective MUD customers.
MUDs with parking structures faced challenges in meeting current state accessibility requirements, which required more work. In some cases, AHJ s required MUDs to update all parking areas to current codes.	SCE allowed parking lots adjacent to the MUD property to be eligible for the program if they can serve those MUD residents. However, this required increased coordination with different site hosts. MUD Sites with assigned parking were more feasible to add EV charging because there are Americans with Disability Act (ADA) compliance code[25] exceptions for these sites. A project will move forward if ADA is achievable without assigning stalls, or if parking stalls are already assigned.
Due to space constraints, it could be difficult to find viable locations for switchgear, transformers, and other necessary equipment for charging station deployment.	Capitalizing on construction already underway could address space constraints but coordination and contractual obligation agreements with developers is key.

[25] CA Building Code, Chapter 11B, Title 24/2017 ADA EV Codes.

2.5 Contractors

2.5.1 Supplier Diversity

The Charge Ready program was previously at 100% DBE spend prior to conducting a second-round of Request For Proposal to source additional general contractors to support the construction of EV infrastructure. To date 32% of spend was contracted with DBE.

2.5.2 Training and Safety

SCE values safety and ensured the utility and the customer participant site infrastructures were installed and maintained in safe working order. The Charge Ready program required SCE employees and subcontractors installing the make-ready infrastructure to follow these safety requirements:

- All general contractors must prepare and adhere to a job-specific Job Hazard Analysis (JHA).
- All general contractors must have a dedicated safety officer or manager who regularly visits the job site.
- Safety tailboards must be held daily to discuss the work to be performed and any potential risks.
- All general contractors must submit a monthly safety report to SCE.
- SCE personnel must follow all site safety regulations, including wearing appropriate personal protection equipment.
- Subcontractor electricians must hold valid California C-10 licenses.
- Electricians installing the make-ready infrastructure must be EV Infrastructure Training Program (EVITP) certified.

For infrastructure safety, all site plans were submitted to their AHJs for approval and permitting. Some AHJs required multi-agency (for example, Building & Safety, Electrical, and Fire Department Planning) approval. For charging station safety, all installations were completed per AHJ-approved plans, and inspected by AHJ inspectors.

2.6 Charging Stations

SCE supports using EVSEs that already have accepted standards when possible. Standards help provide consistent safety elements, offer function features, and help ensure that products have long operational lives. EVSE manufacturers that are looking to add qualified EVSEs to the APL are asked to complete SCE's EVSE Qualification Package and submit PDF copies of the Nationally Recognized Testing Laboratory (NRTL) certificate for each EVSE model listed in the EVSE Qualification Package. The EVSE Qualification Package requests that the manufacturer answer questions regarding safety requirements, communication and control requirements, information and security requirements, and EVSE capabilities. Manufacturers are asked to sign the EVSE Qualification Package to attest that the information that is included is accurate. Once completed, SCE's APL Review Team reviews the EVSE Qualification Package to ensure that the equipment meets all applicable standards. The APL Review Team will also verify and validate the submitted NRTL Certificates against the NRTL web directory.

2.6.1 Overview

In accordance with our testimony,[26] the Charge Ready program installed charging stations at long-dwell-time locations. The three types of charging stations that met those needs were:

1. Level 1 charging system, without network capability.
2. Level 2 "A" charging system, with network capability integrated into the EVSE.
3. Level 2 "B" charging system, with network capability provided by an external device (such as a kiosk or gateway) shared among multiple stations.

SCE required DR capabilities for Level 2 charging stations, and customers selecting those stations were required to participate in a DR program. SCE developed an RFI to find charging stations with these capabilities and qualify them for the Charge Ready program to reduce customer participant barriers in procuring charging stations and to promote competition in the EV charging market. The Approved Package List[27] summarized the vendors and EVSE models available to customers. The Charge Ready program offers 76 models from sixteen vendors, maintaining customer choice and market-neutral customer engagement. Appendix C provides a summary of the different charging system types.

To further reduce barriers to adoption, SCE provided a rebate to reduce charge port cost and installation (the base cost, defined in Section 2.2). The base cost values at program completion are shown in the following table. These values were updated three times during the Charge Ready program.

Table 2.9 Charging Stations Base Cost

Charging Station Type	Base Cost ($ per port)
Level 1	$1,396
Level 2 "A"	$2,390
Level 2 "B"	$2,095

2.6.2 Customer Charging Stations

Upon Charge Ready program completion, 146 customers with reserved funding for 2,745 charge ports had submitted their proof-of-procurement documents for the charging stations. The majority of participants selected Level 2 "B" charging station systems that have network capability provided by an external device (such as a kiosk or gateway), which is shared among multiple stations. The second most popular L2 configuration included stations that have integrated networking capability. The following chart displays customer preferences for types of charging stations.

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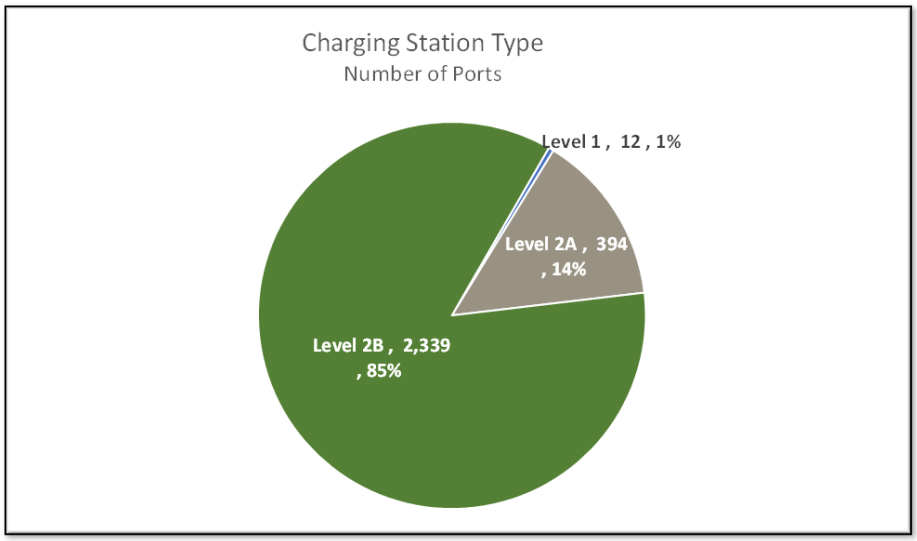
[26] Testimony In Support Of Southern California Edison Company's Charge Ready Application, Vol. 03 – Phase 1 Charge Ready And Market Education Pilot, p. 10.

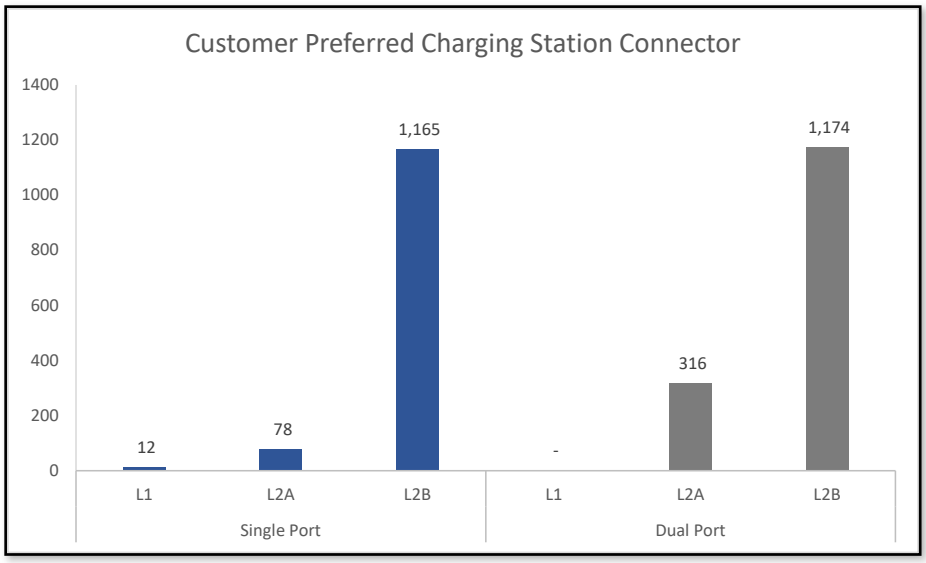
[27] The Charge Ready program's Approved Package List can be found on the landing page at https://on.sce.com/chargeready.

Figure 2.03 Customer Preferred Charging Station Type



The following graph shows that more customers preferred dual-port connectors for both Level 2A and Level 2B charge ports.

Figure 2.04 Customer Preferred Charging Station Connector



2.6.3 Rebate

Upon completion of the Charge Ready program, a total of 146 rebate payments were paid representing 2,745 charge ports

The following table provides a summary of charging station requests and rebates.

Table 2.10 Charging Station Rebate Update

Charging Station Requests and Rebates		
	Pilot	Bridge
Number of Level 1 charge ports requested	12	0
Number of Level 2 charge ports requested	1,289	1444
Number of total charge ports approved	1,301	1444
§Average number of Level 1 charge ports approved per Level 1 site	12	0
§ Average number of Level 2 charge ports approved per Level 2 site	16.1	22.2
Rebates reserved for Level 1 ports	$19,356	$0
Rebates reserved for Level 2A ports	$375,358	$73,585
Rebates reserved for Level 2B ports	$1,024,362	$1,846,234
Rebates paid for Level 1 ports	$19,356	$0
Rebates paid for Level 2A ports	$375,138	$71,942.10
Rebates paid for Level 2B ports	$943,415	$1,798,081

2.6.4 Charging Stations Lessons Learned and Recommendations

The Charge Ready team identified challenges and learning that were incorporated into future programs, as described below:

- Several EVSE vendors were not ready for the program upon enrolling. Even though the RFI describes the technical requirements, some vendors submitted packages but were still in the process of receiving UL or OpenADR certification or receiving other updates. This delayed the RFI process and kept them "on hold" in our testing queue for a good deal of time. It also required significant back-and-forth communication to follow up on missing requirements. During Q4 2017, for the equipment still in the testing queue from previous RFI submissions, the Charge Ready team started setting firm deadlines to receive equipment and recommends the same approach in a future program phase. The average cycle time for equipment testing was 127 days.
- New vendors submitted RFIs for equipment that was already approved for the program. In these cases, SCE conducted the entire RFI process, testing, and building out new pricing analyses. The team learned it is important to establish a procedure for accepting and approving re-sellers for pre-approved charging stations.
- SCE encountered vendors changing model numbers during the testing process and submitted different model numbers than originally listed in the RFI response. This made it challenging to match models with the RFI response, manuals, pricing templates, and nameplate labels on the test equipment, making some parts of the testing process more difficult. Some information is not requested in the RFI, such as gateway model numbers, differentiation between L2A and L2B, and firmware version number, and needs to be acquired from the vendor prior to approval. This requires extensive coordination with the vendor. For a future phase, SCE intends to create a supplemental document that the vendor signs and submits at the end of testing. This

document would capture all the information that may have changed during testing, and a method to consolidate all the emails that go back and forth between SCE and the vendor to acquire this information.

- Energy management systems, were considered a relatively new technology in the Charge Ready program. SCE encouraged vendors to include these systems in their RFI introductions. SCE then tested these energy management systems. In the Charge Ready program, there were two vendors who submitted these systems and made it through the RFI review, and specific procedures were drafted to accommodate these vendors.
- Although OpenADR 2.0 and network communication were requirements for EVSE to be approved for the Charge Ready Pilot, preparation for the Charge Ready DR Pilot discovered that actual implementations varied by EVSE vendor. For example, at least one vendor did not support the ability for chargers to "throttle" to a lower capacity of charging, but only turn chargers off or on. Some vendor systems also do not require an e-mail address or phone number from drivers using their chargers, making it difficult to notify drivers when events are called that could impact their charging.
- As the charging station market matured and greater numbers of charging stations came on the market, SCE found it unsustainable to individually test all charging stations models before placing them on the Approved Product List. SCE began approving charging stations that already have accepted standards when possible. Standards help provide consistent safety elements, offer function features, and help ensure that products have long operational lives. EVSE manufacturers are asked to complete SCE's EVSE Qualification Package and submit PDF copies of the Nationally Recognized Testing Laboratory (NRTL) certificate for each EVSE model listed in the EVSE Qualification Package. The EVSE Qualification Package requests that the manufacturer answer questions regarding safety requirements, communication and control requirements, information and security requirements, and EVSE capabilities. Manufacturers are asked to sign the EVSE Qualification Package to attest that the information that is included is accurate. Once completed, SCE's APL Review Team reviews the EVSE Qualification Package to ensure that the equipment meets all applicable standards. The APL Review Team will also verify and validate the submitted NRTL Certificates against the NRTL web directory.

2.7 Charging Station Operation

2.7.1 Rate Schedules

Customers with low load factors are more costly to serve because their utilization is volatile. Therefore, utilities must size transmission and distribution systems accordingly. Generally, under current CPUC-approved tariffs, some of these costs are passed on to customers via demand charges, which are measured in kW. These are different from energy consumption charges, which are measured in kWh.

SCE offers rate schedules TOU-EV-7 (at or below 20 kW), TOU-EV-8 (greater than 20 kW and not to exceed 500 kW), and TOU-EV-9 (Greater than 500 kW) as separately metered EV rate options for customers with different tranches of metered demand. Commission decision D.22.08.001 in Phase 2 of SCE's 2021 General Rate Case (GRC), approved SCE's settlement agreements that extended the transitory, energy-only rate structure for TOU-EV-8 and TOU-EV-9, beyond timelines established in D.18-05-040. This structure will remain in place until the implementation of the next GRC Phase 2 cycle or when rates consistent with the Transportation Electrification Framework guidance can be implemented either as part of a

Rate Design Window, or in a separate rate design proceeding as determined by the Commission, whichever occurs first. After the approved extension period, demand charges are expected to phase in over a period of 5 years.

2.7.2 Charging Station Access and Use

As customer participants own and operate their charging stations, they determine charging station access and pricing policies.

Charge Ready invited participants to complete load management and fee surveys in order to understand customer's load management and pricing strategies. The survey asked participants questions related to charging station accessibility and how end-user fees were assessed, if any. Survey invitations were sent to 95 participants, representing 146 sites. SCE received responses from 25 participants. The following chart shows charging station accessibility at their sites.

Figure 2.05 Charging Station Users

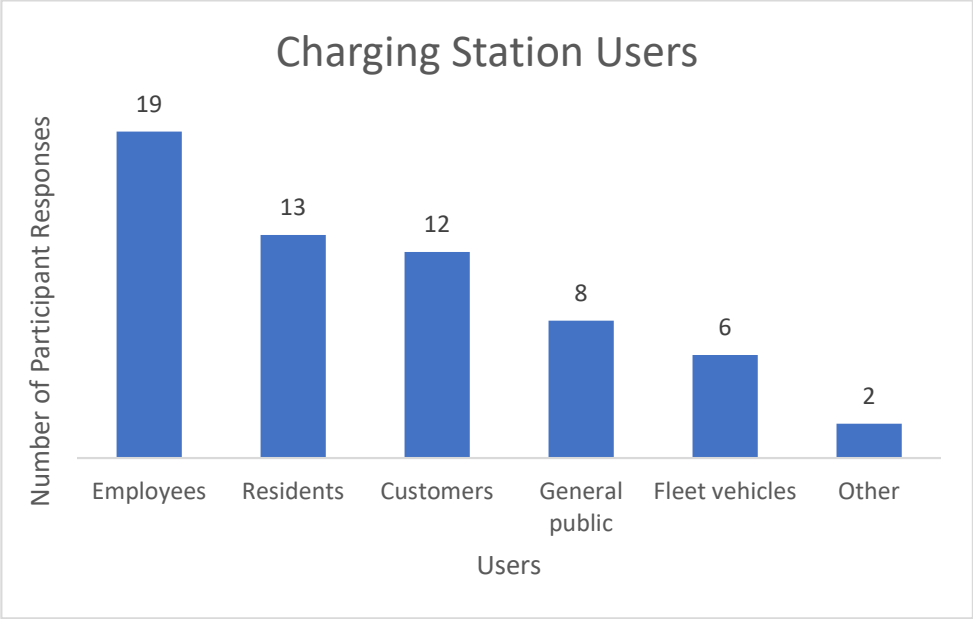
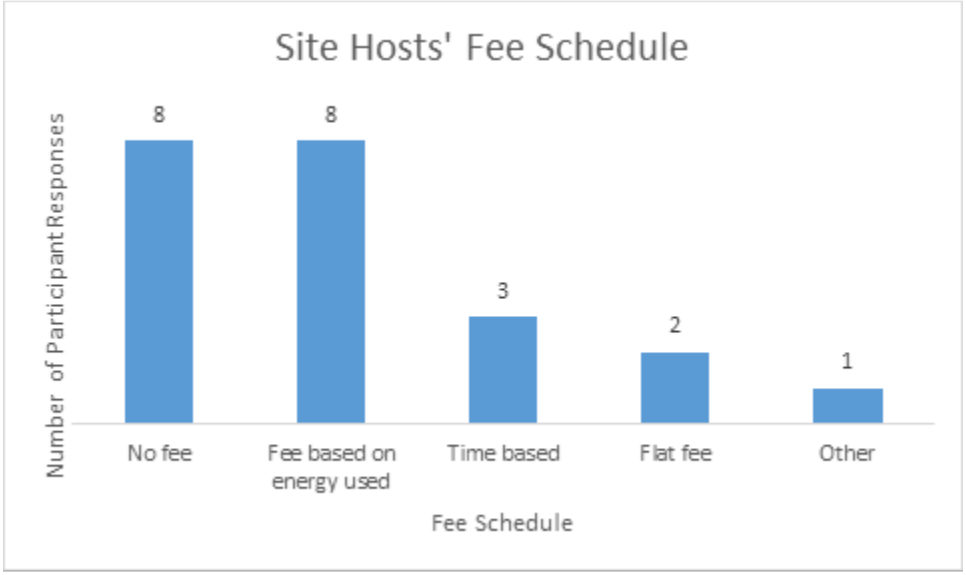


Figure 2.06 Site Hosts Fee Schedule



2.7.3 Charging Station Utilization and Customer Participant Load Profiles

As Charge Ready installations were completed, SCE analyzed EVSE utilization and tracked the number of Charge Ready sites, charging ports, and kWh consumed. SCE collected and analyzed meter data at each Charge Ready program site. At each site, the bank of charging stations was connected to a single meter, allowing SCE to measure the aggregated load and determine its grid impact. The charts below show the average usage per port by month for each market segment from June 2017 to July 2022.

Figure 2.0.7 Workplaces Monthly Average Usage per Port

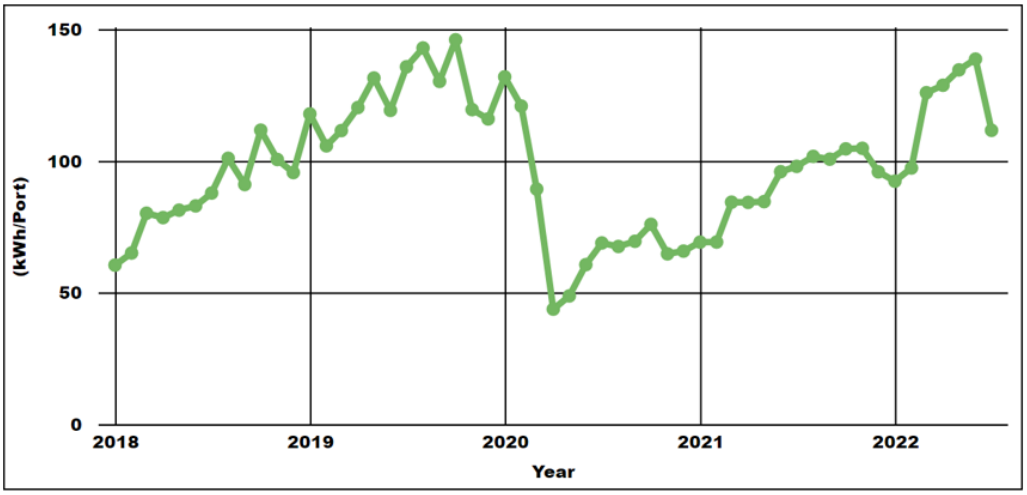


Figure 2.08 Destination Center Monthly Average Usage per Port

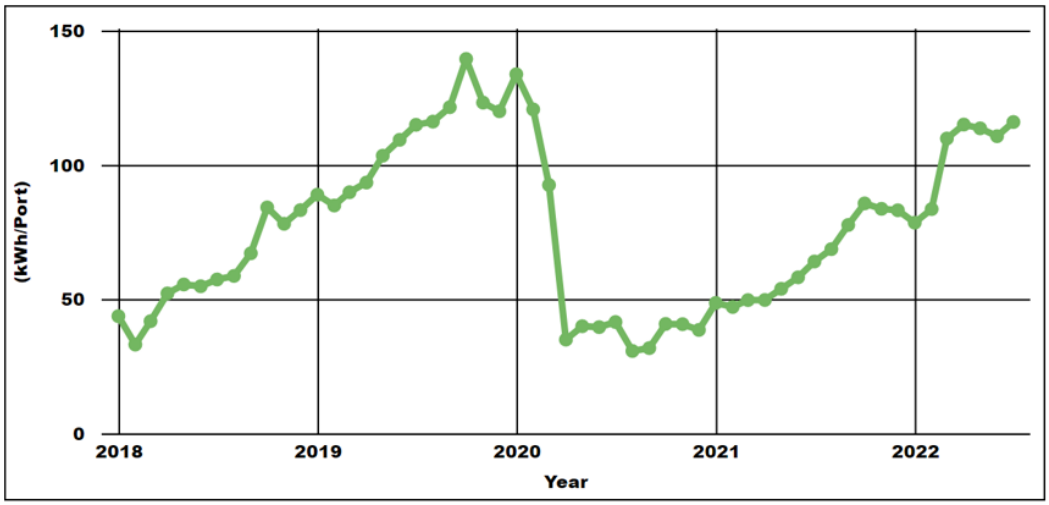


Figure 2.0.9 Fleets Monthly Average Usage per Port

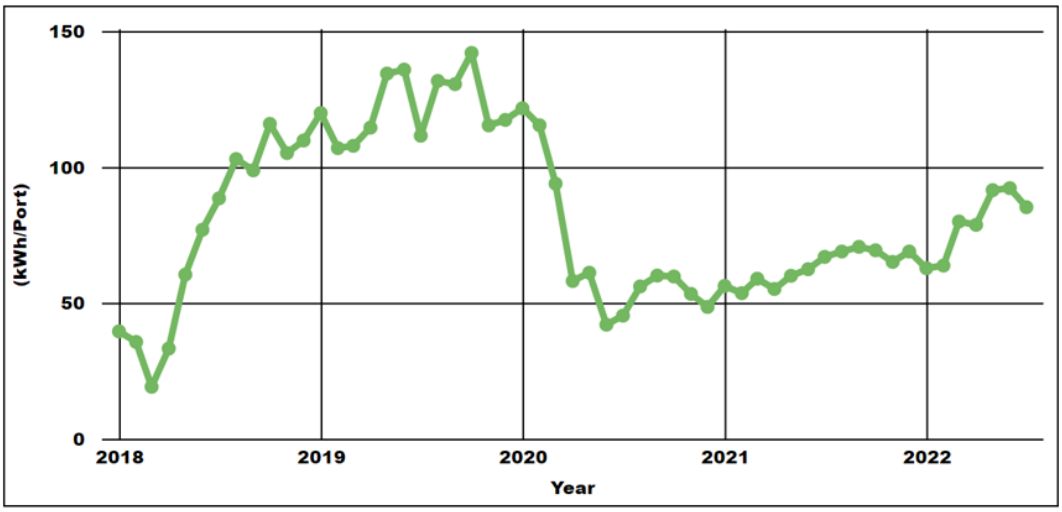
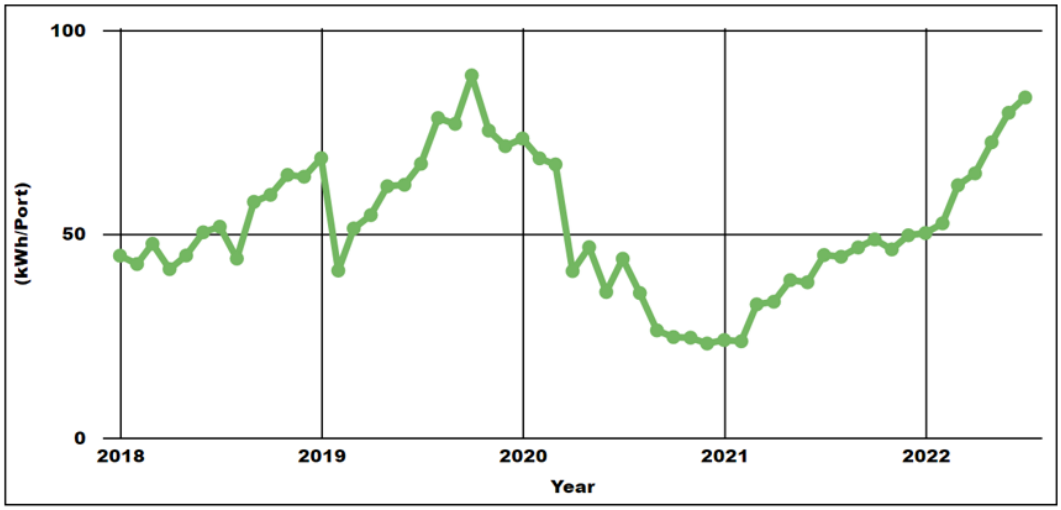


Figure 2.010 Port Multi-Unit Dwellings Monthly Average Usage per



SCE also analyzed the charging station load profiles to design the DR Pilot. The following charts show 2017 – 2022 usage data from workplaces, destination centers, fleets, and multi-unit dwellings. Based on analysis of the load profiles from the different segments, most charging takes place during morning hours except at MUDs where most charging occurs during evening hours. However, all segments show charging that can be reduced during peak times from 4pm to 9pm for Demand Response events.

The figures below indicate that, on average, workplaces experience a higher level of charging on weekday mornings and consistent level of charging during weekdays. Destination centers, on average, experience higher levels of charging in the morning than usage on weekend afternoons. Fleet sites, on average, experience higher levels of charging on weekday mornings and during midday on weekends. Finally, MUDs, on average, experience similar patterns of charging with higher usage at night on weekdays and weekends.

Figure 2.011 Workplaces – Weekday/Weekend Average Hourly Usage

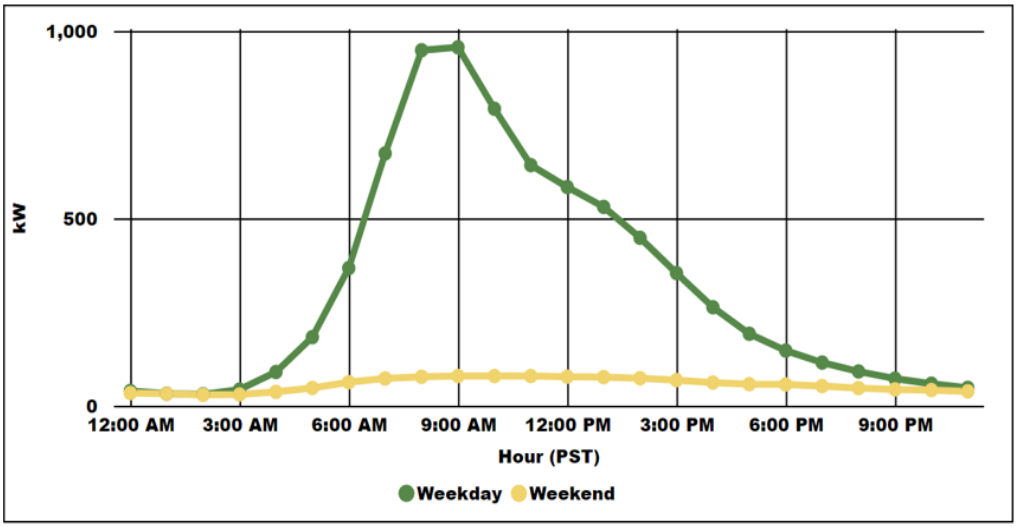


Figure 2.012 Destination Centers - Weekday/Weekend Average Hourly Usage

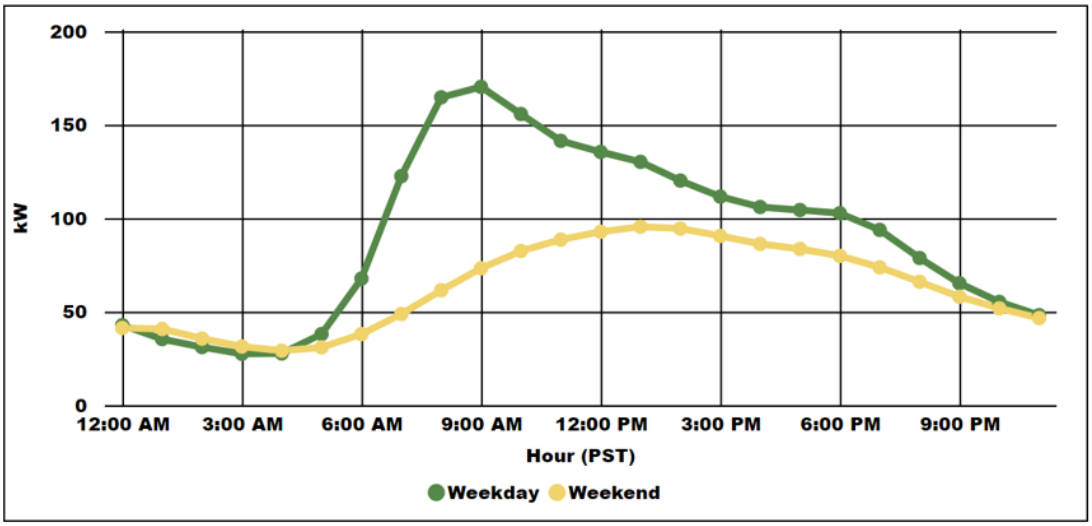


Figure 2.013 Fleets-Weekday/Weekend Average Hourly Usage

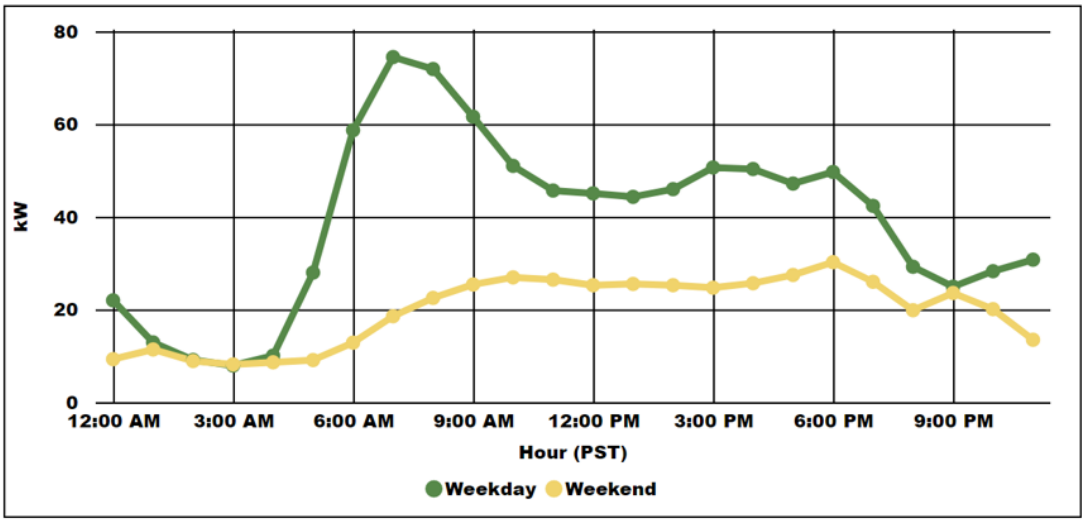
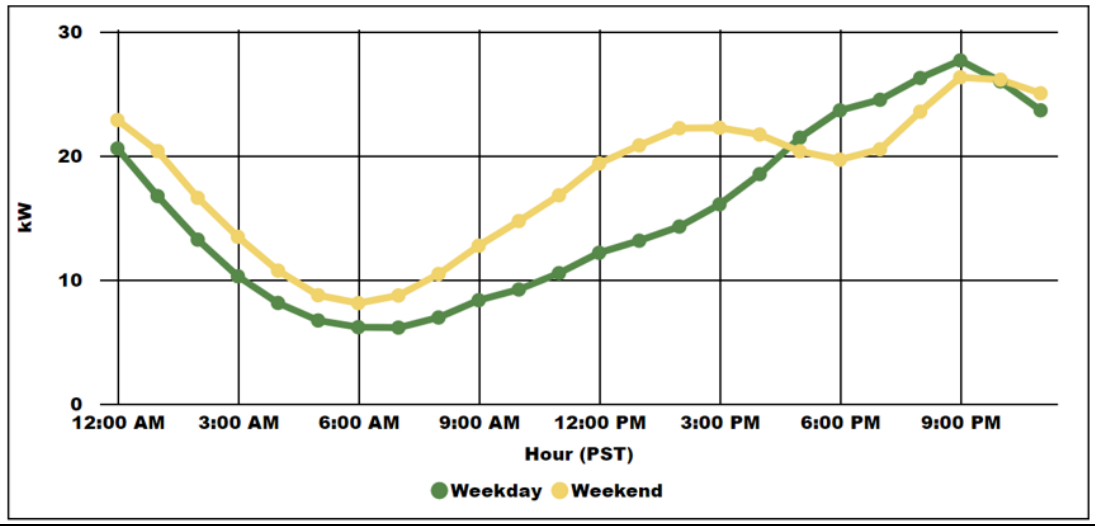


Figure 2.014 MUDs - Weekday/Weekend Average Hourly Usage



2.7.4 Avoided Greenhouse Gases

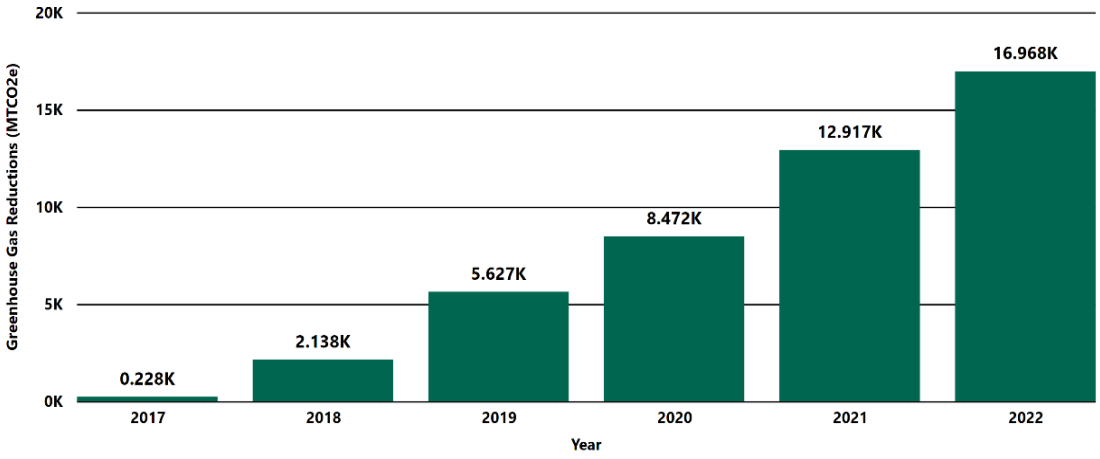
A total of 16,967 metric tons (MT) of carbon dioxide equivalent (CO2e) was reduced from the charging stations installed from February 2017 through July 2022. This is equivalent to planting over 280,551 coniferous trees in an urban setting and allowing them to grow for 10 years.[28]

These GHG emissions reductions are direct emissions reductions based on displacing conventional gasoline-powered vehicles with electric vehicles. SCE used participating customer meter data to calculate displacement of gasoline-powered vehicle miles. Actual GHG emission reductions are likely even greater than those presented in this report due to indirect benefits of the Charge Ready program. For example, the increased presence of charging stations enhances public awareness of EV technology; it also decreases range anxiety in both current EV drivers and potential EV drivers, which can encourage EV adoption and increase electric vehicle miles driven.

Figure 2-15 presents a summary of the estimated GHG emissions avoided per year attributed to the Charge Ready program charging stations (based on electricity throughput) for both DAC and non-DAC sites.

[28] USEPA. Greenhouse Gases Equivalencies Calculator - Calculations and References. Available at: Greenhouse Gas Equivalencies Calculator | US EPA. Accessed: September 2022.

Figure 2.015 Greenhouse Gas Emissions Reductions from the Charge Ready program



Methodology: For the purpose of calculating avoided GHG emissions, SCE used the California Air Resources Board's (CARB's) Low Carbon Fuel Standard regulation guidance. SCE calculated metric tons (MT) of carbon dioxide equivalent (CO_2e) using the following equation:

$$MT\ CO_2e = (CI_{gasoline} - CI_{electricity}/EER) \times Energy\ Density \times EER \times kWh \times 10^{-6}$$

Carbon intensity (CI) is the measure of GHG emissions associated with producing and consuming a fuel throughout its lifecycle, which is measured in grams of CO_2e per megajoule (MJ). The CI of gasoline is 115 g CO_2e/MJ.[29] The CI of SCE electricity varied between 2017-2022.

Year	Average Annual Grid CI
2017	105.16
2018	105.11
2019	81.46
2020	82.89
2021	75.84
2022	76.65

The Energy Economy Ratio (EER) is a dimensionless value that represents the efficiency of a fuel as used in a powertrain as compared to a reference fuel. EERs are often a comparison of miles per gasoline gallon equivalent (mpge) between two fuels. EER for light- and medium-duty EVs is 3.4.[30]

The Energy Density of electricity is 3.6 MJ/kWh.[31] SCE collected meter data to determine the

[29] Based on CARB's Low Carbon Fuel Standard, Table 6: Carbon Intensity Lookup Table for Gasoline and Fuels that Substitute for Gasoline. CARBOB - based on the average crude oil supplied to California refineries and average California refinery efficiencies. Available at: https://www.arb.ca.gov/regact/2015/lcfs2015/lcfsfinalregorder.pdf. Accessed: February 2018.

[30] Based on information available in ARB's Low Carbon Fuel Standard. Available at: https://www.arb.ca.gov/regact/2015/lcfs2015/lcfsfinalregorder.pdf. Accessed: February 2018.

[31] Based on information available in ARB's Low Carbon Fuel Standard. Available at: https://www.arb.ca.gov/regact/2015/lcfs2015/lcfsfinalregorder.pdf. Accessed: February 2018

amount of electricity used each month of the Charge Ready program, starting in February 2017 and continuing through July 2022.

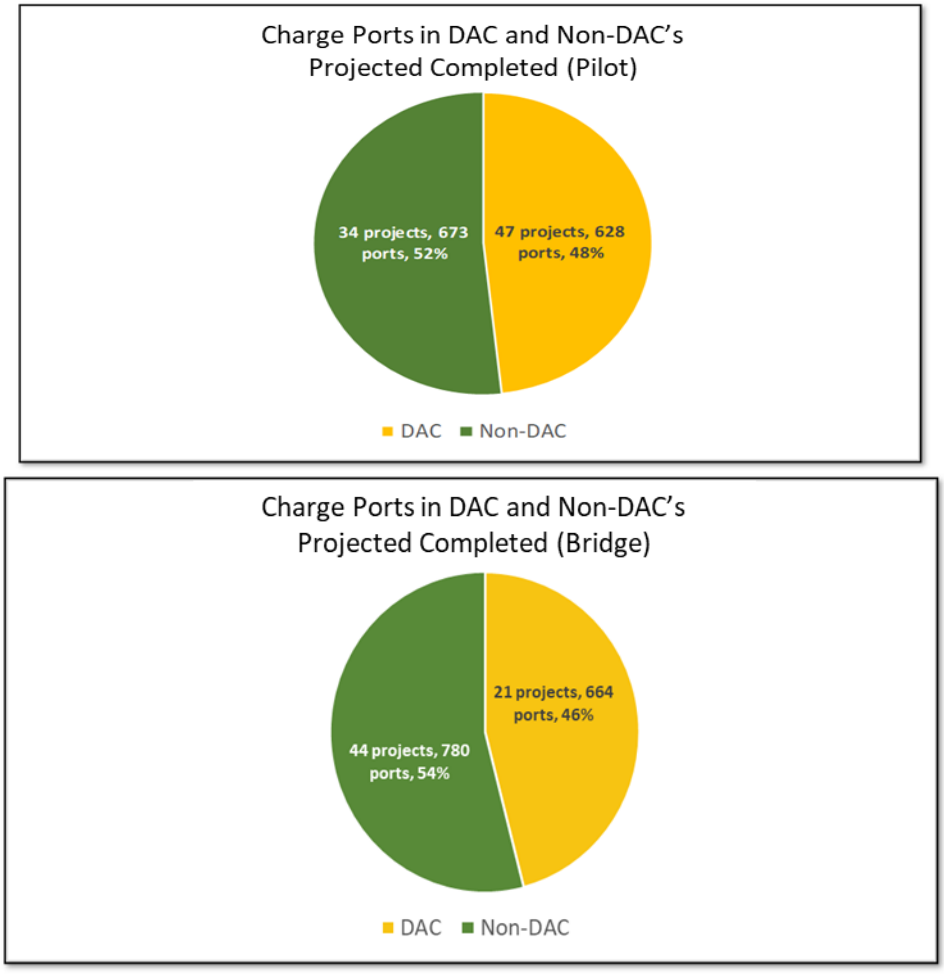
2.8 Disadvantaged Communities

SCE focused its efforts on DACs, which are disproportionately affected by low EV adoption and the negative environmental impacts of gasoline- and diesel-powered vehicles. SCE managed the Charge Ready program to ensure a minimum of 10% of all charge port installations were accorded in DACs.

As a general rule, to participate in SCE's program, each site had to support a minimum of ten charge ports. However, in DACs, SCE reduced the minimum number of ports required to five, with a 100% rebate toward the charging station base cost.

The Charge Ready program was a success in DACs. Of the 2,745 charge ports that were installed, 47% (1292 charge ports) are located in DACs, which greatly exceeds the Charge Ready program's requirement to deploy 10% of charge ports in DACs.

Figure 2.016 Charge Ports in DACs and Non-DACs



Through the duration of the Charge Ready program, SCE conducted twenty outreach events in DACs to support program enrollment and market education. SCE employees who attended the events provided an estimated 11,310 customer interactions. A full list of the outreach

events can be found in Appendix D.

2.9 Customer Satisfaction

Charge Ready invited its participants to complete customer satisfaction surveys to determine how the program met expectations. SCE used third-party online software to deploy these surveys. SCE sent invitations to each customer, with unique links so they could be identified in the analysis. The survey invitation was sent to customer participants approximately 10 to 12 weeks after their charging stations were installed and verified by SCE to allow customers ample time to use the charging stations.

Areas of questioning included overall satisfaction levels with the Charge Ready program (1 – very dissatisfied to 10 – very satisfied) and satisfaction levels for the different areas of the program. SCE sent survey invitations to 95 participants representing 146 sites. SCE received responses from 35 customers. The program received an average satisfaction score of 9.03.

Based on feedback from these completed projects, customers are highly satisfied with the overall program and application process. The lowest average score of 7.21 was rated for cost of the charging network services from SCE-approved vendors.

The following table summarizes the feedback received from both vendors and customers during feedback sessions. Feedback was used to improve requirements and processes of Charge Ready Light Duty to better serve our customers.

Table 2.11 Summary of Feedback Received from Charge Ready program Approved Vendors and Customer Participants

Area of Focus	Vendor Feedback	Customer Feedback
Program Design	• Marketing was done very well • Customers liked SCE covering make-ready infrastructure costs • Easement process was long, recommends moving it up in the process • Heard concerns about customers not being able to add more ports in the future (infrastructure not sized up)	• Marketing was done very well • Easement process was long, recommends moving it up in the process • Concerns about long-term commitment and stations becoming obsolete • Minimum port count was a challenge at some sites • Would be easier if SCE offered package of make-ready infrastructure options including charging stations
Base Cost and Rebate	• Some customers confused the base cost with the rebate amount • Would prefer set rebate levels vs. base cost calculation • Feels that utility is "getting in their business" by requiring pricing information	• Had full understanding of what base cost and rebate mean • 100% rebate for Disadvantaged Communities is great.
Charging Station and RFI	• There is interest in Level 3 stations • Recommends not re-testing stations once primary vendor is approved	• There is interest in Level 3 stations
Site Design and Construction	• Pre-construction meeting is great • Some stub-outs did not match charging station templates	• Pre-construction meeting is great • Appreciates SCE's attention to detail and customer service
General	Time it took from application to completion is long Recommends using API for monthly data pulls versus Excel-based submissions	Overwhelming positive feedback for all SCE employees and general contractor interaction Application process and enrollment portal was easy Time to complete was long but customers do not see SCE as the reason for any delays

2.10 Charge Ready Education and Outreach

2.10.1 Overview

Charge Ready education and outreach efforts were designed to promote the Charge Ready program to SCE customers. SCE also tested marketing channels in preparation for a subsequent phase of Charge Ready, including email, website, social media, collateral, and account manager interaction. SCE developed content to communicate to potential customer participants about the Charge Ready program, and highlighted key areas such as eligible rates, bill impact analyses, metering options, EV infrastructure, access to subject matter expert resources, and EVSE information. SCE also developed marketing materials to provide relevant program information and help customers through the application process. The Charge Ready program landing page[32] was the main resource for customers to learn about the Charge Ready program and submit their applications. A full list of the Charge Ready marketing materials, along with their descriptions, can be found in Appendix E.

2.10.2 Outreach Events

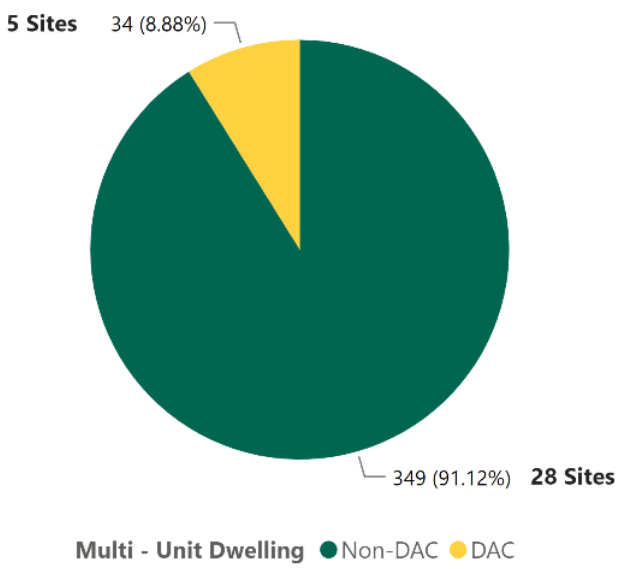
SCE conducted 32 outreach events during the Charge Ready program to support program enrollment. SCE employees who attended the events interacted with an estimated 12,946 customers. A full list of the outreach events can be found in the Appendix D.

2.10.3 Multi-Unit Dwelling Outreach

Charge Ready Bridge funding included a new target of a minimum of 20% of ports installed at MUD sites. In Q1-Q2 of 2019, SCE created an MUD Rapid Results project and team which implemented a number of programmatic and outreach improvements to ensure the goal would be met or exceeded. The 100-day effort generated 62 applications requesting 414 ports, and the tactics implemented continued to bring in applications after the Rapid Results effort that ultimately resulted in 33 MUD sites installing 383 ports.

[32] https://on.sce.com/chargeready.

Figure 2.017 Charge Ports in DACs and Non-DACs



SCE implemented the following processes to improve MUD outreach:

- SCE implemented the new decreased minimum port count for all MUD sites to 5, approved in the Charge Ready Bridge Decision[33]
- SCE created a survey which MUD owners and property managers could use to better estimate the number of residents interested in or already owning EVs. This led to MUDs being more open to installing more than the minimum 5 ports
- Implemented sales tactics such as emphasizing the limited amount of funding available, use of customer testimonials, highlighting the safety and cost benefits of using Charge Ready funding versus allowing residents to install and pay for their own EV chargers and possibly maxing out the existing transformer on site
- Combined outreach with Energy Efficiency outreach to MUDs; the team found that customers who had previously participated in SCE's Energy Efficiency programs targeting MUDs were more open to the Charge Ready program based on positive experiences in past programs
- Outreach
    - Trade shows drove greater awareness in the MUD industry and resulted in 8% of applications during the Rapid Results project
    - Held lunch and learns with local property managers in remote communities that generated applications
    - Direct outreach to large property management firms

[33] D.18.12.006, pg. 14.

- Targeted in-person outreach in high propensity EV adoption areas – 30% of applications during the Rapid Results project came from targeted, in-person outreach by SCE's Account Managers

In preparation for the launch of the new Charge Ready Light Duty program, SCE took lessons learned from MUD outreach during the Charge Ready program and implemented tools and improvements, such as:

- The team learned that MUD customers required specific marketing materials that addressed their unique needs. SCE created PDF and video testimonials by Charge Ready MUD participants for use on the SCE web site and by sales staff
- Ongoing multifamily outreach check-ins and specific multifamily training opportunities for sales staff to address the specific needs and challenges multifamily properties face
- Provided training vendors and trade professionals on EV charging opportunities at multifamily properties and the benefits of partnering with the Charge Ready program
- MUD Sites with assigned parking were more feasible to add EV charging because there are Americans with Disability Act (ADA) compliance code[34] exceptions for these sites. A project will move forward if ADA is achievable without assigning stalls, or if parking stalls are already assigned
- ADA compliance was a challenge for MUDs as SCE must adhere to current codes and was unable to use grandfathered rules for older buildings. It was difficult working with a complex to assign stalls to tenants in order to use updated codes as Association residents did not want assigned ADA spots. Creating new ADA parking stalls meant the MUD would lose at least one parking space, which was not acceptable to ADA residents and HOAs with very limited parking. In some cases, MUD parking structures have ceiling heights that are too low to meet current ADA code. For some sites, using off-site properties was explored, but no projects materialized using this approach

2.10.4 Successes

Charge Ready marketing created overwhelming customer and vendor interest, exceeding all expectations. SCE communicated the details of a complex, months-long project in a simple, easy-to-follow manner. The effectiveness of the multi-media marketing was proven two weeks after launch; the program had already received 183 applications. Due to significant interest in the program, SCE stopped accepting new applications seven months after launch. 334 customers had submitted applications to have 2,043 EV charging stations installed on their property when SCE stopped accepting new applications.

2.10.5 Charge Ready Education and Outreach Lessons Learned and Potential Improvements

During the Charge Ready program, SCE learned that there is no "one-size-fits-all" marketing campaign or outreach that works for all segments of the Charge Ready program. Especially with MUDs, SCE learned that much more education is required for both residents and MUD owners. SCE will take a more holistic approach in educating these customers, combining messages on safety, EVs, charging, and EVSE education.

[34] CA Building Code, Chapter 11B, Title 24/2017 ADA EV Codes.

2.11 Charge Ready Program Costs

Through the execution of the Charge Ready program SCE discovered several ways to manage the cost of delivering electric vehicle charging infrastructure to the customer such as:

- Executing concurrent steps to reduce overall timeline. An example is obtaining SCE and GC permits in parallel
- Scheduling site inspections strategically to reduce drive time and onsite presence to reduce design costs and inspector hours that are billed to the program
- New messaging was developed to improve efforts to educate the customers and suggest installations in parking areas that have the greatest chance of qualifying on the original site visit resulting in the reduction of follow-up site visits and associated costs
- Establishing cost thresholds[35] for various segments to manage program costs and to fulfill demographic goals of 10% of infrastructure installed in DACs and 20% for multi-unit dwellings in bridge
    - DAC charge ports are by nature more expensive due to the 5 port minimum – forcing fixed costs to be shared amongst a smaller number of ports – initially $30,000 was allocated per port for this segment
    - Non-DAC (and DAC after 10% achieved) threshold allocated remaining capital to Non-DAC ports – threshold was set at approximately $15,000 per port
- As port count increases, cost per port at the site decreases. SCE focused on targeting sites with larger port counts to offset those sites with lower port counts.

The CPUC approved SCE's proposal to establish a Charge Ready Program balancing account to recover the revenue requirements associated with up to $22 million in direct capital and O&M costs to implement Phase 1 of the Charge Ready and Market Education Programs.[36] The following table summarizes the pilot's spend at the time of this report.

[35] Using estimated costs.

[36] D.16-01-023, p. 59.

Table 2.12 Pilot Costs

	Planning Assumptions	Inception-to-6/30/22	Inception-to-6/30/22
		(Nominal)	(Constant 2014$)
Capital			
Utility-side Infrastructure	$3,469,474	$3,083,250	$2,750,435
Customer-side Infrastructure	$7,586,387	$14,064,690	$12,654,884
Other Infrastructure Costs	$593,503		
Total Capital	**$11,649,364**	**$17,147,940**	**$15,405,319**
Operations and Maintenance			
Rebates	$5,850,000	$1,337,909	$1,300,718
Labor and Other Non-Labor	$284,090	$464,507	$441,966
TE Advisory Services	$316,800	$350,051	$336,204
ME&O	$665,000	$795,713	$787,344
EV Awareness	$2,830,600	$2,418,250	$2,407,691
Cancelled Projects	$0	$973,464	$1,113,279
Total Operations and Maintenance	**$9,946,490**	**$6,441,046**	**$6,387,202**
Total Program	**$21,595,854**	**$23,588,986**	**$21,792,521**

On December 13, 2018, the CPUC approved SCE's proposal to establish a Charge Ready Program balancing account to recover the revenue requirements associated with up to $22 million in direct capital and O&M costs to continue implementing the Charge Ready and Market Education Programs. The following table summarizes the bridge funding spend.

Table 2.13 Bridge Costs

	Planning Assumptions	Inception-to-6/30/22	Inception-to-6/30/22
		(Nominal)	(Constant 2014$)
Capital			
Utility-side Infrastructure		$3,583,187	$2,910,283
Customer-side Infrastructure		$15,913,660	$12,944,046
Total Capital		**$19,496,847**	**$15,854,329**
Operations and Maintenance			
Rebates		$1,870,023	$1,714,659
Labor and Other Non-Labor	$22,000,000	$604,350	$533,266
TE Advisory Services		$129,468	$114,050
ME&O		$252,100	$231,209
EV Awareness		$993,235	$879,465
Cancelled Projects		$362,129	$313,225
Total Operations and Maintenance		**$4,211,304**	**$3,785,874**
Total	**$22,000,000**	**$23,708,152**	**$19,640,203**

2.11.1 Data Analysis and Insights

SCE's estimated budget for infrastructure (utility- and customer-side) and rebates was $16.8 million to deploy up to 1,500 charge ports. Customer-side infrastructure deployment costs were higher than estimated in SCE's testimony. The pilot average cost per port is $12,841(2014$). The bridge average cost per port is $12,167(2014$). The table below shows the cost breakdown.

Table 2.14 Average Cost per Port

Cost per Port	Filing	Pilot Average Cost per Port (2014$)	Bridge Average Cost per Port (2014$)
Utility-Side Infrastructure	$2,237	$2,114	$2,015
Customer-Side Infrastructure	$5,058	$9,727	$8,964
Rebate	$3,900	$1,000	$1,187
Total	$11,195	$12,841	$12,167

2.11.2 Charge Ready Program Costs

The average cost per port for infrastructure and rebate in the pilot was $12,841 (2014$) at an average of 16 ports per site, the average cost per port infrastructure and rebate during bridge funding was $12,167 (2014$) at an average of 22 ports per site. Many applicants requested the program minimum of 10 ports (or five ports if located in DACs). Sites with the minimum number of ports are significantly more costly to deploy, especially if they require new transformers to serve the incremental EV load. As such, SCE actively sought sites with higher port counts and lower costs in order to drive down cost per port. SCE's testimony forecast average cost per port to be $11,195, assuming an average of 26 ports per site. The pilot and bridge actual average recorded costs per port were higher than forecast because SCE deployed an average of 16 ports per site and an average of 22 ports per site for bridge funding. When comparing deployments with approximately 26 ports per site, the average costs per port aligned with SCE's forecast for deployments of that size. It is important to note, however, that the average rebate paid is lower than SCE's forecast (because SCE originally proposed to provide all participating customers with a rebate for 100% of base cost) and customer-side infrastructure is higher than filing assumptions.

Other infrastructure cost drivers include:

- Sites that were primary metered were not approved in the program. SCE found it too costly to bring power to the proposed charging station location in these sites. This would require creating a parallel line extension from upstream SCE facilities to feed the proposed charging site
- AHJ constraints – the costs associated with municipality fee requirements or other jurisdictional constraints varied by jurisdiction and influenced site viability. Permitting fees can be variable if the AHJ charges based on site value rather than fixed-plan-review pricing
- The cost assumptions in SCE's testimony did not account for the updated state accessibility statues, which have necessitated more construction work at some customer sites to ensure compliance with the new requirements
- Site assessment and design are generally fixed costs regardless of size, making sites with fewer charge ports more expensive per port, all other factors equal
- K-12 school sites requiring Division of the State Architect (DSA) inspection incur an additional $5,000 to $6,000 per site in inspection fees
- Underground parking garages presented challenges, such as non-level grades, space constraints, and height restrictions, to serve power primarily due to AHJ requirements that required significant civil work to bring sites into compliance
- Non-fleet sites require ADA improvements, which can add significant costs depending on the existing site conditions
- Parking structures and sites that may accommodate surface-mounted conduits represent significant savings since there is minimal site restoration work following installation
    - However, older parking structures present difficulties with the current ADA code and may be too costly
- Trenching and pavement work in public Right of Way (ROW) is significantly more expensive than installation on private property or parking areas out of ROW
- Site conditions and construction complexity – in some cases, SCE found site conditions added significant costs. Examples included:

- Older buildings with parking lots would require a large investment to conform to AHJ requirements, such as ADA and state accessibility statutes.
- Poor customer parking lot conditions required restoring the entire parking lot
- Proximity – longer distances from charging station sites to existing transformers increased trenching and boring costs

2.12 Charge Ready Program Conclusion

Charge Ready Phase 1 successfully met its objectives. SCE deployed infrastructure to support 2,745 charge ports, with nearly half of this total in DACs. SCE also developed and improved processes to qualify a wide range of charging stations and vendors. The Charge Ready program produced real-life data on the time and costs to deploy EV charging infrastructure. The Charge Ready program proved customers are interested in utility-owned EV charging infrastructure and confirmed their satisfaction with the program.

The Market Education program revealed that enhanced public EV education is necessary to help customers understand program benefits. SCE also discovered that business customers need additional assistance from their trusted energy advisors.

The Charge Ready model has been refined and expanded since the start of the Charge Ready program. Using the lessons learned during Phase 1, SCE successfully developed and launched Charge Ready Light-Duty on July 1, 2021.

3.0 Market Education

3.1 Overview

In addition to SCE's education and outreach efforts to support enrollment in the Charge Ready program, SCE also communicated about EVs and the benefits of fueling from the grid in general to a broad audience, through a variety of complementary channels. These channels include:

- Paid Media: Digital banners, video ads, Search Engine Marketing (SEM), paid social media, radio (local booth sponsorship at EV-related events) and digital signage
- Direct Messaging: Direct mail or email to targeted customer populations
- Other channels: bill inserts, messaging on SCE.com, dealer training and organic social media

Customers exposed to these channels are directed to relevant information on the SCE.com EV website, which includes content in English, Spanish, Korean, Chinese, and Vietnamese. SCE has worked to consistently enhance content and tools available to customers interested in EVs on SCE.com, for example, in 2019 with the introduction of the cars.sce.com EV Buyers Guide tool, and in 2021 through a content refresh which included the addition of video content, and navigational improvements.

While the digital ads and radio sponsorships concluded at the end of Q2 2017, SCE continued marketing activities including paid social media to support market education efforts, as well as sponsorship and participation in several events around National Drive Electric Week, Earth Day as well as trade shows. As a result of these efforts, SCE observed increased web traffic.

The following table includes metrics capturing traffic for key pages supporting SCE.com's EV Awareness efforts and programs.

Table 3.15 Electric Vehicle Awareness Website Metrics

Total Unique Visitors	Total Page Views	Other Details
Electric Vehicle Overview Page on SCE.com		
264,121	358,426	Electric Vehicle Overview Page on SCE.com
Electric Vehicle Campaign Landing Page on SCE.com		
42,362	53,666	Link to campaign landing page no longer available
EV Rebates and Incentives Page		
Unique visitors not tracked separately on subpage	373,641	EV Rebates and Incentives Page
Rates and Savings Page		
Unique visitors not tracked separately on subpage	222,461	Rates and Savings Page
Charging Your EV Page		
Unique visitors not tracked separately on subpage	135,237	Charging Your EV Page
SCE EV Buyers Guide		
84,444	195,638	Cars.sce.com
Charge Ready Landing Page:		
31,222	50,944	Charge Ready Landing Page

Additionally, through a 12-month digital and radio campaign launched in July 2016, SCE delivered more than 65 million digital and 6,000 radio spots and observed monthly increases in website page views. Customer engagement in online ads was in line with industry benchmarks, with video ads performing above benchmarks for completion rates. The following table provides metrics around the digital campaign, from July 2016 – June 2017.

Table 3.16 Digital Campaign Metrics

Channel	Impressions	Clicks	CTR[37]	VCR[38]
Display Ads	23,187,350	10,436	0.04%	
Mobile Ads	30,646,251	63,080	0.10%	
Video Ads	9,955,511	6,975	0.10%	80.79%
SEM	1,448,875	9,963	0.71%	

For SCE's Market Education efforts, customer awareness of EV benefits and messaging were tracked using SCE's Customer Attitude Tracking (CAT) survey, a quarterly phone survey

[37] Click-through rate. The utility benchmark for CTR is 0.13%.

[38] Video completion rate. The utility benchmark for VCR is 57.3%.

designed to assess and track customer attitudes toward relevant marketing issues and marketing campaigns. This survey was conducted by an independent marketing research firm, contacting 450 randomly selected SCE households. SCE collected baseline data in Q2 2016. For EV awareness, customers were asked to recall messaging about the benefits of EVs and preparing to buy or lease an EV, as well as SCE's role in supporting and advancing electric transportation. Quarterly measures of awareness were compared to the baseline to determine lift,[39] as well as the impact of the media mix on awareness levels. The following table summarizes the CAT Survey's quarterly data. Respondents were asked, "*In the past three months, do you recall seeing, hearing, or reading any ads about SCE and the benefits of electric vehicles?"* The results continued to show levels of EV awareness close to the baseline.

Table 3.17 Customer Attitude Tracking Survey Metrics

Response	Baseline	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017
Total Respondents	1,354	450	450	450	600	600
Yes	189	58	57	54	92	92
	14%	13%	13%	12%	15%	15%
No	1,147	383	384	378	489	476
	85%	85%	85%	84%	82%	79%
No Response	18	9	8	18	19	32
	1%	2%	2%	4%	3%	5%

In May 2019 SCE launched SCE Cars, an online car comparison tool that shows car buyers the total cost of car ownership over the lifetime of the car. It lets car shoppers compare all makes and models of all available electric-, hybrid- and gasoline-fueled cars. The tool shows customers side-by-side comparisons of the manufacturer's suggested retail price, estimated annual fuel costs and available rebates and incentives. Each car receives a rating based on its overall fuel costs and emission pollutants., an online car comparison tool that shows car buyers the total cost of car ownership over the lifetime of the car. It lets car shoppers compare all makes and models of all available electric-, hybrid- and gasoline-fueled cars. The tool shows customers side-by-side comparisons of the manufacturer's suggested retail price, estimated annual fuel costs and available rebates and incentives. Each car receives a rating based on its overall fuel costs and emission pollutants.

The tool also gives customers personalized fuel costs for each vehicle they select when they enter the number of miles they commute and drive annually and select the SCE rate plan they are on.

In addition to fuel costs, users can also see how many miles can be driven per EV battery charge and view a map of public charging stations that customers can use when they can't charge their car at home. The following table presents the data collected from the SCE Cars site.

In Jan 2021, SCE launched a redesigned version of cars.sce.com with an enhanced car shopping tool including a pre-owned EV database, a rate tool and incentive finder. This has resulted in significantly increased traffic and engagement to the tool.

[39] Improvement in response.

Table 3.18 SCE Cars Site Metrics

Total Unique Visitors	Total Page Views	Other Details
SCE EV Buyers Guide		
84,444	195,638	Cars.sce.com

In 2021, SCE launched a marketing partnership with Volta to display SCE ads on Volta's free charging station network in low/moderate income areas to further our goal of EV charging equity. The project is an innovative way to provide EV infrastructure, free charging, and raise public awareness of EV benefits in underserved communities. Volta's first SCE-partner site was launched in March 2021. Volta installed and maintains 12 stations in low- and moderate-income areas at 6 sites (2 stations per site) which will run SCE EV Awareness ads for 1 year.

3.2 TE Advisory Services

SCE created TE Advisory Services (TEAS) to provide business customers with a dedicated "one-stop shop" for specialized education, awareness, and support on such issues as federal, state, and local incentives, vehicle and charging equipment financing opportunities, vehicle types, and charging installation programs.

TE Advisory Services includes:

Updated web content on SCE.com business section, which includes information on:

- Vehicle types
- Charging Infrastructure
- SCE's EV Rates
- Information specific to MUDs, Fleets, Workplaces, and Public sites
- Links to additional tools, resources and fact sheets
- Calls to action to reach out to SCE for more information and support (Account Manager or 800#)

Self-service online tools to assist customers:

- The Charge Port Estimator, which estimates the number of charge ports customers may need at their sites
- A Rate Analysis Tool, based on customers' numbers of estimated charge ports and segment types
- A customer self-administered EV survey for workplaces and MUDs

Fact Sheets: Customer-facing PDFs covering the following TE topics, including links to additional resources:

- Transportation Electrification Overview
- Fleet Conversion
- MUDs
- Vehicle to Grid Integration

- Planning for Charging Infrastructure
- Understanding GHG Emissions from Transportation
- Overview of Fleet Segments and available EV alternatives

These services include the following:

- An initial fleet assessment (including GHG savings calculations) to help customers evaluate business cases for converting fleets of vehicles to TE technology
- A Low Carbon Fuel Source Calculator was added to the Fleet Assessment Report to help customers identify the estimated credit value per kW used.
- Infrastructure Assessments to assist customers in evaluating a potential deployment of charging equipment

Customers selected were those who had shown a commitment to sustainability, potential for a larger scale conversion/deployment, and had participated in multiple discussions with their Account Managers to confirm their interest in TE. A combination of government entities and commercial businesses were selected to include a representative mix of customers.

The table below summarizes traffic to the four TEAS pages on SCE.com.

Table 3.19 TEAS web traffic

Total Unique Visitors	Total Page Views	Other Details
TE Advisory Services - MUD Segment		
2,395	3,562	MUD
TE Advisory Services -Workplace Segment		
6,116	9,013	Workplace
TE Advisory Services - Fleet Segment		
3,748	5,581	Fleet
TE Advisory Services -Public Charging Segment		
3,209	4,282	Public

3.3 Market Education Lessons Learned and Recommendations

The EV Market Education and Outreach effort was designed to raise awareness and provide education on the benefits of EVs and fueling from the grid. The campaign was not developed as an enrollment campaign.

The EV awareness campaign cost $1.5 million and was in the market for 12 months.

This limited spending and time in the market was not enough to build momentum for large gains in awareness. SCE maintained awareness levels at or around 14%; however, to increase awareness, a larger media spend level should be implemented over a longer duration.

Future media campaigns would also benefit from additional channels to enable a broader reach, such as out-of-home (billboards), television, or print.

4.0 Demand Response Pilot

4.1 Overview

SCE required all customer participants with Level 2 charging stations to participate in the Charge Ready Demand Response Pilot designed in connection with Charge Ready program and approved by the Commission.[40] SCE also required all Level 2 charging stations to be DR-capable (i.e., capable of receiving and executing real-time instructions to throttle, and/or modify the end-user pricing of EV charging load) and encouraged those charging stations to include additional load management features (e.g., EV charging sequencing or sharing). All Level 2 charging stations qualified for Charge Ready have DR communication capabilities built directly into the charging station (Type A) or communication through a gateway device to the charging station (Type B). The different types of charging stations installed as part of Charge Ready program went through rigorous testing by SCE's Advanced Technology group and the communication capabilities were further tested during Charge Ready DR Pilot events.

4.2 Charge Ready Demand Response Pilot Design

SCE's Charge Ready DR Pilot was designed to incentivize Charge Ready customers who reduced or shifted demand (i.e., reduced or stopped charging electric vehicles between 4 p.m. and 9 p.m. or increased charging between 11 a.m. and 3 p.m.) during specified Charge Ready DR events. Requirements between the Charge Ready program and the Charge Ready DR pilot were coordinated to ensure consistency and enable participation by all Charge Ready customers. For example, the Approved Product List (APL) for the CRPP included OpenADR 2.0b communication for all charging stations. OpenADR is a communication standard used to send control signals for most of SCE's DR programs. Leveraging this communication standard for the Charge Ready DR Pilot enables use of existing DR system infrastructure and the ability to scale to a large production program in the future without having to invest and set-up new systems. In addition to selecting charging equipment from the APL, Charge Ready customers are required to select a network service vendor to enable communication from SCE's Demand Response Automated Server (DRAS) when installing their charging stations. These network service providers maintain a connection to SCE's DRAS so they can receive OpenADR signals when DR events are scheduled. These vendors then relay the control signal to participating charging stations. This same DR communication model has been used successfully in SCE's Smart Energy Program (SEP) which controls almost 50,000 residential thermostats. Initially there were five network service vendors onboarded to participate in Charge Ready DR Pilot; two additional vendors have been added since August 2020. Key aspects of the Charge Ready DR Pilot Design are described in the following sections.

Address Peak Demand on the Grid

One of the main goals in designing the Charge Ready DR Pilot was to reduce load during periods of peak use and demand. In SCE's service territory, the peak electricity usage period is during the summer months between 4 p.m. and 9 p.m. This period sees increased electricity demand for cooling and other residential electricity use at the same time the sun goes down and renewable generation from solar decreases. Electricity demand is typically higher during summer months, thereby requiring greater incentives to encourage participation in DR programs. Charge Ready DR Pilot load reduction events send control signals to charging stations via network service providers to reduce charging capacity by 50 percent between 4 p.m. and 9 p.m. In exchange, customers will receive incentives ($ per kilowatt-hour (kWh) for load reduced during the event compared to a baseline of their normal electricity use during

[40] Schedule CRPP.

the same time period

Address potential periods of over-generation (duck curve)

Another goal in designing the Charge Ready DR Pilot was to address periods of potential overgeneration during the middle of the day. These periods of time when renewable generation is maximized outside of peak demand periods can result in a "duck curve" with an abundance of available electricity during the middle of the day and a steep ramp in electricity use during the evening when residential loads increase and renewable solar generation decreases. These periods of potential over-generation are more likely to occur during the spring and winter months where there is still a lot of renewable generation during the day without the cooling load and demand used during the day in summer and early fall months. Ideally, load should decrease in the morning and evening when renewable solar generation is low, and load should increase during the middle of the day during periods of high renewable solar generation. Decreasing load during peak periods by increasing load during periods of high renewable generation is also referred to as load shifting (shifting from peak to off-peak time periods). Electricity demand is typically lower in the spring and winter months. Therefore, lower incentives may be sufficient to change customer behavior. The Charge Ready DR Pilot conducts load shift events to address periods of over-generation. The load shift events include both a control and incentive period. The control period is very similar to a load reduction event where control signals are sent to charging stations via network service providers to reduce charging capacity by 50 percent. The difference is that the control period is during the morning. For example, in 2018, the control period was 6 a.m. to 11 a.m., and in 2019 it was 9 a.m. to 11 a.m. Customers are incentivized to reduce their EV charging capacity in the morning hours and make it up or shift their charging to later in the day when there is more renewable generation. The time period for shifting or increasing load, also called the incentive period, is between 11 a.m. and 3 p.m. Customers receive an incentive for every kWh used during the incentive period during a DR event.

Encourage EV Adoption

The goal of CRPP was to encourage adoption of electric vehicles (EV). With this in mind, the Charge Ready DR Pilot was designed as a non-penalty DR pilot with incentives for participation, but no penalties for non-performance (colloquially, 'all carrot and no stick'). Additionally, part of the DR Pilot design is to not completely turn off charging stations during Charge Ready DR Pilot events. Instead, DR events were designed to reduce charging capacity by 50 percent so vehicles can still charge, but at a much slower rate than they normally would.

Incentives

In determining the optimal incentive amount to encourage changes in charging behavior, one guiding principle is to ensure the compensation rate does not exceed the retail rate. In other words, the customer's bill plus incentives should not result in a negative bill amount. Another consideration in determining incentives was the Time-of-Use (TOU) rates that most Charge Ready customers were already on. When the Charge Ready DR Pilot began in 2018, customer TOU rates did not align with potential over-generation time periods. As a result, early in the Charge Ready DR Pilot, some over-generation hours were also during periods when customers would be charged the highest rates based on the TOU-EV rates at the time. In 2019, SCE updated TOU rates to better align with electric grid peak periods and potential over-generation periods. Also, when the Charge Ready DR Pilot launched, the load reduction incentive was $0.10 per kWh reduced between 4 p.m. and 9 p.m. and the load shifting incentive was $0.05 per kWh consumed between 11 a.m. and 3 p.m. These incentives were increased after the first year of the Charge Ready DR Pilot to $0.15 for load reduction events and $0.10 for load shift events held during summer months.

EV Load Analysis

As Charge Ready program sites were installed and charging stations began to be used, load shapes of the different segments participating in Charge Ready were analyzed. The Charge Ready program included workplaces, destination centers, fleets, and multi-unit dwellings (MUDs). The load shapes for workplaces and destination centers showed similarities with peak usage in the mornings at about 9 a.m. then tapered off throughout the day. Based on these load shapes, workplaces and destination centers were seemingly good candidates for load shifting from mornings to afternoons. Fleets and MUDs also had similar load shapes, but peak usage for these segments was typically in the evening and night hours. Based on the load shapes for fleets and MUDs, they are good candidates for reducing load during the evenings when peak usage on the electric grid could be high.

Charge Ready Program Tariff

The final step in the design of the Charge Ready DR Pilot was the development of the tariff that specified the Charge Ready program's parameters for events including duration, incentives, and other details. On May 1, 2018, SCE submitted AL 3773-E-A to establish Schedule DR-CRPP, the Demand Response-Charge Ready Program Pilot. On December 14, 2018, the Commission approved SCE's proposed Charge Ready DR Pilot Plan, (ALs 3773-E and 3773-E-A) on the condition that SCE add language to the DR-CRPP tariff to clarify that CCA customers are eligible to participate in the Charge Ready DR Pilot.

4.3 Charge Ready DR Pilot Event Performance

2018 Load Shift Events

The very first Charge Ready DR event was a load shift event triggered in May 2018. Unfortunately, even though most network service providers were connected to SCE's DRAS and had successfully passed initial communication tests, the network service vendors were unable to respond to the control signals for that first event. Four additional load shift events were held in October through November of 2018 and the control signals were successfully received by all network service vendors and relayed to all participating charging stations. Load was reduced during the control period during these events, from 6 a.m. to 11 a.m., but there was no load shift or increase in load identified during the incentive period from 11 a.m. to 3 p.m. The incentive period showed a net decrease in load between 11 a.m. and 3 p.m.

2018 Load Reduction Events

The initial Charge Ready DR Pilot load reduction events were held in summer of 2018. Four events were triggered between July and September resulting in load reduction between 11 and 30 percent during the control period of 4 p.m. to 9 p.m.

2019 Load Shift Events

Since load shift events in 2018 were unsuccessful in demonstrating a shift in load, some minor adjustments were made for load shift events in 2019. The control period was reduced to just two hours (9 a.m. to 11 a.m.) to prevent vehicles from fully charging during the control period even when charging at half the normal speed. Six events were held in the spring (March through May) and two additional events were held in the winter (October through November). Seven events resulted in successfully shifting load between 1 and 8 percent while one event resulted in no identified load shift.

2019 Load Reduction Events

Three load reduction events were held in the summer of 2019 (August through September), resulting in load reduction between 16 and 23 percent during the control period of 4 p.m. to 9 p.m. Table 4.1 below summarizes all Charge Ready DR load shift events.

Table 4.20 Charge Ready DR Pilot Load Shift Events

			Control Period 6am-11am			Incentive Period 11am-3pm			Compared to Baseline		Event Day
Event Date	Sites	Ports	Baseline (kWh)	Event (kWh)	Reduction (kWh)	Baseline (kWh)	Event (kWh)	Shift (kWh)	% Reduction	% Shift	% Shift
10/16/2018	60	937	4023	3357	666	2919	2626	-293	16.55%	-10.04%	-43.99%
10/30/2018	59	931	4107	3250	857	2959	2706	-253	20.87%	-8.55%	-29.52%
11/14/2018	61	946	4090	3124	966	2639	2603	-36	23.62%	-1.36%	-3.73%
11/28/2018	61	946	4104	3417	687	2839	2699	-140	16.74%	-4.93%	-20.38%

			Control Period 9am-11am			Incentive Period 11am-3pm			Compared to Baseline		Event Day
Event Date	Sites	Ports	Baseline (kWh)	Event (kWh)	Reduction (kWh)	Baseline (kWh)	Event (kWh)	Shift (kWh)	% Reduction	% Shift	% Shift
3/28/2019	62	966	2670	2165	505	2879	3057	178	18.91%	6.18%	35.25%
4/11/2019	64	993	2530	1929	601	2769	2986	217	23.75%	7.84%	36.11%
4/18/2019	64	993	2673	1967	706	3000	3033	33	26.41%	1.10%	4.67%
4/25/2019	63	985	2675	1734	941	3065	3189	124	35.18%	4.05%	13.18%
5/20/2019	60	959	2830	1966	864	3488	3717	229	30.53%	6.57%	26.50%
5/31/2019	59	941	2766	1889	877	3221	3267	46	31.71%	1.43%	5.25%
10/30/2019	74	1153	3364	2484	880	4039	3481	-558	26.16%	-13.82%	-63.41%
11/7/2019	73	1143	3185	2549	636	3280	3467	187	19.97%	5.70%	29.40%

2020 Load Reduction Events

After reviewing the results of the Charge Ready DR pilot through 2019 and planning for a transition from pilot to program, SCE Charge Ready DR Pilot stakeholders made several changes in preparation for additional events in 2020. Based on the low and inconsistent results from load shift events and the primary needs of the electric grid to reduce load between 4 p.m. and 9 p.m., SCE decided to focus on load reduction events. Weighing grid needs with the success of Charge Ready DR Pilot load reduction events and the preference for finding a solution that did not require baseline calculations led to the consideration of Critical Peak Pricing (CPP) as a potential long term DR option for Charge Ready customers. A system freeze put in place prior to SCE's launch of a new billing system prevented updates to include CPP in TOU-EV rates, so a decision was made to mirror CPP events during 2020. Using the same event trigger for CPP to trigger Charge Ready DR load reduction events seemed appropriate since the time periods and number of events for CPP and Charge Ready DR load reduction events were already aligned. An added benefit of mirroring CPP events was that Charge Ready DR Pilot customers and drivers could use SCE's DR mobile app, mobile web and website to receive event notifications by signing up for CPP (and mirrored Charge Ready DR pilot) notifications. Twelve test events were triggered in the summer months (July through August) with load reduction between 18 and 36 percent for 11 of the events and one event with only a 6 percent load reduction. The lowest performing event seemed to be an anomaly, as it was on a Monday following a weekend of grid emergencies when all of SCE's DR programs were triggered and customers were asked to voluntary reduce load.

Table 4.2 below summarizes Charge Ready DR load reduction events from 2018-2020.

Table 4.21 Charge Ready DR Pilot Load Reduction Events 2018-2020

Date	Sites	Ports	Baseline (kWh)	Event (kWh)	Reduction (kWh)	Avg Reduction per Site (kWh)	Avg Reduction per Port (kWh)	Total % Reduction
7/11/2018	58	907	1255	1115	140	2.41	0.15	11.16%
7/31/2018	58	907	1358	946	412	7.10	0.45	30.34%
8/30/2018	58	919	1291	1021	270	4.66	0.29	20.91%
9/27/2018	56	899	1538	1223	315	5.63	0.35	20.48%
8/14/2019	62	948	1899	1602	297	4.79	0.31	15.64%
8/29/2019	61	940	2301	1775	526	8.62	0.56	22.86%
9/26/2019	60	936	2390	1864	526	8.77	0.56	22.01%
7/8/2020	84	1447	1382	943	439	5.23	0.30	31.77%
7/10/2020	85	1467	1506	1066	440	5.18	0.30	29.22%
7/13/2020	85	1467	1506	1082	424	4.99	0.29	28.15%
7/15/2020	85	1467	1490	1204	286	3.36	0.19	19.19%
7/20/2020	85	1429	1530	1257	273	3.21	0.19	17.84%
8/3/2020	87	1495	1731	1342	389	4.47	0.26	22.47%
8/4/2020	87	1495	1731	1208	523	6.01	0.35	30.21%
8/12/2020	86	1460	1731	1115	616	7.16	0.42	35.59%
8/13/2020	86	1460	1731	1235	496	5.77	0.34	28.65%
8/17/2020	86	1470	1695	1599	96	1.12	0.07	5.66%
8/18/2020	86	1470	1695	1388	307	3.57	0.21	18.11%
8/19/2020	86	1470	1695	1311	384	4.47	0.26	22.65%

2021 Load Reduction Events

After receiving a non-standard disposition approving SCE's AL 4244-E to extend the Charge Ready DR Pilot through 2022, load reduction events continued as in previous years. 2021 events continued to use the same trigger as Critical Peak Pricing (CPP) resulting in a total of twelve events occurring in the months of June through September. With the majority of Charge Ready Pilot and Bridge sites online, 2021 had more sites and charging ports participating in DR events than in previous years. However, overall performance in terms of the percent of load reduced from baseline usage was down from 2020. 2020 performance had a high of 36% of load reduced during the 8/12/2020 event and only one event with single digit percent load reduction. 2021 performance had a high of 26% of load reduced during the 7/9/2021 event and four events with single digit percent load reduction. Even with more sites and ports being used and participating in DR events, the actual kWh amounts reduced during events were similar to the previous year. Utilization of available charging ports continues to be low and inconsistent charging behavior from drivers results in some wide swings in terms of event performance. 2021 resulted in a low of 4% and just over 100 kWh reduced on the 6/15/2021 event to a high of 26% and 719 kWh reduced on the 7/9/2021 event which was the highest kWh reduction by more than 100 kWh since the Charge Ready DR pilot began. As utilization of available charging ports increases in both the number of ports being used and the hours of the day when charging occurs, more consistent projections and results will be possible. At the conclusion of 2021 test events, internal discussions with other stakeholder groups at SCE determined that transitioning the Charge Ready DR pilot to CPP was no longer feasible. Several options were discussed both internally and with Energy Division staff and an alternative solution (transitioning Charge Ready DR Pilot customers to the Emergency Load Reduction Program) was proposed in SCE's 2023-2027 DR Application[41].

Table 4.3 below summarizes Charge Ready DR load reduction events for 2021

[41] Application No. 22-05-___.

Table 4.22 Charge Ready DR Pilot Load Reduction Events 2021

2021 Charge Ready Events								
Date	Sites	Ports	Baseline (kWh)	Event (kWh)	Reduction (kWh)	Avg Reduction per Site (kWh)	Avg Reduction per Port (kWh)	Total % Reduction
6/15/2021	129	2402	2389	2285	104	0.81	0.04	4.36%
6/16/2021	129	2402	2389	1959	430	3.33	0.18	18.00%
6/17/2021	129	2402	2389	1981	408	3.16	0.17	17.07%
7/9/2021	131	2418	2776	2057	719	5.49	0.30	25.90%
7/28/2021	133	2406	2595	2304	291	2.19	0.12	11.21%
7/29/2021	133	2406	2642	2413	229	1.72	0.10	8.67%
8/11/2021	131	2397	2539	2166	373	2.85	0.16	14.69%
8/12/2021	131	2397	2539	2201	338	2.58	0.14	13.31%
8/16/2021	132	2410	2552	2114	438	3.32	0.18	17.16%
9/8/2021	131	2392	2609	2456	153	1.17	0.06	5.86%
9/9/2021	131	2392	2609	2459	150	1.15	0.06	5.77%
9/10/2021	131	2392	2609	1997	612	4.67	0.26	23.44%

5.0 APPENDICES

Appendix A. Pilot Customer Participants

Table 5.23 Summary by Market Segment in Disadvantaged Communities

Disadvantaged Communities		
Segment	**Number of Ports**	**Number of Applications**
Destination Center	369	17
Fleet	56	6
Multi-Unit Dwelling	34	5
Workplace	833	40
Grand Total	**1292**	**68**

Table 5.24 Summary by Market Segment in Non-Disadvantaged Communities

Non-Disadvantaged Communities		
Segment	**Number of Ports**	**Number of Applications**
Destination Center	282	16
Fleet	181	10
Multi-Unit Dwelling	349	28
Workplace	641	24
Grand Total	**1453**	**78**

Table 5.25 Summary by City of Installation in Disadvantaged Communities

Disadvantaged Communities		
City of Installation	**Port Count**	**Number of Applications**
AZUSA	66	1
BARSTOW	11	2
CARSON	13	2
CHINO	7	1
CITY INDUSTRY	10	1

COMMERCE	22	1
COMPTON	25	1
DOWNEY	41	1
EL MONTE	66	7
FONTANA	21	3
HANFORD	16	2
HAWTHORNE	133	2
IRWINDALE	30	2
LAWNDALE	6	1
LOMA LINDA	5	1
LONG BEACH	69	3
LOS ANGELES	92	4
LYNWOOD	14	2
MAYWOOD	9	1
MONTCLAIR	6	1
MONTEBELLO	5	1
NORWALK	12	1
ONTARIO	35	6
ORANGE	20	1
POMONA	200	1
PORTERVILLE	6	1
RANCHO CUCAMONGA	108	3
REDLANDS	6	1
ROSEMEAD	67	2
S EL MONTE	10	1
SANTA ANA	16	1
SANTA FE SPGS	12	1
SOUTH GATE	20	2
TORRANCE	49	2
VICTORVILLE	5	1
VISALIA	6	1
WEST COVINA	9	1
WHITTIER	44	2
Grand Total	**1292**	**68**

Table 5.26 Summary by City of Installation in Non-Disadvantaged Communities

Non-Disadvantaged Communities		
City of Installation	Port Count	Number of Applications
ALHAMBRA	60	2
ALISO VIEJO	22	2
BREA	66	1
CALABASAS	30	1
CAMARILLO	19	1
CERRITOS	20	1
CHINO HILLS	5	1
CITY INDUSTRY	18	1
CITY OF INDUSTRY	47	2
CULVER CITY	6	1
DIAMOND BAR	54	2
DOWNEY	10	1
FOUNTAIN VLY	73	1
FULLERTON	82	4
GLENDORA	25	1
HERMOSA BEACH	20	3
INGLEWOOD	32	1
IRVINE	101	5
LANCASTER	12	1
LONG BEACH	185	8
MALIBU	34	2
MAMMOTH LAKES	5	1
MONROVIA	13	1
NEWPORT BEACH	5	1
ONTARIO	22	2
ORANGE	20	1
PALM DESERT	38	2
PALMDALE	12	1
PORT HUENEME	10	1
REDLANDS	6	1
REDONDO BEACH	116	5
RLLNG HLS EST	27	2
SANTA BARBARA	68	4
SANTA MONICA	80	5
SIMI VALLEY	10	1
TEMECULA	10	1
THOUSAND OAKS	35	2
VALENCIA	20	2
VENTURA	14	1

VICTORVILLE	5	1
WESTLAKE VLG	16	1
Grand Total	**1453**	**78**

Table 5.27 Summary by Zip code in Disadvantaged Communities

Disadvantaged Communities		
Zip Code of Installation	**Port Count**	**Count of App Name**
90022	10	1
90040	22	1
90059	55	2
90063	27	1
90220	25	1
90242	41	1
90250	133	2
90260	6	1
90262	14	2
90270	9	1
90280	20	2
90501	25	1
90502	24	1
90601	54	3
90640	5	1
90650	12	1
90670	12	1
90745	8	1
90746	5	1
90802	42	2
90806	27	1
91702	66	1
91706	30	2
91710	7	1
91730	108	3
91731	52	5
91732	14	2
91733	10	1
91761	13	2
91762	6	1
91763	6	1
91764	16	3
91768	200	1
91770	67	2
91790	9	1
92311	11	2

92335	14	2
92337	7	1
92354	5	1
92374	6	1
92395	5	1
92707	16	1
92868	20	1
93230	16	2
93257	6	1
93292	6	1
Grand Total	**1292**	**68**

Table 5.28 Summary by Zip code in Non-Disadvantaged Communities

Non-Disadvantaged Communities		
Zip Code of Installation	**Port Count**	**Count of AppName**
90230	6	1
90242	10	1
90254	20	3
90263	10	1
90265	24	1
90274	27	2
90278	116	5
90303	32	1
90401	36	2
90405	44	3
90703	20	1
90802	48	3
90804	5	1
90806	35	1
90808	77	2
90814	20	1
91016	13	1
91302	30	1
91320	35	2
91355	20	2
91362	16	1
91709	5	1
91741	25	1
91746	36	2
91764	22	2
91765	54	2
91790	29	1
91803	60	2

92260	38	2
92374	6	1
92395	5	1
92592	10	1
92606	23	2
92612	20	1
92620	8	1
92656	22	2
92663	5	1
92697	50	1
92708	73	1
92821	66	1
92831	23	1
92832	59	3
92868	20	1
93009	14	1
93012	19	1
93041	10	1
93063	10	1
93101	58	3
93108	10	1
93534	12	1
93546	5	1
93550	12	1
Grand Total	**1453**	**78**

Table 5.29 Multi-Unit Dwelling Summary by City of Installation

City of Installation	Port Count	DAC/NonDACs	Number of Charge Ready Applications
ALISO VIEJO	12	Non-DAC	1
BARSTOW	5	DAC	1
CALABASAS	30	Non-DAC	1
CHINO HILLS	5	Non-DAC	1
CULVER CITY	6	Non-DAC	1
FULLERTON	5	Non-DAC	1
HERMOSA BEACH	10	Non-DAC	2
IRVINE	33	Non-DAC	3
LAWNDALE	6	DAC	1
LONG BEACH	25	Non-DAC	2
MAMMOTH LAKES	5	Non-DAC	1
NEWPORT BEACH	5	Non-DAC	1
PORT HUENEME	10	Non-DAC	1

REDLANDS	12	DAC	2
REDONDO BEACH	116	Non-DAC	5
RLLNG HLS EST	27	Non-DAC	2
SANTA FE SPGS	12	DAC	1
SANTA MONICA	49	Non-DAC	4
VICTORVILLE	10	DAC	2

Appendix B. Charge Ready Operational Metrics

Table 5.30 Charge Ready Cycle Times[42]

Pilot Cycle Times	
Average customer "end-to-end" cycle time, by segment	484
Minimum customer “end-to-end” cycle time, by segment	210[43]
Maximum customer “end-to-end” cycle time, by segment	993[44]
Average time for Application Received to Initial Qualification	32
Average time for Initial Qualification to Site Assessment Completion	40
Average time for Site Assessment Completion to Program Agreement Complete	61
Average time to complete base map	14
Average time to complete preliminary design	39
Average time from Preliminary Design Sent to customer to Preliminary Design Approved	15
Average time to complete T&D final design	18
Average time for Final Design Received to Permit Requested	12
Average time for Permit Requested to Permit Approved	58
Average time for Permit Approved to Ready to Break Ground	36
Average time from Ready to Break Ground to Final Inspection Completed	76
Average time from Final Inspection Completed to Rebate Check Issued	66

[42] Business Days.

[43] Based on 146 projects with rebate paid.

[44] Based on 146 projects with rebate paid.

Table 5.31 Charge Ready Applications

	Planning Assumptions	Inception-to-Date Actual	Percentage to Planning Assumptions
Total number of applications received	58 projects, 1,500 charge ports	871 projects, 11403 charge ports	576%, 136%
▪ Percentage of total applications received for Disadvantaged Communities	N/A	32%	N/A
▪ Percentage of applications received for Destination Centers	N/A	17%	N/A
▪ Percentage of applications received for Workplaces	N/A	47%	N/A
▪ Percentage of applications received for Fleet	N/A	4%	N/A
▪ Percentage of applications received for MUDs	N/A	17%	N/A
▪ Percentage of charging stations requested for Disadvantaged Communities	10%	32%	377%
▪ Percentage of charging stations requested for Destination Centers	N/A	37%	N/A
▪ Percentage of charging stations requested for Workplaces	N/A	47%	N/A
▪ Percentage of charging stations requested for Fleet	N/A	4%	N/A
▪ Percentage of charging stations requested for MUDs	N/A	11%	N/A
Number of approved and confirmed projects (Step 2 Agreement signed)	58 projects, 1,500 charge ports	70 projects, 1,066 charge ports	121%, 71%
▪ Number of approved and confirmed projects for Disadvantaged Communities (Step 2 Agreement signed)	N/A	68 projects, 1292 charge ports	N/A
▪ Number of approved and confirmed projects for Destination Centers (Step 2 Agreement signed)	N/A	33 projects, 2651 charge ports	N/A
▪ Number of approved and confirmed projects for Workplaces (Step 2 Agreement signed)	N/A	64 projects, 1474 charge ports	N/A
▪ Number of approved and confirmed projects for Fleet (Step 2 Agreement signed)	N/A	16 projects, 237 charge ports	N/A

	Planning Assumptions	Inception-to-Date Actual	Percentage to Planning Assumptions
▪ Number of approved and confirmed projects for MUDs (Step 2 Agreement signed)	N/A	33 projects, 383 charge ports	N/A
Number of applicants rejected	N/A	325 projects, 4991 requested charge ports	N/A
▪ Percentage of applicants rejected for Disadvantaged Communities	N/A	35%	N/A
▪ Percentage of applicants rejected for Destination Centers	N/A	20%	N/A
▪ Percentage of applicants rejected for Workplaces	N/A	56%	N/A
▪ Percentage of applicants rejected for Fleets	N/A	2%	N/A
▪ Percentage of applicants rejected for MUDs	N/A	20%	N/A
Number of applicants withdrawn	N/A	285 projects, 3667 charge ports	N/A
▪ Percentage of applicants withdrawn for Disadvantaged Communities	N/A	34%	N/A
▪ Percentage of applicants withdrawn for Destination Centers	N/A	18%	N/A
▪ Percentage of applicants withdrawn for Workplaces	N/A	57%	N/A
▪ Percentage of applicants withdrawn for Fleets	N/A	6%	N/A
▪ Percentage of applicants withdrawn for MUDs	N/A	16%	N/A
Number of applicants withdrawn after signing Step 2 - Agreement	N/A	11	N/A
▪ Number of applicants withdrawn after signing Step 2 – Agreement for Disadvantaged Communities	N/A	5	N/A
▪ Number of applicants withdrawn after signing Step 2 – Agreement for Destination Centers	N/A	4	N/A

	Planning Assumptions	Inception-to-Date Actual	Percentage to Planning Assumptions
▪ Number of applicants withdrawn after signing Step 2 – Agreement for Workplaces	N/A	7	N/A
▪ Number of applicants withdrawn after signing Step 2 – Agreement for Fleets	N/A	0	N/A
▪ Number of applicants withdrawn after signing Step 2 – Agreement for MUDs	N/A	0	N/A
Total number of charge ports installed	N/A	2745	N/A
▪ Total number of charge ports installed for Disadvantaged Communities	N/A	1292	N/A
▪ Total number of charge ports installed for Destination Centers	N/A	651	N/A
▪ Total number of charge ports installed for Workplaces	N/A	1447	N/A
▪ Total number of charge ports installed for Fleets	N/A	237	N/A
▪ Total number of charge ports installed for MUDs	N/A	383	N/A
Average number of charge ports installed per site	N/A	18	N/A
▪ Average number of charge ports installed per site for Disadvantaged Communities	N/A	19	N/A
▪ Average number of charge ports installed per site for Destination Centers	N/A	19	N/A
▪ Average number of charge ports installed per site for Workplaces	N/A	23	N/A
▪ Average number of charge ports installed per site for Fleets	N/A	15	N/A
▪ Average number of charge ports installed per site for MUDs	N/A	11	N/A
Total number of completed projects	58 projects, 1,500 charge ports	146 projects, 2745 charge ports	N/A

	Planning Assumptions	Inception-to-Date Actual	Percentage to Planning Assumptions
▪ Percentage of completed projects for Disadvantaged Communities	N/A	47%	N/A
▪ Percentage of completed projects for Destination Centers	N/A	22%	N/A
▪ Percentage of completed projects for Workplaces	N/A	43%	N/A
▪ Percentage of completed projects for Fleets	N/A	10%	N/A
▪ Percentage of completed projects for MUDs	N/A	22%	N/A

Table 5.320 Customer Participant Request

	Planning Assumptions	Inception-to-Date Actual
Average number of total parking spaces per site	N/A	569 parking spaces/site
Average number of total parking spaces per site for Disadvantaged Communities	N/A	427 parking spaces/site
Average number of total parking spaces per site for Destination Centers	N/A	896 parking spaces/site
Average number of total parking spaces per site for Workplaces	N/A	565 parking spaces/site
Average number of total parking spaces per site for Fleets	N/A	296 parking spaces/site
Average number of total parking spaces per site for MUDs	N/A	3417 parking spaces/site
Percentage of total number of parking spaces located in parking structures	N/A	16%
Total number of parking spaces located in parking structures for Disadvantaged Communities	N/A	15,036
Total number of parking spaces located in parking structures for Destination Centers	N/A	13,273

Total number of parking spaces located in parking structures for Workplaces	N/A	46,175
Total number of parking spaces located in parking structures for Fleets	N/A	2,382
Total number of parking spaces located in parking structures for MUDs	N/A	8,041
Average fleet size[45]	N/A	6 (Fleet Segment Only) 4 (All Segments)
Percentage of applications received with charging systems already installed at the site	N/A	22%
Average number of charging systems already installed at the site	N/A	9
Average number of charge ports requested per site	26	13.5
Average number of charge ports requested per site for Disadvantaged Communities	N/A	12.0
Average number of charge ports requested per site for Destination Centers	N/A	13.7
Average number of charge ports requested per site for Workplaces	N/A	13.0
Average number of charge ports requested per site for Fleet	N/A	14.4
Average number of charge ports requested per site for MUDs	N/A	13.9

Table 5.33 Average EVSE Procurement Period

Organization	Average Business Days
Business	48
K-12 School	63
University	73
City	71
County	46
Federal	71

[45] Applicants from all segment categories may indicate the number of fleet vehicles at their site (All Segments). Applicants in the fleet category intend to use the new charging station for their EV fleet (Fleet Segment Only).

Appendix C. Charging Stations and Rebate

Table 5.34 Number of Approved Charging System Models

Charging System Type	Total Number of Approved Models
Level 1	5
Level 2 "A"	23
Level 2 "B"	48
Total	76

Table 5.35 Charging Station Request and Rebate

Charging Station Requests & Rebates[46]	
Number of Level 1 charge ports requested[47]	13
Number of Level 2 charge ports requested[48]	1,053
Number of total charge ports approved	1,066
▪ Average Number of Level 1 charge ports approved per Level 1 site	12
▪ Average Number of Level 2 charge ports approved per Level 2 site	18.65
Number of Level 1 EVSE bought	12
▪ Average number of ports per Level 1 EVSE	1.0
Number of Level 2A EVSE bought	236
▪ Average number of ports per Level 2A EVSE	1.7
Number of Level 2B EVSE bought	1752
▪ Average number of ports per Level 2B EVSE	1.3
Number of Level 1 EVSE station installed with infrastructure complete	12
Number of Level 2a EVSE station installed with completed infrastructure	421
Number of Level 2B EVSE stations installed with completed infrastructure	1746
Number of Level 1 EVSE stations installed with completed customer-installation	12
Number of Level 2A EVSE stations installed with completed customer-installation	411
Number of Level 2B EVSE stations with completed customer-installation	1652

[46] Data as of January 31, 2018.

[47] In the Step 2 Agreement, the applicant indicates the requested number of Level 1 EVSE to be approved and installed under the Program. The number of installed Level 1 EVSE must match the number of Level 1 EVSE requested in Step 2 Agreement.

[48] In the Step 2 Agreement, the applicant indicates the requested number of Level 2 EVSE to be approved and installed under the Program. The number of installed Level 2 EVSE must match the number of Level 2 EVSE requested in Step 2 Agreement.

Appendix D. Outreach Events

Table 5.36 Outreach Events

Date	Event Name	Location	DACS	Interactions	Event Subclassification
2016					
4/2/2016	Formula E – ePrix	Long Beach	Yes	300	Community Event
5/26/2016	AT&T/PEVC Ride and Drive	El Segundo	No	84	Ride and Drive
9/10/2016	National Drive Electric Week - SCAQMD/Diamond Bar	SCAQMD/ Diamond Bar	No	80	Ride and Drive
9/11/2016	National Drive Electric Week	Los Angeles	Yes	118	Ride and Drive
9/16-9/17/16	AltCar Expo	Santa Monica	No	142	Ride and Drive
2016 Total:	***5***			***724***	
2017					
3/12/2017	Purim Festival	Alpert Jewish Community Center, Long Beach	No		Ride and Drive
4/22/2017	Earth Day Festival	Lynwood	Yes	600	Community Event
9/10/2017	National Drive Electric Week	South Pasadena	No	70	Ride and Drive
9/15-9/16/17	AltCar Expo	Santa Monica	No	350	Ride and Drive
9/16/2017	National Drive Electric Week	Los Angeles	Yes	267	Ride and Drive
9/16/2017	National Drive Electric Week	Gardena	Yes	150	Ride and Drive
9/16/2017	National Drive Electric Week	Tehachapi	No	50	Ride and Drive
9/16/2017	Transportation Electrification Expo	Rosemead	Yes	850	Ride and Drive
2017 Total:	***8***			***2,337***	
2018					
9/8/2018	National Drive Electric Week	Los Angeles	Yes	180	Ride and Drive
9/8/2018	National Drive Electric Week	Carson	Yes	250	Ride and Drive
9/12-9/13/18	Santa Monica Alt Car Expo	Santa Monica	No	430	Ride and Drive
11/15-11/17/18	LA CoMotion	Los Angeles	Yes	1,000	Ride and Drive
2018 Total:	***4***			***1,860***	
2019					
2/10/2019	Black History Super Expo	San Bernardino, Court Street Square	Yes	80	Ride and Drive
3/20/2019	LA County Employee Ride & Drive	LA County Dept of Child and Family Services Offices	Yes	75	Ride and Drive

4/20/2019	Compton Earth Day	David Middle School 621 W Poplar St, Compton, CA 90220	Yes	75	Ride and Drive
4/22/2019	Green Day Event	Laguna Nigel	No	20	Community Event
4/27/2019	Pomona Beautification Day	Pomona Civic Center Plaza Civic Center Plaza, Pomona, CA 91766	Yes	100	Ride and Drive
5/4/2019	Corona Cinco de Mayo Parade	Corona	No	30	Ride and Drive
5/18/2019	Compton Annual Youth Air Fair	Compton/Woodley Airport 901 W Alondra Blvd, Compton, CA 90220	Yes	300	Ride and Drive
5/19/2019	626 Streets	San Gabriel	Yes	1,000	Ride and Drive
6/19/2019	Linc Housing	Long Beach	Yes	20	Community Event
8/18/2019	Wings Over Camarillo	Camarillo Airport 555 Airport Way Ste B, Camarillo, CA 93010	No	230	Ride and Drive
9/14/2019	Charge Up LA!	Frank Hotchkin Memorial Training Center 1700 Stadium Way Ste 100, Los Angeles, CA 90012	Yes	700	Ride and Drive
8/30-9/22/19	LA County Fair	Pomona Fairplex 1101 W. McKinley Ave., Pomona, CA 91768	Yes	2,195	Community Event
10/3-10/6/19	OC Auto Show	Anaheim Convention Center 800 W Katella Avenue Anaheim CA 92802	Yes	3,000	Auto Show
10/16/2019	Alt Car Expo, Riverside	Riverside Convention Center 3637 5th St, Riverside, CA 92501	Yes	50	Ride and Drive
11/2/2019	Alt Car Expo, Santa Monica	Santa Monica College 3171 S Bundy Dr Los Angeles, CA 90066	No	150	Ride and Drive
2019 Total:	***15***			***8,025***	
Please note: No event activity in 2020 - 2021					
Event Total	***32***			***12,946***	

Appendix E. Charge Ready Marketing Materials

Table 5.37 Charge Ready Marketing Materials

Marketing Materials	Description
Charge Ready Landing Page	Website SCE.com Landing Page - Provides resources that enable customers and EVSE vendors to learn more about Charge Ready
Charge Ready Enrollment Portal[49]	Website - A seamless interface that allows customers to apply for participation in the Charge Ready program and provide the required information throughout the enrollment and deployment process
Frequently Asked Questions[50]	Website - Addresses many of the most common questions and concerns customers may have when considering the Charge Ready program
Participation Package	Collateral (Interactive PDF) - An intuitive document designed to walk interested customers through the Charge Ready program process from start to finish
Pilot Fact Sheet	Collateral - A high-level overview of the Charge Ready program that should give customers an idea of what to expect
Demand Charges Overview	Collateral - Provides definitions of demand charges and solutions for customers to mitigate demand charges, such as load management and SCE's available rates
Electric Vehicle Supply Equipment Vendor Fact Sheet	Collateral - Provides information to prospective vendors to apply for qualification as a Charge Ready charging station vendor
Pilot Email Invitations	Promotional Emails - Sent directly to customers to spark interest and drive traffic to landing page; message is crafted specifically for four segments: MUDs, workplaces, fleet, and destination centers
Customer Video	Video Vignette - Quick and easy way for people to learn more about the Charge Ready program
Charge Ready Twitter Page	Social Media - Provides followers with the latest news and developments from within the Charge Ready Program

Appendix F. Media Outreach and Published Articles

SCE, City of Ontario Partner in 'Charge Ready' Program

EEI Delivering the Future, October 2017

California utilities plot ways to prep grid for coming EV boom

[49] https://chargeready.sce.com

[50] https://www.sce.com/wps/portal/home/business/electric-cars/Charge-Ready/Charge-Ready-Supports.

Utility Dive, August 22, 2017

California buses are going electric, and that's good for our environment

Los Angeles Daily News, August 4, 2017 (This opinion piece by President Ron Nichols, which prominently mentions Charge Ready, also ran in the Los Angeles Daily Breeze, Long Beach Press-Telegram, the San Bernardino Sun, San Gabriel Valley Tribune, the Inland Valley Daily Bulletin, Pasadena Star-News, Whittier Daily News, and Redlands Daily Facts.

Santa Monica Poised To Approve Contract Adding 29 Electric Vehicle Charging Stations. (LOOKOUT)

Santa Monica Lookout, July 27, 2017

Charging stations for electric vehicles nearly open

Porterville Record - Friday, June 23, 2017

Charging station goes online in Lynwood on Earth Day

KPCC-FM, April 21, 2017

SCE brings EV charging stations to Lynwood

KFI-AM, April 21, 2017

SCE President Ron Nichols talks about electrifying transportation on Earth Day

Chung T'ien Television, May 3

Edison installs first electric-car charging stations in low-income community

San Gabriel Valley Tribune, February 16, 2017

This article is also provided by the Pasadena (CA) Star-News and the Long Beach (CA) Press-Telegram.

SoCal Edison to install 1,500 electric-car charging sites; what's your electric utility doing?

Green Car Reports, June 1, 2016

How Southern California Edison might help you charge your electric car at work

L.A. Daily News/Long Beach Press-Telegram/San Gabriel Valley Tribune/Pasadena Star, May 25, 2016

Southern California Edison plugging into electric-vehicle charging market

L.A. Daily News/Long Beach Press-Telegram/San Gabriel Valley Tribune/Pasadena Star, May 14, 2016

SCE to add electric vehicle charging stations

KNBC-TV, May 16, 2016

So Cal Edison looking to install 1,500 new electric vehicle charging stations

KNX News Radio, May 16, 2016

Plugging EVs: Program by SoCal Edison will add 1,500 charging stations

Los Angeles Business Journal, March 27, 2016

CA EV Infrastructure: Platform for innovation or simple utility service?

SmartGridNews, April 25, 2016

EV charging Pilot takes off in Southern California

Green Transit News, May 16, 2016

SCE Launches Charge Ready Electric Vehicle Charging Pilot Program

The Street, May 24, 2016

SCE launching $22M Charge Ready EV charging Pilot

Green Car Congress, May 17, 2016

SDG&E kicks off $52.5 million EV charger installation and customer education Pilot

Utility Dive, May 23, 2016

Electric vehicle charging station Pilot

World Journal, May 19, 2016

SCE Ramps Up Electric Vehicle Charging Program

socalTECH, May 17, 2016

SCE Launches Charge Ready Electric Vehicle Charging Pilot Program

Electric Cars Report, May 17, 2016

Southern California Edison to start electric car charging Pilot program

Korea Herald Biz, May 17, 2016

SCE Launches Charge Ready Electric Vehicle Charging Pilot Program

Transmission & Distribution World, May 18, 2016

SCE electric vehicle charging facilities expansion plan

Korea Daily, May 19, 2016

SCE encourages participation in charging station Pilot program

Singtao Daily, May 17, 2016

Plugging EVs: Program by SoCal Edison will add 1,500 charging stations.

Los Angeles Business Journal, March 27, 2016

You Know Electric Cars Are Poised to Take Off When the Koch Brothers Plan the Technology's Demise

Huffington Post, February 26, 2016

So Cal Edison gets green light to install 1,500 charging stations

CBS2, Jan. 15, 2016

So Cal Edison to Install Charging Stations

KCAL9, Jan. 15, 2016

Edison to install 1,500 electric vehicle charging stations

KNBC-TV, Jan 22, 2016

Edison will be installing 1,500 Charging Stations

KABC-TV, Jan. 15, 2016

State regulators approve electric vehicle charging station Pilot program

Los Angeles Times, Jan. 15, 2016

Editorial: The right way to charge electric cars

Los Angeles Times, Jan. 27, 2016

EV drivers get more spark from Edison

L.A. Daily News/Long Beach Press-Telegram/San Gabriel Valley Tribune/Pasadena Star, Jan. 20, 2016

Southern California Edison to install 1,500 charging station

Orange County Register, March 29, 2016

Commentary: We'll all pay to charge others' electric cars

Orange County Register, Feb. 4, 2016

Utility to roll out more electric vehicle charging stations

San Jose Mercury News, Jan. 20, 2016

Electric vehicle charging stations will be installed around the area by Southern California Edison

KNX Radio, Jan. 15, 2016

SCE is getting ready to roll out a $22 million Pilot program for EV charging stations

KPCC Radio, Jan. 20, 2016

Southern California Pilot program to install 1,500 car charging stations

KPCC Website, Jan. 15, 2016

Edison to Install 1,500 Charging Stations

Los Angeles Business Journal, Jan. 15, 2016

Tesla's Cheaper Model 3 Could Strain Charging Infrastructure

MIT Technology Review, March 29, 2016

California Invites Power Utilities into the Car-Charging Market

Bloomberg, May 5, 2016

SCE Electric Car Initiative

KCOY-TV, Jan. 15, 2016

So Cal Edison will install 1,500 new charging stations for electric vehicles

KESQ-TV, Jan. 15, 2016

So Cal Edison says it will help to pay for the installation of 1,500 new electric car chargers

KFI Radio, Jan. 15, 2016

SCE receives green light from state regulators to begin vehicle charging Pilot project

KCEP-FM, Las Vegas, Jan. 15, 2016

SoCal Edison to Add 1,500 new stations for a Pilot project to install 1,500 EV charging stations

KFSN-TV, Fresno

Today CPUC gave SCE Green Light to Install As Many As 1,500 Charging Stations

KCRW Radio, Jan 22, 2016

$22 Million EV Charging Pilot Launched In Southern California

CleanTechnica, Jan. 27, 2016

Gov't Regulators To Break Out Subsidy For EV Charging Stations

Daily Caller, Jan. 19, 2016

Two California Utilities Get Creative with EV Charging

Energy Efficient Markets, Feb. 1, 2016

Southern California Utilities to Deploy 5,000 EV Chargers in First-of-Their Kind Pilots

Green Tech Media, Feb. 1, 2016

How Utilities Are Planning Electric-Vehicle Infrastructure in California and Beyond

Green Tech Media, Feb. 25, 2016

To Lead Nation in EVs, California Should Encourage Charging Station Competition

GovTech, April 27, 2016

You Know Electric Cars Are Poised to Take Off When the Koch Brothers Plan the Technology's Demise

Huffington Post, Feb. 26, 2016

Proposal to Charge Electric Cars in Southern California Gets the Green Light

NRDC Switchboard, Jan. 14, 2016

Electric Charging Station Coming Your Way

Los Alamitos-Seal Beach Patch, Jan. 14, 2016

California Regulators Approve Pilot EV Charging Program for Southern California Edison

Renewable Energy World, Jan. 15, 2016

Proposal to Charge Electric Cars in Southern California Gets the Green Light

NRDC, Jan. 14, 2016

Utility to roll out more electric vehicle charging stations

San Jose Mercury News, Jan. 20, 2016

California legislature not happy with PG&E EV proposal

SmartGridNews, April 21, 2016

California regulators approve SCE Pilot to build 1,500 EV charging stations
Utility Dive, Jan. 19, 2016

California Regulators Approve Pilot EV Charging Program for Southern California Edison

Renewable Energy World, Jan. 19, 2016

SCE *Inside Edison*/Newsroom Stories

Hyundai Employees Can Now Charge Their EVs at Work

September 22, 2017

Charge Ready: Ontario Gets Charged Up in Time for National Drive Electric Week

September 11, 2017

Southern California Cities Plug Into Charge Ready EV Program

March 29, 2017

SCE Charge Ready Among Electric Vehicle Programs Recognized by White House

July 21, 2016

SCE launches Charge Ready Electric Vehicle Charging Pilot Program

May 16, 2016

State Commission Ruling Allows Electric Utilities to Invest in Electric Car Charging

January 22, 2015