Charge Ready Pilot Program

Q4/2017 Report

Issued March 1, 2018

SOUTHERN CALIFORNIA EDISON®

Energy for What's Ahead℠

Get Started

Table Of Contents

List of Tables

List Of Tables

Background

The Charge Ready and Market Education programs were developed to support California's policies to reduce greenhouse gas (GHG) and air pollutant emissions, in an effort to meet the state's Zero-Emission Vehicle (ZEV) goals. The Charge Ready program deploys electric infrastructure to serve qualified electric vehicle (EV) charging stations throughout Southern California Edison's (SCE) service territory, while the Market Education program targets car buyers, to help them gain awareness of EVs and the benefits of fueling from the grid.

The Market Education program also includes a launch of SCE's advisory services, to include specific education and support related to electrifying fleets, EV charging, reducing GHG footprints, and other related transportation electrification (TE) areas for business customers. Each program was designed in two phases, with a smaller-scope Phase 1 Pilot to prepare for a broader Phase 2.

The Pilot's objectives are to inform and refine the program's design and cost estimates and develop success measures for a subsequent Phase 2. The Pilot's quarterly reports include key metrics and updates about progress, achievements, and lessons learned. The quarterly reports may also include recommendations from the Advisory Board that SCE will consider incorporating in its Phase 2 proposal.

1 Executive Summary

1.1 Program Description

Charge Ready was developed to reduce barriers to EV adoption by deploying electric infrastructure to serve EV charging stations (EV supply equipment, or EVSE)[1] at long dwell-time locations (where EVs are usually parked for at least four hours). These locations provide adequate time for most EV drivers to fully recharge their vehicles.

The pilot was open to eligible 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, owned, maintained, and paid all related costs for make-ready stubs serving EVSE, 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 EVSE, including electrical energy and networking costs, but received rebates applicable against some or all of the EVSE and installation costs.

SCE established an Advisory Board comprised of customers, industry stakeholders, and representatives of disadvantaged communities (DACs). The board provided useful input and guidance to SCE during the pilot implementation and execution.

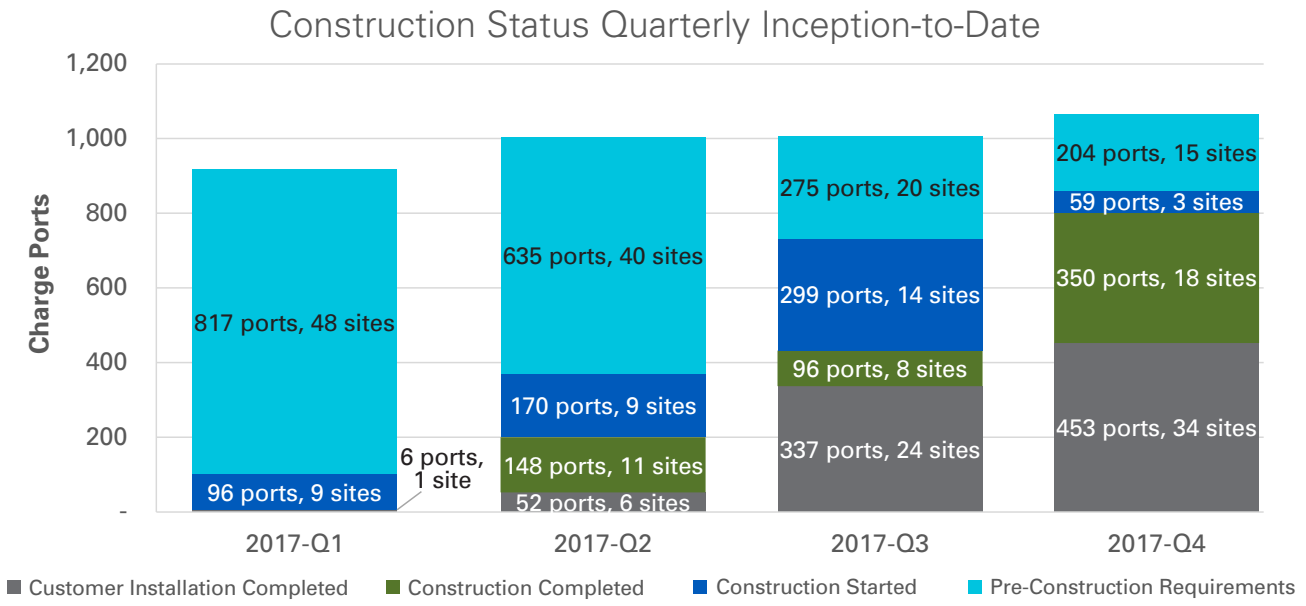
1.2 Pilot Summary for Quarter

By the end of the fourth quarter in 2017, SCE reserved funding for a total of 1,066 charge port commitments. Of the 1,066 committed charge ports, 535 charge ports or 50% are located in disadvantaged communities, which is considerably higher than the Pilot's requirement to deploy 10% of charge ports in disadvantaged communities.

Several projects continued forward through the construction and installation process. SCE efforts included infrastructure construction and post-installation verification to confirm equipment installation while customers continued procuring qualified charging stations, granting easements in the property where the charging infrastructure will be deployed, and completing the charging station installations. Exhibit 1.1 shows 34 sites with 453 ports where SCE completed infrastructure and also verified installation of the charging stations by the end of Q4. Additionally, SCE has completed infrastructure at 18 sites that support 350 charge ports (pending customer installation of the charging stations); and started construction at 3 sites with 59 charge ports. Lastly, 15 sites for 204 charge ports were gathering Pre-Construction Requirements. Exhibit 1.1 below shows the quarterly inception-to-date snapshot of the construction status beginning in Q1 2017.

1 As 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.

Exhibit 1.1 – Construction Status Quarterly Inception-to-Date



The following table summarizes the Pilot's costs recorded at the end of Q4 2017

Table 1.1 – Pilot Summary for Quarter 4, 2017

Variables	Authorized/Planning Assumptions	Inception-to-date as of 12/31/17	Remaining	Percentage Remaining
Capital				
Utility Side Infrastructure Costs	$3,353,532	$1,281,225	$2,072,307	62%
Customer Side Infrastructure Costs	$7,586,387	$8,202,915	($616,528)	-8%
Easement	$115,942	$24,249	$91,693	79%
Station Testing	$30,000	$35,224	($5,224)	-17%
Business Customer Division Labor	$103,500	$60,261	$43,239	42%
Program Management Office Labor	$460,003	$459,491	$512	0%
Total Capital	**$11,649,364**	**$10,063,364**	**$1,586,000**	**14%**
Operations & Maintenance				
Rebate	$5,850,000	$476,416	$5,373,585	92%
Business Customer Division Labor	$51,750	$24,763	$26,987	52%
Transportation Electrification Advisory Services	$316,800	$248,656	$68,144	22%
PMO Labor & Non-Labor	$232,340	$181,142	$51,198	22%
Charge Ready ME&O, Market Reporting, SAP	$665,000	$497,121	$167,879	25%
EV Awareness	$2,830,600	$1,671,757	$1,158,843	41%
Other O&M	$0	$1,183,835[2]	($1,183,835)	0%
Total Operations and Maintenance	**$9,946,490**	**$4,283,690**	**$5,662,800**	**57%**
Total Program	**$21,595,854**	**$14,347,054**	**$7,248,800**	**34%**

2 Costs include overhead, site assessments, design, and permits on drop out projects.

2 Pilot Operations

2.1 Process Overview

The Pilot's end-to-end process can be described in six stages: **Engagement, Evaluation, Confirmation, Planning and Design, Construction,** and **Verification**.

- **Engagement** begins with a customer submitting an application indicating their interest in participating in the Pilot. The application the customer submits is called the **Step 1 – Notice of Intent**.
- **Evaluation** follows the application submission. SCE conducts on-site assessments to evaluate the feasibility of deploying charging stations through the Pilot.
- **Confirmation** of the customer's participation includes approval by the customer of the number of charging stations and deployment location at each site (as proposed by SCE). SCE reserves funding (if available) upon receipt of **Step 2 – Agreement** signed by the customer and property owner.
- SCE then conducts **Planning and Design** for the approved site while the Customer Participant procures qualified charging stations. At the end of the procurement period, Customer Participants must provide the required proof of purchase using **Step 3 – Certification**.
- SCE then conducts **Construction** for the approved site. A pre-construction meeting is held with the Customer Participant before construction begins. Once the infrastructure is completed and passes inspection, the Customer Participant's selected charging station vendor installs the charging stations.
- Finally, **Verification** takes place to ensure that 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 issues the rebate.

2.2 Status Overview

By the end of the fourth quarter in 2017, SCE reserved funding for a total of 1,066 charge port commitments. Of the 1,066 committed charge ports, 535 charge ports or 50% are located in disadvantaged communities, which is considerably higher than the Pilot's requirement to deploy 10% of charge ports in disadvantaged communities. In addition, a total of 50 charge ports for 4 customers were put on the waitlist due to the customers repeatedly exceeding procurement timelines. The following three tables provide the charge port distribution per the category noted for the 1,066 charge ports that have reserved funding.

Exhibit 2.1 – Charge Port Distribution by Market Segment

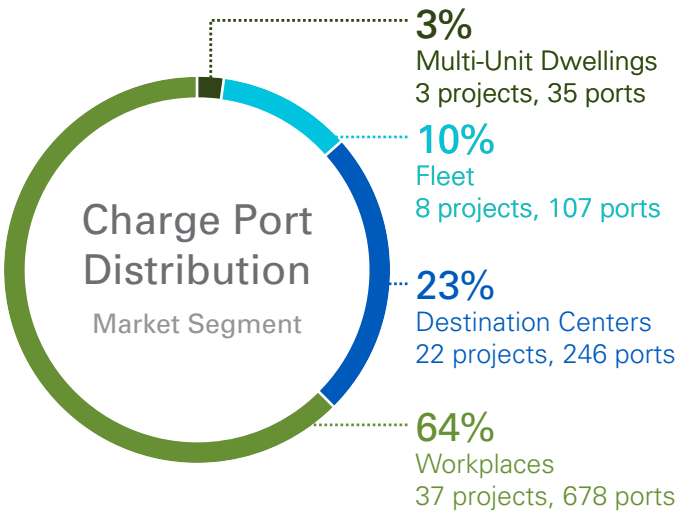


Exhibit 2.2 – Charge Port Distribution by Customer Type

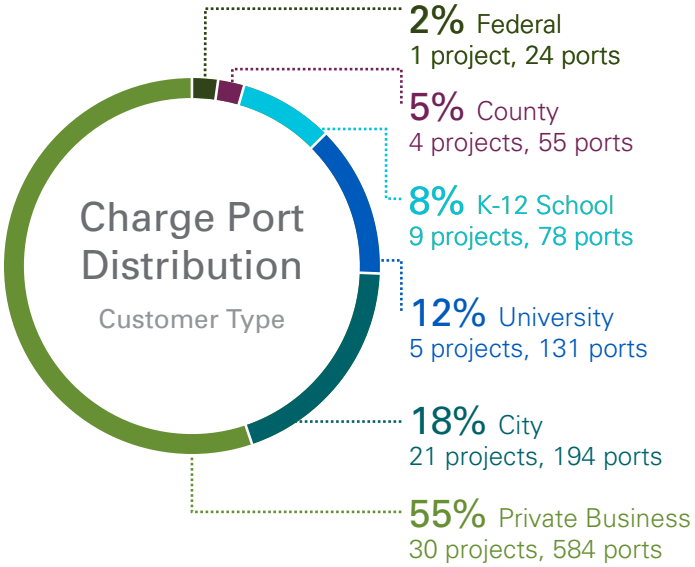
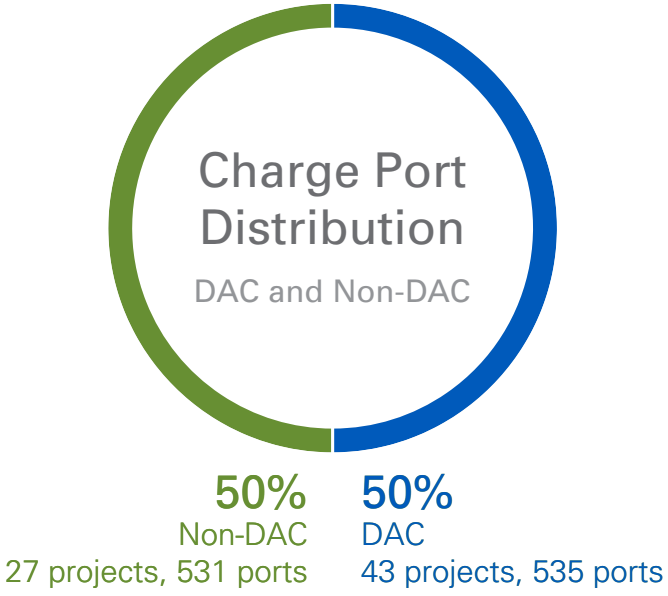


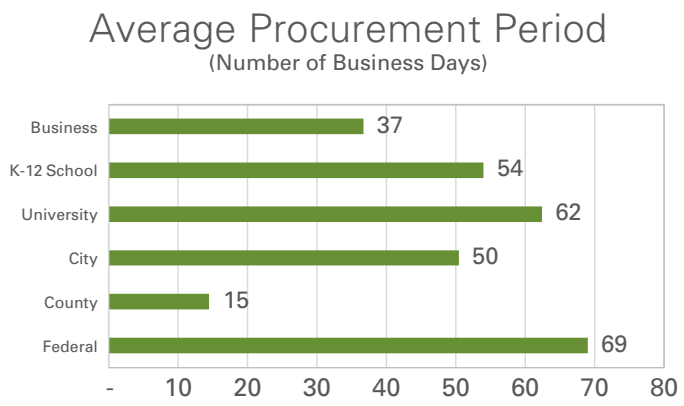
Exhibit 2.3 – Charge Port Distribution DAC and Non-DAC



In Q4 2017, SCE continued supporting the remaining Pilot customers in their procurement of charging stations. To ensure charging stations are available at the time of infrastructure completion, the Pilot requires customers to procure charging stations before construction can begin. The procurement period begins once a customer executes the program agreement and funds are reserved for the customer's application. The initial procurement period is 30 calendar days from funds reservation, and customers are allowed an additional 15 days if they submit an extension request to SCE. SCE also allows, at its discretion, extensions beyond the 45 days, provided the customer is actively procuring its charging stations.

By the end of Q4 2017, 69 of the 70 customers for which funding was reserved procured their charging stations. The average procurement period was 44 business days with the majority of customers submitting the allowed two extension requests. The average procurement period by organization type are shown in Table 5.2.

Exhibit 2.4 – Average Procurement Period



The charts below summarize the Pilot's operational metrics about customer applications in Charge Ready Program Pilot. The metrics in the tables capture the project activity from the launch of the Pilot on May 27, 2016, to December 31, 2017. Where applicable, the distribution across market segments, as well as the total number in disadvantaged communities, is provided.

Exhibit 2.5 – Applications Received

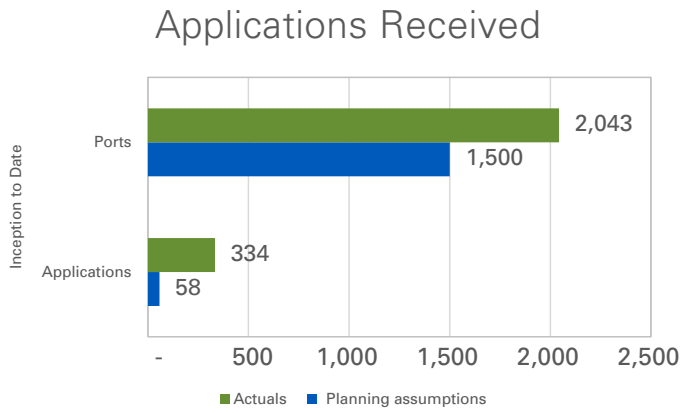


Exhibit 2.6 – Number of Approved and Confirmed Projects

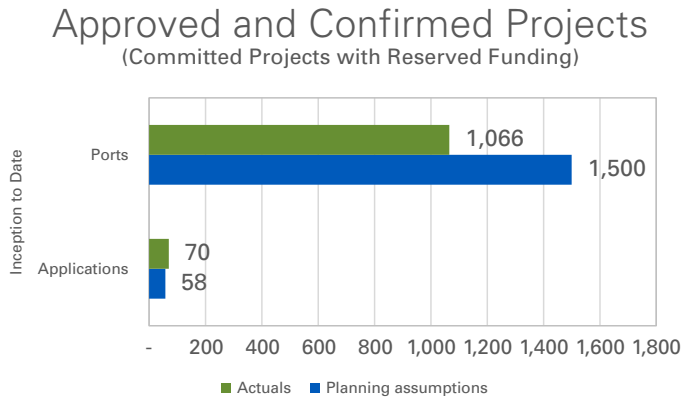


Exhibit 2.7 – Number of Applications and Ports

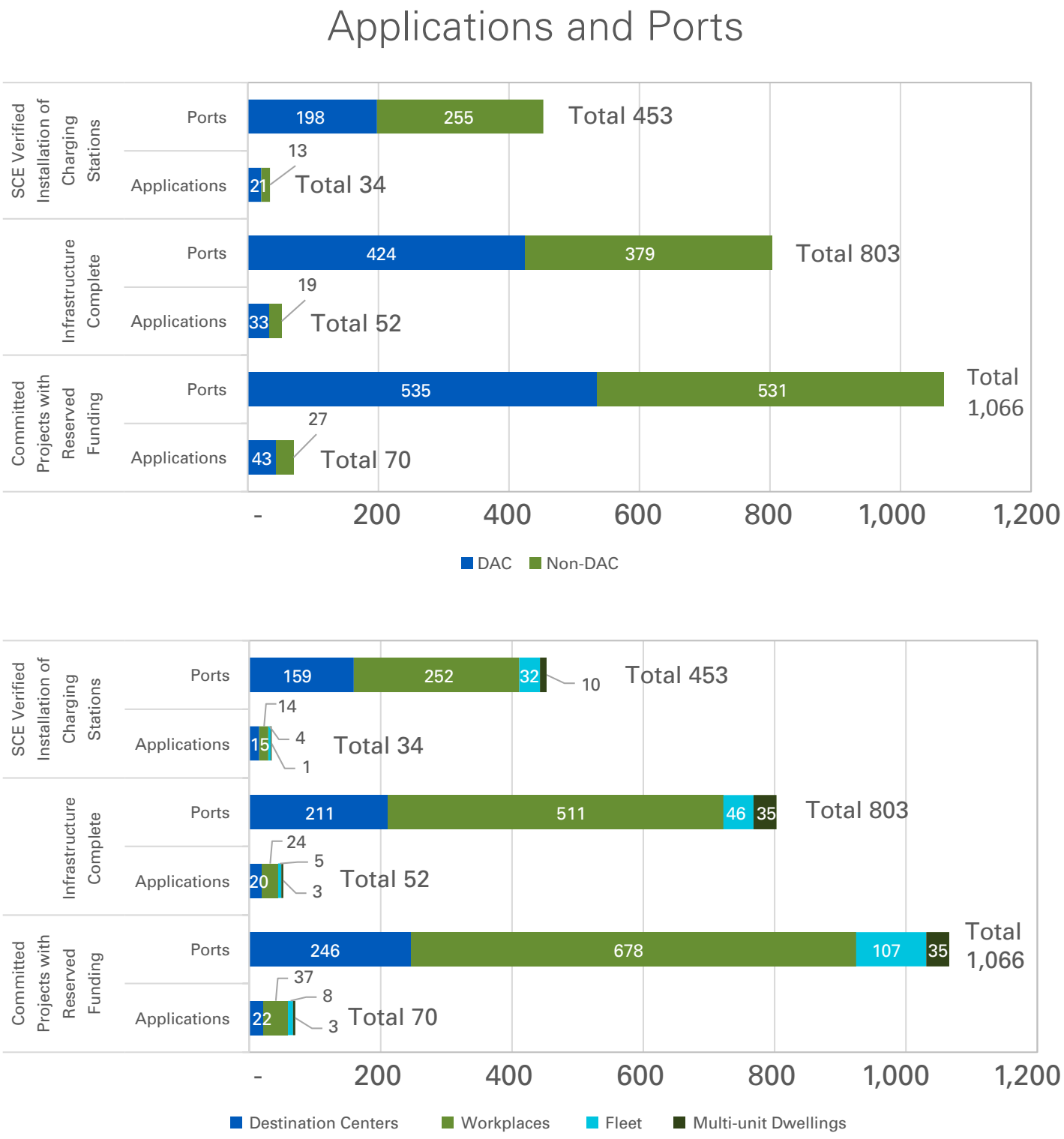


Table 2.1 – Pilot Operational Metrics for Quarter

	Planning Assumptions	Quarter 4, 2017	Year-to-Date Actual	Percentage to Planning Assumptions
Number of applicants rejected	N/A	0 projects, 0 requested charge ports	91 projects, 377 requested charge ports	N/A
Number of applicants withdrawn	N/A	-5 projects, -50 charge ports	143 projects, 630 charge ports	N/A
Number of applicants withdrawn after signing Step 2 – Agreement	N/A	0 projects, 0 charge ports	7 projects, 92 charge ports	N/A

Table 2.2 – Average Number of Charge Ports Installed per Site

	Planning Assumptions	Quarter 4, 2017	Year-to-Date Actual	Percentage to Planning Assumptions
	N/A	12	13	N/A
Disadvantage Communities	N/A	10	9	N/A
Destination Centers	N/A	16	11	N/A
Workplaces	N/A	10	18	N/A
Fleet	N/A	10	8	N/A
Multi-unit Dwellings	N/A	10	10	N/A

Table 2.3 – Percentage of Installed Project

	Planning Assumptions	Quarter 4, 2017	Year-to-Date Actual	Percentage to Planning Assumptions
Disadvantage Communities	N/A	40% projects, 33% charge ports	62% projects, 44% charge ports	N/A
Destination Centers	N/A	30% projects, 41% charge ports	44% projects, 35% charge ports	N/A
Workplaces	N/A	50% projects, 41% charge ports	35% projects, 41% charge ports	N/A
Fleet	N/A	10% projects, 9% charge ports	12% projects, 7% charge ports	N/A
Multi-unit Dwellings	N/A	10% projects, 9% charge ports	3% projects, 2% charge ports	N/A

Table 2.4 – Customer Participant Request

	Planning Assumptions	Year-to-Date Actual
Average number of total parking spaces per site	N/A	621 parking spaces/site
Percentage of total number of parking spaces located in parking structures	N/A	12%
Average fleet size[3]	N/A	6 (Fleet Segment Only) 4 (All Segments)
Percentage of applications received with charging systems already installed at the site	N/A	15%
Average number of charging systems already installed at the site	N/A	10
Average number of charge ports requested per site	26	7.6
Disadvantage Communities	N/A	8.3
Destination Centers	N/A	9.2
Workplaces	N/A	9.8
Fleet	N/A	13.1
Multi-Unit Dwellings	N/A	8

3 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).

Table 2.5 – Pilot Costs

	Planning Assumptions[4]	Inception-to-Date	Percentage to Planning Assumptions
Total estimated Pilot costs (SCE infrastructure plus rebate paid)[5]	$16,792,136	$15,018,483 1,066 charge ports[6]	89%
Average estimated cost per site (Utility + Customer infrastructure + rebate) [7]	$291,070 ($11,195 * 26 charge ports)	Average Cost per Site: $214,550 Average No. Charge Ports per Site:15	74%
Average estimated cost per port (Utility + Customer infrastructure + rebate)[8]	$11,195	$14,089	126%
Total amount of rebate reserved	$5,850,000	$1,340,401	23%
Average amount of rebate reserved per site	$101,400 ($3,900 * 26 charge ports)	$18,546	18%
Total amount of rebate paid[9]	$5,850,000	$476,416	8.1%
Average amount of rebate paid per site	$101,400 ($3,900 * 26 charge ports)	$16,428	16%
Total actual construction costs for Utility infrastructure	$10,942,136	$9,598,163	88%
Average actual construction cost for Utility infrastructure per site	N/A	$168,353	N/A
Average actual construction cost for Utility infrastructure for projects with all Level 1 charging systems	N/A	N/A	N/A
Average actual construction cost for Utility infrastructure for projects with all Level 2 charging systems	N/A	$168,353	N/A
Average actual construction cost for Utility infrastructure for projects with hybrid charging systems (both Level 1 and Level 2)	N/A	N/A	N/A
Total actual SCE site assessment cost incurred by withdrawn applicants (prior to signing Step2)	N/A	$223,909	N/A
Average actual SCE site assessment cost incurred by withdrawn applicants (prior to signing Step2)	N/A	$3,671	N/A

4 Some items did not have planning assumptions but actual costs are being tracked and reported.
5 Based on projects completed and estimated costs of projects in progress and projects with pending invoices. Estimated costs are based on initial site assessment
6 Committed charge ports with reserved funding.
7 Based on projects completed and estimated costs of projects in progress and projects with pending invoices. Estimated costs are based on initial site assessment.
8 Based on projects completed and estimated costs of projects in progress and projects with pending invoices. Estimated costs are based on initial site assessment
9 Based on 29 projects with rebate paid.

	Planning Assumptions[4]	Inception-to-Date	Percentage to Planning Assumptions
Total actual SCE site assessment, design, permit, and easement cost incurred by withdrawn applicants (after signing Step2)	N/A	$125,637	N/A
Average actual SCE site assessment, design, permit, and easement cost incurred by withdrawn applicants (after signing Step2)	N/A	$17,948	N/A
Total actual SCE construction cost incurred by withdrawn applicants	N/A	$0	N/A
Average actual SCE construction cost incurred by withdrawn applicants	N/A	$0	N/A

Exhibit 2.8 – Pilot Cycle Times

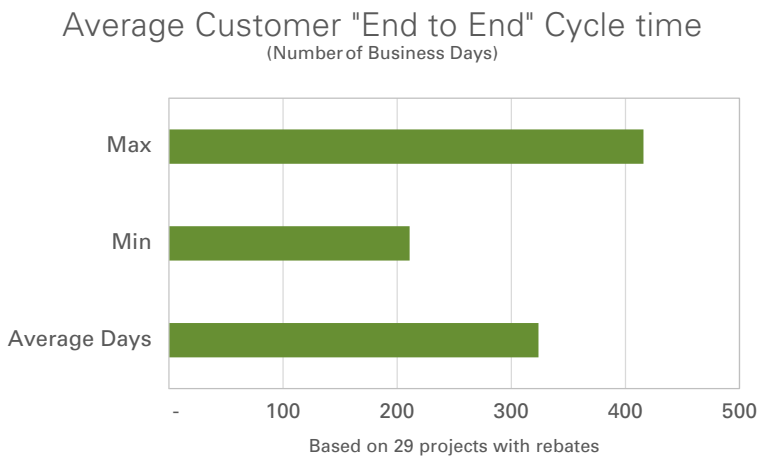
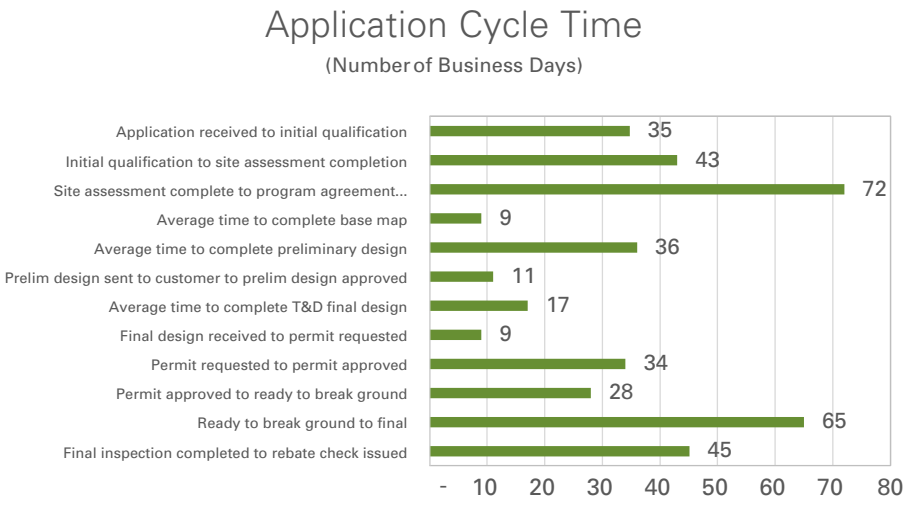


Exhibit 2.9 – Application Cycle Time



2.3 Supplier Diversity

The architecture and engineering firm and general contractors selected for Charge Ready are 100% diverse business enterprises (DBEs).

2.4 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 Pilot requires SCE employees and subcontractors installing the make-readies 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 protective equipment (PPE).
- Subcontractor electricians must hold valid California C-10 licenses.
- Electricians preparing the make-readies must be EV Infrastructure Training Program (EVITP) certified.

For infrastructure safety, all site plans were submitted to their authorities having jurisdiction (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.

3 Charging Stations

3.1 Overview

The Charge Ready Pilot qualifies three different types of charging system profiles:

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

Through a Request for Information (RFI) process, SCE conducts technical tests on proposed charging systems. In accordance with the terms and conditions of the RFI, qualified vendors (manufacturers, distributors) for the Pilot are required to offer Customer Participants:

- Qualified charging systems that meet SCE's technical requirements
- Networking services, including transactional data reporting and demand response (DR) services

The Pilot's Approved Package List[10] summarizes the vendors and EVSE models available to Customer Participants as of Q4 2017. The Pilot currently offers 62 models from 12 vendors. Tables 3.1 and 3.2 provide a summary of the different charging system types and features of EVSE models that have been approved to date.

Graph 3.1 – Number of Approved Charging System Models

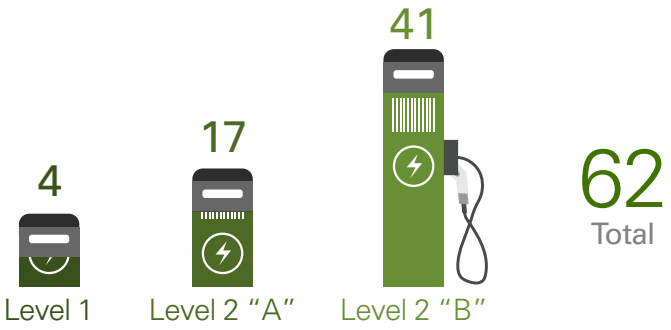


Table 3.1 – EVSE Model Summary

Average number of ports per EVSE	1.4
Average number of circuits per EVSE	1.3
Average number of ports per circuit	1.1
Number of wall EVSE units	18
Number of pedestal units	31
Number of both wall and pedestal units	13

The base cost of qualified EVSE for the Charge Ready Program Pilot is defined as "the best value offered for a charging station and its installation within each defined profile [of EVSE]."[11] SCE determines a price per port for each of the qualified models and configurations. SCE then selects the lowest price per port within each charging system type (using only those EVSE models that passed SCE's technical evaluation) to determine the base costs. The base cost values as of Q4 2017 are shown in Table 3.3. The base cost values have not changed from the prior reporting period.

Table 3.2 – Base Cost of Charging Systems

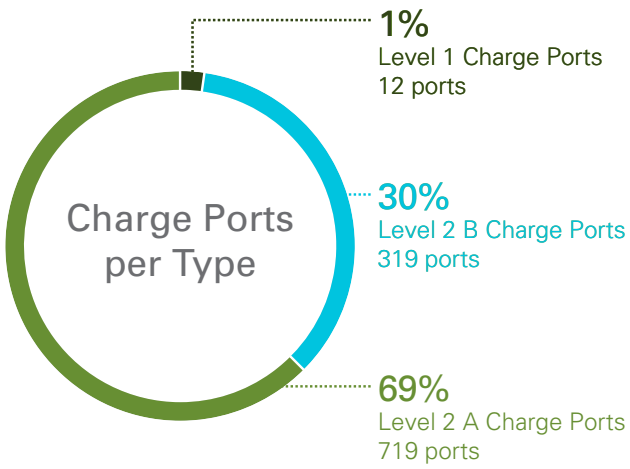
Charging System Type	Base Cost
Level 1	$1,396
Level 2 "A"	$2,188
Level 2 "B"	$1,611

10 The Pilot's Approved Package List can be found at https://on.sce.com/chargeready.
11 Charge Ready Program Testimony, Vol. 2, p. 9.

3.2 Customer Charging Stations

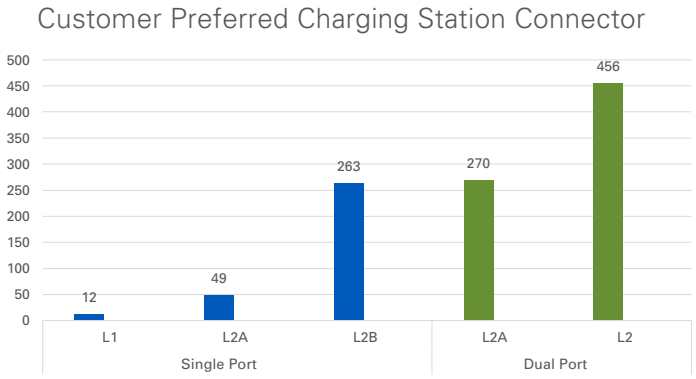
By the end of Q4, 69 customers with 1,050 charge ports had submitted their procurement documents for the charging stations. The following chart displays customer preferences for types of charging stations.

Exhibit 3.1 – Charge Ports per Type



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

Exhibit 3.2 – Customer Preferred Charging Station Connector



3.3 Rebate

As of December 31, 2017, a total of 29 rebate payments were released, representing 414 charge ports.

Table 3.3 provides a summary of charging station requests and rebates, as of September 2017.

Table 3.3 – Charging Station Requests and Rebates

Number of Level 1 charge ports requested[12]	13
Number of Level 2 charge ports requested[13]	1,053
Number of total charge ports approved	1,066
Average number of Level 1 charge ports approved per Level 1 site	6.5
Average number of Level 2 charge ports approved per Level 2 site	15.3
Rebate amount reserved for Level 1 ports	$19,356
Rebate amount reserved for Level 2A ports	$358,993
Rebate amount reserved for Level 2B ports	$793,898
Rebate amount paid for Level 1 ports	-
Rebate amount paid for Level 2A ports	$205,592
Rebate amount paid for Level 2B ports	$370,192

12 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.

13 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.

4 Charging Station Operation

4.1 Charging Station Utilization

By the end of Q4 2017, SCE had collected data from all active customers. The data below reflects the 37 Charge Ready projects with data collected through December 2017. The completed projects break down as follows:

Table 4.1 – Market Segments for Data Collection

Project Type	Sites	# of Ports
Workplace	16	287
Destination Center	15	134
Fleet	4	32
MUD	2	14

Per the data collected from the electric vehicle service providers (EVSPs), SCE has identified the number of sessions, usage, connection time and charging time at each of the sites. A "session" is defined as the period from when a vehicle plugs into a charge port to when it disconnects from that charge port. During the session a vehicle can go in and out of a state of charge.

Table 4.2 indicates that the majority of the sessions thus far have taken place at workplaces with the rest of the segments lagging behind. In terms of overall usage, the total consumption at these sites reflects the greater number of sessions. However, when looking at average energy consumed kWh per session, Multi-Unit Dwellings have the highest consumption while fleets have the least.

Table 4.2 – Session kWh Summary

Market Segment	Sessions	Total kWh	Avg. kWh per session	KWH per Port
Workplace	14,656	12,0442.75	8.22	419.66
Destination Center	3,780	34,287.15	9.07	255.87
Fleet	1,113	7,378.13	6.63	230.57
Multi-Unit Dwelling	432	5,045.02	11.68	360.36

The average connection time and average charging times also provide insight into driver behavior at the charging stations. Fleet charging sites have the longest average connection time (the time from when the car is plugged in to when it is unplugged) while destination centers have the shortest average connection time. This shortest average connection time does not correspond with the shortest average charging time, however. The shortest average charging time belongs to the fleet vehicle segment. This could indicate that the fleet vehicles are being plugged in with some amount of charge remaining and therefore do not take as much time to fill up. The large difference between average connection time and average charge time in the fleet segment indicates that vehicles are more frequently sitting idle at EVSEs while fully charged.

Table 4.3 – Session Connection Time and Charge Time Summary:

Market Segment	Total Connection Time (hrs)	Total Charge Time (hrs)	Avg. Connection Time	Avg. Charge Time
Workplace	69,576.86	29,421.84	4.75	2.01
Destination Center	11,004.83	6,694.64	2.91	1.77
Fleet	14,629.23	1,725.62	13.14	1.55
Multi-Unit Dwelling	1,459.94	889.61	3.38	2.06

4.2 Customer Participant Load Profiles

In addition to session data, SCE is also collecting usage data from the EVSPs.

The following charts show data from workplaces, destination centers, fleets and MUDs at an aggregated level for the month of December. Exhibit 4.1 shows high usage of charging stations during the week for workplaces and low usage on the weekends and on holidays as would be expected at a workplace charging site.

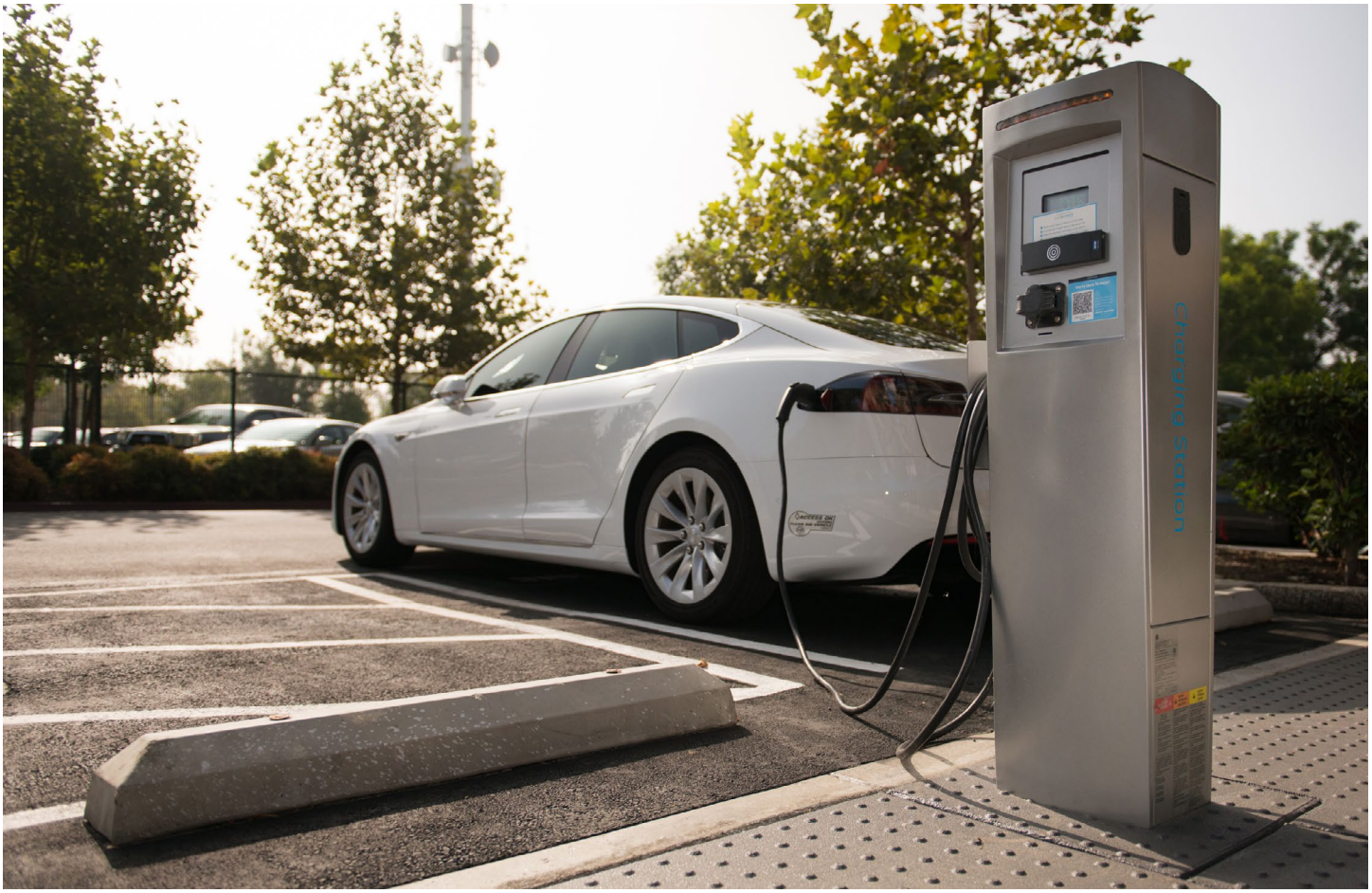
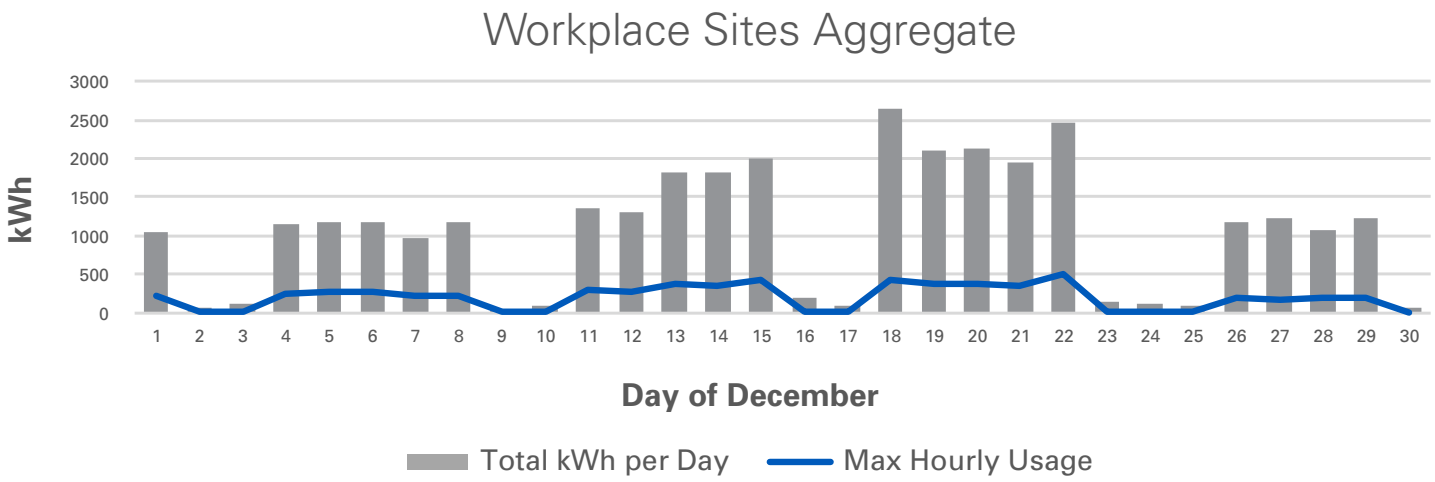
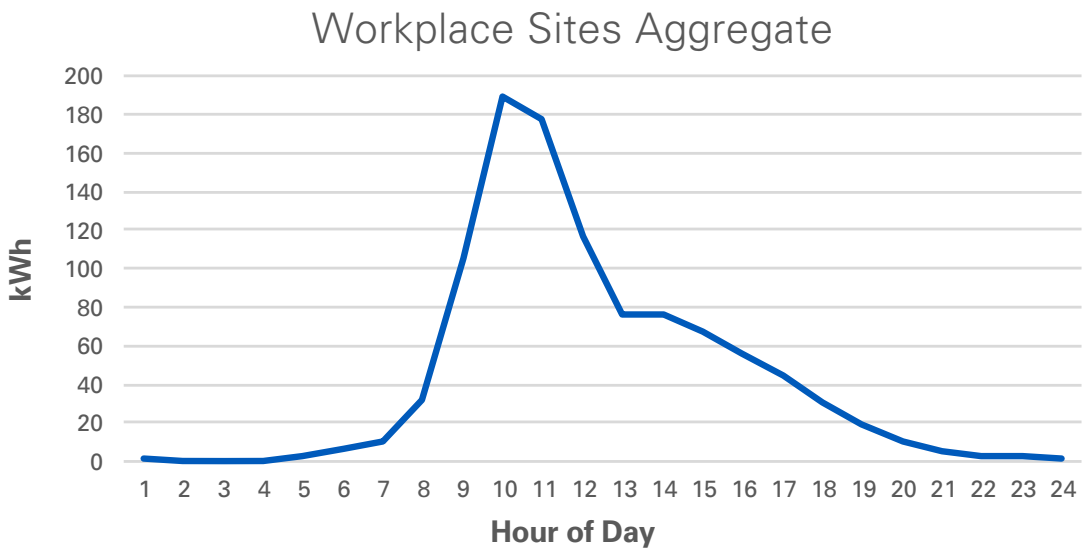


Exhibit 4.1 – Aggregated Total Usage and Maximum Hourly Usage per Day - Workplaces



SCE can also determine the average load profile for a site. Exhibit 4.2 indicates that on average, workplaces experience a higher level of charge in the mornings that drops off dramatically by noon with some usage in the afternoon.

Exhibit 4.2 – Aggregated Average Hourly Usage per Day - Workplaces



For fleet sites, Exhibit 4.3 below shows high usage of charging stations during the week and on Saturdays.

Exhibit 4.3 – Aggregated Total Usage and Maximum Hourly Usage per Day - Fleets

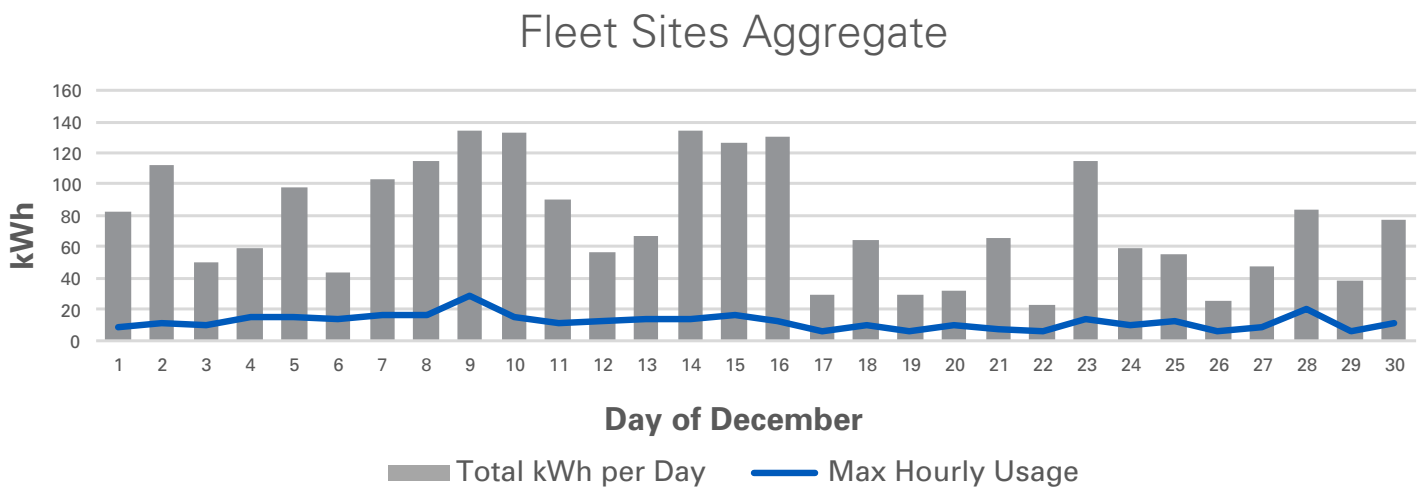
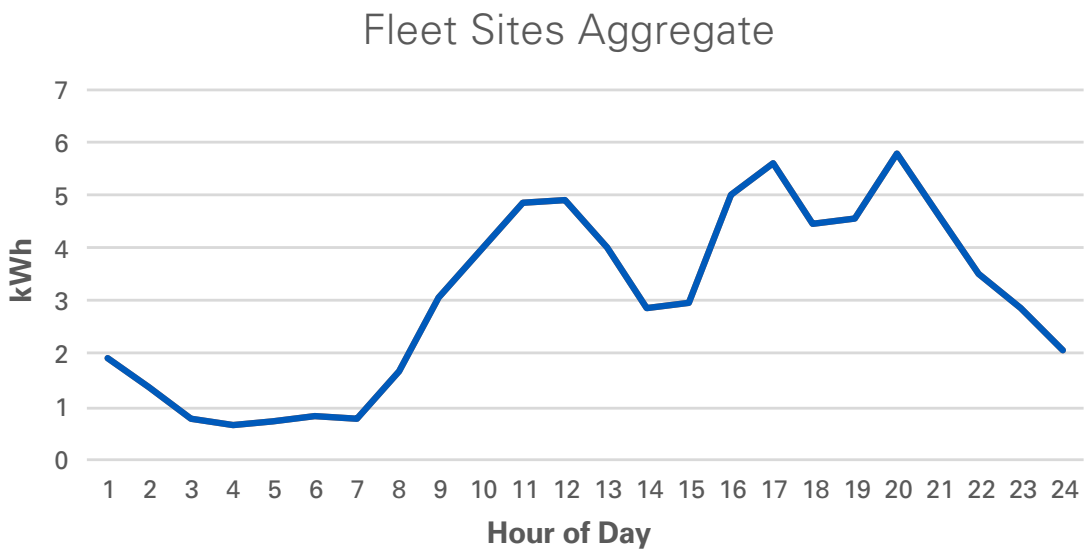


Exhibit 4.4 indicates that on average, fleet sites experience a higher level of charge in the mornings around 11 am and peaks in the afternoons around 5 pm and again at around 8 pm.

Exhibit 4.4 – Aggregated Average Hourly Usage per Day - Fleets



For destination centers, Exhibit 4.5 below shows high usage of charging stations on a daily basis but typically lower on weekends than weekdays.

Exhibit 4.5 – Aggregated Total Usage and Maximum Hourly Usage per Day – Destination Centers

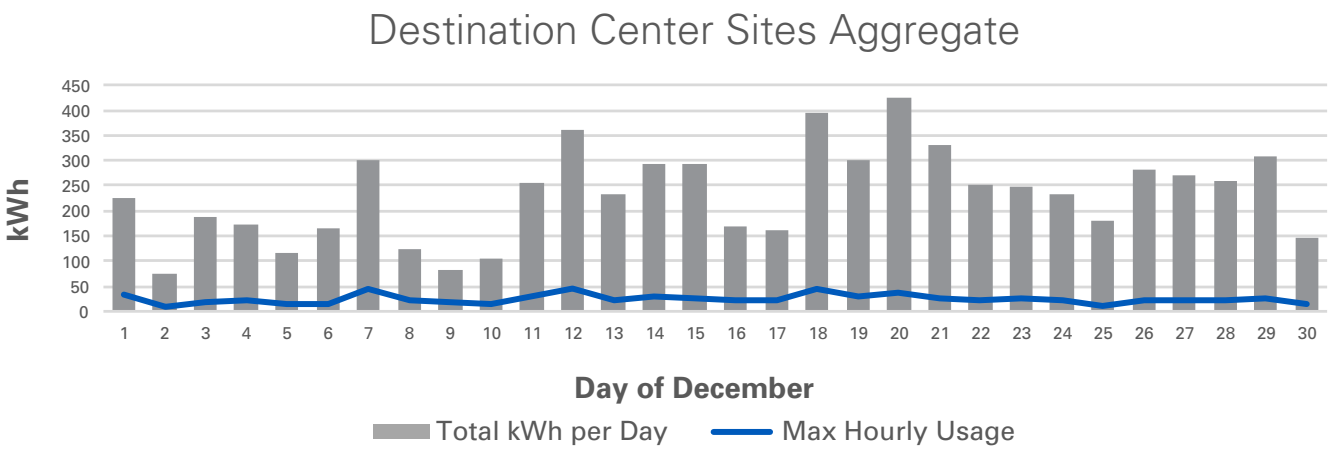
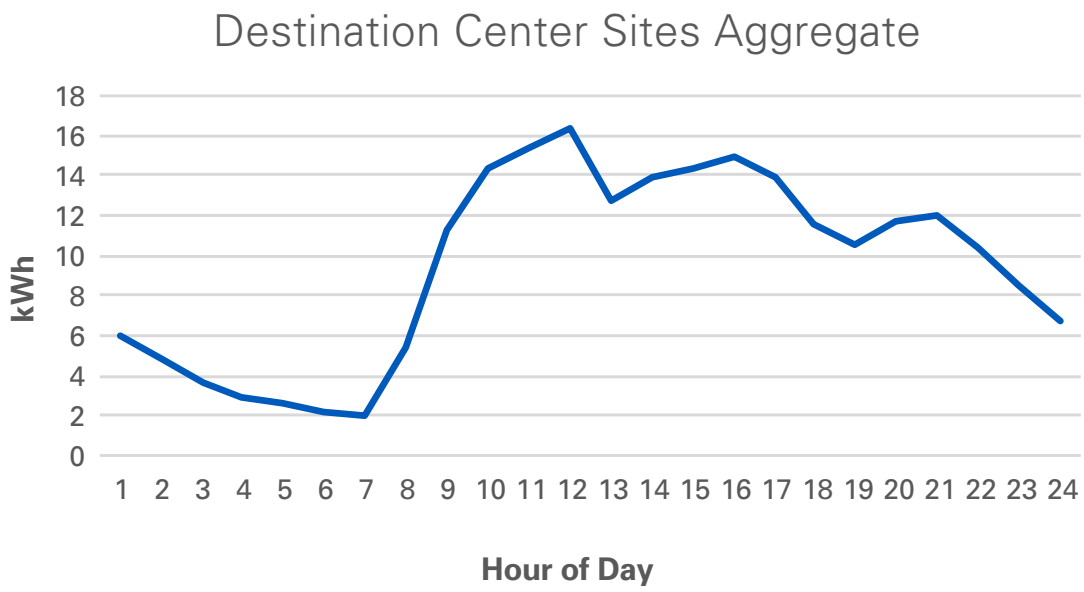


Exhibit 4.6 indicates that on average, destination centers experience a high level of charging throughout the day but starts to drop off at around 9 pm.

Exhibit 4.6 – Aggregated Average Hourly Usage per Day – Destination Centers



For multi-unit dwellings, Exhibit 4.7 below shows high usage of charging stations on a daily basis but typically lower on weekends than weekdays.

Exhibit 4.7 – Aggregated Total Usage and Maximum Hourly Usage per Day – MUD

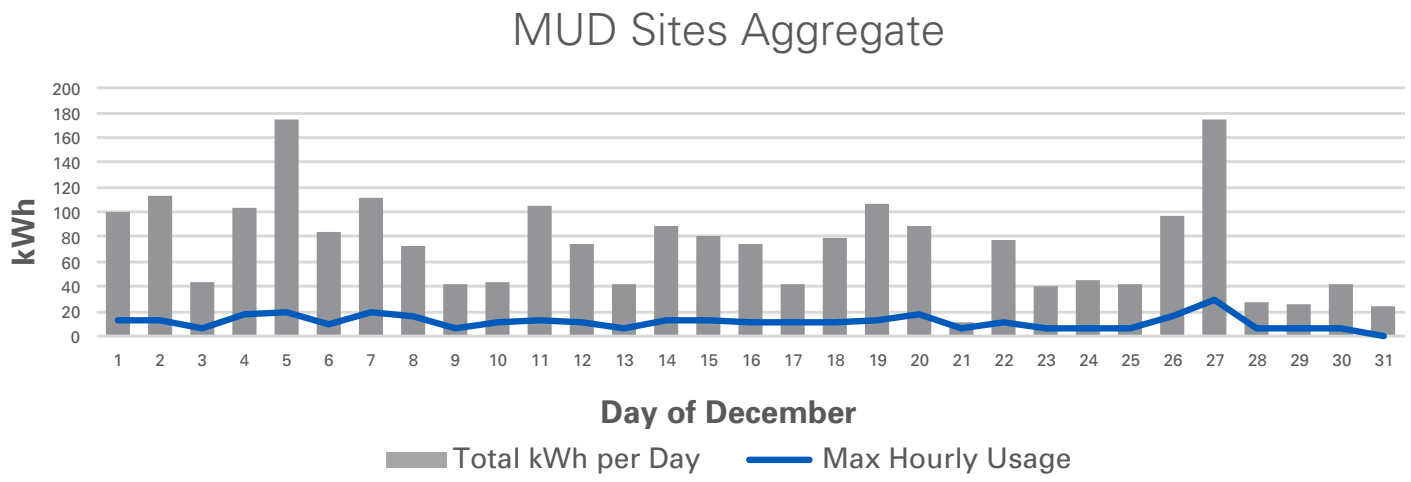
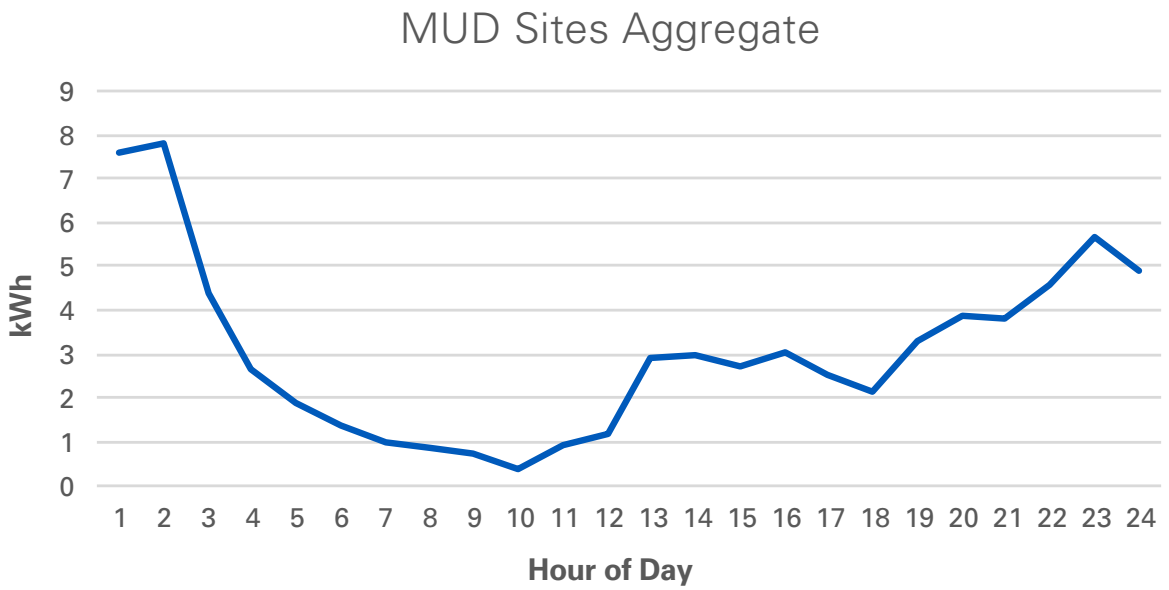


Exhibit 4.8 indicates that on average, multi-unit dwellings experience a high level of charging at night with the lowest around 10 am. This is likely due to the cars charging throughout the night and not unplugging until the next morning.

Exhibit 4.8 – Aggregated Average Hourly Usage per Day – Destination Centers



SCE will continue to learn from future charging data submitted as more Charge Ready projects come on line and as the users mature and develop more consistent charging patterns.

SCE will use this analysis to inform the execution of a Charge Ready Demand Response (DR) Pilot that was approved as part of the 2018-2022 DR application to research use cases, study customer behavior, and inform the development of a DR program for all Charge Ready customers.

5 Customer Outreach and Enrollment

5.1 Charge Ready Education & Outreach

Charge Ready education and outreach efforts are designed to promote the Pilot to SCE customers. SCE continued to track marketing channels in preparation for a subsequent phase of Charge Ready.

Table 5.1 presents the data collected for the Charge Ready Program Pilot Landing Page to measure the traffic of the website from Q1 2017 to Q4 2017. A decrease in website activity was expected since marketing and outreach for new applicants ceased on January 3, 2017.

Table 5.1 – Charge Ready Program Pilot Landing Page Metrics

Metric	Q1 2017	Q2 2017	Q3 2017	Q4 2017	% Change
Unique Visitor Count	939	935	910	835	-8.24%
Repeat Visitor Count	381	419	254	234	-7.87%
Page Views	1,477	1,479	1,444	1,317	-8.80%
Bounce Rate	51.01%	51.85%	47.86%	50.59%	5.70%

5.2 Market Education

Separately from its education and outreach efforts to support enrollment in Charge Ready Program Pilot, SCE also communicates about EVs and the benefits of fueling from the grid to a broad audience through its "What's Your Electric Vehicle (EV) IQ?" campaign. Through the EV IQ messaging, SCE aims to intrigue and engage customers by challenging them with fun mini-quizzes to overcome barriers and misconceptions about EVs, and provides an opportunity to inform them of EV benefits that could prompt them to consider driving one. The campaign utilizes a number of channels, including:

- Paid Media: digital banners, search engine marketing (SEM), sponsored social media ads, and radio.
- Local Sponsorship: booth sponsorship and ride and drives at EV-related events.
- Direct Messaging: email to targeted customer populations.
- Other Channels: bill inserts, messaging on SCE.com, and organic social media.

Customers exposed to these channels are driven to relevant information on the updated SCE.com EV website, which includes content in English, Spanish, Korean, Chinese, and Vietnamese. Customer site interactions were tracked, to improve and optimize the experience.

The following table includes metrics capturing traffic for key campaign pages within the site. Web traffic decreased as expected as there was no mass media in market during Q4 2017.

Table 5.2 – Charge Ready EV Awareness Website Metrics

EV Awareness	Q3 2017	Q4 2017
Electric Vehicle Overview Page on SCE.com[14]		
Unique Visitor Count	9,138	7,986
Repeat Visitor Count	3,407	2,851
Page Views	13,029	11,526
Bounce Rate[15]	39.52%	41.46%
Multi-page Visits	7,773	6,674
Electric Vehicle Campaign Landing Page on SCE.com[16]		
Unique Visitor Count	9,175	8,518
Repeat Visitor Count	653	743
Page Views	11,931	10,944
Bounce Rate	86.95%	87.08%
Multi-page Visits	1,378	1,277

For SCE's Market Education efforts, customer awareness of electric vehicle benefits and messaging are tracked using SCE's Customer Attitude Tracking (CAT) survey. The CAT survey is a quarterly tool designed to assess and track attitudes, brand

14 https://www.sce.com/wps/portal/home/residential/electric-cars/ | This page provides an overview of the EV-related content for residential customers on the website, and includes links to pilots (Submeter, Charge Ready) and EV content for businesses. Customers can navigate to this site without a vanity URL.
15 Bounce rate is the percentage of single page visits.
16 https://www.sce.com/wps/portal/home/residential/electric-cars/EV-Assessment-Campaign-Page/ | This page was visible only by clicking through on digital and social media ads, or by using a vanity URL provided in radio ads.

favorability, and awareness of relevant marketing messages among SCE customers. This telephone survey is conducted with 450 randomly-selected SCE households and 250 small businesses by an independent marketing research firm. Customers are asked to recall and rate messaging around the benefits of electric vehicles and preparing to buy or lease an electric vehicle, as well as SCE's role in supporting and advancing electric transportation. Since the campaign fully launched in late August 2016, the data collected from the 2016 Q1, Q2, and Q3 CAT surveys was used to establish a baseline around message recall.

Table 5.3 summarizes the CAT survey baseline data. Respondents were asked, "In the past three months, do you recall seeing, hearing, or reading about any ads about SCE and the benefits of electric vehicles?"

Table 5.3 – CAT Survey Results

Response	Baseline (Q1-Q3 2016)	Q2 2017	Q3 2017[17]	Q4 2017
Total Respondents	1,354	450	600	600
Yes	189 14%	54 12%	92 15%	92 15%
No	1,147 85%	378 84%	489 82%	476 79%
No Response	18 1%	18 4%	19 3%	32 5%

5.3 Transportation Electrification Advisory Services

SCE proposed TE Advisory Services 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, and 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

In addition to the above, TE Advisory Services will be launching an in-person services study for approximately 25 business customers in Q1 2018 with the following services:

- An initial fleet assessment (including GHG savings calculations) to help customers evaluate business cases for converting fleets of vehicles to TE technology
- Infrastructure Assessments to assist customers in evaluating a potential deployment of charging equipment

17 Sample size increased in Q3 2017 to allow for additional testing related to other corporate campaigns

SCE is tracking web traffic and has established the following baselines to compare against as more outreach is conducted.

Table 5.4 – TEAS Web Traffic

Q4 2017: Baseline

Metric	Workplace	Public	Fleet	MUD
Unique Visitor Count	292	121	138	69
Page Views	507	188	281	162
Multi-Page	346	143	165	111

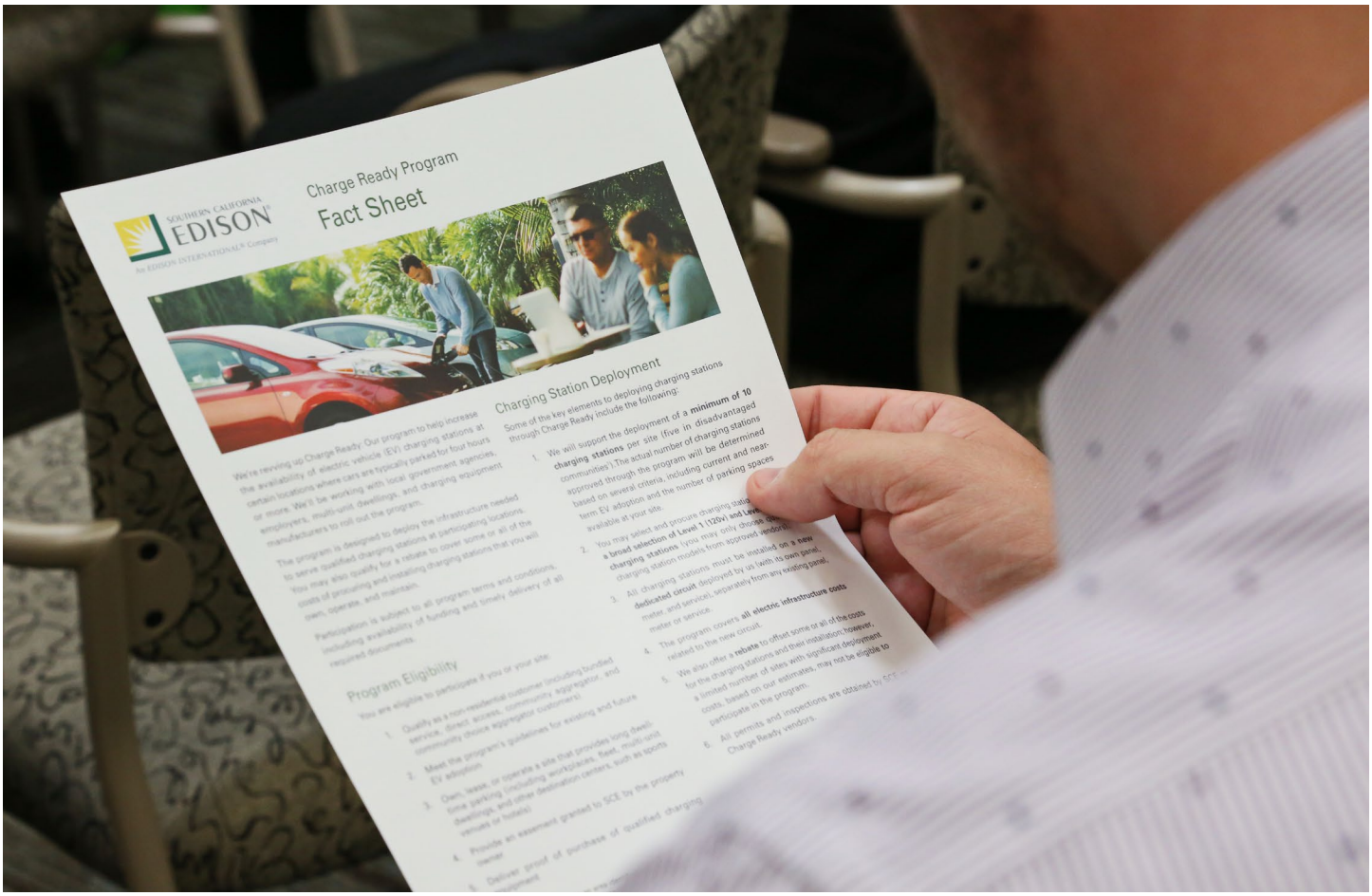
5.4 Outreach Events

SCE conducted two outreach events in Q4 2017. SCE employees who attended the events provided an estimated total of 500 customer interactions including 83 ride and drives. The following table provides the location as well as the estimated number of customer interactions.

Table 5.5 – Outreach Events

October 28, 2017 | Bell, CA
Ride & Drive: **200** attendees; 83 R&Ds

November 4, 2017 | Carson, CA
Carson Electric Vehicle Showcase (Ride & Drive): **300** in attendance



6 Conclusion

6.1 Conclusion

In this quarterly report, SCE provided data and updates on progress in implementing and executing the Pilot. Projects with executed agreements continued forward through the construction and installation process. By the end of the fourth quarter, there were 34 sites with 453 ports in which SCE verified customer installation of charging stations. Additionally, SCE has completed infrastructure at 18 sites that support 350 charge ports (pending charging station installation). SCE also started construction at 3 sites with 59 charge ports. Lastly, 15 sites for 204 charge ports were gathering pre- construction requirements such as permits and easements. SCE learned about the charging station procurement process, construction timelines, and EV charging load from the completed projects. In the next quarter, SCE expects to learn from more constructed projects and identify additional program improvements. SCE will also continue to learn from the energy usage of the charging stations deployed under the Charge Ready Program Pilot.

Appendix

Pilot Operational Metrics for Quarter

Total Number of Applications Received

	Planning Assumptions	Quarter 4, 2017	Inception-to-Date Actual	Percentage to Planning Assumptions
	58 projects, 1,500 charge ports	0 projects, 0 charge ports	334 projects, 2,043 charge ports	576%, 136%
Disadvantaged Communities	N/A	0%	47%	N/A
Destination Centers	N/A	0%	24%	N/A
Workplaces	N/A	0%	65%	N/A
Fleet	N/A	0%	5%	N/A
Multi-Unit Dwellings	N/A	0%	6%	N/A

Percentage of Charging Stations Requested

	Planning Assumptions	Quarter 4, 2017	Inception-to-Date Actual	Percentage to Planning Assumptions
	58 projects, 1,500 charge ports	0 projects, 0 charge ports	334 projects, 2,043 charge ports	576%, 136%
Disadvantaged Communities	10%	0%	38%	368%
Destination Centers	N/A	0%	27%	N/A
Workplaces	N/A	0%	59%	N/A
Fleet	N/A	0%	8%	N/A
Multi-Unit Dwellings	N/A	0%	6%	N/A

Number of Applicants Rejected

	Planning Assumptions	Quarter 4, 2017	Inception-to-Date Actual	Percentage to Planning Assumptions
	N/A	0 project, 0 requested charge port	91 projects, 377 requested charge ports	N/A
Disadvantaged Communities	N/A	0%	41%	N/A
Destination Centers	N/A	0%	22%	N/A
Workplaces	N/A	0%	70%	N/A
Fleet	N/A	0%	0%	N/A
Multi-Unit Dwellings	N/A	0%	8%	N/A

Number of Applicants Withdrawn

	Planning Assumptions	Quarter 4, 2017	Inception-to-Date Actual	Percentage to Planning Assumptions
	N/A	-5 projects, -50 charge ports	143 projects, 630 charge ports	N/A
Disadvantaged Communities	N/A	1%	46%	N/A
Destination Centers	N/A	1%	19%	N/A
Workplaces	N/A	1%	69%	N/A
Fleet	N/A	0%	6%	N/A
Multi-Unit Dwellings	N/A	0%	7%	N/A

Number of Applicants Withdrawn After Signing Step 2 - Agreement

	Planning Assumptions	Quarter 4, 2017	Inception-to-Date Actual	Percentage to Planning Assumptions
	N/A	0	7	N/A
Disadvantaged Communities	N/A	0	3	N/A
Destination Centers	N/A	0	2	N/A
Workplaces	N/A	0	5	N/A
Fleet	N/A	0	0	N/A
Multi-Unit Dwellings	N/A	0	0	N/A

Average Number of Charge Ports Installed per Site

	Planning Assumptions	Quarter 4, 2017	Inception-to-Date Actual	Percentage to Planning Assumptions
	N/A	12	13	N/A
Disadvantaged Communities	N/A	10	9	N/A
Destination Centers	N/A	16	11	N/A
Workplaces	N/A	10	18	N/A
Fleet	N/A	10	8	N/A
Multi-Unit Dwellings	N/A	10	10	N/A

Total Number of Completed Projects

	Planning Assumptions	Quarter 4, 2017	Inception-to-Date Actual	Percentage to Planning Assumptions
	58 projects, 1,500 charge ports	10 projects, 116 charge ports	34 projects, 453 charge ports	N/A
Disadvantaged Communities	N/A	40%	62%	N/A
Destination Centers	N/A	30%	44%	N/A
Workplaces	N/A	50%	41%	N/A
Fleet	N/A	1%	12%	N/A
Multi-Unit Dwellings	N/A	10%	3%	N/A

Average Number of Total Parking Spaces per Site

Customer Participant Request	Planning Assumptions	Inception-to-Date Actual
	N/A	621 parking spaces/site
Disadvantaged Communities	N/A	377 parking spaces/site
Destination Centers	N/A	931 parking spaces/site
Workplaces	N/A	523 parking spaces/site
Fleet	N/A	404 parking spaces/site
Multi-Unit Dwellings	N/A	636 parking spaces/site

Percentage of Total Number of Parking Spaces Located in Parking Structures

Customer Participant Request	Planning Assumptions	Inception-to-Date Actual
	N/A	12%
Disadvantaged Communities	N/A	1,660
Destination Centers	N/A	7,560
Workplaces	N/A	23,332
Fleet	N/A	1,882
Multi-Unit Dwellings	N/A	2,978

Customer Participant Request	Planning Assumptions	Inception-to-Date Actual
Average fleet size[18]	N/A	6 (Fleet Segment Only) 4 (All Segments)
Percentage of applications received with charging systems already installed at the site	N/A	15%
Average number of charging systems already installed at the site	N/A	10

Average Number of Charge Ports Requested per Site

Customer Participant Request	Planning Assumptions	Inception-to-Date Actual
	26	7.6
Disadvantaged Communities	N/A	8.3
Destination Centers	N/A	9.2
Workplaces	N/A	9.8
Fleet	N/A	13.1
Multi-Unit Dwellings	N/A	8.0

18 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).

Charging Station Request & Rebate

Charging Station Request & Rebate	
Number of Level 1 charge ports requested[19]	13
Number of Level 2 charge ports requested[20]	1,053
Number of total charge ports approved	1,066
Average Number of Level 1 charge ports approved per site	6.5
Average Number of Level 2 charge ports approved per site	15.3
Number of Level 1 EVSE bought	12
Average number of ports per Level 1 EVSE	1.0
Number of Level 2A EVSE bought	184
Average number of ports per Level 2A EVSE	1.7
Number of Level 2B EVSE bought	512
Average number of ports per Level 2B EVSE	1.4
Number of Level 1 EVSE installed	0
Number of Level 2A EVSE installed	135
Number of Level 2B EVSE installed	146
Rebate amount reserved for Level 1 ports	$19,356
Rebate amount reserved for Level 2A ports	$358,993
Rebate amount reserved for Level 2B ports	$793,898
Rebate amount paid for Level 1 ports	-
Rebate amount paid for Level 2A ports	$205,592
Rebate amount paid for Level 2B ports	$370,192

19 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.

20 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.