

# Charge Ready Pilot Program Q2/2018 Report

Issued August 31, 2018





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## 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.



# 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)<sup>1</sup> 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)<sup>2</sup>. The board provided useful input and guidance to SCE during the Pilot implementation and execution.

## 1.2 Pilot Summary for Quarter

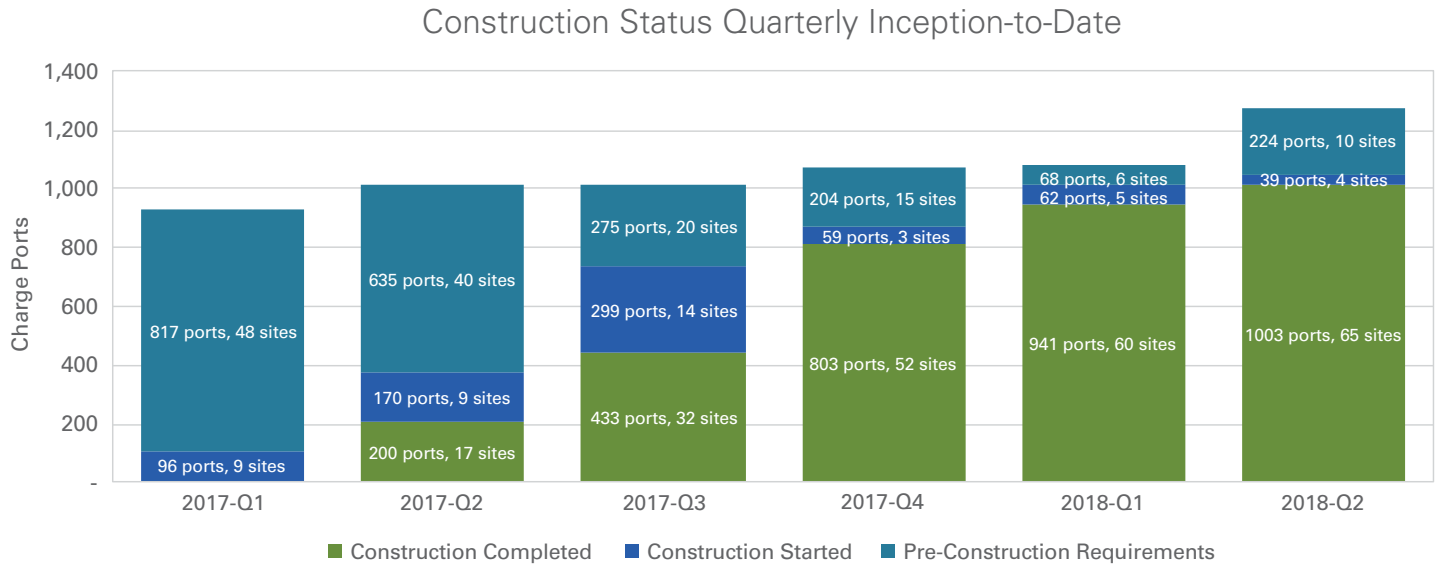
By the end of the second quarter in 2018, SCE reserved funding for a total of 1,266 charge port commitments at 79 sites. Of the 1,266 committed charge ports, 598 charge ports, or 47% are located in DACs, which is considerably higher than the Pilot's requirement to deploy 10% of charge ports in DACs.

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. Figure 1.1 shows 65 sites with 1,003 ports where SCE completed infrastructure. SCE has started construction at four sites with 39 charge ports. Lastly, 10 sites for 224 charge ports were gathering Pre-Construction Requirements, such as easements and permitting. Figure 1.1 shows the quarterly inception-to-date snapshot of the construction status at the end of Q2 2018.

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.

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

Figure 1.1 – Construction Status Quarterly Inception-to-Date



The following table summarizes the Pilot’s costs recorded at the end of Q2 2018.

Table 1.1 – Pilot Summary for Quarter 2, 2018

Variables	Planning Assumptions (2014\$)	Inception-to-date as of 6/30/2018	Remaining	Percentage Remaining
<b>Capital</b>				
Utility Side Infrastructure Costs	\$3,353,532	\$1,637,076	\$1,716,456	51%
Customer Side Infrastructure Costs	\$7,586,387	\$10,546,797	(\$2,960,410)	-39%
Easement	\$115,942	\$84,722 <sup>3</sup>	\$31,220	27%
Station Testing	\$30,000	\$38,554 <sup>3</sup>	(\$8,554)	-29%
Business Customer Division Labor	\$103,500	\$81,162 <sup>3</sup>	\$22,338	22%
Program Management Office Labor	\$460,003	\$534,991 <sup>3</sup>	(\$74,988)	-16%
<b>Total Capital</b>	<b>\$11,649,364</b>	<b>\$12,923,301</b>	<b>(\$1,273,937)</b>	<b>-11%</b>
<b>Operations &amp; Maintenance</b>				
Rebate	\$5,850,000	\$617,103	\$5,232,897	89%
Business Customer Division Labor	\$51,750	\$35,235 <sup>4</sup>	\$16,515	32%
Transportation Electrification Advisory Services	\$316,800	\$287,161	\$29,639	9%
PMO Labor & Non-Labor	\$232,340	\$272,561	(\$40,221)	-17%
Charge Ready ME&O	\$665,000	\$531,146	\$133,854	20%
EV Awareness	\$2,830,600	\$2,033,260	\$797,340	28%
Other O&M <sup>5</sup>	\$0	\$812,214 <sup>6</sup>	(\$812,214)	0%
<b>Total Operations and Maintenance</b>	<b>\$9,946,490</b>	<b>\$4,588,680</b>	<b>\$5,357,810</b>	<b>54%</b>
<b>Total Program</b>	<b>\$21,595,854</b>	<b>\$17,511,981</b>	<b>4,083,873</b>	<b>19%</b>

<sup>3</sup> A decrease from the Pilot Report can be seen due to costs being transferred to Utility-Side and Customer-Side Infrastructure Costs per SCE reporting guidelines. Total Capital Costs did not change.

<sup>4</sup> A decrease from the Pilot Report can be seen due to reclassification to capital labor.

<sup>5</sup> Includes overhead, site assessments, design and permitting costs on projects that did not move forward.

<sup>6</sup> A decrease from the Pilot report can be seen due to reversal of an incorrect charge.



## 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 **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.<sup>7</sup>
- 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**.<sup>8</sup>
- 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 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 issues the rebate.

### Waitlist Process

SCE established a waitlist for customers that did not meet program timelines, or whose applications exceeded funding availability. Waitlisted projects can move forward in the process if other projects with reserved funding drop out or if previously reserved funding becomes available (for example, if a project with reserved funding has cost underruns).

### 2.2 Status Overview

#### Pilot Re-Opening

On March 9, 2018, SCE released unused funds reserved for completed sites and re-opened the Pilot to new applications. Since the re-opening, the Pilot has received 115 applications requesting 1,955 charge ports. By June 2018, from the new applications received, the Pilot has reserved funds for nine sites and 219 charge ports.

#### Overall Status

By the end of the second quarter in 2018, SCE reserved funding for a total of 1,266 charge port commitments. Of the 1,266 committed charge ports, 598 charge ports, or 47%, 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 24 charge ports for one customer were put on the waitlist due to limited funding available. The following three charts provide the charge port distribution per the category noted for the 1,266 charge ports that have reserved funding.

<sup>7</sup> Charging stations were procured by customers only after the Step 2 – Agreement was signed and SCE reserved funding.

<sup>8</sup> 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 Pilot's timelines.

Figure 2.1 – Charge Port Distribution by Market Segment

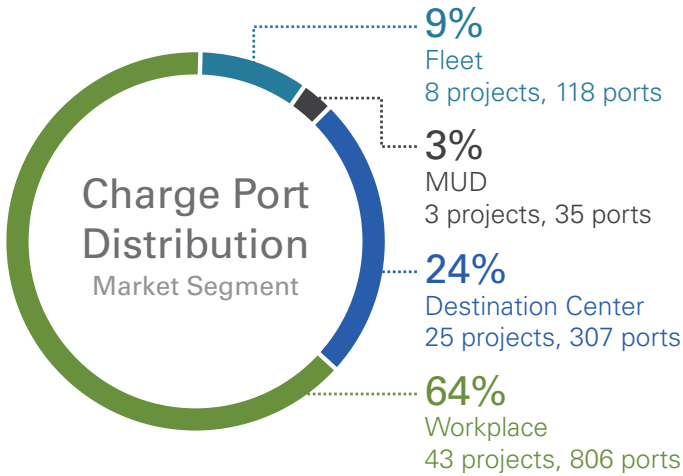


Figure 2.3 – Charge Port Distribution DAC and Non-DAC

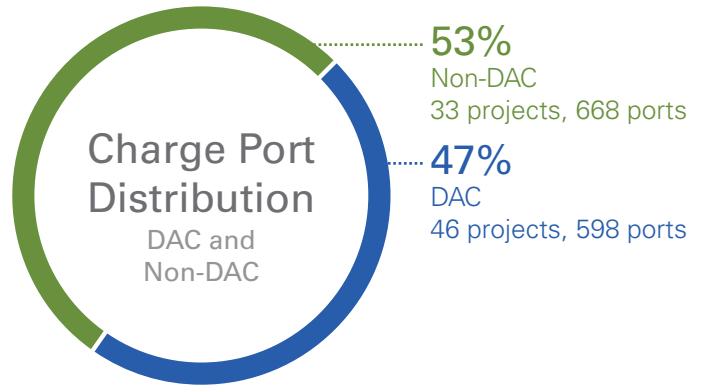
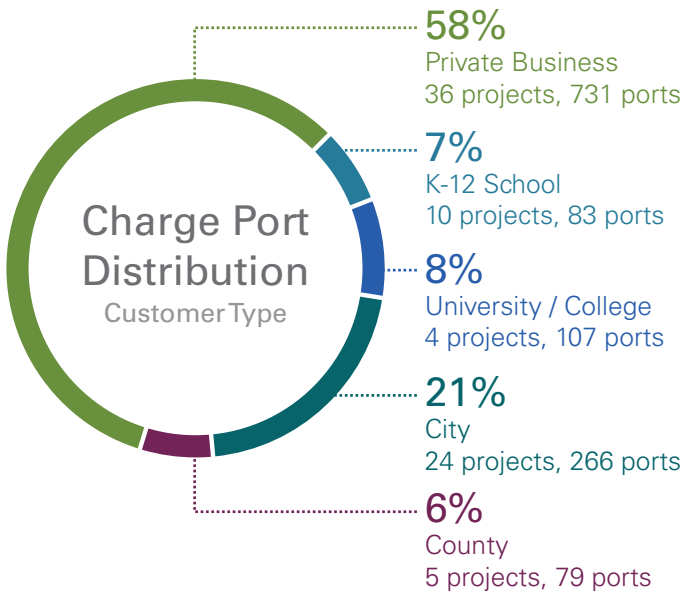
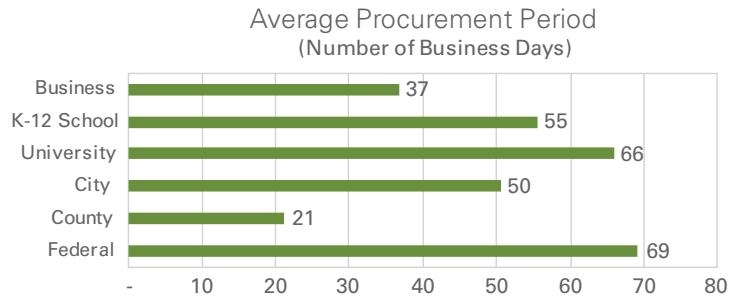


Figure 2.2 – Charge Port Distribution by Customer Type



By the end of Q2, 70 customers with 1,047 charge ports had submitted their procurement documents for the 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 Figure 2.4.

Figure 2.4 – Average Procurement Period



The following charts provide a snapshot of the Pilot’s operational metrics relating to customer applications in the Charge Ready Program Pilot. The data reflected in the tables capture the project activity from the launch of the Pilot on May 27, 2016 to June 30, 2018. Where applicable, the distribution across market segments, as well as the total number in Disadvantaged Communities, is provided.

Figure 2.5 – Applications Received

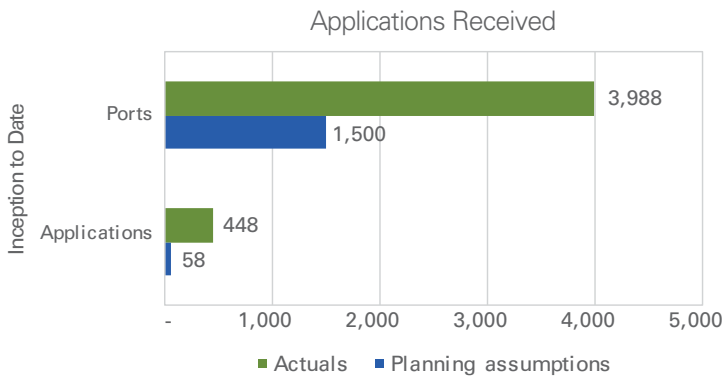


Figure 2.6 – Number of Approved and Confirmed Projects

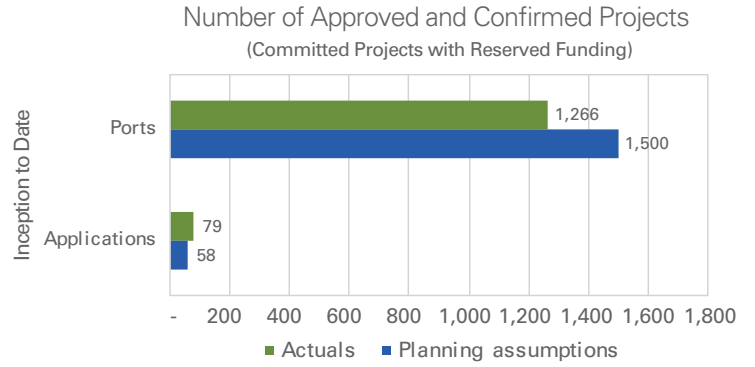


Table 2.1 – Pilot Operational Metrics for Quarter

## Total Number of Applications Received

	Planning Assumptions	Quarter 2, 2018	Inception-to-Date Actual	Percentage to Planning Assumptions
	58 projects, 1,500 charge ports	115 projects, 1,955 charge ports	449 projects, 3,998 charge ports	576%, 136%
Disadvantaged Communities	N/A	37%	44%	N/A
Destination Centers	N/A	24%	24%	N/A
Workplaces	N/A	65%	65%	N/A
Fleet	N/A	7%	5%	N/A
Multi-unit Dwellings	N/A	4%	6%	N/A

## Percentage of Charging Stations Requested

	Planning Assumptions	Quarter 2, 2018	Inception-to-Date Actual	Percentage to Planning Assumptions
	58 projects, 1,500 charge ports	115 projects, 1,955 charge ports	449 projects, 3,998 charge ports	576%, 136%
Disadvantaged Communities	10%	34%	36%	368%
Destination Centers	N/A	22%	25%	N/A
Workplaces	N/A	49%	54%	N/A
Fleet	N/A	6%	7%	N/A
Multi-unit Dwellings	N/A	23%	14%	N/A

## Number of Applicants Rejected

	Planning Assumptions	Quarter 2, 2018	Inception-to-Date Actual	Percentage to Planning Assumptions
	N/A	34 project, 757 requested charge port	128 projects, 1,149 requested charge ports	N/A
Disadvantaged Communities	N/A	38%	40%	N/A
Destination Centers	N/A	29%	25%	N/A
Workplaces	N/A	68%	69%	N/A
Fleet	N/A	0%	0%	N/A
Multi-unit Dwellings	N/A	3%	6%	N/A

**Number of Applicants Withdrawn**

	Planning Assumptions	Quarter 2, 2018	Inception-to-Date Actual	Percentage to Planning Assumptions
	N/A	15 projects, 117 charge ports	158 projects, 747 charge ports	N/A
Disadvantaged Communities	N/A	53%	47%	N/A
Destination Centers	N/A	33%	20%	N/A
Workplaces	N/A	60%	68%	N/A
Fleet	N/A	7%	6%	N/A
Multi-unit Dwellings	N/A	0%	6%	N/A

**Number of Applicants Withdrawn After Signing Step 2 – Agreement**

	Planning Assumptions	Quarter 2, 2018	Inception-to-Date Actual	Percentage to Planning Assumptions
	N/A	2	13	N/A
Disadvantaged Communities	N/A	1	6	N/A
Destination Centers	N/A	0	4	N/A
Workplaces	N/A	1	8	N/A
Fleet	N/A	1	1	N/A
Multi-unit Dwellings	N/A	0	0	N/A

**Average Number of Charge Ports per Site with Completed Infrastructure**

	Planning Assumptions	Quarter 2, 2018	Inception-to-Date Actual	Percentage to Planning Assumptions
	N/A	12	15	N/A
Disadvantaged Communities	N/A	11	13	N/A
Destination Centers	N/A	0	11	N/A
Workplaces	N/A	12	19	N/A
Fleet	N/A	0	12	N/A
Multi-unit Dwellings	N/A	0	12	N/A

**Total Number of Projects with Completed Infrastructure**

	Planning Assumptions	Quarter 2, 2018	Inception-to-Date Actual	Percentage to Planning Assumptions
	58 projects, 1,500 charge ports	5 projects, 62 charge ports	65 projects, 1,003 charge ports	N/A
Disadvantaged Communities	N/A	60%	60%	N/A
Destination Centers	N/A	0%	34%	N/A
Workplaces	N/A	100%	51%	N/A
Fleet	N/A	0%	11%	N/A
Multi-unit Dwellings	N/A	0%	4%	N/A

**Average Number of Charge Ports per Site with Customer Installation Completed**

	Planning Assumptions	Quarter 2, 2018	Inception-to-Date Actual	Percentage to Planning Assumptions
	N/A	14	14	N/A
Disadvantaged Communities	N/A	13	11	N/A
Destination Centers	N/A	10	11	N/A
Workplaces	N/A	16	19	N/A
Fleet	N/A	10	9	N/A
Multi-unit Dwellings	N/A	0	12	N/A

**Total Number of Projects with Customer Installation Completed**

	Planning Assumptions	Quarter 2, 2018	Inception-to-Date Actual	Percentage to Planning Assumptions
	58 projects, 1,500 charge ports	13 projects, 187 charge ports	54 projects, 765 charge ports	N/A
Disadvantaged Communities	N/A	62%	61%	N/A
Destination Centers	N/A	15%	37%	N/A
Workplaces	N/A	69%	46%	N/A
Fleet	N/A	15%	11%	N/A
Multi-unit Dwellings	N/A	0%	6%	N/A

Table 2.2 – Customer Participant Request

	Planning Assumptions	Year-to-Date Actual
Average number of total parking spaces per site	N/A	637 parking spaces/site
Percentage of total number of parking spaces located in parking structures	N/A	12%
Average fleet size <sup>9</sup>	N/A	7 (Fleet Segment Only) 4 (All Segments)
Percentage of applications received with charging systems already installed at the site	N/A	19%
Average number of charging systems already installed at the site	N/A	9
Average number of charge ports requested per site	26	13.7
Disadvantaged Communities	N/A	11.3
Destination Centers	N/A	12.9
Workplaces	N/A	12.1
Fleet	N/A	14.7
Multi-unit Dwellings	N/A	33.9

Table 2.3 – Pilot Costs

	Planning Assumptions <sup>10</sup>	Inception-to-Date	Percentage to Planning Assumptions
Total estimated Pilot costs (infrastructure plus rebate paid) <sup>11</sup>	\$16,792,136	\$16,931,276 1,266 charge ports <sup>12</sup>	101%
Average estimated cost per site (Utility + Customer infrastructure + rebate) <sup>13</sup>	\$291,070 (\$11,195 x 26 charge ports)	Average Cost per Site: \$214,320 Average No. Charge Ports per Site: 16	74%
Average estimated cost per port (Utility + Customer infrastructure + rebate) <sup>14</sup>	\$11,195	\$13,374 \$12,629 (in 2014\$) <sup>15</sup>	119%
Total amount of rebate reserved <sup>16</sup>	\$5,850,000	\$1,549,596	25%
Average amount of rebate reserved per site	\$101,400 (\$3,900 x 26 charge ports)	\$18,809	19%

9 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).

10 Some items did not have planning assumptions but actual costs are being tracked and reported.

11 Based on projects completed and estimated costs of projects in progress and projects with pending invoices. Estimated costs are based on initial site assessment

12 Committed charge ports with reserved funding.

13 Based on projects completed and estimated costs of projects in progress and projects with pending invoices. Estimated costs are based on initial site assessment.

14 Based on projects completed and estimated costs of projects in progress and projects with pending invoices. Estimated costs are based on initial site assessment

15 Based on average escalation rate at the time of writing.

16 Based on Step 2 – Agreement.

	Planning Assumptions <sup>10</sup>	Inception-to-Date	Percentage to Planning Assumptions
Total amount of rebate paid <sup>17</sup>	\$5,850,000	\$617,103	10.5%
Average amount of rebate paid per site	\$101,400 (\$3,900 x 26 charge ports)	\$14,351	14%
Total actual construction costs for Utility infrastructure	\$10,942,136	\$11,283,193	103%
Average actual construction cost for Utility infrastructure per site	N/A	\$162,660	N/A
Average actual construction cost for Utility infrastructure for projects with all Level 1 charging systems	N/A	\$22,465	N/A
Average actual construction cost for Utility infrastructure for projects with all Level 2 charging systems	N/A	\$161,685	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 Step 2)	N/A	\$240,256	N/A
Average actual SCE site assessment cost incurred by withdrawn applicants (prior to signing Step 2)	N/A	\$3,696	N/A
Total actual SCE site assessment, design, permit, and easement cost incurred by withdrawn applicants (after signing Step 2)	N/A	\$178,238	N/A
Average actual SCE site assessment, design, permit, and easement cost incurred by withdrawn applicants (after signing Step 2)	N/A	\$13,711	N/A
Total actual SCE construction cost incurred by withdrawn applicants	N/A	\$2,189	N/A
Average actual SCE construction cost incurred by withdrawn applicants	N/A	\$547	N/A

<sup>17</sup> Based on 43 projects with rebate paid.



Figure 2.7 – Pilot Cycle Times

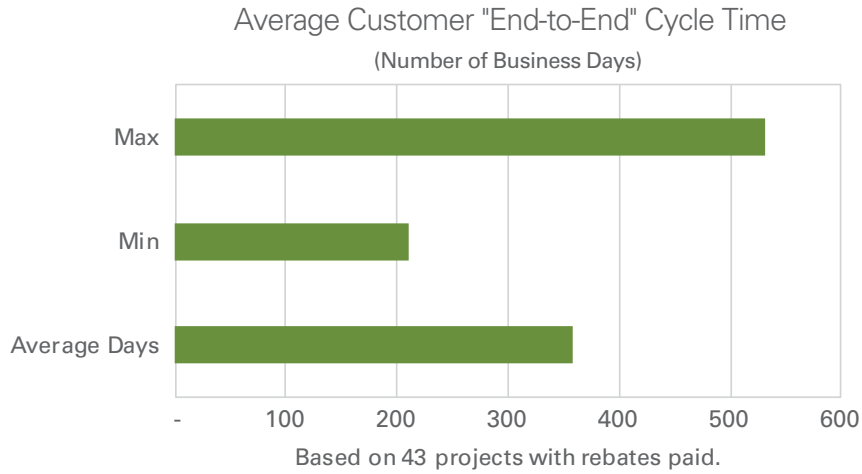
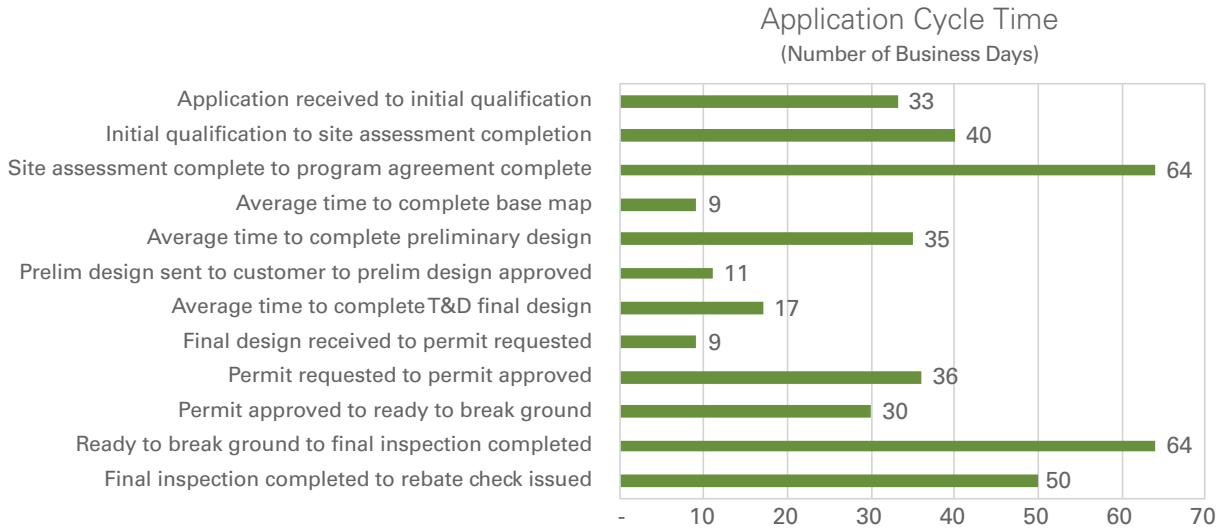


Figure 2.8 – Application Cycle Time



## 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 Program 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 Approved Package List (APL)<sup>18</sup> summarizes the vendors and EVSE models available to Customer Participants. By June 2018, the Pilot offers 62 models from 13 EVSE vendors and eight network providers, maintaining customer choice and market-neutral customer engagement.

Graph 3.1 – Number of Approved Charging System Models

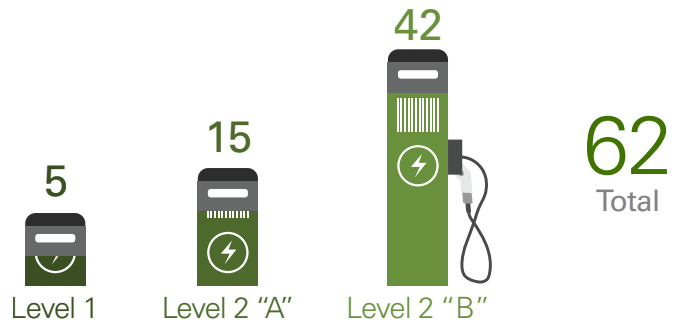


Table 3.1 – EVSE Model Summary

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	14

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]." 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 Q2 2018 are shown in the table below. The base cost values have not changed from the prior reporting period.

Table 3.2 – Base Cost of Charging Systems

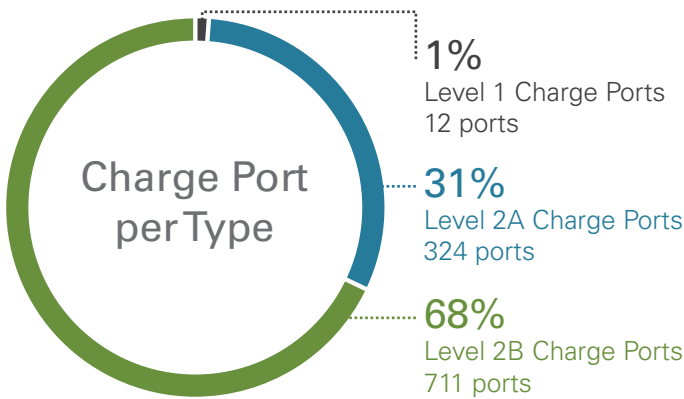
Charging System Type	Base Cost per Port
Level 1	\$1,396
Level 2 "A"	\$2,188
Level 2 "B"	\$1,611

18 The Pilot's Approved Package List can be found on the landing page at <https://on.sce.com/chargeready>.

### 3.2 Customer Charging Stations

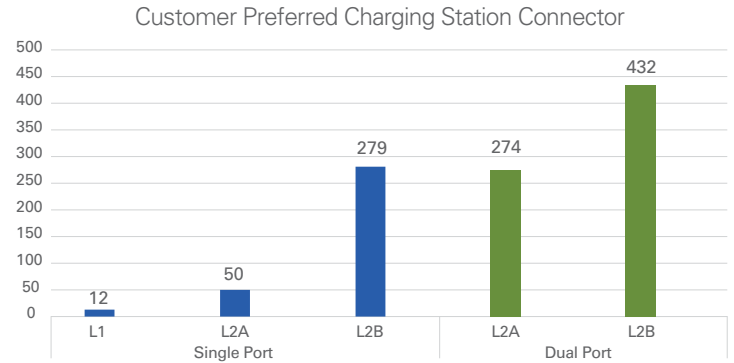
By the end of Q2, 70 customers with reserved funding for 1,047 charge ports had submitted their proof-of-procurement documents for the charging stations. The vast majority of participants selected L2 “B” charging station systems that have network capability provided by an external device (such as a kiosk 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.

Figure 3.1 – Charge Ports per Type



More than twice as many Participating Customers selected and procured dual-port charging station configurations than those that acquired single-port systems. Figure 3.2 depicts the distribution of purchases across various charging station configurations.

Figure 3.2 – Customer Preferred Charging Station Connector



### 3.3 Rebate

As of June 30, 2018, a total of 43 rebate payments were released, representing 576 charge ports.

Table 3.3 provides a summary of charging station requests and rebates, as of June 30, 2018.

Table 3.3 – Charging Station Requests and Rebates

Number of Level 1 charge ports requested <sup>19</sup>	13
Number of Level 2 charge ports requested <sup>20</sup>	1,253
Number of total charge ports approved	1,266
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	16.1
Rebate amount reserved for Level 1 ports	\$19,356
Rebate amount reserved for Level 2A ports	\$364,965
Rebate amount reserved for Level 2B ports	\$812,097
Rebate amount paid for Level 1 ports	\$19,356
Rebate amount paid for Level 2A ports	\$237,642
Rebate amount paid for Level 2B ports	\$360,105

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.

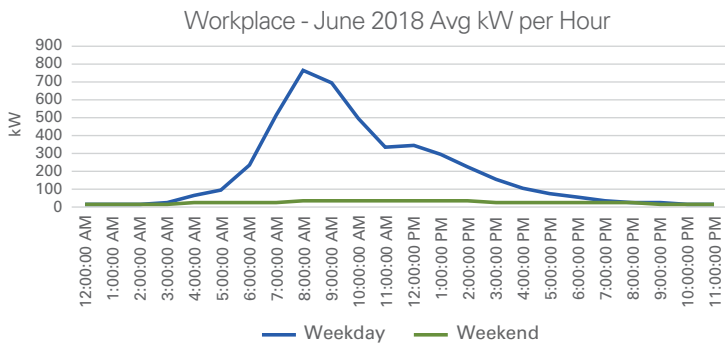
# 4 Charging Station Operation

## 4.1 Charging Station Utilization

Average load shapes for each segment (based on SCE meter data) are analyzed each month in order to determine when electric vehicles are being charged and when EV load may be available for curtailment. These load shapes have remained fairly consistent over time as more charging ports have been added to each segment.

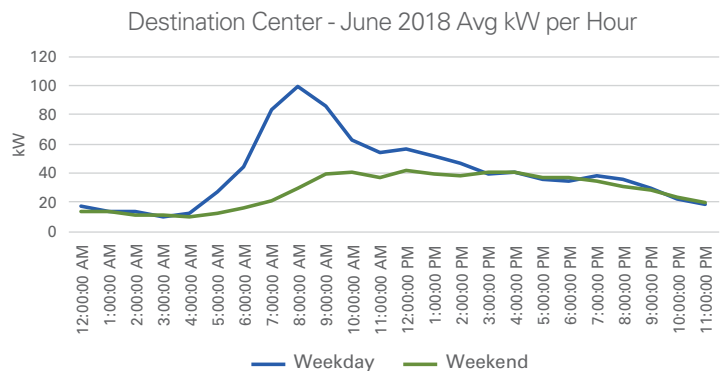
During the month of June, charging ports at workplaces were used primarily during morning hours with average peak usage occurring at 8 a.m. on weekdays. As expected, very little load occurs on weekends since workplaces typically operate Monday through Friday. Workplaces may be good candidates for load shifting since there is substantial load in the morning that could be shifted to later in the day when more renewable generation is available. Workplaces are not good candidates for reducing evening ramping periods since very little load is present in the late afternoon and evening hours.

**Figure 4.1 – Workplaces Average Usage per Hour in June 2018, 28 sites/576 ports**



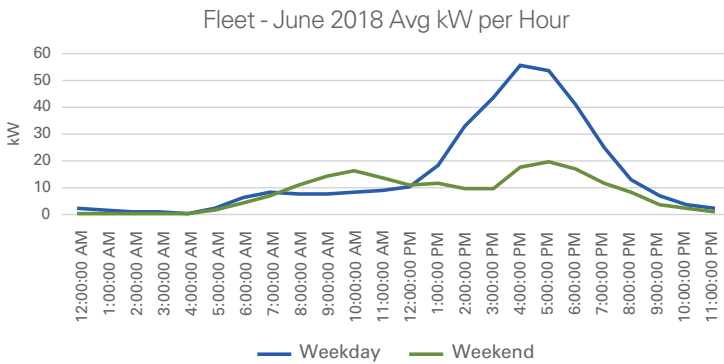
During the month of June, charging ports located at Destination Centers were used throughout the day on both weekdays and weekends with average peak usage occurring at 8 a.m. on weekdays. With fairly consistent loads observed during the day on both weekdays and weekends, the morning peak on weekdays may be a result of these sites being used by employees of neighboring workplaces since the load mirrors the load seen at Charge Ready workplace sites. Based on available load during the morning and evening, Destination Centers may be good candidates for both shifting morning load to later in the day and reducing evening load to help manage the evening ramp.

**Figure 4.2 – Destination Centers Usage per Hour in June 2018, 21 sites/222 ports**



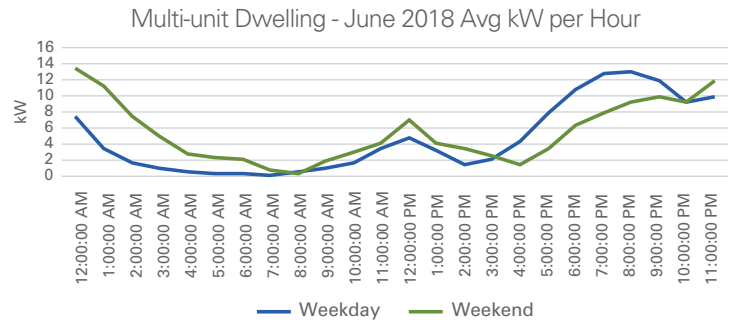
During the month of June, charging ports at fleet sites were used primarily during late afternoon and evening hours with average peak usage occurring at 4 p.m. on weekdays. Some usage also occurs during morning hours on weekdays and throughout the day on weekends. Some morning load may be available for load shifting, but based on load shape, fleets appear to be better suited for reducing load during evening ramping periods.

**Figure 4.3 – Fleets Usage per Hour in June 2018, 7 sites/83 ports**



During the month of June, charging ports at Multi-unit Dwellings were used primarily during weekday evenings and early morning hours on weekends with average peak usage occurring at 8 p.m. on weekdays and midnight on weekends. The load shape remained similar during both weekdays and weekends as expected since residences are typically occupied every day of the week. Very little morning load is available for shifting, but there is load available during evening hours that could be reduced to help manage the evening ramp.

**Figure 4.4 – Multi-unit Dwelling Usage per Hour in June 2018, 3 sites/35 ports**



Growth in the number of participating sites and charging ports in Charge Ready and corresponding electricity consumption has been fairly consistent in all segments. This growth represents significant environmental benefits and progress toward meeting the state of California’s GHG reduction goals.

Figure 4.5 – Workplaces Usage by Month

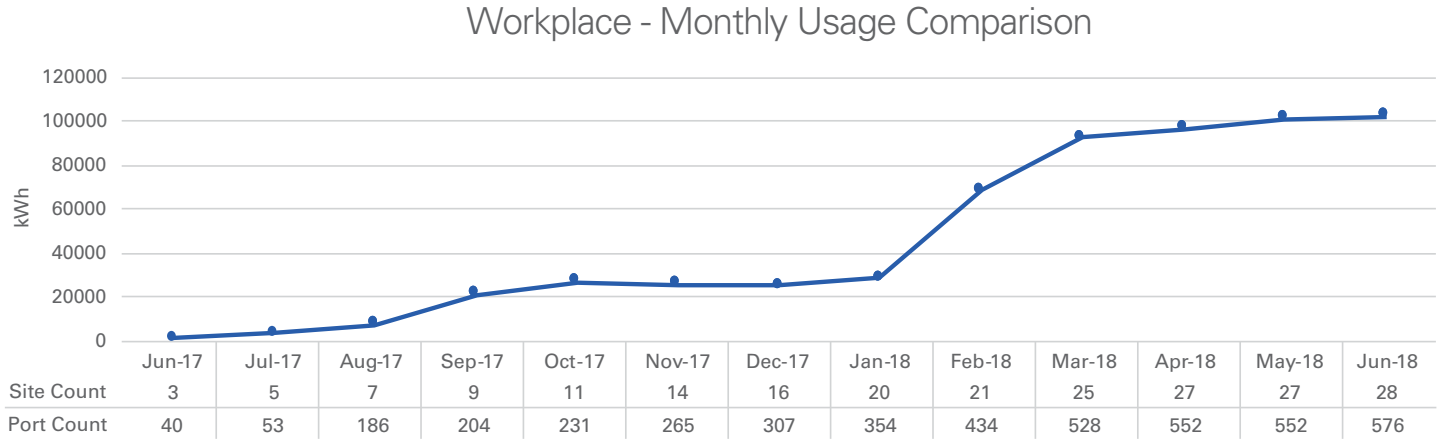
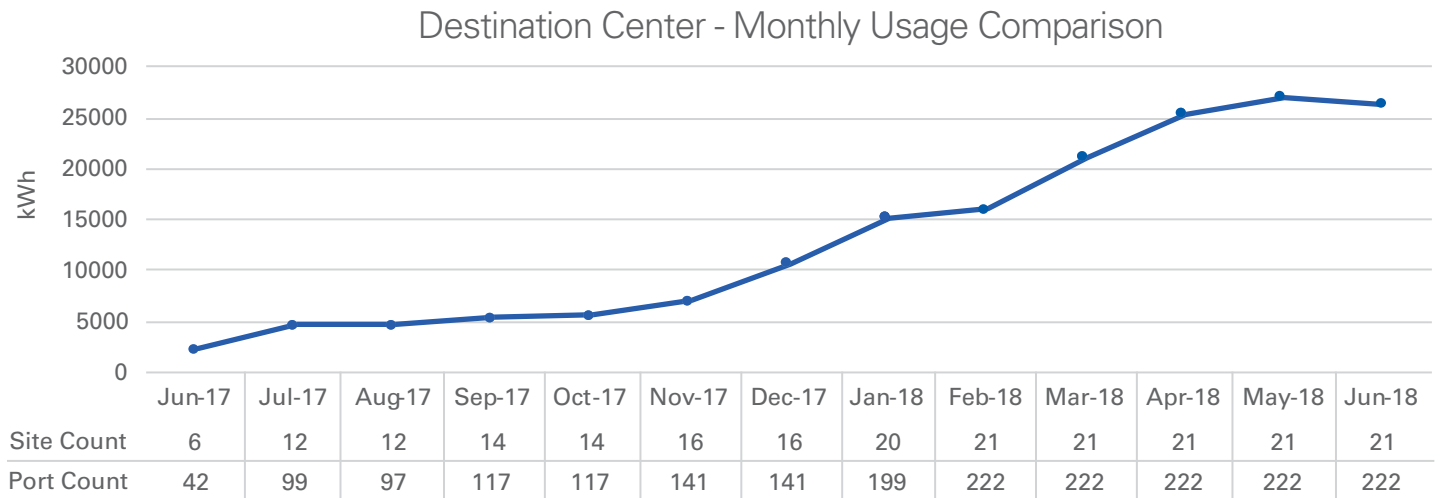


Figure 4.6 – Destination Centers Usage by Month<sup>21</sup>



<sup>21</sup> One site excluded in August 2017 due to data issues.

Figure 4.7 – Fleets Usage by Month

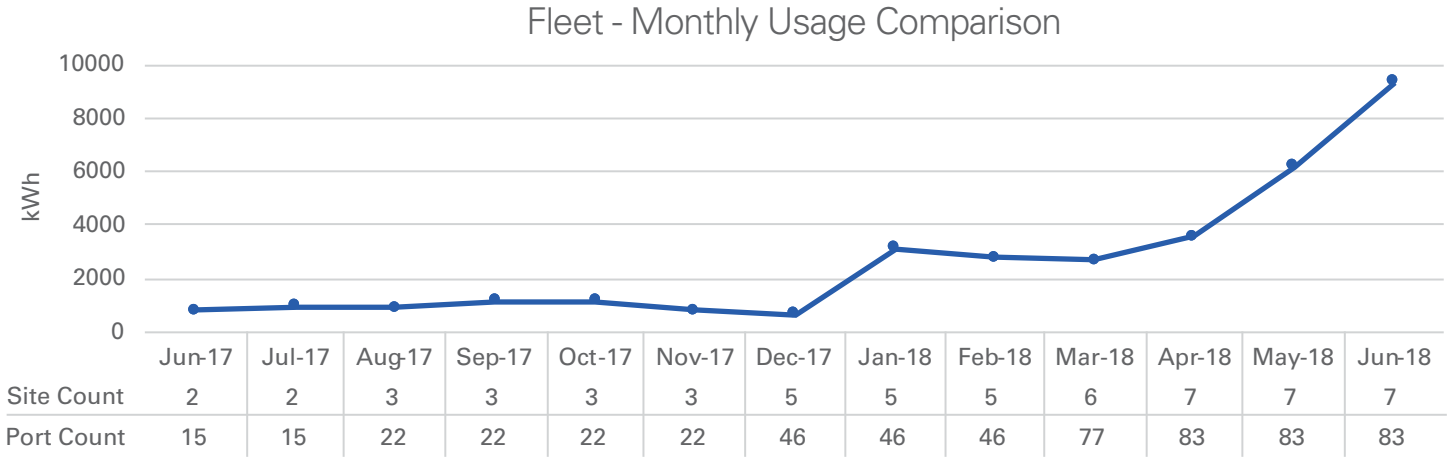
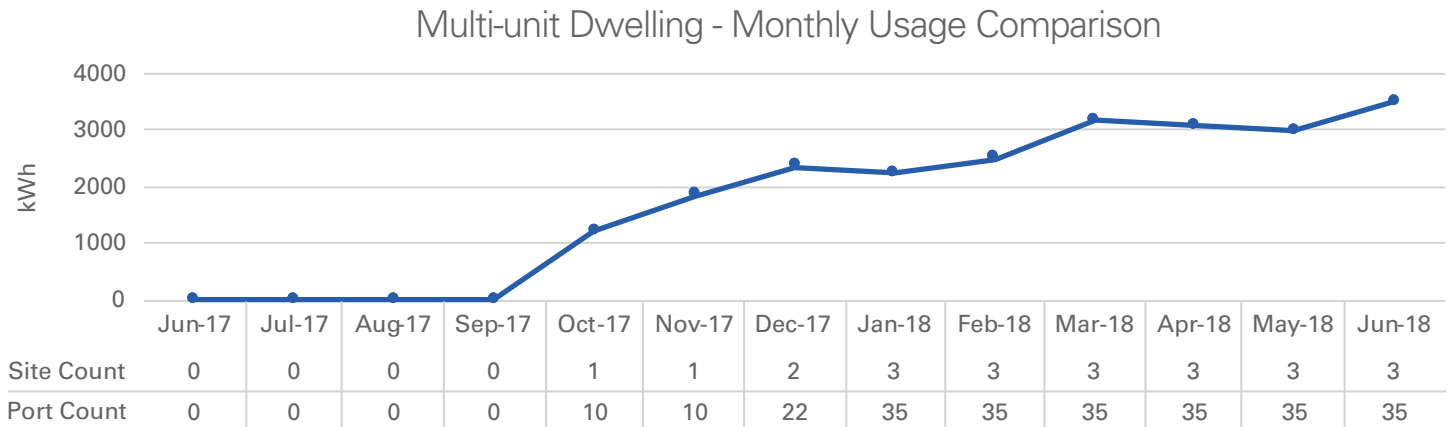


Figure 4.8 – Multi-unit Dwellings Usage by Month





## 5 Customer Outreach and Market Education

### 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 Q2 2018. A decrease in website activity was expected since marketing and outreach for new applicants ceased on January 3, 2017. However, an increase was observed in Q1 and Q2 2018 potentially due to the re-opening of the Pilot.

### 5.2 Market Education

Separately from its education and outreach efforts to support enrollment in the 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.

**Table 5.1 – Charge Ready Program Pilot Landing Page Metrics**

Metric	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018	Q2 2018
Unique Visitor Count	939	935	910	835	1,300	1,878
Repeat Visitor Count	381	419	254	234	545	793
Page Views	1,477	1,479	1,444	1,317	2,045	3,408
Bounce Rate	51.01%	51.85%	47.86%	50.59%	57.81%	63.92%

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 Q2 2018.

**Table 5.2 – Charge Ready EV Awareness Website Metrics**

EV Awareness	Q3 2017	Q4 2017	Q1 2018	Q2 2018
<b>Electric Vehicle Overview Page on SCE.com<sup>22</sup></b>				
Unique Visitor Count	9,138	7,986	14,102	7,484
Repeat Visitor Count	3,407	2,851	10,388	3,390
Page Views	13,029	11,526	3,714	11,466
Bounce Rate <sup>23</sup>	39.52%	41.46%	635	25.87%
Multi-page Visits	7,773	6,674	8,334	7,786
<b>Electric Vehicle Campaign Landing Page on SCE.com<sup>24</sup></b>				
Unique Visitor Count	9,175	8,518	354	334
Repeat Visitor Count	653	743	184	180
Page Views	11,931	10,944	487	487
Bounce Rate	86.95%	87.08%	20%	13.54%
Multi-page Visits	1,378	1,277	341	344

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 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 when 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 below 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 <sup>25</sup>	Q4 2017	Q1 2018	Q2 2018
Total Respondents	1,354	450	600	600	600	600
Yes	189 14%	54 12%	92 15%	92 15%	132 22%	99 17%
No	1,147 85%	378 84%	489 82%	476 79%	441 74%	480 80%
No Response	18 1%	18 4%	19 3%	32 5%	27 5%	21 4%

<sup>22</sup> <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.

<sup>23</sup> Bounce rate is the percentage of single-page visits.

<sup>24</sup> <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.

<sup>25</sup> Sample size increased in Q3 2017 to allow for additional testing related to other corporate campaigns.

### 5.3 Transportation Electrification 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’s 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 self-administered customer 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

In addition to the above, TE Advisory Services completed in-person services for approximately 50 business customers in Q1 2018. Services included the following:

- 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

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

**Table 5.4 – TEAS Web Traffic**

Metric	Q4 2017 Baseline				Q1 2018				Q2 2018			
	Workplace	Public	Fleet	MUD	Workplace	Public	Fleet	MUD	Workplace	Public	Fleet	MUD
Unique Visitor Count	292	121	138	69	360	174	139	105	434	188	193	146
Page Views	507	188	281	162	587	236	220	143	683	263	310	206
Multi-page	346	143	165	111	388	167	141	112	443	167	194	129

## 5.4 Outreach Events

SCE conducted one outreach event in Q2 2018. SCE employees who attended the event provided an estimated number of customer interactions. The table below shows the event for Q2 2018.

**Table 5.5 – Outreach Events**

Event Date	June 27 - 28, 2018
Event Name	Pacific Coast Builders Conference
Location	San Francisco
Estimated Customer Interactions	80

In addition to the outreach event, Southern California Edison and El Monte Union High School District held a celebration on May 30th, 2018 to mark the installation of the 1000th electric vehicle charging station under SCE's Charge Ready program. The event was attended by SCE executives and employees, El Monte Union High School District employees and Board Members, El Monte and Rosemead City Council Members, and members of the media.

## 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 second quarter, SCE has completed infrastructure at 65 sites that support 1,003 charge ports. SCE had started construction at four sites with 39 charge ports. Lastly, 10 sites for 224 charge ports were gathering Pre-Construction Requirements, such as permits and easements. SCE will also continue to learn from the energy usage of the charging stations deployed under the Charge Ready Program Pilot.



## Appendix

### Pilot Participants

#### Summary by Market Segment in Disadvantaged Communities with Reserved Funding

Segment	Number of Ports	Number of Sites
Destination Center	80	12
Workplace	478	29
Fleet	28	4
Multi-unit Dwelling	12	1
<b>Grand Total</b>	<b>598</b>	<b>46</b>

#### Summary by Market Segment in Non-Disadvantaged Communities with Reserved Funding

Segment	Number of Ports	Number of Sites
Destination Center	227	13
Workplace	328	14
Fleet	90	4
Multi-unit Dwelling	23	2
<b>Grand Total</b>	<b>668</b>	<b>33</b>

### Pilot Operational Metrics for Quarter

#### Total Number of Applications Received

	Planning Assumptions	Quarter 2, 2018	Inception-to-Date Actual	Percentage to Planning Assumptions
	58 projects, 1,500 charge ports	115 projects, 1,955 charge ports	449 projects, 3,998 charge ports	576%, 136%
Disadvantaged Communities	N/A	37%	44%	N/A
Destination Centers	N/A	24%	24%	N/A
Workplaces	N/A	65%	65%	N/A
Fleet	N/A	7%	5%	N/A
Multi-unit Dwellings	N/A	4%	6%	N/A

**Percentage of Charging Stations Requested**

	Planning Assumptions	Quarter 2, 2018	Inception-to-Date Actual	Percentage to Planning Assumptions
	58 projects, 1,500 charge ports	115 projects, 1,955 charge ports	449 projects, 3,998 charge ports	576%, 136%
Disadvantaged Communities	10%	34%	36%	368%
Destination Centers	N/A	22%	25%	N/A
Workplaces	N/A	49%	54%	N/A
Fleet	N/A	6%	7%	N/A
Multi-unit Dwellings	N/A	23%	14%	N/A

**Number of Applicants Rejected**

	Planning Assumptions	Quarter 2, 2018	Inception-to-Date Actual	Percentage to Planning Assumptions
	N/A	34 project, 757 requested charge ports	128 projects, 1,149 requested charge ports	N/A
Disadvantaged Communities	N/A	38%	40%	N/A
Destination Centers	N/A	29%	25%	N/A
Workplaces	N/A	68%	68%	N/A
Fleet	N/A	0%	0%	N/A
Multi-unit Dwellings	N/A	3%	6%	N/A

**Number of Applicants Withdrawn**

	Planning Assumptions	Quarter 2, 2018	Inception-to-Date Actual	Percentage to Planning Assumptions
	N/A	15 projects, 117 charge ports	158 projects, 747 charge ports	N/A
Disadvantaged Communities	N/A	53%	47%	N/A
Destination Centers	N/A	33%	20%	N/A
Workplaces	N/A	60%	68%	N/A
Fleet	N/A	7%	6%	N/A
Multi-unit Dwellings	N/A	0%	6%	N/A

**Number of Applicants Withdrawn After Signing Step 2 - Agreement**

	Planning Assumptions	Quarter 2, 2018	Inception-to-Date Actual	Percentage to Planning Assumptions
	N/A	2	13	N/A
Disadvantaged Communities	N/A	1	6	N/A
Destination Centers	N/A	0	4	N/A
Workplaces	N/A	1	8	N/A
Fleet	N/A	1	1	N/A
Multi-unit Dwellings	N/A	0	0	N/A

**Average Number of Charge Ports per Site with Completed Infrastructure**

	Planning Assumptions	Quarter 2, 2018	Inception-to-Date Actual	Percentage to Planning Assumptions
	N/A	15	15	N/A
Disadvantaged Communities	N/A	11	13	N/A
Destination Centers	N/A	0	11	N/A
Workplaces	N/A	12	19	N/A
Fleet	N/A	0	12	N/A
Multi-unit Dwellings	N/A	0	12	N/A

**Total Number of Projects with Completed Infrastructure**

	Planning Assumptions	Quarter 2, 2018	Inception-to-Date Actual	Percentage to Planning Assumptions
	58 projects, 1,500 charge ports	5 projects, 62 charge ports	65 projects, 1,003 charge ports	N/A
Disadvantaged Communities	N/A	60%	60%	N/A
Destination Centers	N/A	0%	34%	N/A
Workplaces	N/A	100%	51%	N/A
Fleet	N/A	0%	11%	N/A
Multi-unit Dwellings	N/A	0%	4%	N/A



**Average Number of Charge Ports per Site with Customer Installation Completed**

	Planning Assumptions	Quarter 2, 2018	Inception-to-Date Actual	Percentage to Planning Assumptions
	N/A	14	14	N/A
Disadvantaged Communities	N/A	13	11	N/A
Destination Centers	N/A	10	11	N/A
Workplaces	N/A	16	19	N/A
Fleet	N/A	10	9	N/A
Multi-unit Dwellings	N/A	0	12	N/A

**Total Number of Projects with Customer Installation Completed**

	Planning Assumptions	Quarter 2, 2018	Inception-to-Date Actual	Percentage to Planning Assumptions
	58 projects, 1,500 charge ports	37 projects, 187 charge ports	54 projects, 765 charge ports	N/A
Disadvantaged Communities	N/A	62%	61%	N/A
Destination Centers	N/A	15%	37%	N/A
Workplaces	N/A	69%	46%	N/A
Fleet	N/A	15%	11%	N/A
Multi-unit Dwellings	N/A	0%	6%	N/A

**Average Number of Total Parking Spaces per Site**

Customer Participant Request	Planning Assumptions	Inception-to-Date Actual
	N/A	637 parking spaces/site
Disadvantaged Communities	N/A	443 parking spaces/site
Destination Centers	N/A	900 parking spaces/site
Workplaces	N/A	656 parking spaces/site
Fleet	N/A	353 parking spaces/site
Multi-unit Dwellings	N/A	614 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	10,272
Destination Centers	N/A	11,764
Workplaces	N/A	34,547
Fleet	N/A	2,382
Multi-unit Dwellings	N/A	3,967

Customer Participant Request	Planning Assumptions	Inception-to-Date Actual
Average fleet size <sup>26</sup>	N/A	7 (Fleet Segment Only) 4 (All Segments)
Percentage of applications received with charging systems already installed at the site	N/A	19%
Average number of charging systems already installed at the site	N/A	9

**Average Number of Charge Ports Requested per Site**

Customer Participant Request	Planning Assumptions	Inception-to-Date Actual
	26	11.4
Disadvantaged Communities	N/A	11.3
Destination Centers	N/A	12.9
Workplaces	N/A	12.1
Fleet	N/A	14.7
Multi-unit Dwellings	N/A	33.9

<sup>26</sup> 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 authorized	13
Number of Level 2 charge ports authorized	1,253
Number of total charge ports authorized	1,266
Average Number of Level 1 charge ports approved per site	6.5
Average Number of Level 2 charge ports approved per site	16.1
Average Number of total charge ports approved per site	15.8
Number of Level 1 EVSE stations bought	12
Average number of ports per Level 1 EVSE	1
Number of Level 2A EVSE stations bought	184
Average number of ports per Level 2A EVSE	1.7
Number of Level 2B EVSE stations bought	516
Average number of ports per Level 2B EVSE	1.4
Number of Level 1 EVSE stations installed with completed infrastructure	12
Number of Level 2A EVSE stations installed with completed infrastructure	178
Number of Level 2B EVSE stations installed with completed infrastructure	491
Number of Level 1 EVSE stations installed with completed customer-installation	12
Number of Level 2A EVSE stations installed with completed customer-installation	161
Number of Level 2B EVSE stations installed with completed customer-installation	309
Rebate amount reserved for Level 1 ports	\$19,356
Rebate amount reserved for Level 2A ports	\$364,965
Rebate amount reserved for Level 2B ports	\$812,097
Rebate amount paid for Level 1 ports	\$19,356
Rebate amount paid for Level 2A ports	\$237,642
Rebate amount paid for Level 2B ports	\$360,105