

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Consider  
Alternative-Fueled Vehicle Programs, Tariffs, and  
Policies.

Rulemaking 13-11-007  
(Filed November 14, 2013)

**ELECTRIC VEHICLE-GRID INTEGRATION PILOT PROGRAM  
("POWER YOUR DRIVE") SEVENTH SEMI-ANNUAL REPORT  
(CORRECTED) OF SAN DIEGO GAS & ELECTRIC COMPANY  
(U902-E)**

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January 22, 2020

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OF THE STATE OF CALIFORNIA**

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**ELECTRIC VEHICLE-GRID INTEGRATION PILOT PROGRAM  
("POWER YOUR DRIVE") SEVENTH SEMI-ANNUAL REPORT (CORRECTED)  
OF SAN DIEGO GAS & ELECTRIC COMPANY (U902-E)**

Pursuant to Decision ("D.") 16-01-045 (the "Decision"),<sup>1</sup> and Commission Rules 1.8, 1.9(d) and 1.10(c), San Diego Gas & Electric Company ("SDG&E") submits this Electric Vehicle-Grid Integration ("VGI") Pilot Program ("Power Your Drive") Seventh Semi-Annual

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*See*, Decision, p. 139; finding of fact ("FOF") 80, p. 173, ordering paragraph ("OP") 3.k, p. 183:

We will also require SDG&E to file in R.13-11-007, or in a successor proceeding, semi-annual reports containing the information reported in the quarterly check-in meetings, the data described in Appendix B to Attachment 2 of this decision, and a description of any program changes implemented by SDG&E prior to the date of the report. This reporting requirement will terminate on February 1, 2021. The report shall be posted on SDG&E's website, and a notice of the availability of that report shall be served on the R.13-11-007 and A.14-01-014 service lists [note that the Decision (pp. 156, 161, 183) closed A.14-04-014].

*Id.*, FOF 80, p. 173:

The alternative program terms shall include the following: SDG&E shall have quarterly check-in meetings with the Commission's Energy Division to provide the staff with updates concerning the information set forth in today's decision; SDG&E shall file semi-annual reports in R.13-11.007, or a successor proceeding, containing the information described in today's decision, and in the manner described in today's decision; and parties may file and serve opening and reply comments on the semi-annual reports in the manner described in today's decision.

*Id.*, OP 3.k., p. 183:

If SDG&E decides to accept and to implement the 2016 VGI Pilot Program, SDG&E shall comply with all the meeting and reporting requirements as set forth in this decision and in Attachment 2.

Report (Corrected version). This report, Attachment A hereto, is also posted on SDG&E's website as indicated in the Notice of Availability filed concurrently herewith.

Respectfully submitted



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Estela de Llanos

Vice President of Clean Transportation,  
Sustainability & Chief Environmental Officer  
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January 22, 2020

San Diego Gas & Electric Company

# Semi-Annual Report

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ELECTRIC VEHICLE-GRID INTEGRATED PILOT PROGRAM (POWER YOUR DRIVE) SEMI ANNUAL REPORT OF SAN DIEGO GAS & ELECTRIC COMPANY (U902-E) SEPTEMBER 2019

## **CORRECTED VERSION**

SDG&E hereby corrects its Seventh Semi-Annual Report, dated September 30, 2019. Two data points were incorrectly reported.

First, the originally reported data DAC sites included some sites that were marked as a DAC site that were not located in a DAC and some sites that were not marked as a DAC site but were located in a DAC. The corrected percentage is updated in Figure 1 on page 3 to 33% of sites in a DAC, down from 35% of sites in a DAC.

Second, the ratio of the number of incremental vehicles purchased as a result of the program in relation to the number of chargers deployed in the second paragraph on page 13 was not updated from the previous version of the report. The corrected ratio is about one new EV added for every three ports installed, down from four ports installed.

## I. Introduction

San Diego Gas & Electric Company (“SDG&E”) established the Power Your Drive (“PYD”) Program (“Program”), after it was approved by the California Public Utilities Commission (“CPUC”), as a pilot program in January 2016. The Program is designed to reduce greenhouse gas (“GHG”) and other air emissions, increase adoption of electrical vehicles (“EVs”) and integrate the charging of electric vehicles with the grid through a day-ahead hourly rate. Power Your Drive seeks to satisfy these objectives through the installation of up to 3,500 EV charging stations at apartments, condominiums and places of work.

Under the terms of PYD, SDG&E maintains ownership of the infrastructure to simplify the experience for customers and to ensure the reliability of the charging network. Customers who participate in the Program are assessed a nominal one-time participation payment unless the site is within a designated disadvantaged community, in which case, the participation payment is waived. Customers have the option to choose from two Electric Vehicle Service Providers (“EVSP”) who have been qualified to provide Electric Vehicle Supply Equipment (“EVSE”). SDG&E coordinates the design, permitting, construction and commissioning of the charging stations. Once drivers begin charging, SDG&E handles the billing, coordinates with the EVSP to provide customer support and maintains the charging equipment.

PYD sites are either multi-unit dwellings (“MUDs”) or workplaces. The CPUC established goals to deploy at least 40% of installations in MUDs and to deploy installations in areas that have higher than average levels of pollution by setting a target of at least 10% of installations in designated Disadvantaged Communities (“DACs”).

This is the seventh Semi-Annual Report that SDG&E has issued on the Program, as required by Decision (“D.”) 16-01-045 (“Decision”). Data for this report extends from Program inception to July 31, 2019.

## II. Executive Summary

Power Your Drive was designed to align the State of California’s GHG reduction and transportation electrification policies with both the utility’s and its customers’ interests. Based on initial analysis, SDG&E believes that PYD is achieving these goals. Not only does PYD show strong customer interest in the Program and electric vehicles in general, but it also demonstrates that customers are modifying their charging behavior in ways that:

- reduce GHG and other air emissions;
- integrate renewable energy and decrease the need to dispatch conventional peaking generation;
- leverage existing resources and grid assets;
- lower consumer fuel costs and increase the use of electricity as a transportation fuel; and
- increase investments and deployment of infrastructure in disadvantaged communities.

The results show that PYD is consistent with state policies promoting transportation electrification and GHG reductions. SDG&E also found that there is a demand for more chargers, as seen by site hosts often requesting more chargers than originally planned and the extended interest list to participate in the program. Therefore, SDG&E plans to file a modest program extension (with modifications) to deploy additional ports to satisfy a portion of the existing demand. This will serve as a bridge to a more robust future program consistent with the Commission’s ongoing rulemaking and expected Transportation Electrification Framework (“TEF”).

As of July 31, 2019, 254 customers have executed Site Agreements which will result in approximately 3,040 charging ports. Of the 254 customers with Site Agreements, 33% are within DACs, far exceeding SDG&E’s 10% DAC target, and 39% are located in MUDs. Two-hundred and fifty three of the 254 customers have energized sites resulting in over 3,000 charging ports available to San Diego and southern Orange County EV drivers.

The innovative hourly dynamic rate (“VGI rate”) continues to show preliminary success in influencing pricing behavior. SDG&E will monitor how drivers experience the VGI rate and educate customers on how to best utilize the unique benefit the rate provides to them.

The following report details the Program’s progression and preliminary results. The data in this report data is as of July 31, 2019.

Figure 1: Power Your Drive Status Dashboard  
SDG&E EV Charger Program

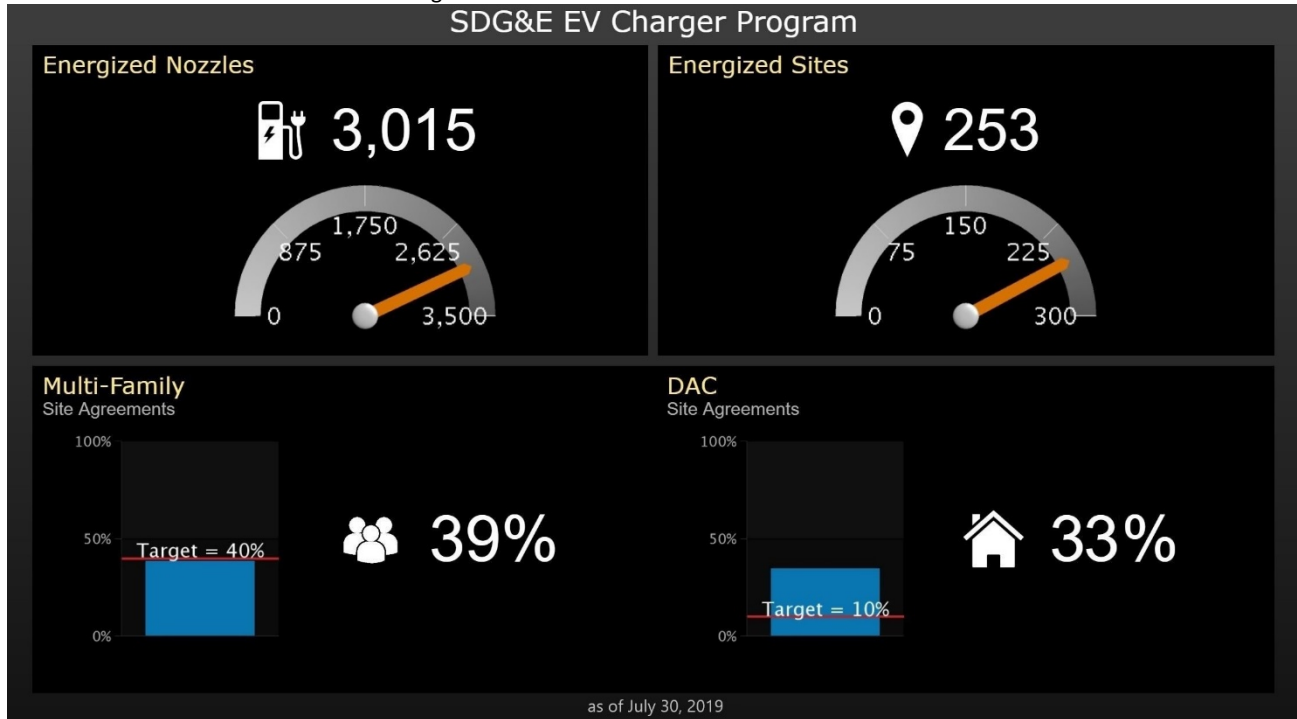


Figure 2: Power Your Drive Cost Summary

Cost Category	Scaled Decision Assumptions	Inception-to-date as of 7/31/2019	Variance
Materials	\$4,792,000	\$13,788,582	(\$8,996,582)
Construction	\$28,894,000	\$26,672,836	\$2,221,164
Engineering Design	\$1,004,000	\$7,357,034	(\$6,353,034)
Environmental Testing	\$ -	\$639,257	(\$639,257)
Internal Labor	\$825,000	\$2,364,981	(\$1,539,981)
IT Billing System Upgrade <sup>1</sup>	\$1,564,000	\$3,314,897	(\$1,750,897)
Third Party Project Support	\$ -	\$6,432,784	(\$6,432,784)
Other	\$943,000	\$2,000,580	(\$1,057,580)
Non-Direct costs (AFUDC, Loaders)	\$3,429,000	\$6,990,253	(\$3,561,253)
Contingency	\$3,549,000	N/A	N/A
<b>Total</b>	<b>\$45,000,000</b>	<b>\$69,561,203<sup>2</sup></b>	<b>(\$24,561,203)</b>

<sup>1</sup> Excludes IT costs to develop enterprise functionality that served Power Your Drive.

<sup>2</sup> Costs as reported may not include credits and adjustments related to materials, construction, and non-direct costs pending final assessment after project completion.

### III. Customer Engagement

During the second half of 2019, the Program completed installation of the majority of sites and began the transition towards ongoing support and outreach. SDG&E remains involved in customer engagement to ensure a positive driver experience, continued understanding of the VGI rate and increased utilization of the PYD chargers. An important element of SDG&E's outreach campaign is to provide site hosts and drivers with detailed information about the existing Program— educating them on EV basics, the benefits of driving electric, how to use the charging stations and available rebates and incentives. These efforts deepen the site hosts' and drivers' understanding of how to best take advantage of the Program's features and benefits. Additionally, SDG&E engages the community through public events, such as ride and drives participation in EV day festivities. Future education and outreach efforts will focus on expanding engagement with participants by providing new tools, information, resources and more events.

Examples of recent outreach efforts are SDG&E's participation at employee health fair events at Dr. Bronner's and Ken Blanchard Companies. SDG&E presented an EV 101 lunch and learn to MA Engineers' employees and hosted ride & drive events with the employees of Port of San Diego, Kyocera and General Atomics. SDG&E continues to work with site hosts and customers to determine when similar outreach events may be beneficial to both site hosts and drivers. In person events, workshops, ride and drives and webinars provide an interactive platform to educate site hosts and drivers on how to best use the offered tools and resources, how to understand the VGI rate and inform others on best practices for owning an EV.

#### Outreach Efforts

Backed by SDG&E's mission statement of becoming the cleanest, safest and most reliable energy company in the nation, SDG&E outreach maintains a clear focus on those guiding principles. With environmental sustainability and stewardship at the forefront of all community engagement events, SDG&E is consistently engaging customers on the benefits of driving electric and the importance of electrifying the transportation sector. Since May 2019, SDG&E has conducted 27 public outreach events; 21 of those events directly allowing the company to engage attendees on PYD related topics. A few of the more impactful events are outlined below.

##### *Ride and Drive at the San Diego County Fair*

On June 26, 2019 SDG&E hosted a Ride and Drive event at the San Diego County Fair. With an average of 50,000 daily attendees to the fair, this was a prime opportunity to share the benefits of driving electric to a mass audience. From 11 a.m. to 6 p.m., attendees who jumped in the driver's seat experienced what it feels like behind the wheel of several different EVs



currently on the market, including well-known brands like Nissan, Hyundai, BMW, MINI and Jaguar. Representatives from car dealerships, as well as other non-profit groups such as Plug-In America and the EV Association were on-hand to answer questions and explain all the benefits of driving electric. Over the course of the day, 188 passengers participated in 230 test drives, for a total of 418 EV experiences.

### *28<sup>th</sup> Annual Auto Heritage Festival*

The technology and design of automobiles has changed significantly over time. SDG&E met with car lovers who enjoy comparing the newest makes and models of EVs to century-old classic cars at the Auto Heritage Day Festival & Car Show, held on Saturday, August 10, 2019 in National City.

More than 200 vehicles were on display at the event, which also featured live entertainment, food vendors and activities for children. At the ride and drive hosted by SDG&E, attendees enjoyed free test drives of the latest models of electric cars, including the Tesla Model X and Model 3, and learned about SDG&E's EV programs, including PYD.

### *Electric Vehicle Day*

On September 14, 2019, SDG&E hosted its 7th annual EV Day as part of National Drive Electric Week. The San Diego event was named the largest in the world with over 3,000 people in attendance and more than 1,000 test drive experiences. As the event organizer, SDG&E was able to create robust outreach by discussing its programs in detail, explaining EV rates, and talking about the costs and benefits of driving an EV. SDG&E's PYD representatives attended to specifically interact with attendees and educate them on all PYD and clean transportation related topics.

## IV. Reporting Requirements

This section provides requisite data points as defined and approved in AL 2876-E. A summary of this data can be found in Appendix-A of this report.

### A. Customer Interest

The Program received significant customer interest. As of July 31, 2019, 927 site hosts demonstrated interest in participating in the Program. Of this group, 458 (49%) are multifamily sites and 469 (51%) are workplace locations. The graphs below further detail the port distribution across different market segments that the Program serves.

Figure 3: Expressed Interest Site Distribution

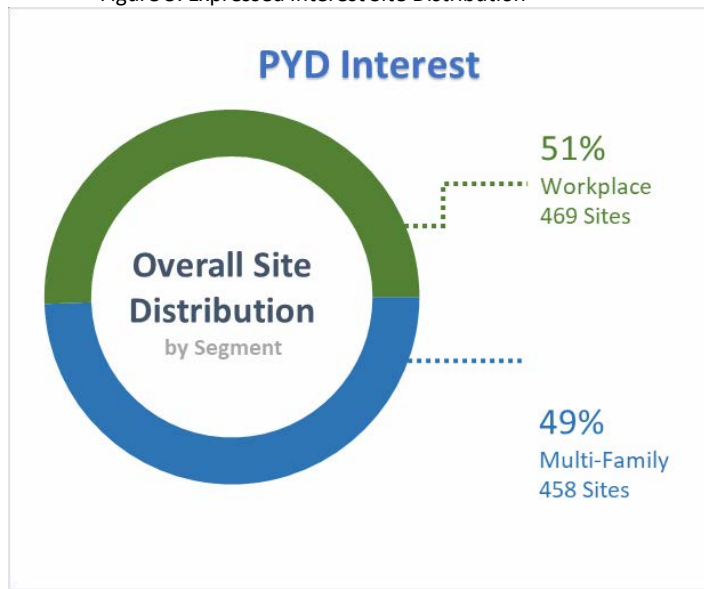
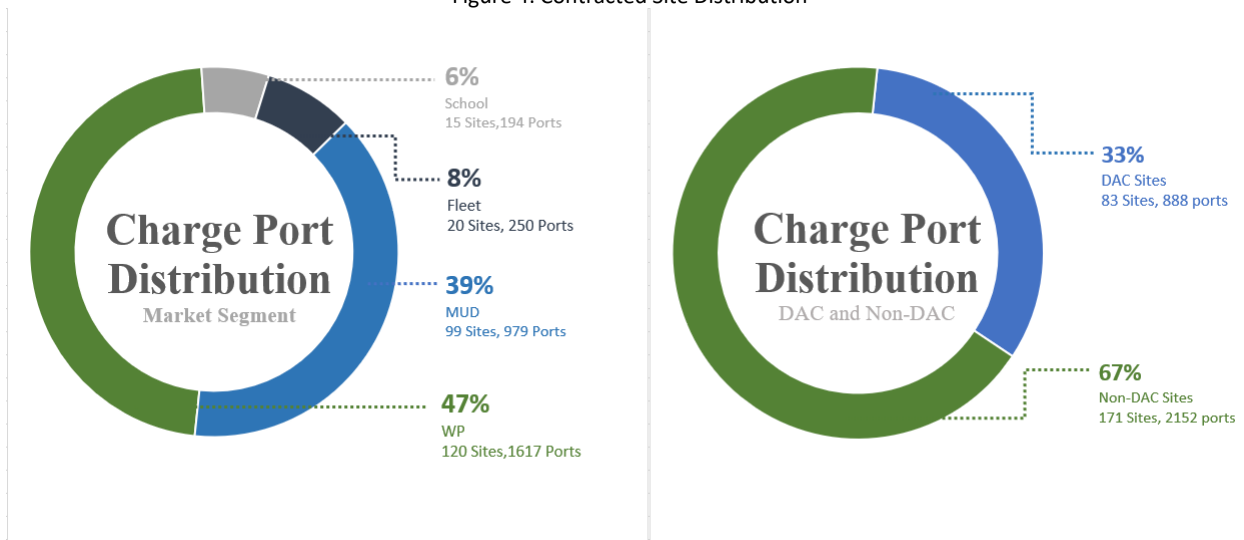


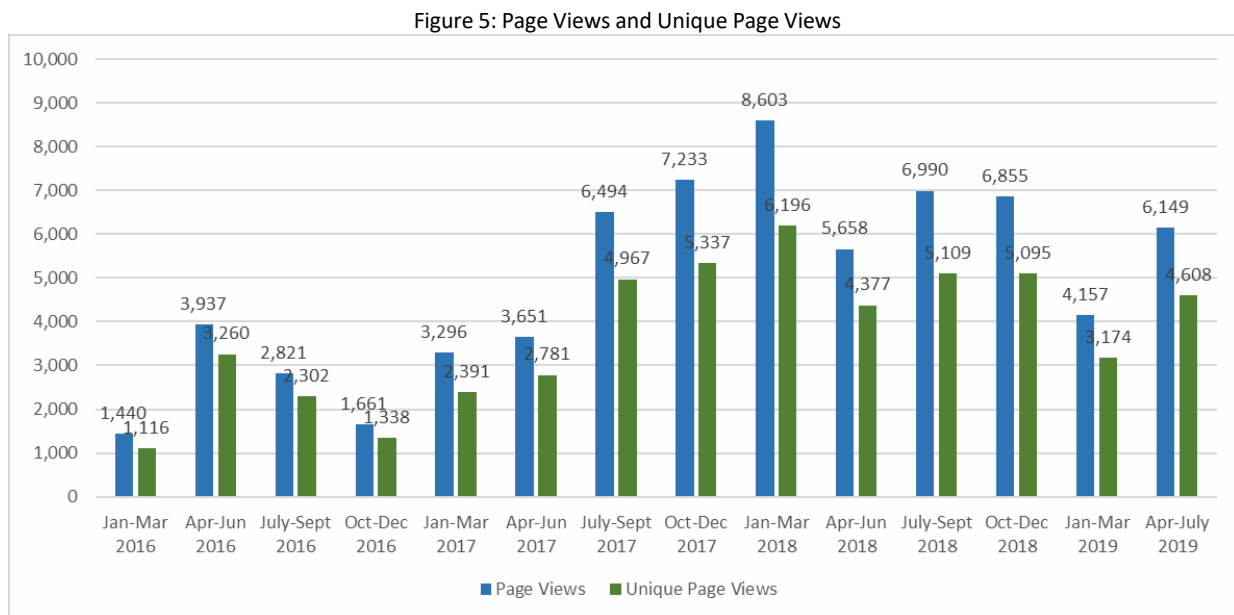
Figure 4: Contracted Site Distribution



## B. Power Your Drive Website Views

As part of the customer engagement efforts discussed in Section V of this report, the Customer Solutions Team directs customers to the PYD website to learn more about the Program and sign up for the interest list. Since the Program was fully subscribed in Q4 2018, the website has been updated to no longer accept applications. The website still receives a small number of views as it has general information about the Program, but it is no longer the primary channel for customer engagement.

The website metrics have been recorded from the initial launch of the website and will continue through the end of the Program. The metrics record both the total page views and the unique page views as presented below. Page views represent each time a user visits a page, and the unique page views are an aggregated count of page views generated by the same user during their session on the website.



## C. Installations

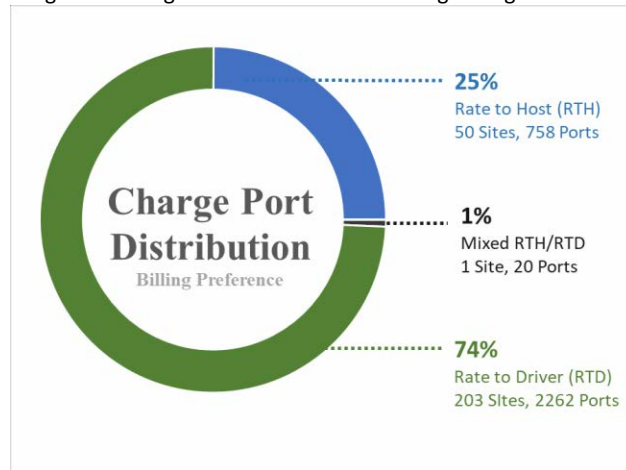
As of July 31, 2019, SDG&E completed and energized installations at 253 sites, which includes 3,015 charging ports. As of July 31, 2019, one site was still under construction.

## D. Billing Option Preferences

SDG&E tracks the billing options that customers may select as part of the Program. The billing option metric shows the billing option selected by the customer, broken down by workplace, multifamily, and disadvantaged communities. There are two billing options available within the Program: Rate-to-Driver, where the EV driver receives the rate directly, which is billed

to the EV driver’s residential bill/account; and, Rate-to-Host, where the site host receives the rate, which is billed to the site host’s commercial bill/account. Both options refer to separately metered service which is not comingled with another load such as building load. Selection of the Rate-to-Host option requires customer submission of a load management plan. As of July 31, 2019, out of the 51 contracted sites that have selected Rate-to-Host as a billing preference, 27 have selected a load management plan of powering down or shutting off charging during high priced intervals, 7 sites have elected to use facility management to only allow charging during certain time periods, 14 sites have elected to send alert emails to drivers on high priced days, 2 sites have elected to not have any action taken, and one site is still determining their load management plan.

Figure 6: Billing Preference for Sites with Signed Agreements



### E. Timing Patterns of EV Charging

The charging patterns captured by the usage data are an important indicator of the overall effectiveness of the Program at encouraging EV charging during periods of lower grid utilization. The Program seeks to influence charging behavior through the implementation of an hourly rate which is calculated for each circuit based on projected demand and communicated to enrolled drivers daily for the following day. Since the rate is hourly, it is designed to be more flexible than typical off-peak and on-peak Time-of-Use rate schedules. The rate aims to incentivize charging at times that will optimize overall grid and circuit utilization, which will benefit all SDG&E ratepayers.

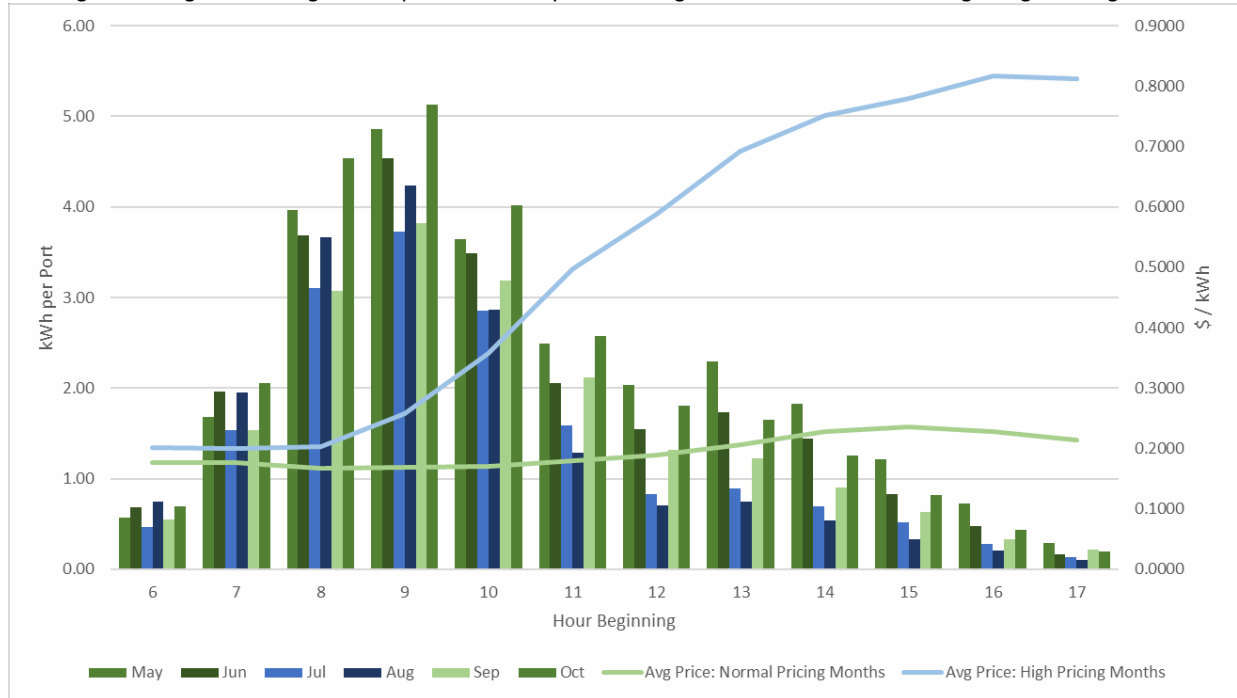
### EV Charging: May 2018 through October 2018

To illustrate a comparison, we have retained the following description and chart from the previous semi-annual report.

The chart below illustrates workplace usage and pricing from May 2018 until October 2018 from 6:00 a.m. to 5:00 p.m. (usage outside of these times are nominal at workplaces). Due to high temperatures in July 2018 and August 2018, high pricing events occurred more frequently during

those months. The relative baseline of load expected in normal months can be seen by using the two months prior to and two months after the high pricing months. In hours beginning 11 through 14, there is a reduction in load during the higher price signal compared to what would be expected during those same hours in months with normal pricing.

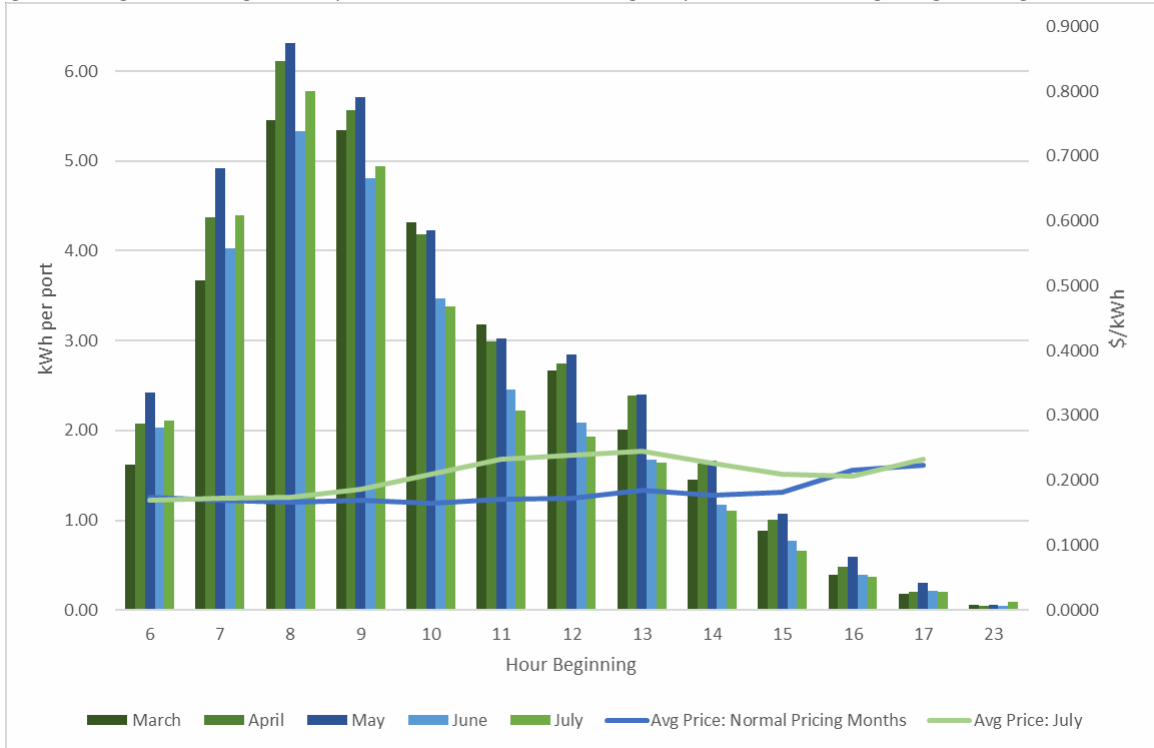
Figure 7: Usage and Pricing at Workplaces from May 2018 through October 2018 for Hours beginning 6 through 17



## EV Charging: March 2019 through July 2019

The chart below illustrates workplace usage and pricing from March 2019 until July 2019 from 6:00 a.m. to 5:00 p.m. (usage outside of these times are nominal at workplaces). During this timeframe, significant amounts of high pricing was not experienced. Because of the lack of a large variation in price signals, we do not see much variance in usage from month to month. There seems to be some drop in July usage, but it is unclear at this time whether this was due to the limited price adders that did occur during that month, or whether it is due to normal fluctuations in the data.

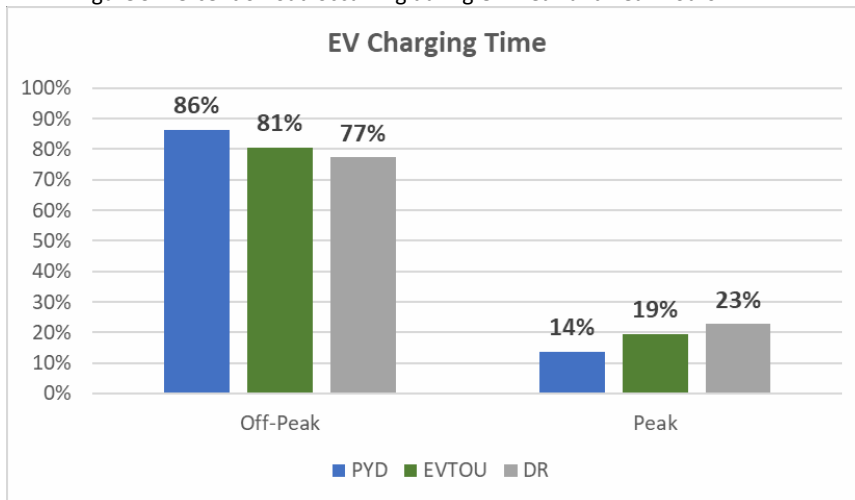
Figure 8: Usage and Pricing at Workplaces from March 2019 through July 2019 for Hours beginning 6 through 17



## EV Charging: Comparison with Time of Use periods

An alternative method to display the timing patterns of EV charging is to compare the percent of EV load that occurs during SDG&E’s peak pricing hours of 4:00 p.m. – 9:00 p.m. The chart below illustrates load shifting to off-peak hours. The VGI rate appears to be effective at incenting charging outside of SDG&E’s peak. The numbers for the tiered rate (“DR”) are for whole home usage of EV drivers and the EV TOU are for sub-metered EV usage.

Figure 9: Percent of load occurring during Off-Peak and Peak hours



## F. Usage Rates

SDG&E began receiving usage data from the first site on June 29, 2017. As of July 31, 2019, 253 sites have been energized and a total of 2,577 EV drivers are enrolled in the Program. Usage volume for the reporting period comprised 156,557 unique charging sessions and 1,468,287 kWh delivered. Site utilization summarized by quartile is in Appendix A of this report.

## G. Spend

The table below shows the costs of both the construction and full Program costs per site and per port. It also compares the estimates from the original filing to the actual costs of the Program. As shown in the table in the Executive Summary, the actual costs of the Program exceeded both the filing assumptions and the project estimates post Decision by approximately \$24 million.

Figure 10: Power Your Drive Costs by Site and Port

<i>Average Estimated Costs</i>	<i>Original Filing Assumptions (Direct)</i>	<i>Inception-to-date as of 7/31/2019 (Direct)</i>	<i>Inception-to-date as of 7/31/2019 (Fully Loaded)</i>
<i>Construction Cost per Site (Design, Construction, Materials)</i>	<i>\$99K – \$109K (10 ports/site up to 550 sites)</i>	<i>\$189K (\$48m for 253 sites)</i>	<i>\$198K (\$50m for 253 sites)</i>
<i>Construction Cost per Port (Design, Construction, Materials)</i>	<i>\$9.9K - \$10.9K (\$54M for up to 5,550 ports)</i>	<i>\$15.9K (\$48M for 3,015 ports energized)</i>	<i>\$16.7K (\$50M for 3,015 ports energized)</i>
<i>Program Cost per Site</i>	<i>\$116K - \$128K (\$64M up to 550 sites)</i>	<i>\$247K (\$63M for 253 sites)</i>	<i>\$275K (\$70M for 253 sites)</i>
<i>Program Cost per Port</i>	<i>\$11.6K - \$12.8K (\$64M for up to 5,500 ports)</i>	<i>\$20.8K (\$63M for 3,015 ports energized)</i>	<i>\$23K (\$70M for 3,015 ports energized)</i>

## V. Supplemental Data Collection & Monitoring

This section presents the most recent data for the Power Your Drive supplemental metrics designed to aid in the evaluation of the overall Program performance. The data that is presented in this section is summarized in Appendix A of this report.

### A. Programmatic Changes

No programmatic changes have occurred since the previous Semi-Annual Report.

### B. Fuel Cost Savings Estimate

This section provides estimates of fuel cost savings achieved by the displacement of gasoline in favor of electric charging at PYD sites, grouped by Rate-to-Driver and Rate-to-Host billing options. The estimation method is based on the total cost of the electricity usage at PYD sites from Program data, compared to the estimated total cost of fuel consumption by equivalent Internal Combustion Engines (“ICE”) vehicles required to travel equivalent distance. The estimated savings also reflect current market conditions in the relative fuel efficiency of EVs compared to ICE vehicles and the average price of gasoline for the reporting period.

The data suggests that drivers at a Rate-to-Driver site save more per kWh because they are more price sensitive.

Figure 11: Estimated Fuel Cost Savings

	<b>Rate-to-Host</b>	<b>Rate-to-Driver</b>
Usage (kWh)	781,713	686,574
Average \$/kWh	\$0.29	\$0.18
Total Cost	\$223,983.81	\$121,353.16
Approx Gas Equivalent (Gallons) <sup>3</sup>	94,945	83,390
Average \$/gal <sup>4</sup>	\$3.52	\$3.52
Total Cost	\$334,395.88	\$293,698.01
Estimated Savings	\$110,412.07	\$172,344.85
Average Savings per kWh	\$0.14	\$0.25

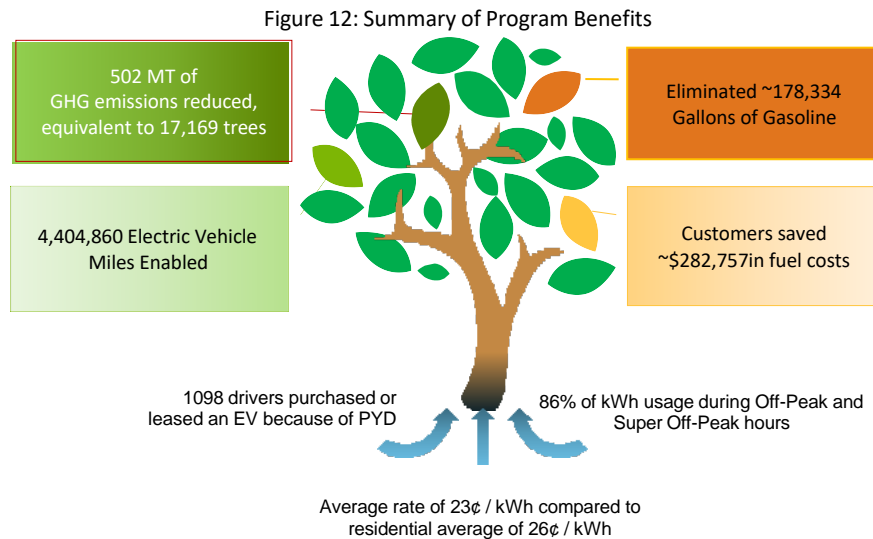
<sup>3</sup> Calculated using EPA average 24.7 MPG ICE vehicle and 3 mi/kWh EV

<sup>4</sup> San Diego 2018 average



## C. Power Your Drive Data Trends

The following graphic shows the measurable trends and correlations that have been identified to date in the Program based on data collected as of July 31, 2019.



To assess incremental EV adoption due to the presence of PYD ports, SDG&E calculated the number of drivers that have charged in the Program 90-days after the commissioning of a site. SDG&E assumes that drivers who charge prior to the 90-day window were likely already on the path to acquire an EV regardless of the presence of PYD ports. Applying this method, 1,098 of the 2,577 drivers purchased EVs due to the presence of PYD ports. This represents about 43% of all drivers registered and about one new EV added for every three ports installed under the Program.

Regarding emissions benefits, the Program has converted over 4 million miles<sup>5</sup> to zero emission miles. This represents about 502 metric tons of GHG emissions reduced<sup>6</sup>, the equivalent to about 17,169 trees<sup>7</sup>.

### Alignment with Renewables

While SDG&E's overall renewable portfolio is above 44% renewable<sup>8</sup>, PYD has a significantly better load profile compared to SDG&E's overall load profile. PYD is 78% renewable when comparing energy procurement and generation to usage from January 1, 2018 through July 31, 2019. This does not use the same process to calculate as the Power Content Label but provides a similar benchmark of SDG&E's alignment with renewables. Workplace usage is 80% renewable and MUD usage is 65% renewable. This difference is primarily due to the timing of usage at workplaces aligning with the high volume of renewables available. Secondly, the VGI rate has higher pricing during the non-renewable hours; since drivers are shifting their load away from these higher prices, they are aligning with more renewables.

<sup>5</sup> Calculated using EPA average 24.7 MPG ICE vehicle and 3 mi/kWh EV

<sup>6</sup> [Chapter 8 – Prepared Direct Testimony of J.C. Martin: Air Quality Impacts and Cost Effectiveness](#)

<sup>7</sup> EPA GHG Equivalencies Calculator

<sup>8</sup> SDG&E 2017 Power Content Label

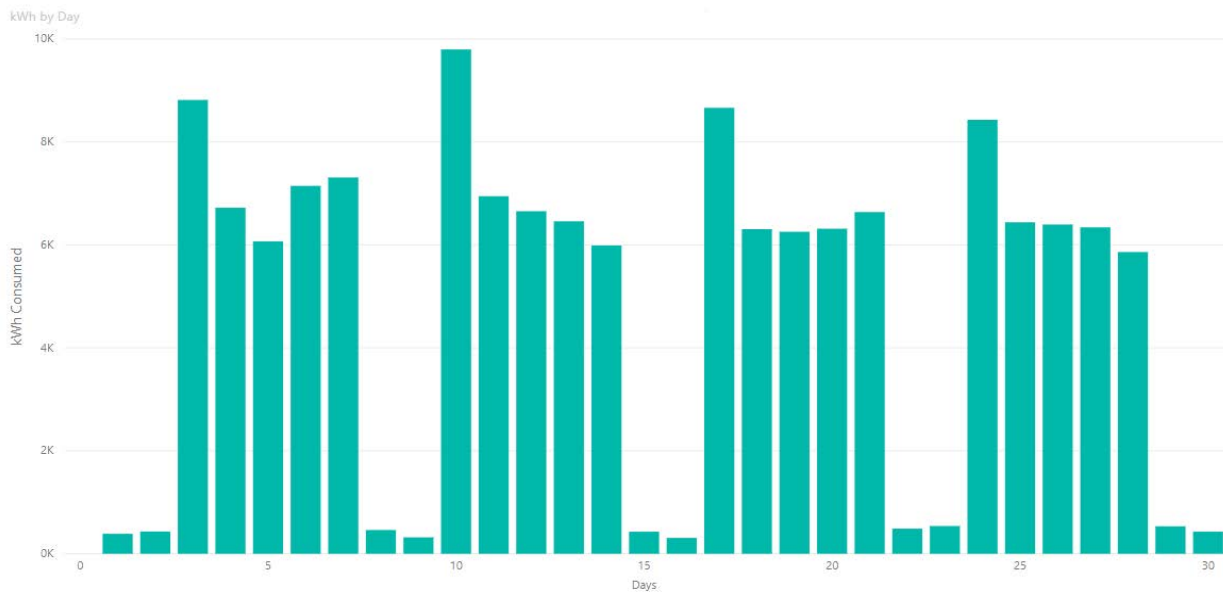
## Monthly Load Patterns

The load patterns for workplaces and MUD sites have expectedly different shapes. At workplaces, holidays and weekends show almost no load, with Mondays showing increased demand. There also is a slight increase in the highest hourly load on Fridays that does not result in a larger daily load. It may be that some drivers are willing to pay more and ensure they are fully charged before the weekend. The increased charging on Mondays and Fridays may be due to some drivers that rely solely on workplace.

Figure 13: Workplace Load in March 2019



Figure 14: Workplace Load in June 2109

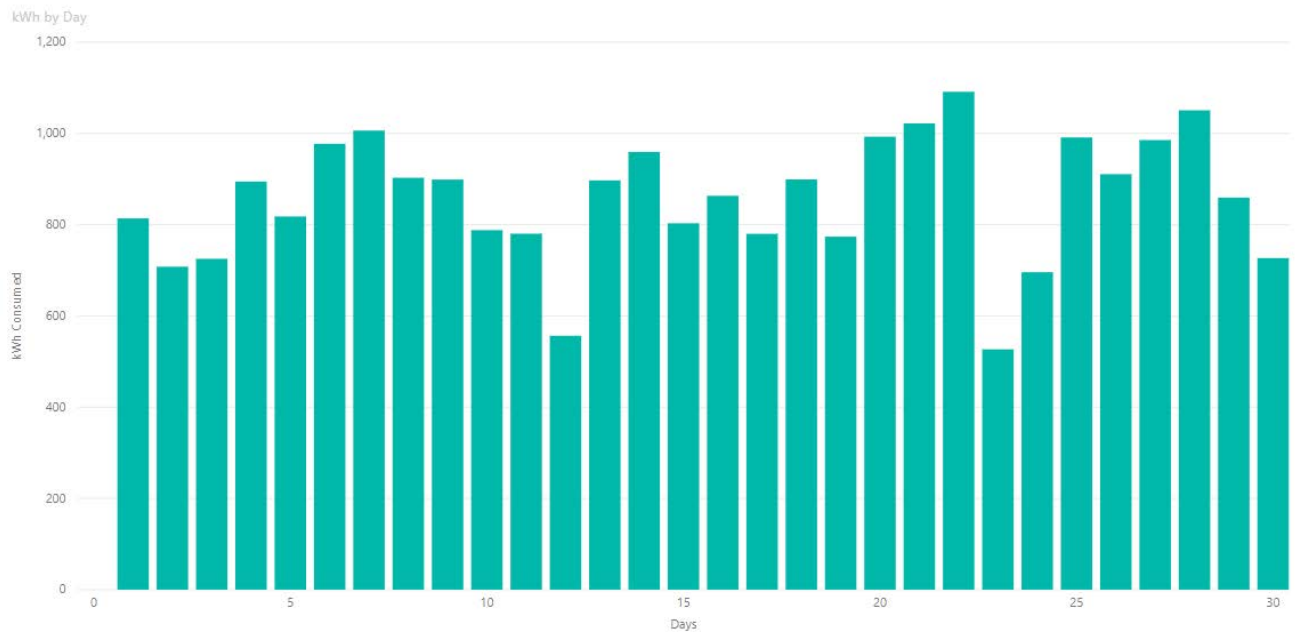


At MUD sites, load is relatively stable throughout the weeks with occasional spikes.

Figure 15: MUD Load in March 2019



Figure 16: MUD Load in June 2019

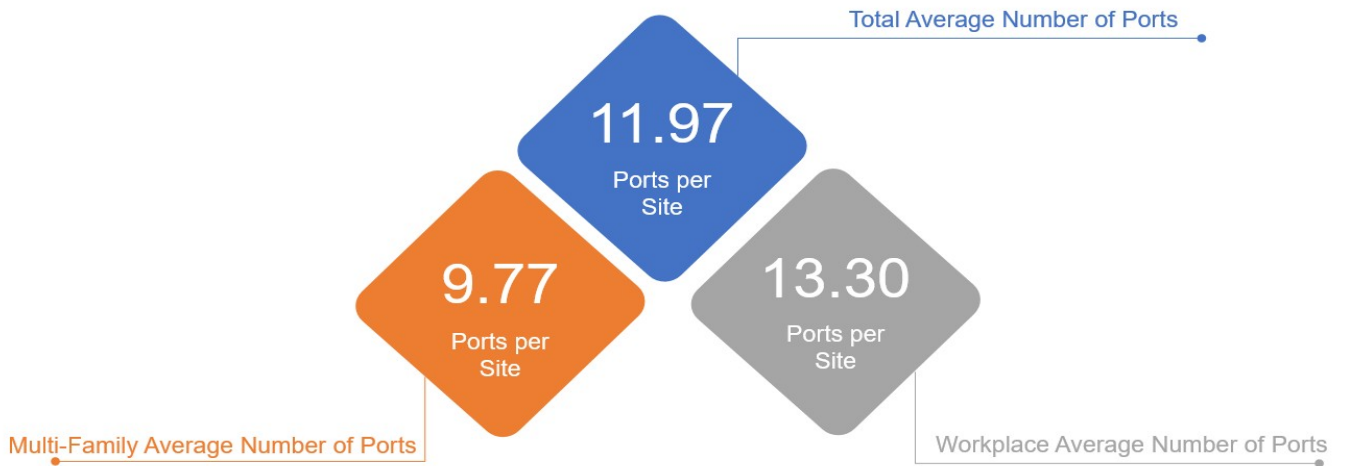


## Number of Charging Ports

When SDG&E filed the application for PYD, it targeted 10 charger ports per installation

across all projects. However, the average number of charger ports was almost 12 ports per site (almost 10 ports for multifamily sites and over 13 for workplace sites). Many of the costs to deploy a site are related to the characteristics of the site rather than the port count, and having more ports allows for a lower cost per port.

Figure 17: Average number of ports per site type



## VI. Summary & Conclusion

The Program has transitioned from site deployment to maintenance and operation of the existing charging infrastructure. Additionally, SDG&E continues to focus on engaging with site hosts and drivers and increasing charger utilization. One of the significant accomplishments of the Program has been to deploy highly visible charging stations to reduce barriers to EV adoption. SDG&E has experienced increases in utilization and unique EV drivers in a relatively short period of time and expects increases to continue.

SDG&E energized over 250 sites and over 3,000 ports, all utilizing the VGI rate, the first of its kind for a utility EV charging program. Customers are utilizing these chargers and data shows that they are charging at optimal times.

Overall, the presence of these chargers continues to influence EV adoption, as electric vehicles are being purchased due to the Program. The hourly rate shows that customers are modifying charging behavior to incorporate pricing incentives and higher renewables. Additionally, there was more customer interest in the Program than SDG&E could accommodate. SDG&E continues to have customers reach out asking if they can be part of the Program. Therefore, SDG&E plans to file a modest program extension (with modifications) to deploy additional ports to satisfy a portion of the existing demand. This will serve as a bridge to a more robust future program consistent with the Commission’s ongoing rulemaking and expected TEF.

## Appendix A: Semi-Annual Report Summary

Reporting Requirement	Update	
1) Interest in EV site installations at MUDs and workplaces <i>[Interest List: Number of host sites by]</i>	MUD not in DACs	331
	MUDs in DAC among sites in review <sup>9</sup>	127
	WP not in DAC	310
	WP in DAC among sites in review <sup>10</sup>	159
2) Number of EV Site installations that were approved, or that are in the pipeline for deployment	Reviewed by SDG&E, but needed signed contracts	0
	Site Host Agreements Executed	254
	Installations in progress	1
3) Site selection criteria used in selecting the sites that will host the EV site installations <i>[within MUD, WP &amp; DAC segments]</i>	<ul style="list-style-type: none"> <li>» Interest list sign up via <a href="https://www.sdge.com/residential/electric-vehicles/power-your-drive/interest-list">https://www.sdge.com/residential/electric-vehicles/power-your-drive/interest-list</a> or ev@sdge.com</li> <li>» Customer submits application</li> <li>» Date of indicated interest (first-in-line-priority)</li> <li>» Current and expected volume of EV drivers</li> <li>» Number of installations desired</li> <li>» Type of installation (workplace, multi-unit)</li> <li>» Disadvantaged Community status</li> <li>» Customer’s goals align with Power Your Drive criteria (i.e. no public charging, willingness to use VGI rate, etc.)</li> <li>» Nearby transformer available capacity</li> <li>» Distance between transformer and new service point</li> </ul>	

<sup>9</sup> Total number of MUD sites in review: 107.

<sup>10</sup> Total number of WP in review: 166.

	<ul style="list-style-type: none"> <li>» Site conditions related to construction feasibility and cost (i.e., trenching surface, EVSE mounting surface, condition of facility)</li> <li>» Americans with Disabilities Act (ADA) requirements</li> <li>» If leasing, term and conditions of lease</li> <li>» Land and property ownership</li> <li>» Signature of site agreement required to proceed to engineering of site</li> </ul>		
4) Number of EV site installations	253 (installed and energized)		
5) Rate <i>[billing option that the site host have chosen [number of hosts by option, number of drivers]</i>	Overall List of Sites (includes customers with unsigned Site Host Agreements) <sup>11</sup>	Rate-to-Driver	N/A
		Rate-to-Host	N/A
		Undecided	N/A
	Sites Host Agreements Signed	Rate-to-Driver	203
		Rate-to-Host	50
		Mixed/RTH & RTD	1
6) How the Rate-to-Host option <i>[load management plan]</i> is being implemented by the site <i>[number of host sites per load management plan type; categories of load management plan types will expand as they are reviewed and approved]</i>	Powering Down/off	27	
	No election	2	
	Facility Mgmt	7	
	Other (i.e. email to drivers)	15	

<sup>11</sup> Rate option is not determined until the latter part of the project.

7) Usage [facility utilization] rates at EV site installations and charging stations [frequency per quartile of drivers / charging sessions volume and kWh sold per facility]	Quartile	Volume		kWh Sold	
	25%	139 Drivers / 3,260 Sessions		15,760	
	50%	238 Drivers / 8,656 Sessions		82,995	
	75%	544 Drivers / 31,080 Sessions		224,378	
	100%	1,656 Drivers / 113,561 Sessions		1,145,153	
	Total <sup>12</sup>	2,577 Drivers / 156,557 Sessions		1,468,287	
8) Timing patterns of EV charging and the degree to which these times correlate to VGI rate categories [kWh consumed by price range: min, average, max] Times are based on EV-TOU rate	Time	kWh	Min \$/kWh	Avg \$/kWh	Max \$/kWh
	Summer Peak	90,413.2	0.1289	0.1817	1.7338
	Summer Off-Peak	675,067.3	0.1313	0.2547	1.7017
	Summer Super-Off Peak	60,154.0	0.1395	0.2886	1.7338
	Winter Peak	58,944.1	0.1321	0.1880	0.9067
	Winter Off-Peak	540,033.8	0.1311	0.2466	0.8366
	Winter Super Off-Peak	43,674.4	0.1374	0.2529	0.9067
	Totals	1,468,286.9			
	Single Event	172,976.8			
	Dual Event	4,607.1			
9) The amount of the CPUC allocated budget for the Program spent	Spend since February 28, 2019	(\$907,877)			
	Spend to Date as of July 31,	\$69,561,203			

<sup>12</sup> Some drivers may charge at multiple sites. This means that this single driver will show up in different sites and, therefore, will be double counted in how this quartile breaks out. The sessions and kWh are not duplicated.



during the last reporting period and the cumulative amount spent	2019	
10) Observable trends or correlations between the number of EV site installations deployed compared to EV charging use and growth in the number of EVs	Discussion of observable trends included in the body of the report.	
<b>Decision, Attachment 2, Appendix B – Combined with the Quarterly Report for the Semi-Annual Report</b> (served to R.13-11-007 and A.14-01-014 service lists)		
A) Estimates of fuel savings through the use of the VGI facility, under both the VGI Rate-to-Driver and VGI Rate-to-Host pricing plans	Rate-to-Host	\$110,412.07
	Rate-to-Driver	\$172,344.85
B) Deployment of VGI Facilities [number of] within Disadvantaged Communities (DAC), including EV Car-sharing deployment	DAC - Workplace	58 sites
	DAC - MUD	25 sites

C) Status of Program Implementation to date	Embedded in this report
D) Comparing the installations of non-utility EVSE to VGI EVSE	This is outside of the scope of the VGI Pilot Program, which is not responsible for tracking the installation of charging stations by others outside of the VGI Pilot Program. Furthermore, there was no funding in Decision 16-01-045 to perform this type of analysis. There are public sources of this information regarding the deployment of public (not private) charging stations (e.g. PlugShare).
E) Surveys of customer and driver decisions to adopt PEVs	Will be provided when implemented
F) Rate of achievement of supplier diversity and workforce objectives	40.1% <sup>13</sup>
G) Description of any programmatic changes implemented by SDG&E prior to the date of the report	Programmatic changes are included in the body of the report (See Section VII B)

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<sup>13</sup> As of 07/31/2019.

## Appendix B: Program Advisory Council Company/Organizational Representation

Advanced Energy Economy  
AeroVironment, Inc.  
Black & Veatch  
California Apartment Association  
California Energy Commission  
California Governor's Office of Business and Economic Development  
California PEV  
Collaborative Center for Sustainable Energy  
ChargePoint  
City of Chula Vista  
Clean Fuel Connection  
Collins Group, Inc.  
CPUC Energy Division  
CPUC Office of Ratepayer Advocates (ORA)  
Electric Power Research Institute (EPRI)  
Environmental Defense Fund  
General Motors  
Greenlining  
Greenlots  
HG Fenton Company  
Honda Motor Co., Inc.  
Hyundai-Kia America Technical Center, Inc. (HATCI)  
IBEW Local 569  
Intel Corporation  
JRP Charge  
Kn Grid  
National Resources Defense Council (NRDC)  
National Strategies  
Plug In America  
Powertree Services Inc.  
Proterra  
Recargo  
RWE  
San Diego Association of Governments (SANDAG)  
San Diego Green Building Council  
San Diego Unified School District  
Shell  
Siemens Digital Grid  
Southern California Edison  
Strategy Integration, LLC & The Energy Collaborative  
The Utility Reform Network (TURN)  
Utility Consumers' Action Network (UCAN)  
Vote Solar

## Appendix C: Circuit Taxonomy

### Operational Definitions for Circuit Taxonomy

<b>Circuit Attributes</b>	<b>Count</b>
Total SDG&E Circuits	1,040
Circuits with Attributes	860
Circuits without Attributes	180*
<i>*4kV circuits not included in distribution</i>	

<b>Circuit Type</b>	<b>Count</b>
Residential (R)	196
Mixed (M)	451
Commercial & Industrial (C&I)	213
<i>Circuit Type is classified as Residential, Mixed, or Commercial &amp; Industrial if 70% of the total consumption on that circuit is from that class.</i>	

<b>Summer Week Day Peak Hour</b>	<b>Count</b>
11:00-14:59	203
15:00-19:59	185
18:00-18:59	168
20:00-21:59	298
<i>*6 Circuits (0.7% of population) with summer weekday peak hours between 22:00 and 10:59 are not included.</i>	

<b>Load Factor</b>	<b>Count</b>
(H) High = > 46.0%	443
(L) Low = < 45.99%	417
<i>(Average Hourly kWh / Peak kw)</i>	

<b>Solar Penetration</b>	<b>Count</b>
(H) High = > 4.0%	426
(L) = < 3.99%	434
<i>(Solar Capacity / Circuit Capacity)</i>	

Note: circuit profile will remain unchanged throughout the 3-year sign-up period.

VGI Pilot - Circuit Sampling Distribution										
As of 7/31/2019		Circuit Peaking Hours								
		Hours 11 thru 14 <sup>1</sup>		Hours 15 thru 17		Hours 18 thru 19		Hours 20 thru 21		
Circuit Type	Solar Penetration	High Load Factor	Low Load Factor	High Load Factor	Low Load Factor	High Load Factor	Low Load Factor	High Load Factor	Low Load Factor	
Residential Dominant	High Solar Penetration	1	2	3	4	5	6	7	8	
		0	0	0	1	1	33	21	101	
	9	10	11	12	13	14	15	16		
	0	2	0	2	1	5	10	18		
Res. and C&I Mixed	High Solar Penetration	17	18	19	20	21	22	23	24	
		7	2	21	22	30	61	41	62	
	25	26	27	28	29	30	31	32		
	45	19	56	14	18	13	38	2		
Commercial & Industrial Dominant	High Solar Penetration	33	34	35	36	37	38	39	40	
		9	6	8	3	0	1	2	0	
	41	42	43	44	45	46	47	48		
	57	56	44	14	3	2	3	0		
Distribution Cell #		<sup>1</sup> 6 Circuits (0.7% of sample set) with SWD_Pk_Hr between 22:00 and 10:59 are not included in this record count							Circuits to Full	
SDG&E Circuit Count									Equally Represented	
In-Service Sites									Under Represented	
									Over Represented	

Note: The VGI sampling chart does not include newly added circuits