BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Application of San Diego Gas & Electric Company (U-902-E) to Extend and Modify The Power Your Drive Pilot Approved By Decision 16-01-045.	Application 19-10-012 (Issued October 28, 2019)

REBUTTAL TESTIMONY OF PAUL L. CHERNICK & JOHN WILSON ON BEHALF OF SMALL BUSINESS UTILITY ADVOCATES

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I. Introduction

Q: Are you the same Paul Chernick and John D. Wilson who filed direct testimony in this proceeding?

A: Yes.

Q: What is the scope of your rebuttal testimony?

A: We comment on aspects of the proposal of San Diego Gas & Electric ("SDG&E "or "Company") that were raised in the direct testimony of other parties regarding the extension of the Company's Power Your Drive program.

Q: What issues do you address?

A: We address the following four issues:

- Outreach to small business customers.
- Budget controls.
- Utility ownership of EVSE.
- Auditing and EM&V.

Our focus is primarily on workplace charging.

Q: How have your conclusions regarding the SDG&E proposal changed since you filed your direct testimony in this proceeding?

A: In terms of budget controls, information provided by other parties has persuaded us to change our recommendations. The remainder of our concerns have either been verified and supported by the testimony of other parties, or were not addressed by other parties.

II. Analysis of Power Your Drive Pilot Data.

Q: Please summarize your testimony on Power Your Drive Pilot Data.

A: We would like to update our testimony based on additional data provided by SDG&E on "incremental EVs." Second, we would like to respond to testimony introduced by several parties that provide varying perspectives on the outcomes of the Power Your Drive Pilot Data.

Q: Please briefly summarize your testimony on "incremental drivers."

A: In an effort to address the critical question of whether the transportation electrification infrastructure installed in the Power Your Drive Pilot resulted in new EV adoptions, SDG&E measured "incremental EVs" or "incremental drivers." SDG&E's measure is based on EVs registered to charge at the site at least 90 days after the site became active. Of the 4,073 vehicles registered at the Pilot sites, 937 were registered during the first 90 days, and 3,136 were registered after 90 days. Thus, the most positive way to interpret these data is that over three-quarters of vehicles that registered to charge at Pilot sites may have been purchased in part due to the availability of Pilot sites.

On average, 8 incremental EVs were observed for every 10 ports installed by the PYD pilot. We concluded that the number of ports at a PYD Pilot site does not influence EV adoption rates. There is no apparent difference between smaller and larger sites in terms of encouraging EV adoption.

There is a strong relationship between the cost per incremental EV and the number of incremental EVs. The state goal of encouraging drivers to purchase and drive EVs will be accomplished at less cost if SDG&E can identify the site characteristics associated with incremental EVs.

Q: Please provide your updated analysis.

A: First, we note that SDG&E's updated data show more incremental EVs than when we filed our direct testimony,[1] with 77% of users' first charges occurring more than 90 days after the site was available for use. Some commenters questions whether the 90 days cutoff was appropriate for the definition of incremental EVs and suggested a longer period. Using a more stringent cutoff of 120 days, the number of incremental EVs drops slightly to 69%.

Second, SDG&E's updated data show that there are still 24 sites where no drivers have registered to use the sites. These sites are divided evenly between multi-unit dwellings (MUDs) and workplaces. Of these 24 sites, eight has 10 or more ports, one MUD has 25 ports, and one workplace has 24 ports. Representing almost 10% of the sites where ports were installed, this is a strong indication that the site approval process during the PYD Pilot had significant and costly flaws.

Third, we are providing updates to what were designated Figure 2 and Figure 3 in our direct testimony. As shown in Figure 1, statistical analysis of the data suggests that the number of incremental EVs per port is not closely related to the number of ports installed.[2]

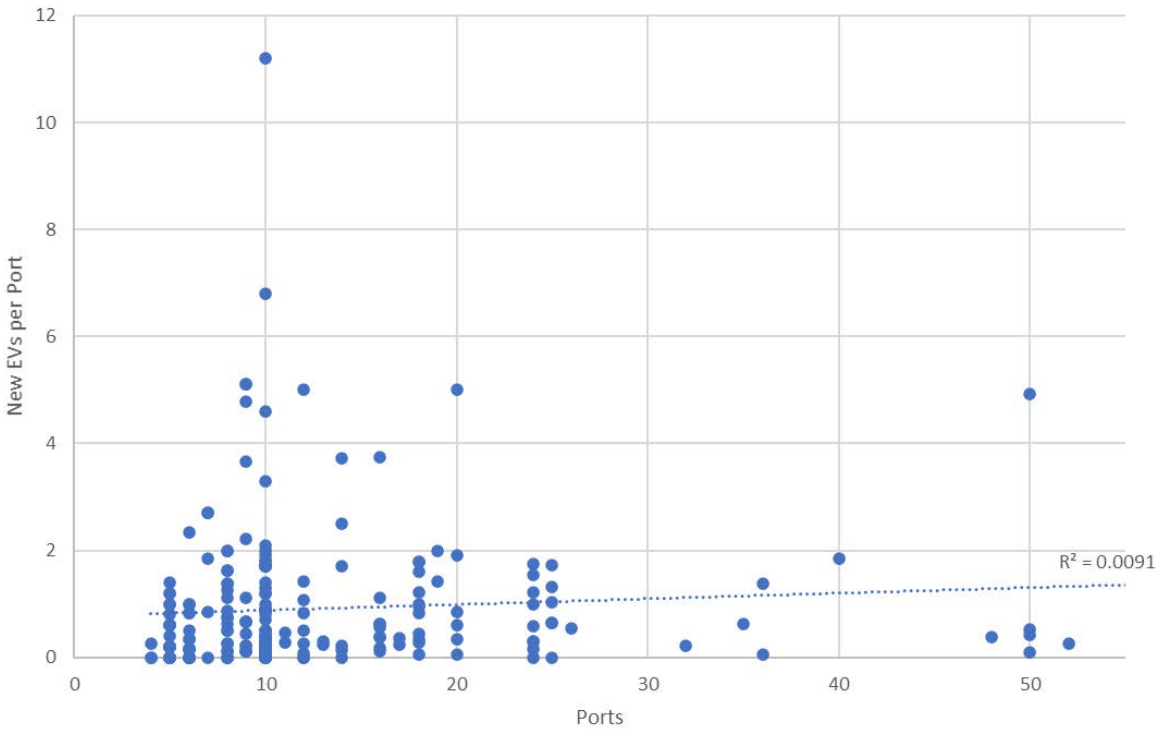
There are 14 sites with more than 2.5 incremental EVs per port. Similarly, there were 61 sites with zero or one incremental EVs. Assuming the incremental EV measure has some validity, it would be interesting to know what factors drove the much higher and lower EV adoption rate at those sites. For example, if a prospective site that would merit only 3-4 ports has the

[1] SDG&E, updated response to SBUA DR-02 Question 1 (June 16, 2020).

[2] Our findings differ from those of TURN on this point. (TURN, p. 19)

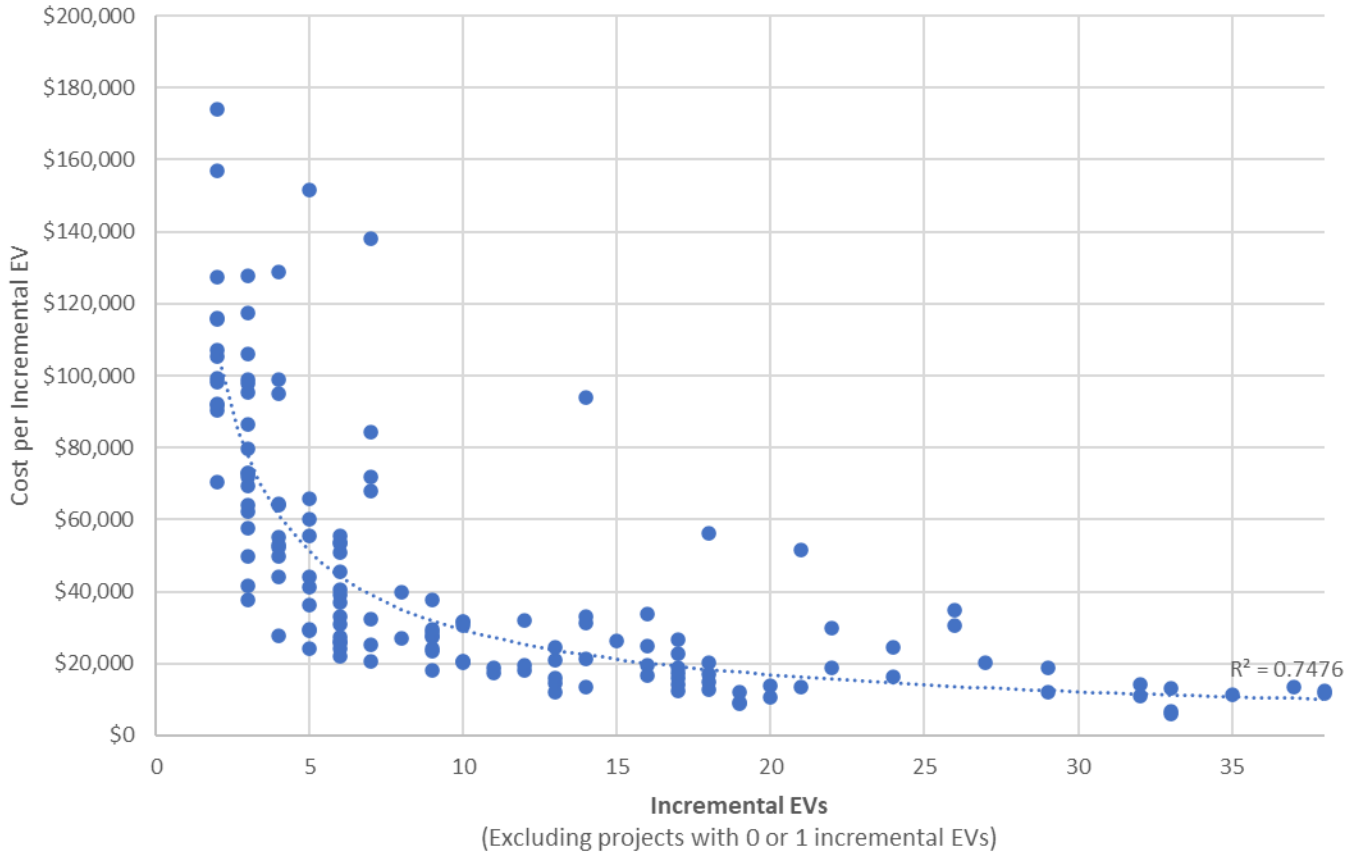
characteristics of a high EV adoption site, then it might result in 10-20 incremental EVs.

Figure 1: New EVs per Port, PYD Pilot



Third, as updated in Figure 2, the new data show an even stronger relationship between the number of incremental EVs and the cost per incremental EV than we found in our direct testimony (Figure 3). As noted above, a high performing site with only 3-4 charging ports might result in 10-20 incremental EVs, and this would put it in the most highly cost-effective range.

Figure 2: Cost per Incremental EV, PYD Pilot



Q: How did other witnesses evaluate the cost-effectiveness of the Power Your Drive Pilot data in direct testimony?

A: Most of the witnesses focused on either the overall budget, driver enrollment data, and on the cost per port. Witnesses also evaluate the impact of the VGI rate on electrical demand.

NDC pointed out "massive cost overruns" and focused on poor site selection, noting that a large number of sites had zero or just one driver

enrolled.[3] NDC and TURN both strongly critiqued the manner in which SDG&E determined the number of incremental EVs for each project.[4]

The strongest critiques regarded SDG&E's very high total cost per port.

Q: What are the different perspectives on SDG&E's projected total cost per port?

A: TURN and UCAN shared our perspective on excessive cost per port by noting that the actual cost per port in the PYD Pilot was about $22,900, while the proposed PYD Extension was based on a budget of $26,000, considering only the infrastructure and charging station expenses.[5] TURN also compares this cost to pilots by PG&E and SCE, estimating that those costs were about $18,000 and $13,800 per port, respectively.

Based on the other IOUs' lower costs, as well as increased efficiencies and economies discussed by SDG&E but not reflected in the budget, TURN recommends that "SDG&E adhere to a $15,000 per port average cost."[6] CalPA also suggests budget reductions, without providing a target average cost per port.[7] We concur that the PYD Extension budget is excessive in large part because of the high cost per port and could have an unreasonable impact on rates.

[3] NDC, p. 8.

[4] NDC, p. 6; TURN, p. 13.

[5] TURN p. 8; UCAN p. 29.

[6] TURN, p. 10.

[7] CalPA, p. 1-7.

Q: What perspective was shared on VGI rates?

A: In our direct testimony, we observed that the effect of VGI rates on demand during high priced hours appeared relatively small. TURN and UCAN provided further evidence to support this observation.[8]

We conclude that if workplace charging has a significant effect on demand during high priced hours, then it is likely to be a result of customers shifting charging at work in the morning, rather than at home in the evening. However, SCG&E was not able to provide data on when and where PYD Pilot customers had been charging before installation of the workplace charging (or would have been charging), so it is not possible to assess this effect at this time.

III. Outreach to Small Businesses.

Q: Did any other direct testimony address SDG&E's plan to conduct outreach to small businesses?

A: No, only SBUA addressed the needs of small businesses.

Q: Please review how SDG&E could address the needs of small business.

A: SBUA offers five recommendations on addressing the needs of small businesses:

a. Educating potential program participants on how to efficiently secure landlord approval, including model terms and practices.

b. Providing potential program participants technical assistance in identifying locations to install charging software given site geometry and safety concerns.

[8] TURN, pp. 36-39; UCAN pp. 15-19.

c. Offering easy-to-use tools to assist small businesses with determining the scale and optimal use of charging infrastructure considering specific business practices.

d. Offer or facilitate access to easy-to-use tools to assist small businesses with long-term fleet planning, considering business needs, financing opportunities, and future resale value.

e. Educate potential small businesses on how to assemble the relevant information for consideration by a small business loan officer.

Q: How should SDG&E evaluate and report on the effectiveness of the pilot for small businesses.

A: SDG&E could evaluate small business in its program tracking and evaluation reports, consider participations rates (both directly and indirectly), electric rates experienced by small businesses that charge EVs using PYD stations, EV adoption rates, and other relevant metrics. In addition, SDG&E should report on the progress and outcomes related to small business outreach and technical assistance to the Program Advisory Council.

IV. Budget Controls.

Q: What proposals were made regarding a budget cap?

A. In our direct testimony, we recommended a formula for sharing costs with the site hosts. Other witnesses made recommendations regarding:

- Use of a one-way balancing account to record the authorized revenue requirement for PYD and its actual incremental costs.
- Specific adjustments to the cost drivers in the proposed budget.
- Reductions to workplace rebate levels.
- Disallowance of costs for "non-utilized" ports.

Witnesses also made several recommendations related to cost recovery that were not meant to achieve budget control.

Q: What is your opinion of the one-way balancing account?

A: Several witnesses recommended that the Commission should authorize a one-way balancing account rather than a two-way balancing account.[9]

We agree with these witnesses. As noted in our direct testimony, the application contained neither a minimum number of charger ports or sites, nor a budget cap. SDG&E has the information from the PYD Pilot that it needs to prepare an accurate program budget and avoid cost overruns, and it should be able to apply lessons learned from the PYD Pilot to achieve lower costs. SDG&E should be required to install a specific number of charging ports using a one-way balancing account based on a reasonable program budget structure.

Q: What is your opinion of the specific budget adjustments recommended in direct testimony?

A: CalPA recommended three reductions to the program budget: for engineering design, make-ready construction, and the EVSE rebates.[10]

We agree that the engineering design budget should be reduced for the reasons stated in CalPA's testimony.[11] In particular, we believe that SDG&E should be able to avoid the excess costs of the "many sites [that] incurred multiple iterations of unanticipated redesign" in the pilot, reducing average engineering costs compared to the pilot.

[9] CalPA, p. 2-1; TURN, p. 14; UCAN p. 34.

[10] CalPA, p. 1-7.

[11] CalPA, pp. 1-5 through 1-6.

We also agree with CalPA that SDG&E's proposed budget overstates make-ready construction direct costs and rebates. Rather than pursuing the approach suggested by CalPA, we recommend that the CPUC impose a site-host cost-sharing arrangement, as discussed below. We expect that our approach would result in a budget similar to, or lower than, the CalPA proposal.

Finally, we agree with CalPA and other parties that the ratepayer subsidy levels in the PYD Pilot were excessive.

Q: Please discuss the recommendations to reduce the proposed workplace EVSE rebate levels.

A: CalPA recommends EVSE rebates of up to $2,000 and $1,000 for DAC and non-DAC workplaces, respectively. For an EVSE cost of $3,000, this approach would result in host contributions of $1,000 for DAC workplaces and $2,000 for non-DAC workplaces, respectively.[12] UCAN suggests the SDG&E should pay up to 75 percent of EVSE costs, to a maximum of $3,000 per port (leaving the site host paying $750 for a $3,000 EVSE, $1,000 for a $4,000 EVSE).[13] TURN recommends site hosts cover at least 75% of customer-side costs at workplaces.[14] These proposals could improve on SDG&E's approach, but are too narrowly focused.

Q: What approach do you recommend for setting the PYD rebates?

A: Instead of simply providing slightly smaller rebates for customer-owned EVSE, SDG&E can couple the participant cost requirement with an effort to

[12] CalPA, p. 4-4.

[13] UCAN p. 30

[14] TURN, p. 29.

prioritize lower-cost workplace sites, in order to maximize program impact, while retaining enough flexibility to support higher-cost sites that are likely to achieve unusually high levels of EV adoption, utilization and equity.

Our recommended flexible rebate approach would prioritize lower-cost workplace sites, with some flexibility for higher-cost sites. In our direct testimony, we suggested that SDG&E would pay up to $20,000 per port for the EVSE and make-ready costs, plus 80% of costs above that amount. However, based on TURN's testimony regarding the cost per port in the PG&E and SCE pilot programs, we have revised our recommendation. SDG&E should pay up to $12,000 per port for make-ready and EVSE, plus 80% of costs above that amount. With this rebate structure, the average participant in the SCE pilot would have paid $360 per port and the average PG&E participant would have paid $1,200 per port.

In general, SDG&E should not contribute more than $18,400 per port, which would be the result of applying the formula above to a project costing $20,000 per port. If SDG&E determines that a particularly desirable site (e.g., for equity, high likelihood of attracting above average incremental EVs, filling a spatial gap in charging opportunities, or overcoming the split incentives between landlords and small business tenants) would require a utility contribution of more than $18,400, SDG&E should negotiate cost sharing with the site host.[15]

For sites located in DACs, all or part of the participation payment could be waived, depending on SDG&E's assessment of the customer's need for a

[15] SDG&E should aspire to shift at least half of the excess to the site host, although the host share will need to vary with the host's financial constraints and incentives. A higher SDG&E share may be needed to entice the landlord to invest in a site serving multiple small business tenants.

waiver.[16] We also suggest that similar discretion be authorized for sites that primarily serve small businesses, with broadly distributed benefits.[17]

We also suggest that after six months, SDG&E be authorized to adjust these terms in either direction, depending on customer response and updated estimates of average costs.[18] If response is strong or costs appear to be lower than forecast, SDG&E could lower the $12,000, $20,000 or 80% parameters. And if participation is not proceeding as expected, SDG&E could increase those values by filing Tier II Advice Letter.

Q: Please provide some examples of how your cost sharing mechanism would work.

A: We will assume that the site host is responsible for acquiring the EVSE, as proposed by SDG&E, for all our examples. Also, all of the costs in our examples are on a per port basis.

> **Example 1:** SDG&E determines that make-ready costs will be $15,000. The customer selects EVSE with a cost to install of $2,000. The total site cost is thus $17,000. The site host's cost responsibility would be 80% of $5,000 ($17,000 – $12,000), or $1,000 (7% of total costs). Since the site host is paying $2,000 for the EVSE, SDG&E would provide a $1,000 rebate for the EVSE.

[16] A chain store or large corporation with a site in a DAC, serving customers from or conducting business across a wide area, may be able to easily cover its small share of the costs under SDG&E's standard cost contribution.

[17] A Walmart store in a low-income area still has the financial resources of Walmart, while a collection of convenience stores, personal-care outlets, and small retailers will not generally be able to mobilize similar resources.

[18] SDG&E has not conducted any market research on willingness to pay for EVSE costs. SDG&E, Response to NDC DR-02 Questions 1 and 2.

Example 2: SDG&E determines that make-ready costs will be $18,500. The customer selects EVSE with a cost to install of $1,000. The total site cost is thus $19,500. The site host's cost responsibility would be 80% of $7,500 ($19,500 – $12,000), or $1,500 (8% of total costs). Since the site host is only paying $1,000 for the EVSE, SDG&E would need to bill the site host for $500.

Example 3: SDG&E determines that make-ready costs will be $22,000. The customer selects EVSE with a cost to install of $3,000. The total site cost is thus $25,000. The site host's cost responsibility is determined in two steps. First, the site host is responsible for 20% of the cost from $12,000 to $20,000, or $1,600. Second, SDG&E negotiates with the site host and agrees to cover 50% of the remaining $5,000 in costs. Thus, the site host's total cost responsibility is $4,100 (16% of total costs). The site host would cover the entire cost of the EVSE (no rebate in this example), and SDG&E would bill the site host $1,100.

Q: Why should a site host potentially cover a greater share of the cost than proposed by SDG&E and other witnesses?

A: First, site hosts benefit from the amenity of charging stations. It is a benefit to the business and its employees.

Second, our suggested approach could help SDG&E stretch the proposed budget further and install more EV charging stations. For example, if SDG&E had achieved an average cost of $20,000 per port in the PYD Pilot, it would have been able to increase the number of ports installed by more than 10%, while staying within the same budget. Furthermore, to the extent that SDG&E is not able to reduce costs to the same levels as PG&E and SCE, but participants are willing to pay the higher share, then the impact on ratepayers will be mitigated more substantially than under other proposals.

Third, as noted by several witnesses, the SDG&E PYD Pilot was not cost-effective from an energy or carbon reduction perspective. The evaluation of programs for encouraging charger installation should include other sources of value to the site host and the EV drivers. A recent report indicates that high-

end multi-family properties see EV charging as a necessity, and that tenants and visitors to office buildings are increasingly coming to expect charging stations.[19] For example, the site host may be value EV charging as an important convenience for its employees, as a way to attract customers, or to charge its own vehicles. The value of the EVSE is the sum of public benefits, which justify ratepayer funding, and private benefits, which motivate contribution from the site host.

Q: What is your opinion of disallowance of costs for "non-utilized" ports?

A: As mentioned above, there are still 24 sites where there has been no use since commissioning, with total costs of $4.8 million for 209 charging ports installed. Most of these sites were commissioned in December 2018.

NDC recommends that SDG&E be required to "bear the average cost of each 'non-utilized' port."[20] We are sympathetic to NDC's concern. In any large set of projects, a certain percentage may underperform or fail especially where customer response is a critical factor. Nonetheless, a failure rate of 10% of the sites seems excessive.

SDG&E has not provided in its application or discovery responses any clear explanation as to why these sites were approved and whether circumstances changed at these sites.

Rather than automatically disallowing costs at such sites, SDG&E should be required to provide an explanation as to why sites with no charging activity after a year failed. If the failure is in large part due to inadequate site review during the approval process, those costs could be disallowed.

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[19] RLCO Real Estate Advisors, "Electric Vehicle Charging Station Strategy for Real Estate Implementation in the United States" (2020), pp. 15-16.

[20] NDC, p. 10.

Q: What is your opinion of other recommendations related to cost recovery suggested by other witnesses?

A: CalPA recommended that cost recovery should be through an equal cents per kWh via the public purpose program charge, rather than through distribution rates.[21] We agree that PYD is intended to provide public benefits, not general distribution services, and concur with CalPA.

Q: How should the Commission set the budget cap and minimum number of ports that must be achieved by SDG&E?

A: As discussed above, we agree with CalPA's critique of the engineering design budget, and we also make a number of recommendations to encourage SDG&E to achieve a substantially lower average cost per port. Further cost reductions would result from the higher cost share from site hosts.

The lower average cost per port and higher cost share requirement may result in SDG&E determining that the number of ports should be reduced, which would further reduce the overall budget. To be clear, we do not specifically recommend a lower number of ports since SDG&E should continue to make progress towards achieving the state's goals.

As a result of the interaction of these different factors, we are not able to recommend a revised budget. Instead, we recommend that if the Commission adopts our recommendations, it direct SDG&E to develop a revised budget to implement those recommendations prior to issuing a final order. That budget should also include a minimum commitment to a number of ports that will be installed for the proposed budget.

[21] CalPA, pp. 2-3 – 2-7.

V. Utility ownership of EVSE.

Q: Has your opinion changed regarding which party should own the EVSEs?

A: To some extent. In our direct testimony, we pointed out that that SDG&E ownership of the equipment may, among other things, allow it to match the rates paid by the driver to grid-level costs and collect data that informs program evaluation and future program development.

Parties discussed the relationship between utility ownership of EVSE and the capability to influence load shifting. SBUA and all other parties testifying on this topic agree that the amount of load shifted, and the consequential financial benefits to ratepayers, is small. Three useful points were made by other parties:

- The Joint Parties testified that the TOU rates such as the VGI rate should continue to be utilized by allowing a "rate adder" to be included by site hosts who use "Rate-to-Host" and pass through the TOU rate, by default, to the driver.[22]
- TURN testified that rate and demand response programs that depend on utility ownership of EVSE are not the best strategy for realizing system cost savings and ratepayer benefits.[23]
- ChargePoint testified that applying the VGI rate through the Rate-to-Driver option can be confusing to drivers. To address their concern, ChargePoint suggest that SDG&E pilot test managed charging using two approaches.[24]

[22] Joint Parties, pp. 6-8.

[23] TURN, p. 39.

[24] ChargePoint, pp. 14-15.

Considering these critiques, and the alternatives suggested by the Joint Parties and ChargePoint, there does not appear to be a compelling case to design the pilot to support the VGI rate. While we do not oppose SDG&E using the modified VGI rate in the program where feasible, SDG&E should be directed to utilize the PYD Extension to identify more effective methods of achieving load shifting via EV charging.

Finally, no direct testimony directly addressed the SDG&E's capability to obtain session data, including the start and end times of charging used to calculate the average cost of electricity for charging sessions. The Company is also able to identify vehicles that are new to charging at the site. SDG&E's opportunity to obtain these data is due to its contractual relationship and performance requirements. According to program staff, these performance requirements are a major reason that only two EVSE vendors qualified for the PYD Pilot, and there was significant work required to meet the utility's standards for sharing these data.[25]

However, considering the opportunities suggested by ChargePoint and the Joint Parties to achieve load shifting without utility ownership of the EVSE, there may also be methods for SDG&E to obtain access to session data and information related to vehicle identity without owning the EVSE. Rebates and utility cost sharing may be tied to the sharing of data. Without ownership, those data may be less complete, timely or otherwise of lower quality than with ownership, but they still may be sufficient for EM&V and future program improvements.

Accordingly, we recommend that if the Commission does not authorize SDG&E to own some or all EVSE at workplaces, then it should direct SDG&E

[25] SDG&E, Power Your Drive Extension Program Technical Workshop (May 13, 2020).

to pursue voluntary agreements with EVSE vendors to supply relevant data for purposes of EM&V.

VI. Auditing and EM&V.

Q: Please summarize your direct testimony regarding reporting requirements and EM&V.

A: We testified that SDG&E's monitoring and reporting plan was insufficient, and outlined some details for a more extensive EM&V plan. We emphasized the need to continue to investigate the impact of workplace charging on customer purchase of EVs – "incremental EVs." More importantly, we testified that if SDG&E (and other IOUs) can identify what site characteristics tend to be associated with a higher number of incremental EVs per port, then the utility can prioritize sites likely to drive EV adoption. When practicable, we recommend incremental EVs per port as a better measure of cost-effectiveness rather than a focus on cost per port.

Q: What other direct testimony addressed this issue?

A: We identified only two other pieces of testimony that addressed the overall approach to reporting and EM&V. TURN recommended an independent audit of cost overruns, an independent study of the least-utilized sites, and investigation of potential utilization at prospective sites.[26] The recommendations to study the least-utilized sites and develop of methods to anticipate potential utilization are consistent with our recommendation for EM&V, and therefore recommend that an EM&V consultant's scope should also address these two recommendations.

[26] TURN, pp. 22, 26.

NDC recommended that SDG&E work with the Program Advisory Council to review PYD Pilot data and develop more stringent site evaluation methods.[27]

Q: What is your opinion of the independent audit recommended by TURN?

A: We strongly agree with this recommendation. As discussed throughout our direct and rebuttal testimonies, there are significant unanswered questions regarding the cost of the PYD Pilot and its outcomes. The "forensic accountant" audit suggested by TURN should be closely coordinated with the EM&V report that we suggest. The auditor should focus on the cost topics, as outlined in TURN's testimony.

However, a "forensic accountant" is unlikely to have specific expertise relevant to EV infrastructure program design that an EM&V consultant would offer. Accordingly, we recommend that the auditor and the EM&V consultant share findings as each develops its recommendations for improving the cost-effectiveness of the PYD program.

In terms of timing, both the auditor and the EM&V consultant should be retained as quickly as possible so that they may review the PYD Pilot and provide recommendations to quickly improve the PYD Extension. Then, the EM&V consultant should continue, evaluating the PYD Extension as well.

Q: Does this conclude your testimony?

A: Yes.

[27] NDC, p. 10.