Application: A.19-10-___

Exhibit No.: SDG&E-__

Witness: Randy Schimka

PREPARED DIRECT TESTIMONY OF

RANDY SCHIMKA

ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

CHAPTER 2 – PROGRAM DESIGN

BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

OCTOBER 28, 2019

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PREPARED DIRECT TESTIMONY OF
RANDY SCHIMKA
CHAPTER 2 – PROGRAM DESIGN

This application seeks approval for an extension, with some modifications, of the program approved in Decision ("D.") 16-01-045. I previously provided prepared direct, supplemental and rebuttal testimony in the original Vehicle Grid Integration ("VGI") Pilot program (later called the Power Your Drive Pilot) in Application ("A.") 14-04-014.[1] Witness qualifications follow the conclusion of my prepared direct testimony.

I. POWER YOUR DRIVE EXTENSION PROGRAM

A. Description and Features

1. Program Overview

San Diego Gas & Electric Company ("SDG&E") proposes a Power Your Drive Extension Program ("PYD Extension Program" or "Program") to extend the benefits and partially meet customer demand for workplace and multi-unit dwelling ("MUD") electric vehicle ("EV") charging infrastructure. While awaiting further guidance from the California Public Utilities Commission ("Commission") as part of the transportation electrification framework ("TEF"), the PYD Extension Program will provide EV charging infrastructure and charging stations for approximately 2,000 additional Level 2 EV charger ports. This will result in approximately 5,000 ports total as part of the PYD Pilot and Extension Programs.

[1] *See* A.14-04-014, Prepared Direct Testimony of Randy Schimka, Chapter 2, Exhibit ("Ex.") SDG&E-2 (April 11, 2014) ("Ex. SDG&E-2 (Schimka Direct)"); Prepared Supplemental Testimony of San Diego Gas & Electric Company, Ex. SDG&E-7 (January 14, 2015) ("Ex. SDG&E-7 (Supplemental Direct)"); and Prepared Rebuttal Testimony of Randy Schimka, Chapter 3, Ex. SDG&E-10, (April 13, 2015) ("Ex. SDG&E-10 (Schimka Rebuttal)").

The infrastructure and charging stations will be installed at workplace and MUD sites over a two-year period. A minimum target of 25% of the site locations will be deployed at MUD sites. A minimum of 10% of the site locations will be deployed at Disadvantaged Communities ("DAC") sites,[2] also referred to as communities of concern. Table 2-1 below provides a high-level comparison between the PYD Pilot and the PYD Extension Program.

Table 2-1: Comparison Between the PYD Pilot and the PYD Extension Program

	PYD Pilot	**PYD Extension**
Customer Segment:	MUDs and workplaces	MUDs and workplaces
Size:	3,040 ports installed at 254 sites	Approximately 2,000 ports at 200 sites[3]
DAC Target:	10% Target	10% Target
EVSE Ownership / Maintenance:	Utility ownership	Utility ownership in MUDs; customer ownership in workplaces
DAC Definition:	SDG&E Territory, or State, whichever is broader[4]	SDG&E Territory, or State, whichever is broader
Workplace EVSE Rebate:	n/a	Up to $3,000/port
Participation Payments in Non-DAC MUD:	$235/port	$350/port
Rate Options:	VGI Rate	Defaulted to Modified VGI Rate for MUDs, Modified VGI Rate or C&I Rate for Workplaces

[2] Disadvantaged Communities are defined as the top quartile of census tracts as identified by the CalEnviroScreen 3.0 tool on an SDG&E service territory-wide basis.

[3] Port and site count in table does not include one testing and training site that may be constructed in conjunction with the Program.

[4] D.16-01-045 at 173.

SDG&E is proposing essentially the same program architecture in the PYD Extension Program as in the original approved Vehicle Grid Integration Pilot[5] at MUD sites, with proposed modifications for workplace sites.

- SDG&E will not install, own or maintain the electric vehicle supply equipment ("EVSE") in workplace sites.
    - SDG&E will provide a rebate for workplace EVSE after energization, up to $3,000 per port, not to exceed the purchase price.
    - SDG&E will install, own, and maintain the make-ready infrastructure all the way up to the EVSE.
    - The workplace site host or the electric vehicle service provider ("EVSP") will be the customer of record and will be billed from the utility smart meter.
    - The customer of record will have the option of being billed at the modified Vehicle Grid Integrated rate ("VGI Rate")[6] or any applicable SDG&E C&I time-of-use ("TOU") rate.
    - All workplace sites will be on the "Rate-to-Host" billing option. SDG&E will not bill individual drivers at workplace sites at the EVSE level since SDG&E cannot ensure the accuracy of the meter in the EVSE if it is not owned and maintained by SDG&E.

[5] D.16-01-045.

[6] The VGI Rate was proposed in A.14-04-014. The rate is an hourly rate that is based on CAISO day-ahead prices and has adders to discourage charging during the system's top 150 annual hours of loading and during the top 200 annual hours of loading for the distribution circuit where the charging stations are located. More description is available in Cynthia Fang's PYD Pilot testimony. *See* A.14-04-014, Revised Prepared Direct Testimony of Cynthia Fang, Chapter 3, Ex. SDG&E-3 (June 3, 2014) ("Fang Revised Direct Testimony") at CF-2 - CF-3. *See also* Advice Letter 2877-E, approved December 16, 2016 and effective December 16, 2016.

- The workplace site host will provide SDG&E with a load management plan that will address how the charging stations will be operated on days when the modified VGI rate has pricing adders (or on Critical Peak Pricing ["CPP"] / Reduce Your Use day events / on-peak hours for other rates, if applicable). The load management plan provided by the site host will also include how the site host intends to charge their drivers and what rate will be passed on to the driver.
- The workplace site hosts will have the option to select non-PYD Pilot qualified EVSE. They may work with the EVSP that they select to determine which EVSE meets their needs, as long as the equipment selected meets the minimum criteria in the Commission Safety Requirements Checklist.[7]
- SDG&E may conduct a simplified request for information ("RFI") process to qualify EVSE into the program for workplace sites to ensure the equipment meets the Safety Requirements Checklist and may provide a list of qualified equipment to site hosts.
- Workplace site hosts will have the option of making the charging stations available to the public.
- The workplace site hosts will be responsible for the installation, operation, maintenance, and availability of the EVSE.

[7] D.18-01-024 at 98.

- DAC definition: SDG&E proposes keeping the DAC definition the same as that used in the PYD Pilot.[8] This will help maintain continuity with the original PYD Pilot and will minimize confusion caused by changing DAC definitions (which would affect participation payment criteria).
- MUD target modification: SDG&E proposes reducing the MUD target in the PYD Extension Program from 40% in the PYD Pilot to a minimum of 25% of sites, which would allow for greater flexibility in selecting MUD locations that generally cost less to deploy. This modification also reflects the challenges found in the PYD Pilot that led to some potential MUD sites not being viable for the following reasons:
    - Longer overall distances from the power source to the EVSE
    - Multiple floors in parking garages – leading to possible concrete core drilling between floors, longer distances to the power source, and higher costs to ensure structural stability
    - Smaller site sizes – leading to higher average costs per port
    - Deeded parking places – leading to longer conduit runs as chargers may be in different locations instead of contiguous
    - Higher costs for the new electric service due to specific site conditions
- The proposed participation payment changes for the PYD Extension Program are outlined below:

[8] Disadvantaged Communities are defined as the top quartile of census tracts as identified by the CalEnviroScreen 3.0 tool on an SDG&E service territory-wide basis. *See* the California Office of Environmental Health Hazard Assessment ("OEHHA") website for more information about CalEnviroScreen 3.0, *available at:* https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30.

- The participation payment for non-DAC utility owned MUD sites will increase approximately 50% (as compared to the PYD Pilot) from $235/port to $350/port.
- No participation payment will be required for workplace sites, which will have customer-owned EVSE. A per-port rebate of up to $3,000 per port, not to exceed cost, will be provided after the site is energized. The site host will be responsible for purchase, installation, maintenance, and availability of the EVSE.
- No participation payment will be required for MUD sites in DAC locations (similar to the PYD Pilot).

2. Program Summary

The following chart summarizes the PYD Extension Program:

Program Component	SDG&E's Power Your Drive Extension Program
CPUC Review Mechanism	Standard Review
Objective	Supports the installation of charging infrastructure and approximately 2,000 charging ports over two years at workplace and MUD sites.
Market Segment and Vehicles Targeted	Level 2 ("L2") EVSE for light-duty passenger vehicles.
Implementation Timeframe	Program startup and installations will commence after Commission approval of the Program. Infrastructure and charging equipment will be deployed over a two-year period after initial program set-up.
Leveraged Funding	Participation payments will be required for MUD sites not located within a DAC. Site hosts/locations will be required to sign agreements to allow the installation of the charging equipment and infrastructure, and to provide parking spaces for dedicated EV charging.
Ownership / Stranded Asset Mitigation	MUD sites are proposed to have utility owned, maintained and operated EVSE. Workplace sites are proposed to have customer-owned EVSE with a utility-provided rebate. In both

	scenarios, the make-ready infrastructure on the customer-side and utility-side will be installed, owned and maintained by SDG&E.[9] All EVSE will be Level 2[10] and will conform to the Commission's Safety Checklist Requirements.[11]
Rate Choices	MUD site hosts will have the choice of the Rate-to-Driver option on the modified VGI rate or the Rate-to-Host option on the modified VGI rate.[12] Workplace site hosts will be able to choose the Rate-to-Host option on the modified VGI rate or any applicable C&I rate.
Grid Impacts	Use of SDG&E's rate options will incentivize drivers to charge at times of the day when prices are lower and charging is less impactful to the grid (which will provide managed charging benefits).
DAC Participation	DAC Minimum Target: 10% of sites; defined as the top quartile of census tracts identified by the CalEnviroScreen 3.0 tool on an SDG&E service territory-wide basis.
Monitoring and Evaluation Plans	Program data will be collected, analyzed, and shared with the Commission, the Program Advisory Council ("PAC"), and other stakeholders, per the Data Gathering Requirements identified in the Senate Bill ("SB") 350 Priority Review Projects Final Commission Decision.[13] Reports will use the latest version of the template available on the Commission SB 350 TE website.[14]
Modifications to Program	If any modifications are necessary to effectively implement the program after approval, including adjustments to the site

[9] Figure 2-1 and Figure 2-2 below show project architecture for the PYD Extension Program.

[10] Level 2 charging requires a 208 or 240 volt AC power connection and is discussed in more detail on the United States Department of Energy website. *See* Office of Energy Efficiency & Renewable Energy, *Charging at Home*, *available at:* https://www.energy.gov/eere/electricvehicles/charging-home.

[11] D.18-01-024 at 98.

[12] *See* Section I.E below for more information on the proposed changes to SDG&E's existing VGI rate. If approved, the modifications will be applicable to both existing PYD Pilot customers and new PYD Extension Program customers.

[13] D.18-01-024 at 95.

[14] See the Commission website for latest SB 350 TE reporting templates. California Public Utilities Commission, *Transportation Electrification Activities Pursuant to Senate Bill 350*, *available at:* https://www.cpuc.ca.gov/sb350te/.

	or port targets, SDG&E will file a Tier 2 Advice Letter after reviewing proposed modifications with the PAC.[15]

3. Program Objectives, Market Segment, and Sites Targeted

The PYD Extension Program is intended to increase charging station access for light-duty electric vehicles at workplace and MUD sites, which is critical to instill consumer confidence and drive EV adoption. Consistent with the PYD Pilot, the targeted sites are workplace and MUD locations, which tend to be the primary locations for EV charging.[16] At workplace sites, drivers are parked most of the day at one location. At MUD sites, drivers are parked most of the time at home in the evening and late-night hours. Both types of sites are considered longer dwell time locations and are well suited to L2 charging. In addition, workplace charging is ideal for daytime charging, which can help consume excess renewable generation on the grid.[17]

Interested site hosts will continue to self-nominate to participate in the PYD Extension Program via an SDG&E website. The site host must be willing to provide the space needed for the associated infrastructure and charging equipment, as well as set aside dedicated parking spots for EV drivers. The prospective customer location will be examined to evaluate the presence of existing and future EV drivers (usually determined by the site host conducting a driver survey) and will help avoid selecting sites with low usage potential. SDG&E will consider the following factors, among others, when evaluating and prioritizing the interested sites for installation:

- MUD or workplace site categorization;
- DAC status;

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[15] D.18-05-040 at 126.

[16] Botsford, C., Edwards, A, *An Integrated Global Philosophy of EV Charging* (June 19, 2016) at 5, *available at:* http://www.mdpi.com/2032-6653/8/2/495/pdf.

[17] *See* A.14-04-014, Prepared Direct Testimony of Lee Krevat (adopted by James P. Avery), Chapter 1, Ex. SDG&E-1 (April 11, 2014) ("Ex. SDG&E-1 (Avery Direct)") at 13.

- Current and expected volume of EV drivers;
- Number of charging ports desired;
- MUD deeded parking status;
- Type of installation (parking lot or parking structure);
- WiFi / connectivity signal strength;
- Distance between power source and new electric service point;
- Estimated cost for infrastructure and EV charging station installation; and
- Capability of complying with Americans with Disabilities Act ("ADA") accessible parking requirements.

SDG&E continues to believe that utility-owned and maintained charging stations reduce barriers to EV adoption by providing an easier and all-inclusive customer experience for adopting EV charging stations and creating a higher level of maintenance and reliability for the stations after they have been deployed. However, in response to stakeholder feedback in the Commission TE proceedings, SDG&E proposes to change the ownership model in the PYD Extension Program for workplace locations. SDG&E will attempt to compare the results of the PYD Pilot and the PYD Extension Program as a result of the different models of utility EVSE ownership.

To remove potential financial barriers to ownership and maintenance at MUD sites, SDG&E is proposing a turnkey MUD charging solution in the PYD Extension Program, featuring utility-owned and maintained infrastructure and EVSE. This is the same architecture for MUDs as in the PYD Pilot. SDG&E's experience implementing the PYD Pilot showed that MUD sites can be more difficult to enroll and construct than workplaces for several reasons, including more challenging physical layouts, a longer approval process due to more decision maker involvement (homeowner association board, property manager, and property owner(s), for example), financial constraints that could limit the purchase of EVSE, and overall property

amenity goals (management may choose other amenities that target a larger resident population). Southern California Edison had similar challenges when trying to enroll MUD site hosts for their Charge Ready Program and has also proposed a turnkey utility ownership approach for the make-ready infrastructure and EVSE at MUDs in their Charge Ready 2 application.[18]

As the owner of the charging equipment at MUD sites, SDG&E will provide the same standard of service that it does to all other assets installed in its territory to ensure that the charging stations are safe, reliable, and available for drivers to use. Existing EV drivers value having reliable and available charging stations. The PlugShare phone app/website[19] highlights comments from drivers about public charging stations that are having ongoing availability or reliability issues in the San Diego region. SDG&E-owned charging stations will help mitigate the reliability concerns of customers, as SDG&E is one of the most reliable energy companies in the United States and will maintain the EV charging equipment accordingly. In November 2018, SDG&E was recognized again for delivering industry-leading reliability to customers for the past 13 consecutive years.[20] In addition, SDG&E has strong knowledge and experience with EV charging infrastructure, by installing and managing the make-ready infrastructure and over 290 workplace charging stations at 20 different Sempra Energy and SDG&E locations, along with the make-ready infrastructure and over 3,000 charging ports installed in the PYD Pilot.[21]

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[18] A.18-06-015, Prepared Testimony in Support of Southern California Edison Company's Application for Approval of its Charge Ready 2 Infrastructure and Market Education Programs, Ex. SCE-01, (June 26, 2018) ("Ex. SCE-01 (Bowman) Direct") at 50-52.

[19] *Available at:* http://www.plugshare.com.

[20] San Diego Gas & Electric Company, *SDG&E Wins National Award for Best Electric Reliability in America* (November 29, 2018), *available at:* http://www.sdgenews.com/article/sdge-wins-national-award-best-electric-reliability-america.

[21] Rulemaking ("R.") 13-11-007, Electric Vehicle-Grid Integration Pilot Program ("Power Your Drive") Seventh Semi-Annual Report of San Diego Gas & Electric Company (September 20, 2019) at 3.

SDG&E is proposing to offer the modified VGI hourly dynamic rate in this Program (see Section I.E. for more information about the proposed VGI rate modifications). For the MUD Rate to Driver option, the rate is the modified VGI rate. For the MUD Rate to Host option, the default rate is the modified VGI rate. Workplace customers will be billed at Rate to Host and will have the option to be billed on the modified VGI rate or any other applicable C&I rate.

Modifications to the VGI rate will be applicable to both PYD Pilot and PYD Extension Program sites. One goal of the Program is to study charging patterns, and SDG&E plans to share usage data from utility-owned MUD EVSE and billing meter data from workplace sites with the Commission and SDG&E's PAC, as appropriate. As outlined in the PYD Pilot decision,[22] the PAC will be open to a broad and diverse stakeholder group, including representatives from local government (*i.e.*, San Diego Association of Governments ("SANDAG")), state government (including representation from the Energy Division), industry, labor, ratepayer and environmental advocates, and representation from environmental justice groups such as those representing Disadvantaged Communities.

PYD Extension Program participants in MUD locations will be allowed to select EVSP vendors who are already qualified for the PYD Pilot, while workplace participants will be able to select from EVSE that meets minimum safety requirements. Since this is an extension program, SDG&E is seeking to minimize costs by leveraging the previous efforts from the PYD Pilot. SDG&E will use International Brotherhood of Electrical Workers ("IBEW")-affiliated contractors and Electric Vehicle Infrastructure Training Program ("EVITP")-trained electricians for the installation of the charging equipment (both make-ready infrastructure and EVSE) in the

[22] D.16-01-045 at 145.

case of SDG&E-owned EVSE.[23] In addition, for workplace locations where the EVSE will be customer-owned, SDG&E will use IBEW-affiliated contractors and EVITP-trained electricians for the installation of the make-ready infrastructure and require customers to use EVITP-trained electricians for the installation of the EVSE. For maintenance, SDG&E will require EVITP-training for personnel at utility-owned sites, but will not require EVITP training for maintenance of any assets not owned by SDG&E. SDG&E will utilize the Safety Requirements Checklist as a minimum for the PYD Extension Program, as outlined in the SB 350 Priority Review Projects Decision.[24]

4. Program Architecture

When designing the necessary infrastructure, SDG&E will examine the need to install a new distribution transformer at participating sites. From lessons learned in the PYD Pilot, SDG&E assumes that each participating PYD Extension Program location will most likely require that a new transformer be installed as part of the PYD Extension Program.

Figure 2-1 below depicts the illustrative standard architecture for MUDs in the program and shows end-to-end utility ownership. A new separately-metered electric service will be installed to power the charging stations.

[23] All work that is not performed by SDG&E employees shall be performed by contractor's signatory to the IBEW who hold a valid C-10 contractor's license, as defined in the governing labor agreement between SDG&E and the IBEW. In addition, electricians performing utility-owned EVSE installations will have EVITP certification.

[24] D.18-01-024 at 98.

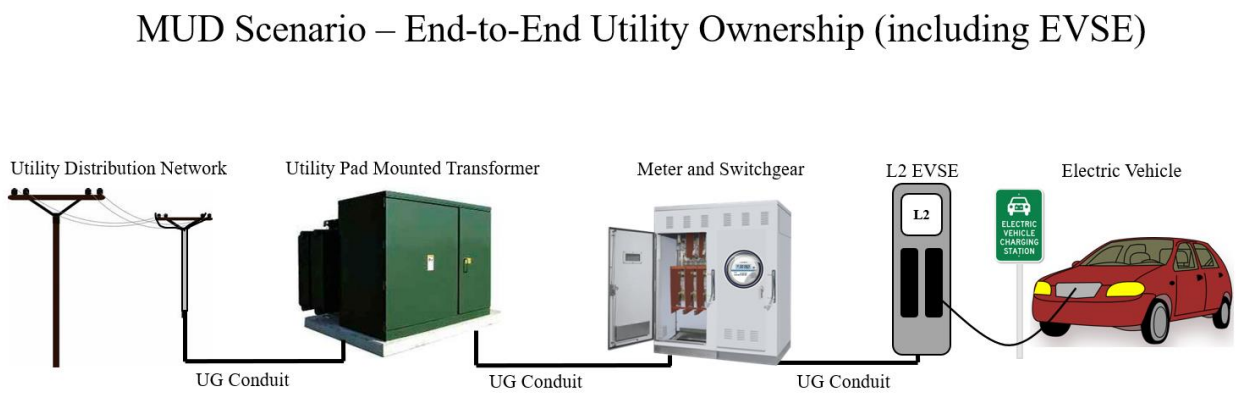

Figure 2-1: Power Your Drive Extension Program MUD Architecture (Utility Ownership)

Figure 2-2 below depicts the illustrative PYD Extension Program architecture for workplaces that will own their EVSE. A new separately metered electric service will be installed, owned, and maintained by SDG&E to power the charging stations. SDG&E will install, own and maintain the make-ready infrastructure for workplace sites, and the site host will then be responsible for procuring, installing and maintaining the EVSE at their workplace sites.

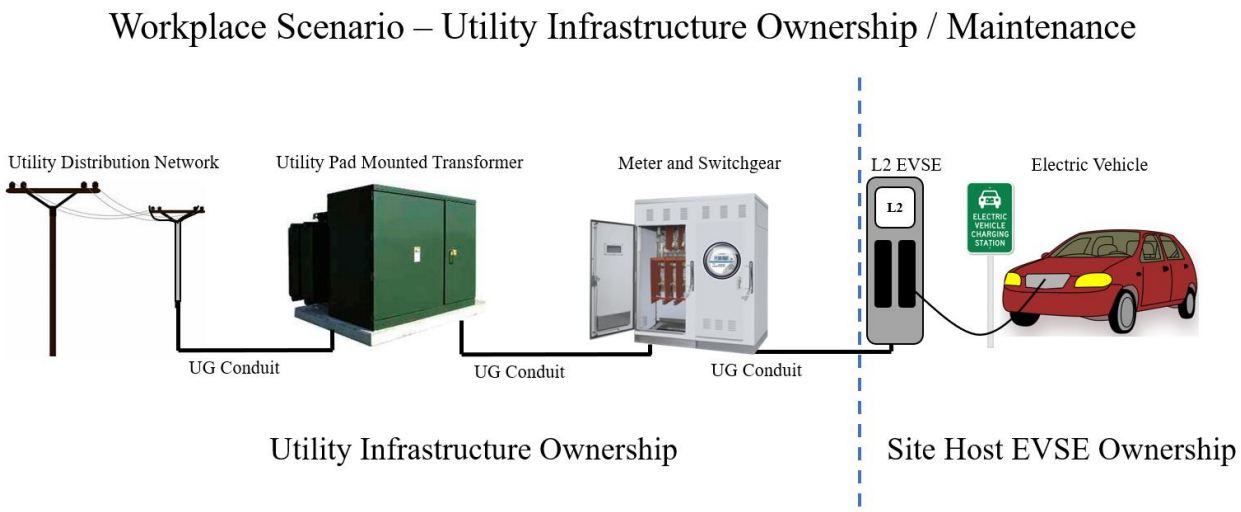

Figure 2-2: Power Your Drive Extension Program Architecture (Utility Owns Make-Ready Infrastructure and Workplace Site Host Owns EVSE)

The program architecture is designed to reduce barriers to adoption, accelerate TE, and protect ratepayers by striking a balance between utility ownership of EVSE. However, the

market may not mature as expected. Therefore, SDG&E requests the ability to file a Tier 2 Advice Letter in order to modify the program regarding ownership and other programmatic changes necessary to support California and Commission policy. SDG&E will consult with the PAC prior to submitting a Tier 2 Advice Letter to make programmatic modifications.

5. Implementation Timeframe

SDG&E will commence preparatory work and pre-program deployment actions upon Commission approval of the Program. This includes items such as post-approval implementation advice letters and recruiting and signing up site hosts. In addition, SDG&E may conduct an RFI process to qualify workplace EVSE. Deployment of infrastructure is anticipated to occur for approximately two years from when construction of the first site begins. Data collection will commence after sites are installed and operational.

6. Leveraged Funding – Participation Payment

SDG&E will work with each site host to develop a collaborative installation and operational plan that minimizes costs. SDG&E envisions that each site host will agree to provide access to land, sign an agreement to allow the installation of infrastructure, and help to streamline the design, installation, and permitting efforts needed to build a successful site. This process was refined during the PYD Pilot. SDG&E will continue to seek out appropriate non-utility sources of funding to alleviate some ratepayer funds.

When the PYD Pilot started, SDG&E created and maintained an interest list that contained site hosts that expressed interest to participate in the Pilot. As time went on, the interest list grew as more site hosts self-nominated via the PYD Pilot website or otherwise expressed interest in participating in the Pilot. Discussions took place with the sites, and over time, site agreements were signed with hosts who wanted to move forward, and PYD Pilot

projects were then designed and ultimately constructed at those locations. Site hosts were taken off the interest list for two reasons:

- The project/site was installed and completed, or
- It was clear that the project/site wouldn't move forward or couldn't be constructed

Now that the PYD Pilot is fully subscribed, the interest list still has several hundred potential site hosts on it that were in various stages of readiness to move forward. SDG&E will use that interest list to start recruiting for the PYD Extension Program and expects that many of the site hosts will be willing to move forward. Because of this continuing interest, and the value proposition that a PYD Extension Program site will bring to site hosts, SDG&E is proposing to charge an increased participation payment for the PYD Extension Program to offset costs that would otherwise by borne by ratepayers. Like the PYD Pilot, the participation payment funds will be set aside and used for future maintenance for utility-owned assets. Proposed participation payments are as follows:

- Charging equipment installed in a MUD site located in a DAC will not incur any participation payments (like the PYD Pilot).
- MUD non-DAC sites with utility-owned EVSE will pay a participation payment of $350 per port as compared to $235 per port in the PYD Pilot (approximately a 50% increase).
- Workplace sites with customer-owned EVSE will not incur any participation payments and will be eligible for EVSE rebates after purchasing, installing and energizing them.

7. Stranded Asset Mitigation

SDG&E mitigates future stranded asset risk through program design. For the utility-owned make-ready and EVSE sites, SDG&E will ensure that the appropriate infrastructure is reliably operated and maintained, either by using internal company personnel or contractors to troubleshoot and repair any issues. SDG&E's proposed ownership structure ensures that facilities will be reliable and available to drivers, mitigating the risk of insufficient maintenance, supplier bankruptcy, or insufficient site host funding. Finally, SDG&E plans to continue to provide data on electric transportation adoption and charging infrastructure utilization related to this program to the PAC stakeholders and the Commission.

For the workplace sites, SDG&E will own and maintain the make-ready infrastructure leading up to the charging stations. The site host will agree to procure, install and maintain the EVSE to ensure they are reliable and available to drivers. A provision will be added to the customer agreement to ensure that the site host's responsibilities for maintaining the charging stations and keeping them in working order is clearly defined.

B. Program Benefits

1. Grid Impacts

The PYD Extension Program will utilize time variant rates to influence EV drivers to charge their vehicles during times that mitigate impacts to the grid. SDG&E plans to use the modified VGI rate or an applicable C&I TOU rate for the PYD Extension Program. The modified VGI rate and C&I TOU rates encourage customers to charge their vehicles during periods of high renewable energy generation and avoid periods of high demand on the grid; thereby mitigating impacts to the grid.[25] These rate options will help support California's Zero

[25] A.14-04-014, Ex. SDG&E-1 (Avery Direct) at 10.

Emission Vehicles ("ZEV") Action Plan Priorities Update by providing drivers an incentive to charge during low-price hours, which will mitigate the need for new generation or transmission and distribution ("T&D") assets resulting from the influx of new load from EVs.[26] Although ZEV programs may be in doubt due to the federal government's attempts to rescind California's clean air waiver, there is still a need to support TE to meet state goals and support customer choice.

For Rate to Host sites, including the workplace sites in which the site host owns the charging stations, the site host will be required to submit a load management plan to SDG&E that will outline charging management and strategy during grid or circuit-constrained periods (modified VGI rate adder days or on CPP days, Reduce Your Use days, or on-peak hours for other TOU rates, as applicable). The load management plan provided by the site host will also include how the site host intends to bill their drivers and what rate will be passed on to the driver.

2. Ratepayer Interest

With the variety of EVs now available on the market, the decreasing costs of EVs, increasing battery capacity, and the increasing number of EVs entering the secondary market as drivers return vehicles from leases, electric transportation choices are growing.[27] These factors will help customers in SDG&E's service territory make the choice to switch to EVs for their next purchase or lease. However, these increased EV choices will not be enough without the infrastructure to support EVs and reduce barriers to adoption. Infrastructure programs, such as

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[26] California Governor's Office of Business and Economic Development, *2018 ZEV Action Plan Priorities Update* (September 2018), *available at:* http://www.business.ca.gov/ZEV-Action-Plan.

[27] Consumer Reports, *New Long-Range, Affordable Electric Cars Coming Soon* (April 3, 2019), *available at:* https://www.consumerreports.org/hybrids-evs/new-long-range-affordable-electric-cars-coming-soon/.

the PYD Extension Program, must be available to accommodate drivers who are ready to make the switch to EVs. This can be especially beneficial at workplaces and MUDs because of their longer dwell times; and, the fact that vehicles are already parked at these locations provides managed charging opportunities. Without this program, EV adoption for those in MUDs may be slower because drivers who rent may be reluctant to spend their own funds to install charging equipment.

SDG&E ratepayers will benefit through cleaner local air, reduced GHG emissions, and increased grid optimization. Studies continue to link air pollution to adverse effects to humans, including cancer and respiratory damage.[28, 29] Electric vehicles are a powerful tool to combat these issues because they have zero tailpipe emissions. Therefore, while there continues to be a cost to deploy charging infrastructure, there is also a cost if decision makers and stakeholders do not act in the short and long-term interest of ratepayers.

SDG&E will focus on deploying infrastructure to support EVs in communities of concern. DACs often face disproportionate exposure to the health and economic impacts of air pollution and climate change,[30] making increased access to electricity as a transportation fuel in DACs a policy priority.[31]

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[28] Union of Concerned Scientists, *Delivering Opportunity, How Electric Buses and Trucks Can Create Jobs and Improve Public Health in California* (May 2017) at 7, *available at:* https://www.ucsusa.org/sites/default/files/attach/2016/10/UCS-Electric-Buses-Report.pdf.

[29] San Diego ranks as the sixth most polluted city by ozone pollution levels according to the American Lung Association's State of the Air Report (2019).

[30] Center for Sustainable Energy ("CSE"), *The San Diego Regional, 2016 Quality of Life Dashboard* at 9, *available at:* https://energycenter.org/sites/default/files/2016-equinox-regional-dashboard-report.pdf.

[31] Cal. Pub. Util. ("P.U.") Code §§ 740.12(a)(1)(C) and 740.12(a)(1)(E).

C. Program Marketing, Education and Outreach, and Monitoring and Evaluation

1. Marketing, Education and Outreach

SDG&E has strong knowledge and experience in EV charging. SDG&E has installed and managed over 290 charging ports at over 20 different Sempra Energy and SDG&E facilities for its employees within its territory. Additionally, SDG&E has gained valuable EV charging knowledge and experience through the implementation process of the PYD Pilot, which will continue to inform future education and outreach efforts associated with the PYD Extension Program. Some of the PYD Pilot marketing, education and outreach lessons learned include:

- Use of email as the predominant communication channel with site hosts. Over 60% of installed PYD Pilot sites that were surveyed expressed a preference for email communications to educate drivers on the benefits of driving electric.
- The focus of education on the benefits of EVs should focus on overall cost of ownership with information on financial incentives related to the purchase or lease of an EV.
- The importance of EV education and outreach messaging in other languages to appeal to a wider audience (such as Spanish, or Vietnamese).
- Site hosts have indicated the desire for improved signage and educational materials to increase charger utilization.

The communication plan from the original PYD Pilot will be leveraged and enhanced to incorporate the lessons learned prior to being deployed in this Program to inform the region about the availability and accessibility of the charging stations. Additionally, the existing site host interest list from the PYD Pilot will be used for a targeted outreach campaign. The plan could include use of social media, a direct e-mail campaign, updates to SDG&E's website, and

development of collateral that will be distributed at mass public events to generate awareness about the program.

2. Monitoring and Evaluation

SDG&E will continue to study and learn from the EV charging infrastructure deployments at workplaces and MUDs after installation. Like the SB 350 Priority Review Programs, SDG&E proposes to collect and periodically report on project data[32] to the PAC and the Commission semi-annually using the latest Energy Division reporting template.[33] In addition, SDG&E also proposes to use the Energy Division's updated final report template[34] to issue a final project report to the PAC and the Commission.

Note that due to the proposed changes to the workplace ownership architecture for the PYD Extension Program, SDG&E may only be able to report on workplace charging data in the Program from the aggregated utility meter level.

D. Permitting Issues

Installation of EV charging stations supports and are necessary to reach California's transportation electrification and climate change goals. However, local permitting can delay and add costs to deployment of charging infrastructure. In part, this is due to a lack of consistent treatment from jurisdiction to jurisdiction regarding permitting rules and processes.

Commission regulation of the design and construction of EV charging stations will facilitate the State's transportation electrification goals by standardizing requirements statewide.

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[32] D.18-01-024 at 95.

[33] *See* Transportation Electrification SB 350 Utility Report Template (May 8, 2018), *available at:* https://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442457046.

[34] *See* Senate Bill 350 Transportation Electrification Data Collection Template (May 8, 2018), *available at:* https://www.cpuc.ca.gov/WorkArea/DownloadAsset.aspx?id=6442457045.

In approving the Program, SDG&E requests that the Commission expressly retain jurisdiction over the standards and regulations for the design and construction of the charging stations pursuant to the Commission's regulation of a utility's electric plant under the authority granted in P.U. Code §§ 761 and 768 to preempt local jurisdictions from regulating in this area which is occupied by the Commission. Per P.U. Code § 217, electric plant "includes all real estate fixtures and personal property owned, controlled, operated, or managed in connection with or to facilitate the production, generation, transmission, delivery, or furnishing of electricity for light, heat, or power, and all conduits, ducts, or other devices, materials, apparatus, or property for containing, holding, or carrying conductors used or to be used for the transmission of electricity for light, heat, or power." EV charging infrastructure owned by SDG&E is therefore electric plant.

As the Commission will retain its authority to regulate the utility's electric plant in this domain, local government determinations regarding the construction and permitting of EV charging stations owned by SDG&E shall be preempted, including, without limitation, building permits and electrical permits. Notwithstanding the Commission's jurisdiction over design and construction, SDG&E's EV charging stations will be required to comply with applicable local zoning and land use ordinances that do not otherwise conflict with the Commission's regulation of SDG&E's electric plant. SDG&E will obtain any other permitting necessary to protect public safety during construction, such as traffic control permits.

E. Minor Changes Proposed to VGI Rate

1. Overview

As part of the lessons learned through the PYD Pilot, SDG&E proposes two minor modifications to the VGI rate calculation process. Upon approval, the two changes outlined

below will apply to the current PYD Pilot sites going forward, as well as the PYD Extension Program sites proposed in this application. The VGI rate incorporating these two changes will be referred to as the "modified VGI rate." Upon approval of these changes, SDG&E will file a Tier 1 Advice Letter implementing the changes.

2. Propose Eliminating the California Independent System Operator ("CAISO") Day-Of Hourly Adjustment in the VGI Rate

One component of the commodity portion of the VGI rate is the day-ahead CAISO hourly energy price. In some instances, a CAISO day-of hourly adjustment for surplus energy is applied to the rate calculation. This day-of hourly adjustment is only made if the difference between the day-of CAISO price is 1 cent or greater per kWh lower than the day-ahead price.[35]

A lesson learned from the PYD Pilot is that tracking and calculating the deviations between the day-ahead and day-of CAISO pricing adds complexity to the billing process. In order to apply this adjustment, every hourly day-ahead and day-of hourly price must be synchronized and trued-up. This represents additional complexity, is burdensome, and adds an extra failure point in the billing calculation. In the future, as SDG&E's new SAP Customer Information System ("CIS") is implemented,[36] these custom calculations will need to be tested after every SAP software update (adding more complexity) in order to ensure overall billing accuracy. This retesting effort is expected to be significant, as SDG&E plans to accept quarterly updates for its SAP software in order to enable the latest functionality for its new SAP CIS.

In addition, when the true-up calculation process is invoked, the day-of pricing adjustment has occasionally caused confusion when customers try to check the math on their EV

[35] Day-of prices must be received by 1:00 am from CAISO to be considered in the true-up calculation for that day, as outlined in the VGI tariff language.

[36] *See* D.18-08-008 (approved SDG&E's CIS).

charging bills, since at the start of the charging session customers only have access to the day-ahead prices and not the day-of prices or adjustment amounts. Since the customer cannot see the day-of price when setting their pricing thresholds, they are not really responding to the day-of price. This timing issue means that the day-of pricing does not truly influence customer charging behavior. To simplify the billing calculations and the software update process, and avoid customer confusion, SDG&E proposes to eliminate the CAISO day-of hourly adjustment process from the VGI rate and base the hourly energy price exclusively on the CAISO day-ahead prices.

3. Propose Eliminating the CAISO Price Averaging Methodology on Event Days in the VGI Rate

One of the steps in the process of building the VGI hourly price is to calculate whether there should be a system peak load pricing adder or a distribution circuit peak load pricing adder applied to the hour. The calculation is performed for every hourly price in the day-ahead VGI rate.

If the circuit or system loading conditions occur and adders are applied, then the CAISO day-ahead prices during the adder hours are averaged and this average price is used in the rate and billing calculation for the event hours (shown in the Step 2 and Step 3 columns in Figure 2-3 below).[37] As part of the lessons learned in the PYD Pilot, this averaging aspect of the VGI rate billing process adds extra steps and complexity to the rate calculations without a commensurate customer benefit. Like the day-of pricing adjustment described above, these custom changes will need to be tested after every quarterly software update for SDG&E's new CIS (adding more complexity). The VGI rate calculations would be simpler and easier to maintain if the price

[37] *See* A.14-04-014, Ex. SDG&E-3 (Fang Revised Direct Testimony) at Revised Attachment A.2, p. 3.

averaging process was eliminated and the individual CAISO day-ahead hourly prices were used instead during event hours. For the sake of simplifying the VGI rate calculation process, SDG&E is proposing to eliminate the CAISO price averaging methodology in the VGI rate calculations (shown in the Step 3 column in Figure 2-3 below).

Illustration of a Day with Top 150 System Peak Hours - Example 1

How to Build the VGI C-CPP Hourly Adder into the VGI Rate:

Step 1: Start with the VGI prior to the addition of the CAISO Day-Ahead Price. This rate includes the VGI Base Rate (Transmission, PPP, ND, CTC, RS, and the DWR-BC), the VGI Distribution Base Rate, and the VGI Commodity Base Rate. This results in a flat hourly rate.

Step 2: Add the CAISO Day-Ahead Price. The CAISO Day-Ahead Price varies by hour.
Step 3: Adjust the VGI Rate with the Average CAISO Rate applied to the hours identified within the top 150 System Peak Hours.
Step 4: For the hours identified within the top 150 System Peak Hours, add the VGI C-CPP Hourly Adder to the Averaged CAISO Day-Ahead Price and the VGI Rate.

Step 5: The end result is a VGI Rate that reflects the hourly differences in the CAISO Day-Ahead Price and the VGI C-CPP Hourly Adder.

	Step 1		Step 2		Step 3		Step 4		Step 5
Hour Beginning	VGI Rate Pre-CAISO		CAISO Day-Ahead Price		Average		C-CPP		VGI Rate (CAISO and VGI Hourly Adder)
	(cents/kWh)		(cents/kWh)		(cents/kWh)		(cents/kWh)		(cents/kWh)
0	13.2		4.0						17.2
1	13.2		3.7						16.9
2	13.2		3.4						16.7
3	13.2		3.4						16.6
4	13.2		3.3						16.5
5	13.2		3.3						16.5
6	13.2		3.4						16.6
7	13.2		3.4						16.6
8	13.2		3.7						16.9
9	13.2		4.2						17.4
10	13.2		4.6						17.8
11	13.2		5.2						18.5
12	13.2	+	5.4		6.3	+	46.7	=	66.3
13	13.2		6.1		6.3		46.7		66.3
14	13.2		6.6		6.3		46.7		66.3
15	13.2		6.9		6.3		46.7		66.3
16	13.2		6.8		6.3		46.7		66.3
17	13.2		5.9						19.2
18	13.2		5.6						18.8
19	13.2		5.5						18.8
20	13.2		5.6						18.8
21	13.2		5.0						18.2
22	13.2		4.4						17.6
23	13.2		4.1						17.3

Assumptions

The VGI Base Rate, the VGI Distribution Base Rate, and the VGI Commodity Base Rate are based on the Medium and Large Commercial and Industrial (M/L C&I) class average rate in Advice Letter 2587-E effective April 1, 2014.

The CAISO Day-Ahead price presented above reflects the CAISO Day-Ahead price for September 1, 2013 for node: DLAP_SDGE-APND.

System Peak Hours are defined as CAISO forecasted load that is in excess of the threshold for the identification of top 150 system hours.

Figure 2-3: VGI Rate Illustration

F. CONCLUSION AND SUMMARY

SDG&E respectfully requests that the Commission approve the PYD Extension Program as proposed. Additional funding for transportation electrification in these market segments will help reduce greenhouse gases, reduce local pollution from vehicle tailpipes, and support cleaner air in disadvantaged communities.

This concludes my prepared direct testimony.

II. STATEMENT OF QUALIFICATIONS

My name is Randall L. Schimka. My business address is 8306 Century Park Court, San Diego, California 92123. I am employed by SDG&E as a Principal Clean Transportation Technical Solutions Advisor.

I have over 34 years of energy industry experience including over eight years of Clean Transportation experience. My current duties involve supporting SDG&E's electric transportation efforts, including electric vehicle charging in residential, workplace, and public locations. I act as a utility liaison or interface with customers, contractors, and other providers wanting to install EV charging equipment in our service territory. As part of these duties, I helped design the original PYD Pilot architecture. I also contribute to our Clean Transportation education and outreach efforts for electric vehicle customers, talking with customers and making presentations about transportation electrification. I am the proud owner of two battery electric vehicles and have taken several all-electric long-distance road trips over multiple states.

My prior duties at SDG&E focused on transmission grid control systems, transmission system cyber security, NERC and CIP reliability standards, distribution system reliability, substation engineering, and project management.

My education is in the general area of electrical engineering and business. I graduated from San Diego State University in 1985 (BS Electrical Engineering), 1990 (MS Electrical Engineering), and 1992 (Executive MBA). I am a registered Electrical Engineer in the State of California.

I have previously testified before the California Public Utilities Commission.