Application No: 17-01-020, et al.
Exhibit No.: _____
Witnesses: M. Whited ____

REBUTTAL TESTIMONY OF MELISSA WHITED SPONSORED BY THE NATURAL RESOURCES DEFENSE COUNCIL, PLUG IN AMERICA, THE COALITION OF CALIFORNIA UTILITY EMPLOYEES, SIERRA CLUB, ENVIRONMENTAL DEFENSE FUND, SIEMENS, AND EMOTORWERKS

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I. INTRODUCTION

In accordance with the April 13, 2017 "Scoping Memo and Ruling of Assigned Commissioner and Administrative Law Judges," (Scoping Memo) the Natural Resources Defense Council (NRDC), the Coalition of California Utility Employees (CUE), Plug In America, Sierra Club, Environmental Defense Fund, eMeter, a Siemens Business (Siemens), and Electric Motor Werks, Inc. (eMotorWerks) submit the rebuttal testimony of Melissa Whited.

II. RATE DESIGN - WITNESS MELISSA WHITED, SYNAPSE

A. Public Fast Charging Rate Design

1. Pacific Gas & Electric (PG&E) Should Offer a Rate for Public Charging Stations

PG&E is not proposing a new rate design for public charging stations as part of its transportation electrification (TE) proposal; instead, it relies on the rate design changes proposed through its General Rate Case (GRC) Phase II application to benefit EVs.[1] Several intervenors point out that PG&E should develop rates designed to accommodate transportation electrification loads:

- The Utility Reform Network (TURN) states that it supports demand charge reform for EV charging and recognizes "existing commercial rate structures are sub-optimal for the fast charging market at this time and may not even comport with basic cost causation principles."[2] TURN recommends that the Commission direct PG&E to propose a commercial EV rate for fleets and fast charging sites that reduces or eliminates demand charges…."[3]
- ChargePoint asserts that PG&E can do more to address the disincentive that demand charges pose to investments in DC fast chargers (DCFC), and recommends that this issue be addressed through the evaluation of SB 350

[1] PG&E TE Testimony, p. 2-4, fn. 2.
[2] Prepared Testimony of Eric Borden Addressing the Proposal of Pacific Gas and Electric Company for a Fast Charging Infrastructure Program, Submitted on Behalf of The Utility Reform Network, July 25, 2017, p. 21.
[3] Prepared Testimony of Eric Borden Addressing the Proposal of Pacific Gas and Electric Company for a Fast Charging Infrastructure Program, Submitted on Behalf of The Utility Reform Network, July 25, 2017, p. 21.

transportation electrification programs to engender greater participation from EV stakeholders that may not be regularly engaged in other proceedings.[4]

In order to meet the statutory directives in Public Utilities Code § 740.12(a)(1), NRDC agrees that PG&E should do more to explore and develop rate designs that will better support DCFC investments and services. To that end, NRDC concurs with TURN's recommendation that the Commission direct PG&E to propose a rate design for DCFC that further reduces or eliminates demand charges. Further, we agree with ChargePoint that rate designs that address the disincentive posed by demand charges for DCFC and the challenges associated with recovering costs from drivers with rates that are not purely volumetric are most appropriately explored as part of this proceeding.

2. Southern California Edison (SCE) Should Offer a Rate for Public Charging Stations

SCE has not specifically proposed a rate designed for public charging in which the customer-of-record and the end-user are not the same, meaning that rates that are not purely volumetric make it challenging for the customer-of-record to recover electricity costs from itinerant EV drivers. Of course, SCE's proposed new EV rates would not include a demand charge prior to Year 6, which will likely help support DCFC. However, the prospect of facing demand charges in Years 6 and onward may deter some DCFC development, and would cause problems for existing stations. Thus, we believe that the rationale cited above by TURN and ChargePoint for directing PG&E to develop a rate specifically for public charging infrastructure also applies to SCE, and we recommend that SCE also develop a public charging rate that accounts for the fact the customer-of-record and the end-user are different entities.

B. Commercial EV Rate Design

1. PG&E

As discussed above, PG&E is not proposing any new EV tariffs to support transportation electrification, but believes that its proposed rate design modifications introduced as part of its GRC Phase II application will benefit EVs. However, this approach is inadequate for addressing the needs of certain EV customers. For example, the Santa Clara Valley Transportation

[4] Prepared Testimony of Dave Packard on Behalf of ChargePoint, Inc. Regarding Fast Charge Infrastructure and Rates, July 25, 2017, p. 14.

Authority (VTA) describes how it is in the process of procuring 11 new charging stations, which will increase its load by 680 kW and likely cause it to be moved to Schedule E-19. Schedule E-19 includes both coincident demand charge (i.e., demand charges assessed during peak and part-peak periods), as well as a high non-coincident demand charge (currently $17.56/kW) for demand during any hour.[5] VTA states that it is concerned that being moved to Schedule E-19 will result in much higher fueling costs for its fleet, primarily because of demand charges.[6]

PG&E's proposed rate design modifications contained in its GRC Phase II filing do not sufficiently address customers who are attempting to electrify large vehicle fleets, such as VTA. For this reason, we recommend that PG&E also develop EV-specific rate designs for such customers.

2. SCE

a. *SCE's Non-Coincident Demand Charge Should be Reduced*

SCE's proposed new commercial EV rates would eliminate demand charges for the first five years, and then phase in demand charges from the sixth through the eleventh year. By the eleventh year, the demand charges would be set to recover 60 percent of distribution capacity costs and 100 percent of transmission capacity costs.[7] In direct testimony, NRDC raised concerns regarding the 60 percent of distribution capacity costs to be collected through a demand charge, finding that SCE's testimony only provides support for collecting 40 percent of distribution costs through a demand charge.[8] In addition to this concern, other intervenors identified issues regarding the recovery of transmission costs through the demand charge, and how phasing in a demand charge would affect customers who sign up in later years, as discussed below.

ORA asserts that recovering 100 percent of transmission costs through a non-coincident demand (NCD) charge "does not send meaningful price signals during peak transmission system

[5] Schedule E-19 Tariff, available at https://www.pge.com/tariffs/CommercialCurrent.xls
[6] Testimony of Christina Jaworski, on behalf of the Santa Clara Valley Transportation Authority on the Standard Review Transportation Electrification Proposals from Pacific Gas and Electric Company, August 1, 2017, p. 4
[7] Application of Southern California Edison Company (U 338-E) for Approval of its 2017 Transportation Electrification Proposals. A.17-01-021. January 20, 2017, pp. 66-67.
[8] Testimony of Melissa Whited on Behalf of NRDC et al, August 1, 2017, p. 32

usage or encourage customers to charge vehicles in a manner that optimizes the use of the grid."[9] Further, ORA correctly points out that the transmission system serves to accommodate peak demand, as SCE has acknowledged previously.[10] Thus, ORA recommends that the Commission reject SCE's proposal to recover 100 percent of transmission costs through a NCD charge, and instead recommends that the portion of transmission costs that are determined "peak-related" be recovered through TOU rates to send more efficient price signals concerning use of the transmission system.

NRDC has similar concerns regarding the inclusion of all transmission costs in the NCD charge. In response to NRDC's discovery request on this issue, SCE stated that it had not yet conducted a study of transmission costs to determine whether some proportion of transmission costs should be recovered through a peak period energy charge. However, SCE noted that, pursuant to Decision 17-01-006, the Company "expects to conduct such a study, and file updated rates, if appropriate, in [a] future rate design proceeding."[11]

Until SCE files its study to determine what proportion of transmission capacity costs should be designated as "peak-related" and rates are modified in a future rate case, ORA recommends adopting an interim solution in which SCE recovers 50 percent of its reported transmission costs in the NCD charge and 50 percent in the TOU component.[12] NRDC agrees that ORA's proposal is reasonable and recommends that the Commission adopt a 50 percent reduction in the proportion of transmission costs recovered through a NCD charge as an interim solution.

ChargePoint also raises concerns with SCE's proposal to phase in demand charges in years 6 through 10, pointing out that the phase-in could cause issues for customers who sign up in the later years, and that ten years "is a long time to lock in a rate design," particularly because the benefits associated with TE may change, and there may be innovations in commercial rate design. For this reason, ChargePoint recommends that the Commission "review SCE's

[9] Prepared Testimony of the Office of Ratepayer Advocates on Pacific Gas and Electric Company's and Southern California Edison Company's Medium/Heavy-Duty Fleet Charging Infrastructure and Commercial Electric Vehicle Rates Programs, August 1, 2017, ("Testimony of ORA") p. 3-1
[10] Testimony of ORA, p. 3-7
[11] SCE response discovery request NRDC-1-6-c.
[12] ORA testimony, page 3-9

commercial EV rate every two years to ensure that it is achieving the intended purposes and to consider any appropriate modifications or updates."

NRDC agrees that SCE's proposed rate design should be periodically reviewed by the Program Advisory Council, particularly as more information becomes available regarding the percent of transmission capacity costs that are driven by peak demand.

3. Other Recommendations

a. *SCE and PG&E Should Allow Certain Customers to Use Existing Service Connections*

Our direct testimony raised concerns with SCE's proposal to require separate metering of EV chargers from customers' non-EV host loads. Doing so would result in such customers paying two separate demand charges, which could increase customer bills in a manner not justified by cost-causation for customers whose EV chargers would be located on the same premises as the host load. Tesla raises similar concerns, pointing out that SCE's and PG&E's proposal to require new service connections for charging infrastructure is not always necessary, and would result in higher costs.[13] Further, Tesla states that requiring new service connections, metering, and rate plans for the charging infrastructure could reduce the benefits of solar plus storage systems to the customer due to "suboptimal system design, suboptimal tariff optimization, and additional administrative costs."[14] Tesla recommends the Commission direct SCE and PG&E to allow customers to install charging infrastructure on existing service connections in order to offer customers more options, facilitate the integration of onsite renewables and storage, and reduce costs to utility customers and site owners alike.

We support Tesla's recommendation to allow customers with surplus capacity on their existing service connections to install charging infrastructure and participate in the utilities' medium-duty/heavy-duty infrastructure programs. This modification would promote more efficient usage of existing utility infrastructure and reduce some of our concerns regarding customers being assessed multiple demand charges where it is not justified by cost causation.

[13] Opening Testimony of Brian Warshay on Behalf of Tesla, Inc., on Medium/Heavy Duty and Fleet Charging Infrastructure, August 1, 2017, p. 2.
[14] *Id,* p. 3

C. Residential EV Rate Design

1. Flaws in San Diego Gas & Electric's (SDG&E) Residential Grid Integration Rate

SDG&E's proposed residential Grid Integration Rate (GIR) is innovative, but ultimately fails to achieve the requirements of Public Utilities Code § 740.12(a)(1)(G) by incorporating inappropriate design elements, particularly a punitive demand ratchet. These concerns are echoed by numerous other intervenors, who propose several modifications to the rate design.

First, ORA, ChargePoint, and TURN each argue that the proposed GIR is overly complex, particularly for whole-home applications. ORA argues that the complexity of the rate "does not facilitate customer understanding or responsiveness," which is contrary to the intent to encourage customers to charge in a manner compatible with grid conditions.[15] This concern was recognized by NRDC et al. in direct testimony, and forms the basis for our suggestion to offer a simpler rate design option for residential customers when applied on a "whole-home" basis.

Second, ORA, ChargePoint, and TURN find the demand ratchet aspect of the GIR to be particularly problematic. TURN points out that by setting the Grid Integration Charge on a customer's 12-month ratcheted demand would mean that a "small unnoticeable mistake" could lead to a bill jump of more than $200. For customers on the rate, TURN observes that "SDG&E's demand charge proposal demands perfection."[16]

The demand ratchet is also found to be in direct contravention to § 740.12(a)(1)(G) by making it difficult for EV drivers to reduce fuel costs and providing little incentive for customers to charge in a manner consistent with grid conditions. ChargePoint describes the GIC as both "punitive and counterproductive," raising customer bills instead of providing an opportunity to reduce them. ChargePoint also notes that the GIC would "offer little incentive for the customer to reduce demand below the annual peak, and could signal to the customer that there is no point in trying to charge off peak or in response to other rate signals."[17] Similarly, ORA states that "SDG&E's proposed GIC is largely an inflexible and punitive tool that will not encourage customers to shift their load in response to grid conditions. In contrast, volumetric energy rates are the only portion of a customer's bill that will vary by month and will influence a customer to

[15] Testimony of ORA, August 7, 2017, p. 2-5
[16] Testimony of William Marcus on Behalf of The Utility Reform Network, August 7, 2017, p. 20
[17] Testimony of ChargePoint, August 7, 2017, pp. 19-20

modify consumption in response to grid conditions in order to realize bill savings."[18] These points are also consistent with NRDC's findings, and support our recommendation that the demand ratchet should be eliminated.

ORA, ChargePoint, and TURN highlight a third important point: SDG&E's proposal does not provide an option for submetering vehicles in the design of its EV rate proposals.[19] Instead, SDG&E's GIR would require residential customers to take service on a whole-house rate. NRDC agrees that SDG&E should offer a submetering option, as requiring the GIR to apply to the customer's entire home may be infeasible, given most loads in homes are not capable of independently responding to dynamic pricing.

2. Alternatives to SDG&E's GIR

As discussed above, NRDC concurs with ORA, TURN, and ChargePoint that SDG&E's GIR should be modified to eliminate the punitive demand charge ratchet and should not be applied as a "whole-home" rate. However, TURN rightly points out that "simply rejecting the GIR leaves a problem for EV charging," since second tier rates are too high to ensure that electric vehicles are cost-competitive with internal combustion engine vehicles.[20] TURN calculates that current residential second tier rates (at above $0.40/kWh) result in an equivalent gasoline cost of $3.78 per gallon, and this problem generally persists in SDG&E's EV-TOU-2.

Comparing the current residential EV rates across the IOUs, it is clear that SDG&E's current EV-TOU-2 rate has the highest off-peak price, largely due to the rate having no price differential between on-peak and off-peak for delivery rates. The table below demonstrates this disparity among off-peak EV rates, which shows that SDG&E's $0.19/kWh rate is much higher than either SCE's $0.14/kWh or PG&E's $0.12/kWh.

[18] Testimony of ORA, August 7, 2017, pp. 2-8 – 2-9.
[19] Testimony of ChargePoint, August 7, 2017, p. 20; Testimony of ORA, August 7, 2017, p. 2-5.
[20] Testimony of TURN, p. 21

Table 1. Comparison of Current Residential EV Rates

		SCE $/kWh	***PG&E $/kWh***	***SDG&E $/kWh***
	Schedule	*EV-1*	*EV*	*EV-TOU-2*
On-Peak	*Delivery*	*0.17*	*0.22*	*0.14*
	Generation	*0.17*	*0.23*	*0.36*
	Total	***0.34***	***0.45***	***0.50***
Off-Peak / Super Off-Peak	*Delivery*	*0.09*	*0.07*	*0.14*
	Generation	*0.05*	*0.06*	*0.05*
	Total	***0.14***	***0.12***	***0.19***

SCE: Cal. PUC Sheet No. 61685-E, effective June 1, 2017
PG&E: Cal. PUC Sheet No. 40093-E, effective March 1, 2017
SDG&E: Cal. PUC Sheet No. 28678-E, effective January 17, 2017

TURN offers two solutions to make EV charging more affordable, equitable, and simple: either (a) submetering vehicle charging facilities and applying EV specific rates (with a super-off-peak rate of approximately $0.12 - $0.15/kWh) or (b) making EV charging a baseline use.[21] Similarly, ORA recommends that SDG&E develop a separately-metered rate with a super-off-peak rate of approximately $0.13/kWh.[22] ChargePoint recommends that, "(i)f the Commission wants to pursue the SDG&E Residential GIR proposal, it should be redesigned to eliminate the GIC and it should be optional."

NRDC appreciates the thoughtful recommendations put forward by the other parties, and agrees on several key points:

1) The proposed GIC is inappropriate. At the very least, it should be significantly reduced and the ratchet aspect eliminated. If any form of GIC is maintained, it should only be included as part of an optional rate design.
2) SDG&E should offer a new EV rate design with a separately-metered option.
3) SDG&E's EV rates (including existing EV rates) should be redesigned to ensure that drivers who charge during super-off-peak hours realize fuel cost savings. NRDC

[21] Testimony of TURN, August 7, 2017, pp. 21-22
[22] Testimony of ORA, August 7, 2017, p. 2-16

supports ORA and TURN's recommendations that the super-off-peak rate be set at approximately $0.12 - $0.15/kWh.

While NRDC supports the development of improved TOU rates for EVs, we also support optional dynamic rates, particularly as a separately-metered rate. We are particularly supportive of SDG&E's efforts to incorporate locational price signals in the rate design to assist with grid integration of EVs. Continued rate design and demand management program innovations by SDG&E will help to encourage improved charging behaviors and leverage the benefits of sophisticated technologies to manage charging. However, such a rate design should only be offered as an option alongside a simpler TOU rate.

III. CONCLUSION

With the modifications recommended in opening testimony served by NRDC et al. on July 25, 2017, August 1, 2017, and August 7, 2017, the utilities' Standard Review Projects would meet the relevant statutory and regulatory criteria and should be approved.

Dated: September 5, 2017

Respectfully submitted,

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