

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

Application of SAN DIEGO GAS & ELECTRIC
COMPANY (U 902 E) for Approval of its
Electric Vehicle-Grid Integration Pilot Program.

Application No. 14-04-014
(Filed April 11, 2014)

**RESPONSE OF CALIFORNIA ENERGY STORAGE ALLIANCE
TO APPLICATION OF SAN DIEGO GAS & ELECTRIC COMPANY FOR
AUTHORITY TO IMPLEMENT A PILOT PROGRAM FOR
ELECTRIC VEHICLE INTEGRATION**

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In accordance with Rule 2.6 of the Rules of Practice and Procedure of the California Public Utilities Commission (“Commission”), the California Energy Storage Alliance (“CESA”)¹ hereby submits this response to *Application of San Diego Gas & Electric Company for Authority to Implement a Pilot Program for Electric Vehicle Grid-Integration* filed on April 12, 2014 (“Application”). The Application first appeared on the Commission’s Daily Calendar on April

¹ The California Energy Storage Alliance consists of 1 Energy Systems, A123 Energy Solutions, AES Energy Storage, American Vanadium, Aquion Energy, Beacon Power, Bosch Energy Storage Solutions, Bright Energy Storage, Brookfield Renewable Energy Group, CALMAC, ChargePoint, Clean Energy Systems Inc., CODA Energy, Customized Energy Solutions, DN Tanks, Duke Energy, Eagle Crest Energy, EaglePicher, East Penn Manufacturing Co., Ecoult, EDF Renewable Energy, EnerSys, EnerVault, EVGrid, FAFCO Thermal Storage Systems, FIAMM Group, FIAMM Energy Storage Solutions, Flextronics, Foresight Renewable Systems, GE Energy Storage, Green Charge Networks, Greensmith Energy Management Systems, Gridtential Energy, Halotechnics, Hitachi Chemical Co. America, Hydrogenics, Ice Energy, Imergy Power Systems, ImMODO Energy Services, Innovation Core SEI, Invenergy, K&L Gates LLP, KYOCERA Solar, LightSail Energy, LG Chem Ltd., NextEra Energy Resources, NRG Energy, OCI Company Ltd., OutBack Power Technologies, Panasonic, Parker Hannifin, PDE Total Energy Solutions, Powertree Services, Primus Power, RES Americas, Rosendin Electric, S&C Electric Co., Saft America, Samsung SDI, SeaWave Battery Inc., Sharp Labs of America, Silent Power, SolarCity, Sovereign Energy Storage LLC, Stem, Stoel Rives LLP, Sumitomo Corporation of America, TAS Energy, Tri-Technic, UniEnergy Technologies, Xtreme Power, and Wellhead Electric Co. The views expressed in these Comments are those of CESA, and do not necessarily reflect the views of all of the individual CESA member companies. <http://storagealliance.org>

18, 2014, and this response is therefore timely filed within 30 days in accordance with Rules 1.14 and 2.6 (a).

I. INTRODUCTION.

CESA supports many aspects of the Application, and also recommends a number of revisions discussed below to improve the pilot program proposed by San Diego Gas & Electric Company (“SDG&E”). CESA and its members will be affected immediately by implementation of the pilot program proposed by SDG&E in the Application in important and far reaching ways, as it will impact California’s integration of energy storage technology and electric vehicles (“EVs”) in the very near term. CESA therefore offers information and recommendations here that are intended to be helpful to the Commission in acting on the Application.² It is clear that considerable thought and effort has gone into developing the proposed pilot program, and CESA commends SDG&E for proposing a promising, comprehensive, and detailed program.

II. POLICY PRINCIPLES.

CESA applauds and strongly supports the policy goals that SDG&E articulates in the Application, and supporting testimony. While SDG&E’s approach has considerable merit as one tool in a range of potential technology solutions and business models, today we cannot envision the totality of new technologies solutions and grid services that may be possible from vehicle-grid integration (“VGI”) and EV charging. Ensuring market design that promotes active stakeholder engagement, stimulates private investment, and ensures sustainable healthy

² CESA fully appreciates the fact that the Application is not intended to, and indeed cannot, address the full range of policy and technical considerations that would be worthy additions to its pilot program. Most obviously, the subject of EV charging stations paired with energy storage is not expressly included. In the same vein, the Application could benefit from mention of pairing with on-site renewable generation, and the range of metering and submetering options.

competition and multiple business models will help “future-proof” California’s EV infrastructure. This will ensure that the most cost-effective solutions are implemented now and tested in a competitive market to implement the most cost-effective solutions for California ratepayers. This is particularly important in considering the Application because the cost structure of, and competitive landscape resulting from, decisions made on SDG&E’s pilot program will exist for generations to come.³

In addition to the key goals outlined by SDG&E, CESA recommends that the Commission set forth a set of key principles for *all* Commission-approved EV charging programs and the overall development of EV charging infrastructure in California. CESA recommends the following principles:

- Create a fair, balanced, and competitive market for EV charging that supports multiple business models and ownership structures and encouraging investment, and healthy growth of all market participants;
- Accelerate market penetration of EVs and EV infrastructure in a sustainable way;
- Adopt programs that minimize ratepayer subsidies for EV infrastructure in the future and that help use EV adoption as a tool to manage overall ratepayer cost for energy;
- Create programs that facilitate consumer choice, spur innovation, and attract private capital investment for growth;
- Implement thoughtful pilot programs that will produce actionable data that will help load serving entities, the Commission, and stakeholders learn how to more cost-effectively and efficiently continue to deploy EV infrastructure going forward, and help to maximize grid benefits and minimize ratepayer costs.

With the foregoing broad additional principles in mind, CESA makes the suggestions discussed below to enhance SDG&E’s pilot program in ways that (i) encourages market

³ The Commission’s open docket considering Alternative-Fueled Vehicle Programs, Tariffs and Policies (R.13-11-007) may serve as a suitable forum to address EV-related related topics that may be deemed beyond the scope of the Application such as allocation of low carbon fuel standard (“LCFS”) credits.

competition and innovation, including multiple deployment and ownership models, (ii) maximizes the instructive value of data collected, (iii) enhances future business models for EV infrastructure, (iv) maximizes the value of EVs to the grid and to ratepayers, and (v) accelerates deployment of EVs and EV charging equipment.

III. PROPOSED RATE STRUCTURE.

The proposed new EV charging rate structure aspect of the pilot program is very innovative, and supports a universally recognized need to use rates to help better align EV charging with local and system needs. CESA recommends that in order to maximize learning and increase the breadth of the resulting consumer behavior and system impact data derived from the pilot program, the rate structure aspect should be expanded to include participation by owners and operators of non-residential and potentially aggregated residential and workplace EV charging stations. This may also help provide a broader cross section of customers types tested for consumer acceptance of the pilot rate structure.

Opening tariff participation in this way will also help support and signal to the market SDG&E's intent to preserve a level playing field for third party participation in the EV charging market. The Commission should consider capping the total number of participants to test for local and system impact with and without the rate structure. In order to remain consistent with SDG&E's proposal, CESA recommends a cap of 550 sites and 5,500 EV charging stations for the rate pilot, including the 150 sites and 1,500 EV charging stations to be included in the alternate ownership model pilot that CESA describes below.

It should also be made clear in any proposed new tariff for EV charging that peak load management and other potential grid services can be provided both from the EV itself as well as stationary energy storage paired with EV charging stations. Stationary energy storage can be

effectively used to reduce VGI infrastructure upgrade costs subject to Rules 15 and 16 or to expand or increase the rate of charge while simultaneously mitigating resulting demand impacts for “high draw” EVs.

One additional rate design consideration the Commission should evaluate is the cost-competitiveness of EV charging under SDG&E’s pilot tariff as compared to the status quo (*i.e.*, fossil fuel powered vehicles). In order to accelerate market penetration of EVs, the Commission should evaluate costs to charge under any pilot EV tariffs versus the cost to fuel a traditional vehicle. While it should certainly be the Commission’s primary objective to align the proposed EV pilot rate structure with the true cost to charge, including grid impacts, the Commission should also test any proposed rate structure at all price levels against the cost per mile driven of fossil fuel vehicles to assure that the cost competitiveness of EV operation is not diminished by the proposed rate design. If the cost to charge is too high to be competitive, the pilot program has a higher risk of reduced EV sales, underutilized EV infrastructure, and stranded costs to ratepayers.

IV. CHARGING STATION PAYMENT METHOD.

SDG&E’s pilot proposal calls for a “closed loop” system whereby only SDG&E customers who have linked their SDG&E account to the EV charging infrastructure can use the EV charging stations. Monthly costs of charging would appear on this cadre of “self-selected” customers’ bills. This has the potential to lower utilization of EV charging infrastructure because pilot program system would lock out individuals who share SDG&E accounts with others, individuals whose electricity bills are covered through homeowners association or condo association dues, visiting EV users from outside SDG&E’s service territory, or occasional EV users to the EV charging stations.

CESA recommends that SDG&E provide a “customer-friendly” mechanism for non-SDG&E customers to pay by credit card or through some alternative means other than an SDG&E customer’s monthly bill. This is a typical requirement of current California Energy Commission and federally administered EV infrastructure incentive and grant programs. In addition to the societal benefits of a more open access payment method, higher utilization also lowers the risk of stranded costs to ratepayers.

V. EQUIPMENT SPECIFICATIONS.

The specifications and operating requirements that SDG&E proposes should be “open access”, and not be scoped in such a manner as to preclude participation by multiple vendors and technology solutions or discourage the activity of third party EV networks in the market. The goal should not be to create proprietary specifications that only apply to SDG&E service territory and differ from other statewide or nationally available technology platforms, because that will hinder broader EV market adoption. Open access is critical to ensuring healthy competition which, in itself, is a key requirement to drive down costs and encourage innovation and investment in California’s EV infrastructure for the long term.

VI. TARGET MARKETS.

CESA understands the rationale for the proposed focus on limited income multi-family residential and workplace charging, as those EV market segments are important components in building out EV infrastructure to support large-scale adoption of EVs. However, these two specific EV market segments are already being successfully addressed by the private sector today in many places. CESA is aware of 18 companies already developing multi-family

residential and workplace EV charging infrastructure in SDG&E' service territory today.⁴ There is quite simply no evidence at all that such a large and specifically focused program by SDG&E is necessary to facilitate EV infrastructure build out in these market segments, which are already successfully being served by third parties.

Consistent with the legitimate role of the electric utility in ensuring fair, and universal access to affordable electricity for all Californians, it makes sense for SDG&E to serve in the same role as it relates EV charging in general. Rather than exclusively targeting multi-family residential and workplace EV charging, SDG&E's pilot program should *also* target development of EV charging in market segments that are harder for third parties to penetrate, such as high volume public transit corridors, dense urban centers, limited income multi-family residential housing, and regional public transit hubs where private operators have more difficulty reaching sites for EV charging stations.

VII. CHARGING STATION DEPLOYMENT.

The proposed 5,500 utility-owned EV charging stations at 550 sites in SDG&E's service territory alone would represent more than all of the public EV charging stations currently in service with the top three public EV charging station networks across the United States. According to SDG&E's public presentations to update interested parties,⁵ this would be more than the 601 current public EV charging stations and 3,457 SDG&E customers already using SDG&E's TOU EV rate today. As such, it is difficult to consider SDG&E's ambitious program to be a "pilot program" in the ordinary sense of the term. More importantly, a utility program of

⁴ ABB, AeroVironment, Bosch, Car Charging, ChargePoint, Control Module Industries (EVSE LLC), Clipper Creek, Eaton Corporation, General Electric, GRIDbot, Legrand, Leviton, Optimization Technologies (OpConnect), Pep Stations, Powertree Services, Schneider Electric, SemaConnect, and Shorepower.

⁵ SDG&E made public presentations in San Diego and San Francisco for the benefit of interested parties.

the proposed order of magnitude, especially if it only focused on a single ownership model or technology solution, is likely to have detrimental impacts on any existing or near-term potential competition outside of the pilot program.

New private investment based on commercially viable business models currently in the process of project developments will likely be negatively impacted by the prospect of directly competing for customers with an EV-related product offering that may be perceived as “free” by SDG&E. This inevitable appearance comes with inherent priority and cost advantages over private offerings because SDG&E proposes that behind-the-meter equipment outside of the scope of exemptions from charges under Rules 15 and 16 such as distribution equipment, conduit, and actual EV system equipment itself will all be included in SDG&E’s rate base at no expense to the customer. By the same token, encouraging private investment in EV infrastructure is inherently advantageous for all of SDG&E’s ratepayers because they do not have to bear the burden of 100% of the EV infrastructure or ongoing operation and maintenance costs that seem “free” to the EV customer.

CESA supports multiple ownership models for EV charging equipment, and believes equally that there is a positive role for utilities in the market, or “ecosystem,” for EV charging equipment. CESA therefore supports a scaled back pilot of not more than 150 locations carefully segmented and structured so that the market can test multiple ownership models and technology solutions. Such a much more focused pilot program should be sufficient to extend over a 3-year term to achieve SDG&E’s stated goal for the pilot program of understanding rate impacts.

In support of the key principle of establishing a fair, balanced, and competitive market, SDG&E’s pilot program should be clarified to explicitly support multiple deployment, ownership models and technology solutions in order to be most instructive as to which

approaches accelerate EV charging station deployment EV ownership adoption, and maximize the value of EVs to the grid and ratepayers. To promote customer freedom of choice, where EV-related equipment is to be located on the customer's side of the meter, EV charging equipment should be selected, purchased, and owned by customers - and then reimbursed by SDG&E. Where EV charging equipment cannot be readily sited behind the meter – for example, in high volume public transit corridors, dense urban centers, limited income multi-family housing and regional public transit hubs – utility installation and ownership will be likely to help accelerate deployment of EV infrastructure and access to EV charging by a greater percentage of SDG&E's ratepayers.

The merits of alternate ownership models can be tested directly in the pilot program itself. CESA recommends the following as a way to accomplish this policy objective:

- 75 sites and 750 stations should be “utility-led” -- selected by SDG&E, built and operated by third parties, and program managed with rate recovery by SDG&E as outlined in SDG&E's pilot program proposal. These sites would target high volume public transit corridors, dense urban centers, limited income multi-unit residential housing, public transit hubs, or other sites where up-front utility involvement may provide particular advantages. These sites could either be customer, third party or utility-owned. And, as recommended above, the specifications for such sites should be open access and encourage competition among both hardware and software suppliers.
- 75 sites and 750 stations should be privately-led” -- sited, developed, built, owned and operated by private third parties, but would be program managed and funded by SDG&E through rate-recovered funds (the “developer-led” sites) outlined in SDG&E's proposal. This model could be structured as a reverse auction using long-term contracts, similar to the way utilities procure energy from third parties today. These sites would target work place and limited income multi-unit residential housing, where up-front utility involvement is less necessary to successfully develop sites. Similarly, CESA recommends that the specifications for these sites would also be open access and encourage competition.
- The SDG&E EV tariff would also be open to an additional 400 sites and 4,000 stations not owned by SDG&E, subject to customer consent to provide the metering, telemetry, and recordkeeping necessary to meet the objectives of the pilot program In all pilot programs (even customer or third party owned), CESA supports SDG&E's involvement (and rate recovery) for the following:

- Any panel and meter equipment and network upgrades necessary for operation of the EV infrastructure.
- Approval of qualification for the rate pilot program, and management of the station’s ongoing participation in the rate pilot program.
- Approval of the metering, telemetry and data collection specifications in order for the project to meet the stated objectives of the pilot program, provided that such specifications are open-access and do not inadvertently create adverse market power for any one participant.
- Managing data collection and reporting for the pilot program.
- Administering any other incentives for which the EV charging stations may qualify, such as the Self Generation Incentive Program.

In addition, CESA recommends that different technology models should be tested on both the utility-led and privately-led pilot projects, including not less than 10 sites and 100 stations of each of the following EV charging station application types:

- Stand-alone EVSE;
- EVSE with time and rate of charge divided shared charging;
- EVSE with stationary storage to reduce peak load or reduce facility upgrades;
- EVSE with V1G, and
- EVSE with V2G.

VIII. INTERCONNECTION.

Interconnection of EV charging infrastructure should be deployed on a level playing field for both utility and privately- owned assets. As the sole provider of interconnection approvals, care must be taken to ensure that both utility-led and privately led EV charging station installations are treated in a consistent manner with respect to interconnection application review timeliness, costs, and required approvals. For example, SDG&E has indicated in its presentations that it would be delivering a “second service drop” to locations where the proposed EV system equipment will be installed. This is a significant - and innovative - change from the

current practice of requiring a full site service upgrade for a given site. Such a change in practice should also be allowed for other parties as well, as it would otherwise erect a potential competitive disadvantage and cost barrier for privately- owned EV charging stations. Clear timelines requirements and caps on costs should be established and monitored carefully for both types of pilot EV charging station installations. Doing so will also help establish a robust set of low cost best practices and processes for interconnection going forward, particularly for some of the newer EV-paired with energy storage use cases.

As part of the pilot program, data should be collected on interconnection timelines, ratepayer, and supplier-funded costs and follow-on utilization by customers for each category of the pilot program to assess the cost-effectiveness and process efficiency of each combination of deployment and ownership models.

IX. APPLICATION PROCEDURE.

CESA agrees with SDG&E's assessments regarding the proposed category of the proceeding, the need for hearings, and the proposed schedule. This response sets forth CESA's initial views on the most salient issues presented by the Application, and expects that they will be refined and augmented as the proceeding progresses with the benefit of input from CESA and other stakeholders.

X. CONCLUSION.

In summary, CESA supports the goal of SDG&E's proposed pilot program, and believes many aspects of the program have merit and will help advance California's energy policy goals while providing an important tool to collect data and accelerate adoption of EVs and EV charging infrastructure in the future. At the same time, as discussed, CESA believes the SDG&E's pilot program proposal must be modified to test a variety of ownership models, EV

charging site types, and EV charging use cases/applications, while preserving a fair, balanced, and competitive market for the development of EV charging infrastructure. Doing so will ensure a robust learning experience for all stakeholders involved, and provide much needed data for the Commission to guide evolution of California's EV charging regulatory landscape. CESA thanks the Commission for its consideration of its comments and recommendations set forth in this response.

Respectfully submitted,



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