

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

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

R.13-11-007
Filed November, 2013

**COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE
ON ASSIGNED COMMISSIONER'S SCOPING MEMO AND RULING**

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In accordance with the California Public Utilities Commission's ("Commission's") Rules of Practice and Procedure, the California Energy Storage Alliance ("CESA")¹ hereby submits these comments on the *Assigned Commissioner's Scoping Memo and Ruling*, issued July 16, 2014 ("Scoping Ruling").

I. INTRODUCTION.

CESA appreciates the opportunity to provide these comments in response to the questions posed in the ACR as discussed below. CESA applauds the Commission for its inclusive,

¹ 1 Energy Systems Inc. | A123 Energy Systems | AES Energy Storage | Alton Energy | American Vanadium | Aquion Energy | ARES North America | Beacon Power, LLC | Bosch Energy Storage Solutions Company LLC | Bright Energy Storage Technologies | Brookfield | CALMAC | Chargepoint | Clean Energy Systems | Coda Energy | Consolidated Edison Development, Inc. | Customized Energy Solutions | Demand Energy | DN Tanks | Duke Energy | Eagle Crest Energy Company | EaglePicher Technologies, LLC | East Penn Manufacturing Company | Ecoult | EDF Renewable Energy | Enersys | EnerVault Corporation | EV Grid | FAFCO Thermal Storage Systems | FIAMM Energy Storage Solutions | Flextronics | Foresight Renewable Solutions | GE Energy Storage | Green Charge Networks | Greensmith Energy | Gridscape Solutions | Gridtential Energy, Inc. | Halo technics | Hitachi Chemical Co. | Hydrogenics | Ice Energy | Imergy Power Systems | ImMODO Energy Services Corporation | Sumitomo Electric Group | Invenergy LLC | K&L Gates | KYOCERA Solar, Inc. | LG Chem | LightSail Energy | LS Power Development, LLC | Mitsubishi International Corporation | NextEra Energy Resources | NRG Solar LLC | OCI Company | OutBack Power Technologies | Panasonic | Parker Hannifin Corporation | PDE Total Energy Solutions | Powertree Services Inc. | Primus Power Corporation | Recurrent Energy | Renewable Energy Systems Americas Inc. | Rosendin Electric | S&C Electric Company | Saft America Inc. | SEEO | Sharp Electronics Corporation | SolarCity | Sovereign Energy Storage LLC | STEM | Stoel Rives | SunPower | TAS Energy | Tri-Technic | UniEnergy Technologies, LLC | Wellhead Electric. The views expressed in this Prehearing Conference Statement are those of CESA, and do not necessarily reflect the views of all of the individual CESA member companies. See, <http://storagealliance.org>.

thoughtful, and open-minded questions in this proceeding supporting the Governor's Executive Order setting a long term target for 1.5 million ZEVs on California's roadways by 2025.²

II. **RESPONSES TO SPECIFIC QUESTIONS.**

1. Should the Commission adopt the proposed AFV Guiding Principles? What modifications, if any, are appropriate?

Response: CESA applauds and strongly supports the AFV Guiding Principles that the Commission has articulated in the Scoping Ruling. CESA recommends that the Commission modify the AFV Guiding Principles as underlined below:

- Promote the deployment of safe and reliable alternative fueled vehicle ("AFV") grid infrastructure designed to meet transportation and energy service needs while maximizing ratepayer benefits and minimizing costs to all utility customers.
- Target near-term solutions that complement the use of preferred energy resources and utilize the grid efficiently.
- Incorporate and enhance policies from other, related Commission proceedings to promote efficient program implementation and use of ratepayer funding.
- Enable and incorporate the full range of values from vehicle grid integration ("VGI") in a new program as part of the Commission's overall AFV efforts while remaining technology neutral and creating a fair, balanced, and competitive market for AFV infrastructure that supports multiple business models and ownership structures and encourages investment and healthy growth for all types of market participants.
- Accelerate market penetration of AFVs and AFV infrastructure in a sustainable way, consistent with the Governor's Executive Order that sets a long term target for 1.5 million zero emission vehicles ("ZEVs") on California's roadways by 2025.³
- Create programs that facilitate consumer choice, spur innovation, and attract private capital investment for growth; and
- Implement programs that will produce actionable data that will help load serving entities, the Commission, and stakeholders learn how to more cost-effectively and

² [http://opr.ca.gov/docs/Governor's%20Office%20ZEV%20Action%20Plan%20\(02-13\).pdf](http://opr.ca.gov/docs/Governor's%20Office%20ZEV%20Action%20Plan%20(02-13).pdf).

³ *ibid.*

efficiently continue to deploy AFV infrastructure going forward, and help to maximize grid benefits and minimize ratepayer costs.

2. Should the Commission consider an increased role for the utilities in PEV infrastructure deployment and, if so, what should that role be? If the Commission should consider utility ownership of PEV charging infrastructure, how should the Commission evaluate “underserved markets” or a “market failure” pursuant to D.11-07-029? What else should the Commission consider when evaluating an increased role for utilities in EV infrastructure deployment?

Response: CESA is not opposed to a limited additional role for utilities in PEV infrastructure development, provided such a role is consistent with the Guiding Principles, as proposed to be modified by CESA. Nor does CESA oppose the Commission allowing a role for utilities in “underserved markets” or areas where there is a “market failure.” The Commission should require utilities to provide affirmative evidence of market failure or a long-term need that has been unmet in ensuring fair, and universal access to affordable plug-in electric vehicle (“PEV”) charging equipment for all Californians.

For example, CESA believes there is a legitimate unmet need 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 electric vehicle (“EV”) charging stations. However, at this stage, CESA disagrees with San Diego Gas & Electric Company (“SDG&E”) that multi-unit residential and workplace charging are true examples of “market failure.”⁴ While it is true that such markets are emerging, CESA contends that these markets are robust and active, with many third party market participants, as was noted in CESA’s Response to SDG&E’s VGI Pilot Application (A.14-04-014).⁵

⁴ See, *Response of the California Energy Storage Alliance to Application for Authority to Implement a Pilot Program for Vehicle to Grid Integration*, filed May 19, 2014, pp. 6-7.

⁵ *ibid.*

Another area where CESA very strongly believes utilities should have an increased role in accelerating EV adoption is through deployment of EV charging equipment “Make Ready” Infrastructure⁶, as well as supporting utility-side network upgrades to accommodate the load caused by EV charging. This infrastructure could also include installation of a separate service drop to the building for the EV charging equipment. Currently under existing tariff rules,⁷ any special or added facilities are the responsibility of the customer. However, no single ratepayer should be expected to pay the full cost of transformer, feeder or other utility side of the meter costs just because they are the last neighbors in a community to buy an EV. CESA strongly encourages the Commission to evaluate the cost-effectiveness and societal benefits of allowing utilities to allocate some or all of these costs to ratepayers as part of this proceeding, because CESA believes this type of utility role would have tremendous value in accelerating EV adoption. Further, the Commission should address this issue in an early stage of this proceeding, well in advance of the expiration of the Rule 15 and Rule 16 cost waiver that is set to expire in June 2016, as regulatory uncertainty around this issue could have a dampening effect on EVSE deployment.

3. What education and outreach activities must the utilities provide to support further customer PEV adoption? What existing resources are available for these activities and what additional resources are needed?

Response: Utilities should focus on the economic benefits to consumers, and the environmental benefits to society, of PEV adoption. While it is true that there are already

⁶ Broadly speaking, CESA defines “Make-Ready” Infrastructure as one or more service panels and junction boxes, together with the electrical conduit, transformers, metering and electrical wiring capable of supporting at least one VGI enabled EVSE (including DC Charge Stations) including any subsurface remediation if and when required, all associated engineering, installation labor, finishing work and landscaping to complete the installation.

⁷ For example, Southern California Edison Company’s (“SCE’s”) Tariff Rule 16 (Service Extensions), and Rule 2 (Description of Service) Subsection H.

generic resources available to consumers, direct economic comparisons of what utility customers would pay for fuel versus a fossil fuel powered automobile should be highlighted, perhaps through bill inserts or other advertising.

Fuel use comparison information could also be efficiently disseminated at the point of sale. For example, specific targeted information could be provided to potential EV buyers at the dealerships, with recommendations for alternative rate structures that customers could elect to use. Currently, no EV rate information is provided to EV customers at point of sale. Other information regarding consumer safety for EV charging should also be disseminated at point of sale (for example, whether residential charging equipment is designed to safely charge an EV outside in the rain, or whether it is safe to charge an EV on a non-dedicated electrical circuit).

4. How should the Commission mitigate the impact of demand charges, if at all, on entities pursuing transportation electrification?

Response: CESA believes the Commission should consider requiring utilities to adopt additional tariff structures as *optional* alternatives to demand charges and tiered pricing for EV users. SDG&E's VGI Pilot tariff is an excellent example of the type of alternative tariff utilities could adopt to help manage the grid impacts of – and to provide grid benefits from – transportation electrification. Such dynamic pricing structures would support a universally recognized need to use rates to help better align EV charging with local and system needs, and will help accelerate adoption of smart charging technologies. As indicated above, any alternative tariffs should be communicated to EV buyers at the point of sale (including online), along with simple to use calculators so consumers can make smart choices about the impacts of these alternate tariffs and the overall economics of purchasing an EV versus a fossil fueled vehicle.

5. How should the Commission identify and consider in this proceeding best practices achieved and lessons learned from current AFV pilot project results?

Response: While complete *results* from the most substantive pilot yet proposed (SDG&E's VGI Pilot) will not yet be known during the course of this proceeding, SDG&E VGI Pilot in particular provides substantial opportunity to work through many real world best practices and lessons learned. For example, SDG&E's VGI pilot provides a very critical straw proposal to provide an innovative rate design that balances between enabling rate-driven VGI smart charging, and providing enough advance warning with respect to pricing to allow customers to plan and reduce charge anxiety. SDG&E's VGI pilot also brings to light several innovative new concepts in serving the EV charging market, such as a proposal to support new EV charging infrastructure with a new service drop. And more broadly, some interveners have suggested that a modified version of SDG&E's VGI pilot could be used as a way to test utility deployment of “make-ready” infrastructure. Ideally, SDG&E's VGI pilot should be restructured to provide valuable information to inform this and future proceedings on the policy and ratepayer benefits of alternate ownership models, billing approaches and utility participation strategies.

6. How should the Commission define an electric vehicle VGI resource generically? Which V1G use case initiatives should be considered as Demand-Side Management (DSM) measures? Are other regulatory program categories, such as energy storage and demand response, also applicable to particular utility AFV activities?

Response: VGI resources can be separated into demand-side and supply-side resources. “Supply-side” resources bid their generation or load reduction into the California Independent System Operator’s (“CAISO’s”) supply markets for energy and ancillary services, or could qualify to meet Resource Adequacy requirements. “Demand-side” resources, by contrast, lower the Load Serving Entity’s (“LSE’s”) purchase requirements for energy, ancillary services, and resource adequacy, as well as lower load on utility distribution systems. Metering and telemetry

requirements necessary for Supply-side resources to bid into the CAISO's markets as Proxy Demand Response ("PDR") resources would generally be different from telemetry and metering requirements for Demand-side resources. Supply-side resources, in theory, should be capable of aggregation (as PDR resources are), and have the appropriate metering, telemetry, and grid-responsive programming to respond to the wholesale market and follow CAISO dispatch instructions. VGI resources, both smart charging "V1G" and vehicle to grid "V2G", that meet CAISO Supply-side resource requirements, should qualify for capacity credit, and be able to provide ancillary services, and otherwise participate in the CAISO's wholesale markets.

7. What are the transmission and distribution system grid safety, efficiency and reliability benefits of V1G use case applications? How can PEVs be used in order to capture these benefits?

Response: CESA outlines the benefits of V1G use case applications in response to question Number 10 below. CESA believes the best way to capture the benefits of V1G applications is to streamline and reduce costs to build out EV charging infrastructure (such as through a rate-based utility electric vehicle supply equipment ("EVSE") "make-ready" program), and to maximize consumer choice and control over EV charging activities. Individual needs of EV users (even those specifically with V1G enabled infrastructure) will likely vary significantly, and no single rate structure will fit all needs. V1G-enabled EV charging equipment will have a very different usage profile – and users will have different needs - depending on where the equipment is installed. For example, V1G workplace charging may be best suited to manage charging to take advantage of peak solar generation and to avoid triggering localized network upgrades due to multiple simultaneous EV charging, while at-home charging may be optimized around cost minimization or utilization of cost thresholds. Grid benefits can be realized through

many different structures, and multiple rate structures and incentive programs will be needed to maximize consumer choice and accelerate EV adoption.

8. How should the Commission define where a PEV resource connects to the grid? Should the PEV be defined as a stand-alone resource? When should PEVs be included as part of the charging host facility load?

Response: Any given PEV in California is potentially outside the jurisdiction of the Commission. The “resource” should be defined as the EVSE. PEV usage should always accrue to whichever utility account it is drawing power from, be that the site or a submeter on the EVSE.⁸

9. Should the Total Resource Cost (TRC) Test and the Program Administrator Cost Test (PAC) found in the Standard Practices Manual be applied to electric vehicles programs? Do these tests need modification to account for any costs or benefits that are unique to electric vehicles? In particular, does the Standard Practice Manual adequately list the appropriate costs included in evaluating an electric vehicle VGI program? Does the definition of avoided cost benefits require modification to capture value unique to electric vehicles?

Response: CESA believes that the Societal Test variation of the Total Resource Cost (“TRC”) test described on page 19 of the Standard Practice Manual⁹ appears to best capture the benefits and costs associated with evaluating VGI programs. Given the significant external individual and societal benefits associated with VGI programs, standard Program Administrator Cost (“PAC”) and TRC tests do not adequately capture the benefits of VGI programs. External benefits of VGI programs include avoided cost of transportation fuels, and avoided societal costs due to pollution and greenhouse gas (“GHG”) emissions caused by transportation fuels.

⁸ The Commission should not favor nor encourage any policy or pilot that precludes the ability to have distributed generation and or energy storage behind the same meter as EV charging that will contribute towards GHG savings, bill management opportunities and reducing the total cost of operating and electric vehicle + net grid benefit.

⁹ http://www.cpuc.ca.gov/NR/rdonlyres/004ABF9D-027C-4BE1-9AE1-CE56ADF8DADC/0/CPUC_STANDARD_PRACTICE_MANUAL.pdf.

10. Should the Commission recognize the benefits associated with the following V1G impacts:

- a. Reduction in GHG emissions;
- b. Renewable Portfolio Standard Resource avoided cost;
- c. ancillary services avoided cost;
- d. decrease in gas consumption as fuel switching benefits; and
- e. avoided environmental health costs.

Response: CESA supports the Commission's recognition of the benefits described above.

In addition, CESA suggests that the Commission should recognize the following benefits associated with V1G impacts:

- mitigation of local distribution system issues, including:
 - distribution system and interconnection upgrades
 - peak shaving
 - voltage regulation
 - phase balancing
- managing flexible capacity
- fossil generation fleet heat rate & emissions optimization
- flattening the net load profile

11. How should The Commission define the specific potential benefits of “incentivized charging” and “managed charging?” Are those benefits different if the VGI resource is from a single customer compared to an aggregated resource?

Response: Potential benefits should include the same list set forth in response to question number 10 above that are generally recognized as benefits associated with V1G. CESA makes the same recommendations as to other benefits that should be listed and defined in this proceeding. Ultimately, all such benefits should be evaluated based on their respective ratepayer cost reduction potential, and contribution towards meeting state policy goals.

12. What utility V1G use case applications could be potential candidates for pilot project support?

Response: CESA initially recommends the following V1G use case applications as potential candidates for pilot project support:

- Dynamic, rate responsive smart charging, either by individual customers or aggregated customers via a third party.
- Utility-led charge management incentive programs – for example, rebates for customer purchases of V1G/V2G enabled EV charging equipment, or rebates for installing load management devices, similar to the existing Smart AC Program.

13. What data and analysis should be required of VGI pilot projects for final results reporting by the utilities?

Response: VGI pilot projects should collect data on absolute and relative cost-effectiveness and ratepayer impact of pilot programs, and effectiveness at meeting a variety of state policy goals, including acceleration of transportation electrification, and GHG emission reduction, both directly as a result of vehicle electrification, and indirectly, through grid benefits provided by VGI-enabled technologies. Additionally, VGI pilot projects represent an excellent opportunity to gather data to ensure that a level playing field between utility and third party market participants is encouraged. For example, the time required to achieve interconnection for utility owned and third party owned project could be explicitly tracked. Finally, all near term pilots represent an excellent opportunity to gather qualitative and quantitative feedback from the EV users themselves, as to the transparency of the program, the value proposition they perceived of the EV purchase and lifetime charging. This information will be critical to evolving and improving all VGI programs going forward.

14. What safety impact information should be required?

Response: Information should be collected on what certifications and standards were required under each pilot program implementation, and whether any safety impacts were

recorded as a result of VGI pilot infrastructure rollout or subsequent EV charging equipment usage. This information should be used to inform safety standards and UL certification requirements in future proceedings.

III. CONCLUSION.

CESA appreciates this opportunity to submit these comments, and looks forward to working with the Commission and the parties in this proceeding.

Respectfully submitted,



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