

**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 14, 2013)

**COMMENTS OF THE VOTE SOLAR INITIATIVE IN RESPONSE  
TO ORDER INSTITUTING RULEMAKING**

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**I. INTRODUCTION**

On November 22, 2013, the California Public Utility Commission (Commission) issued an Order Instituting Rulemaking to Consider Alternative-Fueled Vehicle Programs, Tariffs, and Policies, R.13-11-007 (OIR). In the OIR, the Commission requested comments on the scope, procedural structure, and schedule for the rulemaking and posed specific questions on vehicle-grid integration, alternative fuel vehicle rate design policy, financing, and general issues. Pursuant to the December 10, 2012 Order Correcting Error, filed on December 12, 2013, the Commission clarified that the deadline for submitting the requested comments would be 21 days from the date of the OIR's filing. The Vote Solar Initiative (Vote Solar) respectfully submits these timely comments in response to the OIR and addresses the Commission's specific questions below.

**II. COMMENTS**

Vote Solar's primary interest in this proceeding is to ensure regulations, policies, tariffs and programs concerning battery electric vehicles (BEVs) and Plug-In Hybrid Electric Vehicles (PHEVs) maximize the potential to cost-effectively integrate variable resources, including photovoltaic (PV) into the grid. We believe the vehicle-grid integration (VGI) effort could result in substantial benefits for integrating distributed PV into the grid, maintaining grid reliability and allowing for greater penetration of renewable resources for the purpose of meeting California's aggressive greenhouse gas (GHG) reduction goals. For this reason, we support the approach outlined in the staff whitepaper and we encourage the Commission to expedite the

implementation of VGI regulations and policies, beginning with the “low hanging fruit” of single-owner V1G case and working up to eventual V2G deployment.

Vote Solar generally agrees that the scope, procedural structure and schedule outlined in the OIR are appropriate and appear to address the key issues to be decided. We do note, however, the absence of focus on consumer wants as opposed to grid needs or surveys of behavior of early-adopters of EVs. Past experience with EV programs in the 1990’s shows that focusing on consumer or societal needs instead of consumer wants does not yield expected results. Vote Solar wishes to ensure the successful rollout of VGI programs and cautions against making assumptions about consumer behavior based on survey data of early adopters without understanding what motivates broader consumer behavior. We encourage the Commission to include surveys of broader groups of consumer attitudes, perceptions and potential behavior with respect to potential participation in VGI programs. We also suggest consumer outreach and education be incorporated as part of any VGI program implementation.

Vote Solar provides comments on selected questions on the Energy Division’s Vehicle-Grid Integration whitepaper posed in the OIR as follows:

### **5.1 Vehicle-Grid Integration**

1. *Is the VGI framework proposed in the whitepaper a reasonable way to organize VGI activities and scenarios?*

The framework proposed in the Energy Division whitepaper does a good job at identifying major attributes and presenting them in a logical manner. The framework identifies a logical progression from the quickest, easiest to implement use case to successively more difficult cases. It identifies the challenges that need to be addressed at each level to help ensure progression from increasingly more complex V1G cases up to V2G.

It remains to be seen how facility owners, EV infrastructure and service providers and vehicle owners will respond to each use case or program. We encourage the Commission to incorporate as much flexibility in the program development to respond to consumer or provider

behavior and modify or introduce regulation to support whichever direction seems most promising from the perspective of grid services and consumer benefits. Also, based on our experience with the distributed PV, we urge the Commission to find ways to maximize competition and market driven solutions. We believe the Commission's role should be to facilitate development of various forms of VGI and then allow the market to evolve, with the Commission providing a supporting and facilitating role.

2. *Do you agree with Energy Division's prioritization of the VGI scenarios?*

Yes, we do agree that the staff's proposed prioritization would most likely result in implementation of the "low hanging fruit" VGI program while providing a roadmap to successively more complex, but potentially much more beneficial, programs. Particularly given the emphasis being placed on the CAISO "duck graph"<sup>1</sup>, we believe it is imperative to accelerate deployment of VGI programs that can help achieve renewable integration, advancing the State's goals for GHG reduction, and not wait to develop a perfect solution. For this reason, Vote Solar supports the staff's proposed progression from V1G with unified actors, through aggregated V1G with unified and fragmented actors as it works to identify solutions to allow eventual implementation of V2G.

We believe V2G will provide the maximum benefits with respect to variable renewable resource integration. As the Energy Division's whitepaper points out, V2G provides ancillary grid services at twice the magnitude and for greater duration than V1G. Along with other forms of distributed energy resources (DER) that can provide complimentary services, such as automated Demand Response (DR), stationary forms of energy storage and more aggressive energy efficiency measures, EVs can provide the kind of grid services that can reduce or

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<sup>1</sup> Vote Solar is in no way endorsing or giving credence to the duck graph. Indeed, we see many possible ways to address concerns about high levels of solar PV production in the middle of the day and any subsequent ramping, should that occur at a significant level, such as facing PV arrays west instead of east, using CSP with storage, adding wind resources, demand response or energy storage, including from V2G resources.

eliminate the need for conventional flexible generation, providing a carbon-free solution to integration of variable renewable energy.

To the extent VGI pilot programs are needed, we suggest they be incorporated in pilot programs such as SCE's proposed Preferred Resources Pilot Program. This will allow grid services provided by EVs to be evaluated in the context of an integrated preferred resources solution. As the grid evolves, so should grid service solutions. This means developing integrated solutions that include EVs, distributed generation, advanced DR, energy storage and other DER and preferred resources and not evaluating each resource in a silo. We also believe the utilities' investment in smart grid infrastructure will help accelerate deployment of VGI solutions and should be considered an integral part of any VGI program. This will also aid in the identification of potential new utility business models, as has been identified in the whitepaper, which we believe is essential for the evolution of the electric grid.

3. *Does the White Paper capture all the utility regulatory barriers to VGI?*

It's difficult to predict all potential regulatory barriers, particularly since this has not been done before and many of the potential solutions have never been tested in real-world conditions. However, we believe the staff whitepaper does a reasonable job at identifying most of the potential regulatory barriers.

Vote Solar offers one additional consideration with respect to potential regulatory barriers, however. As we are experiencing in the CPUC's Net Energy Metering proceeding, customers will make procurement decisions based on assumptions about continued availability of programs and incentives. In addition to EV owners, this will be critical to 3rd party aggregators and other equipment and service providers for long-term financial stability. The Commission should consider the potential future impacts of technological advances, market penetration levels and interaction with other distributed resources and the subsequent implications for EV and EVSE owners. Successful implantation of VGI programs requires regulatory consistency, allowing for customers to feel secure when making long-term economic decisions and financial investments in vehicles, batteries or charging infrastructure.

For example, the whitepaper describes how both V1G and V2G technologies can provide ancillary services such as voltage support and frequency regulation. Separately, in the Rule 21 proceeding, the Commission is working on rules for advanced inverters for PV, which include provision of the same services. Since it is possible that apartment owners, companies or other facility owners that offer EV charging may also have distributed PV on their facilities, this could present challenges in “dispatching” the resource or assigning the appropriate compensation for provision of these services (to the facility owner or the vehicle owner), as well as ensuring these services are appropriately valued. Such compensation may be included in the evaluation of the economics of either the PV system or the vehicle purchase, potentially creating conflicts between facility and vehicle owners.

4. *How should we address any potential safety and reliability concerns associated with VGI?*

Safety is not an area where Vote Solar expects to offer significant, substantive solutions. At the planning stage, however, we would like to point out that grid security is a safety issue that does not appear to be a consideration in the staff whitepaper. A reasoned consideration of more complex V2G programs should address “the specter of a heightened vulnerability to cyberterrorism,” which has been raised as a concern by some authors.<sup>2</sup>

## **5.2. Alternative Fuel Vehicle Rate Design Policy**

Vote Solar does not have specific suggestions for the tariff questions at this time, but urges the Commission to consider the following three issues: 1) simplicity, 2) implications with respect to other tariffs (e.g., PV, ancillary service provision, DR, etc.) and 3) ensuring any potential battery wear from V2G charge/discharge cycling or provision of ancillary service provision is included in the calculation of costs and value to the consumer for providing such services.

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<sup>2</sup> See Matthew Hutton & Thomas Hutton, *Legal and Regulatory Impediments to Vehicle-to-Grid Aggregation*, 36 Wm. & Mary Envtl. L. & Pol’y Rev. 337, 349 (2012). This article also addresses the possible need to interact with FERC to modify tariff decisions and warranty issues that will require buy-in from vehicle manufacturers.

Development of tariffs for VGI services should make it as easy as possible for consumers, vehicle owners, aggregators or other service providers, equipment or facility owners to participate in VGI programs. Given the potential for greater consumer participation in the provision of distributed grid resources, such as DR, DG, stationary energy storage and VGI services, and the need to get the greatest benefit for the grid, it will be imperative to consider potential interaction among the various services and tariffs.

### **III. CONCLUSION**

Vote Solar appreciates the opportunity to provide comments on this OIR and looks forward to participating in this proceeding.

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Respectfully submitted,

/s/ \_\_\_\_\_  
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