BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Consider Alternative-Fueled Vehicle Programs, Tariffs, and Policies.	Rulemaking 13-11-007 (Filed November 14, 2013)

CLEAN COALITION OPENING COMMENTS ON ORDER INSTITUTING RULEMAKING

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In accordance with the Assigned Commissioner Ruling released November 22, 2013, the Clean Coalition provides the following opening comments on the OIR.

The Clean Coalition is a California-based nonprofit organization whose mission is to accelerate the transition to local energy systems through innovative policies and programs that deliver cost-effective renewable energy, strengthen local economies, foster environmental sustainability, and enhance energy security. To achieve this mission, the Clean Coalition promotes proven best practices, including the vigorous expansion of Wholesale Distributed Generation (WDG) connected to the distribution grid and serving local load. The Clean Coalition drives policy innovation to remove major barriers to the procurement, interconnection, and financing of WDG projects and supports complementary Intelligent Grid (IG) market solutions such as demand response, energy storage, forecasting, and communications. The Clean Coalition is active in numerous proceedings before the California Public Utilities Commission and other state and federal agencies throughout the United States in addition to work in the design and implementation of WDG and IG programs for local utilities and governments.

I. Comments

The Clean Coalition strongly supports the Commission in proactively addressing factors that will lead to rapid adoption of Alternative-fueled Vehicles (AFV) and maximum realization of associated benefits for ratepayers and the State as a whole. We support the OIR, have no objections regarding the defined category, need for hearing, schedule, or issues listed to be considered, although we do offer some additions. While we agree that the Vehicle Grid Integration (VGI) framework proposed in the White Paper is a reasonable way to organize VGI activities and scenarios, we support consideration of

refinements offered by parties. Likewise, while we agree with the Energy Division's prioritization of the VGI scenarios, this is distinct from the prioritization of topics within these scenarios.

The Clean Coalition is active in concurrent closely related proceedings including those addressing Interconnection, Demand Response, Energy Storage, and Resource Adequacy, and seeks to work with the Commission in ensuring that overlapping factors are well coordinated in each of these, as well as implementation of the distribution grid planning requirements of AB 327. We wish to emphasize that each of these can significantly impact the recognition and valuation of electric vehicles (EVs) as a resource and subsequent adoption rates. In this light we offer the following recommendations for additional issues to be considered and responses to questions posed regarding the VGI framework, prioritization, regulatory barriers, and Rules needed to facilitate the goals outlined in this OIR:

a. We recommend that guiding principles be developed and specified early in this proceeding, and that these include: optimizing VGI to minimize greenhouse gas emissions, integrate renewable power including high levels of distributed generation, and to mitigate system load so as to avoid or defer investments in new fossil fuel-powered plants and reduce ratepayer transmission and distribution infrastructure costs. The role of VGI in local and system wide ramp mitigation and infrastructure planning is discussed further below.

b. We recommend that the OIR specifically address the applicability of VGI as a recognized and preferred resource for participation in energy markets and in meeting Resource Adequacy requirements. While this proceeding need not address the operation of these markets, failure to ensure that the EV related capacity and attributes are accounted for, procured and dispatched in accord with preferred Loading Order will result in higher costs for both ratepayers and EV owners.

c. This proceeding should coordinate with the Energy Storage (ES, R. 10-12-007) and Demand Response (DR, R. 13-09-011) proceedings to align valuation and address factors not already being formally considered for rulemaking. The cost-effectiveness of EV related incentives and compensation should be determined based on the reports and tools developed by the Commission in these and other proceedings and should be evaluated in relation to meeting State goals. The ES proceeding is addressing the full range of values attributed to storage, and Clean Coalition worked in developing the distributed storage use case scenario which is substantially applicable to V2G and even V1G EV scenarios in local aggregation, and we recommend that this proceeding adopt and adjust this work as appropriate.

d. EVs are intimately associated with residential loads, accounting for 20-40% of these loads and allowing very substantial responsiveness, scheduling or time shifting of loads. However, the current demand response (DR) proceeding is not focusing on residential capacity or the role of EV adoption on the reliability of residential programs. The load shaping impact of both dynamic and static time of use pricing mechanisms requires coordinated consideration that should be addressed by this proceeding.

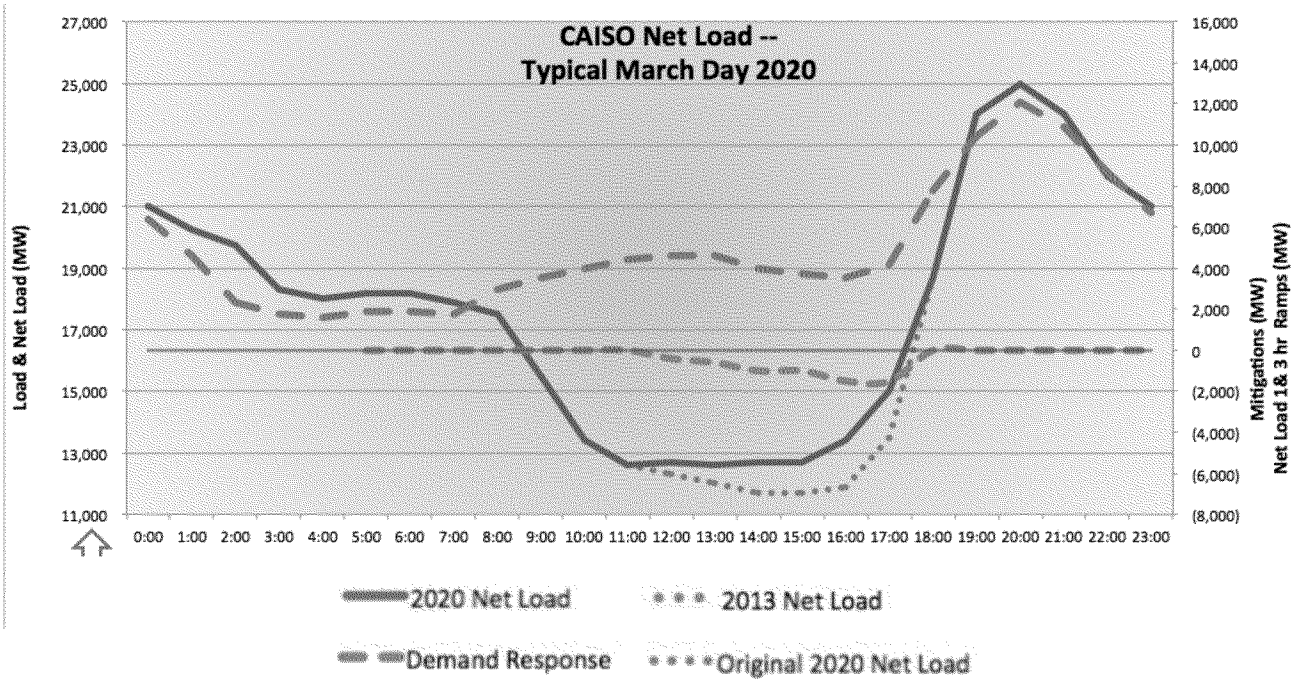
e. The value of benefits provided by EVs and associated charging systems (Electric Vehicle Supply Equipment - EVSE) should include the availability of this resource in the State's markets for capacity, flexibility, regulation, and other grid services and capital investments, including as transmission alternatives. Such evaluation should consider the merit order impact and marginal avoided cost value of EV adoption rates, and the relative importance of vehicle battery capacity. Contributions towards meeting AB 32 GHG reductions and associated low carbon fuel source (LCFS) credits should also be considered.

f. While we see no technical or market rationale to treat EV load or the value provided by dispatching that load any differently than any other controllable load in rate

design and compensation, we also recognize that additional factors may be appropriately considered. In order to develop this capacity and avoid costs associated with additional fossil generation and transmission investments that may otherwise be required, all measures should be considered to support preferred adoption rates, and the value provided by EV attributes not directly associated with electric system operation, such as low carbon fuel use, should be fully considered and may be best reflected in rate design and compensation. This may include for example applying low carbon fuel source (LCFS) credit value to support multi-user charge points or vehicle purchase incentives.

g. In order for the value of these benefits to be most effective in supporting increased adoption of EVs and EVSE, this proceeding should address aggregation and distribution of all values for easy access by customers, system operators and intermediaries.

h. We also recommend that the Commission consider setting EV capacity and DR or grid services participation targets for EVs in relation to both 2020 and longer term renewable energy scenarios, such as 50% by 2030, or high DG scenarios, that have been modeled in the LTPP already. EV capabilities should be fully recognized along with other load shifting and responsive demand opportunities in meeting Resource Adequacy standards including those for Flexible Capacity. As shown below, simply coordinating load and supply can effectively address the challenges of integrating inflexible resources.



Source: Clean Coalition[1]

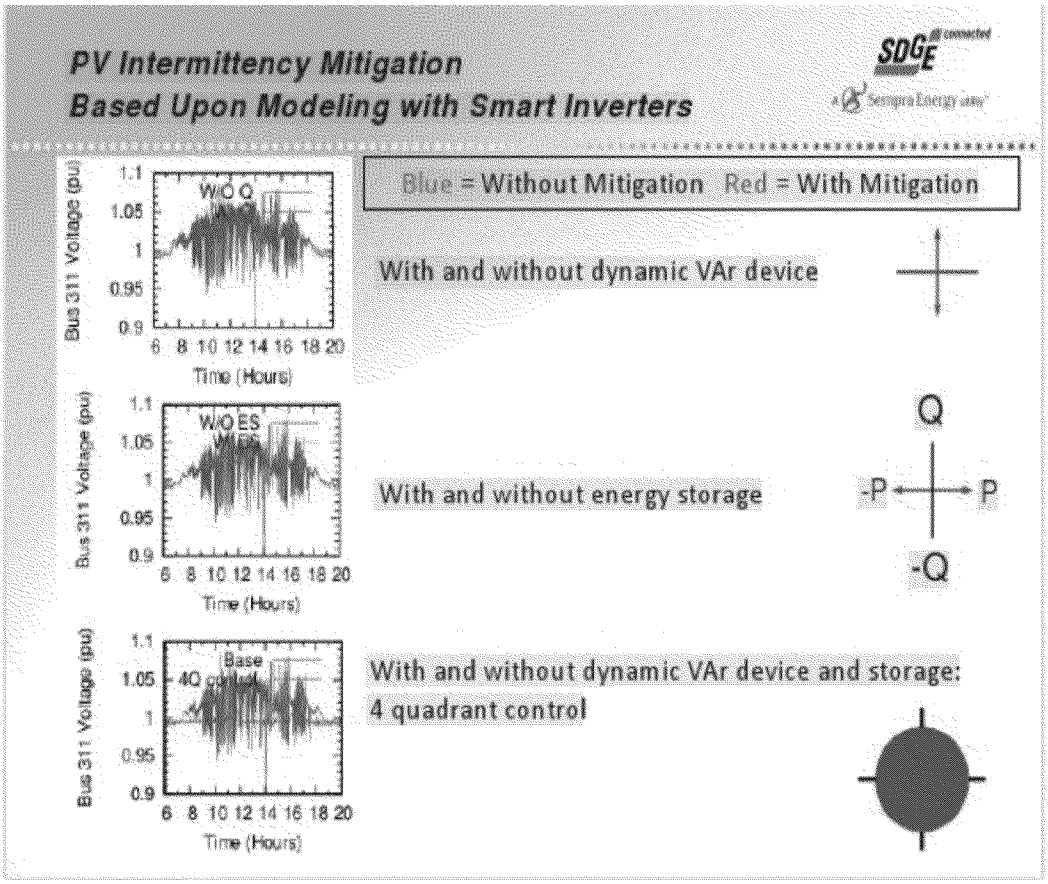
DR programs and tariffs can incentivize customers to shift power consumption towards low net demand periods where over-generation may occur, lifting the belly of the "duck". The dotted red line indicates the net load curve predicted by CAISO for 2020, while the solid red line shows how adding timely EV charging, as shown by the blue dashed line, can help smooth the net load profile. This example illustrates the positive effect on net load and evening ramp requirements resulting from 6,000 MWh of EV charging in the afternoon, with a maximum of 1,500 MW during any one hour. This is especially relevant where EVs charging is near or co-located with distributed PV generation at home and work.

i. Energy Division is considering methods for quantifying the Net Qualifying Capacity (NQC) and Effective Flexible Capacity (EFC) associated with DR and energy storage systems in order to determine the degree to which Load Serving Entities (LSEs) can be credited toward their Local Resource Adequacy and Flexible Resource Adequacy requirements, based on the resources availability, use limitations, and the usefulness

[1] The Clean Coalition has modeled how to address the "Duck" curve issues raised by CAISO with intelligent grid solutions. The model is available at http://www.clean-coalition.org/resources/integrating-high-penetrations-of-renewables/.

in meeting system operator needs. This proceeding should ensure that EVs and associated Electric Vehicle Supply Equipment (EVSE or charging stations) are fully included and appropriately categorized as DR or storage resources. Likewise, this proceeding should address assignment of capacity credit to either the EVSE, where the capacity is supplied to the grid, or the EV, which supplies the capacity. Additionally, this proceeding should inform other proceedings regarding the attribution of EV/EVSE NQC and EFC value relative to when this capacity is needed by system operators rather than simply an average 24 hour value that may greatly under or over estimate its actual contribution.

j. Aligning standards and interoperability between EVs, distributed PV and intelligent grid systems will reduce distribution system capacity upgrades required to allow for deeper penetration of EVs and renewable energy in the electricity systems, supporting California's sustainability, cost effectiveness and emissions goals. California has already taken the lead in both EV adoption targets and (pending) DG advanced inverter standards and implementation, and should work closely with the DOE initiative in development of international Interoperability standards.
Where EVs and other loads can be responsive to local or co-located DG (typically rooftop or parking lot PV), very significant voltage regulation benefits can be realized, especially when combined with forthcoming CPUC Rule 21 inverter standards for new PV installations, as illustrated in the following example combining real power (P) energy storage and reactive power (Q) components of a dynamic VAr device such as an advanced inverter.



Source: SDG&E[2]

It should be noted both that the degree of mitigation is dependent upon relative available capacities of the PV and EVs, but also that the EVs utilizing V1G can offer the same load capabilities as V2G or dedicated energy storage, although at lower capacity per vehicle. Aligning standards and interoperability between EVs and intelligent grid systems will allow for deeper penetration of renewable energies in the electricity systems, supporting California's sustainability, cost effectiveness and emissions goals. California has already taken the lead in both EV adoption targets and (pending) DG advanced inverter standards and implementation, and should work closely with the DOE initiative in development of international Interoperability standards.

[2] San Diego Gas & Electric, California Public Utilities Commission Energy Storage Workshop on January 14, 2013

k. Distribution grid modernization and upgrade planning processes required under AB 327 should be addressed in this Proceeding and informed by EV and EV+PV experience and adoption targets. Assembly Bill (AB) 327, signed in 2013, requires the IOUs to submit a distributed resources plan no later than July 1, 2015.[3] This plan must account for DG, energy efficiency, energy storage, electric vehicles and demand response technologies.

   In developing these plans, the utilities will create new methodologies for evaluating the costs and benefits of where distributed resources such as EVs are located and will plan infrastructure investment to maximize the net benefits to ratepayers. Clearly, valuation methodologies and any plans for a build-out of EV infrastructure must reflect close coordination between this Proceeding and broader distributed resources planning. This integration of planning will ultimately impact procurement programs, grid operations and each utility's general rate case.

l. A utility role in providing, contracting, or supporting standardized charge points and controls will promote efficient low cost permitting and installation in addition to

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[3] Applicable section of AB 327:

SEC. 8. Section 769 is added to the Public Utilities Code, to read:
769. (a) For purposes of this section, "distributed resources" means distributed renewable generation resources, energy efficiency, energy storage, electric vehicles, and demand response technologies.
(b) Not later than July 1, 2015, each electrical corporation shall submit to the commission a distribution resources plan proposal to identify optimal locations for the deployment of distributed resources. Each proposal shall do all of the following:
(1) Evaluate locational benefits and costs of distributed resources located on the distribution system. This evaluation shall be based on reductions or increases in local generation capacity needs, avoided or increased investments in distribution infrastructure, safety benefits, reliability benefits, and any other savings the distributed resources provides to the electric grid or costs to ratepayers of the electrical corporation.
(2) Propose or identify standard tariffs, contracts, or other mechanisms for the deployment of cost-effective distributed resources that satisfy distribution planning objectives.
(3) Propose cost-effective methods of effectively coordinating existing commission-approved programs, incentives, and tariffs to maximize the locational benefits and minimize the incremental costs of distributed resources.
(4) Identify any additional utility spending necessary to integrate cost-effective distributed resources into distribution planning consistent with the goal of yielding net benefits to ratepayers.
(5) Identify barriers to the deployment of distributed resources, including, but not limited to, safety standards related to technology or operation of the distribution circuit in a manner that ensures reliable service.
(c) The commission shall review each distribution resources plan proposal submitted by an electrical corporation and approve, or modify and approve, a distribution resources plan for the corporation. The commission may modify any plan as appropriate to minimize overall system costs and maximize ratepayer benefit from investments in distributed resources.
(d) Any electrical corporation spending on distribution infrastructure necessary to accomplish the distribution resources plan shall be proposed and considered as part of the next general rate case for the corporation. The commission may approve proposed spending if it concludes that ratepayers would realize net benefits and the associated costs are just and reasonable. The commission may also adopt criteria, benchmarks, and accountability mechanisms to evaluate the success of any investment authorized pursuant to a distribution resources plan.

promoting compatibility with maximizing the provision of intelligent grid operation and services. Therefore we support consideration of a utility role in these areas, and pilots pending under the prior R.09-08-009 should be pursued and expanded.

In conclusion, appreciate to opportunity to comment, support the approach outlined in the Staff White Paper and OIR, and recommend these additional topics to ensure coordination between related proceedings and full realization of benefits and avoided costs that can result from increasing EV adoption.

Respectfully submitted,

/s/ Sahm White

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