June 16, 2021

To California Public Utilities Commission: Commissioner Rechtschaffen, Advisor Yuliya Shmidt, Deputy Executive Director Edward Randolph, and Energy Division Transportation Electrification staff

From: Advanced Energy Economy, AMPLY Power, Inc., California Energy Storage Alliance (CESA), Enel X North America, Inc., Greenlots, Mobility House, Nuvve, Powerflex-EDF Renewables, Siemens, Vehicle-Grid Integration Council (VGIC), and Veloce Energy (collectively, 'VGI Stakeholders')

RE: Enabling Automated Load Management (ALM)

We are writing on behalf of a broad coalition of EV manufacturers and service providers (collectively, 'VGI Stakeholders') to underscore the importance of deploying commercially available Automated Load Management (ALM)[1] solutions in conjunction with the deployment of EV charging infrastructure. ALM can provide substantial ratepayer benefits by mitigating certain customer-side and utility-side infrastructure costs related to transportation electrification. In recognition of the growing concern around rate and cost pressures outlined during the February *En Banc on Energy Rates and Costs*, we note that available evidence suggests that utility transportation electrification investments have the potential to drive electric rates down.[2] Thus, while it would be inappropriate to scale back utility EV infrastructure investment, which would also hamper California's electrification goals, it is also important to stand up solutions that can help empower customers to manage load and related infrastructure costs going forward, enabling deeper benefits for all ratepayers – especially as AB 841 (Ting, 2020) is implemented. Under these new rules, California ratepayers are poised to spend hundreds of millions of dollars on new EV infrastructure, without much time for the Commission to consider options for managing these costs. We believe ALM is a critical solution in this regard and could be broadly integrated into future EV infrastructure deployment, whether deployed through TE programs or even outside of TE programs (i.e., via AB 841). However, this must be done thoughtfully so that it does not present an added cost or burden to potential EV customers, and instead provides an added benefit.

Regarding the use of ALM in TE programs, ALM was a central part of the December VGI decision to implement SB 676 (Decision 20-12-029), but there is growing recognition among the VGI Stakeholders that more needs to be done to facilitate the full range of ALM capabilities. At present, this full range of ALM capabilities – including both Type 1 ALM and Type 2 ALM applications -- is not being adequately promoted in utility TE efforts. For clarification, "Type 1" ALM refers to the use of load management for participation in demand response or TOU rates, while "Type 2" ALM refers to load management used to avoid additional distribution system upgrades. Type 2 ALM is accomplished by using ALM solutions to safely connect multiple charging ports whose total nameplate load would otherwise exceed the rated capacity of the

[1] ALM (for EV charging) can be broadly defined as "a system designed to manage charging capacity strategically among multiple electric vehicle supply equipment."
[2] https://www.synapse-energy.com/sites/default/files/EV_Impacts_June_2020_18- 122.pdf

customer connection. This in turn can avoid the need to upgrade an existing customer site with a new service connection, customer-side panel upgrade, or utility-side distribution system upgrade. While the IOUs have implemented some Type 1 ALM applications, they have not all fully embraced Type 2 ALM.[3] This may be in part due to a lack of clear financial incentives or guidance to consider Type 2 ALM within the scope of TE program or tariff design.

On the other hand, we are also concerned that this lack of emphasis on certain ALM solutions may lead the Commission to implement AB 841 using heavy-handed measures. These might include a substantially increased customer cost responsibility for distribution upgrades that amounts to a *de facto* ALM requirement. Even if this is pursued in the spirit of managing overall infrastructure costs and benefiting ratepayers, it may not be sensible for all EV customers and could be counterproductive to broader transportation electrification goals. **As such, we would like to propose a solution that is a "carrot" rather than a "stick" to encourage and incentivize ALM as an option for managing distribution system costs where it is cost-effective to do so and where customers have that flexibility and choose to pursue these measures.**

This would be akin to the approach California has taken for decades towards utility energy efficiency programs whereby incentives are offered to customers who voluntarily purchase more efficient appliances. This approach has the added benefit of potentially encouraging more EV adoption by maximizing the number of chargers on an existing service connection and lowering the total cost of ownership for EVs and charging site hosts. To resolve this, we respectfully request an additional stakeholder process be initiated to work through what an ALM incentive and program design could look like, and encourage the Commission to consider initiating this in its direction on AB 841 implementation. Additionally, as a threshold matter, we are seeking to answer a fundamental question: what is needed from a technical perspective for the IOUs to facilitate ALM solutions that can ensure safety for Type 2 applications?

We look forward to working with the Commission on constructive solutions to these issues. Below we have also provided some more detailed background information and further discussion of key ALM matters for your consideration.

Background

Consideration of ALM as a discrete topic in the DRIVE OIR (R.18-12-006) began during comments on the Draft TEF when parties recommended an existing or new tariff be offered to

[3] In PG&E's January 29, 2021 ALM/EV EMS Workshop, Panel 2 Presentation, PG&E indicates that they have deployed Type 2 ALM at 20 MUD and workplace host sites as of Q4 2020. PG&E saved $30,000 to $200,000 per project by implementing ALM with three different EV service providers at these 20 sites. In *Reply to The Vehicle-Grid Integration Council's Protest to Southern California Edison Company's Advice 4439-E,* SCE indicates "this is not to suggest, however, that customers cannot select a Type 2 ALM solution…SCE is open to other ALM options provided that they fit the circumstance (i.e., there has to be a need to upgrade the utility infrastructure systems) and are requested by customers." SDG&E has not provided such indication for their TE programs. Based on our knowledge, none of the IOUs have indicated they will allow Type 2 ALM under their distribution system planning practices for customers that are not participating in a TE program.

enable customers to elect certified BTM ALM technologies (e.g., UL-certified and NEC-approved) that could avoid the need for upgrades to the primary and secondary distribution system and on-site electrical equipment.[4] At the time, it was unclear based on the past experiences of customers and business whether existing utility planning processes and load assessment rules would allow a customer to elect certified load management technologies to avoid triggering upgrades to the primary and secondary distribution system and on-site electrical equipment.

VGI Stakeholders were pleased to see a focus on ALM strategies within the SB 676 Implementation and VGI Strategies Decision (D.20-12-029). We also commend the leadership of the Energy Division staff in planning and facilitating the ALM workshop held on January 29th, 2021. However, there is growing concern among VGI Stakeholders that certain key elements of ALM have been lost as the focus has shifted toward program implementation. VGI Stakeholders commend Pacific Gas & Electric (PG&E) for its leadership on Type 2 ALM within the EV Charge Network program, which utilized ALM solutions at 20 MUD and workplace host sites as of Q4 2020. PG&E saved $30,000 to $200,000 per project by implementing ALM with three different EV service providers at these 20 sites.[5] However, to our knowledge, neither Southern California Edison (SCE) or San Diego Gas & Electric (SDG&E) have indicated whether customers may elect Type 2 ALM under current or upcoming TE programs, and none of the IOUs have explicitly stated that customers installing EVSE outside of TE programs may elect a Type 2 ALM solution.

Aligning on ALM "Type" Terms and Definitions

To ensure the policy and regulatory framework can enable the current state of commercially available technology, it is important for the Commission and stakeholders to align on key ALM definitions. Potential definitions of ALM were discussed in the lead-up to, and during, the January 29, 2021 ALM workshop, but the Commission has not yet proposed a final operational definition. Many signatories to this letter support defining ALM (for EV charging) as "a system designed to manage charging capacity strategically among multiple electric vehicle supply equipment."

ALM can be utilized for different use cases, or to capture different value streams. Notably, SCE has detailed a distinction between "Type 1" and "Type 2" ALM, explaining that Type 1 ALM relates to load management at an EV supply equipment (EVSE) site where there is no constraint to service (i.e., maximum connected EVSE load does not exceed site capacity).[6] This is implemented throughout California today as a strategy for customers to manage their utility bills in response to Time-of-Use rates, for example. SCE defines Type 2 ALM as "energy management systems in which the connected load exceeds capacity, and the failure of such ALM would lead to

[4] *Comments of Enel X North America, Inc. and Nuvve Corporation on Draft Transportation Electrification Framework Pertaining to Safety, Technology, and Standards* filed in R.18-12-006 on July 14, 2020. https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M344/K033/344033089.PDF

[5] Other than those participating in PG&E's EVCN Program. *See* PG&E's Presentation during January 29, 2021 ALM/EV EMS Workshop, Panel 2.

[6] *SCE, Presentation on Transportation Electrification, Charging Infrastructure Programs, Energy Management Systems,* presented at EPRI IWC on March 20, 2019. See also *Reply to The Vehicle-Grid Integration Council's Protest to Southern California Edison Company's Advice 4439-E.* April 8, 2021. Page 2.

an unsafe condition."[7] SCE notes that "Type 2 ALM could have a potential for significant cost reduction and avoidance of major construction or upgrades by utilizing the existing capacity to the largest extent."[8]

VGI Stakeholders supports this key distinction between situations in which the maximum connected load is less than site capacity (Type 1 ALM) and situations in which the maximum connected load exceeds site capacity (Type 2 ALM). In seeking clarity and considering recommendations for strategies to promote Type 2 ALM, additional definitions of ALM "subtypes" may be necessary to capture the differences between when the maximum connected load exceeds service capacity versus customer electric panel size. **Type 2A ALM** should be used to describe situations in which maximum connected load exceeds site capacity, and customers have an inherent incentive to use load management to save on customer-side costs (e.g., panel upgrades). To our knowledge, this is done today at several sites in California to save customers costs on panel upgrades. Meanwhile, **Type 2B ALM** should be used to describe situations in which maximum connected load exceeds site capacity, and the use of load management is incentivized as a means to reduce utility-side costs (e.g., service drop or transformer upgrades). PG&E has reported on their efforts to implement Type 2B ALM in EV Charge Network. However, regardless of whether customers are allowed to elect these solutions under current TE program rules or utility distribution planning processes, **customers currently have no incentive to pursue Type 2B ALM** (except for a limited number of EV Charge Network customers[9]). This may persist as a significant barrier to realizing California's transportation electrification goals, ability to maximize VGI according to SB 676 (Bradford, 2019), and ensure TE investments are in the best interests of ratepayers as defined in P.U. Code §740.8 (and consistent with §451).

Cost Responsibility: AB 841 and ALM Incentives

The matter of whether there is *any* incentive for customers to mitigate distribution-side costs appears to be up in the air pending implementation of AB 841 and disposition/resolution on the associated EV Infrastructure Rule 29/45 tariffs. To clarify, **AB 841 implementation should proceed without delay.** The proposed EV Infrastructure Rules 29/45 will accelerate EVSE deployment, helping to overcome a critical barrier to broader EV adoption. We struggle to see a clear pathway to address California's 62,000 charger gap by 2025 – and 1.5 million charger gap by 2030 – without the timely approval of the proposed EV Infrastructure Rules 29/45.[10]

However, given the changing cost responsibility paradigm directed by AB 841, the opportunity to increase ratepayer benefits by mitigating the transportation electrification-related distribution upgrade costs remains clear. We believe enabling customers to elect an ALM solution can be one key measure to help benefit ratepayers. As such, investor-owned utilities could be

[7] *Ibid*.
[8] *Ibid*.
[9] Other than those participating in PG&E's EVCN Program. *See* PG&E's Presentation during January 29, 2021 ALM/EV EMS Workshop, Panel 2.
[10] *Assembly Bill 2127 Electric Vehicle Charging Infrastructure Assessment: Analyzing Charging Needs to Support Zero-Emission Vehicles in 2030.* California Energy Commission, Staff Report. January 2021. Page iii. https://efiling.energy.ca.gov/getdocument.aspx?tn=238032

directed to update their EV Infrastructure Rules 29/45 in the near term to promote a pathway for Type 2B ALM. In recognition of this dynamic and the remaining stakeholder work needed to design an ALM incentive, we would recommend that any next steps that may be taken by the Commission to promote ALM be explicitly linked to Type 2B ALM and consider how it can be promoted through the EV Infrastructure Rules 29/45 or a related tariff or program. This explicit call-out would provide clarity, align stakeholders around a common definition, and set expectations for the scope of the relevant workshop, ruling, or another relevant policy forum.

Eligible ALM Solutions

Regarding which solutions may be eligible to provide Type 2B ALM, the VGI Decision describes ALM as "software-based technology."[11] We believe that a range of BTM interfaces should be eligible as Type 2B ALM solutions. We encourage the Commission to remain technology-agnostic on exactly what customer-side solution is used and shift eligibility criteria to center on the ability of a given solution to ensure safety when the maximum connected load exceeds site capacity. For example, BTM stationary energy storage that is co-located with EVSE should be considered as an eligible ALM solution to ensure safety when the maximum connected load exceeds site capacity.

Key Next Steps

We appreciate the Commission's continued efforts in considering ALM. Type 2B ALM can simultaneously accelerate EV adoption and benefit ratepayers. As a next step, VGI Stakeholders encourage the Commission to convene a stakeholder workshop to consider proposals for how to promote Type 2B ALM. A shared savings incentive mechanism may provide a valuable starting point to promote technology adoption and mitigate ratepayer costs, while still promoting cost recovery for investor-owned utilities per AB 841. We would encourage a workshop report from the January 29, 2021 ALM workshop be entered into the record of DRIVE OIR, and for the Commission to provide an opportunity for parties to submit comments. In addition, we reiterate our belief that the proposed EV Infrastructure Rules 29/45 should be approved without delay, and encouragement to the Commission to direct the IOUs to revise the tariffs within 6 months to incorporate the recommendations from the above-mentioned workshop report and subsequent party comments.

The VGI Stakeholders appreciate the Commission's efforts to promote ALM as a VGI strategy and respectfully submit this letter. We look forward to the opportunity to further collaborate with the Commission and other stakeholders on this initiative.

Signed,

[11] *Decision Concerning Implementation of Senate Bill 676 and Vehicle-Grid Integration Strategies.* D.20-12-029 issued in R.18-12-006 on December 21, 2020. Page 26.
https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M355/K794/355794454.PDF

The following VGI Stakeholders:

Noah Garcia
Policy Principal
Advanced Energy Economy

Jin Noh
Policy Director
California Energy Storage Alliance (CESA)

Erick Karlen
Sr. Advisory, Policy & Market Development
Greenlots

Jackie Piero
VP of Policy
Nuvve

Chris King
SVP-eMobility
Siemens

Bonnie Datta
Advisor, Policy & Regulatory Affairs
Veloce Energy

Heidi Sickler
Director of Policy
AMPLY Power, Inc.

Marc Monbouquette
Regulatory Affairs Manager
Enel X North America, Inc.

Gregor Hintler
Managing Director USA
The Mobility House

Jon Hart
Virtual Power Plant Manager
Powerflex, EDF Renewables

Ed Burgess
Policy Director
Vehicle-Grid Integration Council (VGIC)