September 4, 2019

California Independent System Operator
250 Outcropping Way
Folsom, CA 95630

RE: Energy Storage and Distributed Energy Resources Phase 4 Straw Proposal Working Group Meeting

Electrify America, LLC ("Electrify America") appreciates this opportunity to comment on the California Independent System Operator ("CAISO") Energy Storage and Distributed Energy Resources ("ESDER") Phase 4 Straw Proposal Working Group Meeting held on August 21, 2019 (the "Working Group Meeting"). Electrify America commends CAISO on its continued efforts to lower barriers and enhance the abilities of these resources to participate in CAISO markets and concurs with CAISO that such resources will serve an important role in the future grid.

Electrify America is investing $2 billion over the course of a decade - $800 million of which will be in the State of California alone - in zero emission vehicle ("ZEV") infrastructure, education and awareness, and access efforts to support the increased adoption of ZEV technology in the United States. In our first cycle of investment, we are building a national network of ultra-fast, DC fast chargers across 42 states, with over 600 such dispensers planned for deployment across California by the end of this year. Our state-of-the-art 350kW-capable dispensers will be at select locations nationwide. These systems can provide roughly 20 miles of range per minute to capable cars, allowing for a charging experience approaching gas station refueling speeds. Electrify America will also offer 'no-money-down' residential Level 2 chargers and installation as part of its Cycle 2 California ZEV Investment Plan. The plan will allow drivers with a home charger to potentially earn financial rewards for plugging in and supporting a demand response ("DR") platform.

High-powered electric vehicle ("EV") charging dispensers are expensive to operate in areas where demand charges are extremely high. A single charging session can cause an EV charging company to absorb a significant demand charge for a high-power, customer-friendly charging experience. This problem is exacerbated when coincident high-powered charging occurs at multi-dispenser locations. To help mitigate such costs, Electrify America is planning to install energy storage systems at over 100 of its locations in 2019, totaling over 25 MW of anticipated behind-the-meter storage across the United States.

However, in addition to the behind-the-meter use of such storage, Electrify America believes that behind-the-meter storage can serve a larger role in wholesale markets via enhanced multiple-use application ("MUA") provisions under ESDER Phase 4 for Non-Generator Resources ("NGR"). Electrify America appreciates that the Working Group Meeting dedicated time to consider non-24x7 settlement of behind-the-meter NGRs. This letter serves to respond to stakeholder feedback discussed in the Working Group Meeting, reiterate Electrify America's perspective on the questions CAISO has posed regarding this matter, and request that CAISO address these concerns in their ESDER Phase 4 proposals.

Behind-the-Meter Technology Applications – Removal of 24x7 Participation requirement

As stated in the ESDER Phase 4 Issue Paper, NGRs in the CAISO market are 24x7 wholesale market resources irrespective of any dispatch instruction. For behind-the-meter electric storage resources in a NGR, this results in financial implications that can jeopardize the primary behind-the-meter application for which they were initially procured. Accordingly, many of these resources may elect not to participate in CAISO markets.

Electrify America appreciated the stakeholder discussion during the Working Group Meeting regarding how load serving entities ("LSE") should account for real-time market participation of NGRs in their load forecast if such resources only participate some of the time ("Question 1"), as well as how a utility distribution company ("UDC") would prevent settling a resource at a retail rate when a behind-the-meter NGR was participating in the wholesale market ("Question 2"). However, Electrify America was discouraged that not enough time was allocated to discuss on how such a resource would be prevented from charging at a wholesale rate and then discharging to provide retail or non-wholesale services ("Question 3"), which Electrify America believes is key to the overall discussion.

Specifically, in Electrify America's prior comment letter regarding the Straw Proposal, dated May 17, 2019, Electrify America proposed a solution for Question 3. As previously mentioned, Federal Energy Regulatory Commission ("FERC") Order 745 created a net benefits test ("NBT") to establish a minimum price threshold at which DR was determined to be cost-effective. Energy storage resources participating in DR, for example, may charge at a lower retail rate before being paid DR market compensation for behind-the-meter discharge to reduce load under current rules. In Electrify America's judgement, it would be consistent with this precedent to use the same NBT price threshold as a floor for MUA NGR bids to discharge battery storage resources, whether that is done only behind-the-meter or into the wholesale market. For MUA NGR bids for load consumption, this would result in capping bids to a value less than $0. In effect, this is the same framework approved for proxy demand resource - load shift resource ("PDR-LSR") in ESDER Phase 3, but extended such that the MUA NGR can also inject from behind the retail meter into the wholesale market when prices are at or above the net benefits test threshold, and without any symmetric dispatchability requirements.

Electrify America's proposed solution to Question 3 would adhere to CAISO's public mission to maintain reliability while promoting an accessible, cost-effective wholesale energy market. It would also follow established precedent from FERC Order 745 regarding resource dual participation in the retail and wholesale markets when market conditions merit such participation. Should a proposal similar to Electrify America's response to Question 3 be adopted, Question 1 regarding load forecasting would be an incremental problem to solve. Electrify America does not hold, in the short term, that load profiles would be meaningfully different compared to those of storage resources already participating in the PDR model by charging at retail rates and waiting to monetize load reduction when market prices cross the NBT threshold. In the future, Electrify America would anticipate an increase in storage resource ability, which would provide support to maintain lower market prices when the NBT threshold was reached (or to relieve congestion when below $0) due to removal of PDR restrictions based on site load and baselines, thus furthering CAISO's objectives. As stated in Electrify America's prior comments, California Public Utilities Commission ("CPUC") Decision 16-06-045 initially exempted DR resources from being evaluated using Load Impact Protocols ("LIPs") via a time-based limitation to avoid pre-judging the impact of such programs. Electrify America believes a similar exemption would be merited in this case, with further stakeholder discussions occurring should models already in place for PDR not be able to easily accommodate resources that could provide market support beyond the local meter.

Electrify America believes its proposal to limit wholesale market participation to above the NBT or below $0 would eliminate any economic or public interest rationale for market-interval level communication to LSEs regarding state-of-charge, operational configuration of retail versus wholesale, and intended market action (as discussed in the Working Group Meeting). Furthermore, a methodology to account for wholesale market participation would be straightforward in this case regarding Question 2, with CAISO sharing NGR sub-meter data only during market intervals where a dispatch was awarded to the UDC for settlement. Electrify America recommends against estimation methodologies to settle retail versus wholesale market activity, since a

construct like that could inadvertently penalize market participants with highly variable participation profiles and hinder their participation.

Electrify America encourages CAISO to adopt a proposal that removes the 24x7 settlement requirement in ESDER Phase 4. This action would encourage local regulatory authorities to change their rules and provide jurisdictional clarity to allow such a participation model to be implemented via CAISO/LSE data sharing, unlocking the ability for behind-the-meter storage resources to provide ratepayer and market value.

Demand Response Enhancements – Multiple Resource IDs under a Single Service Account

The Working Group Meeting did not address the issue of multiple resource IDs under a single service account.

As stated previously, multiple DR assets currently cannot participate independently in DR programs from behind the same retail meter/location. This limits participation in CAISO markets, especially as the penetration of DR-capable resources grows at a location, even if the capabilities of the newer DR assets exceed the "first" DR registration. For example, a thermostat already registered in a DR program may preclude an electric vehicle charger in the same household from participating in the market. Electrify America reiterates its request for CAISO to facilitate assignment of multiple resource IDs under a single service account in ESDER Phase 4 to allow participation of an electric vehicle supply equipment ("EVSE") embedded sub-meter in DR programs independent from the retail meter.

As stated during a previous workshop by multiple stakeholders and in Electrify America's previous comment letters, CAISO is already introducing multiple resource IDs under a single service account for the approved PDR-LSR mechanism under ESDER Phase 3, as well as allowing for different baseline methodologies to be applied to sub-metered EVSE load. Thus, the CAISO should be able to assign multiple resource IDs for different behind-the-meter resources that are sub-metered without the measurement and verification concerns it expresses. The implementation of this under ESDER Phase 4 by CAISO would encourage other relevant parties to allow such registration practices and thus facilitate greater participation in CAISO demand response markets.

Electrify America thanks CAISO again for this opportunity to comment regarding the ESDER Phase 4 Working Group Meeting and would be happy to further discuss any of the points raised in this letter.

Respectfully submitted,

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