Attachment A

Stakeholder Process: Energy Storage and Distributed Energy Resources Phase 3

Summary of Submitted Comments

Stakeholders submitted eight rounds of written comments to the ISO on the following dates:

- Round One: Issue Paper comments received 10/18/17
- Round Two: Issue Paper comments received 11/20/17
- Round Three: Issue Paper comments received 1/26/18
- Round Four: Straw Proposal comments received 3/7/18
- Round Five: Straw Proposal comments received 4/9/18
- Round Six: Revised Straw Proposal comments received 5/21/18
- Round Seven: Revised Straw Proposal comments received 7/6/18
- Round Eight: Draft Final Proposal comments received 7/27/18

Parties that submitted written comments: AMS (Advanced Microgrid Solutions), BMW of North America, Boston Energy, CDWR (California Department of Water Resources), CEDMC (California Efficiency and Demand Management Council), CESA (California Energy Storage Alliance), CHBC (California Hydrogen Business Council), CLECA (California Large Energy Consumers Association), CPUC (California Public Utilities Commission), DMM (Department of Market Monitoring), eMotorWerks, Engie Storage, joint DR parties (EnerNOC, CPower, and EnergyHub), joint EV parties (Chanje Energy, ChargePoint, EV Box, Siemens, and Volta Charging), NRG (NRG Energy Inc.), Nuvve Corp, Ohm Connect, Olivine, ORA (Office of Ratepayer Advocates), PG&E (Pacific Gas & Electric), PGE (Portland General Electric), SCE (Southern California Edison), SDG&E (San Diego Gas & Electric), Stem, Sunrun, Whisker Labs, WPTF (Western Power Trading Forum)

Stakeholder comments are posted at:
http://www.caiso.com/informed/Pages/StakeholderProcesses/EnergyStorage_DistributedEnergyResources.aspx

Other stakeholder efforts include:

- Issue Paper conference call, 10/12/17
- Issue Paper workshop, 11/6/17
- Issue Paper workshop, 1/16/18
- Straw Proposal conference call, 2/21/18
- Straw Proposal working group, 3/29/18
- Revised Straw Proposal conference call, 5/10/18
- Straw Proposal working group, 6/5/18
- Web conference, 6/25/18
- Draft Final Proposal web conference, 7/16/18

Joint CPUC Working Group meetings that informed ESDER3 stakeholder efforts include:

Multi Use Applications (MUA) Working Group Meetings (D.18-01-003)

- Workshop, 2/9/18
- Workshop, 3/5/18
- Workshop, 3/13/18
- Workshop, 3/28/18
- Workshop, 4/5/18
- Workshop, 4/20/18
- Workshop, 5/3/18
- Workshop, 5/17/18
- Workshop, 6/7/18
- Workshop, 7/23/18

Load Shift Working Group Meetings (D.17-10-017)

- Workshop, 2/28/18
- Workshop, 3/21/18
- Workshop, 4/18/18
- Workshop, 5/23/18
- Workshop, 6/19/18
- Workshop, 7/18/18

Management proposal	Generally or Conditionally Supports	Does not Support	Management response
New bidding and real-time dispatch options for PDR	All parties responded in favor of the new bidding and real-time dispatch options for PDR with the exception of a caveat from OhmConnect concerning the exclusion of counting PDRs as a local resource adequacy resource when utilizing the 15-minute bid option. DMM provides a reminder about previous comments they made on the ESDER 3 Straw Proposal regarding shortcomings of proxy costs for demand response resources and their ability to bid non-zero commitment costs. They also suggest offering the proposed bidding options to other types of resources that are not capable of responding to 5-minute dispatches and to develop a registration process for a resource to qualify to use the proposed bid options.		Management has developed a proposal that will utilize existing bidding options to accommodate for PDRs that cannot respond to 5-min dispatches. A majority of stakeholders generally support the proposal. OhmConnect points out that DR resources that elect to use the new 15-minute bidding option do not qualify for local resource adequacy (RA). When a contingency occurs, local RA resources must be available to respond and deliver energy based on an ISO dispatch instruction so that the system can be readjusted and ready for the next contingency within 30 minutes. In response to a contingency event, the ISO's first line of defense is to trigger its real time contingency dispatch (RTCD), which places the contingency reserves into the dispatch stack and dispatches resources that are able to respond in a single 10-minute interval. The ISO can also exceptionally dispatch resources in the local area that can respond in the time remaining so that the ISO operator can successfully reposition the system within the required 30 minutes. Given the 15-minute bidding option requires 22.5

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			minutes notification, PDRs electing this bidding option will not be committable and dispatchable in RTCD or respond in the short time horizon to reposition the system given the required operator assessment and manual intervention. Although PDR resources electing the 15-minute bid option cannot be considered as a local RA resource today, future market optimization enhancements (i.e., contingency modeling enhancements initiative) will open the door to explore the potential for these resources to qualifying for local RA once these enhancements are implemented. DMM's comments to address shortcomings in proxy costs for demand response resources will be addressed in the commitment cost and default energy bid enhancements (CCDEBE) initiative's implementation. Management had already received approval from the Board of Governors on March 22, 2018, in which it proposed that demand response resources will have the ability to submit estimated proxy costs unassociated with energy output but be subject to ISO auditing provisions to ensure that costs are based on a defined criteria submitted by the resource.

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			Additionally, in response to DMM's recommendation to allow for a wider set of resources that cannot respond to 5-minute dispatches, Management did not consider expanding the bidding options to other resources because it was out of scope for the initiative. In response to DMM's suggestion to develop a registration process for resources to qualify for the new bidding options, the ISO believes that resources will have sufficient market incentives to use the bidding option that aligns with the capabilities of the resource. However, the ISO will monitor the use of the new bidding options and consider developing a registration process if resources are found to not be appropriately using the new bidding options.
Removal of the single load serving entity aggregation requirement and the application of the default load adjustment	All parties that responded expressed strong support for the elimination of the single load serving entity aggregation and the default load adjustment.		Management has worked closely with stakeholders to develop the proposal to remove the single LSE requirement as well as provide empirical data in support of removing the DLA settlement mechanism and replacing it with a bidding requirement to ensure that demand response resources are net beneficial to the system. All stakeholders that have responded strongly support the proposal.
Load shift product for behind the	While some parties fully support the load shift product for behind the meter		Management has closely considered all recommendations and is

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meter energy storage	storage, many support with stipulations or recommendations. Stem, CESA, and Olivine express concern for the performance measurement of load curtailment and load consumption typical use calculation. Stem believes the load-curtailment MGO methodology should account for energy storage that takes place during non-event hours as opposed to only accepting values at or above 0. CESA supports Management's proposal under the condition that ISO staff continue to gain operational experience and monitor that the performance evaluation methodology accurately captures the value of load consumption/curtailment a BTM battery storage provides to the ISO. Additionally, Olivine believes the 15-minute interval baseline calculation is overly complex and provides only a marginally more accurate way to determine battery discharge absence of the event. Olivine has general reservation of splitting one physical resource into two independent resource IDs. DMM has made several suggestions to minimize the occurrence of		proposing a performance evaluation methodology that accurately represents the dynamic nature of a BTM energy storage device while considering its ability to provide energy services to the customer when it is not providing services to the ISO (multi-use applications). Management's specific comment to Stem's concern is detailed in the memorandum, but in summary, Management believes that the current performance evaluation methodology recognizing the resources' typical use prevents a perverse incentive for BTM battery storage to charge and discharge at times opposite to system grid needs. In response to Olivine's comment on the 15-minute interval baseline calculation, Management is proposing to move forward with the need for more granular intervals because of a battery's dynamic ability to charge and discharge. In order to accurately capture the incremental value a battery storage device is providing to the ISO, the calculation must account for the values on a 15-minute interval basis. In response to Olivine's general reservations of a two resource ID model, Management believes the specific bidding rules as well as

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	conflicting dispatches of two resource IDs. PG&E suggests a 2-hour buffer before and after an event to help minimize baseline bias in the typical use calculation. Lastly, several stakeholders including CEDMC, CDWR, Ohm Connect, BMW, and joint EV charging parties suggest allowing more PDR-LSR products to participate. And while DMM supports the concept of the BTM participation model, they foresee that the existing PDR construct may constrain the integration of diverse DER and therefore suggest more flexible participation models in the near future.		identifying specific requirements for both resource IDs within MasterFile will support the successful implementation of the PDR-LSR. PG&E's suggestion stems from a traditional demand response baseline which calculates "event days" in which an adjustment period is needed before and after an event to prevent baseline bias. Adjustment periods are applied to account for weather-sensitive load and calibrated to match actual usage patterns in the hours leading up to an event. Management does not believe the adjustment is needed in the baseline of a battery storage device because of the use of a more granular 15-minute interval data as well as the lack of weather sensitivity in comparison to traditional load curtailment. In response to several stakeholders suggesting to allow for a wider group of technologies to participate in PDR-LSR, Management has acknowledged that the current model is an initial step towards consideration of a technology agnostic path. Management believes that operational experience and analysis of the impact of the PDR-LSR and ensuring the ability to provide favorable load shift must be

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			observed before allowing for a wider participation of demand response resources. Additionally, in parallel with the ESDER 3 initiative, ISO staff has actively participated in the CPUC's load shift working group established to develop a series of possible market-integrated or market-informed "products" for demand response load shift by a CPUC decision (D.17-10-017). Proposed products will consider all demand response technologies' load shift capabilities.
Performance evaluation methodology for behind the meter electric vehicle supply equipment load curtailment	Most parties are in support, though some with caveats. Olivine raises the question of whether an EVSE baseline can combine with MGO as a single resource which would require several performance methodologies. PG&E states that they support the proposal as long as a DRP for the EVSE provides attestation to not move load during a DR dispatch event.	SCE is opposed to the EVSE sub-metering proposal due to the potential that the resource would not provide the full load drop to the system.	Management has developed a proposal recognizing load curtailment achieved through electric vehicle charge management, separate from the host facility load performance, through a sub-metered EVSE. SCE is the only stakeholder that opposes the proposal. In response to SCE, Management has closely considered comments from all stakeholders through multiple forums, and disagrees with SCE on the likelihood of EVSEs not providing load curtailment in response to an ISO dispatch. To address this and other stakeholder concerns, Management has included a provision where the DRP will submit

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			an attestation in the performance evaluation registration process, committing to not displace their load drop from the EVSE during a demand response dispatch event. Additionally, the ISO reserves the right, under current tariff authority for scheduling coordinator metered entities, to request additional data to support the submission of performance data from these resources. In response to a comment by Olivine, a PDR could have the building, the EVSE, and a battery storage device participate under a single PDR resource ID at a facility served under a single utility service account. In this situation, the PDR scheduling coordinator will be able to separately calculate the performance of the building, the sub-metered EVSE, and a battery storage device using the appropriate ISO-approved performance evaluation methodologies to determine the final load curtailment performance value, so long as the performance evaluation methodologies are appropriately registered with the ISO and associated with the same PDR resource ID.