BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Refinements, and Establish Annual Local Procurement Obligations.	R.11-10-023 Filed October 20, 2011

REPLY COMMENTS OF IMERGY POWER SYSTEMS, INC., PRIMUS POWER, ZBB ENERGY CORPORATION, ENERVAULT CORPORATION AND UNIENERGY TECHNOLOGIES, LLC ON ENERGY DIVISION PROPOSALS

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March 3, 2014

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IMERGY POWER SYSTEMS, INC., PRIMUS POWER, ZBB ENERGY CORPORATION, ENERVAULT CORPORATION AND UNIENERGY TECHNOLOGIES, LLC ON ENERGY DIVISION PROPOSALS

Imergy Power Systems, Inc. ("Imergy"), Primus Power ("Primus"), ZBB Energy Corporation ("ZBB"), EnerVault Corporation ("EnerVault") and UniEnergy Technologies, LLC ("UET" and, together with Imergy, Primus, ZBB and EnerVault, the "Joint LDES Companies")[1] hereby submit these reply comments pertaining to the Staff Proposal Outline on Qualifying Capacity and Effective Flexible Capacity Calculation Methodologies for Energy Storage and Supply-Side Demand Response Resources, dated January 16, 2014 ("Staff ES Proposal Outline") and the related workshop held in this proceeding on January 27, 2014 pursuant to Administrative Law Judge Gamson's February 4, 2014 email Ruling.

I. INTRODUCTION

The Joint LDES Companies appreciate this opportunity to respond to parties' opening comments relating to Effective Flexible Capacity ("EFC") requirements. As stated in their joint opening comments,[2] the Joint LDES Companies believe that based on current data and analysis, a

[1] The Joint LDES Companies filed a joint motion for party status in this proceeding on February 18, 2014, which is currently pending approval.
[2] Post-Workshop Comments of Imergy Power Systems, Inc., Primus Power, ZBB Energy Corporation, EnerVault

minimum of three hours of continuous discharge from energy storage (ES) is in alignment with the expected operation of the California energy market. The Joint LDES Companies agree with the Staff ES Proposal Outline and the comments of the California Energy Storage Alliance ("CESA") and other parties that EFC should incorporate ES charging, but maintain that to meet grid needs, the facility must be capable of charging for a minimum of three hours.

II. MINIMUM THREE HOUR CHARGING AND MINIMUM THREE HOUR DISCHARGING PERIODS FOR EFC QUALIFICATION ALIGN WITH MARKET NEED.

The Joint LDES Companies agree with the views expressed in the opening comments filed by CESA, Green Power Institute and Southern California Edison ("SCE") to the extent that they argue that EFC should not be limited to four hours of discharge.[3] A three-hour, rather than four-hour, minimum discharge requirement is supported by the Energy Division's February 10, 2014 flexible capacity proposal.[4] This view is also supported by CAISO, which endorsed a minimum three-hour discharge requirement in its February 7, 2014 Draft Final Proposal on Flexible Resource Adequacy Criteria and Must-Offer Obligation.[5]

The Joint LDES Companies also support CESA's argument and the perspectives expressed in the opening comments of San Diego Gas & Electric Company ("SDG&E"), the Sierra Club and

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Corporation and UniEnergy Technologies, LLC on Energy Division Proposals (February 18, 2014) ("Joint LDES Companies Opening Comments").

[3] *See* Comments of the California Energy Storage Alliance on Assigned Administrative Law Judge's Ruling and Energy Division Proposals (February 18, 2014) ("CESA Opening Comments") at 3; Comments of the Green Power Institute on Workshops and Energy Division Proposals (February 18, 2014) at 2; Southern California Edison Company's (U-338-E) Post-Workshop Comments (February 18, 2014) ("SCE Opening Comments") at 11-12.

[4] Staff Proposal on the Implementation of the Flexible Capacity Procurement Framework (February 10, 2014) at 6.

[5] Flexible Resource Adequacy Criteria and Must-Offer Obligation, Market and Infrastructure Policy Draft Final Proposal, February 7, 2014, at 38, *available at*: http://www.caiso.com/Documents/DraftFinalProposal-FlexibleResourceAdequacyCriteriaMustOfferObligation.pdf; *see also* Karl Meeusen, Ph.D., CAISO Market Design and Regulatory Policy Lead, "Flexible Resource Adequacy Criteria and Must Offer Obligation" (February 13, 2014) slide 13, *available at*: http://www.caiso.com/Documents/AgendaPresentation-FlexibleResourceAdequacyCriteria-MustOfferObligation.pdf.

Vote Solar that dispatchable load/ES charging should contribute to EFC.[6] The Staff ES Proposal Outline correctly notes that "these operational modes can address ramping needs"[7] and the Joint LDES Companies agree that placing a value on charging capability is critical to meeting the grid's flexibility needs and flattening the oft-cited "duck curve."

The Joint LDES Companies disagree, however, with the opinion expressed by CESA that 1.5 hours of discharge combined with 1.5 hours of charge is sufficient to meet grid needs for EFC.[8] SCE's recommendation for development of a new category that includes ES resources capable of discharging for a minimum of two hours is also likely premature.[9] Instead, current data supports a minimum of three hours of sustained charge and three hours of sustained discharge to satisfy ramping needs. This requirement for EFC would be consistent with D.13-06-024, in which the Commission defined "flexible capacity need" as:

> the quantity of resources needed by the California ISO to manage grid reliability during the greatest three-hour continuous ramp in each month. Resources will be considered as "flexible capacity" if they can sustain or increase output, or reduce ramping needs, during the hours of the ramping period of "flexible need.[10]

CAISO agrees that flexibility is needed during the critical three hour net load ramp (i.e the "duck's neck") and that resources must be able to sustain or increase output when this flexibility is needed in order to be considered flexible capacity.[11] A minimum three hour duration requirement is also consistent with the Resource Adequacy and Flexible Capacity Procurement Joint Parties' Proposal

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[6] CESA Opening Comments at 1; Opening Comments Of San Diego Gas & Electric Company (U-902-E) On Phase 3 Resource Adequacy Issues (February 18, 2014) at 4-5; Sierra Club and Vote Solar Opening Comments on Staff Proposals and Workshop (February 18, 2014) at 2-3.
[7] Staff ES Proposal Outline at 5.
[8] *See* CESA Opening Comments at 3.
[9] *See* SCE Opening Comments at 11.
[10] D.13-06-024 at 2.
[11] CAISO, Demand Response and Energy Efficiency Roadmap: Maximizing Preferred Resources (December 2013) at 13, *available at*: http://www.caiso.com/Documents/DR-EERoadmap.pdf. The Joint LDES Companies also note that, in the NYISO market, Con Edison seeks to impose a minimum 4 hour duration requirement for energy storage incentives based on market need.

filed by SCE and SDG&E (the "Joint Parties' Proposal").[12] The Joint Parties' Proposal stated that

> After analyzing various possible flexible characteristics, the Joint Parties determined that three-hour ramping capabilities offered the best single characteristic to ensure the ISO could meet its ramping and contingency needs and enable a large pool of resources to qualify as flexible capacity resources. Therefore, the Joint Parties recommend that a resource must be able to ramp *and* sustain energy output for a minimum of three hours.

The Joint Parties' Proposal went on to say that "Resources that are not able to sustain output for three hours may create additional ramping challenges for the ISO. For example, meeting a steep three hour ramp could be exacerbated by relying on a resource that is only able to produce energy for 60 minutes and no longer.[13] In its Decision, the Commission found that the Joint Parties' Proposal could "serve as a foundation for a flexible capacity program" and adopted the three hour minimum for the 2014 flexible procurement requirements.[14] This point was also illustrated in the opening comments filed by MegaWatt Storage Farms, Inc., which argued that 1.5 hours of storage dispatch is unlikely to meaningfully impact the increasingly steep three hour net load ramp.[15]

Based on current data, adopting a discharge period of less than three hours would be inefficient from both a capital deployment and an operational performance perspective. Adding numerous shorter-duration resources to the grid will lead to externalities such as operational complexity and associated costs, and could place system reliability at risk.[16] Based on available evidence, EFC criteria should include a minimum of three hours' duration for both charging and discharging. This requirement is consistent with California's currently-established market need.

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[12] Phase 2 Scoping Memo And Ruling Of Assigned Commissioner And Administrative Law Judge (December 6, 2012) Attachment A at 12; D.13-06-024 at 16 (reciting proposed requirement in the Joint Parties' Proposal that "For resources, 'flexibility' means the resource must be able to ramp up or sustain output for 3 hours.").

[13] Joint Parties' Proposal at 12, n.12.

[14] D.13-06-024 at 64 (Finding of Fact 17), Appendix A at A2.

[15] Comments of MegaWatt Storage Farms, Inc. on the January 24, 2014 Workshop Staff Proposals (February 18, 2014) at 3-4.

[16] For example, duplicate interconnections and resulting complexities both in terms of interconnection and scheduling would result from aggregating numerous shorter duration resources.

III. CONCLUSION

The Joint LDES Companies appreciate the opportunity to submit this reply to opening comments relating to the Staff ES Proposal Outline and the related workshop. In summary, the Joint LDES Companies submit that minimum continuous three hour charge and discharge periods should be required for EFC qualification.

Respectfullysubmitted,

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Date: March 3, 2014