

**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

**COMMENTS ON PROPOSED DECISION OF
IMERGY POWER SYSTEMS, INC., PRIMUS POWER, ZBB ENERGY
CORPORATION, ENERVault CORPORATION
AND UNIENERGY TECHNOLOGIES, LLC**

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Imergy Power Systems, Inc., Primus Power, ZBB Energy Corporation, EnerVault Corporation and UniEnergy Technologies, LLC (the “Joint LDES Parties”) hereby submit these comments on the Proposed Decision of Administrative Law Judge Gamson Adopting Local Procurement and Flexible Capacity Obligations for 2015, and Further Refining the Resource Adequacy Program (“Proposed Decision”).

The Joint LDES Parties applaud the Proposed Decision’s adoption of mandatory flexible capacity requirements beginning in 2015. California’s need for flexible ramping resources exists now and is projected to increase dramatically in the future, and these procurement requirements will enable the state to be ready to meet these reliability needs. We also support Section 5 of the Proposed Decision, regarding Qualifying Capacity and Effective Flexible Capacity for Energy Storage and Supply-Side Demand Response Resources. We note, however, that Appendix B to the Proposed Decision contains some elements that are inconsistent with the reasoning of the Proposed Decision, and Appendix B should therefore be modified or eliminated to properly reflect the

Proposed Decision and the record in this proceeding. These points are discussed in greater detail below.

I. The Proposed Decision Correctly Imposes Mandatory Flexible Capacity Requirements Starting in 2015

In D.13-06-024, the Commission found that the California Independent System Operator (“CAISO”) demonstrated that there will be a need for flexible capacity for years 2015 through 2017 and resolved to commence the mandatory flexible capacity procurement program in 2015.¹ According to the CAISO in its comments filed in this docket on April 18th, “[t]hat was a sound decision then, and it remains the most prudent and appropriate course and timing of action now.”² CAISO’s “duck chart” continues to demonstrate the grid’s pressing need for flexibility on a daily basis.³ CAISO has stated that it is “*already* experiencing operational challenges in balancing generation and load during both the morning and evening ramps” and that “[t]hese challenges will only increase in the upcoming years.”⁴ According to CAISO, “[g]iven these undeniable circumstances, there is a clear need to set a binding requirement for flexible capacity *now*.”⁵

The Proposed Decision is therefore supported by the record to this proceeding in imposing mandatory flexible capacity requirements beginning in 2015. California needs to implement a flexible capacity procurement framework now so that flexibility markets are functioning and ready once ramping needs are even greater. The Joint LDES Parties agree with the finding in the

¹ D.13-06-024 at 3, 42, 43, 66-77 (Conclusions of Law 7-9, 12), 69 (Ordering Paragraph 5).

² CAISO Comments on April 9, 2014 Workshop Presentations and Proposals on Flexible Capacity and Resource Adequacy (April 18, 2014) (“CAISO Workshop Opening Comments”) at 2.

³ CAISO Workshop Opening Comments at 2; CAISO, “What the Duck Curve Tells Us About Managing A Green Grid”, *available at*:

http://www.caiso.com/Documents/FlexibleResourcesHelpRenewables_FastFacts.pdf.

⁴ CAISO Workshop Opening Comments at 3 (emphasis added).

⁵ CAISO Workshop Opening Comments at 2 (emphasis added). The IOUs have not disagreed with the adoption of a mandatory flexible capacity requirement in 2015.

Proposed Decision that “[f]illing the need for flexibility in order to ensure reliability provides an important benefit to ratepayers.”⁶ As the Commission stated in D.13-06-024, “it is necessary to take proactive steps now to ensure that system needs are available to ensure safe and reliable service.”⁷

We commend the Proposed Decision for taking these needed steps.

II. The Proposed Decision Correctly Rejects a 45 Minute Break Between Charging and Discharging

The Joint LDES Parties agree with the determination in the Proposed Decision to reject the proposed 45 minutes of transition time between negative and positive operational modes under the EFC rules.⁸ As CAISO has argued, this downtime could have unforeseen reliability impacts on California’s grid and CAISO needs more time to study these potential operational impacts.⁹ Moreover, as we argued in comments filed in response to the staff proposal on this issue, this nonoperational transition time should certainly not count towards meeting a resource’s three hour output requirement.¹⁰ The Proposed Decision is well supported by the record in disallowing transition time for flexible capacity resources.

III. Appendix B Should Be Modified or Eliminated to Reflect the Contents of the Proposed Decision and Grid Needs

The record amply supports the Proposed Decision’s conclusion that “there is insufficient

⁶ Proposed Decision at 62 (Finding of Fact # 12).

⁷ D.13-06-024 at 42.

⁸ Proposed Decision at 68 (Conclusion of Law # 18).

⁹ CAISO Comments on April 9, 2014 Workshop Presentations and Proposals on Flexible Capacity and Resource Adequacy (April 18, 2014) at 22; CAISO Reply Comments on April 9, 2014 Workshop Presentations and Proposals on Flexible Capacity and Resource Adequacy (April 25, 2014) at 5-6.

¹⁰ Post-Workshop Comments of Imergy Power Systems, Inc., Primus Power, ZBB Energy Corporation, Enervault Corporation and UniEnergy Technologies, LLC on Revised Energy Division Proposals (April 18, 2014) (“Joint LDES Opening Comments on Revised Staff Proposals”) at 5-6.

evidence of reliability impacts to change the current three hour durational requirement for Flexible RA at this juncture.”¹¹ We agree that “System, Local and Flexible RA eligibility requirements should remain consistent across all resource types,” and that such eligibility requirements must include “the ability to operate for at least four consecutive hours at maximum power output ($P_{max_{RA}}$), and to do so over three days.”¹² Appendix B to the Proposed Decision correctly retains the definition of flexibility established in D.13-06-024: “the ability to ramp and sustain output over three hours.”¹³ The EFC Framework principle that all Flexible RA resources must also qualify as System RA resources is well supported by the record. We also applaud the Proposed Decision for finding that negative/charging operational modes should qualify for EFC because they address overgeneration and ramping needs.¹⁴

Yet, Appendix B diverges from these clear principles established by the Commission by retaining the staff proposal to permit bidirectional resources to “meet the three-hour ramping requirement for flexibility by charging (or increasing demand) for the first half of the three-hour ramp and then discharging at or above $P_{max_{RA}}$ for the remainder of the ramp.”¹⁵ This perplexing proposal is not supported by the reasoning of the Proposed Decision or by the record of this docket. To the contrary, the Joint LDES Parties, MegaWatt Storage Farms and Calpine have commented repeatedly that this methodology is inconsistent with system needs for flexible capacity during the

¹¹ Proposed Decision at 33.

¹² Proposed Decision, Appendix B at B-2.

¹³ Proposed Decision, Appendix B at B-11.

¹⁴ Proposed Decision, Appendix B at B-10.

¹⁵ *Id.*, Appendix B at B-18. As discussed below, it is important to highlight that 1.5 hours of ramping discharge is equal to .75 hours of constant power discharge in terms of energy dispatched, while 1.5 hours of ramping charge is equal to .75 hours of constant power charge in terms of energy stored. Thus, a 1.5 hour resources is effectively a 45 minute resource.

grid's expected at least three hour upward and downward ramps.¹⁶ As demonstrated in this proceeding, a minimum of three hours of duration (either three continuous hours of charging or three continuous hours of discharging) aligns with the expected ramping needs of the grid during these three hour windows.¹⁷ Adopting a discharge period that is effectively one-quarter of the length of the three hour period needed¹⁸ could lead to the acquisition of multiple, overlapping resources capable of meeting discharge needs only in the aggregate. As we have discussed in comments, this type of procurement is inefficient, leads to operational challenges, and will increase costs unless sufficiently internalized into procurement pricing.¹⁹

Moreover, as discussed in our prior comments and those of Megawatt Storage Farms, smaller increments of flexible capacity duration under a ramping scenario provide on average only a quarter of the output in MWh as longer resources, providing reduced flexibility services.²⁰ The

¹⁶ See, e.g., Post-Workshop Comments of Imergy Power Systems, Inc., Primus Power, ZBB Energy Corporation, Enervault Corporation and UniEnergy Technologies, LLC on Energy Division Proposals (February 18, 2014) (“Joint LDES Opening Comments on Staff Proposal”) at 4-6; Comments of MegaWatt Storage Farms, Inc. on the January 24, 2014 Workshop Staff Proposals (February 18, 2014) (“MegaWatt Comments”); Reply Comments of Imergy Power Systems, Inc., Primus Power, ZBB Energy Corporation, Enervault Corporation and UniEnergy Technologies, LLC on Energy Division Proposals (March 3, 2014) (“Joint LDES Reply on Staff Proposals”); Joint LDES Opening Comments on Revised Staff Proposals at 3-4; Comments of MegaWatt Storage Farms, Inc. on the April 9, 2014 Workshop Staff Proposals (April 18, 2014); Reply Comments of Calpine Corporation on Energy Division Proposals Addressing Resource Adequacy Implementation (March 3, 2014) at 2-3.

¹⁷ See Joint LDES Opening Comments on Staff Proposal at 5, n.3 (citing Presentation of Mark Rothleder, Vice President of Market Quality and Renewable Integration, CAISO, on Long Term Resource Adequacy Summit, February 26, 2013, at 3, available at http://www.caiso.com/Documents/Presentation-Mark_Rothleder_CaliforniaISO.pdf).

¹⁸ See *supra* note 15.

¹⁹ See, e.g., Joint LDES Opening Comments on Staff Proposal at 6.

²⁰ Joint LDES Opening Comments on Revised Staff Proposals at 4, note 8 (explaining that three hours of sustained dispatch, whether charging or discharging, at 4 MW would equal 12 MWh of flexibility provided to the grid, whereas ramping from -4MW to 0MW over 1.5 hours would equal 3 MWh of flexibility services).

Proposed Decision aptly concludes that there is a lack of evidence to support a change to the three hour durational requirement.²¹ Aggregation of charging time plus discharging time does not address critical grid needs. Appendix B to the Proposed Decision should therefore either be revised or eliminated altogether to correct the inconsistency.

Second, these rules are extremely complex, and we remain concerned that such complexity will not support strong, effective flexibility markets.²² EFC market rules should be sufficiently simple and clear that they can be understood, interpreted and applied by LSEs, flexible capacity providers and regulators. As we argued in our previous comments on this proposal, this system could incentivize market gaming, and result in increased costs and possible reliability issues.²³ As with the Staff Proposal, Appendix B does not define “operate” or “energy output,” and so it is unclear whether these terms refer only to discharging, discharging or charging, or a combination of charging and discharging.

Thus, the Commission should correct or delete Appendix B in its final decision on this matter to clarify that a resource that operates in both the negative and positive ranges cannot aggregate the average charging power (e.g., $P_{max}/2$) hours with the average discharging power (e.g., $-P_{max}/2$) hours to meet the three hour discharge minimum at rated power (P_{max}) required for RA eligibility. As stated in the Proposed Decision, there is “insufficient evidence of reliability impacts to change the current 3 hour durational requirements for Flexible RA at this juncture.”²⁴ Appendix B should either be revised to provide that bidirectional resources can provide Flexible

²¹ Proposed Decision at 33.

²² See Joint LDES Opening Comments on Revised Staff Proposals at 2 (describing “Rube Goldberg” level of complexity in the EFC rules for energy storage).

²³ *Id.* at 2-3.

²⁴ Proposed Decision at 33.

RA by providing either 3 hours of continuous charging or 3 hours of continuous discharging or it should be deleted altogether. This change would bring Appendix B into conformity with the reasoning of the body of the decision, the Commission's definition of flexibility and System RA requirements, and the needs of California's grid.

IV. The System Costs of Aggregating Multiple Resources to Qualify for System RA Must Not be Borne by Ratepayers

The Proposed Decision permits energy storage resources within a single Sub-LAP to be aggregated in order to form an RA-eligible resource.²⁵ As argued in our prior comments, the costs associated with such aggregation, such as voltage support and other system costs associated with aggregating and managing multiple resources should be factored in to procurement pricing and made transparent to ratepayers and regulators.²⁶

V. Conclusion

The Joint LDES Parties appreciate the opportunity to provide these comments on the Proposed Decision. We thank the Commission for its hard work in establishing the flexible capacity framework, and recommend the changes set forth above in order to ensure that the program successfully fulfills California's critical ramping needs (and thus its renewable and greenhouse gas objectives) at a reasonable cost to ratepayers.

²⁵ Proposed Decision, Appendix B at B-24.

²⁶ Joint LDES Post-Workshop Comments at 6; Joint LDES Opening Comments on Revised Staff Proposals at 5.

Respectfully submitted,

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