

**Comments of the
California Energy Storage Alliance (CESA) on the
RA Enhancements Issue Paper**

| Submitted by | Organization | Date Submitted |
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Introduction:

CESA offers these comments on the RA Enhancements Issue Paper, issued on October 22, 2018. CESA appreciates the opportunity to comment and looks forward to working with the CAISO on these important issues.

CESA Comments:

CESA supports an assessment and tuning exercise for the set of Resource Adequacy rules jurisdictional to the CAISO. As always, input and alignment with the CPUC will be important where appropriate. RA is an important tool for ensuring the fleet of ‘generation’ resources available to the CAISO is sufficient to run the grid reliably for the applicable period, e.g. a month or year. Whereas the historical fleet relied on an array of traditional fossil resources, the California grid is evolving towards a different fleet, including Variable Energy Resources (VERs) and energy storage. This transition highlights two important goals for the RA program. First, it should ensure that the transition between the ‘old fleet’ and the newer one is smartly managed. Second, it should provide an ongoing market signal about the *types and capabilities* of capacity that are valued. To do the latter, the CAISO should ensure its suite of RA products, in line with CPUC RA rules and designs, directs the right amount of fast flexibility, renewables integration, renewables storage, etc.

CESA understands the CAISO must manage the grid reliably, including with dispatches designed to address potential contingency conditions, e.g. a downed transmission line. The CAISO’s need to resource-plan for contingency conditions highlights that the RA tool in and of itself may not fully target all the grid needs, nor should RA necessarily do this. Historically, this was addressed, at



least in local procurement, through the CAISO's backstop where in the CAISO could review if the local RA fleet that was shown through LSE filings sufficiently addressed reliability needs. Notably, the backstop was done after the RA 'market' had occurred. Parties recognized that the market solution could be imperfect and so limited backstop might occur. Backstops can be inefficient from a market stand-point, and so generally should be pursued only in rare cases. Ideally, an up-front suite of market products can ensure the fleet shown via RA is sufficient in most reasonable cases.

As the CAISO explores how and if to use the RA tool to meet local or sub-local areas, including contingency conditions, CESA strongly asserts that the CAISO should avoid an approach that caps the amount of energy storage. Instead, the CAISO should define its needs and allow for resources, including storage, to address those needs. After all, the CAISO's is tasked with providing nondiscriminatory access.

As an example, if the CAISO sees an n-2 contingency risk it must plan for in a load sub-pocket, and the contingency condition could require 10-hours of energy duration from a resource solving the problem, the CAISO should define the need and allow resources to solve the problem. CESA will oppose an approach that limits storage categorically after some 'bucket limit' is met. However, CESA could support an approach that indicates there is no further need for x-hour in energy duration resources but instead there is a need for Y MW of z-hour resources. By this approach, the CAISO allows all resources capable of solving the problem to compete in a solicitation to identify the least-cost, best-fit solution.

As alluded to in the Issue Paper, the Moorpark and Santa Clara studies provide good examples of hourly load and resource analysis that can inform subsequent solicitations to identify resources capable of solving the problem at least cost. This approach is important because most use-limitations can be overcome by increasing capacity. For example, a 4-hour 10 MW storage unit can become an 8-hour 10 MW resource by doubling capacity. Obviously, cost and other factors may be an issue, but CESA believes that cost-effectiveness is best determined in competitive solicitations. This example shows how the CAISO should seek to avoid limiting the scope of solutions based on up-front cost-estimates where practicable because such cost estimates may not reflect the actual costs of solutions developed to meet the hourly reliability needs. In some cases, factoring in other revenue streams that might be available to those resources could lead to lower costs than those seen by the CAISO.

CESA also recommends that the CAISO incorporate select elements of FRACMOO into this initiative, as these elements fit with the concept and scope of RA Enhancements. Specifically, the CAISO should delay no further on the following: complete the unbundling proposal of flexible RA and system RA deliverability studies and RA counting, explore development of a stand-alone flex deliverability study. As part of these efforts, CESA reminds the CAISO that CESA strongly supports, and sees compelling logic, for counting the flexibility of energy storage as the full range from charge to discharge. The CAISO should not limit real-time storage flexibility to some 'instantaneous max' measurement, which understates the flexibility of energy storage and



unreasonably harms the valuation for flexibility of energy storage vis-a-vis that of a gas plant. *Primum non nocere*. CESA commented at length on this matter previously in the FRACMOO2 process.¹ Like conventional generators, storage should be counted for fully for its generation and load capabilities (charge to discharge) based on its ability to meet the specified ramps.

Additionally, CAISO should expand its RA Enhancements scope to address more hybrid resources, rather than just hybridized fast and slow Demand Response (DR). CESA has highlighted that several key hybrid configurations are being developed and need RA values forthwith. Some such configurations are occurring in Municipal utility territories that may or do participate in the Energy Imbalance Market (EIM), so accurate valuation of these resources can inform the CAISO's EIM Resource Sufficiency tests. These hybrid configurations include gas plus storage resources, solar plus storage, and wind plus storage, in addition to DR and storage. As the CAISO has jurisdiction to set these 'counts' for many non-CPUC areas, the CAISO needs to develop rules and approaches for this. This matter is urgent and important. The CAISO should prioritize it within this RA Enhancements initiative, and the staff and team on the RA enhancements initiative seems well-positioned to understand and assess this important matter. Importantly, the CAISO should set its provisions so they work not just for resources interconnecting as hybrids but also for retrofits to hybridize resources, in some cases without going through the interconnection queue again where applicable and safe. Further, more specificity is needed with regards to metering and resource ID options and EIRP status authorization for hybrid-VERs.

The CAISO should include in scope the development of rules for RA related to exports from behind the meter (BTM) distributed energy resources (DERs). In some cases, these resources have no path to be valued as RA. CESA believes this is a topic of growing significance as DERs continue to proliferate, and the inability of BTM storage resources to access RA markets leaves a growing volume of installed storage capacity potentially under-utilized relative to its generation or load-modifying capabilities. While CESA does not prejudge the outcome of any consideration of DER RA value, it seems prudent and reasonable for an RA Enhancements initiative to review this category of resource. Note that resources using the Distributed Energy Resource Provider (DERP) model have no RA eligibility, which seems unrealistic.

Finally, respectfully, CESA sees the CAISO's plans to extend its CPM or RMR authority into the future as out of scope at this time. Extension of these backstop procurement authorities is not required as part of having a multi-year CPUC jurisdictional RA program. Instead, a multi-year program should reduce the need for backstop in some cases. Further, in multiple cases, the CPUC and Investor-Owned Utility projects have shown that energy storage resources can be deployed extremely quickly, e.g. in less than 8 months. The ability to install energy storage solutions can potentially obviate the need for an expansion of the CPM authority, as CESA understands it. This issue may also overlap with the mis-match between the RA products and the CAISO's more specific contingency planning needs (e.g. for 10 hours of storage in a particular sub-local area, or

¹ Comments of CESA, pg. 1. <http://www.aiso.com/Documents/CESAComments-SecondRevisedDraftFlexibleCapacityFramework.pdf>



a transmission constrained area). The CAISO should clarify what problems it seeks to solve before embarking on an extension of backstop authority.

In conclusion, CESA recommends the scope should be adjusted as follows:

- Expand scope to include RA counts and RA offer and other rules for Hybrid Resources
- Expand scope to include components of FRACMOO2, including the unbundling of flex and local RA along with the stand-alone flex-only deliverability study
- Expand the scope to further consider Flex RA counting rules for storage resources
- Expand scope to explore how the CAISO will address contingency condition based on local RA needs and if RA is the proper tool for meeting these needs
- Expand scope to include development and authorization of RA counts and eligibility for exports from behind-the meter DERs.
- Remove from scope any use of 'buckets' from the scope and instead establish rules for non-conventional RA needs for cases where the RA tool may be leveraged but would be defined differently.
- Remove or defer from scope any expansion of CPMs or RMRs to be 'multi-year' backstops.

About CESA:

CESA is an industry advocacy association focused on grid-connected energy storage. CESA's mission is to make energy storage a mainstream resource that accelerates the adoption of renewable energy and promotes a cleaner, more efficient, reliable, affordable, and secure electric power system. The CAISO's ESDER initiative specifically addressed market participation pathways for energy storage in select applications and is a core priority of CESA's.

CESA is a 501(c)(6) non-profit that represents over 70 member-companies and leaders in the energy storage industry.² www.storagealliance.org.

² 8minutenergy Renewables, Able Grid Energy Solutions, Advanced Microgrid Solutions, AltaGas Services, Amber Kinetics, American Honda Motor Company, Inc., Axiom Exergy, Brenmiller Energy, Bright Energy Storage Technologies, Brookfield Renewables, Carbon Solutions Group, Centrica Business Solutions, Consolidated Edison Development, Inc., Customized Energy Solutions, Dimension Renewable Energy, Doosan GridTech, Eagle Crest Energy Company, East Penn Manufacturing Company, Ecoult, EDF Renewable Energy, ElectrIQ Power, eMotorWerks, Inc., Enel, Energport, ENGIE, E.ON Climate & Renewables North America, esVolta, Fluence Energy, GAF, General Electric Company, Greensmith Energy, Ingersoll Rand, Innovation Core SEI, Inc. (A Sumitomo Electric Company), Iteros, Johnson Controls, Lendlease Energy Development, LG Chem Power, Inc., Lockheed Martin Advanced Energy Storage LLC, LS Power Development, LLC, Magnum CAES, Mercedes-Benz Energy, NantEnergy, National Grid, NEC Energy Solutions, Inc., NextEra Energy Resources, NEXTracker, NGK Insulators, Ltd., NRG Energy, Inc., Parker Hannifin Corporation, Pintail Power, Primus Power, Range Energy Storage Systems, Recurrent Energy, Renewable Energy Systems (RES), Sempra Renewables, Sharp Electronics Corporation, SNC Lavalin, Southwest Generation, Sovereign Energy, Stem, STOREME, Inc., Sunrun, Swell Energy, True North Venture Partners, Viridity Energy, VRB Energy, Wellhead Electric, and Younicos. The views expressed in these Comments are those of CESA, and do not necessarily reflect the views of all of the individual CESA member companies. (<http://storagealliance.org>).