Stakeholder Comments Template

Submitted by	Company	Date Submitted
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Introduction:

The California Energy Storage Alliance (CESA)[1] appreciates the opportunity to comment on the FRACMOO Supplemental Issue Paper and workshop[2].

FRACMOO continues to be an important initiative with the opportunity to ensure CAISO reliability through a fleet planning tool that sufficiently meets grids needs. As directed by California Statute, Resource Adequacy (RA) and the state's capacity planning efforts play an important signaling role that can influence how resources are contracted, e.g. for more or less flexibility, how they do maintenance, e.g. for more or less flexibility, how resources determine when to retire, and other factors. Given the CAISO's role in offering an efficient market by

[1] 8minutenergy Renewables, Adara Power, Advanced Microgrid Solutions, AES Energy Storage, Amber Kinetics, Aquion Energy, Bright Energy Storage Technologies, Brookfield, California Environmental Associates, Consolidated Edison Development, Inc., Cumulus Energy Storage, Customized Energy Solutions, Demand Energy, Doosan GridTech, Eagle Crest Energy Company, East Penn Manufacturing Company, Ecoult, Electric Motor Werks, Inc., ElectrIQ Power, ELSYS Inc., Energy Storage Systems Inc., Enphase Energy, GE Energy Storage, Geli, Gordon & Rees, Green Charge Networks, Greensmith Energy, Gridscape Solutions, Gridtential Energy, Inc., Hitachi Chemical Co., Ice Energy, IE Softworks, Innovation Core SEI, Inc. (A Sumitomo Electric Company), Invenergy LLC, Johnson Controls, K&L Gates, LG Chem Power, Inc., Lockheed Martin Advanced Energy Storage LLC, LS Power Development, LLC, Mercedes-Benz Research & Development North America, National Grid, Nature & PeopleFirst, NEC Energy Solutions, Inc., NextEra Energy Resources, NEXTracker, NGK Insulators, Ltd., NRG Energy LLC, OutBack Power Technologies, Parker Hannifin Corporation, Powertree Services Inc., Qnovo, Recurrent Energy, RES Americas Inc., Saft America Inc., Samsung SDI, Sharp Electronics Corporation, Skylar Capital Management, SolarCity, Southwest Generation, Sovereign Energy, Stem, Sunrun, Swell Energy, Trina Energy Storage, Tri-Technic, UniEnergy Technologies, Wellhead Electric, 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).

[2] http://www.caiso.com/Documents/RescheduledFlexibleResourceAdequacyCriteria-MustOfferObligationPhase2Meeting-WebConference-120516.html

which to reliably operate the grid, CESA recommends the CAISO focus on efficient, durable, and conservative solutions. Additionally, the CAISO may choose to pursue 'beta solutions', such as by establishing a small non-binding Flex RA down concept which could readily met by existing IOU LSEs and which could be used to develop insights into over-generation and Flex RA down capacity solutions.

Comments:

A. The CAISO Should Develop Downward Flex Capacity requirements to *ensure* reliable grid operations. CAISO should consider a beta solutions to build experience and test effects.

CESA believes the CAISO inherently wants to operate the grid reliably. As such, the CAISO naturally wants tools that support reliable operations. One such tool is today's fleet planning tool known as Resource Adequacy. This tool, as statutorily directed, signals that some attributes of a grid resource are more valuable, and provides payments for resources that deliver capacities to the grid so that such resources are incented to modernize and provide the more valued services.

The CAISO currently has no RA-based or Must-offer-obligation based guarantee that the fleet will address Flex down needs, including overgeneration. Such a planning omission seems concerning if not glaring in light of ongoing discussions about the duck chart, fleet transformation, a 50% RPS, system ramp rates higher than expected, historical spot market short-comings and related rolling blackouts, potentially large hydro conditions, and other factors. Highlighting the danger in over-reliance on spot market signals to address overgeneration, the CAISO currently has one of the highest negative bid floors among Organized Markets in the United States[3] and does *not* position or commit a Day-Ahead fleet for meeting intra-hour variability and uncertainty while simultaneously allowing resources with higher P-mins and longer min-run-times to serve as flexible resources[4]. Collectively, this amounts to a smattering of rules potentially endangering reliability. Further, resources that could address overgeneration and capture excess renewables are seemingly not valued or are undervalued in the CAISO's RA construct, and reliable operations become further uncertain and difficult as higher levels of renewables, including renewables which may have no obligation or incentive to economically schedule.

With potentially increasing risks of costly reliability violations[5], increasing curtailments, and a growing incidence of exceptional dispatches with pro-rata (rather than marginal economic

[3] See CAISO Paper, pg. 14: http://www.caiso.com/Documents/AddendumtoDraftFinalProposal-Self-SchedulesBidCostRecoveryAllocationandBidFloor.pdf
[4] See CAISO FRACMOO 2 Supplemental Issue Paper, pgs. 14-15
[5] See CAISO FRACMOO 2 Supplemental Issue Paper, pgs. 10-11

unit) schedule adjustments, CESA fails to understand why the CAISO would not use the FRACMOO2 initiative to aggressively pursue the enhancement and development of tools that ensure reliability.

At the minimum, the CAISO should pursue a partial beta solution, such as a flex down requirement with extremely low requirements, intended only to test fleet performance, bidding, development of must-offer obligations, resource counting and eligibility, to signal contracting reforms, and to yield cost information to stakeholders while paving a path towards a more reliable approach to RA. For instance, consider a monthly flex down RA requirement of 5000 MWs total. Anecdotally, such capacity levels are available now and providing economic curtailment based solely on spot market prices. This indicates such resources would continue to operate in this manner with a $0 capacity payment as other must-offer obligations which could easily be addressed by ongoing economic bids for decremented schedules or curtailments. Such a beta solution may also reduce the use of CPMs and of exceptional dispatch while also functioning smoothly as a lower negative bid floor is implemented and as more renewables come on line.

B. Refinements to the upward ramping counting and eligibility rules are appropriate for FRACMOO 2.

The proposed scope changes and additions for FRACMOO 2 detailed in the Supplemental Issue Paper seem logical, timely, and appropriate. The CAISO has observed that the current FRACMOO Flex RA capacity tools may be suboptimal, and changes are warranted.

An evolution of the current rules is important and more prudent that 'blowing up' the entire design. The latter would require significant time and consideration while also raising concerns of misalignment between the CPUC's and the CAISO's rules.

CESA sees merit in the ideas for potential reforms included in the Supplemental Issue Paper. These ideas, such as a shorter period for measuring ramping for 'counting' purposes, as well as restrictions that ensure only resources that meet the CAISO's flexible needs in normal operating conditions are allowed as flexible capacity in the monthly showings.

C. CAISO should implement FRACMOO reforms quickly to direct fleet resources on grid needs and to ensure faster implementation.

The CAISO Supplemental Issue Paper provides no timeline for the Board Approval of any FRACMOO 2 changes. CESA suggests the CAISO establish a fast finalization and implementation

schedule so that fleet planning occurs with the relevant and important FRACMOO 2 rules in mind. For instance, rules that may preclude a resource from FRACMOO 2 eligibility would be important to know if a resource is considering maintenance or retirement. CESA believes the CAISO should work aggressively to complete this initiative in Q2 2017.

D. The Supplemental Issue Paper scope should include EFC Study reforms where the deliverability of Flex RA Capacity is evaluated smartly, not restrictively.

Resources providing flexibility for the grid must do so under the conditions seen by the grid. For shoulder, winter, or non-peak moths or seasons, the conditions of the grid may differ starkly from peak conditions. Such facts of grid operations should be reflected in the consideration and establishment of EFCs.

CESA recommends the CAISO work with the CPUC to establish an EFC for resources on a monthly basis. Such an approach should allow resources to be appropriately valued for their resource's flexibility without requiring excessive deliverability costs that are not warranted given the grid conditions in certain months. The CPUC's ELCC work creates a precedent for updating Resource Adequacy counting values on a monthly basis.

Responses to the CAISO Comments Template:

Please provide your comments on the Supplemental Issue Paper topics listed below and any additional comments you wish to provide using this template.

Identified opportunity for enhancing flexible capacity product

1. Ramping speed
    a. Large single hour net load ramps

    Comments:

    CESA Comments: Grid reliability should be considered in FRACMOO designs. This should include large single hour net-load ramps. Solutions that address overgeneration should also be considered.

    b. The transition from low net loads to steep ramps

Comments:

CESA Comments: Grid reliability should be considered in FRACMOO designs. FRACMOO 2 should ensure the CAISO has a sufficiently flexible fleet that can address or avoid both overgeneration and exceptional dispatch curtailments via the appropriate must-offer obligations. This should include transitions from low net loads to steep ramps. Solutions that address overgeneration or that minimize difficult low net-load based steep ramps should also be considered.

c. Intra-hour variability

Comments:

CESA Comments: Grid reliability should be considered in FRACMOO designs. FRACMOO 2 should ensure the CAISO has a sufficiently flexible fleet and can address or avoid overgeneration and exceptional dispatch curtailments with the appropriate must-offer obligations. This should obviously include intra-hour variability which is a growing challenge, as seen through 2016's changes in Regulation procurement.

2. Cycle time and flexible capacity qualifications

Comments:

CESA Comments: Grid reliability should be considered in FRACMOO designs. FRACMOO 2 should ensure the CAISO has a sufficiently flexible fleet and can address or avoid overgeneration and exceptional dispatch curtailments with the appropriate must-offer obligations. Resources that are less able to provide expected or helpful flexibility under grid operations likely should, where appropriate, be devalued for their flexible capacity, at least in the planning space.

3. High minimum operating levels from both RA and flexible RA

Comments:

CESA Comments: given the system effects of high minimum operating levels, CESA presumes that the CAISO may be trying to address *downward* flexible needs through a tool focused on upward flexible needs. Rather than restricting the participation/value of some upwardly flexible units, the CAISO should instead develop an allowance or downward flexible need fleet planning concept. Beta versions should be explored if a full 'product' is not feasible at this time.

4. Most significant net load ramps occur on weekends or holiday weekdays

   Comments:

   CESA Comments: Solutions should be developed to reasonably address needs. California's statutorily directed Resource Adequacy seeks to ensure the California relies on fleet planning, and not entirely on spot markets to address reliability needs.

5. Significant quantities of long start resources may limit the ISO's ability to address real-time flexibility needs

   Comments:

   CESA Comments: Grid reliability should be considered in FRACMOO designs. FRACMOO 2 should ensure the CAISO has a sufficiently flexible fleet and can address or avoid overgeneration and exceptional dispatch curtailments with the appropriate must-offer obligations. Resources that are less able to provide expected or helpful flexibility under some circumstances may potentially be devalued for their flexible capacity, at least in the planning space.

6. There is currently no means in place for the ISO to assess the likelihood that the flexible RA showings will adequately meet all ramping needs

   Comments:

   CESA Comments: The CAISO should have tools needed to assess for reliability. Generally, the tool should not inappropriately rely on or involve *ex post* adjustments or procurement, which indicate an inefficient market solution and potentially that resource payments are below an appropriate 'clearing price'. Such solutions provide weaker signals to market participants and conflict with efficient market theories. Instead, the CAISO should establish efficient up-front solutions that compensate resources for value provided.

Other comments

Please provide any additional comments not associated with the topics above.

Comments:

[insert comments here]