California ISO

Stakeholder Comments Template

Resource Adequacy Enhancements – Straw Proposal Part 1

This template has been created for submission of stakeholder comments on Resource Adequacy Enhancements Straw Proposal Part 1 that was published on December 20, 2018. The Straw Proposal Part 1, Stakeholder meeting presentation, and other information related to this initiative may be found on the initiative webpage at: http://www.caiso.com/informed/Pages/StakeholderProcesses/ResourceAdequacyEnhancements.aspx

Submitted by	Organization	Date Submitted
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Upon completion of this template, please submit it to initiativecomments@caiso.com. Submissions are requested by close of business on February 6, 2019.

Highview Power is a developer and designer of long-duration grid scale energy storage. We look forward to engaging with the CAISO to develop a robust methodology for assessing the contribution of availability-limited resources to the Resource Adequacy program.

Please provide your organization's comments on the following issues and questions.

1. Rules for Import RA

Please provide your organization's feedback on the Rules for Import RA topic. Please explain your rationale and include examples if applicable.

No comment at this time.

2. RAAIM Enhancements & Outage Rules

a. Please provide your organization's feedback on the Addressing Planned and Forced Outage Issue topic. Please explain your rationale and include examples if applicable.

No comment at this time.

b. Please provide your organization's feedback on the RAAIM Enhancements topic. Please explain your rationale and include examples if applicable.

No comment at this time.

i. Please provide your organization's feedback on the Availability & Performance Assessment Triggers options presented in the proposal.

No comment at this time.

3. Local Capacity Assessments with Availability-Limited Resources

Please provide your organization's feedback on the Local Capacity Assessments with Availability-Limited Resources topic. Please explain your rationale and include examples if applicable.

Foreword

Highview Power strongly supports the development of local RA practices that recognize the real value that availability-limited resources provide to grid reliability. We agree with the principle that LSEs should account for the available MWhs that resources can provide. We think this is crucial for reliability given the changing resource mix. Assessing resource adequacy based only on MW capacity is increasingly insufficient for maintaining a reliable power system.

General remarks

Highview is concerned that the process described may not adequately consider uncertainty in load patterns and resource availability.

At present, Resource Adequacy is established with a reserve margin (15% by default) in the MW amount of capacity procured, in order to cover unexpected occurrences. We believe that an equivalent mechanism would be needed for the MWh energy capacity procured through availability-limited resources to mitigate unexpected occurrences such as:

a) Extended peaks: Just as an unexpected peak may require more MW than expected, it may require more MWh energy.
b) Imperfect dispatch of availability-limited resources: Dispatching resources early could mean that insufficient energy is available when needed. We consider this a likely occurrence given the limitations of forecasting.
c) Constraints on charging (in the case of energy storage): Some energy storage resources may be restricted to charge only from intermittent renewables. In the case of low renewables production, energy storage systems may be unable to charge fully in time for dispatch at the peak.
d) Contingency events.
e) Concurrent instances of two or more of the above.

It is unclear from the Straw Proposal Part 1 that such a mechanism is accounted for. Highview believes that in order to enable the lowest-cost solution, such a mechanism would need to consider chronology over many cycles (i.e. days). For example, high reliability may be achieved through

low-cost reserve energy capacity (i.e. capacity that is rarely used). The benefits of such a system can only be evaluated over a longer timeframe where the chronology of many load cycles (i.e. many days) can be evaluated stochastically to account for contingency events etc.

> *E.g. for illustration: a storage system with a daily cycling capability of 400 MWh to cover 9-in-10 peaks and a further 400 MWh of low-cost reserve capacity to cover infrequent 1-in-10 peaks. The charge rate of such a system may be rated to fill the reserve capacity over, say, a week, in readiness for the next 1-in-10 peak.*

Additional inputs for Hourly Load and Availability Resource Data

Input A

The present RA process defines a capacity requirement based on a 1-in-10 peak, which means the maximum MW load (height) of the load curve. The CAISO is proposing additional inputs to the LCT study, of which input A is the "projected hourly load data for each … area … for each year".

Highview would like to clarify the scope of the projected hourly load data (input A). Is this a 24-point dataset representing, for example, an annual or seasonal 1-in-10 peak; or, a larger dataset representing every hour in the year (8760 datapoints), or other?

Highview would also like to note that, with reference to the 1-in-10 peak used presently, the height (MW peak) of the load curve must now be considered along with the area under the load curve (MWh peak) in determining a standard for resource adequacy. It is not apparent to Highview in the Straw Proposal Part 1 how, or whether, this is accounted for.

> *E.g. If the study is undertaken on a 1-in-10 peak of 100 MW with an energy requirement of 200 MWh, it is possible that limited-availability resources procured against this standard may be insufficient to cover a broader peak of 80 MW (i.e. sub-1-in-10 by present standards) with an energy requirement of 240 MWh.*

Input C

Highview would like to clarify the scope of the "intermittent resource output at the time of the … net peak". Is this a single datapoint or a datapoint for every datapoint in input A, or other?

4. Meeting Local Capacity Needs with Slow Demand Response

Please provide your organization's feedback on the Meeting Local Capacity Needs with Slow Demand Response topic. Please explain your rationale and include examples if applicable.

Additional comments

Please offer any other feedback your organization would like to provide on the RA Enhancements Straw Proposal Part 1.

No comment at this time.