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California Independent System Operator
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NextEra Energy Resources Comments on the CAISO's Flexible Resource Adequacy Criteria and Must-Offer Obligation

NextEra Energy Resources, LLC ("NextEra") appreciates the opportunity to comment on the California Independent System Operator Corporation's ("CAISO") *Flexible Resource Adequacy Criteria and Must-Offer Obligation Second Revised Straw Proposal* dated July 25, 2013. NextEra's comments are limited to a request that the CAISO consider refining its flexible resource adequacy eligibility criteria to ensure the qualification of solar thermal resources with natural gas backup generation and clarifying certain other elements of the second revised straw proposal.

The CAISO should broaden the flexible resource adequacy ("RA") eligibility criteria to solar thermal resources with natural gas backup

NextEra is the owner and operator of the Solar Electric Generation Station ("SEGS") solar thermal facility. The SEGS facility consists of seven units totaling 310 MW of solar thermal capacity. The facility also has natural gas back up generation totaling 270 MW of installed capacity. The SEGS facility currently operates under a Qualifying Facility ("QF") commercial agreement. Although the natural gas generation is co-optimized with the solar thermal generation, the natural gas generation has the ability to operate independently from the solar generation to provide flexible RA. However, the flexible RA must-offer requirement must be refined to address the operating characteristics of a natural gas facility associated with a solar thermal generation plant.

Pursuant to the CAISO second revised proposal, flexible RA resources are generally required to submit economic bids in the day-ahead and real-time markets every day from 5 AM-10 PM. The hours subject to the must-offer obligation for flexible variable resources are differentiated by energy source and technology. It is presumed that variable resources will produce energy to the full availability of their fuel source such that the flexible RA offer is restricted to bids reflecting the resource's willingness to operate below full output capability. This presumption is reasonable for most intermittent resources. However, it conflicts with variable resources with storage or, in the case of SEGS, natural gas backup capability. A solar thermal facility with natural gas back up will be able to submit flexible RA bids representing: 1) the facility's willingness to operate below full output for the solar thermal portion and 2) the facility's ability to ramp up or down from the natural gas portion of the output when solar is operating at less than

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the permitted interconnection output. The must offer obligations as proposed do not allow for the natural gas output of a hybrid solar resource to provide flexible RA services.

The SEGS units co-optimize the solar and natural gas inputs for each unit up to the nameplate capacity of the resource. Currently, the natural gas portion of the SEGS facility operates at sunset during the summer months. The natural gas cannot supplement output, as noted, while the solar fuel allows the facility to operate at full output, but is capable of operating at increased output before and after those full-load solar production hours. In non-summer months, when the solar collection often does not result in full solar production, the natural gas boiler can complement output and provide flexible ramping (up or down) both during daylight hours and non-peak hours. As such, when the facility is generating energy from solar only, the amount of flexible upward ramping capacity at a given time can be measured as the delta between the solar production and allowed PMax of the unit. For these reasons, NextEra requests that the CAISO consider broader criteria for natural gas generation flexible RA eligibility for a solar thermal facility in order to recognize the ramping capability that such resources can offer.

CAISO should further explain the parameters of the must-offer obligation for flexible variable resources

Pursuant to the second revised straw proposal, variable resources providing flexible RA would have a must-offer obligation for the hours that are differentiated by energy source and technology. For these flexible variable resources, the RA offer would reflect the resource's willingness to operate below full output capability. For solar PV and solar thermal flexible variable resources the must-offer obligation is during daylight hours that change depending on the time of year. For wind flexible variable resources the must-offer obligation is 5 AM-10 PM throughout the year. While the must-offer obligation for the various technologies appears to have been developed to align the resources' willingness to operate below full output with the hours that the energy source types are typically producing energy, with regard to solar, the winter hours do not align with realistic solar production periods. It would be helpful if the CAISO could either revise the offer hours in the winter months or expand on how solar resource owners can manage more limited production in the winter months either through the outage protocols or some other means.

CAISO should clarify its assumptions in developing monthly average load factors for flexible RA allocation purposes

The second revised straw proposal states the intent to allocate the flexible RA requirement to the Load Serving Entity ("LSE") based on changes in load by monthly average load factors. NextEra requests clarification on the assumptions and calculations that will be used to determine the load factors. For example, are load factors based on forward looking projections or historical averages for the LSE? Similarly, NextEra requests clarification on the assumptions used to calculate a LSE's percentage of contracted wind, solar PV, solar thermal, and intermittent DG. These factors may be

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difficult to forecast reliably in a competitive environment with potential customer migration and short term procurement of supply contracts.

Conclusion

NextEra appreciates the opportunity to comment on the CAISO's proposal.

Sincerely,

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