

*California Independent System Operator Corporation
151 Blue Ravine Road
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April 29, 2011

NextEra Energy Resources, LLC's Comments on the CAISO's Discussion & Scoping Paper on Renewable Integration Phase 2, dated April 5, 2011

NextEra Energy Resources, LLC ("NextEra") hereby submits comments on various issues raised in the California Independent System Operator Corporation's ("CAISO") April 5, 2011 *Discussion and Scoping Paper on Renewable Integration Phase 2* ("Discussion Paper"). NextEra owns and operates wind, solar, and natural gas facilities in California and is actively developing further solar and wind projects in California and in the West.

The CAISO faces an important challenge in integrating renewables that will provide energy to California pursuant to the State's recently enacted 33% renewable portfolio standard ("RPS") legislation. NextEra agrees with the CAISO that in order to successfully integrate these renewable resources, the CAISO will need enhanced operational flexibility, including through additional ramp, load following, and ancillary services capabilities. NextEra urges the CAISO to pursue these market features, while also bearing in mind that the intensive renewable energy development in California is driven by state law, is intended to provide a public benefit throughout the state, and as such, the costs of integration should be borne by all ratepayers.

Use of Operating Reserves

The CAISO recognizes the potential benefits of the use of contingency reserves to manage imbalances and ramping related to integration of renewables under the 20% and 33% RPS. The CAISO points out restrictions on achieving such efficiencies due to software limitations that preclude designation of contingent or non-contingent reserves on an hour-by-hour basis, and also due to requirements that the CAISO dispatch contingent reserves only when contingency conditions occur, such as an unplanned outage, transmission contingency event, or an imminent or actual system emergency. NextEra agrees that greater flexibility in the use of contingency reserves will provide the CAISO with more resources to manage system needs as part of renewables integration.

In this regard, the North American Electric Reliability Corporation ("NERC") raised similar issues in its comments in FERC Docket No. RM10-11-000, *Integration of Variable Energy Resources*. NERC noted that large wind ramping events have characteristics that are in some ways similar to conventional generator contingency events, and that both types of events are relatively infrequent. NERC stated that overall it could be appropriate to use contingency reserves in response to a portion of a wind ramp,

and suggested that the industry consider developing rules governing reserve deployment and restoration, similar to those that currently address conventional contingencies. NERC recommended further analysis of how wind ramps can be recovered using contingency reserves as well as consideration of how wind generation can minimize the impacts of wind ramps through improved forecasting and market tools, products, and requirements.

NextEra agrees that it is prudent to consider how contingency reserves could be used to manage integration of renewables, particularly with respect to ramping events, and encourages the CAISO to take a leadership role on this issue.

Enhancements to Residual Unit Commitment

The CAISO says it will evaluate the intersection between estimations of wind and solar output and how the Residual Unit Commitment (“RUC”) assesses whether enough capacity has been committed to meet the CAISO’s load forecast. At present, the CAISO states that it makes adjustments for differences between the amount of energy cleared in the Integrated Forward Market (“IFM”) from intermittent resources and the CAISO’s forecast of their output, but adds that it may revisit how it determines these adjustments in light of greater integration of renewables. The CAISO states that it may analyze this matter because forecast errors may become so large relative to the scheduled reserves that the CAISO will need to account for the magnitude of this potential difference in the RUC commitment. However, the CAISO states that if the RUC is run based on an assumed low level of intermittent resource output then there could results an overcommitment of excess thermal generation in the RUC.

NextEra submits that while it is important to fine-tune the RUC’s methodology and incorporate state-of-the-art forecasting, owners of renewables should not be penalized for how well or poorly the CAISO at any given time manages to incorporate renewables into its market design. As with other ISO/RTO markets, the CAISO market is mostly designed around the needs of dispatchable units. As the CAISO seeks to integrate renewables, consistent with the State RPS requirements, the operating characteristics of renewables need to be taken into account, and the owners of renewables should not be penalized because those resources cannot be scheduled as accurately as other generation. Accordingly, the CAISO should not propose any kind of uplift charges to be assessed to renewables due to variations that arise in the RUC process.

Development of Load Following Reserve

The CAISO also addressed the increased need for load following capability as the share of energy from renewables grows. The CAISO states that without an explicit load following constraint, if imbalance conditions change due to load and supply deviations more than the available capability can follow, imbalance shortages will arise and the CAISO will have to lean on regulation resources or others in the interconnection to balance system needs. The CAISO states that further studies will provide more insight into this issue, after which design issues would need to be addressed.

NextEra agrees that development of new, customized ancillary service products is beneficial, and encourages the CAISO to adopt market rules and pricing mechanisms that will encourage development of the type of flexible resources that can provide such ancillary service products.

Allocation of Integration Costs

The CAISO states that there are various challenges associated with the increased procurement of renewables, and raises associated cost allocation issues:

These increased operational costs will result from a combination of increased reserve procurement, greater operational demands on conventional resources, increased need for resources that can offer specific performance capabilities, potential for increased uplift amounts, and the expected need to provide some form of capacity payments to conventional resources to supplement the reduction of spot market revenues as spot prices decline due to the lower marginal costs of VER. A central question for this initiative, and the topic of this section, is whether these integration costs should be allocated directly to the VER that may be viewed as causing the increased costs, and if so, what cost allocation principles should apply and what methodologies should be used to determine each resource's appropriate cost share. An overarching question to keep in mind throughout this topic is how the market rules – particularly with regard to allocation of integration costs – can be used to provide long-term incentives for developers of VER to design new renewable resources that are better able to manage their own variability and reduce such impacts on grid operation.

Discussion Paper, Sect. 2.4

The CAISO is correct that the move towards a clean, low-carbon energy future will require various changes in grid management. However, the CAISO's discussion with respect to cost allocation veers away from the driving reason for renewable integration: the aggressive California RPS standards (20% going to 33%). California law requires that procurement of renewables and the sale of their energy to ratepayers be vastly increased. With that premise it is hard to conclude anything other than that ratepayers – through allocation to load – should likewise pay for the various measures needed to integrate renewables. The fact that most if not all renewable energy development in California is intended for California use, rather than for exports, should make this conclusion all the more easier to reach. Unfortunately, the CAISO fails to reach this conclusion and instead goes so far in the other direction as to suggest that owners of renewables should provide “capacity payments” to other types of generation that may be used less due to the move towards clean energy. Such a subsidy makes no sense. NextEra urges the CAISO to reconsider cost allocation consistent with the legislative mandate in the state whose wholesale energy market the CAISO administers.

Conclusion

NextEra appreciates the opportunity to comment on the CAISO's Discussion Paper.

Sincerely,

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