BEFORE THE
PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Refinements, and Establish Annual Local Procurement Obligations.	))))	Rulemaking 11-10-023

CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION INFORMAL COMMENTS ON CPUC STAFF PROPOSALS AT OCTOBER 15, 2013 RESOURCE ADEQUACY WORKSHOP

The California Independent System Operator Corporation ("ISO") appreciates this opportunity to provide comments on the CPUC staff draft proposals presented at the October 15, 2013 workshop that discussed the qualifying capacity and Effective Flexible Capacity Calculation ("ELCC") methodologies for energy storage and supply-side demand response resources, and the use of the ELCC methodology for variable energy resources.

As the system operator for a majority of the state, the ISO is responsible for reliably operating the electric grid. To do this, the ISO must have sufficient capacity both for peak load and ramping needs. The CPUC staff proposals outline a methodology for assessing how demand response and energy storage resources could provide both generic and flexible resource adequacy capacity.

Ensuring that variable energy resources, demand response, and energy storage resources are able to provide and be accurately counted, for generic and flexible resource adequacy capacity is a high priority for the ISO. However, the ISO believes the staff proposal and modeling assumptions would benefit from

additional public vetting similar to the discussion of the E3, SCE, and ISO models in long-term procurement plans proceeding. In particular, the ISO believes the following items require additional development prior to integrating the staff proposal for both ELCC for variable energy resources and the use of the ELCC and the Effective Ramping Capability ("ERC") for demand response and energy storage resources into the resource adequacy construct:

1. What the ERC measurement represents and the potential downstream implications of using that methodology for other technologies;
2. What the impact of continued penetration of non-diverse variable energy resources will be on existing variable energy resources; and
3. How the staff proposal will interact with existing ISO market design.

To allow an opportunity to consider the staff proposal, as well as explore other alternatives, the ISO recommends the CPUC begin with the non-ELCC alternative NQC methodology proposed in the draft staff proposal for demand response and energy storage and apply the already accepted Effective Flexible Capacity counting criteria for the 2015 RA compliance year.

I. ASSESSING WHAT THE EFFECTIVE RAMPING CAPABILITIES MEASUREMENT REPRESENTS AND THE POTENTIAL DOWNSTREAM IMPLICATIONS OF USING THE ERC METHODOLOGIES FOR OTHER TECHNOLOGIES

The staff proposal defines the ERC as "how well the resource is able to meet upward ramping and intra-hour operational needs (considering availability and use limitations) as compared to a "perfect generator." The methodology that staff proposes is "similar to ELCC, but indicates contributions toward meeting

ramping needs rather than overall capacity needs."[1] However, little is understood about the theoretical support for this approach and why/how this measurement will provide the ISO with sufficient flexible capacity to maintain grid operations.

While the theory of ELCC has been widely discussed and debated, the same cannot yet be said for the proposed ERC methodology. In theory, the two methodologies work similarly. However, the results of the ERC may be much more sensitive to the underlying assumptions of the model. For example, the ISO's evaluation of a resource as part of its analysis of meeting peak load looks at the status of the resource – is it available, or on a full or partial outage. However, assessing the likelihood of a ramping deficiency requires assumptions about the status of all resources, and where in their dispatch range each resource is located at a given point and time. This is highly dependent on assumptions of prices and the availability of use-limited resources. Clarifying assumptions such as these are important in assessing how the ERC measurement should be interpreted, and how it impacts the amount of flexible capacity a resources contributes towards meeting a load serving entity's flexible capacity requirement.

As another example, specific to demand response and energy storage resources, it may be possible that removing a demand response or energy storage resource from the model will not lead to a loss of ramping expectancy. In such instances, the resource's ERC would either be zero or not possible to calculate. Other small resources may have similar challenges for calculating an ERC. While it is possible to modify the underlying assumption to generate a loss of ramping expectancy, it is not clear if such changes accurately value the contribution of the

[1] CPUC staff Proposal, at p.2, footnote 4.

resource toward helping the ISO address ramping needs. Additionally, the likelihood of a demand response resource being dispatched to address ramping needs is likely very sensitive to the assumptions of the operational attributes of the demand response resource.

The staff proposal focuses on determining the ELCC and ERC for only demand response and energy storage resources. However, the ISO believes it is also prudent to consider the implications of applying the staff's proposed ERC methodology to all technologies. For example, the staff is also proposing to use an ELCC methodology for variable energy resources that offer generic resource adequacy capacity, while the ISO has proposed allowing the variable energy resources to provide flexible capacity in addition to generic capacity. The staff proposal does not yet include a methodology for how the variable energy resources would count toward meeting a load serving entity's flexible resource adequacy capacity requirements. The proposal as written implies that the ERC methodology would treat resources very similarly regardless of the flexible capacity capability of the resource. For example, removing a baseload resource that is not flexible from the model may have the same ERC calculation as a flexible infra-marginal resource.[2]

Finally, the staff proposal suggests that the EFC for demand response and energy storages resources may exceed the NQC of the resource. While decoupling the EFC and the NQC is one approach for demand response and

[2] The similarity in calculation is the result of how the "perfect generation resource" replaces the removed resource. Removing infra-marginal resources will result in a greater loading of flexible resources that are higher up in the bid stack. Adding in a perfect generating resource would either free up this flexible capacity again or provide flexible capacity itself.

energy storage, the CPUC should also consider the implications of the approach and how this policy would impact conventional resources.

II. DETERMINING HOW THE ELCC METHODOLOGY IMPACTS THE CAPACITY VALUE OF VARIABLE ENERGY RESOURCES

The ISO believes that additional detail should be provided regarding the treatment of variable energy resources under the staff's proposed ELCC methodology. Studies have shown that a variable energy resource's ELCC is a function of the number of resources deployed using a similar technology.[3] For example, the ELCC of a solar PV facility could decrease over time as more solar PV resources come on line. While this clearly presents questions regarding the appropriate valuation and counting of contracted capacity, it also raises questions regarding the adequacy of the flexible capacity shown to maintain system reliability. The ISO believes additional discussion on this topic is warranted prior to implementing the ELCC methodology for wind and solar resources.

III. INTERACTION OF THE STAFF PROPOSAL WITH EXISTING ISO MARKET FUNCTIONALITY

The ISO has the ability to receive and dispatch proxy demand resources in the day-ahead and real-time markets. Proxy demand resources can be submitted at custom load aggregation points. However, these custom load aggregation points must be within the same sub-load aggregation point (sub-LAP). For congestion management reasons, the ISO policy and tariff do not currently support the dispatch of proxy demand resources at the default LAP level as put forward in staff proposal.

[3] See Mills and Wiser, 2012 at http://emp.lbl.gov/sites/all/files/lbnl-5445e.pdf.

IV. CPUC SHOULD CONSIDER THE NON-ELCC ALTERNATIVE NQC METHODOLOGY AND APPLY THE ALREADY ACCEPTED EFC COUNTING CRITERIA FOR 2015

The ISO remains committed to allowing demand response and energy storage resources to provide resource adequacy capacity. It is not clear, at this time, that the staff proposal offers a fully viable alternative for the 2015 RA compliance year. Therefore, the ISO recommends the CPUC give additional consideration to a non-ELCC alternative NQC methodology and apply the EFC counting criteria adopted in D.13-06-024 to demand response and energy storage resources for at least the 2015 RA compliance year. Applying the existing EFC rules may not capture all of the benefits provided by demand response and energy storage. However, this methodology could set a baseline from which demand response and energy storage resources could be counted during the 2015 RA compliance year while the staff proposal is vetted and other alternatives are considered.

V. CONCLUSION

While the staff proposals represent an important step in developing the ELCC methodology for variable energy resources and the use of the ELCC and ERC for demand response and energy storage resources, the current staff proposal requires additional consideration and development. This vetting process may take some time. In the meantime, the CPUC should continue to develop a proposal similar to the non-ELCC alternative NQC methodology and apply the

EFC counting criteria adopted in D.13-06-024 to demand response and energy storage resources for at least the 2015 RA compliance year.

Respectfully submitted,

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Date: October 22, 2013