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 and Flexible Procurement Obligations for the 2016 and 2017 Compliance Years	Rulemaking 14-10-010 (Filed October 16, 2014)

CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION COMMENTS ON FINAL PHASE 3 PROPOSALS

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I. Introduction

Pursuant to the September 13, 2016 Assigned Commissioner Scoping Memorandum and Ruling (Scoping Memo) and September 15, 2016 E-Mail Ruling Correcting Schedule, the California Independent System Operator Corporation (CAISO) provides comments regarding final Phase 3 resource adequacy (RA) proposals submitted on February 24, 2017.[1] The CAISO provides comments on the following proposals:

- Flexible RA Related Proposals – The CAISO continues to believe that the proposed modifications to the existing RA program are outside the scope of this proceeding and should be addressed in the CAISO's Flexible Resource Adequacy – Must Offer Obligation (FRAC-MOO2) stakeholder initiative. In these comments, the CAISO provides additional information regarding the status of FRAC-MOO2 initiative and the timeline for policy development and implementation.
- Effective Load Carrying Capacity Proposals (ELCC) – The CAISO supports using ELCC to determine the capacity value of wind and solar resources for the 2018 RA compliance year. The CAISO believes that both the Energy Division

[1] These comments respond to final proposals from the Commission's Energy Division Staff; the California Energy Storage Alliance (CESA); Calpine Corporation; the Independent Energy Producers Association (IEP); Pacific Gas & Electric Company (PG&E); SolarCity Corporation (SolarCity); Southern California Edison Company (SCE); and Comverge, Inc.; CPOWER; EnerNoc, Inc.; and EnergyHub (Joint DR Parties).

and Calpine ELCC proposals provide a reasonable basis to calculate ELCC for RA compliance year 2018.

- The CAISO opposes PG&E's proposed two year transition period for ELCC because it is unnecessary and could potentially drive existing resources into uneconomic retirement, potentially increasing costs and decreasing reliability.
- Two-Hour RA Resource Proposals – The record does not demonstrate that two-hour RA resources will enhance reliability or save costs. The Commission should continue to study this issue before adopting a two-hour RA product.
- Removing Path 26 Counting Constraint – The CAISO recommends that the Commission reject PG&E's proposal to remove the Path 26 constraint.
- Multi-Year RA Reporting Requirements – The CAISO supports the Independent Energy Producer Association's proposal to establish an annual reporting requirement for multi-year capacity contract information.
- Seasonal Local RA Requirements – PG&E's proposal to set local RA requirements on a seasonal basis would have limited, if any, impact on ratepayer costs and would demonstrably reduce reliability during off-peak months. The CAISO provides additional comments regarding this proposal's potential impact on resource deliverability and notes the 2013 LCR study shows local RA requirements in the SDG&E service territory would increase in the in non-summer months under a seasonal LCR.

In addition, the CAISO incorporates by reference its opening comments regarding the following proposals:

- Decoupling effective flexible capacity (EFC) from net qualifying capacity (NQC);
- SCE's demand response related proposals;
- PG&E's request to define "dispatchable";
- Energy Division's proposal to eliminate the Maximum Cumulative Capacity buckets; and
- EFC/NQC publication timing.

II. Discussion

A. The Commission Should Reject The Proposed Modifications to the Flexible RA Program.

Several parties continue to recommend specific modifications to the existing flexible RA program. The CAISO generally agrees with PG&E that there is insufficient time to evaluate and/or implement significant changes to the flexible RA program in this cycle. Most of the specific flexible RA proposals require modifications to the CAISO tariff and/or analysis that the CAISO will undertake in the FRACMOO2 stakeholder process and, as such, are inappropriate for consideration in the current RA proceeding. For that reason, the Commission should not adopt the following proposals at this time:

- Modifying the number of daily starts required during summer months (PG&E);
- Reviewing the appropriate must-offer obligation (SCE); and
- Developing the analysis to assess the how well flexible RA showings meet the CAISO's operational needs (SCE).

The CAISO will soon publish a revised straw proposal in its FRACMOO2 stakeholder initiative, and will strive to conclude policy discussions by the end of 2017. This timing would provide ample opportunity for parties to consider any necessary changes to the Commission's RA rules while still facilitating a fall 2018 implementation for the 2019 RA compliance year. Although the CAISO intends to propose modifications to the existing flexible capacity product, the focus of the initiative will be on shorter-term modifications aimed at maintaining fast ramping resources the CAISO will require to achieve a 50 percent renewable portfolio standard.

B. The Commission Should Use The ELCC Methodology to Determine 2018 RA Values.

The CAISO supports using an ELCC methodology to determine 2018 resource adequacy capacity values for wind and solar resources, provided the Commission adopts an RA showing validation process to ensure there is sufficient capacity during both the gross and net load peaks, as recommended in Southern California Edison Company's preliminary proposals.[2]

The CAISO does not support any delay or transition period for implementing ELCC, such as the two-year transition period proposed by PG&E.[3] Any transition period would inappropriately allow load serving entities (LSEs) to continue overvaluing the capacity of

[2] SCE Proposal at p. 2.
[3] PG&E Final Proposal at p. 3.

certain resources, potentially resulting in insufficient RA capacity being available when needed, jeopardizing reliability. Also, it could lead to inefficient resource retirement if needed flexible resources retire because LSE's procured capacity from resources whose capacity values were overly optimistic and inflated.

The CAISO recommends that the Commission continue conducting additional analysis to determine the impacts of the different portfolios of RA resources on meeting the reliability standards. For example, although an *ex ante* analysis may show that a 15 percent planning reserve margin is generally adequate to meet the studied reliability standards, Energy Division should assess whether the actual RA showings provide a comparable level of reliability used in the *ex ante* analysis by conducting an ELCC study on actual RA showings. This type of assessment is needed to determine whether additional modifications to the RA program—like establishing seasonal planning reserve margins—will be necessary.

C. There is Insufficient Evidence to Date to Justify the Establishment of a Two-Hour RA Resource.

Several parties request that the Commission establish a new category of two-hour duration RA capacity to better suit certain resource types. The discussion of whether a two-hour RA product is necessary should focus on whether and how two-hour duration resources enhance the reliability of the system and meet the objectives of the resource adequacy program. Based on this focus, the CAISO believes that some of the arguments supporting the two-hour duration product do not appropriately consider the intent of the RA program. In its earlier comments the CAISO expressed the following concerns with creating a two-hour RA product at this time:

1) Parties have not demonstrated that a two-hour product is able to simultaneously address both gross and net-load peak;
2) A two-hour RA product presents operational and forecasting challenges, including the need for ever more precise load forecasting and dispatch requirements; and
3) Any new two-hour product should be targeted to "better enable some new technologies to provide reliability to the grid while limiting the quantity to ensure there is not an over-reliance on such resources."[4]

These concerns have not been satisfactorily addressed. At the February 7, 2017 workshop, SCE was unable to demonstrate that a two-hour RA product could meet both gross

[4] SCE Proposals, p. 6.

and net load peak. This means that resource portfolios with two-hour resources might not be able to meet the standard SCE said should apply for purposes of assessing the ELCC results, i.e. that the resources shown could ensure sufficient capacity for both gross and net load peaks. SCE has not provided any additional analysis, and there is insufficient opportunity to fully vet any additional analysis during this RA cycle.

In addition, the study Solar City provided to support its two-hour RA product proposal indicates that the capacity value of a two-hour product is only 60 percent of a four hour product.[5] Currently, a two hour resource, using a slow discharge rate could receive a 50 percent nameplate QC value. Thus, the limited data presented by Solar City, which has not been fully vetted publicly, shows that any incremental benefit of a two hour RA product would be minimal, at best. Therefore, at this time parties have not justified adoption of a two-hour RA product. The CAISO recommends that the Commission take additional time and conduct more comprehensive analysis to assess the benefits of a two-hour RA resource.

D. Multi-Year RA Reporting

The CAISO supports the multiyear capacity reporting obligation proposed by the Independent Energy Producers Association. Future reports should include estimates of future load serving entity RA needs (including a breakdown of system, local, and flexible capacity procurement) and any capacity amounts procured towards meeting those future RA needs. Although a mere reporting obligation would not provide financial security required to eliminate the risk of uneconomic resource retirements, this reporting requirement would provide the market with information to aid in assessing potential retirements, major maintenance, and potential risk of retirement backstop procurement decisions.

E. Removing Path 26 Counting Constraint

PG&E requests that the Commission remove the Path 26 counting constraint from the RA program. In support of this proposal, PG&E erroneously claims that the CAISO determined that it would not require zonal capacity requirements under the CAISO's Regional RA initiative. Based on this, PG&E concludes that the Path 26 counting constraint is no longer necessary. Contrary to PG&E's recommendation, the Path 26 counting constraint remains relevant and necessary as a planning and procurement tool for the same reasons it was originally intended.

[5] Solar City Final Proposal at p. 2.

PG&E mischaracterizes the CAISO's position in the Regional RA initiative. The CAISO did not state that the Path 26 counting constraint is no longer needed. Rather, in the regional RA initiative the CAISO merely explored with regional stakeholders whether it would be necessary to enforce and respect additional zonal RA requirements in the context of an expanded CAISO balancing authority area. The CAISO ultimately decided to forego exploring any additional zonal requirements in the Regional RA initiative framework due to the additional complexity it would create, in particular complicating load serving entity showings and resource substitution requirements and tracking. The CAISO's actions did not in any way mean – and should not be interpreted as meaning – that the CAISO believed the Path 26 constraint should be removed from the current RA program as an effective planning and procurement tool.

The CAISO also disagrees with PG&E's assertions that implementation of the Market Redesign and Technology Upgrade (MRTU), which resulted in an energy market with locational nodal prices, justifies removing the Path 26 counting constraint. Specifically, the CAISO disagrees with PG&E's assertion that MRTU's approach to congestion pricing and compensation for resources located behind transmission constraints provide an adequate incentive for LSEs to procure the necessary RA resources in each area.

Maintaining the Path 26 counting constraint is prudent because the potential still exists for LSEs to over or under procure needed RA resources in the northern or southern areas, creating operational challenges moving sufficient energy between north and south if there is an over-reliance on resources in one area over the other. This potential for skewed zonal RA procurement causes reliability concerns due to the known Path 26 constraint which limits the flows between the two areas.

For example, the 2017 Local Capacity Technical Analysis report[6] shows the minimum 2017 zonal RA resource needs to be 20,179 MW for south of Path 26 (SP26) and 16,666 MW for north of Path 26 (NP26), respectively. The 2017 NQC list[7] shows that there are approximately 27,000 MW of capacity in SP26 and 28,000 MW in NP26. Uninformed and unrestricted zonal procurement could exacerbate the Path 26 constraint potentially resulting in operational problems and causing the CAISO to rely more extensively on the backstop capacity procurement mechanism (assuming sufficient resources are available). In the next few years, the Path 26

[6] http://www.caiso.com/Documents/Final2017LocalCapacityTechnicalReportApril292016.pdf, p. 25.
[7] http://www.caiso.com/Documents/NetQualifyingCapacityReport_ComplianceYear2017.xlsx, sort by Path 26

constraint could become even more constrained due to uneven retirement scenarios for once-through-cooled (OTC) generation and other non-OTC resources and the construction of new resources.

For these reasons, the Commission should continue to enforce the Path 26 counting constraint.

F. Establishing Seasonal Local RA Requirements

PG&E proposes that the Commission set local RA requirements on a seasonal, rather than annual basis. As described below, adopting seasonal local RA requirements would present serious implementation challenges, and radically affect the local RA process, while providing, at best, only minimal benefits. As noted in the CAISO's comments to PG&E's preliminary proposal, and further expanded below, PG&E's proposal might even have counterproductive consequences. The CAISO incorporates by reference its initial comments on PG&E's preliminary proposal indicating that seasonal local RA requirements will not necessarily lower costs, but they will definitively reliability. The CAISO provides additional comments below regarding how an off-peak seasonal local RA study would affect net qualifying capacity (NQC) value of resources located in local area.

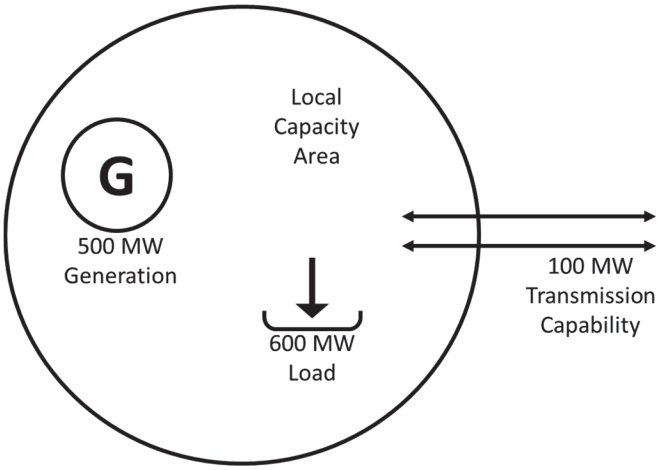
1. Deliverability Impacts

The CAISO would have to conduct additional local capacity studies to determine the local requirements. The CAISO would need to study the ability of resources within the load pocket to be deliverable to the aggregate of load, i.e. all load inside and outside the local capacity area, under lower load scenarios. Resources that are not deliverable to the aggregate of load because the energy produced by resources within the load pocket exceeds the transmission capacity available to export that energy out of the load pocket would have their NQC value reduced. As load levels decrease throughout the system and within the local capacity areas in non-summer months, there could be significant reductions in the NQC values.

During the summer season, load levels peak, consuming much or all of the energy from the resources within the local area. Any additional energy produced and not consumed within the local area could be exported out of the local area and into the system using the transfer capability of the transmission lines serving that local area. During non-summer months, when local area load is low, far less energy is needed to serve the local capacity area load, meaning resource production exceeding local area load levels must be exported out of the local area and

into the system. However, the transfer capability out of the local areas during non-summer months can be less than or equal to the transfer capacity during summer months.[8] The result is that the total energy that is deliverable from within the local area to the aggregate of load during these non-summer months can be less in the summer season, meaning resources in the local area must have their NQC reduced if the energy they produce cannot be fully exported out of the local area, which will result in a reduced NQC value for the non-summer months. Figure 1 and 2 describe this constraint below graphically as follows:

Figure 1. Summer LCA NQC Example

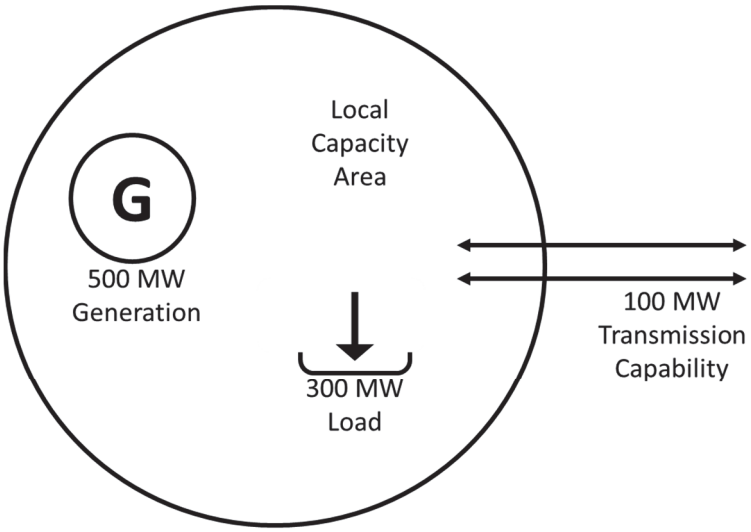


Summer Example

- Peak internal load conditions
- Internal generation fully deliverable to aggregate of load
- QC_G (500MW) = NQC_G (500 MW)

[8] Transfer capacity can be reduced due to factors such as planned maintenance line outages or reduced energy counterflows.

Figure 2. Non-Summer LCA NQC Example



Non-Summer Example

- Internal generation no longer fully deliverable to aggregate of load due to reduced internal load conditions
- QC_G (500MW) > NQC_G (400 MW)

2. Off-Peak Seasonal Local RA Studies

In 2013, the CAISO conducted an off-peak local capacity analysis for the San Diego-Imperial Valley area and the San Diego sub-area. This analysis is instructive in understanding the limitations of any such study. In this study, the CAISO and stakeholders agreed based on the following assumptions:

- One transmission element under maintenance conditions;
- Two resources under maintenance conditions; and
- A 1-in-10 peak load for the month of October.

The CAISO's analysis indicated that the non-summer local RA need in the San Diego sub-are was "200-300 MW lower than the summer peak need" whereas the overall San Diego-Imperial Valley area need was estimated to be "200-300 MW higher than summer peak need."[9] However,

[9] 2013 Final LCR Study Results: San Diego-Imperial Valley Local Area, slides 19-20. http://www.caiso.com/Documents/Presentation_Final2013LocalCapacityRequirements_SanDiegoImperialValleyArea_Apr12_2012.pdf.

these results were highly contingent on which resources were assumed to be on a maintenance outage. The CAISO used an average resource maintenance outage figure (500-600 MW) to determine local capacity requirements, but the "two units out on maintenance" could have made up anywhere from 30 to 1169 MW, depending on the actual units on outage. If different resources were assumed to be on maintenance outage, the local capacity requirements would increase or decrease accordingly. Without actual knowledge regarding planned maintenance, it is difficult to set a local capacity requirement that adequately ensures local reliability.

The CAISO's 2013 off-peak local capacity study illustrates that calculating a seasonal local capacity requirement is both complex and subject to significant error. In any event, instituting a seasonal local requirement will limit ability of RA resources to take maintenance outages.

For the foregoing reasons, the CAISO continues to believe that the unproven potential benefits of a seasonal local RA requirement are significantly outweighed by the cost, complexity, and reliability reduction of such a requirement. The CAISO recommends that the Commission reject PG&E's request to institute a seasonal local requirement.

Respectfully submitted,

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