BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Refinements, and Establish Annual Local and Flexible Procurement Obligations for the 2019 and 2020 Compliance Years.	Rulemaking 17-09-020 (Filed September 28, 2017)

CALPINE CORPORATION REPLY COMMENTS ON EFFECTIVE LOAD CARRYING CAPACITY AND TRACK 3 PROPOSALS

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Pursuant to the January 29, 2019 *Amended Scoping Memo and Ruling of Assigned Commissioner* ("Scoping Ruling") and the February 13, 2019, *Administrative Law Judge's Ruling on Effective Load Carrying Capacity* ("Ruling"), Calpine Corporation ("Calpine") submits the following reply comments on Energy Division's updated and corrected Effective Load Carrying Capacity ("ELCC") proposal and parties' Track 3 proposals.

Calpine appreciates the opportunity to provide the following reply comments on Track 3 and ELCC proposals. Calpine shares many parties' concerns about the treatment of storage diversity in Energy Division's ELCC analysis. Calpine agrees that different treatments of storage diversity should be pursued, but does not support delaying implementation of revised ELCCs in the event that agreement on a revised treatment cannot be reached and implemented in time for this year's resource adequacy ("RA") decision. While the treatment of storage diversity is important conceptually, it has only a small numerical impact right now.

Aside from the treatment of storage diversity, Energy Division's most current ELCC estimates are significantly more accurate than current compliance values. In particular, they reflect much more realistic levels of solar, including behind-the-meter photovoltaic ("BTM PV") solar. Calpine addresses these and other issues in response to specific parties' comments below.

I. RESPONSE TO THE PUBLIC ADVOCATES OFFICE'S ("PAO") COMMENTS

A. The Local Waiver Trigger and Penalty Prices Should be Increased

In the event the local RA waiver price is increased (as Calpine supports) Calpine agrees with the PAO's recommendation to raise the penalty price for failures to procure local RA so that it is consistent with the new higher waiver price.[1] Otherwise, as the PAO correctly indicates, load serving entities ("LSEs") may have an incentive to avoid procuring capacity at prices above the penalty price but below the waiver price. Such incentives may be attenuated by the fact that if the LSE chooses not to procure capacity and voluntarily incurs penalties, it still may be subject to the cost of backstop procurement of the capacity that it chose not to procure itself.

B. San Diego Gas & Electric Company's ("SDG&E") RA Waiver Monthly Rate Proposal Should be Modified

As indicated in opening comments, Calpine shares the PAO's concern that SDG&E's proposal to convert less than annual transactions to "annual" for the purposes of assessing local waiver requests may not be accurate. SDG&E's proposal effectively assumes that months that were not transacted could have been transacted at the relevant annual average local RA price. In fact, prices for local RA capacity may vary significantly from month to month, at least in part to reflect the significant monthly variation in system RA prices.[2]

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[1] *See* Comments of the Public Advocates Office on Resource Adequacy Track 3 Proposals and Energy Division's Effective Load Carrying Capability Proposal ("PAO Comments"), at 9.

[2] PG&E raises the same concern. *See* Comments of Pacific Gas and Electric Company (U 39 E) on Track 3 Proposals and Workshops and Energy Division's Effective Load Carrying Capacity Proposal ("PG&E Comments"), at 9.

C. BTM PV in ELCC Should Continue to be Refined Without Impacting Timely Implementation

Calpine supports PAO's recommendation to form a working group on the treatment of BTM PV in ELCC analyses.[3] However, if such a working group is formed, its progress should not delay the implementation of new ELCC values for RA compliance. Notwithstanding some of Calpine's concerns about Energy Division's most recent ELCC estimates, Calpine believes that the most recent estimates should be adopted even if the treatment of BTM PV (and storage diversity) is not resolved. The most recent estimates should definitely be adopted before a more comprehensive modification of Energy Division's treatment of BTM PV, which likely could not be completed in time for 2020 compliance.[4]

D. ELCC Modeling Should Be Transparent

Calpine strongly supports PAO's recommendation (and a related recommendation by PG&E) to make the input and methodology assumptions underlying Energy Division's ELCC analysis more transparent.[5] Based on Calpine's own inquiries, it would be very difficult to replicate Energy Division's analysis with what Energy Division has shared publicly to date. Energy Division should make available sufficient information for parties to replicate and validate their analysis.

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[3] *See* PAO Comments, at 12.

[4] Similarly, while Calpine shares some of the California Large Energy Consumers Association's ("CLECA") concerns about the treatment of storage diversity in ELCC analysis, Calpine does not agree with CLECA's recommendation that "the Commission's methodology for modeling of storage and its diversity as well as flexibility benefits be further discussed and refined before any such changes are implemented," to the extent that it might delay the implementation of updated ELCC estimates for wind and solar. *See* Comments of the California Large Energy Consumers Association on Resource Adequacy Track 3 Proposals ("CLECA Comments"), at 15-16.

[5] *See* PAO Comments, at 13; *see also* PG&E Comments, at 21.

II. RESPONSE TO WELLHEAD ELECTRIC COMPANY, INC.'S ("WELLHEAD") COMMENTS

Calpine agrees with Wellhead that the storage diversity in Energy Division's ELCC analysis should not be attributed exclusively to solar.[6] Instead, absent further analysis, it should be attributed to all other resources. As indicated in Calpine's opening comments, Calpine agrees with Wellhead that one way to accomplish this attribution is to reduce overall system RA requirements to account for storage diversity.[7]

III. RESPONSE TO LS POWER DEVELOPMENT, LLC ("LS POWER") COMMENTS

Calpine does not support LS Power's recommendation to assign storage diversity in excess of the net qualifying capacity ("NQC") of storage to the effective flexible capacity ("EFC") of storage.[8] Storage diversity reflects synergies between storage and the resources that can be used to charge storage. For instance, storage allows energy from a period in which the system is not stressed to be converted to energy in a period in which the system is stressed, and consequently provide "capacity." In addition, storage on its own could not be used to address reliability problems if it were not charged from some other resources. As far as Calpine can discern, these synergies have nothing to do with flexibility, so it is inappropriate to ascribe their benefits to the EFC of storage or any other resource. As Calpine (and Wellhead) have

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[6] *See* Wellhead Electric Company, Inc. Comments on Track 3 Workshop and Party Proposals, at 4.

[7] Calpine Corporation Comments on the Effective Load Carrying Capacity and Track 3 Proposals ("Calpine Comments"), at 2.

[8] *See* Comments of LS Power Development, LLC to the Ruling of Administrative Law Judge Ruling on Effective Load Carrying Capacity Seeking Comments and Proposals to be Incorporated in Track 3 Comments, at 4.

articulated, absent further analysis, it may be reasonable to effectively allocate storage diversity benefits to all other resources by reducing system requirements to account for storage diversity.

IV. RESPONSE TO THE CAISO'S COMMENTS ON ELCC

Calpine shares numerous parties' concerns about the allocation of storage diversity benefits in Energy Division's ELCC analysis. To address this concern, Calpine does not object to CAISO's recommendation for Energy Division to perform a new ELCC analysis that limits the diversity it calculates to portfolios of solar and wind.[9] If this analysis cannot be completed in time for adoption in this year's RA decision, however, Calpine supports the adoption of Energy Division's most recent estimates, perhaps with a different allocation of the storage diversity benefits. It is important to implement updated estimates this year because the most current Energy Division estimates reflect significantly higher (and more realistic) penetrations of solar than the estimates that have been used for the 2018 and 2019 RA years.

V. RESPONSE TO PACIFIC GAS AND ELECTRIC COMPANY'S ("PG&E") COMMENTS

A. PG&E's Recommendation for Qualifying Capacities ("QCs") for Use-Limited Resources Should be Rejected

PG&E proposes to create two distinct QCs for use-limited resources: (1) a Compliance QC, which would reflect a resource's expected performance assessed in the year-ahead time frame, and (2) an Operational QC, which would reflect an updated assessment in the month-ahead time frame.[10] As Calpine understands the proposal, an LSE would continue to count a

[9] *See* California Independent System Operator Corporation Track 3 Proposal Comments, at 3.

[10] *See* PG&E Comments, at 4-5.

resource towards RA compliance at its Compliance QC even if its performance had significantly degraded so that its Operational QC was lower.

Calpine does not support PG&E's proposal. LSEs should not be able to count resources at QCs that do not reflect their actual capability to perform. The PG&E proposal seems to remove the risk of performance degradation from the supplier or LSE and shift it to the entire market. To the extent that shortfalls of Operational QC occurred, presumably they would be cured through backstop procurement, the cost of which would be socialized because the LSE with the degraded resource would still be considered "compliant."[11]

B. There Should be Greater Transparency in Energy Division's ELCC Methodology but PG&E's Other ELCC Recommendations Should be Rejected

Calpine strongly supports PG&E's recommendation that Energy Division "answer methodological questions regarding its analysis" and "provide greater access to its data and results."[12] As discussed above in relation to a similar proposal by PAO, Calpine notes that Energy Division has not made sufficient information available for other parties to replicate and validate its results.

Calpine does not agree with PG&E that Energy Division should fundamentally change its methodology so that it would no longer estimate monthly ELCCs by surfacing loss of load expectation ("LOLE") outside of summer months.[13] The whole premise of the ELCC

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[11] On a related note, Calpine agrees with SDG&E that it is not clear whether and how reductions in the availability of water, for example, should impact hydro NQCs. As SDG&E notes "that the NQC value generally refers to the maximum instantaneous output in megawatts and not the total energy output in megawatt hours. Thus, a question that must be considered is whether, if water levels are lower than expected, the hydro resource outputs at a lower rate in order to generate over a set amount of hours or does it output at the maximum output rate but for a lower amount of hours?" *See* San Diego Gas & Electric Company (U 902 E) Opening Comments on Track 3 Proposals, at 15-16.

[12] PG&E Comments, at 21.

[13] CLECA raises similar concerns. *See* CLECA Comments, at 16-18.

methodology is that only resources that have been secured as RA should be counted on to maintain reliability, not surplus resources that may also be operating. Further, the methodology assumes that RA requirements are set to achieve objective reliability targets consistent with some level of LOLE. Calpine agrees that the portfolios that come out of this approach may be "unrealistic" in the sense that they may not include many non-RA resources that may be expected to operate.

PG&E suggests that the unrealistic portfolios modeled outside of the summer may be the cause of anomalous ELCC results for storage (and storage diversity).[14] However, Energy Division staff has provided more plausible explanations for these results. For example, because it is Calpine's understanding that Energy Division's calculated ELCCs are relatively coarse. In combination with the fact that Energy Division is modeling limited volumes of storage capacity, this coarseness could easily result in storage ELCCs that are a few hundred MWs too high.

Consequently, Calpine disagrees that, "[a] more appropriate methodology would be to calculate ELCCs for solar, wind, and storage on an annual basis and allocate the corresponding annual ELCC across the months where loss of load does occur (*e.g.* the summer months)."[15] Given that almost no LOLE occurs (or is expected to occur) outside a few summer/early fall months, Calpine notes that the likely impact of this approach would be to ascribe no ELCC to solar and wind outside of these months.

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[14] *See* PG&E Comments, at 22 ("This monthly construct is being used to align with the current monthly RA counting rules, but arbitrarily forcing or "surfacing" a LOLE in months when the system capacity is robust does not represent reality and, as mentioned above, may be a reason that storage ELCCs in these months appear unusually high.").

[15] PG&E Comments, at 22.

VI. RESPONSE TO THE LARGE-SCALE SOLAR ASSOCIATION ("LSA") AND SUNRUN INC.'S ("SUNRUN") COMMENTS

LSA and Sunrun both raise issues related to the "deliverability" of BTM PV and the potential treatment of BTM PV as supply-side RA capacity. LSA suggests that BTM PV should not be treated as supply.[16] Relatedly, Sunrun suggests that there is an inherent contradiction in treating BTM PV with net energy metering ("NEM") interconnections as supply for RA counting purposes but then in other contexts requiring Wholesale Distribution Access Tariff ("WDAT") interconnections for BTM resources to provide wholesale products such as RA.[17] In opening comments, Calpine raised complementary concerns about interconnection with respect to Sunrun's proposal to allow exports from BTM storage to be sold as RA capacity.[18] Calpine believes that this set of issues requires greater consideration. One possible reconciliation would be to treat NEM resources that are appropriately sized to meet on-site loads as deliverable to those loads and hence eligible to provide RA supply, but require WDAT interconnections for BTM capacity that entails significant volumes of exports to qualify as RA capacity.

VII. RESPONSE TO THE CALIFORNIA WIND ENERGY ASSOCIATION'S ("CALWEA") COMMENTS

Calpine does not object to CalWEA's proposal to allocate flexible RA requirements in a manner that reflects each LSE's load and portfolios of renewable resources. However, Calpine

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[16] *See* Comments of the Large-Scale Solar Association on Generation Resource Adequacy Program Track 3 Proposals and Energy Division Effective Load Carrying Capability Proposal, at 4.

[17] *See* Opening Comments on Track Three Proposals of Sunrun Inc., at 6-7.

[18] Calpine Comments, at 6.

sees no logical basis to link the adoption of the CalWEA proposal to the adoption of the flawed Energy Division proposal to allocate excess storage diversity-related ELCC benefits to solar.[19]

VIII. RESPONSE TO SOUTHERN CALIFORNIA EDISON COMPANY'S ("SCE") COMMENTS ON ELCC

Calpine agrees with SCE's characterization of many ELCC-related issues. For example, Calpine agrees that the Commission should consider ascribing NQC values based on marginal rather than average ELCC (although such a change is probably not feasible in time for 2020 compliance).[20] Calpine also agrees with SCE that it is inappropriate to allocate storage diversity benefits to solar. As SCE notes: "[e]ntangling the value of storage with other resources in the calculation of reliability benefits brings additional questions. In particular, would the same storage diversity benefit, as shown in the study, be fully captured if it were to treat storage, incremental or existing, in the same manner as other types of resources (thermal, QFs, etc.)?"[21]

Calpine disagrees with SCE, however, that "[w]hile it is important to include storage resources as part of the available resources, there is no need to base the RA value of a dispatchable storage device on an ELCC methodology because its dispatch operation can be controlled to meet the subject needs of the grid."[22] Calpine believes that there are legitimate reasons to estimate an NQC for storage using an ELCC methodology. In particular, an ELCC methodology could capture the fact that limited duration storage may not be available to address

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[19] *See* Comments of the California Wind Energy Associations on Track 3 Workshop and Proposals, at 3.

[20] *See* Comments of Southern California Edison Company (U 338-E) on the Track 3 Proposals and March 12-13 Workshop ("SCE Comments"), at 12.

[21] SCE Comments, at 13.

[22] SCE Comments, at 13.

reliability events that last longer than its duration. This is precisely why the New York Independent System Operator, for example, has started to calculate ELCC values for storage.[23]

Respectfully submitted,

By: /s/

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[23] *See e.g.,* NYISO, *Capacity Value Summary* (December 18, 2018), *available at* https://www.nyiso.com/documents/20142/4020230/Capacity+Value+Study+Summary+1218.pdf/02ae9793-44cb-0fb3-c08d-9ee63e69baa6?version=1.1&download=true.