BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Continue Implementation and Administration, and Consider Further Development, of California Renewables Portfolio Standard Program.	Rulemaking 18-07-003 (Filed July 12, 2018)

COMMENTS OF THE CALIFORNIA WIND ENERGY ASSOCIATION ON STAFF PROPOSAL ON EFFECTIVE LOAD CARRYING CAPABILITY, TIME OF DELIVERY FACTORS, AND PROJECT VIABILITY

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On behalf of the California Wind Energy Association

October 5, 2018

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I. INTRODUCTION

In accordance with the Administrative Law Judge ("ALJ") Ruling on Staff Proposal on Effective Load Carrying Capability, Time of Delivery Factors, and Project Viability, dated September 12, 2018 ("Ruling"), the California Wind Energy Association ("CalWEA") submits these responses to the questions set forth in Attachment A to the Ruling.

These questions pertain to three components of the Least-Cost Best-Fit ("LCBF") methodology used by the Investor-Owned Utilities ("IOUs") to evaluate competitive bids under the Renewables Portfolio Standard ("RPS") program: effective load carrying capability ("ELCC"), which determines the amount of resource adequacy capacity that can be provided by wind and solar resources, Time of Delivery ("TOD") factors, and project viability.

At the outset, CalWEA wishes to flag a larger question that we believe the Commission should address: what role does LCBF play within the new framework of Integrated Resource Planning ("IRP")? Given that IRP is intended to result in an optimal mix of resources of each type, should LCBF be applied to evaluate each type of resource within a competition for that resource, with the goal of procuring the optimal mix? Or should LCBF be applied to an all-source competition with resources competing against one another with the expectation that it will produce the optimal mix? If the latter, how can we have confidence that the expectation will be met, and what steps is the Commission willing to take to monitor and ensure that result? Can we

rely on updated indirect-cost indicators (such as ELCC and integration cost adder) to produce the intended results?

II. RESPONSES TO STAFF QUESTIONS

A. Questions on Effective Load Carrying Capability ("ELCC") for RPS Procurement

1. Provide comments on Staff's proposal and explain why you do or do not agree with the proposal.

CalWEA largely agrees with staff's ELCC proposal because it includes two critical elements:

- It values behind-the-meter ("BTM") solar as a supply-side resource, which is necessary to capture the interactive effects among BTM solar, utility-scale solar and wind resources and to produce accurate ELCC values, as has been long discussed in Commission proceedings[1];

- It studies ELCC on a monthly basis, rather than studying ELCC on an annual basis and spreading the values over 12 months. Studying ELCC on a monthly basis is essential because the reserve margin is expressed as a percentage of monthly peak demand, which varies substantially from one month to the next.

However, we have one proposed change to staff's proposal: Reconsider the evaluation of wind and solar paired with storage. Based on the discussion of paired storage that is occurring in parallel within this docket,[2] we question whether storage paired with wind and solar warrants generic ELCC values. Paired storage resources are inherently less valuable than stand-alone storage because of operational constraints associated with paired storage and because paired storage resources are not likely to offer the locational benefits that stand-alone storage can

[1] *See*, e.g., R.14-10-010, Calpine Corporation Preliminary Phase 3 Proposal (with Energy +Environmental Economics) (December 16, 2016) and subsequent discussion on that proposal. (From p. 10 of the Calpine+E3 proposal: "It is important to include BTM PV in the ELCC modeling because it is a significant fraction of all solar generation and influences the ELCC of other resources, e.g., it increases the saturation of solar and hence lowers ELCC for all solar resources.")

[2] *See* Reply Comments of the California Wind Energy Association on Questions in Assigned Commissioner and Assigned Administrative Law Judge's Ruling Identifying Issues and Schedule of Review for 2018 Renewables Portfolio Standard Procurement Plans (October 5, 2018; R.18-07-003).

provide. The existing RPS form PPAs were not designed to maximize the value of energy storage paired with RPS generation. Even if PPAs were to be substantially modified to maximize the value of the paired storage, the value of paired projects is unique to each such paired facility.[3] Therefore, generic ELCC values for paired facilities are unlikely to be applicable to specific facilities.

While resource adequacy ("RA") rules regarding storage paired with renewable energy projects are still evolving, the RA value of paired facilities should be determined based on the characteristics of each facility, similar to a gas plant.

2. **The IRP Staff Proposal on Production Cost Modeling (September 2017) and D.18-02-018 direct Energy Division staff to conduct a marginal ELCC study through a production cost modeling process when reviewing Load Serving Entity (LSE) IRP portfolios as part of the Preferred System Plan.** [Footnote omitted.] **It is proposed herein that the IOUs perform an updated marginal ELCC study in 2018 for use in future RPS procurement. If the ELCC for RPS procurement proposal is adopted, should the marginal ELCC study used for IRP Preferred System Plan also be used in RPS procurement? If so, in what capacity should the IRP study be used in relation to RPS procurement? Should the ELCC study performed by IRP staff be used as the primary marginal ELCC study in the future? Provide a justification for your response.**

In theory, the Reference System Plan ("RSP") will be more optimal than the Preferred System Plan ("PSP"), and therefore the IOUs should calculate marginal ELCC values based on the RSP for use in their LCBF analyses for the next round of procurement so as to drive procurement towards the most optimal outcome.[4] However, given the major flaws in the initial RSP[5] (which has been characterized as a "test drive"), it may be more appropriate to use the PSP to determine marginal ELCC values for use in the next round of procurement[6] since the PSP at

[3] *See* Comments of the California Wind Energy Association on Questions in Assigned Commissioner and Assigned Administrative Law Judge's Ruling Identifying Issues and Schedule of Review for 2018 Renewables Portfolio Standard Procurement Plans at p. 5(October 5, 2018; R.18-07-003).

[4] Of course, this is currently academic since the IOUs are not planning to procure in the near-term. However, these ideas should apply to future cycles, and should be emulated by other LSEs.

[5] CalWEA argued that the IRP base case should not have assumed that existing renewable resources will continue to operate indefinitely, that assumed BTM-solar levels were far too high, and that wind resources available to California from outside of the state were underestimated.

[6] This is academic for the IOUs, as described in footnote 4, above.

least reflects the current plans of the LSEs. In subsequent cycles, once the RSP has been refined, the RSP should be used as the basis for ELCC studies.

3. **Staff proposes analyzing RPS resources paired with storage, specifically 4-hour duration batteries. Should the ELCC study analyze different battery durations or multiple variations? If so, what duration(s) and/or variations should be studied instead? Explain reasoning for the proposed alternative(s).**

Please see CalWEA's response to question 1, above.

4. **Staff proposes that the IOUs use the resource portfolio from the IRP Reference System Plan as the base portfolio to be modeled for the updated marginal ELCC study for RPS procurement. Is the base portfolio from the IRP Reference System Plan a reasonable assumption of installed capacities? If not what portfolio should be used? Provide a justification for your response.**

As noted above, the initial RSP was badly flawed. Therefore, until the next version of the RSP is available, the PSP portfolio should be used.

5. **Staff proposes that the IOUs use 2022 as the study year in the updated marginal ELCC study because marginal ELCC values should be calculated for multiple years in the future to account for expected changes in the electric system that may occur over the term of new RPS contracts. Would a different study year be more appropriate (e.g. 2026 or 2030) for the updated ELCC study? Provide a justification for your response.**

Three sets of marginal ELCC values should be calculated, given potential delivery-commencement dates that may be many years into the future. Marginal ELCC values calculated for 2022 should be applied to bids with commercial online dates ("CODs") before 2022; marginal ELCC values calculated for 2026 should be applied to bids with CODs before 2026; and marginal ELCC values calculated for 2030 should be applied to bids with CODs before 2030.

6. **At the January 18, 2018 workshop, parties discussed the potential differences between a monthly vs. annual ELCC on RPS bid ranking results. The Commission requests that the IOUs investigate the sensitivity of RPS bids' NMVs to changes in the ELCC study through utilizing two ranking systems: one using only annual marginal ELCC values and one using monthly marginal ELCC values, and provide the results in comments. The IOUs may use representative bid data obtained through a prior solicitation. In their response, the IOUs should include work papers showing their calculations.**

As noted in response to question 1, annual values are inappropriate; therefore, there is no purpose to request the IOUs to study them.

B. Questions on Project Viability

1. **Please comment on the Staff proposal and explain why you do or do not agree with the proposal.**

CalWEA supports the staff proposal to adopt Energy Division's 2011 project viability calculator ("PVC") 2.0 for use by the IOUs in their LCBF evaluations, which includes evaluation categories of company and development team, technology, and development milestones, notwithstanding the fact that two required bid prerequisites (completed phase II interconnection study and site permitting "application deemed complete") are also in effect and will improve the viability of projects passing that screen. We agree with staff that PVC 2.0, along with the prerequisites, satisfies statutory requirements and the PVC 2.0 review may be useful as emerging technologies and new developers participate in future RPS solicitations.

2. **Staff proposes that the IOUs be directed to use PVC 2.0 in tandem with the two Commission required bid prerequisites. Parties should explain why they agree or disagree with staff's proposal. If parties disagree, what alternative framework(s) could satisfy the three LCBF statutory requirements: 1) a developer's experience, 2) the feasibility of the technology used to generate electricity, and 3) the risk that a facility will not be built or construction will be delayed? The proposal should be detailed and explain how it satisfies the statutory requirements.**

Please see CalWEA's response to question 1.

3. **If PVC 2.0 is adopted by the Commission, are there components of PVC 2.0 that should be modified to ensure the project viability requirements are reasonably evaluated? For example, parties might recommend that PVC 2.0 could be modified to screen bids for environmental risks or a history of permitting problems such as delinquent fees or process delays. If so, provide a modified PVC 2.0 Excel spreadsheet, explain proposed revisions, and provide justification.**

As noted above, CalWEA believes that PVC 2.0 is reasonable and workable. CalWEA strongly opposes the introduction of environmental screens into this process. The latter issue has been debated at numerous junctures during the Commission's implementation of the RPS and the Commission has heretofore appropriately declined to introduce environmental screens into the project viability process. We briefly summarize some of the reasons that numerous parties have set forth in the past in opposing this notion:

- The viability of RPS projects is high and relatively few RPS projects have been terminated or failed specifically because of permitting obstacles. This is because neither developers nor investors will put large sums of money in areas where permitting is unlikely or would come with prohibitive mitigation costs. Therefore, no need has been shown for introducing a project viability screen on environmental permitting risks.

- Neither the IOUs nor the Commission can match the environmental review conducted by land use agencies, and is unequipped to conduct such review. Appropriate environmental review of projects would be resource-intensive, time-consuming and contentious. At best, it would be duplicative and, at worst, interfere with, existing permitting processes, potentially leading to disputes and litigation.

Therefore, introducing environmental screens into the project viability process is not warranted.

C. Questions on Time of Delivery Factors

1. **Provide comments on Staff's proposal and explain why you do or do not agree with the proposal.**

CalWEA supports Staff's proposal because, as we understand it, it would allow the IOUs not to use TOD factors at all, either in the LCBF analysis or for payments under PPAs.[7] The

[7] The Staff Proposal states that "the IOUs should have the option of using TOD factors … for informational purposes as proposed by SCE." (Ruling Attachment A at p. 10.) The Staff Proposal later

IOUs have indicated that they are inclined in this direction.[8] Instead of using TOD factors, an IOU would provide to bidders, for their consideration in preparing their bids, the forecasted energy values (at least on a relative basis) that the IOU will use in its LCBF analysis. This will enable bidders to modify their proposed generation technology[9] to maximize the project value seen in the LCBF analysis. In turn, this will benefit ratepayers because bids that are more valuable to the system will be selected.

As CalWEA has explained in the past,[10] TOD factors are not materially effective or efficient in incentivizing wind or solar renewable energy facilities to shift the timing of their production, since their energy source is free and uncontrollable. Developers can be most responsive in delivering production during the most valuable times if clear signals are provided at the outset, in the RFO, which should be consistent with the LCBF evaluation. Variable renewable resources (wind and solar) will generally conduct maintenance during times when their "fuel" is unavailable. Therefore, differentiated TOD payments serve little, if any, purpose in influencing their production. On the other hand, fixed payment prices (i.e., no TOD payment factors) provide greater revenue certainty and thus will reduce the risks that affect financing costs.

There is a greater rationale for using TOD factors for making energy payments to geothermal and biomass power plants to incentivize maintenance scheduling during low-value time periods. However, other contract terms could (and may already) encourage scheduled maintenance to occur during low-value times.

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references the proposal made by SCE in its August 9, 2016, reply comments on this topic which, as indicated in staff question 2, below, proposed that "new aggregate factors should be used instead of TOD factors."

[8] *See*, e.g., *Comments on Energy Division Staff Paper on Least-Cost Best-Fit Reform for Renewables Portfolio Standard Procurement* (July 22, 2016, R.15-02-020) and the 2018 draft RPS Procurement Plans of the IOUs, which propose to eliminate TOD factors in new RPS contracts (e.g., PG&E's draft 2018 RPS Procurement Plan at pp. 57-58).

[9] For example, a solar bidder could select PV fixed-tilt or tracking technology, and a wind bidder can select wind turbines with a more favorable production profile.

[10] *See* CalWEA Comments on Least-Cost Best-Fit Reform for Renewables Portfolio Standard Procurement at p. 6 (July 22, 2016, R.15-02-020).

We also agree with the Staff's proposal that the IOUs must submit work papers as part of their annual RPS procurement plans to show how they determined the forecasted energy values to be used in bid analysis, supported with citations or attachments explaining their inputs, assumptions, and methodology. We elaborate further in response to the next question.

2. **In its August 9, 2016, reply comments to the *Staff Paper on LCBF Reform*, SCE proposed that new aggregate factors should be used instead of TOD factors. The new aggregate factors would not be a component of LCBF to avoid the future use of fixed TOD adjusted contract payments. However, because the new factors are not fixed, SCE can provide additional information to bidders about the value of generation for different blocks of hours over the course of the procurement horizon. With the additional information, bidders could develop more favorable bids that better align with SCE's forward price curves for energy and capacity benefits that drive its LCBF valuations. Energy Division proposes that these new aggregate factors, if an IOU were to formally propose them, would be assessed as a part of the IOUs' annual RPS procurement plans. *Explain why you support or oppose SCE's proposed use of information-only aggregate factors and the pros and cons of the proposal.***

As noted in the previous question, CalWEA supports the elimination of TOD factors in LCBF and RPS PPAs because they are not effective in incentivizing renewable energy facilities to shift the timing of their production. Further, with regard to resources that are paired with storage to enable production shifts, TOD factors will not reflect grid needs over the lifetime of the power purchase contract and therefore cannot be relied upon to promote maximum value.[11] Instead, the "aggregate factors" provided to bidders in RFOs and used in LCBF analysis can provide the signals that enable developers to optimize the projects that they bid. As SCE stated in the 2016 comments referenced by the staff proposal, these "aggregate factors" should communicate to bidders the relative value of energy produced during different time periods.[12]

In LCBF, the storage component of a paired resource should be assumed to best match the "aggregate factors." Importantly, however, the PPA must also require the storage to be fully dispatchable by the system operator, given the absence of TOD factors to at least potentially

[11] For more on this topic, see CalWEA's Reply Comments on Questions in assigned Commissioner and Assigned ALJ's Ruling Identifying Issues and Schedule of Review for 2018 Renewables Portfolio Standard Procurement Plans (October 5, 2018, R.18-07-003).

[12] SCE Reply Comments on Energy Division Staff Paper on Least-Cost Best-Fit Reform for Renewables Portfolio Standard Procurement at p. 5 (August 9, 2016, R.15-02-020).

guide the operation of the storage as it was evaluated. In addition, the original capabilities of the storage should be maintained for the duration of the purchase agreement.

CalWEA agrees with the staff proposal that these new aggregate factors should be assessed as a part of the IOUs' annual RPS procurement plans. The aggregate factors should reflect forecasted energy values, finely differentiated across locations, seasons, days and hours, for uniform application to each bidder's expected delivery profile. Thus, this forecast should reflect times during which energy curtailment is expected, evidenced by low or negative energy prices (reflecting the need for a generator to pay to generate) in the hours in which over-generation is projected to occur.

To fully capture curtailment costs, it is critical that the aggregate factors reflect all resources that are expected to be on the system over the term of the bid being considered, including additional renewable resources that are expected to be needed to meet RPS and greenhouse-gas requirements as well as projected behind-the-meter solar resources that will significantly impact the curtailment of other resources on the system.

The Commission should adopt specific protocols for the utilities' development of these factors, or adopt specific values for their use. The factors must be made known to bidders to inform their decisions in choosing specific technologies to deploy.

3. **In its August 9, 2016, reply comments to the *Staff Paper on LCBF Reform*, SDG&E expressed concern about potential harm to ratepayers when a constructed project's generation profile does not match the one submitted in its bid. Aside from contract payments tied to fixed TOD factors and reduced payments for excess deliveries, are there other ways to ensure projects are built consistently with their bids? *Explain your response.***

We agree with SDG&E's explanation in the referenced document of how ratepayers can be harmed if the generation profile that is bid does not match what is delivered. As discussed above, if aggregate factors are provided to bidders that enable them to select technologies that generate more energy during times that are expected to be more valuable, they will select those technologies, all else equal.[13] The IOUs may then place PPA conditions on the

[13] For example, wind energy developers can select turbines with greater or lower "specific power" (the ratio of the turbine's nameplate capacity rating to its rotor-swept area). Turbines with lower specific power forego production during high wind events compared with turbines with higher specific power. See LBNL's 2017 Wind Technologies Market Report, available at: https://emp.lbl.gov/wind-

ability of the developer to change the relevant technology attributes that impact generation profiles to ensure that the attributes of the technology actually deployed reasonably matches what was bid.[14] The IOUs can also conduct due diligence to ensure that submitted profiles are reasonable given the technology and wind regime that is being bid.

Respectfully submitted,

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technologies-market-report; and *Utility Dive,* "Interactive: Wind turbines are getting more powerful as 'specific power' declines" (August 23, 2018), available at: https://www.utilitydive.com/news/a-big-wind-power-trend-you-may-have-never-heard-of-declining-specific-pow/530811/.

[14] For example, the contract could require that the installed wind turbines have a specific power rating within a certain range. Such conditions are far preferable to PPA terms centered around future production during specific times, which depend on the availability of the renewable "fuel" and are not under the control of the developer/owner.

VERIFICATION

I, Nancy Rader, am the Executive Director of the California Wind Energy Association. I am authorized to make this Verification on its behalf. I declare under penalty of perjury that the statements in the foregoing copy of "Comments of the California Wind Energy Association on Staff Proposal on Effective Load Carrying Capability, Time of Delivery Factors, and Project Viability" are true of my own knowledge, except as to the matters which are therein stated on information and belief, and as to those matters I believe them to be true.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on October 5, 2018, at Berkeley, California.

/s/ *Nancy Rader*
Nancy Rader
Executive Director
California Wind Energy Association