BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking to Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans.	Rulemaking 13-12-010 (Filed December 19, 2013)

REPLY COMMENTS OF THE CALIFORNIA WIND ENERGY ASSOCIATION ON LTPP MODELING METHODOLOGY STAFF PROPOSAL

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On behalf of the California Wind Energy Association

December 11, 2015

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Pursuant to the November 16, 2015, Ruling of Administrative Law Judge Fitch requesting comment and reply comments on the Energy Division Staff Proposal titled "Proposed Revisions to LTPP Modeling Methodology" ("Staff Proposal"), the California Wind Energy Association ("CalWEA") provides these replies to parties' opening comments. These comments reflect CalWEA's August 13, 2015, informal comments submitted to Energy Division on its draft proposal regarding the modeling methods that should be used to determine the need for flexible and system resources in future Long-Term Procurement Plan ("LTPP") proceedings and the California Independent System Operator's ("CAISO") Transmission Planning Processes ("TPP").

1. The Commission Should Require Any Capacity Procurement Decisions To Be Supported with Stochastic Modeling (Question 2)

CalWEA strongly agrees with San Diego Gas & Electric ("SDG&E") that it is unrealistic to expect deterministic modeling to provide meaningful insight into possible reliability shortfalls (SDG&E at p. 4). SDG&E is correct to point out that the increasing levels of variable resources on the grid create far more possible scenarios than can possibly be captured by deterministic studies. Therefore, while it may be necessary, as a practical matter, to use deterministic studies in the 2016 LTPP cycle while expertise is gained in using stochastic models, and while the results of deterministic studies may provide some insights, no decision to procure resources should be made on the basis of these deterministic studies.

As the North American Electric Reliability Corp. (NERC) found in a major 2009 report, "[t]here is a marked benefit in pursuing probabilistic methods for both long-term and operational

planning of the power system in order to more systematically and adequately quantify the risks associated with various planning options due to the high variability and probabilistic nature of many of the elements of the modern power system (variable generation, market forces, etc.)."[1]

Importantly, the results of probabilistic studies show not only the system conditions that can occur, but the likelihood of each outcome. A stochastic study produces a range of outcomes, each with associated probabilities; an outcome with a low probability of occurring will be shown as such. As SDG&E notes (in a different context on p.3), system reliability exists on a continuum; there is not a bright line where a system moves from being reliable to being unreliable. Stochastic studies present this continuum much more clearly than deterministic studies, which could easily show an outcome that would happen very rarely, but without the low probability being known, or fail to show an outcome that could actually be a concern for system operation. The only way to *sense* the likelihood of a result from a deterministic study would be to delve deeply into the model to discover and assess the relevant assumptions.

If more time is required to sufficiently develop and validate stochastic models for primary use in 2016, no procurement decisions should be made based on the results of the deterministic studies performed in the interim, and the Commission should work diligently toward full reliance on stochastic modeling by 2018.

We agree with the Staff Proposal as well as a number of parties, however, that targeted deterministic studies are appropriate for studying GHG emissions, over-generation, production costs, and the renewable integration cost adder evaluations.

2. A Loss of Load Event Should be Defined as Any Hour in Which Total Supply is Less than Hourly Load Plus 2% (Question 5)

We agree with ORA (at p. 3) that "the overall aim of LTPP modeling is to secure sufficient resources for planning or resource adequacy purposes, not to demonstrate adherence to operational standards." In other words, a capacity shortfall event in the modeling of long-term system operation should be based on indications of loss of load (i.e., unserved energy) only, and not include loss of operating reserves. In line with ORA's position, TURN (at p. 7) states that "it is not clear that a shortage of flexible capacity has the same implications as would a shortage of peak capacity; a shortage of peak capacity implies that resources are not adequate to meet load,

[1] North American Electric Reliability Corporation, *Accommodating High Levels of Variable Generation* (April 2009), p. 46. Available at: http://www.nerc.com/files/ivgtf_report_041609.pdf.

but the implications of a shortage of flexible capacity are much less clear and likely less severe on a 'MW for MW' basis."

As CalWEA has noted in our informal comments for this proceeding, long-term production simulation studies should exclude operating reserves, such as spinning reserves, in order to avoid redundantly accounting for the forced outage of system resources, which is the driver for added capacity that is procured beyond load. The Planning Reserve Margin ("PRM") capacity calculated in these long-term studies, typically 15% to 20% of peak load, is intended to account for the forced outage of system resources in the distant future. Later and during actual system operations, about five percent of the PRM capacity is committed by the system operator to account for the same potential forced outage of system resources, albeit over the shorter planning horizon that operators deal with. Hence, if, in the long-term production simulation studies, any operating reserves are added to load when determining capacity shortfalls and the need for RA capacity, it would be tantamount to double-counting the impact of system resources' forced outages, leading to the (false) identification of additional capacity shortfall events.

At the same time, in order to accurately account for capacity shortfalls, the load amount considered in long-term simulation studies should be the peak load within the hour. The "peak" hourly load could be calculated by adding regulation capacity up and intra-hour flexible ramping capacity up requirement values to the "average" hourly load typically used in production simulation studies. The total intra-hour load increase beyond requirements (regulation-up and load-following-up) should not exceed 2% of the hourly load.[2]

CAISO (at p. 2) refers to WECC reliability standards that require CAISO to maintain certain margins for system operation. As reasoned above, nothing in CalWEA's proposal for determining capacity shortfalls in long-term simulation studies based on hourly peak load (the same studies that typically determine 15 to 20 percent PRM values that could be later used for

[2] Since there is no experience with the market for intra-hour load-following capacity up (and also remembering that the CAISO system has operated for decades without any such capacity), and based on studies performed by the CAISO as part of its flexible ramping capacity market study, CalWEA believes that it is safe to consider the amount of capacity needed to meet intra-hour flexible ramping capacity up to be less than 1% of the hourly load. The regulation up capacity has been traditionally less than, but close to, 1% of the hourly load. Hence, the total intra-hour capacity reserve to be added to the hourly load for the purpose of determining capacity shortfalls should only be around 2%.

operating reserve margins), prevents CAISO from maintaining the necessary margin of a few percent during actual system operation.

Therefore, 1.5% spinning reserves should be excluded from the determination of capacity shortfalls in long-term planning studies, leaving 2% for regulation and load-following-up resources.

3. The Commission Should Develop a Reliability Index Based on Expected Unserved Energy (EUE) (Question 8)

CalWEA joins SDG&E, the Office of Ratepayer Advocates ("ORA"), and the Union of Concerned Scientists and Sierra Club ("UCS/SC") in supporting the use of Expected Unserved Energy ("EUE") in stochastic models as a basis, if not *the* basis, for the Commission's reliability standard.[3] Using EUE will inherently address two problems related to using the Loss of Load Hours (LOLH) metric for triggering the need for capacity additions: (1) LOLH counts very small losses of load, e.g., 0.1 MW, as an outage; and (2) LOLH counts intra-hour load variations as one-hour events. Further, based on CalWEA's conversations with NERC's reliability division, it is clear that the genesis of the LOLH metric of one-day-in-10-years of acceptable loss of load was arbitrarily selected and, as has become apparent through the LTPP working group discussions, this metric is itself subject to several starkly different interpretations.

As UCS/SC approvingly noted (at p. 11), CalWEA previously recommended that the Commission develop an acceptable EUE level by benchmarking EUE values to previous years of reliable system operation. This will result in picking a rational threshold for triggering capacity additions, rather than arbitrarily picking a value. As with stochastic modeling generally, the Commission should, in this way, expeditiously work towards developing an EUE reliability index for use in the 2018 cycle, if not sooner.

4. Addressing Over-generation Through Exports Should Not Be Assumed (Question 10)

Some parties (e.g., ORA at p. 8) imply that exports can be used to address over-generation needs. CalWEA agrees with PG&E and SDG&E that modeling should not assume that "unsolved over-generation" can be addressed through exports. Rather, the modeling should

[3] As CalWEA noted in its informal comments, NERC has not established an acceptable reliability standard.

simulate areas outside of California at a level of detail that will reflect when exports are physically feasible and economic. There are at least two important impediments to exports: the ability of neighboring states to accept the surplus energy, particularly if they likewise expand their renewable programs; and whether it may be more advantageous to the buyer to curtail the energy rather than to sell it into the market potentially at a negative price.

Respectfully submitted,

/s/ Nancy Rader

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On behalf of the California Wind Energy Association

December 11, 2015

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 *Reply Comments of the California Wind Energy Association on LTPP Modeling Methodology Staff Proposal* 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 December 11, 2015, at Berkeley, California.

/s/ *Nancy Rader*

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Nancy Rader
Executive Director, California Wind Energy Association