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 15-02-020 (Filed February 26, 2015)

POST-WORKSHOP REPLY COMMENTS OF THE CALIFORNIA WIND ENERGY ASSOCIATION ON THE RPS CALCULATOR

Dariush Shirmohammadi
Technical Director
California Wind Energy Association
2560 Ninth Street, Suite 213A
Berkeley, CA 94710
Telephone: (310) 858-1174
E-mail: Dariush@shirconsultants.com

Nancy Rader
Executive Director
California Wind Energy Association
2560 Ninth Street, Suite 213A
Berkeley, CA 94710
Telephone: 510-845-5077 x1
E-mail: nrader@calwea.org

On behalf of the California Wind Energy Association

May 8, 2015

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 15-02-020 (Filed February 26, 2015)

POST-WORKSHOP REPLY COMMENTS OF THE CALIFORNIA WIND ENERGY ASSOCIATION ON THE RPS CALCULATOR

I. INTRODUCTION

Pursuant to the April 13, 2015, ruling of Administrative Law Judge Anne Simon ("Ruling"), the California Wind Energy Association ("CalWEA") respectfully submits these post-workshop reply comments on the RPS Calculator in response to parties' opening comments addressing the questions posed by Judge Simon. Specifically, we address certain points in the thoughtful opening comments submitted by Pacific Gas & Electric Company ("PG&E"), Calpine Corporation ("Calpine") and the Large-scale Solar Association ("LSA").

II. REPLIES

A. Use of RPS Calculator in Procurement

PG&E states (at p. 2) that the RPS Calculator "does not contain sufficient granularity, complexity, nor the portfolio and commercial considerations required to reasonably inform utility-specific procurement decisions." CalWEA agrees that the Calculator itself should not be used to make procurement decisions. However, as CalWEA stated in opening comments (at p. 10), the values used in the Calculator and in procurement (particularly those that are important drivers in the outcomes) must be aligned in order for the TPP and LTPP planning to produce transmission and system resources that will support the procurement that actually occurs. PG&E commends Energy Division for the transparency of the Calculator's alignment with upcoming planning processes. It is essential that this same transparency extend to the least-cost, best-fit (LCBF) values in procurement, at least to the point of assuring essential consistency in methodologies and resulting values for the most significant components. For example, CalWEA

agrees with LSA's recommendation (at p. 4) that the Commission benchmark the RPS Calculator's effective load carrying capability ("ELCC") methodology with that being developed in the RA proceeding and the utilities' LCBF bid evaluation processes, and that the Commission adopt common metrics and approaches to ELCC for use in both planning and procurement.

B. Data from CCAs, ESPs and POUs

CalWEA agrees with PG&E (at p. 2-3) that the Commission should require that Community Choice Aggregators ("CCA") and Energy Service Providers ("ESP") provide the same level of information that is currently required from the investor-owned utilities ("IOUs") for use in the RPS Calculator, and that procurement data for CAISO-participating publicly owned utilities ("POUs") should be included to the extent possible. This information will improve the RPS Calculator's ability to accurately inform planning for transmission and system resources.

C. Consideration of Out-of-State Resources

CalWEA agrees with PG&E (at p. A-1, A-2, and A-6) that the Calculator should carefully consider and analyze out-of-state resources to determine the benefits of regional renewable energy diversity. This should include consideration of the benefits of DC transmission, the use of firm transmission rights and dynamic scheduling into the CAISO, and the use of capacity profiles specific to different geographic areas. CalWEA also agrees with Calpine (at p. 3) that it would be very useful, given the recent announcement by PacifiCorp that it will consider joining the CAISO, to study a scenario that treats out-of-state resources in at least some surrounding states as if they are in the CAISO footprint.

D. Modeling of Energy Value

CalWEA agrees with PG&E (at p. A-2 and A-3) that improvements are needed to the energy value model within the RPS Calculator to better capture the change in daily price shapes expected with high solar energy production levels by calibrating the RPS Calculator against production simulation hourly price projections. We also agree that steps should be taken to ensure the accuracy of overgeneration modeling. However, while PG&E advocates that the "minimum gas + qualifying baseload" threshold be adjusted such that the model produces results under a 40% RPS that are more reflective of the 2014 LTPP CAISO PLEXOS results," CalWEA cautions that the Calculator should not assume current minimum gas generation levels given

expected improvements in the flexibility of the thermal fleet that will reduce those minimum operating levels over the coming years. Moreover, some system-wide or regional minimum operating levels or net export limits used in utility and CAISO studies are either unsupported by tariff/operating procedures or are governed by antiquated operational rules. Such system-wide or regional minimum operating levels or net export limits should be updated based on actual system conditions that are expected in the future. These reforms should reduce overgeneration.

E. Energy-Only Transmission Optimization

In opening comments (at p. 3), CalWEA urged that transmission-related curtailments be evaluated in the 2015 Special Study to produce estimates of the level of curtailments for each resource area (regardless of EO or FC status), and that these estimates be incorporated into the RPS Calculator before it is used to generate portfolios for the 2016 LTPP and 2016-17 TPP. CalWEA agrees with PG&E (at p. A-5) that energy-only transmission optimization can significantly change the portfolio of RPS resources selected, and that this functionality should be a top priority for the RPS Calculator's development.

F. "Fixed Cost Component" of the Integration Cost Adder

PG&E proposes that the Commission retain E3 to develop an estimate of "increased fixed O&M costs" related to the incremental start-up and cycling costs that will be incurred by flexible resources to integrate wind and solar resources, using information from NREL's Western Wind and Solar Integration Study Phase 2 report ("NREL Study"). (PG&E at p. B-1.) While this cost would be more appropriately classified as a variable cost, CalWEA agrees that (though relatively small[1]) it is a real cost that should be included in the integration cost adder if the cost and its allocation among technologies can be estimated with reasonable accuracy.

We agree with PG&E that the increased number of starts and cycling attributable to wind and solar could be estimated through the LTPP analysis that SCE has been directed to conduct to calculate certain variable components a California-specific integration cost adder. We are concerned, however, with the suggestion that the incremental O&M costs associated with each additional start and cycling should be drawn from the NREL study, since that study reflected resources across the WECC, which are significantly different from the resource mix in the

[1] The NREL study (at p.xvi) estimated that cycling diminishes the production cost savings of wind and solar by $0.14–$0.67/MWh, "based on the specific system and generator characteristics modeled."

CAISO footprint (which, for example, has virtually no coal, significant hydro resources, and likely has, or will soon have, more flexible gas units), which can be expected to result in different costs. Also, the NREL Study addressed five scenarios with different levels of wind and solar.[2] Rather than taking an average of these figures, the costs should be specific to the wind/solar mix that is already expected in California, and potential additions to that mix. Moreover, while the cycling costs of baseload renewables can be expected to be lower than costs associated with intermittent resources, they are not zero and may as well be included in the study. Therefore, cycling costs that are specific to California should be developed as part of this exercise.

Finally, we note that there is another component of variable integration costs that was not specified for the LTPP study but could readily be developed: the cost of reserving flexible capacity under the CAISO's Flexible Resource Adequacy Capacity and Must-Offer Obligation ("FRACMOO") tariff. The CAISO has developed a methodology and actual data for the level of flexible capacity that needs to be reserved and the attribution of such capacity among renewable technologies and load. The cost calculation could be made by multiplying CAISO's allocation data by the cost ($/MW-month) of reserving flexible capacity, which could be supplied by the Commission or the utilities.

G. Cost of Curtailment

LSA argues (at p. 4-5) that, due to PPA curtailment provisions, the cost of curtailment has already been internalized in PPA prices, and therefore curtailment should be assigned a zero cost in the Calculator. CalWEA agrees that, to the extent that existing contracts provide for economic curtailment at no cost, the Calculator should assign zero cost to that ability to curtail, because it can be reasonably assumed that the utilities would respond to negative price pressure from an approaching over-generation condition by utilizing its contractual ability to curtail at no cost.

However, PPAs do not provide for unlimited levels of free economic curtailment, and some PPAs do not include any amount of free economic curtailment. Thus, the curtailment of some contracts will come at the cost of the full PPA price (as sellers are generally willing to be flexible only in exchange for revenue neutrality). Moreover, it is difficult to forecast future PPA provisions; it may be that future PPAs will not include free curtailment provisions since it will

---

[2] *See* http://www.nrel.gov/docs/fy13osti/57874.pdf .

drive up the PPA price and the available free curtailment may not be used. It is more economical to pay only for the level of curtailment that is actually used.

Therefore, CalWEA recommends that Energy Division estimate the amount of free economic curtailment that is available under existing PPAs (sorted by resource type and geographic area, since all resources may not be operating and subject to curtailment during times of overgeneration). For future resources, the Calculator should assume that there are no free curtailments (and also assume that PPA prices are not raised to account for any free curtailment).

H. Load Profiles

CalWEA agrees with LSA (at p.7) and Calpine (at p.3) that the RPS Calculator should incorporate a range of load profiles and forecasts in the development of a range of portfolios. As Calpine suggests, load could be significantly affected by the electrification of transportation through some combination of battery-electric and fuel-cell-electric vehicles sufficient to result in a 50 percent reduction in petroleum use by 2030 in the transportation sector (as contemplated in pending legislation). However, as PG&E notes (at p. A-4), this variable will be examined in the LTPP to which the RPS Calculator provides RPS portfolio inputs, and therefore this issue should be carefully coordinated between the two efforts.

Respectfully submitted,

Nancy Rader
Executive Director
California Wind Energy Association
2560 Ninth Street, Suite 213A
Berkeley, California 94710
Telephone: (510) 845-5077
Email: nrader@calwea.org

May 8, 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 *Post-Workshop Reply Comments of the California Wind Energy Association on the RPS Calculator* 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 May 8, 2015, at Berkeley, California.

_____

Nancy Rader
Executive Director, California Wind Energy Association