

**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Develop an  
Electricity Integrated Resource Planning  
Framework and to Coordinate and Refine  
Long-Term Procurement Planning  
Requirements.

Rulemaking 16-02-007  
(Filed February 11, 2016)

**REPLY COMMENTS OF THE CALIFORNIA WIND ENERGY ASSOCIATION  
ON PROPOSED REFERENCE SYSTEM PORTFOLIO  
AND RELATED POLICY ACTIONS**

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***On behalf of the California Wind  
Energy Association***

January 6, 2020

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**I. INTRODUCTION AND SUMMARY**

Pursuant to the November 6, 2019, Ruling of Administrative Law Judge (“ALJ”) Julie Fitch (“Ruling”), and ALJ Fitch’s email ruling of November 19, 2019 extending the comment deadline, the California Wind Energy Association (“CalWEA”) submits these reply comments in response to parties’ December 17, 2019 opening comments on the Ruling regarding the proposed Reference System Portfolio (“RSP”) and related policy actions for the 2019-2020 cycle of the Integrated Resource Planning (“IRP”) process.

In view of other parties’ thought-provoking opening comments,<sup>1</sup> CalWEA revises its recommendations as follows:

- (a) The Commission should adopt a 2019 RSP on the current schedule that includes only the 2023 renewable resource target and mix from the 46 MMT Alternate scenario and leaves open the target and resource mix for 2030 for further study;
- (b) Beginning as soon as possible, the Commission should address the major concerns regarding IRP modeling and assumptions, with additional stakeholder input (retaining the RESOLVE model);
- (c) The Commission should conduct its IRP studies using 2045 as the final modeling year in the next (2021-22) IRP cycle and study resource diversity options to determine which (if any) could be included at a reasonable cost premium;

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<sup>1</sup> Due to resource constraints over the holiday period, CalWEA focuses primarily on the comments of the California Independent System Operator (“CAISO”) and the Southern California Edison Company (“SCE”).

(d) The Commission should then send to the CAISO its more-diverse RSP along with an alternate least-cost RSP to develop an actionable least-regrets transmission plan, which will be robust whether or not the diverse scenario materializes.

We elaborate on each of these points below.

## II. REPLY COMMENTS

The opening comments of the CAISO, SCE and other parties, as well as CalWEA, flagged numerous serious technical issues with the modeling and assumptions that led to the proposed RSP. In addition, numerous parties take issue with the 46 MMT planning target for 2030, believing it to be too high to place California on the path necessary to achieve its 2045 decarbonization goal.

In its opening comments, CalWEA supported the 46 MMT Alternate Scenario, but argued that the Commission should study, plan-for and advance, in the near-term, those resource-diversity options that can be obtained at a reasonable cost premium to address the various risks associated with a portfolio that would otherwise be over-reliant on a narrow set of resources. We argued that planning now for such diversity would lay the foundation to successfully achieve, or exceed, the 46 MMT target in 2030 and to achieve longer-term GHG goals potentially at a lower cost, particularly if demand-side generation resources are properly considered alongside supply-side resources.<sup>2</sup>

In view of other parties' thoughtful opening comments, CalWEA revises its recommendations as discussed below.

### A. The Commission Should Adopt, under the Current Timeline, a 2019 RSP that Focuses Only on 2023

The opening comments of many parties raised many important concerns regarding technical issues with the modeling and assumptions that led to the proposed RSP, despite the significant improvements that have been made to the models, inputs and process. The CAISO, for example, plainly stated that the 46 MMT Alternate Scenario is insufficient to serve as the base case in the transmission planning process for numerous reasons.<sup>3</sup> In addition, numerous parties took issue with the 46 MMT planning target for 2030, believing it to be too high to place

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<sup>2</sup> CalWEA at section III.A.

<sup>3</sup> CAISO at 1-2.

California on the path necessary to achieve its 2045 decarbonization goal.<sup>4</sup> Some parties, including CalWEA, called for greater focus on resource diversity.<sup>5</sup> Resolving these concerns, some of which are noted in the next section, will require significant Commission resources and deserve further party participation that is not possible even if the Commission were to extend the current timeline.

The CAISO recommends that the Commission transmit the Preferred System Plan portfolio developed in the 2017-2018 IRP cycle as the reliability and policy-driven base case for the 2020-21 transmission planning process (“TPP”) while the Commission goes on to separately resolve the numerous problems with the proposed RSP identified by the CAISO on an extended timeline.<sup>6</sup> The CAISO stated that it “is open to studying the 46 MMT Alternate Scenario or a similar portfolio as a sensitivity in the 2020-21 transmission planning process.”<sup>7</sup> This is not a meaningful way to address the real problems that the CAISO has identified. Transmission planning, even as a sensitivity, should not be based on an outdated portfolio produced from an IRP process that has been substantially improved for this cycle and that requires further improvements.

SCE and CAISO agree that the proposed RSP is incomplete because Commission staff had to manually add 2,000 MW of generic effective capacity to ensure it was sufficiently reliable, but did not identify the resources or the locations for this generic capacity -- as well as 11,384 MW of storage capacity, and because staff did not iterate between the RESOLVE and SERVUM modeling to develop more specificity.<sup>8</sup> SCE argues that the proposed RSP is “overbuilt,” “uneconomic” and over-reliant on out-of-state imports with higher emissions.<sup>9</sup> SCE acknowledges that “there may not be sufficient time” to correct the problems it identifies and to develop a modified RSP due to the schedule constraints and therefore recommends that the Commission adopt, as a first step, a 38 MMT 2030 GHG planning target along with the portfolio

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<sup>4</sup> See, e.g., Natural Resources Defense Council at 2; SCE at 42; UCS at 10.

<sup>5</sup> See, e.g., UCS at 11.

<sup>6</sup> CAISO at 5.

<sup>7</sup> *Ibid.*

<sup>8</sup> SCE at 5; CAISO at 9-10.

<sup>9</sup> SCE at 5.

that SCE developed for that target.<sup>10</sup> However, SCE’s proposal has not been subject to party review and is not sufficiently robust, as it does not consider whether a more diverse resource portfolio can be obtained for a reasonable cost premium, and whether assumed high-cost levels of behind-the-meter (“BTM”) solar resources are warranted,<sup>11</sup> as CalWEA advocates be considered before setting a lower-GHG-target and associated portfolio.<sup>12</sup> For the same reasons, and because of the problems identified by CAISO and SCE apply to all scenarios, it would be premature for the Commission to adopt its own portfolios associated with a 30 MMT target in 2030, as some parties advocate.<sup>13</sup>

Instead, the Commission should adopt the proposed RSP through 2023 only, and then immediately turn its attention to resolving the modeling concerns that have been raised and preparing for the next IRP cycle where lower GHG targets and resource diversity can be more carefully considered. This would mean that CAISO should ignore IRP resources in its current TPP cycle and await the results of 2021-22 IRP. This approach will allow the Commission to establish a technically sound 2030 target and resource mix in the context of more robust 2045 studies that properly consider the role that a more diverse set of resources could play at a reasonable additional cost. As importantly, adopting a truncated plan for the 2019-20 IRP cycle will allow the Commission to develop a more robust plan in the 2021-22 cycle that will serve as the basis for an actionable transmission plan and other measures that will ensure achievement of the goals that are established.

As noted by TURN, the differences between the GHG target cases are relatively small in the near-term, particularly with Staff’s proposed cap of 2,000 MW of new solar resources in the next few years. It is worth taking the time in these early years to improve the modeling and consider all resource options over a long-term planning horizon.

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<sup>10</sup> SCE at 4-5.

<sup>11</sup> We agree also with PG&E’s comment, at 7, that PRM for load served by BTM PV should be calculated similar to how PRM is calculated for rest of the load.

<sup>12</sup> CalWEA at section III.A.

<sup>13</sup> *See, e.g.*, the California Environmental Justice Alliance and Sierra Club at 15; NRDC at 2.

**B. The Commission Should Address the Major Concerns Regarding IRP Modeling and Assumptions, Retaining RESOLVE**

Immediately upon adopting the proposed RSP including only 2023 goals, the Commission should turn to addressing, with public participation, the major modeling concerns raised by the parties, including but not limited to the following, in preparation for the 2021-22 IRP cycle:

- **Investigate why RESOLVE produces unreliable portfolios.** The CAISO suggests that Commission staff iterate between the RESOLVE and SERVVM models to eliminate the need for generic effective capacity and meet the 0.1 LOLE standard. With more time provided to resolve these issues as CalWEA suggests above, it would be possible to properly calibrate RESOLVE so that this iteration is not needed.
- **Revising the RESOLVE and SERVVM import limits.** Several parties noted that the assumed import limit is too conservative. UCS characterizes the limit as “a major step backwards in the IRP modeling.”<sup>14</sup> The City and County of San Francisco point out that the Commission has failed to provide an adequate justification for using 5,000 MW as the default import assumption not only for resource adequacy purposes, but also for hourly energy imports.<sup>15</sup> The California Community Choice Association (“CalCCA”) notes that the 5,000 MW constraint does not reflect near-term and perhaps even mid-term realities.<sup>16</sup> Pacific Gas & Electric Co. (“PG&E”) and the Public Advocates Office (“PAO”) noted that the assumption has a large cost impact, on the order of hundreds of millions of dollars per year to customers.<sup>17</sup> CalWEA agrees with CAISO and SCE that import limits should be raised to 6,937 MW through 2024 to reflect 5,000 MW of assumed imports based on historical contracting, plus the capacity from Hoover (822 MW), Palo Verde (635 MW), and the Intermountain Power Plant (480 MW).<sup>18</sup> However, this limit should be in place only during hours when resource adequacy (“RA”) capacity counting is critical, e.g., when gross electric demand is higher than the 95<sup>th</sup> percentile, as CalWEA discussed in opening comments.<sup>19</sup>
- **2045 planning target.** In the next section, we discuss in detail why – as other parties have called for – the Commission’s 2030 RSP should be produced under IRP studies that use 2045 as the final planning year. While the Framing Studies<sup>20</sup> were considered to be

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<sup>14</sup> UCS at 6.

<sup>15</sup> City and County of San Francisco at p. 1.

<sup>16</sup> CalCCA at 18.

<sup>17</sup> PG&E at 5-6 and PAO at 7.

<sup>18</sup> CAISO at 12. CAISO notes that, after 2024, the both limits should be decreased to 6,457 MW to reflect the retirement of the Intermountain Power Plant.

<sup>19</sup> CalWEA at 10.

<sup>20</sup> Ruling, Attachment A at 148-166.

“informational and directional,” it is not clear whether or how these studies actually differed from the other IRP runs. In the time period immediately following adoption of the 2019-20 RSP focused on 2023 only, the Commission should review with stakeholders the data assumptions required for the 2045 study so that 2045 planning horizon may be employed for the 2021-22 IRP cycle.

- **Baseline resources.** CalWEA and Calpine Corp.<sup>21</sup> noted the importance of not assuming that existing, pre-RPS renewable resources lacking long-term contracts will continue to operate. CalWEA does not agree with SCE that the 3,300 MW of procurement required by D.19-11-016 should be included in the baseline set of resources.<sup>22</sup> CalWEA recommended that the Commission should perform further SERVVM modeling to determine whether an adjustment of its Procurement Track decision schedule for the addition of 3,300 MW of RA resources in the 2021-23 timeframe is warranted, particularly if OTC resources are available as a backstop.<sup>23</sup>
- **Additional planning standards.** CalWEA agrees with SCE that two additional planning standards are in order both for selecting the RSP and as metrics to guide the development and required reporting for LSE plans: system ramping capacity required by the portfolio and the amount of energy an LSE’s portfolio requires from the system during a given evening peak.<sup>24</sup> These additional planning standards should help alleviate the capacity shortfall in the RSP originally developed by RESOLVE and address PG&E’s concern that the level of solar and storage included in the RSP should be studied to ensure that it does not create any reliability risks.<sup>25</sup>
- **Storage assumptions.** CalWEA agrees with the CAISO and other parties that cycling and replacement costs are not, but should be, fully considered in the modeling of battery storage, as well as multiple days of cloud cover.<sup>26</sup> We also agree with UCS that the Commission should reevaluate the capacity value of battery storage in portfolios with much higher levels of renewables.<sup>27</sup> Storage locations and types also need to be mapped.<sup>28</sup> CalWEA supports the CAISO’s recommendation that the Commission should develop a process for mapping storage resources (and all other non-renewable generic capacity) for modeling purposes based on priority needs.<sup>29</sup>

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<sup>21</sup> Calpine at 3.

<sup>22</sup> SCE at 39. CAISO stated (at 11) that “ideally” the IRP modeling should reflect the phasing in of the 3,300 MW incremental procurement authorized by the Commission.

<sup>23</sup> CalWEA at 13.

<sup>24</sup> SCE at 18.

<sup>25</sup> PG&E at 2.

<sup>26</sup> CAISO at 9-10 and 14; Calpine at 6.

<sup>27</sup> UCS at 3.

<sup>28</sup> CalCCA at 38.

<sup>29</sup> CAISO at 9-10.

- **Assessment of RA capacity available from each CREZ.** As CalWEA and other parties<sup>30</sup> have called for, the assumed levels of deliverable wind and solar capacity in renewable energy zones within the CAISO balancing area (“CREZs”) must be revised to reflect the RA values produced under the Commission’s new Effective Load Carrying Capability (“ELCC”) methodology for determining RA capacity values.<sup>31</sup> This change will free up thousands of megawatts of deliverability transmission capacity for new renewable energy and storage projects in all CREZs without the need for new deliverability transmission upgrades.

The RESOLVE model, however, should be retained despite SCE’s call for the Commission to switch to commercial-grade software, which is very expensive to acquire and more difficult to use.<sup>32</sup> RESOLVE is a relatively simple and affordable tool to use that is therefore far more accessible to the public than other models. Particularly when the problems discussed above and other correctable problems are addressed, RESOLVE (when paired with SERVM) is sufficiently accurate for IRP. The accessibility that RESOLVE provides to the IRP process, and the transparency that it provides to the Commission’s decisions is invaluable; RESOLVE should be therefore retained with the identified problems addressed.

**C. The Commission Should Conduct Its IRP Studies for the Next Cycle Using 2045 as the Final Modeling Year and Study Resource Diversity Options**

CalWEA agrees with CAISO, SCE, UCS and others that the Commission should conduct its IRP studies using 2045 as the final modeling year. CAISO points out that, based on staff’s 2045 Framing Study, changing the end year of the RESOLVE analysis greatly impacts the capacity expansion and gas capacity retention decisions for 2030.<sup>33</sup> SCE points out that staff’s 2045 Framing Study shows that all three future scenarios indicate the GHG “glide path” to reach California’s 2045 decarbonization goals will require a much more stringent GHG goal in 2030.<sup>34</sup> In addition, the 2045 Framing Study results show that fewer added resources are needed in 2030 to achieve the state’s 2045 goals compared with the resources produced under the 30 MMT IRP

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<sup>30</sup> GridLiance West LLC at 10; CalCCA at 37; and Bay Area Municipal Transmission Group at 5-6.

<sup>31</sup> CalWEA at 7.

<sup>32</sup> While “customer service” regarding RESOLVE is limited, CalWEA was able to obtain the help it needed to perform modeling runs from Commission staff, supported by E3.

<sup>33</sup> CAISO at 11, citing Ruling, Attachment A at pp. 148-166.

<sup>34</sup> SCE at 14.



study with a 2030 planning horizon, even with 7% more load in 2030 under the 2045 high-electrification scenario.<sup>35</sup>

As highlighted by UCS, the 2045 scenarios are also significantly more resource-diverse.<sup>36</sup> While the 2045 portfolio is still dominated by solar and storage, the model picks up a number of other resource types, including pumped storage, out-of-state wind,<sup>37</sup> geothermal and biomass – not only in the 2045 timeframe, but even in the pre-2030 and 2030 timeframes. That is, by optimizing for the long-run, a more diverse set of resources is shown to be cost-effective in the nearer-term. This suggests that higher levels of these diverse resources might come at a reasonable additional cost, or “insurance premium.” Scenarios with greater diversity should be formulated and considered prior to the next IRP cycle under a 2045 planning timeframe.<sup>38</sup>

While the Framing Studies<sup>39</sup> were considered to be “informational and directional,” it is not clear how these studies actually differ from the other IRP runs. At a minimum, the assumptions were not subject to stakeholder review. However, CalWEA sees no technical barrier to using 2045 as the end year for IRP purposes, provided that the data and assumptions are subject to stakeholder review. There will be greater uncertainty, of course, but rather than seeking illusive accuracy in such long-term studies, the Commission and stakeholders should look for consistency of results under different assumptions.

**D. In the Next IRP Cycle, the Commission Should Send to the CAISO the Diverse RSP Along with An Alternate Least-Cost RSP to Develop an Actionable Least-Regrets Transmission Plan**

With the preliminary steps taken above, including consideration of more diverse resource portfolios, effectively all major concerns raised in the current cycle will have been resolved, and the Commission will be ready to conduct its 2021-22 IRP process in a timely way. More importantly, the process is much more likely to produce a robust, well-vetted RSP that will

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<sup>35</sup> Ruling, Attachment A at p. 162.

<sup>36</sup> UCS at 4 and Table 1.

<sup>37</sup> Offshore wind was considered only as a sensitivity and was not available to the model for this scenario. The Framing Study concluded that the “[a]vailability of out-of-state or offshore wind displaces in-state solar and batteries and lowers costs. Resource diversity lowers the cost of meeting long-run GHG goals.”

<sup>38</sup> See CalWEA at section III.A for a discussion of diversity considerations.

<sup>39</sup> Ruling, Attachment A at 148-166.

create a firm foundation for action, potentially including procurement directives and an actionable transmission plan. To the latter end, the Commission should plan to create an RSP that includes a level of diversity that the Commission believes can be achieved with a reasonable “insurance premium” along with an alternate “least-cost” RSP and transmit them both to the CAISO for its TPP process, requesting that the CAISO study both scenarios and identify transmission solutions for each one. The upgrades that are common to both of them will constitute least-regret transmission upgrades that should be pursued.<sup>40</sup>

Respectfully submitted,

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***On behalf of the California Wind Energy Association***

January 6, 2020

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<sup>40</sup> As stated in CalWEA’s opening comments at 18, the principles of least regrets planning were adopted in the CAISO tariff in relation to Policy Transmission Upgrades, which would precisely apply to these TPP runs for the IRP.

## 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 Proposed Reference System Plan and Related Policy Actions” 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 January 6, 2020, at Berkeley, California.

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