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)

COMMENTS OF THE CALIFORNIA WIND ENERGY ASSOCIATION ON THE STAFF PAPER ON INCORPORATING LAND USE AND ENVIRONMENTAL INFORMATION INTO THE RPS CALCULATOR AND DEVELOPING PORTFOLIOS

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

September 28, 2015

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I. INTRODUCTION

Pursuant to the August 28, 2015, ruling of Administrative Law Judge Robert Mason ("Ruling"), the California Wind Energy Association ("CalWEA") respectfully submits these comments on Energy Division's *Staff Paper on Incorporating Land Use and Environmental Information into the RPS Calculator and Developing and Selecting RPS Calculator Portfolios* ("Staff Paper"). In these comments, we respond to the questions posed in the Ruling and in the Staff Paper (using corresponding numbering for the latter), and, in the last section, comment on a few issues that were not encompassed by those questions.

II. RESPONSES TO QUESTIONS IN THE RULING

The Ruling posed two questions, which we address here. The two questions were:

- Do you agree with the guiding principles for developing RPS Calculator Portfolios listed in the *Staff Paper* at page 5?
- Are there any principles you would add, remove, or modify? If so, which ones, and why?

In response, CalWEA generally agrees with the guiding principles. However principle #4 ("RPS Calculator portfolios should not prejudge transmission or generation permitting") is inconsistent with the creation of "plausible futures" which, with regard to the environmental and land-use factors discussed in the Staff Paper, necessarily require prejudging generation permitting. This is not necessarily problematic in the context of least-regrets planning as long as the environmentally constrained scenario is paired with at least one scenario that does not

prejudge permitting. CalWEA suggests that principle #4 be eliminated and subsumed under principle #5 such that the latter is amended to read:

> RPS Calculator portfolios should reflect multiple distinct and plausible futures that could result from different policy choices, land-use decisions, and market conditions.

Similarly, CalWEA suggests revising principle #6 to read:

> RPS Calculator portfolios should be designed to facilitate the achievement of RPS goals at the least possible cost; where plausible alternative futures would raise costs, the RPS Calculator should identify the least-cost portfolio given the assumptions under that plausible alternative future.

III. RESPONSES TO QUESTIONS IN THE STAFF PAPER

A. Questions relating to Environmental Screening, Scoring and Weighting

1. Are the criteria in the current RPS Calculator 6.1 base screen adequate (RETI Category 1 land and the technology specific exclusions shown in Table 1)? Why or why not?

The criteria for the base screen, while potentially overbroad in particular instances, are generally adequate for use in a high-level study.[1] However, the base screen should reflect current land use restrictions that limit wind energy development. For example, it should recognize the likelihood that the current Solano County moratorium on wind energy development will continue due to conflicts with operations at Travis Air Force Base. It should also reflect San Diego County's 2013 Wind Energy Ordinance which resulted in most wind developments in the county being dropped. The RPS Calculator should also represent the potential to repower at least 700 MW of existing wind projects in Kern, Riverside, Alameda and Contra Costa Counties, which would substantially increase the energy deliveries of these projects.

The base screen should not be expanded to exclude renewable energy in areas listed under the RETI Category 2 Land Exclusions unless renewable energy is categorically prohibited. For example, wind energy is not presently categorically precluded in BLM Areas of Critical

[1] For example, the exclusion of all military flight paths does not allow for instances in which flight paths can be modified to accommodate a wind project, as has occurred in California. Similarly, wind projects exist on Native American land in California, and wind projects are not necessarily incompatible with mining areas.

Environmental Concern (ACECs).[2] In these areas, development must be consistent with the management prescriptions for each individual ACEC area, and any site-specific resource conflicts and impacts must be mitigated. In addition, most ACECs contain a total disturbance cap limiting the total surface disturbance from all types of development. Even very low disturbance caps, such as 1% of a total ACEC area, however, enable hundreds of thousands of acres of disturbance – more than enough to accommodate significant wind development, given the very limited ground-disturbance impact of wind energy projects.

2. ***If not, which criteria should be used to add or remove land from the RPS Calculator's base screen (e.g., remove all RETI Category 2 land; remove land that meets a specific subset of RETI Category 2 criteria; remove land that meets some criteria other than those in RETI Category 2)? Identify the sources of the criteria chosen and justify the value of those criteria for the uses of the RPS Calculator.***

Category 2 exclusions should not be included in the reference case. They could be reflected, in whole or part, in an RPS Calculator scenario designed to reflect environmental sensitivities and potential future restrictions.

However, the renewable energy supply curve in RETI Category 1 areas could be discounted to reflect management prescriptions in these areas, e.g., to reflect disturbance caps in ACECs as discussed above. In addition, if the BLM's DRECP plan is adopted soon enough to be incorporated into the reference case for this process, the mitigation costs that it imposes on developments within its Development Focus Areas ("DFAs") should be reflected in the Calculator. These costs are anticipated to be very significant and could, in particular, drive solar developments outside of the DRECP, given the ubiquitous nature of the solar resource and lower mitigation costs elsewhere.

3. ***Should future versions of the RPS Calculator include one or more alternative screens to reflect specific land use policies?***

Pre our responses to the previous two questions, the base (or reference) case for the RPS Calculator should never categorically restrict renewable energy development where it is not, under current law, categorically prohibited. However, future versions of the RPS Calculator's

[2] This would not be true if the Draft DRECP were to be adopted in its current form. However, CalWEA has petitioned the BLM to retain the ability to consider projects on a case-by-case basis after site-specific study, and we hope to see some allowance for this in the final plan. If and when the DRECP is adopted, it can be incorporated into the base screen.

reference cases should be revised to discount potential renewable energy generation to reflect current policies that restrict development in these areas. The RPS Calculator could also reflect higher mitigation requirements in certain areas, such as the high mitigation requirements likely to be associated with DRECP DFAs, should the DRECP be adopted. Finally, with regard to salt-affected, idle farmland, the RPS Calculator could reflect the economic incentive that these areas have to host renewable energy projects, given the high mitigation costs associated with leaving these areas as farmland,[3] and could reflect any permitting preferences that may be conferred on these areas.

4. ***If so, what policies should the alternative screens in the RPS Calculator represent (e.g., preferred procurement on salt-affected, idle farmland)? Why? What criteria should be included in each alternative screen to reflect that policy? Identify the sources of the criteria and justify their appropriateness for the purposes of the RPS Calculator.***

Per above, the RPS Calculator reference case should reflect existing policies that limit total development in certain areas or impose higher mitigation requirements. However, "preferred procurement areas" is subjective and arbitrary until codified in law. Once codified, any preferences (such as a set-aside requirement for particular resources) can be reflected in the reference case. Otherwise, so-called "preferred procurement areas" should be considered for inclusion in an alternative scenario reflecting plausible future portfolios.

5. ***If you are proposing a methodology for incorporating land use information into the RPS Calculator clearly identify what screen(s) should be used and what criteria should be included in each screen.***

See response to question 21.

6. ***Should future versions of the RPS Calculator implement a scoring methodology to represent land use information? Why or why not? Should scoring be used in addition to screening? Why or why not? Does your answer depend on the screening and/or scoring approach? If so, explain how.***

See responses to questions 3-5. It would be reasonable for future versions of the RPS Calculator to discount the renewable energy supply curve to reflect actual development limitations across broad areas, and to adjust the economics of resources in certain areas to reflect any special economic or permitting incentives that may exist in those areas. Beyond that, it is

[3] For further context, see "Westlands Water District agreement a retreat from previous U.S. Plan," *Los Angeles Times*, September 22, 2015.

essential to distinguish between the reference case and alternative scenarios and not to include in the reference case any subjective preferences not rooted in existing law or policy.

In developing alternate scenarios, it is important that the Commission and the parties recognize that the objective of this exercise is not to procure resources or issue land-use permits for specific projects, but rather to select a range of plausible and distinct future resource portfolios that will enable least-regrets planning -- i.e., the identification of system and transmission investment needs that, because they are common to a wide range of plausible renewable energy futures, can be broadly supported by stakeholders and confidently acted upon by decision-makers. Thus, we should not spend an excessive amount of time debating and developing scenarios and seeking to achieve consensus -- e.g., by developing, and arguing over, environmental screening, scoring and weighting measures -- either for the 2016-17 LTPP/TPP cycle or in later cycles. Rather, we should identify a reference case and distinctly different scenarios that are likely to generate a spectrum of plausible resource portfolio outcomes.

The Staff Paper suggests that the RETI CREZs were "vetted for land use suitability through a stakeholder process" that has not been done for this process. (Staff Paper, p. 7/41.) As one of the RETI stakeholders, CalWEA can attest to the fact that this vetting did not produce a consensus methodology. Moreover, it was a highly contentious and extremely time-consuming process. CalWEA strongly objected to the arbitrary and subjective scoring criteria that were used because, in that process, there was no "reference case" that excluded this arbitrary scoring methodology.

The RPS Calculator scenarios are being conceived, at least initially as reflected in the Staff Paper, as having a reference case that is generally free of subjective criteria, paired with one or more alternative scenarios that reflect plausible futures that could result from different policy choices, land-use decisions, and market conditions. This departure from RETI is crucial, in that it uses an objective scenario along with one or more subjective or uncertain scenarios with which to develop a least-regrets plan. The inclusion of an objective reference case greatly eases concerns over any subjective alternatives and diminishes the need to develop a consensus around the subjective alternative, as long as the subjective alternative (a) is clearly labeled as such, (b) is based on a credible, well-reasoned effort, and (c) produces a portfolio whose costs remain in politically plausible territory. Finally, there is no reason that the Commission should develop such an alternative scenario itself, if one party or a group of parties is willing to do so and other parties find the effort to be reasonable.

7. ***If so, should RPS Calculator implement scoring within its project selection algorithm, or external to its project selection algorithm? What type of scoring systems or criteria should be considered? Explain and provide examples.***

See responses to questions 3-6. To reiterate, the supply curve in the RPS Calculator could be adjusted to reflect actual development limitations in certain areas – e.g., to reflect the ground-disturbance caps in ACEC areas, and to adjust the costs of resources in certain areas to reflect any unique economic incentives that may exist in those areas. This would be a reflection of reality, and not any type of subjective scoring or weighting, although judgment-calls may need to be made. Any other adjustments should be left to alternative scenarios as explained in response to question 6.

8. ***Is scoring needed for projects throughout the WECC region, throughout the state, or only in particular areas within and/or outside the state? In other words, are there areas that are so unlikely to be developed, a detailed scoring approach is not needed? What criteria should be used to determine what areas merit the use of a scoring approach (as distinct from a screening approach)?***

See responses to questions 6 and 7. Subjective scoring and weighting should be avoided in the reference case for areas in or outside of the state. Any areas that are known to have actual development limitations or unique economic conditions may be factored in to the reference case, representing them as factually as possible. For example, the federal Final Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States should be incorporated in to the reference case. Any scoring and weighting should be left to an alternative plausible scenario.

9. ***Should land use scoring account for technology-specific environmental impacts (e.g., wind turbines may not preclude use of land for farming)? Why or why not?***

As discussed, in general, any perceived and subjective environmental impacts are most appropriately reflected in an alternative scenario. As noted in answer to question 3, however, the RPS Calculator could, for the reference case, reflect mitigation requirements that are known to be high in certain areas, such as the high mitigation requirements likely to be associated with DRECP DFAs, should the DRECP be adopted. However, technology-specific impacts are site-specific and should already be reflected to some extent, on average, in their installed costs (e.g., the installed costs of wind projects will reflect their permitting costs and the lower cost of land where farming can continue). Moreover, except in extreme cases, technology-specific

environmental impacts are unlikely to dramatically affect project costs and thus radically change the supply curve for this high-level study.

10. If you are proposing a methodology for incorporating land use information into the RPS Calculator, clearly identify how your proposal addresses the scoring-related questions above.

CalWEA is not proposing a methodology for incorporating land use information, as explained in answer to questions 6, 21 and others.

11. Should one or more factors used in the RPS Calculator project selection algorithm be weighted? Explain how weighting would improve on the calculations that underlie each element of value used for project selection.

CalWEA does not support weighting of environmental information except as it may relate to the development of an alternative scenario, as explained in answer to questions 6, 21 and others.

12. What relative weights, if any, should be assigned to different types of values that influence resource ranking (e.g., land-use, capacity, energy, curtailment value, integration)? Please justify your answer.

An endeavor of this type would threaten to completely undermine the objectivity of the RPS Calculator's reference case scenario and mire the process in controversy. We agree with the comment in the Staff Paper that attempting to weight these apples-and-oranges factors "could arbitrarily undermine the detailed calculation underlying each element of value."

13. If you are proposing a methodology for incorporating land use and environmental information in the RPS Calculator, please describe the role of weighting, if any.

N/A

B. Questions Related to Infrastructure and Land Use Information Questions

14. Should the RPS Calculator include land use information related to generation, transmission, roads, or a combination thereof? Which types of infrastructure are most important to include? Why or why not? Be specific and provide examples. It may be useful to consider your answer in the context of the geographic granularity discussion presented in the next section.

See response to question 15.

15. Should the RPS Calculator include land use information related to generation, transmission, or roads for all areas of the state, or for specific areas? Which areas are most important to include for which types of infrastructure? Why?

This information should not be included in the reference case, but can be reflected in alternative scenarios, such as a DRECP scenario or other analyses which have already taken into account land-use information related to transmission and generation. An analysis by TNC accounts for such information both in-state and regionally (see response to question 21.) It is important to recognize that least-regrets transmission upgrades will be backbone in nature, and will not get down to generation-specific levels. Likewise, system resources (such as flexibility resources) will be largely unaffected by the location of the resource. Thus, this process should not concern itself with the fine details of land-use screens, which should be left to one of the alternate scenarios.

16. Should the RPS Calculator include land use information related to generation, transmission, or roads for states throughout the WECC or for specific areas within the WECC? Which areas are most important to include for which types of infrastructure? Why?

See response to question 15.

C. Questions Related to Geographic Granularity

17. Should the RPS Calculator include an algorithm for selecting project locations within Super CREZ boundaries?

For the same reasons discussed in response to question 15 – that the system and transmission resources that we are planning will be largely indifferent to precise project locations – it is not necessary for the Calculator to pinpoint the location of particular projects within a Super-CREZ in the reference scenario. Thus, such complicated efforts can be avoided in that process. There will be many resource areas available within the Super-CREZ, and the selection of actual projects can be left to the development and siting processes. The alternative land-use scenario(s) that are selected will, by their nature, scale down the availability of project locations within Super-CREZs.

18. In your proposal for a methodology for incorporating land use and environmental information into the RPS Calculator, please clearly state and justify the level of geographic granularity that your methodology would use and (a) whether and/or how that granularity would vary across the state; and (b) whether and/or how that granularity would vary across the WECC.

N/A

D. Questions Regarding Criteria for Selecting Scenarios for Least Regrets Planning Questions

19. Are the criteria described above sufficient for selecting appropriate scenarios for use in "least regrets" planning in LTPP and TPP? If not, what changes are needed and why?

CalWEA generally agrees with the criteria that staff has identified for use with the RPS Calculator for developing RPS scenarios. Among these criteria, the two that are most important are related to the plausibility and distinctiveness of the scenarios. The four or five plausible scenarios chosen for study by the CAISO should be expected to trigger network upgrades that would be reasonably distinct from one another. (Also see our response to question 21.) Other uncertainties (criteria 3 and 4) should either be subsumed in the larger portfolio distinctions or should be addressed in sensitivity analyses.

Criterion 5 ("Portfolios reflect multi value transmission solutions"), however, is out of place. The multiplicity of values for transmission upgrades is dependent on considerations that are outside the scope of the RPS Calculator and tied to decisions that will be made by the CAISO in its TPP process. That process should identify transmission upgrades that address RPS policy needs while simultaneously providing reliability and economic benefits, thus bolstering the least-regrets nature of the plan beyond serving a wide range of possible renewable energy futures.

20. Given that less time is available for developing scenarios for the upcoming 2016 LTPP and 2016-2017 TPP launching in early 2016, are different criteria appropriate? What criteria are appropriate specifically for the upcoming LTPP and TPP cycles and which criteria are likely to be generally appropriate on an annual basis for all future LTPP and TPP cycles?

With the primary focus on the plausibility and distinctiveness of the scenarios, as discussed in the previous response, there will be no need to change the criteria. Rather, as suggested in the Staff Paper (p. 41/41), given timing challenges, it may be advisable to aim for the 2017-18 TPP process for producing an actionable policy-driven transmission plan. For the next several months, staff can work with the parties to develop a solid set of scenarios and

portfolio results for submission to the CAISO for special studies in mid-2016, taking the time for the preliminary special study results to go through the CAISO stakeholder review process. The final results can then be used to fine-tune the RPS Calculator (e.g., better-informing its energy-only limits) and the resulting portfolios, and be fully aligned with the 2016-17 LTPP. The results can be then confidently submitted into the 2017-2018 TPP to produce CAISO-Board-approved policy-driven upgrades.

While it is regrettable that process constraints appear to preclude earlier decision-making, given the seven-to-10-year historical lead time for transmission permitting and construction, taking the time to develop scenarios in a transparent process that is aligned with the LTPP and fully allows for participation by the parties could very well significantly reduce that lead time.

21. If the RPS Calculator is used to generate multiple scenarios, what types of scenarios are most likely to be essential to adequately reflect a range of plausible results that would be useful for developing a "least regrets" portfolio for LTPP? For TPP? Explain your reasoning, with quantitative examples if relevant. Please address comparative value of all scenarios you identify.

First, we clarify that the goal of this exercise (as we understand it) is not to develop a "least regrets portfolio" (as stated in the question) but to generate a range of plausible and distinct portfolios that, together, can support least-regrets system resources (e.g., flexible capacity) and transmission planning. In achieving this purpose, particularly for transmission planning, there is no need to spend an excessive amount of time debating and developing resource portfolios. Rather, we should seek to identify portfolios that will, as a group, garner broad stakeholder support by representing a spectrum of plausible resource portfolio outcomes.

To that end, CalWEA proposes four plausible, distinct scenarios and several sensitivities, as follows.

1. Distinct Scenarios

a. Reference case

A least-cost/best-fit scenario would be generated by the RPS Calculator without additional constraints, selecting FCDS resources only when economic.

b. An "environmentally constrained" portfolio.

One of the scenarios developed by The Nature Conservancy ("TNC") using the RPS Calculator and cited in the Staff Paper could well serve this purpose.[4] Although CalWEA does not endorse the environmental screening methodology used by TNC per se,[5] it can usefully serve as a distinctly different scenario for planning purposes. In particular, the resource portfolio produced under TNC's Category 4 Exclusion Level represents a relatively extreme, yet still plausible,[6] scenario that would best serve the purpose of creating distinctly different scenarios.[7]

c. ***In-state/regional scenario variations.***

Each of the above would be run twice, once in a restricted in-state scenario, and another in an expanded WECC scenario. Running each of the above cases in each of these contexts is important to inform current discussions regarding expanding CAISO boundaries.[8]

Thus, four plausible and distinct scenarios would be produced. These scenarios are likely to produce four distinct transmission plans from which a least-regrets transmission plan can be developed that will support least-regrets upgrades beneficial to all four scenarios.[9] They are also

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[4] See Staff Paper, p. 30/41, and Integrating Land Conservation and Renewable Energy Goals in California, The Nature Conservancy, 2015 (http://scienceforconservation.org/downloads/ORB_report) ("TNC Report").

[5] The methodology presumes the incompatibility of resources across wide swaths of land, while site-specific study is necessary to determine whether a proposed project is suitable in a specific location.

[6] Though extreme in CalWEA's view, the plausibility of this scenario is made evident by the imminent adoption of the Draft DRECP despite its extremely deleterious impact on California's wind energy resources and the vociferous objections of the wind industry and, to a lesser extent, its impacts on the availability of California's solar resources. See CalWEA's comments and the comments of the Large-scale Solar Association on the Draft DRECP and NEPA/CEQA EIR/EIS.

[7] We note that the TNC scenario in the area of the Southern California desert appears to largely reflect the draft DRECP.

[8] In the current "unlimited access to out-of-state renewables" cases, out-of-state renewables are delivered only through DC lines to a California balancing authority (with the cost of the DC line included). If the CAISO-PacifiCorp merger goes forward, this case should be revised to reflect the potential benefits of an expanded CAISO footprint in which deliveries might made over existing AC lines or with upgrades to AC lines, which could lower the cost of deliveries as compared to DC lines.

[9] In developing the least-regrets transmission plan, each of the scenarios should serve as an independent base case with a separate transmission plan developed for each. Elements common to all or most scenarios would form the basis of the least-regrets plan. The transmission plan should not be based on a

likely to produce portfolios that have distinct system impacts, owing to significantly different production profiles of the resource mixes, allowing for a least-regrets selection of system resources such as flexible capacity.[10]

2. Sensitivities

As the Staff Paper indicates, the CAISO is unlikely to study more than four RPS Calculator portfolios in the TPP. (Staff Paper at p. 33/41.) Thus, it is important that those portfolios represent possible futures that would have a major impact on the resource mix. Factors that are expected to have more marginal impacts should represented through sensitivity studies. (As noted above and in footnote 8, separate transmission plans and system resources should be produced for each scenario; the scenarios themselves should not be seen as sensitivities.) The purpose of the sensitivity study is to test whether the least-regrets plans for transmission upgrades and system resources remain robust under those sensitivities; if they don't, adjustments can be made.[11] If sensitivity results have a much larger impact than expected, it could the cause the sensitivity to rise to the level of a scenario to be studied in the TPP and LTPP process.

CalWEA recommends the following sensitivities:

- ***Behind-the-meter solar penetration.*** Particularly as resource that is not controllable by the CAISO, behind-the-meter solar could have very significant effects on the cost-effectiveness of wholesale solar and on system resource needs. In developing this sensitivity case, care should be taken to ensure that the associated level of curtailment, as well as distribution upgrade needs, are properly accounted for;
- ***Load shape.*** This sensitivity case can reflect different pathways to meeting state GHG reduction goals, e.g., emphasis on fuel-cell-powered vehicles or electric vehicles and emphasis on biogas in buildings vs. building electrification;

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single scenario as the "base case", using the other scenarios for sensitivity analyses, because this approach is likely to produce either a plan that works well only for the base case (if the needs of the sensitivity cases are not addressed), or would over-build the system in order to work well also for each of the sensitivity cases.

[10] For example, TNC's Category 4 exclusion level produces widely varying levels of solar and wind, depending on whether WECC-wide resources are accessed. See TNC Report p. 22 and Figure 5A.

[11] In the case of system flexibility, for example, you might add or subtract resources. With transmission, you might change a 230kV double-circuit line to a 500-kV single-circuit line.

- ***Technology cost trajectories.*** Conservative cost trajectories that are widely accepted should be used in the reference scenario; trajectories that depart from that, as well as possible changes in tax policy, can be reflected in this sensitivity;
- ***Hydro conditions*** (particularly given climate change impacts on Northwest hydro resources);
- ***Deliverability levels -- all-FCDS resource case and all-EO case.*** While an all-FCDS case is likely to have a significant impact on the transmission plan, this scenario does not warrant a transmission plan because the calculator is capable of picking the right combination of EO and FCDS resources. The all-EO case will simply quantify the cost of FCDS resources that are selected.
- ***Relicensing of Diablo Canyon.*** If not retired, the continued operation of this large baseload resource could influence the renewable energy portfolios and therefore should be studied as a sensitivity case.

These scenarios and sensitivities together are consistent with the guiding principles set forth in the Staff Paper (in view of CalWEA's suggestions for modifying those criteria in section II, above).

The Staff Paper also suggested that several additional scenarios could be evaluated by the RPS Calculator, without being included for study by the CAISO. This would be the appropriate place for other scenarios of the type suggested in the Staff Paper, namely, a high-(wholesale)-DG case and a case favoring development of salt-affected lands (which preliminarily appear to be uneconomic in an energy-only scenario). The results could inform any related policy discussions. However, such scenarios should not be sent to the CAISO for study, because they are likely to increase costs beyond the already significant increases seen with TNC's Category 4 Exclusion level (the results of this TNC scenario appear to include few, if any, of these resources due to their cost). Thus, such a scenario would be less plausible. Moreover, the objective of these higher-cost resources is presumably to avoid environmental costs, which is addressed by TNC's Category 4 Exclusion level. If such scenarios are used for transmission planning, the forced levels of uneconomic resources should be very moderate.

Further, we do not advocate the use of a "high DG" scenario because (a) the costs are high, as indicated by the Staff Paper's preliminary analysis, and thus would be less plausible than other scenarios, and (b) the system impacts of a high-DG scenario will be akin to a high-central-solar scenario, which will be produced using TNC's Category 4 Exclusion scenario, when further

constrained to in-state, and (c) very importantly, the transmission needs for a high-DG scenario would be modest, thus undermining the development of a least-regrets transmission plan. (If policies later materialize that would result in a high-DG scenario, the CPUC can disapprove of the CPCN applications that result from the CAISO's least-regrets transmission plan.)

22. In your proposal for a process for selecting the appropriate scenarios to model in RPS Calculator, please include an approach for how to select "least regrets" portfolios for use in LTPP and TPP that addresses the questions above.

We note again that the goal is not to develop "least regrets portfolios" (as stated in the question) but to generate a range of plausible and distinct portfolios that, together, can support least-regrets system resources (e.g., flexible capacity) and transmission planning, as discussed in our response to question 21.

E. Questions Re Criteria for Adjusting RPS Calculator Portfolios

23. Are the criteria presented (on p. 35/41) necessary and sufficient for determining whether a portfolio produced by the RPS Calculator should be manually modified for use in LTPP and TPP? If not, which of the above criteria should be removed or modified and/or what additional criteria should be added? Justify your answer.

Given the nature of the least-regrets plans that should result from this effort – that is, plans that will be robust under a variety of market outcomes and will not be significantly influenced by relatively small changes in one of a range of distinct portfolios, and given the capabilities of the RPS Calculator, we do not anticipate the need to manually modify the Calculator's results. However, if a change can resolve a significant problem that cannot be adequately represented in the RPS Calculator (the second criterion), post-processing may be warranted to address it. Any such changes should be discussed and addressed transparently.

With regard to changes that can reduce the total cost of the portfolio in the target year, if the cost is due to the scenario that was chosen and was unanticipated, then it would be preferable to re-run a modified scenario.

With regard to changes that can reduce the total cost of the portfolio in the target year, if the cost is due to the way the modeling was conducted, post-processing changes would be a second-best solution. In the example provided in the Staff Paper (p. 35.41) ("a project that offers significant value in 2030 may never be selected because transmission capacity in the region becomes filled with projects that were more competitive in previous years"), CalWEA believes

that this is a potentially significant problem,[12] and that there is a better way to resolve it than through post-processing. The problem is that the RPS Calculator selects renewable resources on an incremental (year by year) basis to reach the 50% target in 2030 rather than planning an optimal overall portfolio for 2030. The incremental approach could readily result in picking grossly suboptimal resources in the earlier years since the model does not "see" the resources that will be on the system, as well as system conditions, in the later years. As shown in recent studies,[13] the value of a proposed project can be dramatically affected by the other RPS projects in operation at higher RPS levels – in particular, it could suffer significant curtailment that is not captured in earlier assessments.

While the problem could be resolved through post-processing, by adjusting the earlier-year procurements, a much simpler and fully optimal solution would be for the Calculator to "procure" the entire 50% portfolio in the target year based on the system impacts of the total portfolio. If, for some reason, the portfolio needs to be broken up into annual increments, a number of simple and effective algorithms could be used to annually decrement the 2030 RPS portfolio back towards the first procurement year.[14] If this solution cannot be implemented, however, the problem should be remedied through post-processing.

24. Please address whether and how portfolios should be "post-processed" in your proposal for aligning RPS Calculator portfolios development and selection with LTPP and TPP.

See response to question 23.

[12] We suspect that the reason that so few wind resources in DRECP-area CREZs appear in the base case is due to the very example that Staff points to – namely, that, by adding resources annually, solar PV resources fill up desert transmission lines that, in view of the 2030 portfolio, would be more cost-effectively filled up with wind resources. This explains the odd base-case result in which relatively low-quality Sacramento River wind resources show up, while much higher-quality wind resources in the DRECP area do not.

[13] See, e.g., Energy and Environmental Economics, Inc., *Investigating a Higher Renewables Portfolio Standard in California* (January 2014); CalWEA, "Investigating the Investigation of a Higher Renewables Portfolio Standard in California: A Review of the Five-Utility E3 Study," (April 2014); LBNL, "Integrating Solar PV in Utility System Operations" (March 2014); SCE's May 29, 2015, Report on Renewable Integration Cost Study; and initial RPS Calculator results.

[14] A similar approach should be followed by LSEs in their procurement process, as consistently with the RPS Calculator's 2030 portfolio as possible to ensure alignment between planning and procurement. To select among RPS offers in a particular year's RFO, the LSE would deduct the least-valuable RPS resources from the final-year's optimal portfolio in the amount of the RFO's target energy and determine which offered RPS resources would best fill that void.

F. Criteria Related to Alignment with LTPP and TPP

25. Which RPS Calculator inputs and assumptions are most important to align with LTTP and TPP (e.g., load assumptions, plant retirement assumptions, etc.)? Please justify your answer with respect to the impact of the inputs and assumptions on the composition of RPS Calculator portfolios and the sensitivity of LTPP and TPP outcomes to variations in RPS Calculator portfolios.

The inputs and assumptions that will have the most impact on least-regrets transmission planning and system resource planning, and should therefore be aligned with the RPS Calculator, are the following (in order of importance):

- Behind-the-meter distributed generation. Such generation should be directly represented as a class of generation rather than subsuming its impacts within retail load. This change in modeling practice will not only allow for better representation of the impact of these resources' characteristics on system reliability issues, particularly at the distribution level, but also will allow the system operator to devise reasonable schemes such that these resources can be part of the solution to potential system needs;
- Load size and daily/seasonal profile reflecting various levels of energy efficiency;
- Planned retirements and planned operating practices of existing resources (including nuclear, gas and hydro; and planned generation additions; and
- The deliverability level of RPS resources.

26. Are some inputs and assumptions more important than others for facilitating planning for 2030 (e.g. load shape)? Which ones are most important and why?

See response to question 25.

27. Do points 5 and 7 on the schematic diagram presented in Figure 2 reflect sufficient opportunity for party review of RPS Calculator portfolios prior to their use in LTPP and TPP? If not, please suggest alternative points where review is necessary and the amount of time needed for each party review process? (Please note that party comments, in and of themselves, may not alter the schedules of LTPP and TPP.)

See response to question 20. We also note that what is identified in Box 11 of Figure 2 should read as "Input to TPP Study Cases." In addition, the schematic suggests that there is no interdependency between the CEC's processes and the LTPP/TPP process; if that is the case, it is not clear why a preliminary demand forecast is necessary.

28. Please address the timing challenges above in your proposal for how to align RPS Calculator portfolio development and selection with LTPP and TPP. Your proposal should reflect a process that can be repeated on an annual basis. It may also include an alternative proposal for the upcoming LTPP and TPP cycles.

See response to question 20.

29. Are there any alternative approaches to developing RPS Calculator portfolios and aligning them with LTPP and TPP in 2015 that could resolve the timing challenges above?

See response to question 20. Further, significant time and resources will be saved if the Commission avoids an attempt to develop environmental screens in a stakeholder process and instead relies upon a credible third party effort for application as an alternative scenario as discussed in response to question 21.

30. Please ensure your proposal for aligning RPS Calculator portfolio development with LTPP and TPP addresses the particular timing challenges of 2015.

Please note CalWEA's response to Questions 20 and 29 above.

IV. COMMENTS ON ISSUES NOT ENCOMPASSED BY THE ABOVE QUESTIONS

A. Costs Should Be Presented Relative to the Reference Case

The cost impacts of the scenarios should be presented in terms of incremental cost relative to the 50% RPS reference case, not in comparison to total electric system costs including sunk energy and T&D costs as appears to be the case in the Staff Paper. Comparing the differences between the scenarios against a figure on the order of $42 billion vs. a figure in the neighborhood of $1 billion will greatly mask the significant differences in cost between the scenarios (e.g., the comparison will show differences on the order of a 1% cost premium vs. a 200% cost premium). These are the costs that the Commission and the state can control with regard to the 50% RPS, which is the focus of this effort.

B. Assumptions Regarding Transmission Availability Should Recognize Wind-Solar Complementarity

Staff should work with the CAISO to ensure that the complementarity of wind and solar production is reflected in the transmission limits that are established for both the FCDS and energy-only cases. Based on the limited wind energy that shows up in all cases in the California desert area, CalWEA is concerned that (in addition to the possible explanation described in

footnote 11) the assumptions used in running the preliminary RPS Calculator results were unduly conservative. Given the significant impact that this assumption could have on the results, it deserves scrutiny.

C. Semantic Issues

In reading the Staff Paper, we noticed a few word selections that could be improved to match what we believe are their intended or appropriate meanings.

- **"Policy preferred" –** This term is used in several instances where "policy-driven" would be more appropriate. (For example, on p. 41/41: "it will be difficult for RPS Calculator portfolios to inform policy-preferred needs assessments that would identify transmission upgrades for Board approval as a part of the 2016-2017 TPP.") The term is used in reference to the transmission upgrades that may be identified and built to facilitate achievement of adopted state policies, an ability that the CAISO sought and FERC has enabled. The word "preference" is not appropriate here, in that it connotes that mere preferences, as opposed to laws, are being planned for. The CAISO and the FERC used the term "policy-driven," which reflects that the driver is the policy, rather than some preference.[15] As discussed above, least-regrets planning can reflect possible policy factors and even preferences, but those should be reflected as one of many scenarios that includes a reference (preference-free) case.

- **"Least regrets portfolio"--** As we noted in response to question 21, above, the point of the RPS Calculator is to generate a range of *plausible and distinct portfolios* that, together, can support *least-regrets system resources and transmission planning*. That is, none the scenarios produced by the Calculator will itself be a "least-regrets portfolio," but, by studying each of them, least-regrets planning can be done.

[15] See CAISO Revised Transmission Planning Process Proposal June 4, 2010, Docket No. ER10-1401-000. CAISO sets forth a process that will "Establish in the ISO tariff a new category of transmission additions and upgrades, referred to as 'policy-driven' transmission projects, that are needed to meet state and federal policy requirements and directives that are not inconsistent with the Federal Power Act (such as 33 percent RPS by 2020)."

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

September 28, 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 "Comments of the California Wind Energy Association on the Staff Paper on Incorporating Land Use and Environmental Information Into the RPS Calculator and Developing Portfolios" 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 September 28, 2015, at Berkeley, California.

_____

Nancy Rader
Executive Director, California Wind Energy Association