

PacifiCorp - Stakeholder Feedback Form

2017 Integrated Resource Plan

PacifiCorp (the Company) requests that stakeholders provide feedback to the Company upon the conclusion of each public input meeting and/or stakeholder conference calls, as scheduled. PacifiCorp values the input of its active and engaged stakeholder group, and stakeholder feedback is critical to the IRP public input process. PacifiCorp requests that stakeholders provide comments using this form, which will allow the Company to more easily review and summarize comments by topic and to readily identify specific recommendations, if any, being provided. Information collected will be used to better inform issues included in the 2017 IRP, including, but not limited to the process, assumptions, and analysis. In providing your feedback, PacifiCorp requests that the stakeholders identify whether they are okay with the Company posting their comments on the IRP website.

Yes No May we post these comments to the IRP webpage? Date of Submittal 9/15/2016
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List additional organization attendees at cited meeting: [Click here to enter text.](#)

***IRP Topic(s) and/or Agenda Items:** List the specific topics that are being addressed in your comments.

Utah Clean Energy hereby submits comments on Portfolio Development Details, Supply Side Resource Tables and Battery Energy Storage Resource Table.

Check here if any of the following information being submitted is copyrighted or confidential.

***Respondent Comment:** Please provide your feedback for each IRP topic listed above.

Utah Clean Energy appreciates the opportunity to provide comments in response to PacifiCorp's modeling updates, provided on September 8, 2016.

Coal analysis

In the most recent update from PacifiCorp regarding its regional haze analysis and coal plant modeling, PacifiCorp states that it "will not allow endogenous coal unit retirements." PacifiCorp argues that endogenous coal plant analysis cannot be implemented with accurate cost and performance assumptions because these assumptions may be impacted by retirement dates.

PacifiCorp's arguments are unpersuasive. The company does not clarify whether specific costs will be impacted for specific plants or the magnitude of such impacts. PacifiCorp provides no information about the range of "run-rate" and fuel costs between end-of-life retirement and early retirement for the plants subject to regional haze analysis. This is problematic, because it is the entire basis for PacifiCorp's argument against endogenous coal plant analysis. Furthermore, PacifiCorp does not provide a reason for not allowing endogenous retirement modeling for coal plants not subject to regional haze analysis.

* Required fields

PacifiCorp's approach is inconsistent with the IRP standards and guidelines. Investments/retirement dates will be hard coded into the modeling such that existing coal plants will not be able to compete with alternative resources for selection within System Optimizer. In other words, coal units will be selected for the portfolio, no matter what, according to the investments/retirement constraints created by PacifiCorp. This approach prevents the model from selecting alternative resources for uneconomic coal plants. It prevents the model from selecting cheaper alternatives. PacifiCorp's approach treats avoidable costs as inevitable. This means we can have no confidence that the company is pursuing a least cost resource acquisition plan.

Recommendations

Coal plants that are not subject to "Vol. III analysis" should be allowed to be optimized/economically retired. Treating coal plants differently than all other resources does not allow resources to be compared on a consistent and comparable basis. And it is further problematic given [recent analysis](#) indicating that new wind PPAs are cheaper than Colorado coal plant operating costs.¹

At a minimum, coal plants that are not subject to Vol. III analysis should be allowed to be optimized/ economically retired in System Optimizer. Further, prior to conducting Volume III analysis for specific units, PacifiCorp should provide bookend run-rate costs for the plants subject to regional haze compliance, so parties can determine if the costs are material or orders of magnitude smaller than costs that trigger early retirement. Then, based on that information, PacifiCorp and stakeholders can evaluate whether its approach is reasonable.

Additionally, Utah Clean Energy has reviewed the comments provided by Environmental Stakeholders and supports the evaluation and recommendations contained therein.

Deterministic risk analysis

In its recent update, PacifiCorp explains that its core case portfolios will include an optimized portfolio and supplemental portfolios targeting specific types of resources and argues that not only does this promote portfolio diversity but it eliminates the need for deterministic risk analysis.

Utah Clean Energy disagrees that PacifiCorp's approach eliminates the need for deterministic risk analysis. While we understand that PacifiCorp's process for developing portfolios has changed away from developing assumptions and simulating conditions that drive resource decisions to an approach based on modeling different resource constraints (e.g. 10-20% flexible resources), the Company should still avail itself of the opportunity to test its top performing portfolios against different future scenarios.

Recommendation

PacifiCorp's IRP must consider uncertainty, in addition to costs and risks, in integrated resource planning. The purpose of deterministic risk analysis is to evaluate a portfolio's performance under different, uncertain future conditions. PacifiCorp's long term planning should include a means of evaluating how different portfolios perform against unexpected or different future scenarios. At a minimum, PacifiCorp should redispach its top performing portfolios under a more carbon constrained future to evaluate the PVRR results.

Questions on portfolio development

Greenhouse gas policy scenarios (Slides 5 and 10). Please explain the "CPP Mass Cap B + CO2 Price" scenario. Is the CO2 price applied only to emissions over the cap, or to all carbon emissions irrespective of the cap? If the former is true, the scenario is not reflective of potential carbon regulation going forward, and PacifiCorp should include a high CO2 price

¹ <http://americaspowerplan.com/2016/08/trending-topics-financing-colorados-clean-energy-transition/>.

* Required fields

case. We recommend PacifiCorp work with stakeholders on developing a greenhouse gas policy that is more stringent and reflective of better controls.

Resource characteristics not valued in System Optimizer (Slide 6). PacifiCorp indicates that its portfolio development approach “allows resources having operating characteristics not valued in System Optimizer to be analyzed in Planning and Risk during the cost and risk analysis phase of the portfolio development process.” What are operating characteristics that are not valued in System Optimizer? How will these characteristics be analyzed or valued in PaR?

Flexible resource capacity (Slide 8). Wind and solar resources can be used as fast ramping resources.² Please explain why renewable resources are not included in the list of flexible resources, given these capabilities.

Demand response, distributed resources and time of use rates can further reduce the need for flexible reserves. Additionally, existing flexible capacity on the grid should reduce the need to add new flexible capacity. Is the Company considering existing flexible resources as part of flexible resource capacity? Does the Company consider the EIM as part of flexible capacity?

Renewable resource scenarios (Slide 9). Please justify requiring 10-20% flexible resource capacity in the renewable resource scenarios. Does it take into consideration the fast ramping services renewables themselves can provide? Why is geothermal excluded from the renewable resources scenarios?

Direct load control (slide 9). Please explain the assumptions used for the direct load control scenario. Kindly provide information on the basis for establishing the 5% number. Why wait until new thermal is added is utilize at least 5% DLC?

Sensitivity analysis (Slide 11). Please explain how the low/high private generation scenarios are different from the low/high load growth scenarios. Given the conservative assumptions used in the private generation analysis, the high private generation case seems a more likely outcome than the base case. Utah Clean Energy therefore recommends running a higher high DG scenario – that is consistent with the growth of distributed generation in Utah – as a sensitivity. Utah Clean Energy also recommends running a sensitivity scenario that is more stringent than the Clean Power Plan. Utah Clean Energy would like to work with the Company in developing sensitivity analysis around distributed generation and carbon assumptions.

Supply Side Resources Tables

Cost Assumptions for Solar, Wind and Geothermal: Based on information we’ve received from some Utah-based developers, the cost assumptions for renewable supply side resources are too high. Not only the capital costs but also the O&M cost assumptions for technologies like solar and wind, assumed in the supply side resource tables, aren't accurate and more on the higher end.³

Cost Assumptions for Battery Storage: On the costs for lithium ion batteries, NREL recently completed a survey of behind-the-meter storage costs to determine a system cost methodology based on \$/kW and \$/kWh components. Their results found an average price of \$1,600/kW and \$500/kWh.⁴ Based on this, the cost assumptions for 8MW systems are high.

² See attached.

³ See attached.

⁴ <http://www.cleanegroup.org/wp-content/uploads/NREL-SolarStorage-Modeling-Input-Assumptions-for-comment.pdf>

* Required fields

Recommendation

We recommend that PacifiCorp work with stakeholders on revising these supply side resource cost assumptions to be in line with current trends as getting right supply side costs established is an important first step before they are locked in and run through the System Optimizer model.

We request the Company provide these costs on Levelized Cost of Energy basis to help draw fair comparisons with other PPA pricing.

Data Support: If applicable, provide any documents, hyper-links, etc. in support of comments. (i.e. gas forecast is too high - this forecast from EIA is more appropriate). If electronic attachments are provided with your comments, please list those attachment names here.

The data sources have been cited and a few of them are included as an attachment to the email.

Recommendations: Provide any additional recommendations if not included above - specificity is greatly appreciated.

Kindly see above.

Thank you for participating.