PacifiCorp - Stakeholder Feedback Form

2021 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 2021 IRP, including, but not limited to the process, assumptions, and analysis. In order to maintain open communication and provide the broader Stakeholder community with useful information, the Company will generally post all appropriate feedback on the IRP website unless you request otherwise, below.

Date of Submittal 11/3/2020

*Name: Jim Woodward Title: **Regulatory Analyst**

*E-mail: Jim.Woodward@utc.wa.gov Phone: (360) 664-1302

*Organization: WA Utilities & Transportation Commission (WA-UTC)

Address: Click here to enter text.

City: Click here to enter text. State: Click here to enter text. Zip: Click here to enter text.

Public Meeting Date comments address: **10/22/2020** ☐ Check here if not related to specific meeting

List additional organization attendees at cited meeting:

*__IRP Topic(s) and/or Agenda Items:__ List the specific topics that are being addressed in your comments.
Public participation principles, CPA final results, EE bundling methodology, market reliance assessment, PLEXOS benchmark update, modeling case & sensitivity runs as required per draft WA-UTC IRP rule, non-energy impacts, distributed energy resources.

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

☐ Check here if you do **not** want your Stakeholder feedback and accompanying materials posted to the IRP website.

*__Respondent Comment:__ Please provide your feedback for each IRP topic listed above.
Please see accompanying WA-UTC staff feedback & questions document as well as two (2) referenced NEI technical reports.

I. Public Interest Meeting #4 (10/22) – Presentation questions & comments

Public participation

1. General comment / request re: Supply-side resource table results (slides 3 – 8), CPA final results (slides 9 – 28) – During PIM #4 several stakeholders expressed concern the Pac IRP team is posting support & reference files to the IRP website but not messaging the listserv such files are ready for external review. Staff believes **increased listserv notifications on the part of the Pac IRP team as to when interim deliverables are posted would significantly increase the value of the external stakeholder review process**. Specifically, staff would appreciate **email notifications** when the following items are ready for review:
   a. **Supply-side resource tables**
   b. **Final CPA technical achievable measure files**

   PacifiCorp Response:

   PacifiCorp appreciates this recommendation and will provide notice to the IRP email distribution list when future support and reference files are added to the company's IRP website.

* Required fields

CPA final results

2. Final technical achievable potential comparison – ALL states (slide 14) – During the discussion of why there is a dramatic reduction in technical achievable potential captured in the 2021 vs. 2019 IRP, staff note an apparent disconnect between short term energy efficiency (EE) annual technical potential limits and current EE achievements. Given Pac will use PLEXOS to determine EE cost effectiveness, has the team considered **relaxing (i.e., increasing) their near term technically achievable constraints to reconcile the technical achievable potential shortfall in the near term with the higher potential anticipated after 2026?** Note: Taking the above corrected action means Pac would change its ramp rates for select measures in the near term.
    a. If Pac does not undertake such modeling reconciliation, staff recommends **Pac explain why they cannot maintain the current EE resource acquisition levels within the CPA in the 2021 IRP narrative**.

PacifiCorp Response:

Results presented on slide 14 show less technical achievable potential in early years which then grows and declines over twenty years. This trend is due to the ramping up of non-lighting measures and is consistent with the pattern of efficiency potential that the NW Power Council is modeling in the 2021 Power Plan. Although 2021 technical achievable potential appears low, the plot does not include savings from existing and incremental Home Energy Reports (HERs). The savings from new incremental HERs for 2021 are included in the final measure list posted to PacifiCorp's Integrated Resource Plan webpage.

By 2022, the technical achievable potential grows significantly even without HERs included. For example, in Washington, the 2022 technical achievable potential is 85,938 MWh. In the Draft 2021 Annual Conservation Plan which is currently out for stakeholder review, the 2021 Target Savings is 43,766 MWh, well within the 2022 technical achievable potential.

3. Demand response resource costs (slide 21) – The Pac / AEG team explained how demand response (DR) is calculated using the total resource cost (TRC) and utility cost test (UCT) within the IOU's west and east control areas, respectively. However, from a practical standpoint, staff is unsure whether the TRC and UCT would yield material cost differences given the CPA incorporates very few (if any) non-energy DR benefits. **It is unclear to staff why DR in the west and east should be treated differently when determining cost effectiveness using PLEXOS. Please explain.**

PacifiCorp Response:

As demand response resources rely upon customer participation and costs, PacifiCorp aligned state-specific DR cost effectiveness test approaches with state-specific energy efficiency cost effectiveness measures. In Washington, Oregon and California, the primary test for EE is the TRC and in Utah, Idaho and Wyoming, the primary test for EE is the UCT.

4. Calculating levelized costs (slide 23) – The Pac team stated the 6.9% interest rate is PacifiCorp's weighted average cost of capital (WACC). However, per CETA, resource costs need to incorporate the social cost of GHGs (SCGHGs), which is closer to 2.5% before inflation. **Please reconcile the application of this interest rate when calculating levelized costs that are CETA compliant**.

PacifiCorp Response:

To clarify, the Pac team stated the 6.9% is PacifiCorp's weighted average cost of capital (WACC), not the interest rate as stated in the question. The resource modeling of social cost of GHGs emissions are CETA compliant. Slide 23 is calculating the levelized cost for a demand response program. The social cost of GHG emission cost gets applied to a resource based on its emission rate. In the IRP model, the social cost of GHG emission costs is based the amount of emissions generated multiplied by the emission price. The social cost of GHG emission costs are applied separately on top of the resource's levelized cost. For a demand response programs there are no GHG emissions, so no GHG emission costs would be assigned. Likewise, for a natural gas thermal plant, there are GHG emissions, so social cost of GHG emission costs do get assigned to the thermal plant.

* Required fields

5. Ramped grid interactive water heater potential (slide 25) – Given installation of grid-interactive equipment upon equipment turnover & new construction, **do Pac's assumptions for its WA service territory align with treatment of direct load control (DLC) water heaters that need to be CTA-2045 compliant, if sold after 1/1/21 (*see RCW 19.260.080*)?**
    a. If so, per WA law, staff supports question / concern raised by NWEC on Thu, 10/22, that one would expect WA participation rates for this measure to be noticeably higher, given the new WA code should lower the cost of entry. **Staff strongly recommends Pac / AEG CPA team re-visit WA ramp rate or justify why no such change needs to be made to this measure.**

PacifiCorp Response:

The current DR results for grid-interactive water heaters are driven by assumptions aligned with those developed by the NW Power Council through their stakeholder process for its 2021 Power Plan assumptions for the share of water heaters that will be CTA-2045 compliant, which is a regional estimate. Based on this request, we plan to update these assumptions as follows:

- In Washington, assume that all new residential and commercial electric storage water heaters will be CTA-2045 compliant starting in 2021.
- In Oregon, assume that all new residential and commercial electric storage water heaters will be CTA-2045 compliant starting in 2022.

This will increase the potential for Grid Interactive Water Heater DR but will decrease the potential for the water heater direct load control (switch) program. Please note that potential impacts will still start in 2022 due to the one-year program setup assumption.

EE bundling methodology

6. Targeting winter capacity (slide 34) – **Can CPA team offer some concrete examples of measures that may be cost effective because they address winter capacity requirements?**

PacifiCorp Response:

Measures that lead to space heating, lighting and water heating may all address winter capacity needs as those end uses tend to occur during weekday morning and evening hours when winter demand is highest.

7. Possible bundling principles (slide 35) – Per PIM #4 discussion, staff understands a combination of energy and capacity reductions will inform Pac's proposed approach to bundling EE measures for the 2021 IRP. Staff supports this approach as it broadly aligns with the NWPCC's methodology to also consider capacity reductions. However, to show the market value of energy resources can offset resource cost, the NWPCC ties EE energy value benefits to the market prices in each of the 800 futures evaluated. In contrast, Pac appears to use a "single future" market price forecast to calculate the net cost of capacity.
    a. If my above compare / contrast between the Pac and NWPCC proposed bundling methodologies is correct, **how will the IRP team ensure via its PLEXOS stochastic risk analyses the net cost of capacity calculation reflects a market price that is internally consistent with each future?**

PacifiCorp Response:

In order to realize capacity expansion portfolios that consider all factors simultaneously including intertemporal effects, a full 20-year deterministic study is conducted in each case. There are no variances in futures represented in this type of study and introducing the concept of multiple futures would be inappropriate – this is a fundamentally different kind of study compared to a study featuring stochastic draws to represent a vast array of possible futures. However, inputs for portfolio optimization may be informed by inputs developed through a stochastic assessment. Using stochastics to develop inputs is one method of arriving at values that are risk-adjusted to use as inputs to non-stochastics models. PacifiCorp interprets the NWPCCs study as a methodology to inform the development of model inputs for deterministic linear optimization. There is a multiplicity of tools, research, expertise and historical data

used to develop inputs to IRP modeling. The NWPCC study is not indicating a need to model 800 futures to align with 800 results, but providing results based on 800 futures does indicate what a reasonable result might look like. In the 2021 IRP process, portfolio optimization is followed by a stochastic Monte Carlo simulation, which assesses the value of EE bundle performance and cost characteristics across a range of load, market, hydro and thermal outage conditions.

Market reliance assessment

8. Market reliance expectations (slide 41) – PacifiCorp indicated weather contributing to the 8/19/20 resource adequacy (RA) event was associated with "1-in-35-year" meteorological conditions.
   a. Building off this statement, **has the Pac IRP team considered whether what is now a 1-in-35-year event could become, for example, a 1-in-10 or 1-in-5-year event in future?**

   PacifiCorp Response:

   PacifiCorp has not conducted an analysis of whether an event similar to the 8/19/20 weather event could become more frequent in the future. However, as part of a 2021 IRP sensitivity analysis, PacifiCorp does intend to evaluate the implications of sustained weather events on load and subsequently on resource need, including reliance on front-office transactions (FOTs).

   b. More broadly, **how is Pac considering climate change (CC) when proposing its front office transaction (FOT) limits listed on slide 43 of the PIM #4 technical presentation?**

   PacifiCorp Response:

   The new FOT limits are not driven by climate change per se, but reflect declining market liquidity that is attributable to a variety of factors, including retiring generation facilities, and uncertainty in load and hydro resources as a result of weather.

   c. If CC is not explicitly considered when developing these FOT limits, **staff strongly recommends Pac justify <u>why not</u> as part of its 2021 IRP narrative**.

   PacifiCorp Response:

   Climate change is expected to result in generally higher temperatures, though it could potentially also result in more volatile conditions that could contribute to more extreme low temperatures. Higher temperatures in the summer would contribute to reduced market purchase availability, particularly in areas that are summer peaking. In light of recent trends and events, the Company has proposed FOT limits for summer peaking areas that are zero in the summer, so there isn't any room for a further reduction. Similarly, in areas that are winter peaking, the Company has also proposed FOT limits that are zero in the winter. While climate change could potentially contribute to reduced risk in the winter, there is a lot of uncertainty, and recent history on market liquidity indicates that shrinking resource margins are not confined to the summer.

   To the extent resource retirements and uncertainty are increasing the risk of shortfalls in summer peaking areas, resource additions are likely necessary. This should in turn increase the supply of resources in summer peaking areas. A reasonable portion of those resources are likely to be available in the winter, when local requirements are lower than in the summer. The opposite is likely to occur in winter peaking areas, which are likely to continue having additional resources available in the summer due to the need to meet winter peaks. Because the Company is only allowing for reliance on market transactions outside of a market's peak season, the ability to rely on market is less likely to be impacted by climate. To the extent climate variability significantly increases uncertainty in peak seasons, the availability of market purchases in other periods may well increase. In light of those circumstances, the Company does not believe further adjustment to FOTs for climate change is necessary.

9. FOT limits (slide 43) – When reducing 2021 IRP winter & summer limits compared to 2019 IRP limits, the market reliance assessment (slides 36 – 42) references declining liquidity trends (observed during 2015 – 20) and a 2020

resource adequacy event that occurred the week of 8/17. However, **what forward-looking stochastic risk analyses has Pac incorporated to arrive at the current proposed summer and winter FOT reductions?**

a. Furthermore, **why has Pac chosen to drop FOT limits and maintain a constant cap over the entire 20-year time horizon versus varying levels (e.g., ramping down) over the next two decades?**

PacifiCorp Response:

PacifiCorp has not performed a forward-looking stochastic risk analysis, primarily due to the fact that factors that affect market hub liquidity are associated with the WECC wide supply and load conditions. These factors include each load serving entities resource plan, load forecast, retirement expectations, forced outages, planned maintenance, etc., that are unknown to PacifiCorp to undertake a market risk liquidity analysis. What PacifiCorp has observed in the marketplace is a declining trend in liquidity at each of the market hubs Palo Verde and MidColumbia and subsequent energy emergencies that occurred in 2020 due to tight supply conditions across the West. In addition, there have been studies conducted by E3 that show that the region as a whole will be short in the near term and the California Independent Operator has already stated that it expects to be short in 2021. For these reasons PacifiCorp believes it is prudent to reduce its FOT limits at the applicable hubs during the applicable seasons. We will continue to monitor market conditions to better inform our expectations for the future.

b. If the Pac IRP team has not explicitly considered question 9.a, **staff support PacifiCorp undertaking a "variable FOT limit" sensitivity as part of their PLEXOS LTCE modeling.**

PacifiCorp Response:

Thank you for this feedback.

PLEXOS benchmark update

10. PLEXOS benchmark update (slide 45) - Re: "2021 IRP will incorporate loss of load probability (LOLP) in the expansion," staff commends company for incorporating LOLP into its LTCE modeling. This reliability component aligns Pac's 21 IRP with Pacific NW regional efforts (e.g., NWPCC using LOLP in 2021 Plan to assess NW power supply adequacy).
    a. **What LOLP maximum is Pac planning to use for the 2021 IRP?** For comparison, NWPCC is using a 5% LOLP RA threshold.

    PacifiCorp Response:

    An LOLP target has not yet been established for the 2021 IRP. While the possibility of using an LOLP target directly in the modeling was discussed, it has not proved workable to model it endogenously as part of portfolio expansion.

    Instead, the current expectation is that capacity requirements will be based on a specified percentage of hourly load, rather than the single peak load. For example, instead of a 13% planning reserve margin based on the peak hour, a 13% planning margin would be applied in every hour. As a result, resources will need to be procured to ensure this planning reserve margin is met in all hours. Similar to the Planning Reserve Margin studies conducted in prior IRPs, portfolios representing a selection of planning reserve margin levels (e.g. 13-17%) will be prepared and analyzed stochastically to identify LOLP outcomes at different planning reserve margins. The expectation is that LOLP will decline steadily as planning reserve margin increases and be relatively uniform across portfolios at a given planning reserve margin. The selection of a planning reserve margin would be based on the LOLP outcomes that are achieved at that level.

11. Endogenously incorporating reliability modeling within PLEXOS (slide 45) – **How does Pac intend to make use of PLEXOS for stochastic risk analysis? Specifically, how does the company's risk analysis approach relate to the number and scope of the cases and sensitivities the IRP team intends to run?**

a. During the 2019 IRP cycle, Pac used their PaR model to quantify a "risk credit" for EE (mostly to reflect avoided gas price volatility risk). **Should stakeholders anticipate Pac repeating this type of analysis internally within PLEXOS?**

PacifiCorp Response:

Yes, a risk credit will be applied for EE in the 2021 IRP.

b. Are there other risks Pac hopes to quantify via PLEXOS besides gas price volatility that are not currently listed in the case matrix (i.e., load growth, market prices, CO2 regulation)?

PacifiCorp Response:

Yes, the company will consider risk around hydro generation from stream flow and thermal outages.

c. If so, could this reduce the need to run "deterministic" cases? Or could it change which "deterministic" cases Pac runs during the 21 IRP cycle?

PacifiCorp Response:

No, the inclusion of more stochastic parameters is not expected to influence the number of deterministic studies that may be conducted. In contrast to the 2019 IRP, the Company does not anticipate a need for a series of deterministic reliability runs to develop each case portfolios, as sufficient reliability requirements will be included in each capacity expansion run.

12. Model features leveraged (slide 46) – Re: flexible interface that is "closely integrated w/ Excel, w/ advanced copy & paste support," **will the Pac IRP team be able to share Excel reports of input variables and scenario outputs w/ stakeholders as they are developed?**
    a. Note: Rolling file circulation with stakeholders should facilitate public concurrence as Pac's PLEXOS LTCE modeling narrows in on a preferred portfolio.

PacifiCorp Response:

PacifiCorp is committed to a transparent and accessible IRP process, and will make data available as part of its IRP filing. However, making scenario outputs available as part of an iterative process for each input variable and scenario/case would not be practicable due to time constraints in advance of the April 1, 2021 required filing.

II. UPDATED staff feedback & questions organized by IRP topical category based on CR-102 version of joint IRP & CEIP rules posted on 10/24/20

Required case & sensitivity runs

WAC 480-100-620(10) in the above linked CR-102 version of the joint IRP & CEIP rules outlines the following two scenarios (i.e., cases) and one sensitivity PacifiCorp's 2021 IRP modeling must address to comply with CETA:

Scenarios

1. **CETA incremental cost** (*sub-section -10(a)*) – Scenario's conditions & inputs should mirror the preferred portfolio except for those factors that would change if RCW 19.405.040 and RCW 19.405.050 were not in existence.

PacifiCorp Response:

PacifiCorp appreciates this feedback and plans to fully comply with WAC 480-100-620 and other CEIP/IRP rules associated with the Washington Clean Energy Transformation Act.

2. **Future climate change** (*sub-section -10(b)*) – Should analyze impacts including, but not limited to, changes in: snowpack, streamflow, rainfall, heating & cooling degree days (HDD, CDD), and customer load due to climate change.

* Required fields

PacifiCorp Response:

PacifiCorp appreciates this feedback and plans to fully comply with WAC 480-100-620 and other CEIP/IRP rules associated with the Washington Clean Energy Transformation Act.

Sensitivities

3. Maximum customer benefit scenario (*sub-section -10(c)*) – Maximize customer benefits described in RCW 19.405.040(8), prior to balancing against other goals / constraints.

PacifiCorp Response:

PacifiCorp appreciates this feedback and plans to fully comply with WAC 480-100-620 and other CEIP/IRP rules associated with the Washington Clean Energy Transformation Act.

Staff realizes the above required scenarios and sensitivity may modify the PLEXOS modeling recommendations staff originally circulated with the company on Oct. 2. **Staff recommends reconciling these scenario and sensitivity requests during the WA staff-PacifiCorp modeling working sessions scheduled for Monday, November 9**.

Non-energy impacts

Within the context of PacifiCorp's planned PLEXOS LTCE modeling:

1. **What non-energy impacts (NEIs) are the utility planning to include?**

PacifiCorp Response:

PacifiCorp is planning to include the traditional conservation NEIs currently incorporated within measure definitions as stated below. PacifiCorp is also coordinating with other IOUs in Washington to expand the NEI research and quantification for EE and DR in within the next few months and will incorporate those findings when complete in 2021. This plan was discussed as part of the November 30 TAG meeting. The study will provide numerical justification for the NEI proxies.

2. **How are these NEI benefits being monetized?**

PacifiCorp Response:

NEIs are represented as cost credits to the resource cost inputs, effectively lowering the cost of the resource.

3. **What types of proxies have been considered?**

PacifiCorp Response:

The emission proxy noted below has been considered.

4. **Where are the impacts being quantified for each resource (e.g., in the resource cost assumption inputs, elsewhere in the LTCE model)?**

PacifiCorp Response:

PacifiCorp has previously modeled a limited set of NEI assumptions, such as water savings and productivity/O&M savings from some lighting measures. These savings are captured as a reduction in cost, embedded in the data used as inputs to the IRP model. The proposed EPA public health proxy NEI for EE is a new and broader addition to the measures already in place for specific measures. The Company intends that this adder of $28.70/MWh (once escalated from 2017$ to 2020$ to align with IRP data) will be applied to all Washington energy efficiency in cases which assume the SC-GHG modeling assumptions. As this is a flat adder, the quantification of NEI benefits incorporated in the pricing of the Washington bundles may be footnoted in an appropriate table in the Resource Options chapter of the 2021 IRP. The Company anticipates the NEI-adjusted values will also be reflected in the inputs and output of particular cases on the 2021 IRP data disc.

* Required fields

Staff reminds PacifiCorp that **relying on the NWPCC Regional Technical Forum's (RTF) traditional conservation / EE perspective of NEIs is inadequate for CETA compliance.**

Furthermore, **developing a "roadmap" for how to address NEIs in future IRP cycles is inadequate to address CETA**. At minimum, **Pac will need to develop NEI numerical proxies** (*see NEI question 3 above*) **for the 2021 IRP**. Suggestions for such NEI proxies include:

- A **minimum percentage adder** like the 10% EE adder. Justification is needed for what adder value is recommended.
- **Emissions proxies** leveraging the particulate matter (PM) 2.5 study PacifiCorp commissioned ABT Associates to complete for the IOU in 2018.

As mentioned above, the Pac IRP team will need to provide justification for NEI numerical proxies. Justification may include citing previous studies. Staff have attached the following two technical reports to this PIM #4 feedback email, if consulting these references will help the Pac IRP team develop such proxies:

- **PacifiCorp's 2018 PM 2.5 technical report**
  - Benefit range of $0.0011 – 0.0025 / kWh suggested (*see report p. 19*)
- **EPA's 2019 Public Health Benefits per kWh of EE & RE technical report**
  - Benefits-per-kWh values listed for various EE & renewable energy technologies across the Pacific NW (*see Executive Summary pp. 2 – 4*)

Distributed energy resources

Given the PacifiCorp IRP team's attention is now on PLEXOS LTCE optimization, staff wants to re-visit the below five DER-focused questions as they relate to **optimizing DERs using PLEXOS**.

Staff asks the Pac IRP team to either **provide answers to the below questions via the PIM stakeholder feedback process or discuss the team's path forward during an upcoming staff-company bi-weekly meeting**.

1. **How and when will PacifiCorp be able to estimate the allowable level of DERs of different types on the various feeders or substations on their system?**

   PacifiCorp Response:

   This question was addressed as part of the 12/7/2020 discussion between PacifiCorp and Washington Utilities and Transportation Commission (WUTC) Staff.

2. **How and when will Pac be able to value different levels of DERs of different types on the various feeders or substations or system?**
   a. Note: Valuation of DERs and avoided cost calculations will be key, including transmission and distribution avoided (or deferred), ancillary services, and other NEI inputs.

   PacifiCorp Response:

   This question was addressed as part of the 12/7/2020 discussion between PacifiCorp and WUTC Staff.

3. **How and when will Pac be able integrate various levels and types of DERs at the IRP level of analysis, keeping in mind DER benefits are often quantified at the sub-hourly level?**

   PacifiCorp Response:

   This question was addressed as part of the 12/7/2020 discussion between PacifiCorp and WUTC Staff.

4. (*DER intersection w/ equity*) - **Is Pac planning to investigate providing grants or discounted cost DERs of certain types to low-income or vulnerable customers?**
   a. **If not, staff strongly recommends the Pac IRP team consider undertaking similar studies** to better address CETA's equity objectives.

* Required fields

PacifiCorp Response:

Yes, PacifiCorp is planning to conduct an assessment of energy and nonenergy benefits and reductions of burdens to vulnerable populations and highly impacted communities. Working with community members to understand how benefits and burdens are distributed, the design of grants or other programs with allocation of additional resources may be pursued to create equitable distribution.

5. **How do DERs complement Pac's utility-scale generating resources?**

PacifiCorp Response:

This question was addressed as part of the 12/7/2020 discussion between PacifiCorp and WUTC Staff.

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.

Please see accompanying two (2) technical reports.

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

NA.

Please submit your completed Stakeholder Feedback Form via email to IRP@Pacificorp.com

Thank you for participating.

* Required fields