

PacifiCorp - Stakeholder Feedback Form

2023 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 2023 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 2022-08-05

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Public Meeting Date comments address: 07-14-2022 Check here if not related to specific meeting
List additional organization attendees at cited meeting: Rose Anderson

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

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.

Refer to slide 6 of PacifiCorp\u0019s July 14, 2022, IRP Public Input Meeting: o When determining increased air condition saturation, what assumptions were used regarding: 
Overall installation rates of new air conditioning units,  The mix of types of new air conditioning units installed, e.g. central air vs. heat pump,  Conversion rate of existing units to newer, higher efficiency units such as heat pumps, and 
The interaction between increased air conditioning saturation and any proposed demand response or time-of-use rates? o Why is it assumed that the electric vehicle forecast is unchanged 2022-2029, but then increases after that? o What is the assumed rate of electric vehicle adoption and what supporting evidence exists to substantiate that rate? o How is the daily shape of electric vehicle charging modeled? o Does the load forecast include assumptions about two-way charging capable electric vehicles? If so, please discuss the assumptions.

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.

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

* Required fields

PacifiCorp Response (8/24/22)

Refer to slide 6 of PacifiCorp's July 14, 2022, IRP Public Input Meeting:

O When determining increased air condition saturation, what assumptions were used regarding:

-Overall installation rates of new air conditioning units

For the 2023 IRP, the company saturation estimates of cooling equipment (central air conditioning, heat pump space cooling, ground source heat pump space cooling, and room air conditioners) are based on information obtained from the company's 2021 Residential Survey. Central air conditioning saturations as determined from the 2021 Residential Survey are higher than the central air conditioning saturations as determined in the company's 2019 Residential Survey.

-The mix of types of new air conditioning units installed, e.g. central air vs. heat pump

Please see the company's response regarding installation rates of air conditioning units. Central air and types of heat pumps are tracked separately in the survey and saturations.

-Conversion rate of existing units to newer, higher efficiency units such as heat pumps

The conversion rate from existing cooling units to more efficient units are based on data from the Energy Information Administration (EIA) 2021 Annual Energy Outlook.

Historical trends of switching from existing types of cooling equipment to higher efficiency type units such as heat pumps, is captured in the saturation estimates within the load forecast. Further, company DSM measures from the Conservation Potential Assessment (CPA) project additional opportunities for conversion to more efficient types of equipment.

-The interaction between increased air conditioning saturation and any proposed demand response or time-of-use rates

The load forecast is used to anticipate electricity demand in order to prudently plan cost-effective resources. Increased air conditioning saturation results in additional residential demand.

The load forecast team provides the assumptions on the expected growth of cooling load and cooling degree days (CDDs) to inform opportunities for energy efficiency measures and demand response measures such as 'bring your own thermostat' programs and central A/C direct load control programs. Air conditioning loads that increase peak loads can also result in an increase in the amount of load that could potentially be shifted as result of time-of-use rates modeled in the CPA.

* Required fields

Why is it assumed that the electric vehicle forecast is unchanged 2022-2029, but then increases after that?

O What is the assumed rate of electric vehicle adoption and what supporting evidence exists to substantiate that rate?

O How is the daily shape of electric vehicle charging modeled?

O Does the load forecast include assumptions about two-way charging capable electric vehicles? If so, please discuss the assumptions.

The EV forecast between 2022-2029 does have variation, but it is minor compared to the previous forecast.

The assumed rate of electric vehicle adoption is based on national forecast s-curves that reflect varying levels of aggressiveness in EV adoption. The Company estimates current electric vehicles in its territory and then determines which s-curve is most appropriate to apply to EV actuals in each state. The determination of adoption curves is based on a combination of market conditions, state policies, and expected future investment in EVs. While most of the s-curves are similar in the near term, they diverge significantly in the outer years. Thus, any change in adoption curve is likely to be more pronounced in the outer years of the planning horizon. In Oregon, SB1044 electric vehicle goals and planned investments from clean fuel credits and monthly meter charges are anticipated to contribute to future growth beyond what was anticipated in the 2021 IRP. Similarly, in Utah, during the 2021 legislative session, the state appropriated \$20 million to Utah State University's ASPIRE Center and the Utah Inland Port Authority for freight electrification project. Also, in 2022, Utah authorized the Rocky Mountain Power to invest \$50 million of investment for DCFC charging highlighting the state's commitment to electrification.

The Company produces monthly energy forecasts for each state. EV loads are added to the monthly energy forecasts for each state. Once complete, the Company produces a peak forecast for each state and hourly load forecasts for each state. The hourly load models use state-specific hourly load data, daily weather variables, temperatures, a typical weather pattern and day-type variables such as weekend and holidays. As such, EV loads are embedded within the state level forecast and have the daily shape as determined by this process.

The load forecast does not include assumptions about two-way charging; however, the CPA does consider automated chargers that postpone or curtail charging during peak hours as a demand response resource available for selection in the IRP model.