

**PUBLIC UTILITY COMMISSION OF OREGON
STAFF REPORT
PUBLIC MEETING DATE: May 16, 2023**

REGULAR CONSENT EFFECTIVE DATE May 16, 2023

DATE: May 8, 2023

TO: Public Utility Commission

FROM: Peter Kernan

THROUGH: JP Batmale and Sarah Hall **SIGNED**

SUBJECT: PACIFIC POWER:
(Advice No. 1496/Advice No. 23-010)
Introduces a residential demand response program under Schedule 106
and proposes cost recovery under Schedule 291.

STAFF RECOMMENDATION:

Approve Pacific Power's (Company or PacifiCorp) Advice No. 23-010.

DISCUSSION:

Issue

Whether the Oregon Public Utility Commission (Commission) should authorize introduction of a new residential demand response program under Schedule 106, and recovery of those program costs under Schedule 291.

Applicable Rule or Law

PacifiCorp makes this filing pursuant to ORS 757.205, OAR 860-022-0025, and OAR 860-022-0030.

ORS 757.205 requires public utilities file to all rates, rules, and charges with the Commission.

ORS 757.220 requires utilities to file changes to any rates, tolls, charges, rules, or regulations with at least 30 days before the effective date of the changes.

Unless subject to an automatic adjustment clause under ORS 757.210(1), amounts deferred are allowed in rates to the extent authorized by the Commission in a proceeding under ORS 757.210 to change rates and upon review of the utility's earnings at the time of application to amortize the deferral. ORS 757.259(4); OAR 860-027-0300(9)

OAR 860-022-0025 requires that revised tariff filings include statements showing the change in rates, the number of customers affected and resulting change in annual revenue, and the reasons for the tariff revision.

OAR 860-022-0030 requires that tariff filings which result in increased rate include statements showing the number of customers affected, the annual revenue under existing schedules, the annual revenue under proposed schedules, the average monthly bills under existing and proposed schedules, and the reasons supporting the proposed tariff.

Analysis

Background

Pacific Power seeks approval of a new residential demand response (DR) program, covered by Schedule 106. The program includes two product types: electric water heating, and smart thermostats controlling central air conditioning and electric space heating. This residential program would be PacifiCorp's third DR program covered by Schedule 106. The Commission previously approved an irrigation DR program in ADV 1383 and a commercial and industrial DR program in ADV 1436. This memo includes background, a summary of proposed changes, summary of stakeholder involvement, and Staff's analysis and recommendations.

As background, in Pacific Power's 2019 Integrated Resource Plan (IRP), Staff and stakeholders recommended the Company pursue increased DR capacity through a request for proposals (RFP). The Commission adopted Staff's recommendation attaching conditions to Action Item No. 4 which requires, in part, that:

PacifiCorp pursue demand response acquisition with a demand response RFP.

PacifiCorp should work with non-bidding stakeholders from Oregon and other interested states to determine whether PacifiCorp should move

forward with cost-effective demand response bids, or with a demand response pilot, or both.¹

PacifiCorp issued the RFP in early 2021 and emphasized that bidders include programs in the Company's Oregon or Washington service areas, and products that achieve at least three megawatts (MW) in three years, scalable to 25 MW over five to ten years.

The Company received bids from numerous firms that covered multiple programs and sectors. Bids were scored comprehensively and considered by program category. Each category represented a discrete set of customer end uses, such as irrigation. PacifiCorp included the top bid for each program category in 2021 IRP modeling. The modeling compared costs from RFP bids and the IRP Conservation Potential Assessment against supply side resources. The modeling identified a need for DR not just in the short term but throughout the planning horizon (2021–2040). The recently released 2023 IRP preferred portfolio included the addition of 24 MW of cost-effective DR covering multiple customer types and programs in Oregon for 2023, with additional MWs being brought on in subsequent years.²

As a result of modeling for the 2021 IRP the Company requested and received approval for a broad DR tariff, Schedule 106, to support multiple programs.³ Schedule 106 outlines basic enabling elements applicable to the multiple programs. Rather than include program specific details in the tariff itself, Schedule 106 allows for DR program-specific details to be published and maintained on the Pacific Power website within a section for each program. If the Company seeks to make changes to Schedule 106, add or remove a pilot or a program, or make substantial changes to pilot or program budgets, it must engage in the typical regulatory tariff revision process. However, if the Company seeks to make changes to program specific details, it will engage in a stakeholder notification and comment gathering process.⁴ A table demonstrating which activities do and do not trigger tariff revision can be found in Staff's report for ADV 1436.⁵

¹ LC 70, Order No. 20-186, p. 22, <https://apps.puc.state.or.us/edockets/orders.asp?OrderNumber=20-186>.

² See Docket No. ADV 1496, *PacifiCorp New Demand Response Program for Residential Customers Using the Provisions of Schedule 106*, p. 2, explaining that the 24 MW value reflects averaged summer and winter contributions.

³ Docket No. ADV 1383, <https://edocs.puc.state.or.us/efdocs/UBF/adv1383ubf10320.pdf>.

⁴ Docket No. ADV 1383, Exhibit E, March 28, 2022, <https://edocs.puc.state.or.us/efdocs/UAA/uaa153323.pdf>.

⁵ Docket No. ADV 1436, p. 4, <https://edocs.puc.state.or.us/efdocs/UBF/adv1436ubf164350.pdf>.

PacifiCorp utilized Schedule 106 twice, once to establish a program for irrigation customers and again to establish a program for commercial and industrial customers.⁶ The program proposed in this filing is the third DR program to utilize the provisions of Schedule 106.

Summary of Proposed Changes

1. New Residential DR Program

Pacific Power proposes a new DR program for residential customers covered by Schedule 106. The proposed program does not have an end date, indicating the program will indefinitely help meet ongoing capacity needs, which PacifiCorp identified in the 2023 IRP. The residential program will include two DR products: electric water heating, and smart thermostats controlling central air conditioning and electric space heating. The Company will focus on multi-family properties for the water heating product, and both multi-family and single-family units for the smart thermostat product. Under the Companies' proposal, water heaters may be dispatched in real time (with no notice) for up to two hours. Events utilizing thermostats would provide 20 minutes for dispatch notification, with events lasting up to four hours.

The first evaluation of the residential program will be completed in 2025, after the conclusion of the first full year of program operation. Subsequent evaluations will be completed every two years. Starting in 2024, PacifiCorp will provide annual reports on March 31 of each year with information including customer participation, aggregate impacts by equipment type, opt outs, incentive and non-incentive expenditures, enrollment changes, customer service/satisfaction, and cost-effectiveness.

Other key program parameters include:

- **Eligibility**
 - All residential customers on Delivery Service Schedules 4, 6, and 7.
 - Master metered multifamily buildings served on Delivery Service Schedules 23, 28, 30 and 48
- **Dispatch period**
 - All year
- **Dispatch days**
 - Water Heaters: Sunday – Saturday (all days eligible)
 - Thermostats: Monday – Friday (weekdays eligible)

⁶ Docket No. ADV 1383, <https://edocs.puc.state.or.us/efdocs/UBF/adv1383ubf10320.pdf>; see also, Docket No. ADV 1436, <https://edocs.puc.state.or.us/efdocs/UBF/adv1436ubf164350.pdf>.

- **Dispatch duration**
 - Water Heaters: Up to two hours
 - Thermostats: Up to four hours
- **Dispatch notification**
 - Water Heaters: Real time (no advanced notification)
 - Thermostats: 20 minutes
- **Available dispatch hours**
 - Water Heaters: All hours
 - Thermostats: 12:00 PM – 9:00 PM
- **Maximum dispatch events**
 - Water Heaters
 - One per day
 - Two per week
 - Thermostats
 - One per day
 - Three per week
 - Thirty per year

Pacific Power estimates the expanded program will achieve demand capacity of approximately 7.4 MW from 7,703 participants in 2023-2024, reaching 22.5 MW from 23,676 participant sites by 2027. This amount comfortably exceeds the 15.4 MW of capacity from Oregon residential customers selected by the 2023 IRP.

The program will be delivered by Open Access Technologies International, Inc (OATI), the successful bidder in the 2021 Demand Response RFP. OATI will be responsible for most elements of implementation and operation including installation and maintenance of devices and dispatch of devices as directed by Pacific Power. The Company will review marketing messages for cultural responsiveness and ability to reach all customers. The Company, OATI, and the Energy Trust of Oregon team will collaborate, so customers have cohesive messaging around energy efficiency and DR opportunities at their facilities.

Estimated costs for the residential program are included in this filing and include vendor costs, customer incentives, customer outreach/advertising, evaluation, measurement, and verification, and utility staffing costs directly attributable to managing the program. These costs include the impacts of customers participating in the participation options as follows:

Estimated costs are presented in the table below and included in PacifiCorp's filing.

Table 1 – Estimated Residential Program Costs

	2023	2024	2025	2026	2027
Total Program Costs	\$991,593	\$1,546,725	\$1,863,893	\$1,997,976	\$2,152,768

Measure and Portfolio Cost-Effectiveness

The Company must prospectively provide cost-effectiveness from a Total Resource Cost (TRC) and Utility Cost Test (UCT) perspective when seeking Commission approval for a new DR program and retrospectively as part of the annual reporting.⁷ The Company proposes to continue using the 2016 California Demand Response Protocol to calculate cost-effectiveness. This filing notes that use of this protocol was most recently discussed at the December 6, 2021, Demand Response Workshop. This protocol was also recommended in Staff's 2016 memo approving the Company's original irrigation demand response pilot.⁸ Staff supports continuation of this approach until the Commission establishes a different cost-effectiveness approach.

The residential program's prospective cost-effectiveness calculations were provided in the Company's filing as Confidential Exhibit A. Calculations were provided for each of the two product categories, water heaters and thermostats, in two separate spreadsheet workbooks. The Company also published a summary workbook which demonstrated overall cost-effectiveness for the combined product categories. Staff reviewed each workbook, and the calculations appear reasonable and accurate.

Prospective cost-effectiveness results for the residential program were included in the Company's filing. The water heater DR product is cost-effective from both a UCT and TRC perspective when ten years of benefits and costs are compared. The thermostat DR product is not cost-effective as a standalone product. However, when the two products are combined into a single residential DR program, the overall program is cost-effective. The results are presented Table 2.

⁷ Docket No. ADV 1383, <https://edocs.puc.state.or.us/efdocs/UBF/adv1383ubf10320.pdf>.

⁸ Docket No. ADV 242, *Staff Report*, p. 5, <https://apps.puc.state.or.us/edockets/edocs.asp?FileType=HAU&FileName=adv242hau16236.pdf>.

Table 2 – Prospective Residential Program Cost-Effectiveness Scores

Product Category	UCT	TRC
Water Heaters	1.4	1.5
Thermostats	0.5	0.6
Combined (sum of benefits/sum of costs)	1.2	1.3

Staff highlighted the lack of product-level cost-effectiveness for thermostats and discussed the issue on an April 20, 2023, call with the Company. Staff understands that OATI's bid in response to PacifiCorp's 2021 RFP included both water heaters and thermostats as a combined residential program offering. Staff recommends approval of both product categories but wishes to establish a distinction for Commission consideration.

For comparison and consistency, Portland General Electric's Flexible Load Plan in Docket No. UM 2141 establishes a clear precedent to plan, budget, and report DR and flexible load resources using a portfolio approach. However, Order 21-158, in which the Commission approved the Flexible Load Plan, does not indicate that performance should be evaluated at the portfolio level. Instead, Staff's recommendation as adopted in Order 21-158 was to report cost-effectiveness and other performance metrics at the individual measure level in addition to the portfolio level. Staff wrote, "The Commission should not lose visibility to pilot-level activity; rather it should gain a portfolio-level view that relates the activity to strategic goals."⁹

Staff raise the distinction here in consideration of whether to approve the thermostat product category of the residential program. Staff maintains the recommendation to approve for the following reasons.

1. The benefits of the residential program were modeled using avoided costs from the 2021 IRP due to the timing of program development prior to the release of the 2023 IRP. Initial Staff review of the 2023 IRP avoided costs indicates that avoided costs increased significantly in the past two years. Higher avoided costs mean the benefits of demand response programs will be higher, thus improving the cost-effectiveness of the program.
2. The OATI bid in response to the 2021 DR RFP was for a combined residential program with both water heater and thermostat products. Rejecting the entire residential program would result in less cost-effective DR available to PacifiCorp. Further, since OATI bid on a combined residential program, the

⁹ See Docket No. UM 2141, Order No. 21-158, *Acceptance of Flexible Load Plan*, p. 4, in which Staff's recommendation was adopted and the Staff Report is included as Appendix A, <https://apps.puc.state.or.us/orders/2021ords/21-158.pdf>.

cost-effectiveness of a standalone water heater program may be negatively impacted by burdening with the entire third-party cost, currently spread across both products.

3. The 2023 IRP preferred portfolio competitively selects increasing DR. Including the thermostat product increases the diversity of DR resources and the total DR capacity available to the Company.

Staff notes several additional dynamics that could lead to improvements in cost-effectiveness. Based on PGE's experience, there may be potential for increased kW demand reduction per thermostat and PacifiCorp may recognize this value over time. Additionally, Staff asked PacifiCorp whether more ambitious enrollment goals for thermostats were possible and would lead to improved cost-effectiveness. Staff will push to ensure any evaluation of this program considers enrollment. Under current benefits assumptions, scaling the program would not improve cost-effectiveness due to third party costs also scaling with program size. If benefits change, scaling may prove cost-effective in the future. Staff has already engaged and will continue to engage PacifiCorp on pathways to improving the cost-effectiveness of the thermostat product category.

As a separate matter related to cost-effectiveness, Staff requests PacifiCorp report a TRC2 value for DR resources which omits the value of lost service. In acknowledging Portland General Electric's 2019 IRP, Staff requested eliminating the value of lost service as a cost for DR resources when using the TRC.¹⁰ In annual reporting, Portland General Electric publishes both a TRC1 and TRC2 value which demonstrates the cost-effectiveness of DR resources with and without the value of lost service respectively. Staff recommends PacifiCorp begin reporting both TRC1 and TRC2 values in DR filings for consistency across utilities. Staff suggests that investigating DR cost-effectiveness at a future time should address ongoing questions such as the value of lost service and measure level versus portfolio level cost-effectiveness.

2. Recovery of those program costs through Schedule 291

PacifiCorp proposes to recover residential program costs through Schedule 291, consistent with Advice No. 21-022, approved by the Commission, December 28, 2021.¹¹

¹⁰ Docket No. LC 73, *Final Staff Report*, p. 14, February 27, 2020.

¹¹ Docket No. ADV 1344, Pacific Power Advice No. 21-022, filed November 15, 2021. The advice filing created a new Schedule 291 to consolidate the recovery of costs to fund energy efficiency, transportation electrification, and demand response programs. The filing was in response to the passage of HB 3141, which removed energy efficiency funding from the Public Purpose Charge, and HB 2165, which specified new funding for transportation electrification. The filing also canceled Schedule 95, the tariff through which Pacific Power previously recovered costs of its original irrigation load control pilot. <https://edocs.puc.state.or.us/efdocs/UAA/uaa16439.pdf>.

The Company's proposal is also consistent with the approach taken with both irrigation and commercial and industrial DR programs. The Company is not proposing a change to Schedule 291 as part of this filing. Instead, once the residential program is approved, the Company will file an application to defer the costs incurred through the program for later recovery through Schedule 291. Staff supports this approach.

Impacts to Other Programs

1. Coordination with other Schedule 106 Programs

The primary impact is on coordination with other Schedule 106 programs. This includes:

- Reporting – the Company has proposed to provide an annual report by March 31 each year for the irrigation DR program, the commercial and industrial program, and now the residential program.
- Program review – Company has proposed the same approach for annual programmatic review of the irrigation DR program, the commercial and industrial program, and the residential program.

Staff finds this approach to review and report on all DR programs to be consistent with Commission guidance and best-practice. This approach allows review of planning, budgets, goals, and performance for all DR programs in one location. Staff appreciates this approach and believes it will provide administrative efficiency to the Company, stakeholders, and Staff. Staff encourages the Company to pursue all sensible opportunities to coordinate the administration of Schedule 106 Programs.

2. Co-enrollment with Time of Use Pilot, Schedule 6

PacifiCorp proposes allowing enrollment of up to 700 pieces of equipment for residential customers currently enrolled in the time of use pilot (Schedule 6). Staff supports the Company's inclusion of residential time of use customers and believes valuable research questions may be gathered by evaluating performance of customers participating in both the residential DR program and the time of use pilot. Staff encourages PacifiCorp to pro-actively engage evaluators in determining the impacts of co-enrollment. Prior to evaluation results, Staff finds the cap of 700 pieces of equipment to be a reasonable measure to reduce risk of diminished demand reduction capacity from co-enrollment.

Stakeholder Feedback and Involvement

This filing documents stakeholder involvement in developing the residential program. Stakeholder involvement grew out of the demand response RFP and IRP related activities. This included approximately 20 different opportunities including Conservation

Potential Assessment workshops, DR workshops, regular IRP public input meetings, meeting with Energy Trust of Oregon staff, utilizing a consultant to research DR vendors, conducting the RFP, and updating Commission Staff.

Stakeholder involvement specific to the residential program included meeting with Energy Trust, the Oregon Community Benefits and Impacts Advisory Group, and in early 2023 a technical workshop to present and solicit feedback on the prospective residential program. The workshop was attended by 23 individuals from 13 organizations. Stakeholders identified additional equity considerations, some of which resulted in changes to final program design including increased incentives and payment of incentives in advance instead of afterwards. Staff supports PacifiCorp's effort to design and execute an inclusive and beneficial program.

Pacific Power provided a draft of the residential program filing to the parties from prior DR workshops and requested comments on the draft. The Energy Trust of Oregon was the only stakeholder to provide comments on the Company's draft filing. Staff also reviewed the draft filing and engaged the Company with questions about the proposal.

Conclusion

Staff supports Pacific Power's proposed residential program as it expands the use of DR resources to cost-effectively meet forecasted needs in the 2023 IRP. Staff supports the Company's use of Schedule 291 for recovering costs associated with the program.

For consistency and comparison to Docket No. UM 2141, Staff requests PacifiCorp report cost-effectiveness of each product category, at the residential program level, and for the entirety of Schedule 106 programs as a portfolio. Also for consistency, Staff requests PacifiCorp report a TRC1 and TRC2 value, including and omitting the value of service lost respectively for DR resources.

PROPOSED COMMISSION MOTION:

Approve Pacific Power's (Company or PacifiCorp) Advice No. 23-010.