ROCKY MOUNTAIN POWER
A DIVISION OF PACIFICORP

1407 W. North Temple, Suite 330
Salt Lake City, Utah 84116

May 27, 2025

VIA ELECTRONIC FILING

Public Service Commission of Utah
Heber M. Wells Building, 4th Floor
160 East 300 South
Salt Lake City, UT 84114

Attention: Gary Widerburg
Commission Secretary

RE: In the Matter of Rocky Mountain Power's Demand Side Management 2024 Annual Energy Efficiency and Peak Load Reduction Report – Docket No. 25-035-36

Dear Mr. Widerburg:

Pursuant to the Commission order dated February 16, 2017, in Docket No. 17-035-04, Rocky Mountain Power ("Company") hereby submits for filing its Demand Side Management 2024 Annual Energy Efficiency and Peak Load Reduction Report ("2024 Report"). Appendix C to the 2024 Report is confidential in its entirety and is provided in accordance with the Utah Public Service Commission Rule 746-1-601.

Also enclosed with the 2024 Report materials is the Confidential Information Certificate the Company desires parties in this docket to execute prior to obtaining access to confidential information.

It is respectfully requested that all formal correspondence and staff requests regarding this matter be addressed to:

By E-mail (preferred): datarequest@pacificorp.com
michael.snow@pacificorp.com

By regular mail: Data Request Response Center
PacifiCorp
825 NE Multnomah St., Suite 2000
Portland, OR 97232

Informal inquiries may be directed to me at (801) 220-4214.

Sincerely,

Michael S. Snow
Manager, Regulatory Affairs

Enclosures

CERTIFICATE OF SERVICE

Docket No. 25-035-36

I hereby certify that on May 27, 2025, a true and correct copy of the foregoing was served by electronic mail to the following:

Utah Office of Consumer Services

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Division of Public Utilities

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Rick Loy
Coordinator, Regulatory Operations

CONFIDENTIAL INFORMATION CERTIFICATE

IN DOCKET NO. 25-035-36

I have reviewed the Public Service Commission of Utah Rule R746-1-603 and/or the Protective Order entered by the Public Service Commission of Utah in Docket No. 25-035-36 with respect to the review and use of confidential information and agree to comply with the terms and conditions of the rule and/or Protective Order.

_____
Signature

_____
Name (Type or Print)

_____
Employer or Firm

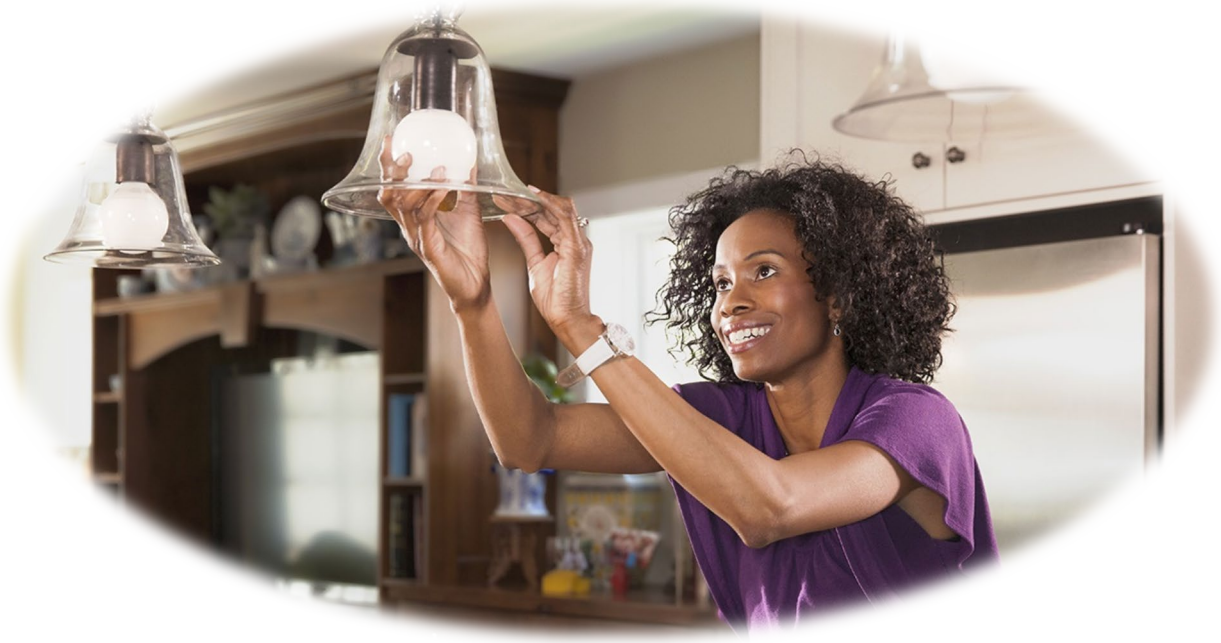
_____
Business Address

_____
Party Represented

_____
Date Signed

ROCKY MOUNTAIN POWER

POWERING YOUR GREATNESS



2024 Utah Energy Efficiency and Peak Reduction Annual Report

Issued: May 27, 2025

Rocky Mountain Power
1407 West North Temple
Salt Lake City, UT 84116

pacificorp.com/environment/demand-side-management

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EXECUTIVE SUMMARY

Rocky Mountain Power, a division of PacifiCorp, serves customers in Utah, Idaho, and Wyoming, including approximately 1,056,003 customers in Utah. The company focuses on acquiring energy efficiency and peak reduction resources as cost-effective alternatives to traditional supply-side resources, helping to manage load growth and meet peak demand.

PacifiCorp develops a biennial Integrated Resource Plan (IRP) to balance cost, risk, uncertainty, supply reliability, and long-term public policy goals.[1] This plan outlines future actions to ensure reliable and reasonably priced service, incorporating energy efficiency and peak management opportunities based on their availability, characteristics, and costs.

Rocky Mountain Power employs external implementers to administer its programs, with independent external evaluators validating energy savings from these initiatives.[2] The company uses various communication channels, including earned media, customer communications, education, outreach, advertising, and program-specific marketing, to promote energy efficiency and inform customers about available programs, services, and incentives.

The report details the results, activities, and expenditures of the DSM Cost Adjustment Tariff Rider ("Schedule 193") for the period from January 1, 2024, to December 31, 2024. During this period, Rocky Mountain Power invested $85.1 million in energy efficiency and peak reduction resources, resulting in approximately 391,998 megawatt hours (MWh) of first-year energy savings,[3] 3,408,070 MWh of lifetime savings, and peak management reductions of approximately 384 megawatts (MW). The net benefits of these energy savings are estimated at $107 million over the life of the measures.

The Demand-side Management (DSM) portfolio was deemed cost effective according to the Utility Cost Test (UCT), which is the primary cost benefit test used in Utah. Detailed cost effectiveness results can be found in Table 18, Appendix B, and Confidential Appendix C of the report.

In 2024, Rocky Mountain Power's portfolio was comprised of the following energy efficiency and peak reduction programs:

Energy Efficiency Programs:

- Wattsmart Homes
- Home Energy Reports
- Low Income Weatherization
- Wattsmart Business

Peak Reduction Programs:

- Irrigation Load Control
- Cool Keeper
- Wattsmart Batteries
- Wattsmart Business Demand Response
- EV Charging Demand Response

[1] Information on PacifiCorp's Integrated Resource Plan (IRP) can be found at: Integrated Resource Plan.
[2] Information on Rocky Mountain Powers planning process, program administration, program evaluations, communication and outreach can be found at: Demand-Side Management.
[3] Reported savings are ex-ante gross at generation.

ADVISORY GROUP AND STEERING COMMITTEE ACTIVITIES

Consistent with the discussion in Docket No. 12-035-69, the Company seeks input regarding its DSM programs from both the Utah DSM Steering Committee and the Utah DSM Advisory Group. These groups include representatives from various constituent organizations. Members of the Steering Committee, who are not already governed by Commission confidentiality rules, signed Confidentiality Agreements with the company to provide input on issues involving sensitive, confidential, or proprietary information. Throughout 2024, the Company consulted with the DSM Steering Committee and DSM Advisory Group on various matters and held formal meetings on the following topics:

February 20, 2024 – DSM Steering Committee

- **Recommendations for the 2024 DSM Communications Plan:** Reviewed and discussed strategic recommendations to enhance the effectiveness of the 2024 DSM Communications Plan.
- **Wattsmart Business:** Evaluated recent developments and proposed improvements.
- **Wattsmart Homes:** Discussed updates and potential enhancements.
- **Irrigation Load Control:** Reviewed status and future plans.
- **Electric Vehicle Demand Response:** Analyzed program performance and suggested updates.

June 6, 2024 – DSM Steering Committee

- **2023 DSM Annual Report:** Conducted a thorough review of the 2023 DSM Annual Report.
- **Marketing Plans and Costs for LIDAC Customers:** Evaluated marketing strategies and associated costs for LIDAC customers.
- **Presentation by Western Resource Advocates:** Reviewed and discussed insights from Western Resource Advocates on Electric Vehicle Demand Response and Time of Use Education
- **Semi-Annual DSM Report:** Undertook a detailed review of the Semi-Annual DSM Report.
- **Cool Keeper Program:** Discussed equipment purchases and budget considerations for the Cool Keeper program.

June 6, 2024 – DSM Advisory Group

- **2023 DSM Annual Report:** Conducted a comprehensive review of the 2023 DSM Annual Report.
- **2018-2019 Low Income Weatherization Program Evaluation:** Discussed findings and insights from the evaluation of the 2018-2019 Low Income Weatherization Program**.**

September 10, 2024 – DSM Steering Committee

- **2025 Conservation Potential Assessment:** Conducted a detailed discussion on the 2025 Conservation Potential Assessment.
- **Program Adjustments and Updates:**
    - Discussed proposed adjustments to the Wattsmart Business Program.
    - Evaluated the proposed expansion of the Cool Keeper program.
    - Provided updates on the implementation of the Electric Vehicle Demand Response program.
- **Community-Centered Outreach and Engagement:** Discussed strategies for enhancing community-centered outreach and engagement efforts.

September 10, 2024 – DSM Advisory Group

- **Cost Effectiveness Guidelines:** Discussed and collaborated on the development and refinement of cost effectiveness guidelines.

November 7, 2024 – DSM Steering Committee

- **2025 Forecast and Accounting for the DSM Portfolio:** Conducted a thorough review of the 2025 forecast and accounting for the DSM portfolio.
- **Energy Efficiency and Demand Response Portfolios:** Provided comprehensive updates on the Energy Efficiency and Demand Response portfolios.
- **EV Demand Response Program and Community Outreach:**
    - Delivered updates on the EV Demand Response program.
    - Discussed the status of the Company's efforts in community-centered outreach and engagement.

PORTFOLIO OF PROGRAMS

RESIDENTIAL ENERGY EFFICIENCY PROGRAMS

WATTSMART HOMES

Program Description

The Wattsmart Homes program is designed to provide incentives for residential customers to use more energy efficient products and services. It covers the following housing types:

- Newly Constructed Homes
- Single Family Existing Homes
- Multi-family Housing Units
- Manufactured Homes

The program is available to residential customers under electrical service schedules 1, 2, or 3. Landlords with properties where tenants are billed under these schedules also qualify.

In 2024, the Wattsmart Homes program passed the Utility/Program Administrator Cost Test (UCT) with a benefit-cost ratio of 2.63.

Program Performance and Major Achievements in 2024

In 2024, the Wattsmart Homes program achieved significant milestones, including 60,148,732 kWh in gross energy savings at the site and the disbursement of $20 million in incentives. The program is implemented by Evergreen Consulting for the existing homes program channel, Resource Innovations for the new homes program channel, and ICAST for the multifamily program channel.

In 2024, Rocky Mountain Power's Wattsmart Homes program achieved several significant milestones:[4]

- **Heat Pump Installations**: The program set a record by installing more than 10,000 heat pumps in existing, new, and multifamily homes. These installations are particularly beneficial as they help reduce energy consumption and lower local emissions.
- **Pro Network Success**: The heat pump Pro Network for the existing homes program channel, launched earlier in the year, accounted for 56% of total heat pump applications, despite making up only 15% of the total program trade allies. This network of trusted partners ensures high-quality installations and superior customer service.

[4] Trade Ally Newsletter Winter 2024-25 - Wattsmart Home

- **Survey Success**: The Wattsmart Homes program continues to receive high marks from residential customers, maintaining an 8.8/10 satisfaction rating. The rating was consistent throughout 2024.
- **Energy Assessments:** The program added self-guided home energy assessments to the options available to customers. The assessment takes about 5-10 minutes to complete. The assessment identifies energy saving opportunities and educates customers about the program and available rebates. Customers still have the choice of virtual, via the phone, or in-person assessments, if desired.
- **Household Maintenance Seasonal Tips:** Customers can subscribe to our monthly calendar to find solutions to help reduce energy use, ways to improve home comfort, and other programs offered by Rocky Mountain Power.

These achievements highlight the program's commitment to energy efficiency and customer satisfaction.

HOME ENERGY REPORTS PROGRAM

Program Description

The Home Energy Reports program is a behavioral initiative aimed at reducing energy consumption among participants. It achieves this by offering comparative energy usage data for similar homes in the same geographical area. Additionally, the reports provide participants with practical tips to help them decrease their energy usage.

In 2024, the Home Energy Reports program demonstrated exceptional cost-effectiveness, passing the Utility/Program Administrator Cost Test (UCT) with a benefit-cost ratio of 9.86 This high ratio indicates that the program's benefits significantly exceeded its costs, highlighting its success in promoting energy-efficient behaviors among participants

Program Performance and Major Achievements in 2024

In 2024, the Home Energy Reports program achieved 116,178 MWh in gross energy savings at the site. Initially, reports were provided to approximately 589,903 customers, which expanded to 610,618 customers by the fourth quarter of 2024.

Report Highlights:

- Individual recommendations to save energy.
- Insights on energy usage by appliance type.
- Home characteristics included in the report with easy access to update the home profile.
- Monthly usage history included in reports.

Additionally, online portals are continually evolving to provide greater insights for all residential customers.

LOW INCOME WEATHERIZATION

Program Description

The Low-Income Weatherization program offers energy efficiency services to income-eligible households at no cost, through a partnership with the Utah Department of Workforce Services, Housing and Community Development Division (HCD). Rocky Mountain Power has a contract with HCD to provide these services, leveraging federal funds and subcontracting with seven non-profit agencies to install energy efficiency measures in eligible homes across the company's service area.

Rocky Mountain Power funds 50 percent of the cost of approved measures, which is matched by HCD with federal funding, enabling more homes to benefit from the program each year.

In 2024, the Low-Income Weatherization program passed the Utility/Program Administrator Cost Test (UCT) with a benefit-cost ratio of 1.60. This indicates that the program's benefits exceeded its costs, demonstrating its effectiveness in providing energy efficient services to income-eligible households.

Program Performance and Major Achievements in 2024

In 2024, the Low-Income Weatherization program achieved 173,523 kWh in gross energy savings at the site and served 291 homes.

Rocky Mountain Power's Low Income Homes program in Utah achieved several significant milestones:

- **Weatherization Assistance**: The program provided weatherization services to numerous low-income homes, improving energy efficiency and reducing utility bills.
- **Community Outreach**: The program expanded its outreach efforts, ensuring more low-income families were aware of and could benefit from available energy-saving measures.
- **Partnerships**: Collaborations with local organizations and agencies enhanced the program's reach and effectiveness, providing comprehensive support to low-income households.

These achievements underscore the program's commitment to supporting low-income communities and promoting energy efficiency.

NON-RESIDENTIAL- ENERGY EFFICIENCY PROGRAMS

WATTSMART BUSINESS

Program Description

The commercial, industrial, and agricultural energy efficiency program portfolio is offered through a single Non-Residential Energy Efficiency program called Wattsmart Business. This program aims to encourage new and existing non-residential customers to enhance their electricity usage efficiency by installing energy efficiency measures and adopting improved energy management protocols. Qualifying measures are those that, when implemented in an eligible facility, result in verifiable electric energy efficiency improvements.

Incentives and services offered through Wattsmart Business include:

- Typical Upgrades
- Small Business Enhanced
- Small Business Direct Install
- Midstream/LED Instant Incentives
- Custom Analysis
- Energy Management
- Energy Project Manager Co-funding
- New Construction/Major Renovation Incentives

In 2024, the Wattsmart Business program demonstrated strong cost-effectiveness, passing the Utility/Program Administrator Cost Test (UCT) with a benefit-cost ratio of 2.63.

Program Performance and Major Achievements in 2024

In 2024, Rocky Mountain Power's Wattsmart Business Program in Utah reached several notable milestones. The program achieved gross energy savings of 193,782,406 kWh at the site and distributed $22 million in incentives.

- The program had 267 Trade Allies registered to assist customers with utility incentives, with 11 holding Premium Trade Ally status. The Program had strong attendance at the annual Trade Ally Workshops with 210 attendees at the training event in Sandy, UT.
- The program achieved 4,517 individual touchpoints with customers and trade allies.
- Due to several factors including market slowing and vendor restructuring, lighting savings decreased by 4% compared to 2023. While there were no projects over 775,000 kWh in 2024, the savings were evenly distributed between small, medium, and large sized projects.
- Prescriptive non-lighting had a 58% decrease in savings as compared to 2023. This decrease is primarily attributed to a high-performing trade ally adjusting their business focus from Utah to Arizona, creating a large gap in expected savings from Advanced Rooftop Controls. The Utah HVAC industry also had several trade ally businesses where administrative and field staff left companies to start at new ones.
    - Subsequently, the lighting and non-lighting prescriptive program delivery teams concentrated on recruiting new Trade Allies to mitigate the impact of decreased savings throughout 2024.
- Savings from New Construction and Major Renovation increased by 63% compared to 2023. The increase is attributed to the 30 warehouse and manufacturing projects that participated in the program. There were also increases in participation in offices, dining, fitness, and hotels.
- The program increased awareness of Wattsmart Business in the marketplace with the addition of Fox 13 News Utah's Wattsmart Wednesdays which featured HVAC, Lighting and New Construction Customers and Trade Allies.
    - Through this outreach, streamlined success stories and concise case studies were developed to serve as sales tools and success stories for outreach staff and Trade Allies.
- In November 2024, the program tariff was adjusted, which included increased incentives for ECMs, Unitary Commercial ACs, VRF Heat Pumps, Building Envelope improvements, and food service measures.
- The Wattsmart Business program continues to receive high marks from business customers, maintaining a 9.3/10 satisfaction rating.

These achievements highlight the program's commitment to promoting energy efficiency and supporting businesses in their sustainability efforts.

PEAK REDUCTION PROGRAMS

Peak Reduction programs help Rocky Mountain Power balance customer energy requirements during peak summer usage hours. These programs aim to defer the need for costly investments in delivery infrastructure and peak generation resources, which would otherwise be necessary to serve high demand loads for a few select hours each year. By doing so, they maximize the efficiency of the existing electrical system and reduce costs for all customers.

Programs targeting capacity-related resources are tailored to the most prevalent end-use loads in each jurisdiction, such as agricultural pumping and residential cooling loads in Utah. In 2024, the company offered the following programs:

- **Irrigation Load Control program (Schedule 105)** for the agricultural sector.
- **Cool Keeper program (Schedule 114)** for the residential and small commercial sectors.
- **Wattsmart Business Demand Response program (Schedule 114)** for the larger commercial and industrial sector.

- **Wattsmart Batteries (Schedule 114)** for eligible residential and commercial batteries.
- **Wattsmart Electric Vehicle Demand Response (Schedule 114)** for eligible electric vehicles.

IRRIGATION LOAD CONTROL

Program Description

The Irrigation Load Control program is available to irrigation customers receiving electric service under Schedule 10, Irrigation and Soil Drainage Pumping Power Service. Participants enroll with a third-party administrator and agree to curtail their electricity usage in exchange for incentives. These incentives are based on the site's average available load during program hours, adjusted for any opt-out or non-participation.[5]

Most participants have their irrigation systems set up with a dispatchable two-way control system, allowing Rocky Mountain Power to manage their loads. Participants receive a 4-hour advance notice before mandatory events and can opt-out, though each opt-out reduces their final incentive.

In 2024, the mandatory program season ran from May 28th to August 16th. The voluntary program season followed from August 17th to September 30th, although no voluntary events were scheduled between those dates. Mandatory events were scheduled from 2 PM to 9 PM Mountain Standard Time, Monday through Friday, excluding holidays, with a 4-hour notification for each event. Events with less than 4-hours' notice were classified as voluntary.

The Irrigation Load Control program passed the Utility Cost Test (UCT) for 2024. This program, administered by Rocky Mountain Power, is designed to help manage energy use during peak summer hours by allowing irrigation customers to curtail their electricity usage in exchange for incentives.

Program Performance and Major Achievements in 2024

Rocky Mountain Power's Irrigation Load Control program in Utah achieved several significant milestones:[6]

- **Energy Reductions**: The program successfully engaged agricultural customers to reduce their electricity usage during peak demand periods, contributing to overall grid reliability and cost-effectiveness.
- **Incentive Payments**: Participants received substantial incentive payments for temporarily turning off their irrigation pumps during periods of high demand. This helped defer the need for higher-cost investments in delivery infrastructure and generation resources.
- **Participation and Engagement**: The program saw increased participation from agricultural customers, with many opting for automated or manual responses to curtail their electricity usage during load control events.

In 2024, nine mandatory load control events were initiated, and two voluntary load control events initiated. The two voluntary events were classified as voluntary because they were scheduled with less than 4 hours' notice. The irrigation load control program's available load can be utilized as a reserve, providing value to the program and benefits to customers.

A total of 25 customers participated across 128 sites. The total enrolled capacity was 14.9 MW, with a maximum potential load of 10.3 MW and a maximum realized load of 4.1 MW, all at generation.

[5] For more information on program enrollment, please visit the Company's website at: https://www.rockymountainpower.net/savings-energy-choices/business/irrigation-load-control.html

[6] Rocky-Mountain-Power-ILC-DR-FAQ_Flyer_RMP.pdf

COOL KEEPER

Program Description

The Cool Keeper program is a direct load management initiative targeting residential and commercial customers who use electric central air conditioners and heat pumps. This program is activated under various circumstances to manage grid demand. Its flexibility and real-time dispatch capabilities make it suitable for various smart grid applications.[7]

When there is a grid need, Rocky Mountain Power uses a central cloud-based platform to send a signal to switches installed on participating customers' cooling systems to turn the compressor off (or prevent it from starting up if its already off). When the event is over, the platform sends a second signal to allow the compressor to turn back on. In 2024, the average curtailment duration was 7 minutes.

Participants receive monthly bill credit, with the maximum annual incentive ranging from $30 to $60, depending on the unit size. The program is limited to 100 hours per year, with events lasting up to four hours per day. In case of a system emergency, Rocky Mountain Power may expand the dispatch parameters as outlined in the program tariff. Participants not enrolled for the entire season receive a daily pro-rated credit for the days they participate. The Cool Keeper load control system operates through a two-way communication using a wireless mesh network, enhancing control, measurement, and verification of program performance.

The Cool Keeper control program passed the UCT cost test for 2024.

Program Performance and Major Achievements in 2024

The maximum potential and realized capacities at generation were 315 MW and 247 MW, respectively.

The program's real-time activation capability enhances its value and flexibility, allowing it to be utilized for frequency response and contingency reserve obligations. Frequency response events are 5-minute events that correct a frequency imbalance on the grid, while contingency reserve events are typically 15-30 minutes, and used to correct an unexpected dip in generation. During the 2024 program season, 134 Cool Keeper control events were initiated, compared to 31 in 2023. Of the 134 events, 118 were frequency response events. The increase resulted from a change to the algorithm that triggers these automated frequency events to better align with grid needs.

Rocky Mountain Power's Cool Keeper program achieved several significant milestones:[8]

- **Energy Demand Reduction**: The program successfully reduced energy demand during peak periods by activating Cool Keeper devices installed on customers' HVAC systems. This helped maintain grid stability and prevent outages during high-demand times.
- **Customer Participation**: Over 100,000 customers participated in the program, receiving $6 in monthly bill credits from May to September. This high level of participation underscores the program's popularity and effectiveness.
- **Community Impact**: The program played a crucial role in keeping electricity prices among the lowest in the nation by reducing the need for additional power generation and infrastructure investments.

[7]For more information on program enrollment, please visit the Company's website at: https://www.rockymountainpower.net/savings-energy-choices/home/cool-keeper.html#:~:text=Cool%20Keeper%20is%20available%20to,%2D800%2D357%2D9214.

[8] Rocky Mountain Power's Wattsmart Program Can Help You Keep Your Cool This Summer

WATTSMART BUSINESS DEMAND RESPONSE

Program Description

The Wattsmart Business Demand Response Program offers financial incentives to commercial and industrial (C&I) customers who reduce their load during company-initiated events. This program aims to provide peak load reduction, contingency reserves, frequency response, and other grid services to help manage the overall electric grid effectively.[9]

The program targets large commercial and industrial customers with curtailable loads greater than 500 kW, which can be curtailed with no advance notice or limited advance notice (7 minutes). An automated dispatch without advance notice and a total response time within 50 seconds is considered a real-time event, while a dispatch event with advance notice and response within 7 minutes is considered an advanced notice event.

The Wattsmart Business Demand Response program passed the UCT cost test for 2024.

Program Performance and Major Achievements in 2024

The maximum potential at generation was 24 MW at site, with eight control events initiated during the 2024 program season.

Rocky Mountain Power's Wattsmart Business Demand Response program in Utah achieved several significant milestones:

- **Energy Reductions**: The program successfully engaged large energy consumers to reduce their electricity usage during peak demand periods, contributing to overall grid reliability and cost-effectiveness.
- **Incentive Payments**: Participants received substantial incentive payments for their energy reductions, which helped defer the need for higher-cost investments in delivery infrastructure and generation resources.
- **Participation and Engagement**: The program saw increased participation from non-residential customers, with many opting for automated or manual responses to curtail their electricity usage during load control events. The enrollment process for customers requires significant time and effort due to the technological and commitment aspects of the program. While program results increased in 2024, they were lower than originally forecasted due to the enrollment process.

WATTSMART BATTERIES

Program Description

The Wattsmart Batteries program encourages the installation of qualified individual batteries to enhance electric grid management. By leveraging these batteries, the program aims to maximize renewable energy usage and support a sustainable electric grid. The batteries are utilized for various smart grid applications, including frequency response, peak load management, transmission relief, and daily load cycling. They are integrated into PacifiCorp's Energy Management System to provide real-time grid benefits.[10]

Eligible participants receive an upfront enrollment incentive capped at $2,000 per household, and their 4-year commitment to the program, along with ongoing annual incentives for continued participation.

The Wattsmart Battery program passed the Utility Cost Test (UCT) for 2024.

[9] For more information on program enrollment, please visit the Company's website at: https://www.rockymountainpower.net/savings-energy-choices/business/demand-response.html

[10] For more information on program enrollment, please visit the Company's website at: www.rockymountainpower.net/battery

Program Performance and Major Achievements in 2024

The **Wattsmart Battery Program** by Rocky Mountain Power has made significant strides in Utah. Here are some key highlights:[11]

- **Program Enrollment**: Since its approval in late 2020, the program has enrolled over **6,000 batteries.**
- **Incentives**: The program offers incentives of $400 per kW with a cap of $2,000 per household. Commercial battery incentives are **$500 per kW** for battery installations and **$15,000 for 30 kW**.
- **Environmental Impact**: Rocky Mountain Power is on track to reduce greenhouse gas emissions by **74% by 2030** and **98% by 2050.**
- **Large Scale Investments:** amounting to 600 MW of battery storage by 2025 and 2,800 MW by 2038, will help us keep the grid stable.
- **Achieved:** a maximum generation potential of 18 MW.
- **Responded**: to 164 frequency events.
- **Approved**: additional battery manufacturers for participation.
- **Availability**: 24/7, 365 days a year.
- **Operation**: operates autonomously and in real-time, enhancing value and flexibility for frequency response and contingency reserve obligations.
- **Engagement:** daily load cycling to optimize solar energy usage

WATTSMART ELECTRIC VEHICLE DEMAND RESPONSE

Program Description

Approved in late 2023, the Wattsmart Electric Vehicle Demand Response Program (also known as Wattsmart Drive) is an innovative pilot designed to test the viability of utilizing electric vehicles for grid management. The pilot sends pause-charging signals directly to electric vehicles charging within Rocky Mountain Power's Utah territory when dispatched. Acting as a frequency demand response resource, these signals are dispatched to customers within seconds, pausing charging for up to five minutes. Customers receive real-time notifications via SMS and have the option to opt out of these events.

Event Dispatches

Wattsmart Drive, approved as a pilot program, operates independently from Rocky Mountain Power's Energy Management System due to the non-integration of its supporting software platform. The primary objective of this pilot is to evaluate the feasibility of utilizing electric vehicle (EV) charging as a frequency demand response resource. To assess the program's viability, Rocky Mountain Power manually dispatched events on various days and times to simulate real frequency demand response scenarios. These events, referred to as "Frequency Test Events" in the Electric Vehicle Charging Demand Response Events table, were not triggered by actual grid frequency needs but were conducted to test the pilot's potential.

A distinctive aspect of employing EVs for demand response is their mobility and variable charging patterns. In 2024, a limited number of events were dispatched due to the dispatch portal frequently indicating minimal or no active EV charging. Rocky Mountain Power anticipates that as the program expands, the probability of vehicles charging at any given time will increase, thereby facilitating more optimal dispatch timing and better aligning with the program's forecast.

[11] Wattsmart Battery Program

Given the program's emphasis on growth and testing, and that it's still in its pilot phase, a cost-effectiveness analysis for this pilot program is not included in this report.

Program Performance and Major Achievements in 2024

- **Dispatch Testing:** With the program's launch in 2024, substantial efforts were dedicated to testing the dispatch software, as resolving issues post-enrollment would be more challenging. Tests were conducted across various vehicle make and models. Different strategies, including opting out and event cancellation, were rigorously tested and verified.
- **Program Marketing:** The program was marketed using email lists of customers who participated in the EV Time of Use rate and/or AC Level 2 Charger incentive program. Two email campaigns were conducted in 2024, leading to the enrollment of 80 customers by the end of the year.
- **Event Dispatch:** In 2024, five events were dispatched, achieving a maximum load reduction of 55.7 kW.

EXPENDITURES

TOTAL PORTFOLIO BUDGET AND EXPENDITURES

Table 1: Forecast to Actual Savings Comparison

Utah 2024 DSM Programs	2023 IRP for 2024 (Gross - at Gen)		2024 Forecast (Gross - at Gen)		2024 Actual (Gross - at Gen)	
	MWH	MW	MWH	MW	MWH	MW
Class 1 - Load Control Programs						
A/C Load Control		N/A		276		315
Irrigation Load Control		N/A		14		15
Wattsmart Batteries Program		N/A		27		30
C&I Load Control Program		N/A		54		24
EV Charging Demand Response		N/A		2		0.31
Total Class 1		**339**		**373**		**384**
Class 2 - Residential Programs						
Low Income	N/A	N/A	178	0.03	185	0.03
Wattsmart Homes	N/A	N/A	54,112	9.41	63,972	11.13
Total Residential Class 2	**N/A**	**N/A**	**54,290**	**9.44**	**64,157**	**11.16**
Class 2 - Non-Residential Programs						
Wattsmart Business	N/A	N/A	208,724	36.30	**204,278**	35.5
Total Class 2	**266,407**	**46.33**	**263,014**	**45.74**	**268,435**	**46.71**
Total Class 2 Estimated Range			**252,391-278,958**			
Misc.						
Home Energy Reporting			**109,318**	**19.01**	**123,563**	**21.50**

Table 2: Program Results for January 1, 2024 – December 31, 2024

Load Management Programs	MW/Yr. Savings (at site)	MW/Yr. Savings (at gen)	Program Expenditures
Cool Keeper	296	315	$ 8,530,311
Irrigation Load Control	14	15	$ 115,065
C&I Load Control	23	24	$ 1,343,004
Wattsmart Batteries	28	30	$ 6,885,212
EV Charging Demand Response	0.28	0.31	$ 72,662
Total Load Management	**361**	**384**	**$ 16,946,254**
Energy Efficiency Programs	**kWh/Yr. Savings (at site)**	**kWh/Yr. Savings (at gen)**	**Program Expenditures**
Low Income Weatherization	173,523	184,554	$104,070
Home Energy Reporting	116,178,000	123,563,435	$1,578,956
Wattsmart Homes	60,148,732	63,972,387	$26,478,345
Total Residential	**176,500,256**	**187,720,377**	**$28,161,371**
Total Wattsmart Business	**193,782,406**	**204,278,245**	**$38,589,782**
Total Energy Efficiency	**370,282,662**	**391,998,622**	**$66,751,153**
Other Portfolio Expenditures			
		Outreach and Communications	$ 679,468
		Portfolio - EM&V Non-Residential	$ 150,533
		Portfolio - EM&V Residential	$178,438
		Portfolio – DSM Central	$ 183,547
		Portfolio Potential Study	$ 128,742
		Portfolio TRL	$ 32,184
		Portfolio - Training	$ 75,000
Total Utah Program Expenditures			**$ 85,125,318**

SAVINGS BY PROGRAM

Table 3: 2024 Program Performance by Measure Category Savings for Wattsmart Homes (Single-Family)

Measure Category	Total kWh (at Site)	Total Incentive	Total Projects
Appliances	31,095	$9,520	212
Building Shell	562,791	$542,718	2,572
Electronics	2,182	$320	17
HVAC	23,966,994	$8,929,460	18,635
HVAC-NH	2,457,547	$678,475	1,604
Lighting	2,103	$322	12
Transportation	132,672	$12,500	57
Water Heating	73,151	$20,350	50
Water Heating-NH	42,474	$10,500	15
Whole Building-NH[12]	5,307,147	$1,645,605	4,142
Grand Total	**32,578,156**	**$11,849,769**	**27,316**

[12] The Whole Building New Home measure is categorized under a pay-for-performance model. A pay-for-performance measure in energy efficiency is a strategy where payments for energy efficiency improvements are based on the actual performance and measured energy savings of the implemented measures. This approach incentivizes builders to construct homes above code baselines to achieve higher energy savings; incentives are paid based on kWh saved as built above code.

Table 4: 2024 Program Performance by Measure Category Savings for Wattsmart Homes (Multi-Family)

Measure Category[13]	Total kWh (at Site)	Total Incentive	Total Projects
Appliances	4,950	$1,395	18
Building Shell	362,196	$161,377	11
Electronics	34	$5	1
HVAC	9,140,639	$4,262,101	249
Lighting	271,390	$30,281	11
Water Heating	133,201	$50,109	6
Whole Building	17,658,167	$4,065,382	101
Grand Total	**27,570,577**	**$8,570,649**	**397**

Table 5: Wattsmart Homes New Construction Single Family Participation

New Construction Measures	Total kWh (at Site)	Total Incentives
Single Family		
Smart Thermostat	123,560	$61,725
ENERGY STAR certification	15,228	$24,550
Heat Pumps	2,333,988	$616,750
Heat Pump Water Heater	42,474	$10,500
Electric Heat (PFP)	933,956	$138,415
Gas Heat (PFP)	4,357,963	$1,479,440
HERS index <=62	0	$3,200
Total Single Family	**7,807,168**	**$2,334,580**

Table 6: Wattsmart Homes Custom Multifamily Participation for Low Income and Market Rate Properties

Custom Multifamily	Total kWh (at Site)	Total Incentives
Low Income	**10,789,390**	**$4,761,517**
New Construction	1,380,576	$386,561
Retrofit	9,408,814	$4,374,955
Market Rate	**16,728,743**	**$3,785,577**
New Construction	16,277,590	$3,678,821
Retrofit	451,153	$106,757
Grand Total	**27,518,133**	**$8,547,094**

[13] In addition to multifamily and single-family new construction, the program also includes multifamily retrofit projects. These retrofit projects involve upgrading existing multifamily buildings to improve energy efficiency and integrate renewable energy solutions.

Table 7: Low Income Weatherization Program Homes Served and Measures Installed

Measure Type	Installed
Insulation	78
Crisis Heating & Cooling Repair and/or Replacement	13
Duct Sealing & Insulation	9
Furnace Fan	58
Energy Education	265
Window Replacement	1
LED Bulbs	178
Weatherization	59
Room AC ENERGY STAR	1
Refrigerator Replacement	12
Total Number of Homes Served	**291**
Total kWh Savings @ Site	**173,523**

Table 8: 2024 Program Performance by Measure Category Savings for Wattsmart Business

Measure Category	Total kWh (at Site)	Total Incentive	Bill Credits	Total Projects
Additional Measures	20,191,933	$2,962,717	$50,396	34
Agriculture	2,232,028	$303,382	$-	50
Building Shell	1,854,552	$150,335	$106,354	40
Compressed Air	5,752,023	$738,296	$149,600	31
Direct Install	3,534,221	$1,049,776	$-	413
Energy Management	45,089,145	$901,783	$-	93
Food Service	12,296	$1,800	$-	6
HVAC	40,468,840	$5,951,534	$549,814	388
Lighting	39,987,387	$5,345,389	$-	15,404
Motors	12,310,763	$1,302,487	$161,206	47
Oil & Gas	19,414	$3,000	$-	2
Refrigeration	2,559,710	$339,985	$-	56
Transportation	1,007,000	$27,500	$-	12
Whole Building	18,763,096	$2,782,529	$-	148
Energy Project Manager Co-Fund	-	$253,125	$-	5
Grand Total	**193,782,406**	**$22,113,637**	**$1,017,370**	**16,729**

Table 9: Wattsmart Business Savings by Sector

Sector	Total kWh (at Site)	Total Incentive	Bill Credit	Total Projects
Agricultural	1,285,106	$183,088	**$-**	44
Commercial	133,450,880	$18,073,670	$675,943	16,335
Industrial	59,046,421	$3,856,879	$341,427	350
Grand Total	**193,782,406**	**$22,113,637**	**$1,017,370**	**16,729**

LOAD CONTROL EVENTS

Table 10: Irrigation Load Control Events

Date	Event	Event Times	Estimated Load Reduction at Gen (MW)
6/25/2024	1*	8:00 PM - 9:00 PM MDT	**3.4**
7/10/2024	2	4:00 PM - 8:00 PM MDT	**2.4**
7/11/2024	3	5:00 PM - 9:00 PM MDT	**2.7**
7/12/2024	4	5:00 PM - 9:00 PM MDT	**2.2**
7/22/2024	5	5:00 PM - 9:00 PM MDT	**3.4**
7/23/2024	6	5:00 PM - 9:00 PM MDT	**3.2**
7/24/2024	7*	5:00 PM - 9:00 PM MDT	**2.6**
8/1/2024	8	5:00 PM - 8:00 PM MDT	**4.0**
8/2/2024	9	4:00 PM - 8:00 PM MDT	**4.0**
8/5/2024	10	5:00 PM - 9:00 PM MDT	**4.1**
8/6/2024	11	7:00 PM - 9:00 PM MDT	**3.6**

*Indicates voluntary events

Table 11: Irrigation Load Control Program Performance

Maximum Potential MW (at Site)	**14**
Maximum Potential MW (at Gen)	15
Average Realized load MW (at Site)	3.0
Maximum Realized load MW (at Site)	3.8
Total Customer Participation	25
Total Sites	128

Table 12: Cool Keeper Load Control Events[14]

Month	Number of Events	Max of Estimated Load Reduction at Gen (MW)	Average Estimated Load Reduction at Gen (MW)
April	25	57	48
May	39	101	14
June	17	171	92
July	6	223	144
August	13	247	140
September	18	185	86
October	16	102	38

Table 13: Program Performance for Cool Keeper

Maximum Potential MW (at Site)	**296**
Maximum Potential MW (at Gen)	315
Average Realized Load MW (at Gen)	61
Maximum Realized MW (at Gen)	247
Total Participating Customers	104,670

[14] See Appendix D for Cool Keeper Event Detail.

Table 14: Wattsmart Battery Control Events

Month	Sector	Reason for Event	Min of Estimated Load Reduction at Gen (MW)	Max of Estimated Load Reduction at Gen (MW)
Feb	Residential	Frequency Response	18.00	20.00
Mar	Residential	Frequency Response	18.00	20.00
Apr	Residential	Frequency Response	18.00	20.00
May	Residential	Frequency Response	18.56	20.56
Oct	Residential	Frequency Response	24.53	26.53
Nov	Residential	Frequency Response	26.00	28.00
Dec	Residential	Frequency Response	26.00	28.00
Jan	Residential	Frequency Response	16.00	18.00
June	Residential	Frequency Response	20.00	22.00
July	Residential	Frequency Response	22.00	24.00
Aug	Residential	Frequency Response	23.00	25.00
Sept	Residential	Frequency Response	24.00	26.00
Grand Total			**16.00**	**28.00**

Table 15: Program Performance for Wattsmart Batteries

Maximum Potential MW (at Site)	**28.00**
Maximum Potential MW (at Gen)	29.78
Total Participating Batteries	5,100

Table 16: Wattsmart Business Load Control Events

Event Date	Mountain Time Event Start/End Time	MW achieved at Site	Type
6/12/2024	10:06 to 10:26	16.04	Advanced Notice
6/23/2024	14:55 to 15:15	7.2	Advanced Notice
8/2/2024	9:46 to 10:06	17.6	Advanced Notice
8/6/2024	17:44 to 18:04	7.5	Advanced Notice
9/8/2024	10:37 to 10:57	6.0	Advanced Notice
10/2/2024	8:12 to 8:32	11.9	Advanced Notice
11/14/2024	10:21 to 10:41	18.5	Advanced Notice
12/12/2024	14:13 to 14:33	7.4	Advanced Notice

Table 17: Program Performance for C&I Load Control

Maximum Potential MW (at Site)	**23**
Maximum Potential MW (at Gen)	24
Total Participating Sites	67

Table 18: Electric Vehicle Charging Demand Response Events

Event Date	Mountain Time Event Start/End Time	MW achieved	Count of Vehicles with Paused Charging	Type
9/9/2024	10:42 PM – 10:47 PM	51.3	4	Frequency Response Test
9/26/2024	8:01 PM – 8:06 PM	55.7	4	Frequency Response Test
11/12/2024	8:23 PM – 8:28 PM	1.8	1	Frequency Response Test
11/25/2024	9:29 PM – 9:34 PM	0	1	Frequency Response Test
12/13/2024	10:40 PM – 10:45 PM	0	2	Frequency Response Test

Table 19: Program Performance for Electric Vehicle Charging Demand Response

Maximum Potential kW (at Site)	**280**
Maximum Potential kW (at Gen)	309
Average Realized Load kW (at Site)	21.8
Maximum Realized kW (at Site)	55.7
Total Participating Customers	80

TOTAL COST EFFECTIVENESS RESULTS BY PORTFOLIO AND PROGRAM

Cost effectiveness is evaluated using a company-specific modeling tool developed by a third-party consultant. This tool incorporates PacifiCorp data and values, such as avoided costs, and follows the methodology specified in California's Standard Practice Manual. The analysis assesses the costs and benefits of Demand-Side Management (DSM) resource programs from various stakeholder perspectives, including participants and non-participants, using four standard tests and an additional fifth test. The primary cost/benefit test used in Utah is the Utility Cost Test (UCT).[15]

Here is the cost-effectiveness tests used for Rocky Mountain Power's programs:

- **PacifiCorp Total Resource Cost (PTRC) Test**: This test adds 10% to the net benefit side of the benefit/cost formula to account for non-quantified environmental and non-energy benefits of conservation resources over supply-side alternatives.
- **Total Resource Cost (TRC) Test**: Considers the benefits and costs from the perspective of all utility customers, comparing the total costs and benefits from both the utility and customer perspectives.
- **Utility Cost Test (UCT)**: Also known as the program administrator cost test, it provides a benefit-to-cost perspective from the utility only. It compares the total utility cost incurred to the

[15] The UCT, also known as the Program Administrator Cost Test, is a method used to evaluate the cost effectiveness of energy efficiency programs from the utility's perspective. The UCT assesses whether the benefits of an energy efficiency program outweigh the costs incurred by the utility to implement the program. **Benefits Considered:** The primary benefits included in the UCT are the energy and capacity savings achieved by the program. These savings are valued based on the avoided costs, which are the costs the utility would have incurred if it had to generate or purchase the equivalent amount of energy. **Costs Considered:** The costs included in the UCT are the total costs incurred by the utility to implement the program. This includes administrative costs, incentives paid to participants, and any other program-related expenses. **Calculation:** The UCT is calculated by dividing the total benefits by the total costs. A UCT ratio greater than 1.0 indicates that the program is cost-effective, meaning the benefits exceed the costs. In summary, the UCT provides a clear picture of the financial viability of an energy efficiency program from the utility's standpoint, helping to ensure that the program delivers value to the utility and its customers.

benefit/value of the energy and capacity saved, excluding customer costs or benefits in the calculation.

- **Participant Cost Test (PCT)**: Compares the portion of the resource cost paid directly by participants to the savings realized by the participants.
- **Ratepayer Impact Cost (RIM) Test**: Examines the impact of energy efficiency expenditures on non-participating ratepayers. Unlike supply-side investments, energy efficiency programs reduce energy sales, which typically lowers revenue requirements but may increase rates as fixed costs are spread over fewer kilowatt-hours.

Cost-effectiveness is tested using decrement values from the Integrated Resource Plan (IRP) for all measure categories. The avoided cost for energy efficiency is determined by comparing the system cost of the preferred portfolio with and without energy efficiency, where the cost difference is the value of the "decrement" or system-wide energy efficiency savings. Risk reduction and Transmission & Distribution (T&D) adders are then added to this decrement value to determine the total avoided cost. An avoided cost is equal to the Decrement Value + Risk Reduction adder + T&D adder.

Table 20: 2024 Cost Effectiveness Results by Program[16]

Program	Benefit/Cost Test				
	PTRC	TRC	UCT	PCT	RIM
DSM Portfolio	1.12	1.02	2.67	1.24	0.66
Energy Efficiency Portfolio	0.99	0.90	2.74	1.25	0.57
Non-Residential Energy Efficiency Portfolio	1.59	1.45	2.63	2.38	0.53
Residential Energy Efficiency Portfolio	0.69	0.63	3.03	0.75	0.64
Wattsmart Homes	0.57	0.52	2.63	0.68	0.58
Home Energy Reporting	10.85	9.86	9.86	n/a[17]	1.08
Low Income Weatherization	1.76	1.60	1.60	n/a[18]	0.58
Wattsmart Business	1.59	1.45	2.63	2.38	0.53
Irrigation Load Control Program	Pass	Pass	Pass	Pass	Pass
AC Load Control Program	Pass	Pass	Pass	Pass	Pass
Wattsmart Battery Program	Pass	Pass	Pass	Pass	Pass
Wattsmart Business Demand Response	Pass	Pass	Pass	Pass	Pass

Portfolio-level cost-effectiveness encompasses overall portfolio costs, including the Potential Assessment and the DSM system database. Sector-level cost-effectiveness, detailed in the Residential and Non-Residential sections of the report, includes expenditures specific to each sector for evaluation, measurement, and verification.

[16] Cost effectiveness details are provided in Appendix B and Confidential Appendix C. A "Pass" designation indicates a benefit-cost ratio of 1.0 or higher, signifying that the benefits meet or exceeded the costs.

[17] The Home Energy Reports (HER) program does not show results for the participant cost tests because these reports focus primarily on behavioral changes and energy savings rather than direct financial investments by participants.

[18] Low-Income programs are designed to eliminate or minimize out of pocket costs for participants. The PCE evaluates whether the participant's investment is justified by their energy savings but does not apply because participants pay nothing or very little. The program is fully subsidized by the Utility of government grants.

EVALUATIONS

Evaluations are conducted by independent external evaluators to validate the energy and demand savings from the Company's energy efficiency programs. The Company adheres to industry best practices for operation principles, methodologies, evaluation methods, and protocols, including those outlined in the National Action Plan for Energy Efficiency Program Impact Evaluation and the California Evaluation Framework guides.

Key components of the evaluation efforts include:

- **Verification of Installations**: Ensuring the reasonable verification of energy-efficient measure installations and associated documentation through reviews, surveys, and ongoing onsite inspections.
- **Savings Potential Verification**: Regular inspection and commissioning of equipment to verify the potential to achieve savings.
- **Programmatic Verification Activities**: Routine inspections, quality assurance reviews, and tracking checks and balances as part of program implementation. These practices support the verification of installation information before formal impact evaluation results.

Evaluation, measurement, and verification tasks are segregated within the Company to ensure they are managed by personnel not directly responsible for program management.

Program evaluations published in 2024 are summarized in the table below.

Table 21: 2024 Evaluation Activities

Evaluation	Responsible Consultant	Status	Published
2022-2023 Home Energy Reports	ADM	Completed	2024
2021-2022 Wattsmart Homes Evaluation	ADM	Completed	2024

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Appendix A

Report Requirements

Report requirements were revised and approved pursuant to the Commission's Order issued February 16, 2017, in Docket No. 17-035-04, effective February 17, 2017. Additional Report commitments were made in Docket No. 19-035-22 and agreed to be added to this Appendix in Docket No. 20-035-27.

Requirement No.	Description	Report Reference
1.	The Company will file the Annual Report between May 1 and June 1.	See issuance date on Page 1
2.	The Company shall report Class 1 capacity reduction, estimated Class 2-megawatt savings during system peak, and Class 2 megawatt-hour savings achieved, all compared against the Integrated Resource Plan targets and forecast targets submitted in the applicable DSM November 1st Deferred Account and Forecast Report.[1]	Table 1
3.	In the executive summary, include the lifetime megawatt-hour savings in addition to first year megawatt-hour savings.	Page 3
4.	The Company shall clearly state for each program and measure whether all reported savings are ex-post or ex-ante.	Page 3 Footnote 3
5.	The Company shall accurately and clearly report all cost effectiveness test results at the portfolio and sector level in addition to the program and measure category levels.	Appendix B
6.	The Company shall perform cost effectiveness tests using avoided costs from planned assumptions.	Appendix B
7.	The Company shall provide cost effectiveness results with associated decrement values and program expenditures for the year's performance of the Company's Class 1 programs, subject to the confidentiality requirements of Utah Administrative Code R746-100-16.	Confidential Appendix C
8.	For Class 1 programs, capacity reduction will be reported in megawatts.	Peak Reduction Section and Tables 1, 2, and 10-19
9.	The Company shall provide Class 1 program data regarding loads available for curtailment, actual curtailment achieved, and program expenditures.	Peak Reduction Section and Tables 1, 2, and 10-19
10.	The Company shall include published evaluations that have not previously been provided in an Annual Report and include a schedule of current and upcoming evaluations.	Evaluations Section

[1] Pursuant to the Phase I Stipulation filed August 3, 2009, in Docket No. 09-035-T08, and approved in the order dated August 25, 2009, in the same, the Company must provide a forecast of expenditures for approved programs and their acquisition targets for the next calendar year by November 1st of each year.

Requirement No.	Description	Report Reference
11.	The Company shall submit process and impact evaluation and annual reporting costs at the sector level for the cost effectiveness tests.	Table 2
12.	Explain the relationship between decrement values and avoided costs used in cost-effectiveness, if applicable.	Cost Effectiveness Section
13.	Provide an explanation for any reported program savings that are significantly below the forecast savings targets from the applicable November 1st Deferred Account and Forecast Report.	Peak Reduction Programs Section
14.	Explain the Home Energy Report incremental savings row within the 'Forecast to Actual Savings Comparison' table.	N/A

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Appendix B

Energy Efficiency and Portfolio Level Cost Effectiveness

Memorandum

To: Alesha Mander, PacifiCorp

From: Eli Morris, Andy Hudson, Elizabeth Applegate, Julian Graybill Brubaker

Date: 19 May 2025

Re: PacifiCorp Utah Portfolio and Sector Level Cost-Effectiveness Results – PY2024

ICF estimated the cost-effectiveness of PacifiCorp's overall energy efficiency portfolio in the state of Utah based on Program Year (PY) 2024 costs and savings estimates provided by PacifiCorp. This memo provides cost-effectiveness results at the portfolio and sector levels. The portfolio passes the following cost-effectiveness tests, inclusive of load control programs: PacifiCorp Total Resource Cost Test (PTRC), Total Resource Cost Test (TRC), and Utility Cost Test (UCT).

This memo provides analysis inputs and results in the following tables:

- Table 1: Cost-Effectiveness Analysis Inputs
- Table 2: Portfolio Level Costs, Nominal – PY2024
- Table 3: Benefit/Cost Ratios by Portfolio Type
- Table 4: Total Portfolio Cost-Effectiveness Results (including Load Control Programs) - PY2024
- Table 5: Total Portfolio Cost-Effectiveness Results (without Load Control Programs) - PY2024
- Table 6: C&I Sector Cost-Effectiveness Results - PY2024
- Table 7: Residential Sector Cost-Effectiveness Results - PY2024

The following assumptions were utilized in the analysis:

- Avoided Costs: Hourly values provided by PacifiCorp based on the 2023 Integrated Resource Plan (IRP) Preferred Portfolio, converted into annual values using Utah load shapes from the same IRP.
- Modeling Inputs: measure savings, costs, measure lives, incentive levels, and portfolio costs were based on estimates provided by PacifiCorp.
- Other Economic Assumptions: Discount rate, line loss, retail rate, energy-to-capacity conversion factor, and inflation rate values were provided by PacifiCorp and are presented in Table 1 below.

Tables 1 and 2 below summarize cost-effectiveness assumptions for the PacifiCorp Utah energy efficiency portfolio. All costs and impacts are presented at the portfolio level.

Table 1: Cost-Effectiveness Analysis Inputs

Parameter	Value
Discount Rate	6.77%
Residential Line Loss	6.36%
Commercial Line Loss	5.86%
Industrial Line Loss	4.10%
Irrigation Line Loss	6.34%
Residential Energy Rate[1] ($/kWh)	$0.12
Commercial Energy Rate[1] ($/kWh)	$0.09
Industrial Energy Rate[1] ($/kWh)	$0.07
Irrigation Energy Rate[1] ($/kWh)	$0.09
Inflation Rate[1]	2.27%

Table 2: Portfolio Level Costs, Nominal – PY2024

Category	PY2024
Outreach and Communications	$679,468
Portfolio - EM&V Non-Residential	$150,533
Portfolio - EM&V Residential	$178,438
Portfolio – DSM Central	$183,547
Portfolio Potential Study	$128,742
Portfolio TRL	$32,184
Portfolio - Training	$75,000
Total Load Management Programs	$16,946,254
Total	**$18,374,165**

Table 3: Benefit/Cost Ratios by Portfolio Type

Program	PTRC	TRC	UCT	PCT	RIM
Total Portfolio (Including Load Control Programs)	1.12	1.02	2.67	1.24	0.66
Total Portfolio	0.99	0.90	2.74	1.25	0.57
C&I	1.59	1.45	2.63	2.38	0.53
Residential	0.69	0.63	3.03	0.75	0.64

[1] Future rates determined using a 2.27% annual escalator

Table 4: Total Portfolio Cost-Effectiveness Results (including Load Control Programs) - PY2024

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.122	$223,003,293	$249,282,509	$26,279,216	1.12
Total Resource Cost Test (TRC) No Adder	$0.122	$223,003,293	$226,620,463	$3,617,170	1.02
Utility Cost Test (UCT)	$0.046	$84,720,045	$226,620,463	$141,900,418	2.67
Participant Cost Test (PCT)		$251,084,558	$310,160,063	$59,075,505	1.24
Rate Impact Test (RIM)		$342,136,992	$226,620,463	($115,516,529)	0.66
Lifecycle Revenue Impacts ($/kWh)					$0.00086
Discounted Participant Payback (years)					6.56

Table 5: Total Portfolio Cost-Effectiveness Results (without Load Control Programs) - PY2024

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.113	$206,129,701	$204,454,985	($1,674,715)	0.99
Total Resource Cost Test (TRC) No Adder	$0.113	$206,129,701	$185,868,168	($20,261,532)	0.90
Utility Cost Test (UCT)	$0.037	$67,846,453	$185,868,168	$118,021,715	2.74
Participant Cost Test (PCT)		$240,964,142	$300,039,647	$59,075,505	1.25
Rate Impact Test (RIM)		$325,263,400	$185,868,168	($139,395,232)	0.57
Lifecycle Revenue Impacts ($/kWh)					$0.00082
Discounted Participant Payback (years)					7.08

Table 6: C&I Sector Cost-Effectiveness Results – PY2024

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.058	$69,422,065	$110,585,435	$41,163,370	1.59
Total Resource Cost Test (TRC) No Adder	$0.058	$69,422,065	$100,532,214	$31,110,149	1.45
Utility Cost Test (UCT)	$0.032	$38,257,171	$100,532,214	$62,275,043	2.63
Participant Cost Test (PCT)		$72,984,290	$173,372,237	$100,387,947	2.38
Rate Impact Test (RIM)		$189,515,771	$100,532,214	($88,983,557)	0.53
Lifecycle Revenue Impacts ($/kWh)					$0.00062
Discounted Participant Payback (years)					4.81

Table 7: Residential Sector Cost-Effectiveness Results – PY2024

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.217	$135,279,724	$93,869,550	($41,410,174)	0.69
Total Resource Cost Test (TRC) No Adder	$0.217	$135,279,724	$85,335,955	($49,943,770)	0.63
Utility Cost Test (UCT)	$0.045	$28,161,371	$85,335,955	$57,174,584	3.03
Participant Cost Test (PCT)		$167,979,852	$126,667,410	($41,312,442)	0.75
Rate Impact Test (RIM)		$134,319,718	$85,335,955	($48,983,764)	0.64
Lifecycle Revenue Impacts ($/kWh)					$0.00034
Discounted Participant Payback (years)					8.90

Memorandum

To: Alesha Mander, PacifiCorp

From: Eli Morris, Andy Hudson, Elizabeth Applegate, Julian Graybill Brubaker

Date: 19 May 2025

Re: PacifiCorp Utah Wattsmart Homes Cost-Effectiveness Results – PY2024

ICF estimated the cost-effectiveness of PacifiCorp's overall energy efficiency portfolio in the state of Utah based on Program Year (PY) 2024 costs and savings estimates provided by PacifiCorp. This memo provides cost-effectiveness results for the Wattsmart Homes (WSH) program. The program passes the Utility Cost Test (UCT).

This memo provides analysis inputs and results in the following tables:

- Table 1: Wattsmart Homes Cost Effectiveness Analysis Inputs
- Table 2: Wattsmart Homes Annual Program Costs, Nominal - PY2024
- Table 3: Wattsmart Homes kWh Savings by Measure Category - PY2024
- Table 4: Benefit/Cost Ratios by Measure Category - PY2024
- Table 5: Wattsmart Homes Program Cost-Effectiveness Results - PY2024
- Table 6: Appliances Cost-Effectiveness Results - PY2024 (Load Shape - Residential_Dryer_7P)
- Table 7: Building Shell Cost-Effectiveness Results - PY2024 (Load Shape - UT_Single Family_Cooling)
- Table 8: Electronics Cost-Effectiveness Results - PY2024 (Load Shape - UT_Single_Family_Plug)
- Table 9: HVAC Cost-Effectiveness Results - PY2024 (Load Shape - UT_Single_Family_Cooling)
- Table 10: HVAC-NH Cost-Effectiveness Results - PY2024 (Load Shape - UT_Single_Family_Cooling)
- Table 11: Lighting Cost-Effectiveness Results - PY2024 (Load Shape - Residential_LIGHTING_7P)
- Table 12: Transportation Cost-Effectiveness Results - PY2024 (Load Shape - UT_Single_Family_Heating)
- Table 13: Water Heating Cost-Effectiveness Results - PY2024 (Load Shape - Residential_HPWH_7P)
- Table 14: Water Heating-NH Cost-Effectiveness Results - PY2024 (Load Shape - Residential_HPWH_7P)

- Table 15: Whole Building Cost-Effectiveness Results - PY2024 (Load Shape - UT_Single_Family_Cooling)
- Table 16: Whole Building-NH Cost-Effectiveness Results - PY2024 (Load Shape - UT_Single_Family_Cooling)

The following assumptions were utilized in the analysis:

- Avoided Costs: Hourly values provided by PacifiCorp based on the 2023 Integrated Resource Plan (IRP) Preferred Portfolio, converted into annual values using Utah load shapes from the same IRP.
- Modeling Inputs: measure savings, costs, measure lives, incentive levels, and portfolio costs were based on estimates provided by PacifiCorp.
- Other Economic Assumptions: Discount rate, line losses, retail rate, and inflation rate values were provided by PacifiCorp.

Tables 1 and 2 below summarize cost-effectiveness assumptions for the WSH program. All costs and impacts are presented at the program and measure category level.

Table 1: Wattsmart Homes Cost Effectiveness Analysis Inputs

Parameter	Value
Discount Rate	6.77%
Residential Line Loss	6.36%
Residential Energy Rate ($/kWh)	$0.12
Inflation Rate[1]	2.27%

[1] Future rates determined using a 2.27% annual escalator.

Table 2: Wattsmart Homes Annual Program Costs, Nominal - PY2024

Measure Category	Program Delivery	Utility Admin	Marketing, Outreach, and Education	Incentives	Total Utility Budget	Gross Customer Costs
Appliances	$3,417	$137	$76	$10,915	$14,545	$247,586
Building Shell	$87,687	$3,527	$1,946	$704,094	$797,255	$12,854,420
Electronics	$210	$8	$5	$325	$548	$416
HVAC	$3,138,548	$126,248	$69,666	$13,191,561	$16,526,022	$68,108,996
HVAC-NH	$232,971	$9,371	$5,171	$678,475	$925,989	$2,134,052
Lighting	$25,927	$1,043	$575	$30,603	$58,148	$39,861
Transportation	$12,577	$506	$279	$12,500	$25,862	$12,048
Water Heating	$19,562	$787	$434	$70,459	$91,242	$246,156
Water Heating-NH	$4,026	$162	$89	$10,500	$14,778	$10,113
Whole Building	$1,673,964	$67,335	$37,157	$4,065,382	$5,843,838	$37,301,422
Whole Building-NH	$503,109	$20,237	$11,167	$1,645,605	$2,180,119	$6,583,702
Total Program	**$5,701,998**	**$229,362**	**$126,566**	**$20,420,418**	**$26,478,345**	**$127,538,771**

Tables 3 through 14 present the savings and cost-effectiveness results at the program and measure category levels. Tables 15 through 24 present the NEBs impacts for the WSH program and the cost-effectiveness results including NEBs at the program and measure category levels.

Table 3: Wattsmart Homes kWh Savings by Measure Category - PY2024

Measure Category	Gross kWh Savings at Site	Realization Rate	Adjusted Gross kWh Savings at Site	Net to Gross Ratio	Net kWh Savings at Site	Measure Life
Appliances	36,045	95%	34,243	97%	33,215	13
Building Shell	924,987	98%	906,487	80%	725,190	35
Electronics	2,217	100%	2,217	73%	1,618	5
HVAC	33,107,632	99%	32,776,556	75%	24,582,417	17
HVAC-NH	2,457,547	98%	2,408,396	73%	1,758,129	17
Lighting	273,493	77%	210,590	57%	120,036	20
Transportation	132,672	100%	132,672	96%	127,365	10
Water Heating	206,352	95%	196,035	90%	176,431	13
Water Heating-NH	42,474	98%	41,625	73%	30,386	13
Whole Building	17,658,167	86%	15,186,023	77%	11,693,238	18
Whole Building-NH	5,307,147	98%	5,201,004	73%	3,796,733	45
Total Program	**60,148,732**	**95%**	**57,095,846**	**75%**	**43,044,758**	**20**

Table 4: Benefit/Cost Ratios by Measure Category - PY2024

Measure Category	PTRC	TRC	UCT	PCT	RIM
Appliances	0.10	0.09	1.59	0.21	0.40
Building Shell	0.12	0.11	1.79	0.17	0.49
Electronics	1.20	1.09	1.27	2.77	0.39
HVAC	0.59	0.54	2.33	0.69	0.58
HVAC-NH	1.30	1.18	3.04	1.53	0.60
Lighting	1.86	1.69	1.96	5.50	0.28
Transportation	2.37	2.15	2.12	11.77	0.34
Water Heating	0.47	0.43	1.25	1.20	0.32
Water Heating-NH	1.43	1.30	1.27	4.51	0.28
Whole Building	0.53	0.48	3.21	0.58	0.63
Whole Building-NH	1.19	1.09	3.55	1.62	0.51
Total	**0.57**	**0.52**	**2.63**	**0.68**	**0.58**

Table 5: Wattsmart Homes Program Cost-Effectiveness Results - PY2024

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.262	$133,596,698	$76,555,193	($57,041,504)	0.57
Total Resource Cost Test (TRC) No Adder	$0.262	$133,596,698	$69,595,630	($64,001,067)	0.52
Utility Cost Test (UCT)	$0.052	$26,478,345	$69,595,630	$43,117,286	2.63
Participant Cost Test (PCT)		$167,891,208	$113,521,162	($54,370,046)	0.68
Rate Impact Test (RIM)		$119,579,088	$69,595,630	($49,983,458)	0.58
Lifecycle Revenue Impacts ($/kWh)					$0.00030
Discounted Participant Payback (years)					28.06

Table 6: Appliances Cost-Effectiveness Results - PY2024 (Load Shape - Residential_Dryer_7P)

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.787	$251,216	$25,485	($225,731)	0.10
Total Resource Cost Test (TRC) No Adder	$0.787	$251,216	$23,168	($228,047)	0.09
Utility Cost Test (UCT)	$0.046	$14,545	$23,168	$8,624	1.59
Participant Cost Test (PCT)		$255,243	$53,677	($201,566)	0.21
Rate Impact Test (RIM)		$57,307	$23,168	($34,139)	0.40
Lifecycle Revenue Impacts ($/kWh)					$0.0000003
Discounted Participant Payback (years)					59.58

Table 7: Building Shell Cost-Effectiveness Results - PY2024 (Load Shape - UT_Single Family_Cooling)

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$1.176	$12,947,581	$1,566,642	($11,380,939)	0.12
Total Resource Cost Test (TRC) No Adder	$1.176	$12,947,581	$1,424,220	($11,523,361)	0.11
Utility Cost Test (UCT)	$0.072	$797,255	$1,424,220	$626,965	1.79
Participant Cost Test (PCT)		$16,068,025	$2,784,468	($13,283,558)	0.17
Rate Impact Test (RIM)		$2,877,628	$1,424,220	($1,453,409)	0.49
Lifecycle Revenue Impacts ($/kWh)					$0.00001
Discounted Participant Payback (years)					203.31

Table 8: Electronics Cost-Effectiveness Results - PY2024 (Load Shape - UT_Single_Family_Plug)

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.084	$639	$768	$129	1.20
Total Resource Cost Test (TRC) No Adder	$0.084	$639	$698	$59	1.09
Utility Cost Test (UCT)	$0.072	$548	$698	$150	1.27
Participant Cost Test (PCT)		$569	$1,576	$1,007	2.77
Rate Impact Test (RIM)		$1,799	$698	($1,101)	0.39
Lifecycle Revenue Impacts ($/kWh)					$0.00000
Discounted Participant Payback (years)					1.81

Table 9: HVAC Cost-Effectiveness Results - PY2024 (Load Shape - UT_Single_Family_Cooling)

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.258	$71,443,457	$42,420,888	($29,022,569)	0.59
Total Resource Cost Test (TRC) No Adder	$0.258	$71,443,457	$38,564,444	($32,879,013)	0.54
Utility Cost Test (UCT)	$0.060	$16,526,022	$38,564,444	$22,038,422	2.33
Participant Cost Test (PCT)		$90,811,995	$62,754,470	($28,057,525)	0.69
Rate Impact Test (RIM)		$66,088,931	$38,564,444	($27,524,487)	0.58
Lifecycle Revenue Impacts ($/kWh)					$0.00025
Discounted Participant Payback (years)					24.53

Table 10: HVAC-NH Cost-Effectiveness Results - PY2024 (Load Shape - UT_Single_Family_Cooling)

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.117	$2,381,566	$3,098,586	$717,021	1.30
Total Resource Cost Test (TRC) No Adder	$0.117	$2,381,566	$2,816,897	$435,331	1.18
Utility Cost Test (UCT)	$0.045	$925,989	$2,816,897	$1,890,908	3.04
Participant Cost Test (PCT)		$2,923,359	$4,462,534	$1,539,175	1.53
Rate Impact Test (RIM)		$4,710,048	$2,816,897	($1,893,151)	0.60
Lifecycle Revenue Impacts ($/kWh)					$0.00002
Discounted Participant Payback (years)					11.35

Table 11: Lighting Cost-Effectiveness Results - PY2024 (Load Shape - Residential_LIGHTING_7P)

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.046	$67,406	$125,381	$57,975	1.86
Total Resource Cost Test (TRC) No Adder	$0.046	$67,406	$113,983	$46,576	1.69
Utility Cost Test (UCT)	$0.040	$58,148	$113,983	$55,835	1.96
Participant Cost Test (PCT)		$69,932	$384,800	$314,868	5.50
Rate Impact Test (RIM)		$412,345	$113,983	($298,362)	0.28
Lifecycle Revenue Impacts ($/kWh)					$0.00000
Discounted Participant Payback (years)					3.62

Table 12: Transportation Cost-Effectiveness Results - PY2024 (Load Shape - UT_Single_Family_Heating)

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.025	$25,410	$60,229	$34,818	2.37
Total Resource Cost Test (TRC) No Adder	$0.025	$25,410	$54,753	$29,343	2.15
Utility Cost Test (UCT)	$0.025	$25,862	$54,753	$28,891	2.12
Participant Cost Test (PCT)		$12,550	$147,730	$135,180	11.77
Rate Impact Test (RIM)		$161,092	$54,753	($106,339)	0.34
Lifecycle Revenue Impacts ($/kWh)					$0.00000
Discounted Participant Payback (years)					0.85

Table 13: Water Heating Cost-Effectiveness Results - PY2024 (Load Shape - Residential_HPWH_7P)

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.150	$266,939	$124,982	($141,957)	0.47
Total Resource Cost Test (TRC) No Adder	$0.150	$266,939	$113,620	($153,319)	0.43
Utility Cost Test (UCT)	$0.051	$91,242	$113,620	$22,378	1.25
Participant Cost Test (PCT)		$273,507	$329,018	$55,511	1.20
Rate Impact Test (RIM)		$349,801	$113,620	($236,181)	0.32
Lifecycle Revenue Impacts ($/kWh)					$0.00000
Discounted Participant Payback (years)					10.83

Table 14: Water Heating-NH Cost-Effectiveness Results - PY2024 (Load Shape - Residential_HPWH_7P)

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.049	$14,391	$20,635	$6,245	1.43
Total Resource Cost Test (TRC) No Adder	$0.049	$14,391	$18,759	$4,369	1.30
Utility Cost Test (UCT)	$0.051	$14,778	$18,759	$3,982	1.27
Participant Cost Test (PCT)		$13,853	$62,481	$48,627	4.51
Rate Impact Test (RIM)		$66,758	$18,759	($47,999)	0.28
Lifecycle Revenue Impacts ($/kWh)					$0.00000
Discounted Participant Payback (years)					2.88

Table 15: Whole Building Cost-Effectiveness Results - PY2024 (Load Shape - UT_Single_Family_Cooling)

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.288	$39,079,878	$20,608,558	($18,471,320)	0.53
Total Resource Cost Test (TRC) No Adder	$0.288	$39,079,878	$18,735,052	($20,344,825)	0.48
Utility Cost Test (UCT)	$0.043	$5,843,838	$18,735,052	$12,891,214	3.21
Participant Cost Test (PCT)		$48,443,405	$27,925,578	($20,517,826)	0.58
Rate Impact Test (RIM)		$29,704,034	$18,735,052	($10,968,982)	0.63
Lifecycle Revenue Impacts ($/kWh)					$0.00011
Discounted Participant Payback (years)					31.23

Table 16: Whole Building-NH Cost-Effectiveness Results - PY2024 (Load Shape - UT_Single_Family_Cooling)

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.118	$7,118,216	$8,503,039	$1,384,824	1.19
Total Resource Cost Test (TRC) No Adder	$0.118	$7,118,216	$7,730,036	$611,820	1.09
Utility Cost Test (UCT)	$0.036	$2,180,119	$7,730,036	$5,549,917	3.55
Participant Cost Test (PCT)		$9,018,770	$14,614,832	$5,596,061	1.62
Rate Impact Test (RIM)		$15,149,345	$7,730,036	($7,419,309)	0.51
Lifecycle Revenue Impacts ($/kWh)					$0.00004
Discounted Participant Payback (years)					27.74

Memorandum

To: Alesha Mander, PacifiCorp

From: Eli Morris, Andy Hudson, Elizabeth Applegate, Julian Graybill Brubaker

Date: 19 May 2025

Re: PacifiCorp Utah Home Energy Reporting Program Cost-Effectiveness Results – PY2024

ICF estimated the cost-effectiveness of PacifiCorp's overall energy efficiency portfolio in the state of Utah based on Program Year (PY) 2024 costs and savings estimates provided by PacifiCorp. This memo provides cost-effectiveness results for the Home Energy Reporting program. The program passes all cost-effectiveness tests.

This memo provides analysis inputs and results in the following tables:

- Table 1: Cost Effectiveness Analysis Inputs
- Table 2: Home Energy Reporting Annual Program Costs, Nominal - PY2024
- Table 3: Home Energy Reporting Annual Savings - PY2024
- Table 4: Home Energy Reports Cost-Effectiveness Results - PY2024 (Load Shape - UT_Single_Family_Heat_pump)

The following assumptions were utilized in the analysis:

- Avoided Costs: Hourly values provided by PacifiCorp based on the 2023 Integrated Resource Plan (IRP) Preferred Portfolio, converted into annual values using Utah load shapes from the same IRP.
- Modeling Inputs: measure savings, costs, measure lives, incentive levels, and portfolio costs were based on estimates provided by PacifiCorp.
- Other Economic Assumptions: Discount rate, line losses, retail rate, and inflation rate values were provided by PacifiCorp and are presented in Table 1 below.

Tables 1 and 2 below summarize cost-effectiveness assumptions for the Home Energy Reporting program. All costs and impacts are presented at the program level.

Table 1: Cost Effectiveness Analysis Inputs

Parameter	Value
Discount Rate	6.77%
Residential Line Loss	6.36%
Residential Energy Rate ($/kWh)	12.28%
Inflation Rate[1]	2.27%

Table 2: Home Energy Reporting Annual Program Costs, Nominal - PY2024

Program Year	Program Delivery	Utility Admin	Program Development	Incentives	Total Utility Budget
Home Energy Reports	$1,516,737	$26,134	$0	$36,085	$0
Total Program	**$1,516,737**	**$26,134**	**$0**	**$36,085**	**$0**

Tables 3 and 4 present the savings and cost-effectiveness results at the program and measure category levels.

Table 3: Home Energy Reporting Annual Savings - PY2024

Program Year	Gross kWh Savings at Site	Realization Rate	Adjusted Gross kWh Savings at Site	Net to Gross Ratio	Net kWh Savings at Site	Measure Life
Home Energy Reports	110,369,100	95%	104,850,645	100%	104,850,645	1
Total Program	**110,369,100**	**95%**	**104,850,645**	**100%**	**104,850,645**	**1**

Table 4: Home Energy Reports Cost-Effectiveness Results - PY2024 (Load Shape - UT_Single_Family_Heat_pump)

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.014	$1,578,956	$17,131,423	$15,552,467	10.85
Total Resource Cost Test (TRC) No Adder	$0.014	$1,578,956	$15,574,021	$13,995,065	9.86
Utility Cost Test (UCT)	$0.014	$1,578,956	$15,574,021	$13,995,065	9.86
Participant Cost Test (PCT)		$0	$12,873,694	$12,873,694	*Pass*
Rate Impact Test (RIM)		$14,452,650	$15,574,021	$1,121,372	1.08
Lifecycle Revenue Impacts ($/kWh)					$0.00063

[1] Future rates determined using a 2.27% annual escalator.

Memorandum

To: Alesha Mander, PacifiCorp

From: Eli Morris, Andy Hudson, Elizabeth Applegate, Julian Graybill Brubaker

Date: 19 May 2025

Re: PacifiCorp Utah Low-Income Weatherization Cost-Effectiveness Results – PY2024

ICF estimated the cost-effectiveness of PacifiCorp's overall energy efficiency portfolio in the state of Utah based on Program Year (PY) 2024 costs and savings estimates provided by PacifiCorp. This memo provides cost-effectiveness results for the Low-Income Weatherization program. The program passes all of the cost-effectiveness tests except for the Ratepayer Impact Measure (RIM) test.

This memo provides analysis inputs and results in the following tables:

- Table 1: Cost Effectiveness Analysis Inputs
- Table 2: Low Income Weatherization Annual Program Costs, Nominal - PY2024
- Table 3: Low Income Weatherization Annual Savings - PY2024
- Table 4: Low Income Weatherization Cost-Effectiveness Results - PY2024 (Load Shape - UT_Single_Family_Cooling)

The following assumptions were utilized in the analysis:

- Avoided Costs: Hourly values provided by PacifiCorp based on the 2023 Integrated Resource Plan (IRP) Preferred Portfolio, converted into annual values using Utah load shapes from the same IRP.
- Modeling Inputs: measure savings, costs, measure lives, incentive levels, and portfolio costs were based on estimates provided by PacifiCorp.
- Other Economic Assumptions: Discount rate, line losses, retail rate, and inflation rate values were provided by PacifiCorp and are presented in Table 1 below.

Tables 1 and 2 below summarize cost-effectiveness assumptions for the Low Income Weatherization program. All costs and impacts are presented at the program and measure category level.

Table 1: Cost Effectiveness Analysis Inputs

Parameter	Value
Discount Rate	6.77%
Residential Line Loss	6.36%
Residential Energy Rate ($/kWh)	$0.12
Inflation Rate[1]	2.27%

Table 2: Low Income Weatherization Annual Program Costs, Nominal - PY2024

Program Year	Program Delivery	Utility Admin	Marketing, Outreach, and Education	Incentives	Total Utility Budget	Gross Customer Costs
Low Income Weatherization	$8,864	$6,556	$0	$88,644	$104,070	$0
Total Program	**$8,864**	**$6,556**	**$0**	**$88,644**	**$104,070**	**$0**

Tables 3 through 5 present the savings and cost-effectiveness results at the program and measure category levels. Tables 6 and 7 present the NEB impacts for the Low-Income Weatherization program and the cost-effectiveness results including NEBs at the program level.

Table 3: Low Income Weatherization Annual Savings - PY2024

Program Year	Gross kWh Savings at Site	Realization Rate	Adjusted Gross kWh Savings at Site	Net to Gross Ratio	Net kWh Savings at Site	Measure Life
Low Income Weatherization	173,523	64%	111,055	100%	111,055	21
Total Program	**173,523**	**64%**	**111,055**	**100%**	**111,055**	**21**

Table 4: Low Income Weatherization Cost-Effectiveness Results - PY2024 (Load Shape - UT_Single_Family_Heat_pump)

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.079	$104,070	$182,933	$78,863	1.76
Total Resource Cost Test (TRC) No Adder	$0.079	$104,070	$166,303	$62,233	1.60
Utility Cost Test (UCT)	$0.079	$104,070	$166,303	$62,233	1.60
Participant Cost Test (PCT)		$0	$272,554	$183,910	*Pass*
Rate Impact Test (RIM)		$287,980	$166,303	($121,677)	0.58
Lifecycle Revenue Impacts ($/kWh)					$0.000001

[1] Future rates determined using a 2.27% annual escalator.

Memorandum

To: Alesha Mander, PacifiCorp

From: Eli Morris, Andy Hudson, Elizabeth Applegate, Julian Graybill Brubaker

Date: 25 April 2025

Re: PacifiCorp Utah Wattsmart Business Program Cost-Effectiveness Results – PY2024

ICF estimated the cost-effectiveness of PacifiCorp's overall energy efficiency portfolio in the state of Utah based on Program Year (PY) 2024 costs and savings estimates provided by PacifiCorp. This memo provides cost-effectiveness results for the Wattsmart Business program. The program passes all cost-effectiveness tests except the Ratepayer Impact Measure (RIM) test.

This memo provides analysis inputs and results in the following tables:

The following assumptions were utilized in the analysis:

- Avoided Costs: Hourly values provided by PacifiCorp based on the 2023 Integrated Resource Plan (IRP) Preferred Portfolio, converted into annual values using Utah load shapes from the same IRP.
- Modeling Inputs: measure savings, costs, measure lives, incentive levels, and portfolio costs were based on estimates provided by PacifiCorp.
- Other Economic Assumptions: Discount rate, line losses, retail rate, and inflation rate values were provided by PacifiCorp and are presented in Table 1 below.

Tables 1 and 2 below summarize cost-effectiveness assumptions for the Wattsmart Business program. All costs and impacts are presented at the program and measure category level.

Table 1: Cost Effectiveness Analysis Inputs

Parameter	Value
Discount Rate	6.77%
Commercial Line Loss	5.86%
Industrial Line Loss	4.10%
Irrigation Line Loss	6.34%
Commercial Energy Rate ($/kWh)	$0.09
Industrial Energy Rate ($/kWh)	$0.07
Irrigation Energy Rate ($/kWh)	$0.09
Inflation Rate[1]	2.27%

[1] Future rates determined using a 2.27% annual escalator.

Table 2: Wattsmart Business Annual Program Costs, Nominal - PY2024

Measure Category	Program Delivery	Utility Admin	Bill Credits	Marketing, Outreach, and Education	Incentives	Total Utility Budget	Gross Customer Costs
Additional Measures	$1,485,825	$57,110	$50,396	$29,835	$2,962,717	$4,585,883	$11,813,435
Agriculture	$163,813	$9,006	$0	$3,298	$303,382	$479,499	$897,998
Building Shell	$136,481	$5,189	$106,354	$2,740	$150,335	$401,098	$863,220
Compressed Air	$422,464	$19,646	$149,600	$8,499	$738,296	$1,338,506	$1,589,488
Direct Install	$260,089	$9,899	$0	$5,222	$1,049,776	$1,324,986	$263,637
Energy Management	$3,311,882	$152,931	$0	$66,622	$901,783	$4,433,218	$757,191
Energy Project Manager Co-Fund	$0	$0	$0	$0	$253,125	$253,125	$0
Food Service	$905	$34	$0	$18	$1,800	$2,757	$9,968
HVAC	$2,977,893	$114,507	$549,814	$59,795	$5,951,534	$9,653,542	$16,733,398
Lighting	$2,941,959	$115,285	$0	$59,084	$5,345,389	$8,461,716	$11,812,669
Motors	$904,059	$42,555	$161,206	$18,190	$1,302,487	$2,428,498	$2,397,055
Oil & Gas	$1,425	$70	$0	$29	$3,000	$4,524	$4,964
Refrigeration	$188,040	$8,578	$0	$3,782	$339,985	$540,385	$987,623
Transportation	$74,110	$2,806	$0	$1,488	$27,500	$105,904	$23,521
Whole Building	$1,380,831	$52,447	$0	$27,724	$2,782,529	$4,243,531	$5,124,364
Total:	**$14,249,776**	**$590,063**	**$1,017,370**	**$286,325**	**$22,113,637**	**$38,257,171**	**$53,278,532**

Tables 3 through 17 present the savings and cost-effectiveness results at the program and measure category levels.

Table 3: Annual Wattsmart Business Savings by Measure Category - PY2024

Measure Category	Gross kWh Savings at Site	Realization Rate	Adjusted Gross kWh Savings at Site	Net to Gross Ratio	Net kWh Savings at Site	Measure Life
Additional Measures	20,191,933	100%	20,191,933	73%	14,740	10
Agriculture	2,232,028	100%	2,232,028	73%	1,629	15
Building Shell	1,854,552	100%	1,854,552	73%	1,354	22
Compressed Air	5,752,023	98%	5,636,982	73%	4,115	15
Direct Install	3,534,221	99%	3,498,879	73%	2,554	14
Energy Management	45,089,145	96%	43,285,579	73%	31,598	5
Energy Project Manager Co-Fund	0	0%	0	0%	0	0
Food Service	12,296	100%	12,296	73%	9	10
HVAC	40,468,840	98%	39,659,463	73%	28,951	15
Lighting	39,987,387	100%	39,987,387	73%	29,191	13
Motors	12,310,763	99%	12,187,655	73%	8,897	2
Oil & Gas	19,414	100%	19,414	73%	14	15
Refrigeration	2,559,710	100%	2,559,710	73%	1,869	12
Transportation	1,007,000	100%	1,007,000	73%	735	10
Whole Building	18,763,096	94%	17,637,310	73%	12,875	20
Total:	**193,782,406**	**98%**	**189,770,188**	**73%**	**138,532**	**11**

Table 4: Benefit/Cost Ratios by Measure Category - PY2024

Measure Category	PTRC	TRC	UCT	PCT	RIM
Additional Measures	0.87	0.79	2.32	1.10	0.55
Agriculture	2.00	1.82	4.07	2.04	0.73
Building Shell	1.75	1.59	4.43	2.15	0.64
Compressed Air	1.83	1.67	2.73	2.51	0.60
Direct Install	3.60	3.27	1.33	12.16	0.38
Energy Management	3.74	3.40	3.29	15.77	0.73
Energy Project Manager Co-Fund	0.00	0.00	0.00	0.00	0.00
Food Service	0.60	0.55	2.17	0.80	0.50
HVAC	1.37	1.25	2.64	1.99	0.52
Lighting	1.49	1.35	2.39	2.66	0.44
Motors	1.79	1.63	2.36	2.40	0.64
Oil & Gas	2.18	1.98	2.84	2.82	0.62
Refrigeration	1.42	1.29	2.83	1.76	0.59
Transportation	3.27	2.97	2.86	24.00	0.36
Whole Building	2.16	1.96	3.05	3.46	0.50
Total Program	**1.59**	**1.45**	**2.63**	**2.38**	**0.53**

Table 5: Wattsmart Business Program Cost-Effectiveness Results - PY2024

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.058	$69,422,065	$110,585,435	$41,163,370	1.59
Total Resource Cost Test (TRC) No Adder	$0.058	$69,422,065	$100,532,214	$31,110,149	1.45
Utility Cost Test (UCT)	$0.032	$38,257,171	$100,532,214	$62,275,043	2.63
Participant Cost Test (PCT)		$72,984,290	$173,372,237	$100,387,947	2.38
Rate Impact Test (RIM)		$189,515,771	$100,532,214	($88,983,557)	0.53
Lifecycle Revenue Impacts ($/kWh)					$0.00062

Table 6: Wattsmart Business Additional Measures Cost-Effectiveness Results - PY2024

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.114	$13,436,601	$11,681,871	($1,754,731)	0.87
Total Resource Cost Test (TRC) No Adder	$0.114	$13,436,601	$10,619,882	($2,816,719)	0.79
Utility Cost Test (UCT)	$0.039	$4,585,883	$10,619,882	$6,033,999	2.32
Participant Cost Test (PCT)		$16,182,788	$17,784,829	$1,602,041	1.10
Rate Impact Test (RIM)		$19,407,995	$10,619,882	($8,788,112)	0.55
Lifecycle Revenue Impacts ($/kWh)					$0.00011

Table 7: Wattsmart Business Agriculture Cost-Effectiveness Results - PY2024

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.009	$1,074,115	$2,146,165	$1,072,050	2.00
Total Resource Cost Test (TRC) No Adder	$0.009	$1,074,115	$1,951,060	$876,944	1.82
Utility Cost Test (UCT)	$0.004	$479,499	$1,951,060	$1,471,560	4.07
Participant Cost Test (PCT)		$1,230,134	$2,514,588	$1,284,454	2.04
Rate Impact Test (RIM)		$2,690,705	$1,951,060	($739,646)	0.73
Lifecycle Revenue Impacts ($/kWh)					$0.00001

Table 8: Wattsmart Business Building Shell Cost-Effectiveness Results - PY2024

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.009	$1,113,984	$1,952,411	$838,428	1.75
Total Resource Cost Test (TRC) No Adder	$0.009	$1,113,984	$1,774,919	$660,936	1.59
Utility Cost Test (UCT)	$0.003	$401,098	$1,774,919	$1,373,821	4.43
Participant Cost Test (PCT)		$1,182,493	$2,541,572	$1,359,078	2.15
Rate Impact Test (RIM)		$2,792,335	$1,774,919	($1,017,416)	0.64
Lifecycle Revenue Impacts ($/kWh)					$0.00001

Table 9: Wattsmart Business Compressed Air Cost-Effectiveness Results - PY2024

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.019	$2,189,698	$4,013,852	$1,824,155	1.83
Total Resource Cost Test (TRC) No Adder	$0.019	$2,189,698	$3,648,957	$1,459,259	1.67
Utility Cost Test (UCT)	$0.011	$1,338,506	$3,648,957	$2,310,451	2.73
Participant Cost Test (PCT)		$2,177,381	$5,476,085	$3,298,704	2.51
Rate Impact Test (RIM)		$6,076,294	$3,648,957	($2,427,338)	0.60
Lifecycle Revenue Impacts ($/kWh)					$0.00003

Table 10: Wattsmart Business Direct Install Cost-Effectiveness Results - PY2024

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.005	$538,847	$1,940,673	$1,401,826	3.60
Total Resource Cost Test (TRC) No Adder	$0.005	$538,847	$1,764,248	$1,225,402	3.27
Utility Cost Test (UCT)	$0.011	$1,324,986	$1,764,248	$439,263	1.33
Participant Cost Test (PCT)		$361,146	$4,392,932	$4,031,785	12.16
Rate Impact Test (RIM)		$4,668,141	$1,764,248	($2,903,893)	0.38
Lifecycle Revenue Impacts ($/kWh)					$0.00002

Table 11: Wattsmart Business Energy Management Cost-Effectiveness Results - PY2024

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.036	$4,288,626	$16,030,763	$11,742,137	3.74
Total Resource Cost Test (TRC) No Adder	$0.036	$4,288,626	$14,573,421	$10,284,795	3.40
Utility Cost Test (UCT)	$0.038	$4,433,218	$14,573,421	$10,140,203	3.29
Participant Cost Test (PCT)		$1,037,248	$16,358,378	$15,321,130	15.77
Rate Impact Test (RIM)		$19,889,813	$14,573,421	($5,316,392)	0.73
Lifecycle Revenue Impacts ($/kWh)					$0.00019

Table 12: Wattsmart Business Energy Project Manager Co-Fund Cost-Effectiveness Results - PY2024

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.000	$0	$0	$0	n/a
Total Resource Cost Test (TRC) No Adder	$0.000	$0	$0	$0	n/a
Utility Cost Test (UCT)	$0.002	$253,125	$0	($253,125)	0.00
Participant Cost Test (PCT)		$0	$253,125	$253,125	Pass
Rate Impact Test (RIM)		$253,125	$0	($253,125)	0.00
Lifecycle Revenue Impacts ($/kWh)					n/a

Table 13: Wattsmart Business Food Service Cost-Effectiveness Results - PY2024

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.000	$10,926	$6,583	($4,342)	0.60
Total Resource Cost Test (TRC) No Adder	$0.000	$10,926	$5,985	($4,941)	0.55
Utility Cost Test (UCT)	$0.000	$2,757	$5,985	$3,227	2.17
Participant Cost Test (PCT)		$13,655	$10,908	($2,747)	0.80
Rate Impact Test (RIM)		$11,866	$5,985	($5,881)	0.50
Lifecycle Revenue Impacts ($/kWh)					$0.00000

Table 14: Wattsmart Business HVAC Cost-Effectiveness Results - PY2024

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.173	$20,435,406	$28,016,851	$7,581,446	1.37
Total Resource Cost Test (TRC) No Adder	$0.173	$20,435,406	$25,469,865	$5,034,459	1.25
Utility Cost Test (UCT)	$0.082	$9,653,542	$25,469,865	$15,816,323	2.64
Participant Cost Test (PCT)		$22,922,462	$45,614,938	$22,692,475	1.99
Rate Impact Test (RIM)		$49,316,946	$25,469,865	($23,847,081)	0.52
Lifecycle Revenue Impacts ($/kWh)					$0.00020

Table 15: Wattsmart Business Lighting Cost-Effectiveness Results - PY2024

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.126	$14,928,997	$22,228,066	$7,299,069	1.49
Total Resource Cost Test (TRC) No Adder	$0.126	$14,928,997	$20,207,332	$5,278,336	1.35
Utility Cost Test (UCT)	$0.072	$8,461,716	$20,207,332	$11,745,616	2.39
Participant Cost Test (PCT)		$16,181,739	$43,075,260	$26,893,521	2.66
Rate Impact Test (RIM)		$46,191,587	$20,207,332	($25,984,255)	0.44
Lifecycle Revenue Impacts ($/kWh)					$0.00020

Table 16: Wattsmart Business Motors Cost-Effectiveness Results - PY2024

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.030	$3,523,066	$6,308,713	$2,785,647	1.79
Total Resource Cost Test (TRC) No Adder	$0.030	$3,523,066	$5,735,193	$2,212,127	1.63
Utility Cost Test (UCT)	$0.021	$2,428,498	$5,735,193	$3,306,696	2.36
Participant Cost Test (PCT)		$3,283,637	$7,875,394	$4,591,756	2.40
Rate Impact Test (RIM)		$9,001,405	$5,735,193	($3,266,211)	0.64
Lifecycle Revenue Impacts ($/kWh)					$0.00020

Table 17: Wattsmart Business Oil & Gas Cost-Effectiveness Results - PY2024

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.000	$6,488	$14,151	$7,664	2.18
Total Resource Cost Test (TRC) No Adder	$0.000	$6,488	$12,865	$6,377	1.98
Utility Cost Test (UCT)	$0.000	$4,524	$12,865	$8,341	2.84
Participant Cost Test (PCT)		$6,800	$19,190	$12,390	2.82
Rate Impact Test (RIM)		$20,714	$12,865	($7,849)	0.62
Lifecycle Revenue Impacts ($/kWh)					$0.00000

Table 18: Wattsmart Business Refrigeration Cost-Effectiveness Results - PY2024

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.010	$1,188,023	$1,683,417	$495,394	1.42
Total Resource Cost Test (TRC) No Adder	$0.010	$1,188,023	$1,530,379	$342,356	1.29
Utility Cost Test (UCT)	$0.005	$540,385	$1,530,379	$989,994	2.83
Participant Cost Test (PCT)		$1,352,908	$2,382,902	$1,029,994	1.76
Rate Impact Test (RIM)		$2,583,302	$1,530,379	($1,052,923)	0.59
Lifecycle Revenue Impacts ($/kWh)					$0.00001

Table 19: Wattsmart Business Transportation Cost-Effectiveness Results - PY2024

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.001	$101,924	$332,958	$231,034	3.27
Total Resource Cost Test (TRC) No Adder	$0.001	$101,924	$302,689	$200,765	2.97
Utility Cost Test (UCT)	$0.001	$105,904	$302,689	$196,785	2.86
Participant Cost Test (PCT)		$32,220	$773,428	$741,208	Pass
Rate Impact Test (RIM)		$851,831	$302,689	($549,142)	0.36
Lifecycle Revenue Impacts ($/kWh)					$0.00000

Table 20: Wattsmart Business Whole Building Cost-Effectiveness Results - PY2024

Cost-Effectiveness Test	Levelized $/kWh	NPV Costs	NPV Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.056	$6,585,366	$14,228,960	$7,643,594	2.16
Total Resource Cost Test (TRC) No Adder	$0.056	$6,585,366	$12,935,418	$6,350,052	1.96
Utility Cost Test (UCT)	$0.036	$4,243,531	$12,935,418	$8,691,887	3.05
Participant Cost Test (PCT)		$7,019,677	$24,298,710	$17,279,033	3.46
Rate Impact Test (RIM)		$25,759,712	$12,935,418	($12,824,294)	0.50
Lifecycle Revenue Impacts ($/kWh)					$0.00009

Appendix C is Confidential
In its entirety and provided under
A Separate Cover

ROCKY MOUNTAIN POWER
A DIVISION OF PACIFICORP

Appendix D

Cool Keeper Event Detail

Cool Keeper Load Control Program

Table 12 - Cool Keeper Load Control Events - CONSOLIDATED

Month	Count of Month	Max of Estimated Load Reduction at Gen (MW)	Average of Estimated Load Reduction at Gen (MW)
April	25	57	48
May	39	101	14
June	17	171	92
July	6	223	144
August	13	247	140
September	18	185	86
October	16	102	38
Grand Total	**134**	**247**	**61**

Table 13 - Program Performance for Cool Keeper

296	Maximum Potential MW (@ site)
315	Maximum Potential MW (@ gen)
61	Average Realized Load MW (@ gen)
247	Maximum Realized MW (@ gen)
104,670	Total Participating Customers

Table 12 - Cool Keeper Load Control Events

Month	Date	Event Times	Estimated Load Reduction at Gen (MW)
April	4/3/2024	21:41 - 21:46	44
April	4/5/2024	13:45 - 13:50	44
April	4/5/2024	15:07 - 15:12	49
April	4/5/2024	16:44 - 16:49	51
April	4/6/2024	20:36 - 20:41	57
April	4/7/2024	01:00 - 01:05	55
April	4/9/2024	00:59 - 01:04	55
April	4/10/2024	10:02 - 10:07	44
April	4/10/2024	17:21 -17:25	57
April	4/11/2024	14:37 -14:42	46
April	4/12/2024	09:16 - 09:21	44
April	4/14/2024	01:00 - 01:05	55
April	4/15/2024	09:32 - 09:37	44
April	4/16/2024	04:41 - 04:46	45
April	4/16/2024	10:05 - 10:10	44

Table 12 - Cool Keeper Load Control Events

Month	Date	Event Times	Estimated Load Reduction at Gen (MW)
April	4/16/2024	19:34 - 19:39	57
April	4/21/2024	09:48 - 09:53	44
April	4/22/2024	09:37 - 09:42	44
April	4/24/2024	14:02 - 1407	54
April	4/25/2024	11:01 - 11:06	44
April	4/26/2024	10:39 - 10:44	44
April	4/26/2024	10:55 - 11:00	44
April	4/27/2024	12:32 - 12:37	44
April	4/28/2024	03:38 - 03:43	45
April	4/29/2024	10:34 - 10:39	44
May	5/1/2024	12:53 - 12:58	4.3
May	5/2/2024	15:43 - 15:48	6.4
May	5/3/2024	09:34 - 09:39	4.3
May	5/4/2024	18:05 - 18:10	20.2
May	5/5/2024	01:00 - 01:05	14.9
May	5/5/2024	20:54 - 20:59	5.3
May	5/6/2024	08:37 - 08:42	3.2
May	5/8/2024	09:06 - 09:11	3.2
May	5/8/2024	14:20 - 14:25	4.3
May	5/9/2024	14:23 - 14:28	4.3
May	5/11/2024	07:39 - 07:44	4.3
May	5/11/2024	07:45 - 07:50	4.3
May	5/11/2024	07:49 - 07:54	4.3
May	5/11/2024	07:57 - 08:02	4.3
May	5/11/2024	08:01 - 08:06	4.3
May	5/11/2024	08:30 - 08:35	4.3
May	5/11/2024	08:33 - 08:38	4.3
May	5/11/2024	08:35 - 08:40	4.3
May	5/11/2024	11:04 - 11:09	8.5
May	5/11/2024	15:56 - 16:00	23.4
May	5/12/2024	08:06 - 08:11	8.5
May	5/12/2024	08:48 - 08:53	8.5
May	5/12/2024	09:00 -09:05	9.6
May	5/16/2024	12:26 -12:31	24.5

Table 12 - Cool Keeper Load Control Events

Month	Date	Event Times	Estimated Load Reduction at Gen (MW)
May	5/17/2024	07:49 -07:54	11.7
May	5/17/2024	08:00 - 08:05	11.7
May	5/18/2024	07:00 - 07:05	10.6
May	5/20/2024	16:44 - 16:49	10.6
May	5/24/2024	09:16 - 09:21	5.3
May	5/24/2024	10:52 - 10:57	5.3
May	5/24/2024	12:52 -12:57	9.6
May	5/24/2024	12:55 - 13:00	9.6
May	5/24/2024	13:03 - 13:08	9.6
May	5/26/2024	01:00 -01:05	8.5
May	5/28/2024	13:41 -13:46	58.5
May	5/29/2024	06:28 -06:33	21.3
May	5/29/2024	11:44 - 11:49	57.4
May	5/29/2024	17:00 - 17:05	101
May	5/31/2024	07:37 -07:42	9.6
June	6/4/2024	23:08 - 23:13	55.3
June	6/5/2024	17:35 - 17:40	160.6
June	6/6/2024	15:09 - 15:14	171.2
June	6/9/2024	09:39 - 09:44	63.8
June	6/9/2024	10:04 - 10:09	79.8
June	6/11/2024	09:02 - 09:07	53.2
June	6/12/2024	07:51 - 07:56	43.6
June	6/15/2024	16:07 - 16:11	113.8
June	6/16/2024	01:18 - 01:23	59.6
June	6/18/2024	10:16 - 10:21	5.3
June	6/21/2024	16:30 - 16:35	30.8
June	6/22/2024	08:20 - 08:25	54.2
June	6/23/2024	08:21 - 08:26	129.8
June	6/24/2024	14:56 - 15:01	158.5
June	6/25/2024	14:43 - 14:50	158.5
June	6/25/2024	15:56 - 16:14	162.7
June	6/27/2024	07:08 - 07:12	61.7
July	7/8/2024	08:45 - 08:50	64.9
July	7/23/2024	06:12 to 0624	58.5

Table 12 - Cool Keeper Load Control Events

Month	Date	Event Times	Estimated Load Reduction at Gen (MW)
July	7/26/2024	14:42 to 14:56	191.4
July	7/26/2024	19:21 to 19:26	203.1
July	7/30/2024	23:02 to 23:32	124.4
July	7/31/2024	18:47 to 18:54	223.4
August	8/2/2024	07:57 to 08:02	45.7
August	8/2/2024	19:08 to 19:23	246.8
August	8/6/2024	11:01 to 11:31	174.4
August	8/7/2024	11:44 t0 11:49	152.1
August	8/10/2024	09:17 to 09:22	91.5
August	8/13/2024	14:37 to 15:07	137.2
August	8/16/2024	14:57 to 15:02	185.1
August	8/19/2024	14:04 to 14:08	159.5
August	8/20/2024	18:41 to 18:46	222.3
August	8/22/2024	17:43 to 17:48	204.2
August	8/24/2024	07:31 to 07:36	41.5
August	8/24/2024	12:42 to 12:47	122.3
August	8/31/2024	01:37 to 01:42	35.1
September	9/1/2024	09:01 to 09:06	43.6
September	9/1/2024	13:00 to 13:05	130.8
September	9/6/2024	08:11 to 08:41	50
September	9/6/2024	14:12 to 14:17	133
September	9/6/2024	18:22 to 18:42	179.7
September	9/9/2024	04:19 to 04:23	85.1
September	9/11/2024	19:55 to 20:00	182.9
September	9/11/2024	22:35 to 22:40	153.2
September	9/12/2024	09:02 to 09:07	43.6
September	9/12/2024	21:05 to 21:10	63.8
September	9/16/2024	10:03 to 10:08	20.7
September	9/17/2024	04:27 to 04:32	21.9
September	9/18/2024	03:31 to 03:36	62
September	9/21/2024	09:33 to 09:38	19.8
September	9/24/2024	09:00 to 09:05	13.4
September	9/24/2024	18:34 to 18:49	91.9
September	9/28/2024	19:28 to 19:58	184.6

Table 12 - Cool Keeper Load Control Events

Month	Date	Event Times	Estimated Load Reduction at Gen (MW)
September	9/30/2024	00:34 to 00:39	71.3
October	10/1/2024	18:47 to 19:17	89
October	10/2/2024	08:05 to 08:35	19
October	10/5/2024	01:09 to 01:14	48
October	10/5/2024	01:10 to 01:40	48
October	10/7/2024	19:32 to 19:37	102
October	10/8/2024	10:18 to 10:23	17
October	10/15/2024	01:00 to 01:05	29
October	10/15/2024	12:34 to 12:39	25
October	10/15/2024	15:17 to 15:22	36
October	10/19/2024	02:12 to 02:17	17
October	10/20/2024	23:23 to 23:27	47
October	10/20/2024	23:54 to 23:59	47
October	10/21/2024	08:47 to 08:52	47
October	10/28/2024	14:36 t0 14:41	0
October	10/29/2024	07:47 to 07:52	18
October	10/30/2024	14:28 to 14:33	18