Powder Watts Cost-Effectiveness and Incentive Analysis

Prepared for Rocky Mountain Power / Wattsmart Program Review

External-facing discussion draft | April 2026

Executive finding: Powder Watts is a high-performing demand-side resource under Rocky Mountain Power cost-effectiveness logic. At the current $500 residential incentive, the primary-home case produces approximately 0.70¢/kWh on a net lifetime basis. Even at a $2,000 target incentive, Powder Watts remains below the Wattsmart Business portfolio benchmark and materially below published lighting, HVAC, whole-building, and energy-management measure costs, while adding dispatchable winter capacity and high-resolution verification.

Executive Summary

Powder Watts converts unmanaged rooftop heat-cable load into a verified, controllable, grid-responsive demand-side resource. The economics are driven by unusually large first-year kWh savings per controlled switch, combined with the ability to shape winter peak load without requiring behavioral change from the customer.

Using Powder Watts field-derived savings assumptions and the same cost-effectiveness logic applied across Wattsmart programs, the current residential rebate of $500 per switch results in approximately **0**.70¢/kWh for a primary home on a net lifetime basis. Commercial and multifamily Powder Watts projects, using the current $0.15 per first-year kWh structure, produce approximately 1.60¢/kWh on a net lifetime basis. However, it must be recorded that RMP is currently not using the correct calculation for delivered savings – and shortchanging its commercial customers by assigning far less kWh savings to their Powder Watts systems that what is actually delivered – making the commercial rebate materially underdeliver based on what the customer has paid into their tariff fund.

Powder Watts at a fraction of one cent per kWh values compares extremely favorably to RMP/PacifiCorp published Wattsmart Business UCT values for core energy measures: motors at 2.1¢/kWh, whole building at 3.6¢/kWh, energy management at 3.8¢/kWh, lighting at 7.2¢/kWh, and HVAC at 8.2¢/kWh. Powder Watts therefore belongs in the top tier of RMP energy-efficiency resources on pure cost per kWh saved, before assigning additional value to dispatchability, telemetry, grid capacity, customer safety monitoring, or winter-peak alignment.

The current $500 residential incentive is extremely cost-effective, but it materially undervalues Powder Watts relative to the grid value delivered. A realigned incentive of $2,000 per residential switch remains approximately 2.82¢/kWh on a net lifetime basis, below the 3.5¢/kWh Wattsmart Business benchmark and still roughly 2.5x more cost-effective than lighting and nearly 3x more cost-effective than HVAC. This level also aligns with the customer-facing precedent established by the Wattsmart Battery program, which provides up-front incentives for grid-ready distributed energy resources.

1. Cost-Effectiveness Framework Used for This Analysis

PacifiCorp evaluates energy-efficiency programs using levelized cost per kWh saved, benefit/cost tests, realization rates, net-to-gross assumptions, measure lives, line-loss adjustments, program delivery cost, administrative cost, customer cost, and avoided-cost values. The cited Idaho Wattsmart Business update describes planned program changes as a function of eligibility requirements, savings assumptions, incentive levels, market conditions, and cost-effectiveness thresholds. The Utah 2024 Energy Efficiency and Peak Reduction Report publishes category-level Utility Cost Test (UCT) levelized $/kWh values for the core Wattsmart Business measures used in this comparison.

Cost per lifetime kWh saved = Utility incentive / (annual kWh savings x measure life x realization rate x net-to-gross factor). For consistency with the prior RMP framing, the Powder Watts calculations use an 11-year measure life, 98% realization, and 87% net-to-gross adjustment.

2. Powder Watts Savings by Customer Segment

The first-year savings assumptions below are field-derived Powder Watts modeling values. They distinguish between winter-only savings and the additional full-year savings created when heat cable remains energized outside the core winter season. This distinction is important because many commercial and second-home sites leave heat cable energized outside of the 152 days of winter, which creates additional utility value beyond winter-only kWh savings.

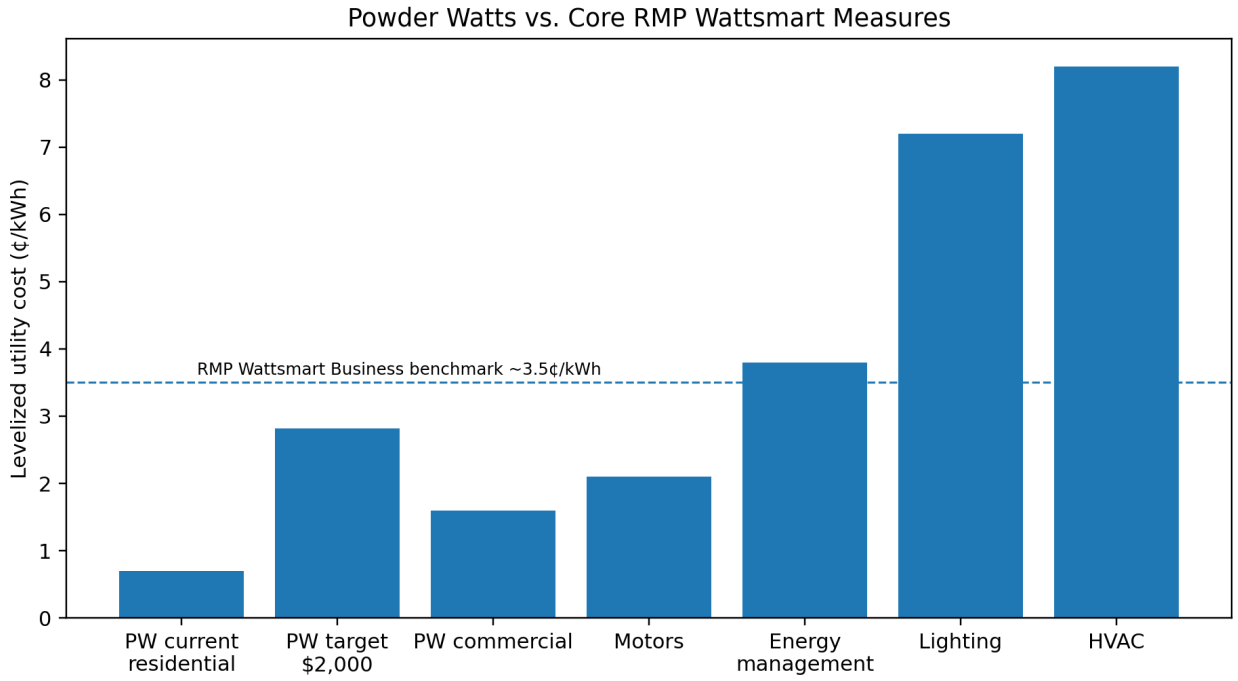
Customer segment	First-year kWh saved / switch	Current incentive basis	Current incentive / switch	Net lifetime cost	Interpretation
Winter-only residential	6,566	$500 per switch	$500	0.81¢/kWh	Conservative savings case; excludes non-winter accidental operation.
Primary home residential	7,603	$500 per switch	$500	0.70¢/kWh	Recommended base case for residential rebate discussion.
Second-home residential	8,640	$500 per switch	$500	0.62¢/kWh	Includes higher non-winter accidental operation observed in second homes.
Commercial / multifamily	10,195	$0.15 per first-year kWh	$1,529.25	1.60¢/kWh	Commercial first-year incentive equals 10,195 kWh x $0.15 = $1,529.25 per switch.

3. Comparison to Core RMP Energy Measures

The following table excludes very small or non-comparable categories and focuses on real energy measures commonly used for portfolio comparison: compressed air, motors, whole-building measures, energy management, lighting, and HVAC. On this basis, Powder Watts ranks as one of the most cost-effective resources in the relevant peer set and is materially stronger than lighting and HVAC, the two categories most often used as large customer-facing efficiency benchmarks.

Measure / resource	Levelized utility cost	Source / basis	Relative to current PW residential	Commercial / strategic note
Powder Watts residential - current primary-home case	0.70¢/kWh	Calculated from $500/switch and 7,603 kWh first-year savings	Baseline	Best-in-class customer-facing resource; dispatchable winter load.
Powder Watts commercial / multifamily	1.60¢/kWh	Calculated from $0.15 per first-year kWh and 10,195 kWh/switch	2.3x current PW residential	Still below motors, whole-building, energy management, lighting, and HVAC.
Compressed air	1.1¢/kWh	Published Wattsmart Business UCT	1.6x current PW residential	Strong benchmark; generally site-specific and less residentially scalable.
Motors	2.1¢/kWh	Published Wattsmart Business UCT	3.0x current PW residential	Strong conventional measure, but not typically a dispatchable VPP resource.
Whole building	3.6¢/kWh	Published Wattsmart Business UCT	5.1x current PW residential	Higher cost and broader project complexity.
Energy management	3.8¢/kWh	Published Wattsmart Business UCT	5.4x current PW residential	Valuable but often requires operational engagement.
Lighting	7.2¢/kWh	Published Wattsmart Business UCT	10.3x current PW residential	Core measure; Powder Watts remains far lower cost.
HVAC	8.2¢/kWh	Published Wattsmart Business UCT	11.7x current PW residential	Core measure; Powder Watts has far superior utility cost per kWh.

Figure 1. Powder Watts against core RMP Wattsmart Business measures.



4. Incentive Realignment: Closing the Value Gap

The current $500 residential incentive is favorable for the utility but materially below the value signal needed to accelerate adoption at VPP scale. Powder Watts is presently being procured at roughly $0.06 per first-year kWh in the primary-home case ($500 divided by 7,603 kWh), while RMP already pays substantially higher per-kWh incentives in the Utah Multifamily Program for other categories of energy savings.

Measure category	RMP rebate per first-year kWh saved	Powder Watts current equivalent	Implication
HVAC upgrades	$0.35/kWh	$0.06/kWh	RMP pays roughly 6x the current Powder Watts first-year kWh value.
Weatherization / building shell - other	$0.23/kWh	$0.06/kWh	RMP pays roughly 4x the current Powder Watts first-year kWh value.
New construction - non-lighting	$0.23/kWh	$0.06/kWh	RMP already accepts higher per-kWh incentives for comparable residential/multifamily savings.

This comparison does not suggest that every measure should be paid identically. It shows that the current Powder Watts incentive is not constrained by cost-effectiveness. Rather, the present incentive appears to under-signal a high-value, high-confidence, dispatchable resource relative to other RMP-approved categories of efficiency spending.

5. Wattsmart Battery Precedent

The closest internal precedent is not conventional lighting or HVAC. Powder Watts is more similar to the Wattsmart Battery model because it creates a grid-ready distributed energy resource capable of dispatchable capacity value. Batteries receive up-front incentives tied to dispatchable grid value, not simply passive kWh savings. Powder Watts similarly produces controllable winter load reduction, high-resolution monitoring, and grid-facing flexibility; unlike batteries, it does so by reducing waste from an existing load rather than adding new equipment designed to store energy.

The customer-facing precedent of a $2,000 up-front incentive cap per circuit for grid-ready DER participation provides a practical benchmark for Powder Watts. A $2,000 residential switch incentive can be justified on cost-effectiveness grounds and on program-design grounds because it aligns the customer adoption signal with the value of dispatchable grid capacity.

6. Proposed Residential Incentive Tiers

The following tier analysis uses the primary-home residential savings case of 7,603 kWh per switch, 11-year measure life, 98% realization, and 87% net-to-gross. It shows that RMP can materially increase the residential Powder Watts incentive while maintaining a levelized cost below the Wattsmart Business benchmark and well below lighting and HVAC.

Proposed residential incentive	Net lifetime cost	Compared with lighting at 7.2¢/kWh	Compared with HVAC at 8.2¢/kWh	Program interpretation
$1,000	1.41¢/kWh	5.1x more cost-effective	5.8x more cost-effective	Conservative improvement; still significantly undervalues the resource.
$1,500	2.11¢/kWh	3.4x more cost-effective	3.9x more cost-effective	Strong mid-point; materially improves participation economics.
$2,000 target	2.82¢/kWh	2.6x more cost-effective	2.9x more cost-effective	Recommended equilibrium: scalable customer signal while remaining below portfolio benchmark.

7. Recommended Position for RMP Review

Powder Watts should be treated as a top-tier demand-side resource within the Wattsmart portfolio because it combines low-cost kWh savings with dispatchability, telemetry, event-level verification, and winter peak alignment. Those attributes are not captured fully by a simple lifetime ¢/kWh comparison, yet the measure already performs strongly on that narrow metric.

A residential incentive increase to $2,000 per switch is the recommended target. At that level, Powder Watts remains below the approximate 3.5¢/kWh Wattsmart Business benchmark, remains materially lower than lighting and HVAC, and creates a more appropriate customer adoption signal for VPP-scale deployment.

For RMP, the requested change is a reflection of best practice discipline. It is a portfolio optimization: moving incentive dollars toward a measured, dispatchable, winter-aligned (and summer enablement) resource with cost-effectiveness stronger than several incumbent measure categories and with higher grid-operational value than passive efficiency measures.

References and Data Sources

- PacifiCorp / Rocky Mountain Power, “PacifiCorp’s Planned Changes to Wattsmart Business in Idaho, Effective November 17, 2025.” Source used for program-change logic, cost-effectiveness framing, incentive redesign rationale, and 2025-2026 benchmark assumptions.
- PacifiCorp, “Utah Energy Efficiency and Peak Reduction Annual Report, 2024.” Source used for published Wattsmart Business and Wattsmart Homes category-level UCT levelized $/kWh values.
- Rocky Mountain Power, “Wattsmart Multifamily Program.” Source used for 2026 Utah Multifamily incentive levels by verified kWh saved, including HVAC, building shell/weatherization, and new construction non-lighting categories.
- Powder Watts field-derived customer-segment savings assumptions: winter-only residential 6,566 kWh/switch-year; primary home 7,603 kWh/switch-year; second home 8,640 kWh/switch-year; commercial/multifamily 10,195 kWh/switch-year.