ROCKY MOUNTAIN POWER
A DIVISION OF PACIFICORP

1407 West North Temple, Suite 330
Salt Lake City, Utah 84116

July 15, 2021

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: **Reply Comments**
In the Matter of Rocky Mountain Power's Demand-Side Management 2020 Annual Energy Efficiency and Peak Load Reduction Report
Docket No. 21-035-33

On June 2, 2020, the Public Service Commission of Utah ("Commission") issued a Notice of Filing and Comment period in the above referenced matter, allowing parties to file comments by June 28, 2021, and reply comments by July 13, 2021. The Division of Public Utilities ("Division") filed comments June 24, 2021, and Utah Clean Energy ("UCE") and Southwest Energy Efficiency Project ("SWEEP") filed joint comments June 28, 2021. The Division's and UCE/SWEEP's comments both found the 2020 Annual Energy Efficiency and Peak Load Reduction Report ("2020 Report") in compliance with Commission requirements. Rocky Mountain Power (the "Company") submits these reply comments in response to party comments.

Division Comments

The Division noted in their comments that the 2020 Report included many references with links back to the Company's website that were not working.[1] Upon review, it was discovered that in the process of converting the Word version of the 2020 Report into an Adobe PDF for purposes of filing, the website links broke. This inadvertent outcome was fixed, and attached hereto as Exhibit A are confidential and redacted versions of the 2020 Report with working links. Other than the broken versus working links, there are no differences between the report versions.

UCE/SWEEP Comments

UCE/SWEEP's comments reiterated their recommendation to discuss the percentage of overall savings from the Home Energy Reports ("HER") program with the Steering Committee, with concerns over increasing reliance on HER savings to achieve Class 2 targets.[2] This recommendation was previously noted in UCE/SWEEP's comments filed December 2, 2020 in Docket No. 20-035-31 regarding the Company's Semi-Annual DSM Forecast Report for the 2021 Calendar Year. Based on the Company's reply comments filed December 17, 2020 in that docket, the Company believed the specific HER issue to have been addressed. Notwithstanding, after

[1] Division Comments at Page 3.
[2] UCE/SWEEP Comments at Page 2.

reviewing UCE/SWEEP's comments in this docket, the Company raised the HER topic at the Steering Committee meeting held June 30, 2021. After further discussion and clarity, the Company believes this issue to be resolved.

With respect to the Company's Class 2 DSM resource mix in general, historically the Company has reviewed and discussed this with Steering Committee members upon the publication of each Integrated Resource Plan ("IRP"). Continuing that trend, when the 2021 IRP is published, the Company intends to review and discuss the resource mix with Steering Committee members.

The Company appreciates the continued engagement of the DSM Steering Committee and will continue to work with Steering Committee members on DSM activities and areas of specific interest.

Sincerely,

Michael S. Snow
Manager, Regulatory Affairs

CERTIFICATE OF SERVICE

Docket No. 21-035-33

I hereby certify that on July 15, 2021, a true and correct copy of the foregoing was served by electronic mail to the following:

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Exhibit A

Redacted Rocky Mountain Power
2020 DSM Annual Report

ROCKY MOUNTAIN POWER

POWERING YOUR GREATNESS

2020 Utah Energy Efficiency and Peak Reduction Annual Report

Issued May 28, 2021

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 is a multi-jurisdictional electric utility providing retail service to customers in Utah, Idaho, and Wyoming. Rocky Mountain power, a division of PacifiCorp, serves approximately 970,055 customers in Utah. Rocky Mountain Power acquires energy efficiency and peak reduction resources as cost effective alternatives to the acquisition of supply-side resources. These resources assist in efficiently addressing load growth and contribute to the ability to meet system peak requirements.

PacifiCorp develops a biennial integrated resource plan (IRP) as a means of balancing cost, risk, uncertainty, supply reliability/deliverability and long-run public policy goals.[1] The IRP presents a framework of future actions to ensure that Rocky Mountain Power continues to provide reliable, reasonably priced service to customer. Energy Efficiency and peak management opportunities are incorporated into the IRP based on their availability, characteristics, and costs.

Rocky Mountain Power employs external implementers to administer its programs.[2] Evaluations for each of the programs are performed by independent external evaluators to validate energy savings derived from Rocky Mountain Power's energy efficiency programs.[3]

Rocky Mountain Power utilizes earned media, customer communications, education, and outreach, advertising as well as program specific marketing to communicate the value of energy efficiency, provide information regarding low-cost, no-cost energy efficiency measures and to educate customer on the availability of programs, services, and incentives.[4]

This report provides details on program results, activities, and expenditures of the DSM Cost Adjustment Tariff Rider ("Schedule 193") as of the reporting period from January 1, 2020 through December 31, 2020. Rocky Mountain Power on behalf of its customers, invested $64 million in energy efficiency and peak reduction resource acquisitions during the reporting period. The investment yielded approximately 356,724 megawatt hours ("MWh") in first-year energy savings,[5] 5,075,126 MWh of lifetime savings from 2020 energy efficiency acquisition,[6] and maximum realized reductions associated with peak management activities of approximately 234

[1] Information on PacifiCorp's IRP can be found at https://www.pacificorp.com/energy/integrated-resource-plan.html.

[2] Program Administration can be found at https://www.pacificorp.com/environment/demand-side-management.html under the "Program administration" section.

[3] Program Evaluation information for each program can be found at the following address: https://www.pacificorp.com/environment/demand-side-management.html under the "Reports and program evaluations by state" section.

[4] Communications, Outreach and Education can be found at https://www.pacificorp.com/environment/demand-side-management.html under the "Communications and Outreach" section.

[5] Reported ex-ante savings are gross at generation.

[6] Estimated lifetime savings of 2020 Energy Efficiency Acquisitions was calculated by multiplying First Year Acquisitions (ex-ante, measured at the generator) by the weighted average measure life of the portfolio of 14.2 years.

megawatts. Net benefits based on the projected value of the energy savings over the life of the individual measures is estimated at $154 million.[7]

The Demand-side Management ("DSM") portfolio was cost effective based on the Utility/Program Administrator Cost Test (UCT), which is the primary cost benefit test observed in Utah.[8] Cost-effectiveness results are provided in Table 11 and Appendix B.

In 2020, Rocky Mountain Power's portfolio included the following programs:

- **Energy Efficiency Programs:**
  - Wattsmart Homes
  - Home Energy Reports
  - Low Income Weatherization
  - Wattsmart Business

- **Peak Reduction Programs:**
  - Irrigation Load Control
  - Cool Keeper
  - Wattsmart Batteries

ADVISORY GROUP AND STEERING COMMITTEE ACTIVITIES

Consistent with the discussion in Docket No. 12-035-69, the Company seeks input regarding its energy efficiency programs from both the Utah DSM Steering Committee and the Utah DSM Advisory Group. Both groups include representatives from a variety of 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

The Company consulted with the DSM Steering Committee and DSM Advisory Group throughout 2020 on various matters and held formal meetings on the following matters:

March 12, 2020 – DSM Steering Committee

- Reviewed Wattsmart Business program proposed changes submitted in Docket No. 19-035-T01;
- Discussed additional updates to the Residential and Non-Residential programs; and
- Discussed various DSM related topics at the request of Utah Clean Energy, including 2019 preliminary results, Dominion Energy collaboration, and targeted re-commissioning.

[7] See cost effectiveness Appendix B. Portfolio Utility Cost Test Net Benefits.
[8] Cost effectiveness results include realization rates and Net-to-Gross ("NTG") ratios.

June 4, 2020 – DSM Steering Committee

- Reviewed the semi-annual DSM report.
- Discussed the impacts of COVID-19 and the 2020 forecast.
- Provided updates on the Wattsmart Homes, Wattsmart Business, Home Energy Reports, and Battery Demand Response programs.

June 4, 2020 – DSM Advisory Group

- Reviewed the 2019 DSM Annual Report.

August 11, 2020 – DSM Steering Committee

- Discussed proposed changes to the Wattsmart Business program.
- Discussed changes to program evaluations process.
- Provided information on Battery Demand Response programs.

October 20, 2020 – DSM Steering Committee

- Discussed the 2021 Forecast Report.
- Discussed the Schedule 193 Rate Analysis.
- Reviewed the current Annual Report structure and a proposed new format.
- Discussed the Wattsmart Homes filing submitted in Docket No. 20-035-T09.

December 10, 2020 – DSM Advisory Group

- Reviewed program evaluations for the Low-Income Weatherization and Home Energy Reports programs.

PORTFOLIO OF PROGRAMS

RESIDENTIAL ENERGY EFFICIENCY PROGRAMS

WATTSMART HOMES

Program Description

The Wattsmart Homes program is designed to provide access to incentives for using more efficient products and services installed or received by residential customers in the following housing types:

- New Construction Homes
- Single Family Existing Homes
- Multi-family Housing Units
- Manufactured Homes

The program applies to residential customers under electrical service schedules 1, 2, or 3. Landlords who own property where the tenant is billed under Electric Service Schedules 1, 2, or 3 also qualify.

The Wattsmart Homes program passed the UCT cost tests with a benefit cost ratio of 1.79 for 2020.

Program Performance and Major Achievements in 2020

- The Wattsmart Homes program achieved 71,922,953 kWh gross savings at site.
- Disbursed $9.5 million in incentives.
- The Wattsmart Homes program added incentives for smart home products, dual fuel heat pump, heat pump clothes dryer, engine block heater control, and bathroom exhaust fan.
- The Wattsmart Homes program reintroduced incentives for appliances, windows, and air sealing measures to the program.
- In addition to smart thermostats and evaporative coolers, the Wattsmart Homes program expanded the instant incentive offer via coupon downloads to include smart plugs, smart switches, heat pump water heaters, air purifiers, and ENERGY STAR refrigerators, freezers, dishwashers, bathroom fans, clothes washers and dryers.
- Request for Proposal (RFP) for Wattsmart Start Kits was issued and awarded to AM Conservation group. The program started receiving and fulfilling orders in November 2020.

Additional information on the program administration can be found on the Company's website under the Program administration section:
https://www.pacificorp.com/environment/demand-side-management.html

Direct Link to Wattsmart Homes program administration:
https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/environment/dsm/utah/UTAH_Program_Administration_Wattsmart_Homes.pdf

HOME ENERGY REPORTS PROGRAM

Program Description

The Home Energy Reports program is a behavioral program designed to decrease participant energy usage by providing comparative energy usage data for similar homes located in the same geographical area. Additionally, the report provides the participant with tips to decrease their energy usage.

The Home Energy Reports program passed the UCT with a cost benefit ratio of 3.57 for 2020.

Program Performance and Major Achievements in 2020

- The Home Energy Reports program achieved 67,613,670 kWh gross savings at site.
- Reports were initially provided to approximately 290,000 customers in 2020.
- In July the program was expanded to approximately 590,000 customers**.**
- Enhancements to reports were made during 2020, including:
    - More individual recommendations to save energy.
    - Greater insights on how customers are using energy by appliance type.
    - Home characteristics included on report with easy access to update home profile.
    - Monthly usage history included on reports.
- Program was expanded to all residential customer with email. Paper reports will be sent to approximately 50,000 customers without email who have high kWh usage.
- Online portal was improved to provide greater insights for all residential customers.
- In 2020, only 0.47% of customers (2,688 customers) have requested to be removed from the program.

Additional information on Home Energy Reports is located at the following link:
https://www.rockymountainpower.net/savings-energy-choices/home/usage-insights-home-energy-reports.html

Direct Link to Home Energy Reports program administration:
https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/environment/dsm/utah/UTAH_Program_Administration_Home_Energy_Reports.pdf

LOW INCOME WEATHERIZATION

Program Description

The Low-Income Weatherization program provides energy efficiency services to income-eligible households through a partnership with the Utah Department of Workforce Services, Housing and Community Development Division ("HCD"). Services are provided at no cost to the program participants.

Rocky Mountain Power currently has a contract in place with HCD to provide services through the Low-Income Weatherization program. The state agency receives federal funds and subcontracts with seven non-profit agencies that install energy efficiency measures in the homes of income eligible households throughout the Company's service area. Company funding of 50 percent of the cost of approved measures is leveraged by HCD with the federal funding they receive, allowing more homes to be served each year.

The Low-Income Weatherization program passed the UCT with a cost benefit ratio of 1.52 for 2020**.**

Program Performance and Major Achievements in 2020

- In 2020, the program achieved 170,107 kWh gross savings at site.
- Number of homes served was 159.

Additional information on the program administration can be found on the Company's website under the Program administration section:
https://www.pacificorp.com/environment/demand-side-management.html

Direct Link to Low Income Weatherization program administration:
https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/environment/dsm/utah/UTAH_Program_Administration_Low_Income.pdf

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.

Wattsmart Business is designed to influence new and existing non-residential customers to increase the efficiency of electricity usage through the installation of energy efficiency measures and adoption of improved energy management protocols. Qualifying measures include those which, when implemented in an eligible facility, produce 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

In 2020 Wattsmart Business program passed the UCT with a cost benefit analysis of 1.59.

Program Performance and Major Achievements in 2020

- In 2020, the program achieved 197,173,117 kWh gross savings.
- Disbursed incentives of $22.8M and $3.6M in bill credits.
- Lighting controls, especially Advanced Networked Lighting Controls (ANLC), represent the next frontier of significant energy saving technologies in Utah's lighting market. Introduced in 2019, RMP's ANLC incentives are designed to genuinely accelerate the adoption of these cutting-edge technologies. ANLC manufacturers regularly point to RMP incentives as some of the most progressive in the country. RMP's ANLC incentives are customized to large, medium, and small sized customers. In 2020, the requirements for large and medium sized customers were adjusted to allow more qualifying ANLC configurations. We believe the market-moving foundation established in 2019, combined with adjustments in 2020, are genuinely transforming Utah's lighting market. Despite challenges caused by COVID-19, the number of ANLC projects in 2020 was 132 compared to 36 in 2019. The kWh delivery of ANLC projects was 25,840,537 in 2020 compared to 4,659,467 in 2019.
- RMP's Advanced Rooftop Control (ARC) incentives are also designed to genuinely move the market and regularly receive recognition from ARC manufacturers as among the country's most effective. As ARC deployment matures in Utah, the number of Wattsmart Business vendors utilizing these incentives has also grown from one in 2018 to ten in 2020. The number of incentivized ARC units increased to 121 in 2020 compared to 51 in 2019. The amount of kWh savings from ARC projects increased to 5,656,375 in 2020 from 4,835,229 in 2019.
- Participating Wattsmart Business vendors continued receiving quarterly vendor scorecards to provide timely feedback on their performance with customers and submittals and encourage vendors to reach "Premium" status. The enhanced status entitles qualifying vendors to improved search engine visibility on Wattsmart Business web pages and enhanced co-branding opportunities with the Rocky Mountain Power logo. The number of Premium vendors stayed steady in 2020 at six.
- Small business lighting offerings experienced increased participation in 2020. To increase the level of engagement among Utah's Wattsmart Business vendors, the Small Business Enhanced (SBE) offering was rolled out, enabling local vendors to offer enhanced incentives to small customers. The SBE offering increased Wattsmart Business participation among rural Utah customers and was an addition to offerings delivered through Small Business Direct Install (SBDI).
- The average length of time from application submission to incentive delivery was reduced by nearly 40 percent because of administrative improvements implemented by Nexant.

- The managed accounts team continued engaging with municipal water and wastewater customers through the Strategic Energy Management (SEM) delivery model. These efforts on multi-year projects are expected to yield significant additional savings in future years.
- The managed accounts team also tested the concept of energy management "Mini-Cohorts" among industrial customers with compressed air systems. This approach helped during the pandemic to offer customers expert coaching on saving compressed air energy. Coaching and analysis was completed remotely, and energy savings claimed if customers chose to pursue subsequent energy management projects. The approach was an especially successful way to approach and engage smaller managed accounts who have not participated in Wattsmart Business
- A dozen industrial customers piloted the SENSEI software platform to improve the involvement of Energy Project Managers. While the pilot is not complete, some customers embraced the tool, are more engaged and generating additional energy project ideas.
- Continued focus on Commercial Real Estate (CRE) significantly increased the kWh savings from this sector. In 2020, this included regular meetings with executives from the Building Owners and Managers Association (BOMA) Utah Chapter, support from BOMA's Energy Project Managers and improved relationships with CRE developers.
- Through the Wattsmart Communities offering, the Utah Transit Authority and Southern Utah University completed comprehensive Energy Action Plans to guide the next 3 to 5 years of energy efficiency improvements in partnership with RMP. Ogden City completed a similar planning process led by the Utah Office of Energy Development with support from the Wattsmart Communities team. In 2020, Sandy City, South Jordan City and Orem City also initiated Wattsmart Communities Energy Action Planning processes that are anticipated to be complete in 2021.

Additional information on the program administration can be found on the Company's website under the Program administration section:
https://www.pacificorp.com/environment/demand-side-management.html

Direct Link to Wattsmart Business program administration:
https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/environment/dsm/utah/UTAH_Program_Administration_Non_Residential.pdf

PEAK REDUCTION PROGRAMS

Peak Reduction programs assist the Company in balancing the timing of customer energy requirements during heavy summer use hours. Peak reduction programs are intended to defer the need for higher cost investments in delivery infrastructure and peak generation resources that would otherwise be needed to serve those loads for a few select hours each year. These programs help the Company maximize the efficiency of the Company's existing electrical system and reduce costs for all customers.

Programs targeting capacity-related resources are often specific to end use loads most prevalent in each jurisdiction, such as the agricultural pumping and residential cooling loads in Utah. In 2020, the Company offered the *Irrigation Load Control* program (Schedule 105) for the agricultural sector and the *Cool Keeper* program (Schedule 114) for the residential and small commercial sectors.

The Wattsmart Batteries program (Schedule 114) was approved effective October 3, 2020. All customers are eligible to participate, however the technology is currently geared towards residential customers.

IRRIGATION LOAD CONTROL

Program Description

The irrigation load control program is offered to irrigation customers receiving electric service on Schedule 10, Irrigation and Soil Drainage Pumping Power Service. Participants enroll in the program with a third-party administrator and allow the curtailment of their electricity usage in exchange for an incentive. Customer incentives are based on the site's average available load during load control program hours, adjusted by opt outs or non-participation.

For most participants, their irrigation is set up with a dispatched two-way control system giving Rocky Mountain Power control over their loads. Participants are notified a day ahead of control events and have the choice to opt-out of a limited number of dispatch events per season.

In 2020, the program was available May 28th through August 16th from 12pm to 8pm Mountain Standard Time, Monday through Friday, and did not include holidays.

The Irrigation Load control program passed the UCT cost test for 2020.

Program Performance and Major Achievements in 2020

- Maximum potential and realized at generation were 14 MW and 12 MW, respectively.
- There were nine load control events initiated in 2020. Three of the total events were voluntary.
- The available load from the Irrigation Program can be utilized as reserve which provides value to the program and benefits the customer.
- Customers who participated in 100% of the program events were given a 20% incentive bonus.
- 16 day-ahead events were cancelled.
- Total customers participating in the program are 42, participation sites are 180.

Program enrollment information can be found on the Company's website:
https://www.rockymountainpower.net/savings-energy-choices/business/irrigation-load-control.html

Direct Link to Irrigation Load Control program administration:
https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/environment/dsm/utah/UTAH_Program_Administration_Irrigation_Load_Control.pdf

COOL KEEPER

Program Description

The Cool Keeper program is an air conditioner direct load management program targeting residential and commercial customers who cool their dwellings with electric central air conditioners. The program is called upon curtailment under varying circumstances.
Due to the flexibility of the program and real-time dispatch capabilities the resources can be utilized for various smart grid application.

When there is a grid need, the Cool Keeper control equipment installed on a participating customer's cooling equipment is sent a signal to cycle the operation of the compressor "off and on" for brief periods each hour in coordination with other participating customers.

For their participation, customers receive a monthly bill credit. The maximum annual incentive for participation is $30-$60 depending on the size of the unit. The program is limited to 100 hours per program year, and events to four hours per day. In the event of a system emergency, Rocky Mountain Power may, at its discretion expand the dispatch parameters as noted in the tariff. For program participants who are not enrolled for the season, they will receive daily pro-rated credit for the days they participate.

The Cool Keeper load control system is operated through a two-way communication with a wireless mesh network for improved control, measurement, and verification of program performance.

The Cool Keeper control program passed the UCT cost tests for 2020.

Program Performance and Major Achievements in 2020

- Maximum potential and realized at generation were 255 MW and 222 MW, respectively.
- 27 control events were initiated during the 2020 program season.
- System software upgraded to currently supported levels.
- System communications were upgraded from 3G to 4G cellular network.
- Due to higher temperatures there were more short frequency events called.
- For short events, the cycling was modified to 100% compared to 50% for longer events.
- The modified cycling strategy is allowing the program to curtail more load over shorter periods of time.
- The program can be called upon real-time which increases the value and flexibility, which allows the program to be utilized for frequency response and contingency reserve obligations.

Program enrollment information can be found on the Company's website:
https://www.rockymountainpower.net/savings-energy-choices/home/cool-keeper.html#:~:text=Cool%20Keeper%20is%20available%20to,%2D800%2D357%2D9214.

Direct Link to Cool Keeper program administration:
https://www.pacificorp.com/content/dam/pcorp/documents/en/pacificorp/environment/dsm/utah/UTAH_Program_Administration_Cool_Keeper.pdf

WATTSMART BATTERIES

Program Description

The Wattsmart Batteries program promotes and incentivizes the installation of individual batteries for system-wide integration and use for overall grid management. Leveraging batteries has created opportunity in areas including Utility Grid Management, Load Shaping, Utility Integration of Behind-the-Meter Batteries, and Utilization of the Distributed Battery Grid Management Solution platform.

Eligible customers who participate in the program can receive an enrollment incentive based on the size of their battery and participation commitment, and ongoing annual incentives for continued participation.

Program Performance and Major Achievements in 2020

Due to the program not becoming effective until the fourth quarter of 2020, no incentives were paid, and no events were called. The 2020 program effective timeframe was used to start ramping up the new program. Updated cost effectiveness and additional details will be included in the next reporting period.

EXPENDITURES

TOTAL PORTFOLIO BUDGET AND EXPENDITURES

Table 1: Forecast to Actual Savings Comparison

Utah 2019 DSM Programs	2019 IRP for 2020 (Gross - at Gen)		2020 Forecast (Gross - at Gen)		2020 Actual (Gross - at Gen)	
	MWH	MW	MWH	MW	MWH	MW*[9]
Class 1 - Load Control Programs						
A/C Load Control		119		239		222
Irrigation Load Control		20		20		12
Total Class 1		**139**		**259**		**234**
Class 2 - Residential Programs						
Low Income	N/A	N/A	178	0	181	0
Home Energy Reports	N/A	N/A	36,010	5	71,912	10
Wattsmart Homes	N/A	N/A	67,071	10	76,495	11
Total Residential Class 2	**N/A**	**N/A**	**103,259**	**15**	**148,588**	**21**
Class 2 - Non-Residential Programs						
Wattsmart Business	N/A	N/A	197,987	29	208,136	30
Total Class 2	**254,270** [10]	**36.72**	**301,246**	**43.50**	**356,724**	**52**
Total Class 2 Forecast Estimated Savings Range with Home Energy Reports First Year Savings			**286,184 - 316,308**			
Total Class 2 with Home Energy Reports Incremental Savings Only			**241,557 - 266,984**	**38.30**	**284,812**	**41**

[9] Energy efficiency MW is the estimated savings during system peak.

[10] The IRP accounts for incremental Home Energy Report (HER) savings only, whereas the 2020 forecast and the 2020 actuals account for first year savings. To provide greater parity for comparison purposes, the last two rows in Table 1 show Class 2 with and without HER savings.

Table 2: Program Results for January 1, 2020 – December 31, 2020[11]

Load Management Programs	MW/Yr. Savings (at site)	MW/Yr. Savings (at gen)	Program Expenditures
Cool Keeper	208	222	$ 5,993,302
Irrigation Load Control	11	12	$ 334,598
Wattsmart Batteries	0	0	$ 7,186
Total Load Management	**219**	**234**	**$ 6,335,086**
Energy Efficiency Programs	**kWh/Yr. Savings (at site)**	**kWh/Yr. Savings (at gen)**	**Program Expenditures**
Low Income Weatherization	170,107	180,920	$ 72,807
Home Energy Reporting	67,613,670	71,911,871	$ 1,063,863
Wattsmart Homes	71,922,952	76,495,095	$ 14,827,395
Total Residential	**139,706,729**	**148,587,886**	**$ 15,964,065**
Total *Watt*smart Business	**197,173,117**	**208,135,892**	**$ 39,407,861**
Total Energy Efficiency	**336,879,846**	**356,723,778**	**$ 55,371,926**
Other Portfolio Expenditures			
Outreach and Communications			$ 1,451,552
Portfolio - EM&V Non-Residential			$ 361,184
Portfolio - EM&V Residential			$ 111,430
Portfolio – DSM Central			$ 201,395
Portfolio Potential Study			$ 146,664
Portfolio TRL			$ 10,011
Portfolio Training			$ 72,322
Total Other Portfolio Expenditures			**$ 2,354,658**
Total Utah Program Expenditures			**$ 64,061,670**

SAVINGS BY PROGRAM

Table 3: 2020 Program Performance by Measure Category Savings for Wattsmart Homes

Measure Category	Total kWh (at Site)	Total Incentive	Total Measure Quantity
Building Shell	434,670	$ 254,124	2,559,883 sq. ft.
Energy Kits	31,797	$ 1,077	138
HVAC	11,126,870	$ 2,074,130	21,080
Lighting	40,264,550	$ 2,107,356	2,062,506
Water Heating	3,061,494	$ 337,624	40,261
Whole Building	14,306,510	$ 3,781,848	27,605
New Homes	2,697,062	$ 982,375	5,211
Grand Total	**71,922,953**	**$ 9,538,534**	

[11] The reported savings are gross and ex-ante. The values at generation include line losses between the customer site and the generation source.

Table 4: Wattsmart Homes New Construction Single Family Participation

New Construction Measures	Total kWh (at Site)	Total Incentives
Single Family		
Central Air Conditioner	12,709	$ 6,550
Smart Thermostat	207,997	$ 45,700
ENERGY STAR certification	66,720	$ 20,850
HERS index 56-62	539,145	$ 227,675
HERS index 49-55	1,644,871	$ 593,100
HERS index <=48	225,620	$ 88,500
Total Single Family	**2,697,062**	**$ 982,375**

Table 5: Wattsmart Homes Custom Multifamily Participation for Low Income and Market Rate Properties

Custom Multifamily	Total kWh (at Site)	Total Incentives
Low Income	**4,267,562**	**$ 1,280,269**
New Construction	1,050,443	$ 315,133
Retrofit	3,217,110	$ 1,280,269
Market Rate	**4,719,292**	**$ 2,501,579**
New Construction	8,053,217	$ 2,013,304
Retrofit	1,985,731	$ 488,275
Grand Total	**14,306,510**	**$ 3,781,848**

Table 6: Low Income Weatherization Program Homes Served and Measures Installed

Measure Type	Installed
Insulation	53
Crisis Heating & Cooling Repair and/or Replacement	7
Furnace Fan	63
Energy Education	131
Double Glass Replacement	1
Evaporative Cooler Replacement	1
LED Bulbs	2,050
Faucet Aerators	18
Refrigerator Replacement	15
Refrigerator Replacement Test	8
Total Number of Homes Served	**159**
Total kWh Savings @ Site	**170,107**

Table 7: 2020 Program Performance by Measure Category Savings for Wattsmart Business

Measure Category	Total kWh (at Site)	Total Incentive	Bill Credits	Total Projects
Additional Measures	9,225,621	$ 624,343	$ 1,314,714	28
Building Shell	1,463,101	$ 377,570		127
Compressed Air	20,471,636	$ 2,746,183	$ 326,329	51
Direct Install	13,975,513	$ 4,015,690		1,944
Energy Management	38,269,158	$ 745,818	$ 251,002	117
Food Service Equipment	140,984	$ 13,950		31
HVAC	38,353,298	$ 5,474,951	$ 770,364	657
Irrigation	3,108,899	$ 335,953		146
Lighting	61,368,730	$ 6,524,850		5,945
Motors	7,303,461	$ 230,958	$ 834,894	106
Oil & Gas	155,312	$ 24,000		16
Refrigeration	3,337,405	$ 456,189	$ 148,421	49
Energy Project Manager Co-fund	0	$ 1,243,281		18
Grand Total	**197,173,117**	**$ 22,813,736**	**$ 3,645,724**	**9,234**

Table 8: Wattsmart Business Savings by Sector

Sector	Total kWh (at Site)	Total Incentive	Bill Credit	Total Projects
Commercial	152,967,009	$ 19,594,305	$ 2,126,327	8,587
Industrial	41,224,498	$ 2,899,490	$ 1,519,397	508
Irrigation	2,981,609	$ 319,942	$ 0	139
Grand Total	**197,173,117**	**$ 22,813,736**	**$ 3,645,724**	**9,234**

LOAD CONTROL EVENTS

Table 9: Irrigation Load Control Events

Date	Event Times (MST)	Utah Reductions (MW)
7/31/2020	16:00 MDT - 20:00 MDT	12
8/14/2020	16:00 MDT - 20:00 MDT	8
8/17/2020	17:00 MDT - 20:00 MDT	7
8/18/2020	17:00 MDT - 20:00 MDT	8
8/19/2020	17:00 MDT - 20:00 MDT	7
8/20/2020	17:00 MDT - 20:00 MDT	5
8/21/2020	16:00 MDT - 21:00 MDT	5
8/22/2020	16:00 MDT - 21:00 MDT	5
8/23/2020	16:00 MDT - 21:00 MDT	5

Table 10: Irrigation Load Control Program Performance

Total Enrolled MW (Gross – at Gen)	**17**
Maximum Potential MW (at Gen)	14
Average Realized load MW (at Site)	7
Maximum Realized load MW (at Gen)	12
Total Customer Participation	42
Total Sites	180

Table 11: Cool Keeper Load Control Events

Date	Event Times (MST)	Utah Reductions (MW)
4/30/2020	13:46 MDT – 13:50 MDT	30
5/1/2020	14:00 MDT – 14:29 MDT	14
5/5/2020	17:52 MDT – 17:57 MDT	29
5/8/2020	7:11 MDT – 7:16 MDT	N/A[12]
5/19/2020	14:30 MDT - 14:35 MDT	46
6/5/2020	15:40 MDT - 15:43 MDT	112
6/7/2020	17:34 MDT - 17:38 MDT	11
6/9/2020	12:11 MDT - 12:16 MDT	5
6/18/2020	16:21 MDT - 16:26 MDT	24
7/7/2020	12:41 MDT - 12:46 MDT	166
7/12/2020	21:30 MDT - 22:02 MDT	200
7/17/2020	14:46 MDT - 14:51 MDT	133
7/19/2020	12:54 MDT - 1:02 MDT	200
7/25/2020	1:29 MDT - 1:34 MDT	65
7/26/2020	12:27 MDT - 12:32 MDT	120
7/28/2020	10:26 MDT - 10:31 MDT	69
7/29/2020	10:44 MDT - 11:12 MDT	53
7/30/2020	18:47 MDT - 18:52 MDT	222
8/3/2020	15:08 MDT - 15:13 MDT	186
8/9/2020	22:11 MDT - 22:15 MDT	126
8/19/2020	15:30 MDT - 15:31 MDT	193
8/21/2020	16:54 MDT - 16:59 MDT	184
8/24/2020	9:36 MDT - 10:00 MDT	53
9/3/2020	21:16 MDT- 21:20 MDT	107
9/5/2020	16:02 MDT 16:07 MDT	175
9/7/2020	16:29 MDT - 16:34 MDT	147
9/8/2020	2:52 MDT - 2:57 MDT	17

Table 12: Program Performance for Cool Keeper

Total Enrolled (at Gen)	**240**
Maximum Potential MW (at Gen)	255
Average Realized Load MW (at Gen)	106
Maximum Realized MW (Gross – at Gen)	222
Total Participating Customers	91,860

[12] The event communications to the gateways did not go out, causing this event to fail.

TOTAL COST EFFECTIVENESS RESULTS BY PORTFOLIO AND PROGRAM

Program cost effectiveness is performed using a Company specific modeling tool, created by a third-party consultant. The tool is designed to incorporate PacifiCorp data and values such as avoided costs, and generally follows the methodology specified in California's Standard Practice Manual. The analysis assesses the costs and benefits of DSM resource programs from different stakeholder perspectives, including participants and non-participants, based on four tests described in the Standard Practice Manual (TRC, UCT, PCT and RIM) as well as an additional fifth test, PTRC.

Each of the cost-effectiveness tests for Rocky Mountain Power's programs is outlined below. The primary cost/benefit test observed in Utah is the UCT.

- PacifiCorp Total Resource Test (PTRC) is the total resource cost test with an additional 10% added 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 utility customer perspectives.
- Utility Cost (UCT) Test also called the program administrator cost test, provides a benefit to cost perspective from the utility only. The test compares the total utility cost incurred to the benefit/value of the energy and capacity saved and contains no customer costs or benefits in calculation of the ratio.
- Participant Cost Test (PCT) compares the portion of the resource paid directly by participants to the savings realized by the participants.
- Ratepayer Impact Cost Test (RIM) examines the impact of energy efficiency expenditures on non-participating ratepayers overall. Unlike supply-side investments, energy efficiency programs reduce energy sales. Reduced sales typically lower revenue requirements while putting near-term upward pressure on the rates remaining fixed costs are spread over fewer kilowatt-hours.

Cost effectiveness is tested using the decrement values from the IRP for all measure categories. The Company's approach to determining an avoided cost for energy efficiency is to compare 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 T&D adders are then added to this decrement value to determine the total avoided cost. Essentially, an avoided cost is equal to the Decrement Value + Risk Reduction adder + T&D adder.

Table 13: 2020 Cost Effectiveness Results by Program[13]

Program	Benefit/Cost Test				
	PTRC	TRC	UCT	PCT	RIM
DSM Portfolio	2.11	1.92	2.19	3.22	0.92
Energy Efficiency Portfolio	1.14	1.04	1.61	3.10	0.39
Non-Residential Energy Efficiency Portfolio	1.07	0.97	1.59	2.72	0.41
Residential Energy Efficiency Portfolio	1.45	1.32	1.89	4.20	0.38
Wattsmart Homes	1.34	1.22	1.79	3.83	0.37
Home Energy Reporting	3.92	3.57	3.57	N/A[14]	0.45
Low Income Weatherization	1.67	1.52	1.52	N/A[15]	0.40
Wattsmart Business	1.07	0.97	1.59	2.72	0.41
Irrigation Load Control Program[16]	PASS	PASS	PASS	N/A	PASS
AC Load Control Program[17]	PASS	PASS	PASS	N/A	PASS

Portfolio-level cost effectiveness includes portfolio costs, such as the Potential Assessment and DSM system database. Sector-level cost effectiveness, reported in the Residential and Non-Residential sections of this report, includes sector-specific evaluation, measurement, and verification expenditures.

EVALUATIONS

Evaluations are performed by independent external evaluators to validate energy and demand savings derived from the Company's energy efficiency programs. Industry best practices are adopted by the Company with regards to principles of operation, 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.

A component of the overall evaluation efforts is aimed at the reasonable verification of installations of energy efficient measures and associated documentation through review of documentation, surveys and/or ongoing onsite inspections.

Verification of the potential to achieve savings involves regular inspection and commissioning of equipment. The Company engages in programmatic verification activities, including inspections, quality assurance reviews, and tracking checks and balances as part of routine program

[13] Cost effectiveness details are provided in Appendix B and Confidential Appendix C.
[14] Participants in the Home Energy Reporting Program do not incur costs; therefore, N/A is appropriate for the PCT.
[15] Participants in the Low-Income Weatherization Program do not incur costs; therefore N/A is appropriate for the PCT.
[16] Avoided costs are considered confidential on load control programs. Cost effectiveness ratios and inputs will be available under a protective agreement. A "Pass" designation equates to a benefit cost ratio of 1.0 or better.
[17] Avoided costs are considered confidential on load control programs. Cost effectiveness ratios and inputs will be available under a protective agreement. A "Pass" designation equates to a benefit cost ratio of 1.0 or better.

implementation and may rely upon these practices in the verification of installation information for the purposes of savings verifications in advance of more formal impact evaluation results.

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

Information on evaluation activities completed or in progress during 2020 is summarized in the chart below. Completed evaluation reports are available at the following link, under the "Reports and program evaluations by state" section:

https://www.pacificorp.com/environment/demand-side-management.html

Table 14: 2020 Evaluation Activities

Evaluation	Responsible Consultant	Status	Published
Home Energy Reports Evaluation 2018-2019	Cadmus	Completed	December 3, 2020
Low Income Weatherization Evaluation 2016-2017	ADM	Completed	August 2020
Wattsmart Homes Evaluation 2019-2020	ADM	In-process	N/A
Wattsmart Business Evaluation 2018-2021	Cadmus	In-Process	N/A

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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.	Executive Summary
4.	The Company shall clearly state for each program and measure whether all reported savings are ex-post or ex-ante.	Referenced throughout report
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 9-12
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 10 and 12
10.	The Company shall include published evaluations that have not previously been provided in an Annual Report, and also include a schedule of current and upcoming evaluations.	Evaluations section
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.	N/A in 2020
14.	Explain the Home Energy Report incremental savings row within the 'Forecast to Actual Savings Comparison' table.	Footnote 10

[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.

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Appendix B

Cost Effectiveness

Guidehouse

Memorandum

To: Alesha Pino, PacifiCorp

From: David Basak, Guidehouse

Date: May 21, 2021

Re: Cost-Effectiveness for the Portfolio and Sector Level - Utah

Guidehouse estimated the cost-effectiveness for the overall energy efficiency portfolio and component sectors, based on 2020 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall energy efficiency portfolio and the two sector components.

The portfolio passes the cost-effectiveness for all the tests except the RIM test. The memo consists of the following tables.

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Suite 100 | Boulder, CO 80302
303.728.2500 main
guidehouse.com

Table 1 - Utility Inputs

Parameter	Value
Discount Rate	6.92%
Residential Line Loss	6.36%
Commercial Line Loss	5.86%
Industrial Line Loss	4.40%
Irrigation Line Loss	6.34%
Residential Energy Rate ($/kWh)[1]	$0.1068
Commercial Energy Rate ($/kWh)[1]	$0.0809
Industrial Energy Rate ($/kWh)[1]	$0.0568
Irrigation Energy Rate ($/kWh)[1]	$0.0728
Inflation Rate	2.28%

[1] Future rates determined using a 2.28% annual escalator.

Table 2 - Portfolio Level Costs 2020

Expense	Cost
Outreach and Communications	$1,451,552
Portfolio - EM&V Non-Residential	$361,184
Portfolio - EM&V Residential	$111,430
Portfolio - DSM Central	$201,395
Portfolio Potential Study	$146,664
Portfolio TRL	$10,111
Portfolio Training	$72,322
Total Costs	**$2,354,658**

Table 3 - Benefit/Cost Ratios by Portfolio Type

Portfolio Type	PTRC	TRC	UCT	RIM	PCT
DSM Portfolio with Load Control Programs	2.11	1.92	2.19	0.92	3.22
Total Energy Efficiency Portfolio	1.14	1.04	1.61	0.39	3.10
C&I Programs	1.07	0.97	1.59	0.41	2.72
Residential Programs	1.45	1.32	1.89	0.38	4.20

Table 4 - 2020 DSM Portfolio with Load Control Programs Cost-Effectiveness Results

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0754	$147,504,859	$311,695,874	$164,191,015	2.11
Total Resource Cost Test (TRC) No Adder	$0.0754	$147,504,859	$283,359,885	$135,855,026	1.92
Utility Cost Test (UCT)	$0.0660	$129,165,956	$283,359,885	$154,193,929	2.19
Rate Impact Test (RIM)		$308,482,422	$285,040,534	-$23,441,888	0.92
Participant Cost Test (PCT)		$83,554,318	$268,694,734	$185,140,416	3.22
Lifecycle Revenue Impacts ($/kWh)					$0.0000030214
Discounted Participant Payback (years)					4.06

Table 5 - 2020 Total Portfolio Cost-Effectiveness Results

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0458	$89,438,201	$102,264,730	$12,826,529	1.14
Total Resource Cost Test (TRC) No Adder	$0.0458	$89,438,201	$92,967,937	$3,529,735	1.04
Utility Cost Test (UCT)	$0.0295	$57,731,642	$92,967,937	$35,236,295	1.61
Rate Impact Test (RIM)		$237,048,108	$92,967,937	-$144,080,171	0.39
Participant Cost Test (PCT)		$81,873,669	$253,646,429	$171,772,760	3.10
Lifecycle Revenue Impacts ($/kWh)					$0.0007281715
Discounted Participant Payback (years)					2.01

Table 6 - 2020 C&I Energy Efficiency Portfolio Cost-Effectiveness Results

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0461	$64,479,084	$68,746,114	$4,267,030	1.07
Total Resource Cost Test (TRC) No Adder	$0.0461	$64,479,084	$62,496,467	-$1,982,617	0.97
Utility Cost Test (UCT)	$0.0283	$39,769,045	$62,496,467	$22,727,422	1.57
Rate Impact Test (RIM)		$154,481,203	$62,496,467	-$91,984,736	0.40
Participant Cost Test (PCT)		$61,007,201	$166,001,096	$104,993,895	2.72
Lifecycle Revenue Impacts ($/kWh)					$0.0000252909
Discounted Participant Payback (years)					3.30

Table 7 - 2020 Residential Energy Efficiency Portfolio Cost-Effectiveness Results

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0410	$23,077,074	$33,518,617	$10,441,543	1.45
Total Resource Cost Test (TRC) No Adder	$0.0410	$23,077,074	$30,471,470	$7,394,396	1.32
Utility Cost Test (UCT)	$0.0286	$16,080,553	$30,471,470	$14,390,917	1.89
Rate Impact Test (RIM)		$80,684,861	$30,471,470	-$50,213,391	0.38
Participant Cost Test (PCT)		$20,866,468	$87,645,333	$66,778,865	4.20
Lifecycle Revenue Impacts ($/kWh)					$0.0000121412
Discounted Participant Payback (years)					0.87

Guidehouse

Memorandum

To: Alesha Pino, PacifiCorp

From: David Basak, Guidehouse

Date: May 21, 2021

Re: Cost-Effectiveness Results for the Home Energy Savings Program - Utah

Guidehouse estimated the cost-effectiveness results for the Utah Home Energy Savings Program, based on 2020 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall program and for the 8 measure categories.

Cost-effectiveness was tested using the 2019 IRP decrement for all measure categories. The program passes the cost-effectiveness for the PTRC, TRC, UCT and PCT tests. The memo consists of the following tables.

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303.728.2500 main
guidehouse.com

Table 1 - Home Energy Savings Inputs

Parameter	Value
Discount Rate	6.92%
Residential Line Loss	6.36%
Residential Energy Rate ($/kWh) [1]	$0.1068
Inflation Rate	2.28%

[1] Future rates determined using a 2.28% annual escalator.

Table 2 – Home Energy Savings Annual Program Costs

Measure Group	Engineering Costs	Utility Admin	Program Delivery	Program Dev.	Incentives	Total Utility Costs	Gross Customer Costs
Building Shell	$0	$1,365	$77,413	$318	$254,124	$333,220	$2,339,798
Energy Kits - DHW	$0	$74	$5,059	$17	$509	$5,659	$509
Energy Kits - Lighting	$0	$26	$5,058	$6	$568	$5,658	$568
HVAC	$0	$37,772	$1,902,635	$8,147	$2,074,130	$4,022,684	$5,581,976
Lighting	$0	$126,437	$621,054	$29,480	$2,107,356	$2,884,326	$7,626,787
Water Heating	$0	$9,614	$545,240	$2,242	$337,624	$894,719	$7,136
Whole Building	$0	$60,752	$871,078	$10,475	$3,781,848	$4,724,152	$0
New Homes	$0	$8,469	$969,216	$1,975	$982,375	$1,962,034	$5,309,693
Total	**$0**	**$244,508**	**$4,996,752**	**$52,659**	**$9,538,534**	**$14,832,453**	**$20,866,468**

Table 3 – Home Energy Savings – Savings by Measure Category

Measure Group	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
Building Shell	434,670	100%	434,670	96%	415,545	45
Energy Kits - DHW	23,639	100%	23,639	89%	21,086	11
Energy Kits - Lighting	8,158	100%	8,158	89%	7,277	12
HVAC	11,126,870	63%	7,026,825	98%	6,864,413	11
Lighting	40,264,550	87%	34,909,365	74%	25,972,567	12
Water Heating	3,061,494	100%	3,061,494	75%	2,308,513	10
Whole Building	14,306,510	100%	14,306,510	95%	13,648,410	15
New Homes	2,697,062	100%	2,697,062	60%	1,607,449	52
Total	**71,922,953**	**87%**	**62,467,722**	**81%**	**50,845,260**	**14**

Table 4 - Benefit/Cost Ratios by Measure Category

Measure Group	PTRC	TRC	UCT	RIM	PCT
Building Shell	0.24	0.22	1.54	0.41	0.51
Energy Kits - DHW	1.56	1.42	1.40	0.30	46.15
Energy Kits - Lighting	0.61	0.55	0.55	0.23	15.91
HVAC	0.51	0.46	0.85	0.32	1.60
Lighting	1.88	1.71	3.82	0.37	5.03
Water Heating	1.69	1.54	0.97	0.29	434.28
Whole Building	10.13	9.21	1.84	0.41	0.00
New Homes	0.55	0.50	1.06	0.37	1.34
Total	**1.34**	**1.22**	**1.79**	**0.37**	**3.83**

Table 5 – Home Energy Savings Program Level Cost-Effectiveness Results

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0440	$21,828,974	$29,222,082	$7,393,109	1.34
Total Resource Cost Test (TRC) No Adder	$0.0440	$21,828,974	$26,565,529	$4,736,556	1.22
Utility Cost Test (UCT)	$0.0299	$14,832,453	$26,565,529	$11,733,077	1.79
Rate Impact Test (RIM)		$71,845,700	$26,565,529	-$45,280,171	0.37
Participant Cost Test (PCT)		$20,866,468	$79,994,528	$59,128,060	3.83
Lifecycle Revenue Impacts ($/kWh)					$0.0000123189
Discounted Participant Payback (years)					2.09

Table 6 through Table 13 provides cost-effectiveness results for all 8 measures.

Table 6 - Home Energy Savings Building Shell Cost-Effectiveness Results (Load Shape – UT_Single_Family_Cooling)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.2972	$2,315,943	$562,995	-$1,752,948	0.24
Total Resource Cost Test (TRC) No Adder	$0.2972	$2,315,943	$511,814	-$1,804,130	0.22
Utility Cost Test (UCT)	$0.0428	$333,220	$511,814	$178,594	1.54
Rate Impact Test (RIM)		$1,237,141	$511,814	-$725,327	0.41
Participant Cost Test (PCT)		$2,339,798	$1,199,647	-$1,140,151	0.51
Lifecycle Revenue Impacts ($/kWh)					$0.0000007389
Discounted Participant Payback (years)					n/a

Table 7 - Home Energy Savings Energy Kits - DHW Cost-Effectiveness Results (Load Shape – Residential_ERWH_7P)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0314	$5,604	$8,723	$3,119	1.56
Total Resource Cost Test (TRC) No Adder	$0.0314	$5,604	$7,930	$2,326	1.42
Utility Cost Test (UCT)	$0.0317	$5,659	$7,930	$2,271	1.40
Rate Impact Test (RIM)		$26,155	$7,930	-$18,225	0.30
Participant Cost Test (PCT)		$509	$23,487	$22,978	46.15
Lifecycle Revenue Impacts ($/kWh)					$0.0000000754
Discounted Participant Payback (years)					n/a

Table 8 - Home Energy Savings Energy Kits – Lighting Cost-Effectiveness Results (Load Shape – Residential_Lighting_7P)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0850	$5,597	$3,394	-$2,203	0.61
Total Resource Cost Test (TRC) No Adder	$0.0850	$5,597	$3,085	-$2,511	0.55
Utility Cost Test (UCT)	$0.0860	$5,658	$3,085	-$2,573	0.55
Rate Impact Test (RIM)		$13,219	$3,085	-$10,134	0.23
Participant Cost Test (PCT)		$568	$9,045	$8,476	15.91
Lifecycle Revenue Impacts ($/kWh)					$0.0000000384
Discounted Participant Payback (years)					n/a

Table 9 - Home Energy Savings HVAC Cost-Effectiveness Results (Load Shape – UT_Single_Family_Cooling)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.1274	$7,401,513	$3,758,124	-$3,643,388	0.51
Total Resource Cost Test (TRC) No Adder	$0.1274	$7,401,513	$3,416,477	-$3,985,036	0.46
Utility Cost Test (UCT)	$0.0692	$4,022,684	$3,416,477	-$606,207	0.85
Rate Impact Test (RIM)		$10,695,094	$3,416,477	-$7,278,617	0.32
Participant Cost Test (PCT)		$5,581,976	$8,904,409	$3,322,433	1.60
Lifecycle Revenue Impacts ($/kWh)					$0.0000301006
Discounted Participant Payback (years)					5.12

Table 10 - Home Energy Savings Lighting Cost-Effectiveness Results (Load Shape – Residential_Lighting_7P)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0275	$6,451,300	$12,113,595	$5,662,295	1.88
Total Resource Cost Test (TRC) No Adder	$0.0275	$6,451,300	$11,012,359	$4,561,059	1.71
Utility Cost Test (UCT)	$0.0123	$2,884,326	$11,012,359	$8,128,033	3.82
Rate Impact Test (RIM)		$29,871,932	$11,012,359	-$18,859,573	0.37
Participant Cost Test (PCT)		$7,626,787	$38,381,020	$30,754,233	5.03
Lifecycle Revenue Impacts ($/kWh)					$0.0000715100
Discounted Participant Payback (years)					1.99

Table 11 - Home Energy Savings Water Heating Cost-Effectiveness Results (Load Shape – Residential_HPWH_7P)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0310	$562,476	$953,097	$390,621	1.69
Total Resource Cost Test (TRC) No Adder	$0.0310	$562,476	$866,452	$303,976	1.54
Utility Cost Test (UCT)	$0.0493	$894,719	$866,452	-$28,267	0.97
Rate Impact Test (RIM)		$2,976,849	$866,452	-$2,110,397	0.29
Participant Cost Test (PCT)		$7,136	$3,098,894	$3,091,758	434.28
Lifecycle Revenue Impacts ($/kWh)					$0.0000095994
Discounted Participant Payback (years)					n/a

Table 12 - Home Energy Savings Whole Building Cost-Effectiveness Results (Load Shape – UT_Single_Family_Cooling)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0065	$942,304	$9,543,225	$8,600,921	10.13
Total Resource Cost Test (TRC) No Adder	$0.0065	$942,304	$8,675,659	$7,733,355	9.21
Utility Cost Test (UCT)	$0.0325	$4,724,152	$8,675,659	$3,951,507	1.84
Rate Impact Test (RIM)		$21,419,946	$8,675,659	-$12,744,287	0.41
Participant Cost Test (PCT)		$0	$21,282,680	$21,282,680	n/a
Lifecycle Revenue Impacts ($/kWh)					$0.0000387003
Discounted Participant Payback (years)					n/a

Table 13 - Home Energy Savings New Homes Cost-Effectiveness Results (Load Shape – UT_Single_Family_Cooling)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.1321	$4,144,237	$2,278,929	-$1,865,307	0.55
Total Resource Cost Test (TRC) No Adder	$0.1321	$4,144,237	$2,071,754	-$2,072,483	0.50
Utility Cost Test (UCT)	$0.0626	$1,962,034	$2,071,754	$109,720	1.06
Rate Impact Test (RIM)		$5,605,365	$2,071,754	-$3,533,611	0.37
Participant Cost Test (PCT)		$5,309,693	$7,095,345	$1,785,652	1.34
Lifecycle Revenue Impacts ($/kWh)					$0.0000031166
Discounted Participant Payback (years)					n/a

Guidehouse

Memorandum

To: Alesha Pino, PacifiCorp

From: David Basak, Guidehouse

Date: May 21, 2021

Re: Cost-Effectiveness Results for the Home Energy Reporting Program - Utah

Guidehouse estimated the cost-effectiveness results for the Utah Home Energy Reporting Program, based on 2020 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall program.

Cost-effectiveness was tested using the 2019 IRP decrement. The program passes the cost-effectiveness for the PTRC, TRC, and UCT tests.

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Table 1 - Home Energy Reporting Inputs

Parameter	Value
Discount Rate	6.92%
Residential Line Loss	6.36%
Residential Energy Rate ($/kWh) [1]	$0.1068
Inflation Rate	2.28%

[1] Future rates determined using a 2.28% annual escalator.

Table 2 – Home Energy Reporting Annual Program Costs

Measure Group	Engineering Costs	Utility Admin	Program Delivery	Program Development	Incentives	Total Utility Costs	Gross Customer Costs
Home Energy Reports	$0	$45,597	$1,017,258	$1,008	$0	$1,063,863	$0
Total	**$0**	**$45,597**	**$1,017,258**	**$1,008**	**$0**	**$1,063,863**	**$0**

Table 3 – Home Energy Reporting Savings by Measure Category

Measure Group	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
Home Energy Reports	67,613,670	100%	67,613,670	100%	67,613,670	1
Total	**67,613,670**	**100%**	**67,613,670**	**100%**	**67,613,670**	**1**

Table 4 - Home Energy Reporting Program Level Cost-Effectiveness Results (Load Shape – UT_Single_Family_Cooling)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0165	$1,063,863	$4,175,065	$3,111,203	3.92
Total Resource Cost Test (TRC) No Adder	$0.0165	$1,063,863	$3,795,514	$2,731,651	3.57
Utility Cost Test (UCT)	$0.0165	$1,063,863	$3,795,514	$2,731,651	3.57
Rate Impact Test (RIM)		$8,449,645	$3,795,514	-$4,654,131	0.45
Participant Cost Test (PCT)		$0	$7,385,782	$7,385,782	n/a
Lifecycle Revenue Impacts ($/kWh)					$0.0002113366
Discounted Participant Payback (years)					n/a

Guidehouse

Memorandum

To: Alesha Pino, PacifiCorp

From: David Basak, Guidehouse

Date: May 21, 2021

Re: Cost-Effectiveness Results for the Low Income Weatherization Program - Utah

Guidehouse estimated the cost-effectiveness results for the Utah Low Income Weatherization Program, based on 2020 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall program.

Cost-effectiveness was tested using the 2019 IRP decrement. The program passes the PTRC, TRC and UCT cost-effectiveness tests.

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Table 1 - Low Income Weatherization Inputs

Parameter	Value
Discount Rate	6.92%
Residential Line Loss	6.36%
Residential Energy Rate ($/kWh)[1]	$0.1068
Inflation Rate	2.28%

[1] Future rates determined using a 2.28% annual escalator.

Table 2 - Low Income Weatherization Annual Program Costs

Measure Group	Engineering Costs	Utility Admin	Program Delivery	Program Development	Incentives	Total Utility Costs	Gross Customer Costs
Low Income Weatherization	$0	$8,213	$4,849	$0	$59,745	$72,807	$0
Total	**$0**	**$8,213**	**$4,849**	**$0**	**$59,745**	**$72,807**	**$0**

Table 3 - Low Income Weatherization Savings by Measure Category

Measure Group	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
Low Income Weatherization	170,107	82%	138,637	100%	138,637	20
Total	**170,107**	**82%**	**138,637**	**100%**	**138,637**	**20**

Table 4 - Low Income Weatherization Program Level Cost-Effectiveness (Load Shape – UT_Single_Family_Cooling)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0409	$72,807	$121,469	$48,661	1.67
Total Resource Cost Test (TRC) No Adder	$0.0409	$72,807	$110,426	$37,619	1.52
Utility Cost Test (UCT)	$0.0409	$72,807	$110,426	$37,619	1.52
Rate Impact Test (RIM)		$278,085	$110,426	-$167,659	0.40
Participant Cost Test (PCT)		$0	$265,023	$265,023	n/a
Lifecycle Revenue Impacts ($/kWh)					$0.0000003827
Discounted Participant Payback (years)					n/a

Guidehouse

Memorandum

To: Alesha Pino, PacifiCorp

From: David Basak, Guidehouse

Date: May 21, 2021

Re: Cost-Effectiveness Results for the Wattsmart Business Program - Utah

Guidehouse estimated the cost-effectiveness results for the Utah Wattsmart Business Program, based on 2020 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall program and for the 13 measure categories.

Cost-effectiveness was tested using the 2019 IRP decrement for all measure categories. The program passes the PTRC, UCT and PCT cost-effectiveness tests. The memo consists of the following tables.

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Table 1 - Utility Inputs

Parameter	Value
Discount Rate	6.92%
Commercial Line Loss	5.86%
Industrial Line Loss	4.40%
Irrigation Line Loss	6.34%
Commercial Energy Rate ($/kWh)[1]	$0.0809
Industrial Energy Rate ($/kWh)[1]	$0.0568
Irrigation Energy Rate ($/kWh)[1]	$0.0728
Inflation Rate	2.28%

[1] Future rates determined using a 2.28% annual escalator.

Table 2 – Annual Wattsmart Business Program Costs by Measure Category

Measure Category	Engineering Costs and Inspection	Utility Admin	Program Delivery	Program Dev.	Incentives	Bill Credits	Total Utility Costs	Gross Customer Costs
Additional Measures	$0	$26,219	$410,842	$15,688	$624,343	$1,314,714	$2,391,806	$3,152,355
Building Shell	$0	$4,771	$72,046	$2,488	$377,570	$0	$456,876	$1,578,715
Compressed Air	$0	$51,562	$890,395	$34,811	$2,746,183	$326,329	$4,049,280	$6,596,981
Direct Install	$0	$69,456	$1,254,973	$23,765	$4,015,690	$0	$5,363,883	$1,338,563
Energy Management	$0	$105,681	$1,613,926	$65,075	$745,818	$251,002	$2,781,501	$1,268,423
Food Ser. Equip.	$0	$440	$8,360	$240	$13,950	$0	$22,991	$20,053
HVAC	$0	$160,869	$1,912,311	$65,218	$5,474,951	$770,364	$8,383,714	$18,086,540
Irrigation	$0	$4,988	$800,502	$5,287	$335,953	$0	$1,146,730	$1,023,538
Lighting	$0	$154,335	$3,784,999	$104,354	$6,524,850	$0	$10,568,538	$24,682,132
Motors	$0	$12,538	$144,683	$12,419	$230,958	$834,894	$1,235,493	$1,624,112
Oil & Gas	$0	$56	$992,352	$264	$24,000	$0	$1,016,672	$54,176
Refrigeration	$0	$10,409	$126,404	$5,675	$456,189	$148,421	$747,097	$1,581,612
Energy Proj Mgr Co-fund	$0	$0	$0	$0	$1,243,281	$0	$1,243,281	$0
Total	**$0**	**$601,324**	**$12,011,794**	**$335,282**	**$22,813,736**	**$3,645,724**	**$39,407,861**	**$61,007,201**

Table 3 – Annual Wattsmart Business Program Savings by Measure Category

Measure Category	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
Additional Measures	9,225,621	87%	8,026,290	76%	6,099,981	15
Building Shell	1,463,101	87%	1,272,898	76%	967,402	17
Compressed Air	20,471,636	100%	20,412,357	86%	17,537,761	14
Direct Install	13,975,513	100%	13,975,513	91%	12,717,716	16
Energy Management	38,269,158	100%	38,269,158	89%	34,059,551	3
Food Ser. Equip.	140,984	87%	122,656	79%	96,815	14
HVAC	38,353,298	99%	37,999,983	60%	22,611,942	15
Irrigation	3,108,899	90%	2,798,009	79%	2,210,427	13
Lighting	61,368,730	98%	60,441,039	89%	53,907,079	14
Motors	7,303,461	91%	6,646,150	90%	5,981,535	15
Oil & Gas	155,312	87%	135,121	76%	102,692	15
Refrigeration	3,337,405	100%	3,337,405	51%	1,702,077	14
Energy Proj Mgr Co-fund	0	n/a	0	n/a	0	0
Total	**197,173,117**	**98%**	**193,436,579**	**82%**	**157,994,977**	**12**

Table 4 - Benefit/Cost Ratios by Measure Category

Measure Category	PTRC	TRC	UCT	RIM	PCT
Additional Measures	0.81	0.73	1.28	0.42	2.24
Building Shell	0.48	0.44	1.23	0.39	1.05
Compressed Air	1.28	1.17	2.01	0.48	2.72
Direct Install	2.71	2.46	1.18	0.36	12.98
Energy Management	1.48	1.34	1.53	0.38	8.01
Food Ser. Equip.	2.05	1.86	2.02	0.43	6.09
HVAC	0.90	0.82	1.33	0.38	2.25
Irrigation	0.71	0.65	0.92	0.37	2.38
Lighting	1.01	0.92	2.27	0.42	2.38
Motors	1.35	1.23	2.45	0.53	3.21
Oil & Gas	0.06	0.05	0.05	0.05	2.07
Refrigeration	0.83	0.75	1.11	0.39	2.02
Energy Proj Mgr Co-fund	n/a	n/a	n/a	n/a	n/a
Total	**1.07**	**0.97**	**1.59**	**0.41**	**2.72**

Table 5 – Wattsmart Business Program Level Cost-Effectiveness Results

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0461	$64,117,900	$68,746,114	$4,628,214	1.07
Total Resource Cost Test (TRC) No Adder	$0.0461	$64,117,900	$62,496,467	-$1,621,433	0.97
Utility Cost Test (UCT)	$0.0283	$39,407,861	$62,496,467	$23,088,606	1.59
Rate Impact Test (RIM)		$154,120,019	$62,496,467	-$91,623,552	0.41
Participant Cost Test (PCT)		$61,007,201	$166,001,096	$104,993,895	2.72
Lifecycle Revenue Impacts ($/kWh)					$0.0000252909
Discounted Participant Payback (years)					3.30

Table 6 through Table 18 provide cost-effectiveness results for all 13 measures.

Table 6 - Wattsmart Business Additional Measures Cost-Effectiveness Results (Load Shape – UT_Miscellaneous_Mfg_General)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0648	$4,163,253	$3,365,254	-$798,000	0.81
Total Resource Cost Test (TRC) No Adder	$0.0648	$4,163,253	$3,059,321	-$1,103,932	0.73
Utility Cost Test (UCT)	$0.0373	$2,391,806	$3,059,321	$667,515	1.28
Rate Impact Test (RIM)		$7,283,124	$3,059,321	-$4,223,802	0.42
Participant Cost Test (PCT)		$3,152,355	$7,060,287	$3,907,932	2.24
Lifecycle Revenue Impacts ($/kWh)					$0.0000128263
Discounted Participant Payback (years)					6.39

Table 7 - Wattsmart Business Building Shell Cost-Effectiveness Results (Shape – UT_Miscellaneous_Space_Cool)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.1142	$1,279,129	$617,726	-$661,404	0.48
Total Resource Cost Test (TRC) No Adder	$0.1142	$1,279,129	$561,569	-$717,560	0.44
Utility Cost Test (UCT)	$0.0408	$456,876	$561,569	$104,693	1.23
Rate Impact Test (RIM)		$1,429,312	$561,569	-$867,744	0.39
Participant Cost Test (PCT)		$1,578,715	$1,657,092	$78,377	1.05
Lifecycle Revenue Impacts ($/kWh)					$0.0000023272
Discounted Participant Payback (years)					23.89

Table 8 - Wattsmart Business Compressed Air Cost-Effectiveness Results (Load Shape – UT_Miscellaneous_Mfg_General)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0402	$6,970,934	$8,941,816	$1,970,881	1.28
Total Resource Cost Test (TRC) No Adder	$0.0402	$6,970,934	$8,128,923	$1,157,989	1.17
Utility Cost Test (UCT)	$0.0234	$4,049,280	$8,128,923	$4,079,643	2.01
Rate Impact Test (RIM)		$17,108,965	$8,128,923	-$8,980,042	0.48
Participant Cost Test (PCT)		$6,596,981	$17,948,424	$11,351,443	2.72
Lifecycle Revenue Impacts ($/kWh)					$0.0000292028
Discounted Participant Payback (years)					3.24

Table 9 - Wattsmart Business Direct Install Cost-Effectiveness Results (Load Shape – UT_Miscellaneous_Lighting)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0181	$2,566,286	$6,944,821	$4,378,535	2.71
Total Resource Cost Test (TRC) No Adder	$0.0181	$2,566,286	$6,313,474	$3,747,188	2.46
Utility Cost Test (UCT)	$0.0379	$5,363,883	$6,313,474	$949,590	1.18
Rate Impact Test (RIM)		$17,521,904	$6,313,474	-$11,208,430	0.36
Participant Cost Test (PCT)		$1,338,563	$17,376,151	$16,037,588	12.98
Lifecycle Revenue Impacts ($/kWh)					$0.0000319261
Discounted Participant Payback (years)					n/a

Table 10 - Wattsmart Business Energy Management Cost-Effectiveness Results (Load Shape – UT_Miscellaneous_Mfg_General)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0290	$3,164,580	$4,677,706	$1,513,126	1.48
Total Resource Cost Test (TRC) No Adder	$0.0290	$3,164,580	$4,252,460	$1,087,880	1.34
Utility Cost Test (UCT)	$0.0255	$2,781,501	$4,252,460	$1,470,959	1.53
Rate Impact Test (RIM)		$11,158,379	$4,252,460	-$6,905,920	0.38
Participant Cost Test (PCT)		$1,268,423	$10,158,041	$8,889,618	8.01
Lifecycle Revenue Impacts ($/kWh)					$0.0001047727
Discounted Participant Payback (years)					0.21

Table 11 - Wattsmart Business Food Service Equipment Cost-Effectiveness Results (Load Shape – UT_Grocery_Refrigeration)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0254	$24,869	$51,009	$26,140	2.05
Total Resource Cost Test (TRC) No Adder	$0.0254	$24,869	$46,372	$21,503	1.86
Utility Cost Test (UCT)	$0.0234	$22,991	$46,372	$23,381	2.02
Rate Impact Test (RIM)		$108,397	$46,372	-$62,024	0.43
Participant Cost Test (PCT)		$20,053	$122,152	$102,099	6.09
Lifecycle Revenue Impacts ($/kWh)					$0.0000002017
Discounted Participant Payback (years)					0.76

Table 12 - Wattsmart Business HVAC Cost-Effectiveness Results (Load Shape – UT_Miscellaneous_HVAC_Aux)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0568	$13,671,034	$12,293,107	-$1,377,927	0.90
Total Resource Cost Test (TRC) No Adder	$0.0568	$13,671,034	$11,175,552	-$2,495,482	0.82
Utility Cost Test (UCT)	$0.0349	$8,383,714	$11,175,552	$2,791,839	1.33
Rate Impact Test (RIM)		$29,315,496	$11,175,552	-$18,139,944	0.38
Participant Cost Test (PCT)		$18,086,540	$40,649,835	$22,563,295	2.25
Lifecycle Revenue Impacts ($/kWh)					$0.0000550851
Discounted Participant Payback (years)					7.81

Table 13 - Wattsmart Business Irrigation Cost-Effectiveness Results (Load Shape – UT_Irrigation_General)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0765	$1,619,372	$1,154,699	-$464,672	0.71
Total Resource Cost Test (TRC) No Adder	$0.0765	$1,619,372	$1,049,727	-$569,645	0.65
Utility Cost Test (UCT)	$0.0542	$1,146,730	$1,049,727	-$97,003	0.92
Rate Impact Test (RIM)		$2,806,001	$1,049,727	-$1,756,274	0.37
Participant Cost Test (PCT)		$1,023,538	$2,436,297	$1,412,758	2.38
Lifecycle Revenue Impacts ($/kWh)					$0.0000061480
Discounted Participant Payback (years)					4.51

Table 14 - Wattsmart Business Lighting Cost-Effectiveness Results
(Load Shape – UT_Miscellaneous_Lighting)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0475	$26,060,831	$26,401,512	$340,680	1.01
Total Resource Cost Test (TRC) No Adder	$0.0475	$26,060,831	$24,001,374	-$2,059,457	0.92
Utility Cost Test (UCT)	$0.0193	$10,568,538	$24,001,374	$13,432,836	2.27
Rate Impact Test (RIM)		$57,194,987	$24,001,374	-$33,193,613	0.42
Participant Cost Test (PCT)		$24,682,132	$58,827,857	$34,145,724	2.38
Lifecycle Revenue Impacts ($/kWh)					$0.0001079445
Discounted Participant Payback (years)					4.50

Table 15 - Wattsmart Business Motors Cost-Effectiveness Results
(Load Shape – UT_Miscellaneous_Mfg_General)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0388	$2,466,235	$3,332,967	$866,732	1.35
Total Resource Cost Test (TRC) No Adder	$0.0388	$2,466,235	$3,029,970	$563,735	1.23
Utility Cost Test (UCT)	$0.0194	$1,235,493	$3,029,970	$1,794,477	2.45
Rate Impact Test (RIM)		$5,725,256	$3,029,970	-$2,695,286	0.53
Participant Cost Test (PCT)		$1,624,112	$5,219,584	$3,595,473	3.21
Lifecycle Revenue Impacts ($/kWh)					$0.0000081847
Discounted Participant Payback (years)					3.69

Table 16 - Wattsmart Business Oil & Gas Cost-Effectiveness Results
(Load Shape – UT_Miscellaneous_Mfg_General)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.9465	$1,033,846	$56,933	-$976,913	0.06
Total Resource Cost Test (TRC) No Adder	$0.9465	$1,033,846	$51,757	-$982,089	0.05
Utility Cost Test (UCT)	$0.9307	$1,016,672	$51,757	-$964,915	0.05
Rate Impact Test (RIM)		$1,083,482	$51,757	-$1,031,725	0.05
Participant Cost Test (PCT)		$54,176	$111,908	$57,732	2.07
Lifecycle Revenue Impacts ($/kWh)					$0.0000031330
Discounted Participant Payback (years)					5.60

Table 17 - Wattsmart Business Refrigeration Cost-Effectiveness Results (Load Shape – UT_Warehouse_Refrigeration)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	$0.0628	$1,097,530	$908,564	-$188,966	0.83
Total Resource Cost Test (TRC) No Adder	$0.0628	$1,097,530	$825,968	-$271,563	0.75
Utility Cost Test (UCT)	$0.0427	$747,097	$825,968	$78,871	1.11
Rate Impact Test (RIM)		$2,141,436	$825,968	-$1,315,468	0.39
Participant Cost Test (PCT)		$1,581,612	$3,190,187	$1,608,575	2.02
Lifecycle Revenue Impacts ($/kWh)					$0.0000042779
Discounted Participant Payback (years)					10.68

Table 18 - Wattsmart Business Energy Manager Co-Funding Cost-Effectiveness Results (Load Shape – n/a)

Cost-Effectiveness Test	Levelized $/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	n/a	$0	$0	$0	n/a
Total Resource Cost Test (TRC) No Adder	n/a	$0	$0	$0	n/a
Utility Cost Test (UCT)	n/a	$1,243,281	$0	-$1,243,281	n/a
Rate Impact Test (RIM)		$1,243,281	$0	-$1,243,281	n/a
Participant Cost Test (PCT)		$0	$1,243,281	$1,243,281	n/a
Lifecycle Revenue Impacts ($/kWh)					n/a
Discounted Participant Payback (years)					n/a

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Confidential Appendix C
Confidential Cost Effectiveness
2020 Utah Peak Reduction

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