

October 9, 2020

***VIA ELECTRONIC FILING***

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

Attn: Gary Widerburg  
 Commission Secretary

RE: Advice No. 20-10  
 Proposed Changes to Schedule 111, Residential Energy Efficiency Program  
 Docket No. 20-035-T09

Enclosed for electronic filing are the proposed tariff sheets associated with Tariff P.S.C.U. No. 50 of PacifiCorp, d.b.a. Rocky Mountain Power (the “Company”), applicable to electric service in the State of Utah. Pursuant to the requirement of Rule R746-405-2(D), the Company states that the proposed tariff sheets do not constitute a violation of state law or Commission rule. The Company respectfully requests an effective date of November 9, 2020 for these changes.

Second Revision of Sheet No. 140.1	Schedule 111	Residential Energy Efficiency
Fourth Revision of Sheet No. 140.3	Schedule 111	Residential Energy Efficiency
Fifth Revision of Sheet No. 140.4	Schedule 111	Residential Energy Efficiency
Fifth Revision of Sheet No. 140.5	Schedule 111	Residential Energy Efficiency
Fourth Revision of Sheet No. 140.6	Schedule 111	Residential Energy Efficiency

The purpose of this filing is to propose changes to the Residential Energy Efficiency Program (“Program”) administered through Electric Service Schedule No. 111. These tariff changes align with targets illustrated in the table below, filed in the Demand Side Management November 1<sup>st</sup> Deferred Account and Forecast Report on November 1, 2019, in Docket No. 19-035-28.

**2020 Budget and Savings Forecast**

***	2020 MWh Savings Forecast	2020 Budget Forecast
Wattsmart Homes	67,071	\$16,858,662

**DESCRIPTION OF CHANGES**

Proposed adjustments are listed below, with further explanation provided in subsequent sections.

1. Miscellaneous updates to adjust incentives, add new offerings, retire existing offerings, and streamline offerings for the following measure categories:
  - a. Lighting;
  - b. Appliances;
  - c. Building Envelope;

- d. HVAC;
- e. New Constructions; and
- f. Insulation;

### MEASURE UPDATES

As a result of the Company’s ongoing analysis of its offerings, including reviews of eligibility requirements, savings assumptions, and incentive levels, several proposed changes have been identified to improve Program offerings. The purpose of these changes is to better align with measure research, market conditions, and cost-effectiveness thresholds. Exhibit A, attached hereto, includes the proposed changes to Schedule 111 that are described below.

#### Applicability

- The Applicable section on Sheet 111 will be updated to reference schedules listed on Schedule 193, Demand Side Management Cost Adjustment, in order to prevent any inadvertent omissions of applicable service schedules.

#### Table 1 – Lighting Incentives

- **LED** – The maximum cost-effective incentive for all equipment types will be decreased to \$3 per lamp/fixture to maintain cost-effectiveness. The currently offered incentive amounts for the various LED equipment type lamps and fixtures are already set at or below the proposed \$3 maximum, and are not being adjusted as part of this advice letter.

**Table 1 – Lighting Incentives**

Measure	Equipment Type	Minimum Efficiency Requirement	Current Maximum Incentive	Proposed Maximum Incentive
LED	General Purpose	ENERGY STAR Qualified	\$12/lamp	\$3/lamp
	Specialty		\$12/lamp	\$3/lamp
	Fixtures		\$10/fixture	\$3/fixture

#### Table 2 – Appliance Incentives

- **Room Air Conditioners and Low Flow Showerheads/Aerators** – These measures are being streamlined in the tariff to only specify the equipment type and maximum incentive amounts that are cost-effective. The sub-category and minimum energy efficiency requirements currently in place remain unchanged as part of this filing, but will be managed and updated as necessary going forward on the Company’s website to allow for flexibility when adapting to market trends, industry standards, and qualified equipment.
- **Heat Pump Water Heaters** – This measure is being modified to combine the Tier 1 and Tier 2 incentive offerings, and will also remove the < 55 gallon minimum requirement so larger tank sizes are eligible. The maximum incentive for this offering will remain unchanged. The offered incentive amounts will be set at \$550 for a self-install and \$700 for a non-self install, with a minimum efficiency requirement of Tier 1 or better under the Advanced Water Heater Specifications.

- **Thermostatic Shower Restrict Valve** – This is a new measure being added to the Program and will be initially available through the mid-market channel. Thermostatic Shower Restrict Valve save energy by minimizing shower flow and reducing the amount of water that needs to be heated. The maximum incentive for this new offering will be \$30. The initially offered incentive amounts will be set at \$10 for valves with a flow rate equal to two gallons per minute, and \$20 for valves with a flow rate of less than two gallons per minute.
- **WiFi Smart Plug and Light Switch** – These are new measures being added to the Program that will be initially available at the point of purchase for customers through the mid-market and instant rebate channels, as well as post-purchase applications. WiFi smart plugs and light switches will enable customers to control and schedule the energy usage from their electrical outlets and lights to be more energy efficient. The maximum and initially offered incentive amounts will be set at \$10 per plug/light switch.
- **Smart Home Energy Management System Bundle** – This is a new measure being added to the Program that will be initially available through the mid-market and post-purchase application channels. This offering will incentivize customers to gain more control over their energy use by enabling them to better control and schedule usage from their electrical outlets and lighting systems with a central hub. Incentives for this offering will be based on the smart equipment bundled, with a maximum incentive set at \$275. The initially offered incentive amount will be \$150 for bundles consisting of 1 hub, 3 smart switches, and 10 smart plugs. A \$235 incentive will be offered to customers who also include a smart thermostat in the bundle.
- **Lighting Occupancy Sensor** – This is a new measure being added to the Program that will be initially available at the point of purchase for customers through the mid-market and instant rebate channels, as well as downstream post-purchase applications. Occupancy sensors will automatically turn on lights when motion is detected, and then turn lights off when motion ceases for a certain amount of time, which will save energy. The maximum and initially offered incentive amounts will be set at \$10 per sensor.
- **Room Air Cleaner** – This is a new measure being added to the Program that will be initially available through the mid-market, instant rebate, and post-purchase application channels. Room air cleaners/purifiers are commonly used in residences to remove fine particles such as dust, pollen, smoke, and pet dander from indoor air. This offering will incentivize customers to replace their existing equipment with ENERGY STAR certified equipment, which are 40 percent more efficient than non-certified air cleaner models. The maximum incentive for this new offering will be \$50. The initially offered incentive amount will be set at \$25 for equipment with a Clean Air Delivery Rating of 30-200.
- **Heat Pump Clothes Dryer** – This is a new measure being added to the Program that will be initially available through the instant rebate channel. Heat pump clothes dryers make use of an integrated heat pump system, unlike traditional, less energy efficient electric dryers that use a heating element. Initial minimum requirements for eligible dryers will be a Utility Combined Energy Factor range of 3.00 – 8.00 and 4 cubic feet or greater. The maximum and initially offered incentive amounts will be set at \$230 per unit.

- **Clothes Washer** – This is a new measure being added to the Program that will be initially available through the instant rebate channel. Initial minimum requirements for eligible washers will be ENERGY STAR certification, front load style and 2.5 cubic feet or greater. The maximum and initially offered incentive for this new offering will be set at \$25.
- **Refrigerator** – This is a new measure being added to the Program that will be initially available through the instant rebate channel. Initial minimum requirements for eligible units will be ENERGY STAR certification, side mounted freezer and 7.75 cubic feet or greater. The maximum and initially offered incentive for this new offering will be set at \$25.
- **Freezer** – This is a new measure being added to the Program that will be initially available through the instant rebate channel. Initial minimum requirements for eligible units will be ENERGY STAR certification, chest type and 7.75 cubic feet or greater. The maximum and initially offered incentive for this new offering will be set at \$25.
- **Dishwasher** – This is a new measure being added to the Program that will be initially available through the instant rebate channel. The initial minimum requirement for eligible units will be ENERGY STAR certification. The maximum and initially offered incentive for this new offering will be set at \$20.

The tables below provide a visual of the streamlined Appliance Table 2 in Schedule 111 as well as a detailed breakout of the offerings as discussed above. The detailed breakout of offerings will be maintained on the Company’s website. For approved measure types, incentive and offering changes at or below the maximum amounts will occur through the 45-day notice process. Sub-category and minimum requirements will be updated as needed through the day to day operation of the Company’s energy efficiency portfolio to adapt and evolve with market trends, industry standards, and qualified equipment.

**Table 2 – Appliance Incentives (Tariff Streamlined)**

Equipment Type	Maximum Incentive “up to”
Room Air Conditioner	\$20
Heat Pump Water Heater	\$700
Low Flow Showerhead	\$31
Low Flow Aerator	\$5
Thermostatic Shower Restrict Valve	\$30
WiFi Smart Plug	\$10
WiFi Smart Light Switch	\$10
Smart Home Energy Management System Bundle	\$275
Lighting Occupancy Sensor	\$10
Room Air Cleaner	\$50
Heat Pump Clothes Dryer	\$230
Clothes Washer	\$25
Refrigerator	\$25
Freezer	\$25
Dishwasher	\$20

**Table 2 - Appliance Incentives (Website Detailed)**

Equipment Type	Sub-Category	Minimum Requirements	Offered Incentive
Room Air Conditioner	--	ENERGY STAR	\$20
Heat Pump Water Heater	Non-Self Install	AWHS $\geq$ Tier 1	\$700
	Self-Install	AWHS $\geq$ Tier 1	\$550
Low Flow Showerhead	--	Flow Rate < 2.0 GPM	\$31
Low Flow Aerator	--	Flow Rate < 1.5 GPM	\$5
Thermostatic Shower Restrict Valve	--	Flow Rate = 2.0 GPM	\$10
	--	Flow Rate < 2.0 GPM	\$30
WiFi Smart Plug	--	--	\$10
WiFi Smart Light Switch	--	--	\$10
Smart Home Energy Management System	Bundle 1	1 hub, 3 smart switches, and 10 smart plugs	\$150
	Bundle 2	1 hub, 3 smart switches, 10 smart plugs, and 1 smart thermostat	\$235
Lighting Occupancy Sensor	--	--	\$10
Room Air Cleaner	--	ENERGY STAR; 30-200 CADR	\$25
Heat Pump Clothes Dryer	--	UCEF 3.00-8.00; $\geq$ 4 cubic ft.	\$230
Clothes Washer	--	ENERGY STAR; $\geq$ 2.5 cubic ft.	\$25
Refrigerator	--	ENERGY STAR; $\geq$ 7.75 cubic ft.	\$25
Freezer	--	ENERGY STAR; $\geq$ 7.75 cubic ft.	\$25
Dishwasher	--	ENERGY STAR	\$20

**Table 3 – Building Envelope Incentives**

- **Smart Thermostats** – This measure is being shifted from the Building Envelope Table 3 to the HVAC Table 4 in Schedule 111. Additional details are provided in the Table 4 section below.
- **Windows** – This is a new measure being added to the Program to promote the installation of energy efficient windows, and will initially be available through the mid-market, instant rebate, and post-purchase application channels. The maximum incentive for this new offering will be \$3 per square foot. The initially offered incentive amounts will be set at \$1 / sq. ft. for windows with a U-Factor between 0.30-0.23, and \$3 / sq. ft. for windows with a U-Factor less than or equal to 0.22.
- **Infiltration Control (Air Sealing)** – This is a new measure being added to the Program that will initially be available through the post-purchase application channel. Lowering the air infiltration rate by sealing small leaks around window frames, doorframes, power outlets, plumbing, and wall corners can provide significant energy savings. The maximum incentive for this new offering will be \$0.30 per square foot. The initially offered incentive will be set at \$0.10 per square foot.

The tables below provide a visual of the streamlined Building Envelope Table 3 in Schedule 111 as well as a detailed breakout of the offerings as discussed above. The detailed breakout of offerings will be maintained on the Company's website. For approved measure types, incentive and offering changes at or below the maximum amounts will occur through the 45-day notice process. Sub-category and minimum requirements will be updated as needed through the day to day operation of the Company's energy efficiency portfolio to adapt and evolve with market trends, industry standards, and qualified equipment.

**Table 3 – Building Envelope Incentives (Tariff Streamlined)**

Measure Type	Maximum Incentive “up to”
Windows	\$3/square foot
Infiltration Control (Air Sealing)	\$0.30/square foot

**Table 3 - Building Envelope Incentives (Website Detailed)**

Measure Type	Minimum Efficiency Requirement	Offered Incentive
Windows	U-Factor 0.30-0.23	\$1 / sq. ft.
	U-Factor $\leq$ 0.22	\$3 / sq. ft.
Infiltration Control (Air Sealing)	--	\$0.10 / sq. ft.

**Table 4 – HVAC Incentives**

- **Gas Furnace Electronically Commutated Motor** – This offering is being retired due to electronically commutated motors being adopted as Federal Standard as of July 3, 2019.
- **Evaporative Cooler, Central Air Conditioner, Heat Pump, and Whole House Ventilation Fan** – These measures are being streamlined in the tariff to only specify the measure type and maximum incentive amounts that are cost-effective. The sub-category, minimum energy efficiency requirements, and offered incentives currently in place remain unchanged as part of this filing, but will be managed and updated as necessary going forward on the Company’s website to allow for flexibility when adapting to market trends, industry standards, and qualified equipment.
- **Dual Fuel Heat Pump** – Dual fuel heat pumps are being added to the Program as a new offering under the Heat Pump measure type that will initially be available through the post-purchase application channel. Dual-fuel heat pumps work in conjunction with gas furnaces to deliver high efficiency air conditioning and heating in the spring, summer, and fall. During the coldest months, gas furnaces provide backup heat, if necessary. Dual fuel technology combines the cooling and heating performance from a heat pump with the consistent heating capacity of a gas furnace. What makes this system so precise and energy efficient for heating is that it seamlessly alternates between the two energy sources for heating comfort. The maximum incentive for the Heat Pump measure type in Schedule 111 is currently set at \$4,000. The initially offered incentive amounts for this new sub-category offering will be set at \$3,000 for electric conversion dual fuel heat pumps in Climate Zones 3, 5, and 6, \$1,000 for gas conversion dual fuel heat pumps in Climate Zone 3, and \$2,000 for gas conversion dual fuel heat pumps in Climate Zones 5 and 6. Additionally, the Company would like to note that it worked in conjunction with Dominion Energy Utah (“Dominion”) on this measure to model appropriate customer offerings by climate zone in an effort to align customer benefits for both utilities. It is the Company’s understanding that Dominion will be seeking Commission approval to offer incentives for this measure type beginning in calendar year 2021. However, the Company’s proposal for this offering is cost-effective on its own and is not dependent on the approval of any action Dominion may take concerning this measure type.

- **Duct Sealing** – This is an existing measure being modified to lower the maximum incentive in the tariff. Currently offered incentives are also being updated to include incentives for duct sealing with and without insulation, as well as electrically heated and electrically cooled homes. The new maximum incentive for duct sealing in the tariff will be \$450. The modified offered incentives will be set at \$250 and \$150 for duct sealing with and without insulation in electrically cooled homes, respectively, and \$450 and \$250 for duct sealing with and without insulation in electrically heated homes, respectively. Consistent with other offerings, this measure will be streamlined in the tariff to only specify the measure type and maximum incentive, with the sub-categories and other requirements for offered incentives being managed on the Company’s website.
- **Smart Thermostat** – As stated in the previous section, this measure is being shifted from Table 3 in Schedule 111 to Table 4. This measure is also being streamlined in the tariff to only specify the measure type and maximum incentive amounts that are cost-effective. The maximum incentive amount will remain at \$100, and the offered incentive amount will be adjusted to \$75 for all heating types.
- **Engine Block Heater Control** – This is a new measure being added to the Program that will initially be available through the mid-market and post-purchase application channels. Customers who use engine block heaters tend to plug them in the night before to keep their engine block from freezing overnight. Heater controls will give customers the ability to schedule the heater and reduce using more energy consumption than is necessary to heat the engine block. The maximum incentive for this new offering will be \$150. The initially offered incentive will be set at \$100.
- **Bathroom Exhaust Fan** – This is a new measure being added to the Program that will initially be available through the mid-market, instant rebate, and post-purchase application channels. The maximum and offered incentive amounts for this new offering will be set at \$10 for ENERGY STAR fans with 20-200 CFM non-continuous ventilation.

The tables below provide a visual of the streamlined HVAC Table 4 in Schedule 111 as well as a detailed breakout of the offerings as discussed above. The detailed breakout of offerings will be maintained on the Company’s website. For approved measure types, incentive and offering changes at or below the maximum amounts will occur through the 45-day notice process. Sub-categories and minimum requirements will be updated as needed through the day to day operation of the Company’s energy efficiency portfolio to adapt and evolve with market trends, industry standards, and qualified equipment.

**Table 4 – HVAC Incentives (Tariff Streamlined)**

Measure Type	Maximum Incentive “up to”
Evaporative Cooler	\$200
Central Air Conditioner	\$400
Heat Pump	\$4,000
Duct Sealing	\$450
Whole House Ventilation Fan	\$125
Rooftop Heat Tape Timer	\$100
Smart Thermostat	\$100
Engine Block Heater Control	\$150
Bathroom Exhaust Fan	\$10

**Table 4 – HVAC Incentives (Website Detailed)**

Measure Type	Sub-Category	Minimum Efficiency Requirement	Offered Incentive		
Evaporative Cooler	--	500 – 1,999 CFM	\$50		
		2,000 – 3,499 CFM	\$100		
		≥ 3,500 CFM	\$200		
Central Air Conditioner	--	≥ 15 SEER	\$125		
	--	≥ 17 SEER	\$200		
	--	≥ 20 SEER	\$400		
Heat Pump	Air Source Upgrade		≥ 9.0 HSPF, ≥15 SEER	\$300	
			≥ 9.5 HSPF, ≥ 16 SEER	\$500	
	Air Source Conversion		≥ 9.0 HSPF, ≥15 SEER	\$3,500	
			≥ 9.5 HSPF, ≥ 16 SEER	\$4,000	
	Ground Source Conversion		ENERGY STAR Certified	\$3,000	
	Ductless	Supplemental Heat		\$700	
		Single-Head		≥ 9.5 HSPF, ≥ 16 SEER	\$1,900
		Multi-Head			\$2,500
	Dual Fuel – Climate Zone 3	Gas Conversion		≥ 9.0 HSPF, ≥ 14 SEER, ≥ 90 AFUE	\$1,000
		Electric Conversion			\$3,000
Dual Fuel – Climate Zones 5-6	Gas Conversion		\$2,000		
	Electric Conversion		\$3,000		
Duct Sealing	Electric Heat		Without Insulation	\$250	
			With Insulation ≥ R-8	\$450	
	Electric Cooling		Without Insulation	\$150	
			With Insulation ≥ R-8	\$250	
Whole House Ventilation Fan	--	≥ 2,000 CFM	\$125		
Rooftop Heat Tape Timer	--	--	\$100		
Smart Thermostat	--	ENERGY STAR Certified	\$75		
Engine Block Heater Control	--	Wall Mounted, Engine Mounted or Extension Cord	\$100		
Bathroom Exhaust Fan	--	ENERGY STAR Certified; 20-200 CFM Non-Continuous	\$10		

Table 5 – New Construction Incentives

- **Heat Pump Water Heater** – Heat pump water heaters are already available to existing homes via Table 2 – Appliance Incentives. This offering is now also being added as a specific standalone measure for new homes that will initially be available through the downstream channel. The maximum incentive for this new homes standalone offering will be \$800. The initially offered incentive will be set at \$800 for heat pump water heaters that are greater than or equal to 1.8 Uniform Energy Factor and fall under Northwest Energy Efficiency Alliance Tiers 1 or 2.
- **Heat Pump** – Air source, ground source, and ductless heat pumps are already available to existing homes via Table 4 – HVAC Incentives, with dual fuel heat pumps also being added as described above in the Table 4 section. Heat pumps are also now being added as a



specific standalone measure for new homes that will initially be available through the downstream channel. The maximum incentive for the new homes standalone heat pump offering will be \$2,000. The initially offered incentives will be set at \$1,000 for dual fuel and air source heat pumps in Climate Zone 3, and \$2,000 for dual fuel and air source heat pumps in Climate Zones 5 and 6, and other minimum requirements as specified in Table 5 below.

For consistency, Table 5 is being streamlined in Schedule 111 to only reflect the measure type and maximum incentive amounts. The tables below provide a visual of the streamlined New Construction Table 5 in Schedule 111 as well as a detailed breakout of the offerings as discussed above. The detailed breakout of offerings will be maintained on the Company's website. For approved measure types, incentive and offering changes at or below the maximum amounts will occur through the 45-day notice process. Minimum requirements and other qualifying parameters will be updated as needed through the day to day operation of the Company's energy efficiency portfolio to adapt and evolve with market trends, industry standards, and qualified equipment. Note that the current standalone offerings for Smart Thermostats, Central Air Conditioners, and Whole Home are unaltered as part of this filing.

**Table 5 – New Construction Incentives (Tariff Streamlined)**

Measure Type	Customer/Mid-Market Incentive “up to”
Smart Thermostat	\$50
Central Air Conditioner	\$350
Whole Home	\$1,000
Heat Pump Water Heater	\$800
Heat Pump	\$2,000

**Table 5 – New Construction Incentives (Website Detailed)**

Measure Type	Minimum Efficiency Requirement		Offered Incentive	
			Single-Family	
			Electrically Heated	Electrically Cooled
Smart Thermostat	ENERGY STAR Certified		\$50	
Central Air Conditioner	15 to 16.9 SEER		\$100	
	17 to 19.9 SEER		\$200	
	≥ 20 SEER		\$350	
Whole Home	ENERGY STAR 3.0 Certification		\$25	
	HERS Index 56-62		\$350	\$175
	HERS Index 49-55		\$600	\$300
	HERS Index 48 or lower		\$1,000	\$500
Heat Pump Water Heater	≥ 1.8 UEF, NEEA Tier 2 and above		\$800	
Heat Pump	Dual Fuel with Gas Backup	HSPF ≥ 9, SEER ≥ 15, AFUE ≥ 90	Climate Zone 3 NEEA Tier 1 – 3	\$1,000
			Climate Zones 5-6 NEEA Tier 1 – 3	\$2,000
	Air Source with Electric Backup	HSPF ≥ 9, SEER ≥ 15, AFUE ≥ 90	Climate Zone 3 NEEA Tier 1 – 3	\$1,000
			Climate Zone 5-6 NEEA Tier 1 – 3	\$2,000

**Table 6 – Insulation Incentives**

- Insulation** – The current maximum incentive in the tariff is \$0.65 per square foot for attic/ceiling insulation. Floor and wall insulation are being added as additional offerings with the same maximum incentive amount. Initially offered incentives for floor and wall insulation will range from \$0.10/sq. ft. to \$0.65/sq. ft., and \$0.25/sq. ft. to \$0.65/sq. ft., respectively, based on electric heating vs. electric cooling and whether it is contractor installed or self-installed.

For consistency, Table 6 is being streamlined in Schedule 111 to only reflect the measure type and maximum incentive amounts. The tables below provide a visual of the streamlined Insulation Table 6 in Schedule 111 as well as a detailed breakout of the offerings as discussed above. The detailed breakout of offerings will be maintained on the Company’s website. For approved measure types, incentive and offering updates at or below the maximum amounts will occur through the 45-day notice process. Minimum requirements and other qualifying parameters will be updated as needed through the day to day operation of the Company’s energy efficiency portfolio to adapt and evolve with market trends, industry standards, and qualified equipment. Note that the current offerings for attic/ceiling insulation remain unaltered as part of this filing other than increasing the minimum efficiency requirement to be greater than or equal to R-49.

**Table 6 – Insulation Incentives (Tariff Streamlined)**

Measure Type	Maximum Incentive “up to”
Insulation	\$0.65/sq. ft.

**Table 6 – Insulation Incentives (Website Detailed)**

Measure Type	Equipment Type	Minimum Efficiency Requirement	Offered Incentive			
			Contractor Install		Self-Install	
			Electric Heat	Electric Cooling	Electric Heat	Electric Cooling
Insulation	Attic/Ceiling Insulation	Insulated to $\geq$ R-49	\$0.10/sq. ft.	\$0.10/sq. ft.	\$0.10/sq. ft.	\$0.10/sq. ft.
	Floor Insulation	Insulated to $\geq$ R-30	\$0.65/sq. ft.	\$0.10/sq. ft.	\$0.25/sq. ft.	\$0.10/sq. ft.
	Wall Insulation	Insulated to $\geq$ R-13	\$0.65/sq. ft.	\$0.25/sq. ft.	\$0.45/sq. ft.	\$0.25/sq. ft.

### STAKEHOLDER FEEDBACK

The Company circulated a draft advice letter package to the DSM Steering Committee on September 30, 2020. The advice letter content was also discussed October 7, 2020 on a call with Steering Committee members to discuss initial questions and concerns. The advice letter package was updated nominally after the October 7, 2020 meeting based on feedback received by Steering Committee members, but the Company anticipates further engagement from Steering Committee members in comments.

### COST-EFFECTIVENESS

The cost-effective analysis for these changes is attached hereto as Exhibit B. The table below, pulled from Exhibit B, presents the expected cost-effectiveness for 2020-2021 assuming the proposed changes in this filing. Additional details and inputs are included in Exhibit B. Sensitivity analyses are also included as Exhibits C and D. The Program is expected to remain cost-effective from the Utility Cost Test perspective under all scenarios.

**HES Program Level Cost-Effectiveness Results - PY2020 and PY2021  
(Expected Participation)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1049	\$97,838,794	\$57,030,291	-\$40,808,503	0.58
Total Resource Cost Test (TRC) No Adder	\$0.1049	\$97,838,794	\$51,845,719	-\$45,993,075	0.53
Utility Cost Test (UCT)	\$0.0409	\$38,107,924	\$51,845,719	\$13,737,795	1.36
Rate Impact Test (RIM)		\$146,006,878	\$51,845,719	-\$95,161,159	0.35
Participant Cost Test (PCT)		\$97,874,988	\$156,127,140	\$58,252,152	1.60
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000023822
Discounted Participant Payback (years)					7.72

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

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

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

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

Sincerely,



Michael S. Snow  
Manager, Regulatory Affairs

Enclosures

cc: Division of Public Utilities  
Office of Consumer Services

# **Exhibit A**

**ROCKY MOUNTAIN POWER**  
**ELECTRIC SERVICE SCHEDULE NO. 111**  
**STATE OF UTAH**

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**Residential Energy Efficiency**

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**PURPOSE:** Service under this tariff is intended to maximize the efficient utilization of the electricity requirements of new and existing residential loads in new and existing residences including manufactured housing and multi-family dwellings.

**APPLICABLE:** To new and existing residential customers in all territory served by the Company in the state of Utah billed on residential Schedules ~~1, 2 and 3~~ listed on Schedule 193 or connected to a customer electrical system receiving single point of delivery service from the Company under a retail rate schedule. Landlords who own rental properties served by the company in the state of Utah where the tenant is billed on residential service Schedules ~~1, 2 and 3~~ also qualify for this program.

**CUSTOMER PARTICIPATION:** Customer participation is voluntary and is initiated by following the participation procedures listed on the program web site.

**DESCRIPTION:** On-going program to deliver incentives for a variety of equipment and services intended for and located in residential dwellings. The program will be delivered by the Program Administrator. Company will provide incentives listed in the tables below for Qualifying Equipment or Services. Periodic changes will be made to incentives listed in the tables below to ensure and/or enhance program cost effectiveness.

**QUALIFYING EQUIPMENT OR SERVICES:** Equipment or services listed in the tables below for residential dwellings, which when correctly installed or performed, result in verifiable electric energy usage reductions where such usage is compared to the existing equipment or baseline equipment as determined by the Company.

**PROGRAM ADMINISTRATOR:** Qualified person or entity hired by the Company to administer this program.

(Continued)

**ELECTRIC SERVICE SCHEDULE NO. 111 - Continued**

11. Company and/or Program Administrator will employ a variety of quality assurance techniques during the delivery of the program. They may differ by equipment or service type and may include, but are not limited to, pre and post installation site inspections, phone surveys, retailer invoice reconciliations, confirmation of customer and equipment eligibility, and confirmation of incentives received through other utility programs.
12. Company may verify or evaluate the energy savings of installed equipment or services. Verification or evaluation may include, but are not limited to, telephone survey, site visit, billing analysis, and pre- and post-installation of monitoring equipment as necessary to quantify actual energy savings.
13. Customers with both electric heat and electric cooling are only eligible for electric heat incentives where both apply.
14. Measures that do not distinguish between electric heat and electric cooling apply to customers with either.
15. For measures that do not have a self-install specific incentive, equipment may be self-installed or installed by a qualified Trade Ally, per program requirements, to be eligible for an incentive.
16. Measures that do not distinguish between single/multi-family and manufactured homes apply to all three.
17. Customer's applying for electric heat incentives must have a permanently installed ~~electric furnace, heat pump or zonal~~ all-electric heat system serving at least 80% of the home's conditioned floor area and used as the primary heat source of the residence.
18. Customer's applying for electric cooling incentives must have a permanently installed ducted central air conditioner or heat pump that cools at least 80% of the home's conditioned floor area.
19. Non-lighting incentives are capped at up to 70 percent of qualifying equipment costs. Qualifying equipment costs are subject to Company approval.

**ELECTRIC SERVICE REGULATIONS:** Service under this schedule will be in accordance with the terms of the Electric Service Agreement between the Customer and the Company. The Electric Service Regulations of the Company on file with and approved by the Utah Public Service Commission, including future applicable amendments, will be considered as forming a part of and incorporated in said Agreement.

**Table 1 – Lighting Incentives**

Measure	Equipment Type	Minimum Efficiency Requirement	Customer/Mid-Market Incentive "up to"
LED	LED General Purpose	ENERGY STAR Qualified	\$ <del>123</del> /lamp
	LED - Specialty	ENERGY STAR Qualified	\$ <del>123</del> /lamp
	LED Fixtures	ENERGY STAR Qualified	\$ <del>103</del> /fixture

**Notes for Table 1:**

1. Lamp incentives may not exceed 70% of the total lamp cost.
2. Fixtures must be hardwired and incentive may not exceed 50% of fixture cost. Torchiere and portable fixtures do not qualify.

(Continued)

Issued by authority of Report and Order of the Public Service Commission of Utah in Advice No. 17-0520-10

**ELECTRIC SERVICE SCHEDULE NO. 111 - Continued**

**Table 2 – Appliance Incentives**

Equipment Type	Sub-Category	Minimum Efficiency Requirement	Customer/Mid-Market Incentive “up to”
Room Air Conditioner	—	ENERGY STAR Qualified	\$20
Heat Pump Water Heater	Non-Self Install	AWHS Tier 1 < 55 gallons	\$575
		AWHS Tier 2 and above < 55 gallons	\$700
	Self Install	AWHS Tier 1 < 55 gallons	\$400
		AWHS Tier 2 and above < 55 gallons	\$550
Low Flow Showerhead	—	Flow Rate < 2.0 GPM	\$31
Low Flow Aerator	—	Flow Rate < 1.5 GPM	\$5
<u>Thermostatic Shower Restrict Valve</u>			<u>\$30</u>
<u>WiFi Smart Plug</u>			<u>\$10</u>
<u>WiFi Smart Light Switch</u>			<u>\$10</u>
<u>Smart Home Energy Management System Bundle</u>			<u>\$275</u>
<u>Lighting Occupancy Sensor</u>			<u>\$10</u>
<u>Room Air Cleaner</u>			<u>\$50</u>
<u>Heat Pump Clothes Dryer</u>			<u>\$300</u>
<u>Clothes Washer</u>			<u>\$25</u>
<u>Refrigerator</u>			<u>\$25</u>
<u>Freezer</u>			<u>\$25</u>
<u>Dishwasher</u>			<u>\$20</u>

**Table 3 – Building Envelope Incentives**

Measure Type	Sub-Category	Minimum Efficiency Requirement	Customer/Mid-Market Incentive “up to”
Smart Thermostat	Electric Heat	ENERGY STAR Certified	\$100
	Electric Cooling		\$50
<u>Windows</u>			<u>\$3/square foot</u>
<u>Infiltration Control (Air Sealing)</u>			<u>\$0.30/square foot</u>

(continued)

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**FILED:** October 9, 2020~~July 16, 2019~~  
2020~~August 15, 2019~~

**EFFECTIVE:** November 9,

**ELECTRIC SERVICE SCHEDULE NO. 111 – Continued**

**Table 4 – HVAC Incentives**

Measure Type	Sub-Category	Minimum Efficiency Requirement	Customer/Mid-Market Incentive "up to"	
<u>Gas Furnace</u>	<u>ECM on Existing furnace</u>	–	<u>\$150</u>	
Evaporative Cooler	–	500 – 1,999 CFM	<u>\$50</u>	
		2,000 – 3,499 CFM	<u>\$100</u>	
		> 3,500 CFM	\$200	
Central Air Conditioner	–	> 15 SEER	<u>\$125</u>	
	–	> 17 SEER	<u>\$200</u>	
	–	> 20 SEER	\$400	
Heat Pump	Upgrade	≥ 9.0 HSPF, ≥ 15 SEER	<u>\$300</u>	
		> 9.5 HSPF, > 16 SEER	<u>\$500</u>	
	Conversion	> 9.0 HSPF, > 15 SEER	<u>\$3,500</u>	
		> 9.5 HSPF, > 16 SEER	\$4,000	
	Ground-Source Heat Pump Conversion		ENERGY STAR Certified	\$3,000
	Ductless	Supplemental Heat	> 9.5 HSPF, > 16 SEER	<u>\$700</u>
Single-Head		> 9.5 HSPF, > 16 SEER	<u>\$1,900</u>	
Multi-Head		> 9.5 HSPF, > 16 SEER	<u>\$2,500</u>	
Duct Sealing	<u>Electric Heat</u> Existing Manufactured-Home	–	<u>\$450</u> <u>500</u>	
Whole House Ventilation Fan	–	≥ 2,000 CFM	\$125	
Rooftop Heat Tape Timer	–	–	\$100	
<u>Smart Thermostat</u>			<u>\$100</u>	
<u>Engine Block Heater Control</u>			<u>\$150</u>	
<u>Bathroom Exhaust Fan</u>			<u>\$10</u>	

(continued)



| ~~2019~~November 9, 2020

**ELECTRIC SERVICE SCHEDULE NO. 111 - Continued**

**Table 5 – New Construction Incentives**

Measure Type	Minimum Efficiency Requirement	Customer/Mid-Market Incentive “up to”	
		Electrically Heated	Electrically Cooled
		Single Family	Single Family
Smart Thermostat	ENERGY STAR Certified	\$50	\$50
Central Air Conditioner	15 to 16.9 SEER	\$100	\$100
	17 to 19.9 SEER	\$200	\$200
	≥ 20 SEER	\$350	\$350
Whole Home	ENERGY STAR 3.0 Certification	\$25	\$25
	HERS Index 56-62	\$350	\$175
	HERS Index 49-55	\$600	\$300
	HERS Index 48 or lower	\$1,000	\$500
Heat Pump Water Heater		\$800	
Heat Pump		\$2,000	

Notes for Table 5:

1. Qualifying equipment receiving incentives within this table may not receive equipment purchase and installation incentives within other tables in this Schedule.
2. Customers that receive an incentive for the Whole Home offering may not receive an incentive for ~~the stand-alone offerings that impact the HERS Index, Central Air Conditioner or Gas Furnace stand-alone offerings.~~
3. ~~Participation in Central Air Conditioner or Whole Home offering does not disqualify a customer from receiving a Smart Thermostat incentive.~~
4. ~~To be eligible for electric heat incentives, natural gas must not be available at customers' property.~~

**Table 6 – Insulation Incentives**

Measure Type	Sub-Category	Equipment Type	Minimum Efficiency Requirement	Customer/Mid-Market Incentive “up to”	
				Non-Self Install	Self-Install
Insulation	Residences with Electric Heat	Attic/Ceiling Insulation	Existing R-20 or less, final R-38 or greater	\$0.65/square foot	\$0.40/square foot
	Residences with Electric Cooling	Attic/Ceiling Insulation	Existing R-20 or less, final R-38 or greater	\$0.10/square foot	\$0.10/square foot

**ELECTRIC SERVICE SCHEDULE NO. 111 - Continued**
**Table 7 – Custom Multifamily Program**

<b>Multifamily Property Type</b>	<b>Category</b>	<b>Incentive “up to”</b>
Low Income	Properties where the majority of households earn less than 80% of Area Median Income.	\$0.30/kWh up to 100% of total project costs
Market Rate	Properties where the majority of households earn more than 80% of Area Median Income	\$0.25/kWh up to 70% of total project costs

Notes for Table 7:

1. Qualifying equipment receiving incentives within this table may not receive equipment purchase and installation incentives within other tables in this Schedule.
2. Outside lighting and common areas billed under non-residential rate schedules are eligible to receive incentives within this table, but may not receive additional equipment purchase and installation incentives within other Company offered programs.

CANCELLED

**ROCKY MOUNTAIN POWER**  
**ELECTRIC SERVICE SCHEDULE NO. 111**  
**STATE OF UTAH**

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**Residential Energy Efficiency**

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**PURPOSE:** Service under this tariff is intended to maximize the efficient utilization of the electricity requirements of new and existing residential loads in new and existing residences including manufactured housing and multi-family dwellings.

**APPLICABLE:** To new and existing residential customers in all territory served by the Company in the state of Utah billed on residential Schedules listed on Schedule 193 or connected to a customer electrical system receiving single point of delivery service from the Company under a retail rate schedule. Landlords who own rental properties served by the company in the state of Utah where the tenant is billed on residential service Schedules also qualify for this program.

**CUSTOMER PARTICIPATION:** Customer participation is voluntary and is initiated by following the participation procedures listed on the program web site.

**DESCRIPTION:** On-going program to deliver incentives for a variety of equipment and services intended for and located in residential dwellings. The program will be delivered by the Program Administrator. Company will provide incentives listed in the tables below for Qualifying Equipment or Services. Periodic changes will be made to incentives listed in the tables below to ensure and/or enhance program cost effectiveness.

**QUALIFYING EQUIPMENT OR SERVICES:** Equipment or services listed in the tables below for residential dwellings, which when correctly installed or performed, result in verifiable electric energy usage reductions where such usage is compared to the existing equipment or baseline equipment as determined by the Company.

**PROGRAM ADMINISTRATOR:** Qualified person or entity hired by the Company to administer this program.

(Continued)

**ELECTRIC SERVICE SCHEDULE NO. 111 - Continued**

11. Company and/or Program Administrator will employ a variety of quality assurance techniques during the delivery of the program. They may differ by equipment or service type and may include, but are not limited to, pre and post installation site inspections, phone surveys, retailer invoice reconciliations, confirmation of customer and equipment eligibility, and confirmation of incentives received through other utility programs.
12. Company may verify or evaluate the energy savings of installed equipment or services. Verification or evaluation may include, but are not limited to, telephone survey, site visit, billing analysis, and pre- and post-installation of monitoring equipment as necessary to quantify actual energy savings.
13. Customers with both electric heat and electric cooling are only eligible for electric heat incentives where both apply.
14. Measures that do not distinguish between electric heat and electric cooling apply to customers with either.
15. For measures that do not have a self-install specific incentive, equipment may be self-installed or installed by a qualified Trade Ally, per program requirements, to be eligible for an incentive.
16. Measures that do not distinguish between single/multi-family and manufactured homes apply to all three.
17. Customer's applying for electric heat incentives must have a permanently installed all-electric heat system serving at least 80% of the home's conditioned floor area and used as the primary heat source of the residence.
18. Customer's applying for electric cooling incentives must have a permanently installed ducted central air conditioner or heat pump that cools at least 80% of the home's conditioned floor area.
19. Non-lighting incentives are capped at up to 70 percent of qualifying equipment costs. Qualifying equipment costs are subject to Company approval.

**ELECTRIC SERVICE REGULATIONS:** Service under this schedule will be in accordance with the terms of the Electric Service Agreement between the Customer and the Company. The Electric Service Regulations of the Company on file with and approved by the Utah Public Service Commission, including future applicable amendments, will be considered as forming a part of and incorporated in said Agreement.

**Table 1 – Lighting Incentives**

Measure	Equipment Type	Minimum Efficiency Requirement	Customer/Mid-Market Incentive "up to"
LED	LED General Purpose	ENERGY STAR Qualified	\$3/lamp
	LED - Specialty	ENERGY STAR Qualified	\$3/lamp
	LED Fixtures	ENERGY STAR Qualified	\$3/fixture

**Notes for Table 1:**

1. Lamp incentives may not exceed 70% of the total lamp cost.
2. Fixtures must be hardwired and incentive may not exceed 50% of fixture cost. Torchiere and portable fixtures do not qualify.

(Continued)

Issued by authority of Report and Order of the Public Service Commission of Utah in Advice No. 20-10

**ELECTRIC SERVICE SCHEDULE NO. 111 - Continued**
**Table 2 – Appliance Incentives**

<b>Equipment Type</b>	<b>Customer/Mid-Market Incentive “up to”</b>
Room Air Conditioner	\$20
Heat Pump Water Heater	\$700
Low Flow Showerhead	\$31
Low Flow Aerator	\$5
Thermostatic Shower Restrict Valve	\$30
WiFi Smart Plug	\$10
WiFi Smart Light Switch	\$10
Smart Home Energy Management System Bundle	\$275
Lighting Occupancy Sensor	\$10
Room Air Cleaner	\$50
Heat Pump Clothes Dryer	\$300
Clothes Washer	\$25
Refrigerator	\$25
Freezer	\$25
Dishwasher	\$20

**Table 3 – Building Envelope Incentives**

<b>Measure Type</b>	<b>Customer/Mid-Market Incentive “up to”</b>
Windows	\$3/square foot
Infiltration Control (Air Sealing)	\$0.30/square foot

**Table 4 – HVAC Incentives**

<b>Measure Type</b>	<b>Customer/Mid-Market Incentive “up to”</b>
Evaporative Cooler	\$200
Central Air Conditioner	\$400
Heat Pump	\$4,000
Duct Sealing	\$450
Whole House Ventilation Fan	\$125
Rooftop Heat Tape Timer	\$100
Smart Thermostat	\$100
Engine Block Heater Control	\$150
Bathroom Exhaust Fan	\$50

(continued)

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**FILED:** October 9, 2020

**EFFECTIVE:** November 9, 2020

**ELECTRIC SERVICE SCHEDULE NO. 111 – Continued**
**Table 5 – New Construction Incentives**

<b>Measure Type</b>	<b>Customer/Mid-Market Incentive “up to”</b>
<b>Smart Thermostat</b>	<b>\$50</b>
<b>Central Air Conditioner</b>	<b>\$350</b>
<b>Whole Home</b>	<b>\$1,000</b>
<b>Heat Pump Water Heater</b>	<b>\$800</b>
<b>Heat Pump</b>	<b>\$2,000</b>

**Notes for Table 5:**

1. Qualifying equipment receiving incentives within this table may not receive equipment purchase and installation incentives within other tables in this Schedule.
2. Customers that receive an incentive for the Whole Home offering may not receive an incentive for stand-alone offerings that impact the HERS Index.

**Table 6 – Insulation Incentives**

<b>Measure Type</b>	<b>Customer/Mid-Market Incentive “up to”</b>
<b>Insulation</b>	<b>\$0.65/square foot</b>

**Table 7 – Custom Multifamily Program**

<b>Multifamily Property Type</b>	<b>Category</b>	<b>Incentive “up to”</b>
Low Income	Properties where the majority of households earn less than 80% of Area Median Income.	\$0.30/kWh up to 100% of total project costs
Market Rate	Properties where the majority of households earn more than 80% of Area Median Income	\$0.25/kWh up to 70% of total project costs

**Notes for Table 7:**

1. Qualifying equipment receiving incentives within this table may not receive equipment purchase and installation incentives within other tables in this Schedule.
2. Outside lighting and common areas billed under non-residential rate schedules are eligible to receive incentives within this table, but may not receive additional equipment purchase and installation incentives within other Company offered programs.

## **Exhibit B**





## Memorandum

To: Elaine Prause, PacifiCorp  
From: David Basak, Guidehouse  
Date: September 28, 2020  
Re: Cost Effectiveness for the Utah HES Program - Expected Participation

Guidehouse has developed this memo in response to PacifiCorp's proposed HES Program cost-effectiveness modeling needs in the state of Utah. Each scenario is analyzed using modeled assumptions provided by PacifiCorp. These scenarios utilize the following assumptions:

- **Scenarios:** Ran cost-effectiveness for program years 2020 and 2021.
- **Avoided Costs:** Guidehouse performed a custom analysis of calculating avoided costs by using the *2019 IRP Decrement* and applied against Utah specific residential end-use specific load shapes.
- **Energy Rates:** Utilized the rates provided by PacifiCorp for PY2020 and applied an escalation of 2.28% to arrive at estimated energy rates for PY2021.
- **Line Loss Factors:** Residential line loss factor utilized throughout the analysis.

This memo will begin by addressing the inputs used in the analysis of the Utah HES Program. The cost-effectiveness inputs are as follows:

**Table 1 - Utility Inputs**

Parameter	PY2020	PY2021
Discount Rate	6.92%	6.92%
Residential Line Loss	6.36%	6.36%
Residential Energy Rate (\$/kWh) <sup>1</sup>	\$0.1072	\$0.1097
Inflation Rate	2.28%	2.28%

<sup>1</sup> Future rates determined using a 2.28% annual escalator.

**Table 2 – Program Costs by Scenario and Program Year (Expected Participation)**

Program Year	Program Delivery	Program Development	Incentives	Total Utility Costs	Gross Customer Costs
2020	\$5,589,858	\$0	\$14,030,398	\$19,620,256	\$49,334,306
2021	\$5,182,883	\$0	\$13,304,786	\$18,487,669	\$48,540,682
<b>2020-2021</b>	<b>\$10,772,741</b>	<b>\$0</b>	<b>\$27,335,183</b>	<b>\$38,107,924</b>	<b>\$97,874,988</b>

**Table 3 – Program Savings by Scenario and Program Year (Expected Participation)**

Program Year	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
2020	62,014,668	94%	58,264,856	83%	48,567,524	14
2021	56,564,787	95%	53,484,227	87%	46,613,314	14
<b>2020-2021</b>	<b>118,579,455</b>	<b>94%</b>	<b>111,749,082</b>	<b>85%</b>	<b>95,180,838</b>	<b>14</b>

**Table 4 - Benefit/Cost Ratios by Measure Category (Expected Participation)**

Program Year	PTRC	TRC	UCT	RIM	PCT
2020	0.57	0.52	1.29	0.34	1.62
2021	0.59	0.54	1.43	0.36	1.57
<b>2020-2021</b>	<b>0.58</b>	<b>0.53</b>	<b>1.36</b>	<b>0.35</b>	<b>1.60</b>

Table 5 through Table 7 provide cost-effectiveness results for the combination of PY2020 and PY2021 followed by the individual program year results.

**Table 5 – HES Program Level Cost-Effectiveness Results - PY2020 and PY2021  
(Expected Participation)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1049	\$97,838,794	\$57,030,291	-\$40,808,503	0.58
Total Resource Cost Test (TRC) No Adder	\$0.1049	\$97,838,794	\$51,845,719	-\$45,993,075	0.53
Utility Cost Test (UCT)	\$0.0409	\$38,107,924	\$51,845,719	\$13,737,795	1.36
Rate Impact Test (RIM)		\$147,006,878	\$51,845,719	-\$95,161,159	0.35
Participant Cost Test (PCT)		\$97,874,988	\$156,127,140	\$58,252,152	1.60
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000023822
Discounted Participant Payback (years)					7.72

**Table 6 – HES Program Level Cost-Effectiveness Results - PY2020  
(Expected Participation)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1045	\$48,879,680	\$27,929,873	-\$20,949,807	0.57
Total Resource Cost Test (TRC) No Adder	\$0.1045	\$48,879,680	\$25,390,794	-\$23,488,887	0.52
Utility Cost Test (UCT)	\$0.0419	\$19,620,256	\$25,390,794	\$5,770,538	1.29
Rate Impact Test (RIM)		\$73,662,148	\$25,390,794	-\$48,271,354	0.34
Participant Cost Test (PCT)		\$49,334,306	\$79,707,713	\$30,373,408	1.62
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000025231
Discounted Participant Payback (years)					7.65

**Table 7 – HES Program Level Cost-Effectiveness Results - PY2021  
(Expected Participation)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1054	\$48,959,114	\$29,100,418	-\$19,858,695	0.59
Total Resource Cost Test (TRC) No Adder	\$0.1054	\$48,959,114	\$26,454,926	-\$22,504,188	0.54
Utility Cost Test (UCT)	\$0.0398	\$18,487,669	\$26,454,926	\$7,967,257	1.43
Rate Impact Test (RIM)		\$73,344,730	\$26,454,926	-\$46,889,804	0.36
Participant Cost Test (PCT)		\$48,540,682	\$76,419,426	\$27,878,744	1.57
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000022527
Discounted Participant Payback (years)					7.80

Table 8 and 9 provide cost-effectiveness results for the measure categories by program type for each program year.

**Table 8 – HES Measure Category Level Cost-Effectiveness Results - PY2020**

Program	Measure Category	P-TRC Benefits (\$)	P-TRC Costs (\$)	P-TRC Test	TRC Benefits (\$)	TRC Costs (\$)	TRC Test	Utility PV Benefits (\$)	Utility PV Costs (\$)	Utility Cost Test	Ratepayer PV Benefits (\$)	Ratepayer PV Costs (\$)	RIM Test	Participant PV Benefits (\$)	Participant PV Cost (\$)	PCT Test
Lighting	Lighting	\$7,751,582	\$3,106,589	2.50	\$7,046,893	\$3,106,589	2.27	\$7,046,893	\$6,123,155	1.15	\$7,046,893	\$23,461,600	0.30	\$27,820,541	\$2,015,610	13.80
Non-Lighting	Appliances	\$112,891	\$204,329	0.55	\$102,628	\$204,329	0.50	\$102,628	\$152,587	0.67	\$102,628	\$418,847	0.25	\$469,963	\$221,580	2.12
Non-Lighting	Building Shell	\$349,087	\$1,683,477	0.21	\$317,352	\$1,683,477	0.19	\$317,352	\$197,386	1.61	\$317,352	\$841,495	0.38	\$848,040	\$1,736,796	0.49
Non-Lighting	HVAC	\$7,359,482	\$16,631,328	0.44	\$6,690,438	\$16,631,328	0.40	\$6,690,438	\$4,692,565	1.43	\$6,690,438	\$17,764,209	0.38	\$17,400,963	\$17,180,386	1.01
Non-Lighting	Water Heating	\$390,094	\$233,861	1.67	\$354,631	\$233,861	1.52	\$354,631	\$275,220	1.29	\$354,631	\$1,201,719	0.30	\$1,408,882	\$176,331	7.99
Non-Lighting	Whole Building	\$8,839,549	\$20,602,235	0.43	\$8,035,954	\$20,602,235	0.39	\$8,035,954	\$4,734,043	1.70	\$8,035,954	\$20,554,995	0.39	\$20,296,307	\$20,524,834	0.99
New Homes	HVAC	\$1,205,594	\$2,213,680	0.54	\$1,095,995	\$2,213,680	0.50	\$1,095,995	\$1,516,560	0.72	\$1,095,995	\$3,890,652	0.28	\$4,413,399	\$1,899,371	2.32
New Homes	New Homes	\$1,813,548	\$3,883,735	0.47	\$1,648,680	\$3,883,735	0.42	\$1,648,680	\$1,721,279	0.96	\$1,648,680	\$5,067,562	0.33	\$6,593,268	\$5,270,396	1.25
New Homes	Water Heating	\$108,046	\$320,446	0.34	\$98,224	\$320,446	0.31	\$98,224	\$207,460	0.47	\$98,224	\$461,068	0.21	\$456,349	\$309,000	1.48

**Table 9 – HES Measure Category Level Cost-Effectiveness Results - PY2021**

Program	Measure Category	P-TRC Benefits (\$)	P-TRC Costs (\$)	P-TRC Test	TRC Benefits (\$)	TRC Costs (\$)	TRC Test	Utility PV Benefits (\$)	Utility PV Costs (\$)	Utility Cost Test	Ratepayer PV Benefits (\$)	Ratepayer PV Costs (\$)	RIM Test	Participant PV Benefits (\$)	Participant PV Cost (\$)	PCT Test
Lighting	Lighting	\$6,601,233	\$2,508,425	2.63	\$6,001,121	\$2,508,425	2.39	\$6,001,121	\$4,816,180	1.25	\$6,001,121	\$19,090,200	0.31	\$22,801,691	\$1,758,635	12.97
Non-Lighting	Appliances	\$140,928	\$271,818	0.52	\$128,116	\$271,818	0.47	\$128,116	\$181,805	0.70	\$128,116	\$498,740	0.26	\$561,236	\$304,196	1.84
Non-Lighting	Building Shell	\$362,861	\$1,684,345	0.22	\$329,873	\$1,684,345	0.20	\$329,873	\$198,253	1.66	\$329,873	\$857,049	0.38	\$863,402	\$1,736,796	0.50
Non-Lighting	HVAC	\$8,262,645	\$17,004,932	0.49	\$7,511,496	\$17,004,932	0.44	\$7,511,496	\$5,069,450	1.48	\$7,511,496	\$19,588,588	0.38	\$19,236,709	\$17,516,773	1.10
Non-Lighting	Water Heating	\$62,175	\$91,053	0.68	\$56,523	\$91,053	0.62	\$56,523	\$73,507	0.77	\$56,523	\$213,464	0.26	\$213,237	\$86,508	2.46
Non-Lighting	Whole Building	\$9,098,970	\$20,898,502	0.44	\$8,271,791	\$20,898,502	0.40	\$8,271,791	\$4,772,409	1.73	\$8,271,791	\$20,954,079	0.39	\$20,674,418	\$20,795,171	0.99
New Homes	HVAC	\$3,109,957	\$3,469,681	0.90	\$2,827,233	\$3,469,681	0.81	\$2,827,233	\$2,034,136	1.39	\$2,827,233	\$8,077,081	0.35	\$6,933,420	\$2,379,013	2.91
New Homes	New Homes	\$1,310,426	\$2,642,750	0.50	\$1,191,296	\$2,642,750	0.45	\$1,191,296	\$1,143,321	1.04	\$1,191,296	\$3,522,904	0.34	\$4,671,296	\$3,654,591	1.28
New Homes	Water Heating	\$151,224	\$387,607	0.39	\$137,476	\$387,607	0.35	\$137,476	\$198,607	0.69	\$137,476	\$542,625	0.25	\$464,018	\$309,000	1.50

# **Exhibit C**



## Memorandum

To: Elaine Prause, PacifiCorp  
From: David Basak, Guidehouse  
Date: September 28, 2020  
Re: Cost Effectiveness for the Utah HES Program – High (+10%) Participation

Guidehouse has developed this memo in response to PacifiCorp's proposed HES Program cost-effectiveness modeling needs in the state of Utah. Each scenario is analyzed using modeled assumptions provided by PacifiCorp. These scenarios utilize the following assumptions:

- **Scenarios:** Ran cost-effectiveness for program years 2020 and 2021.
- **Avoided Costs:** Guidehouse performed a custom analysis of calculating avoided costs by using the *2019 IRP Decrement* and applied against Utah specific residential end-use specific load shapes.
- **Energy Rates:** Utilized the rates provided by PacifiCorp for PY2020 and applied an escalation of 2.28% to arrive at estimated energy rates for PY2021.
- **Line Loss Factors:** Residential line loss factor utilized throughout the analysis.

This memo will begin by addressing the inputs used in the analysis of the Utah HES Program. The cost-effectiveness inputs are as follows:

**Table 1 - Utility Inputs**

Parameter	PY2020	PY2021
Discount Rate	6.92%	6.92%
Residential Line Loss	6.36%	6.36%
Residential Energy Rate (\$/kWh) <sup>1</sup>	\$0.1072	\$0.1097
Inflation Rate	2.28%	2.28%

<sup>1</sup> Future rates determined using a 2.28% annual escalator.

**Table 2 – Program Costs by Scenario and Program Year (High Participation)**

Program Year	Program Delivery	Program Development	Incentives	Total Utility Costs	Gross Customer Costs
2020	\$5,589,858	\$0	\$15,433,438	\$21,023,296	\$54,267,736
2021	\$5,182,883	\$0	\$14,635,264	\$19,818,147	\$53,394,750
<b>2020-2021</b>	<b>\$10,772,741</b>	<b>\$0</b>	<b>\$30,068,702</b>	<b>\$40,841,443</b>	<b>\$107,662,486</b>

**Table 3 – Program Savings by Scenario and Program Year (High Participation)**

Program Year	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
2020	68,216,135	94%	64,091,341	83%	53,424,277	14
2021	62,221,266	95%	58,832,649	87%	51,274,645	14
<b>2020-2021</b>	<b>130,437,400</b>	<b>94%</b>	<b>122,923,990</b>	<b>85%</b>	<b>104,698,922</b>	<b>14</b>

**Table 4 - Benefit/Cost Ratios by Measure Category (High Participation)**

Program Year	PTRC	TRC	UCT	RIM	PCT
2020	0.58	0.52	1.33	0.35	1.62
2021	0.60	0.55	1.47	0.36	1.57
<b>2020-2021</b>	<b>0.59</b>	<b>0.54</b>	<b>1.40</b>	<b>0.36</b>	<b>1.60</b>

Table 5 through Table 7 provide cost-effectiveness results for the combination of PY2020 and PY2021 followed by the individual program year results.

**Table 5 – HES Program Level Cost-Effectiveness Results - PY2020 and PY2021  
 (High Participation)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1039	\$106,545,399	\$62,733,320	-\$43,812,079	0.59
Total Resource Cost Test (TRC) No Adder	\$0.1039	\$106,545,399	\$57,030,291	-\$49,515,108	0.54
Utility Cost Test (UCT)	\$0.0398	\$40,841,443	\$57,030,291	\$16,188,848	1.40
Rate Impact Test (RIM)		\$160,630,292	\$57,030,291	-\$103,600,001	0.36
Participant Cost Test (PCT)		\$107,662,486	\$171,739,854	\$64,077,368	1.60
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000025934
Discounted Participant Payback (years)					7.72

**Table 6 – HES Program Level Cost-Effectiveness Results - PY2020  
 (High Participation)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1034	\$53,208,662	\$30,722,860	-\$22,485,802	0.58
Total Resource Cost Test (TRC) No Adder	\$0.1034	\$53,208,662	\$27,929,873	-\$25,278,789	0.52
Utility Cost Test (UCT)	\$0.0408	\$21,023,296	\$27,929,873	\$6,906,577	1.33
Rate Impact Test (RIM)		\$80,469,377	\$27,929,873	-\$52,539,504	0.35
Participant Cost Test (PCT)		\$54,267,736	\$87,678,485	\$33,410,749	1.62
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000027462
Discounted Participant Payback (years)					7.65

**Table 7 – HES Program Level Cost-Effectiveness Results - PY2021  
 (High Participation)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1044	\$53,336,737	\$32,010,460	-\$21,326,277	0.60
Total Resource Cost Test (TRC) No Adder	\$0.1044	\$53,336,737	\$29,100,418	-\$24,236,319	0.55
Utility Cost Test (UCT)	\$0.0388	\$19,818,147	\$29,100,418	\$9,282,271	1.47
Rate Impact Test (RIM)		\$80,160,915	\$29,100,418	-\$51,060,497	0.36
Participant Cost Test (PCT)		\$53,394,750	\$84,061,369	\$30,666,619	1.57
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000024530
Discounted Participant Payback (years)					7.80



Table 8 and 9 provide cost-effectiveness results for the measure categories by program type for each program year.

**Table 8 – HES Measure Category Level Cost-Effectiveness Results - PY2020**

Program	Measure Category	P-TRC Benefits (\$)	P-TRC Costs (\$)	P-TRC Test	TRC Benefits (\$)	TRC Costs (\$)	TRC Test	Utility PV Benefits (\$)	Utility PV Costs (\$)	Utility Cost Test	Ratepayer PV Benefits (\$)	Ratepayer PV Costs (\$)	RIM Test	Participant PV Benefits (\$)	Participant PV Cost (\$)	PCT Test
Lighting	Lighting	\$8,526,740	\$3,256,550	2.62	\$7,751,582	\$3,256,550	2.38	\$7,751,582	\$6,574,773	1.18	\$7,751,582	\$25,647,062	0.30	\$30,602,596	\$2,217,171	13.80
Non-Lighting	Appliances	\$124,180	\$220,903	0.56	\$112,891	\$220,903	0.51	\$112,891	\$163,987	0.69	\$112,891	\$456,873	0.25	\$516,959	\$243,738	2.12
Non-Lighting	Building Shell	\$383,996	\$1,849,515	0.21	\$349,087	\$1,849,515	0.19	\$349,087	\$214,814	1.63	\$349,087	\$923,335	0.38	\$932,845	\$1,910,476	0.49
Non-Lighting	HVAC	\$8,095,430	\$18,186,653	0.45	\$7,359,482	\$18,186,653	0.40	\$7,359,482	\$5,054,013	1.46	\$7,359,482	\$19,432,821	0.38	\$19,141,059	\$18,898,425	1.01
Non-Lighting	Water Heating	\$429,103	\$247,090	1.74	\$390,094	\$247,090	1.58	\$390,094	\$292,585	1.33	\$390,094	\$1,311,735	0.30	\$1,549,770	\$193,965	7.99
Non-Lighting	Whole Building	\$9,723,504	\$22,560,304	0.43	\$8,839,549	\$22,560,304	0.39	\$8,839,549	\$5,105,293	1.73	\$8,839,549	\$22,508,341	0.39	\$22,325,938	\$22,577,317	0.99
New Homes	HVAC	\$1,326,154	\$2,346,052	0.57	\$1,205,594	\$2,346,052	0.51	\$1,205,594	\$1,579,220	0.76	\$1,205,594	\$4,190,722	0.29	\$4,854,739	\$2,089,309	2.32
New Homes	New Homes	\$1,994,903	\$4,197,851	0.48	\$1,813,548	\$4,197,851	0.43	\$1,813,548	\$1,819,149	1.00	\$1,813,548	\$5,500,060	0.33	\$7,252,595	\$5,797,436	1.25
New Homes	Water Heating	\$118,851	\$343,745	0.35	\$108,046	\$343,745	0.31	\$108,046	\$219,460	0.49	\$108,046	\$498,428	0.22	\$501,984	\$339,900	1.48

**Table 9 – HES Measure Category Level Cost-Effectiveness Results - PY2021**

Program	Measure Category	P-TRC Benefits (\$)	P-TRC Costs (\$)	P-TRC Test	TRC Benefits (\$)	TRC Costs (\$)	TRC Test	Utility PV Benefits (\$)	Utility PV Costs (\$)	Utility Cost Test	Ratepayer PV Benefits (\$)	Ratepayer PV Costs (\$)	RIM Test	Participant PV Benefits (\$)	Participant PV Cost (\$)	PCT Test
Lighting	Lighting	\$7,261,356	\$2,639,267	2.75	\$6,601,233	\$2,639,267	2.50	\$6,601,233	\$5,177,798	1.27	\$6,601,233	\$20,879,220	0.32	\$25,081,860	\$1,934,499	12.97
Non-Lighting	Appliances	\$155,021	\$294,572	0.53	\$140,928	\$294,572	0.48	\$140,928	\$195,557	0.72	\$140,928	\$544,186	0.26	\$617,359	\$334,615	1.84
Non-Lighting	Building Shell	\$399,147	\$1,850,382	0.22	\$362,861	\$1,850,382	0.20	\$362,861	\$215,682	1.68	\$362,861	\$940,357	0.39	\$949,742	\$1,910,476	0.50
Non-Lighting	HVAC	\$9,088,910	\$18,592,979	0.49	\$8,262,645	\$18,592,979	0.44	\$8,262,645	\$5,463,948	1.51	\$8,262,645	\$21,435,000	0.39	\$21,160,380	\$19,268,450	1.10
Non-Lighting	Water Heating	\$68,392	\$99,133	0.69	\$62,175	\$99,133	0.63	\$62,175	\$79,832	0.78	\$62,175	\$233,785	0.27	\$234,560	\$95,159	2.46
Non-Lighting	Whole Building	\$10,008,867	\$22,882,362	0.44	\$9,098,970	\$22,882,362	0.40	\$9,098,970	\$5,143,659	1.77	\$9,098,970	\$22,943,496	0.40	\$22,741,860	\$22,874,688	0.99
New Homes	HVAC	\$3,420,952	\$3,698,971	0.92	\$3,109,957	\$3,698,971	0.84	\$3,109,957	\$2,119,872	1.47	\$3,109,957	\$8,767,111	0.35	\$7,626,762	\$2,616,914	2.91
New Homes	New Homes	\$1,441,469	\$2,860,563	0.50	\$1,310,426	\$2,860,563	0.46	\$1,310,426	\$1,211,191	1.08	\$1,310,426	\$3,828,733	0.34	\$5,138,426	\$4,020,050	1.28
New Homes	Water Heating	\$166,346	\$418,507	0.40	\$151,224	\$418,507	0.36	\$151,224	\$210,607	0.72	\$151,224	\$589,027	0.26	\$510,420	\$339,900	1.50

## **Exhibit D**



## Memorandum

To: Elaine Prause, PacifiCorp  
From: David Basak, Guidehouse  
Date: September 28, 2020  
Re: Cost Effectiveness for the Utah HES Program – Low (-10%) Participation

Guidehouse has developed this memo in response to PacifiCorp's proposed HES Program cost-effectiveness modeling needs in the state of Utah. Each scenario is analyzed using modeled assumptions provided by PacifiCorp. These scenarios utilize the following assumptions:

- **Scenarios:** Ran cost-effectiveness for program years 2020 and 2021.
- **Avoided Costs:** Guidehouse performed a custom analysis of calculating avoided costs by using the *2019 IRP Decrement* and applied against Utah specific residential end-use specific load shapes.
- **Energy Rates:** Utilized the rates provided by PacifiCorp for PY2020 and applied an escalation of 2.28% to arrive at estimated energy rates for PY2021.
- **Line Loss Factors:** Residential line loss factor utilized throughout the analysis.

This memo will begin by addressing the inputs used in the analysis of the Utah HES Program. The cost-effectiveness inputs are as follows:

**Table 1 - Utility Inputs**

Parameter	PY2020	PY2021
Discount Rate	6.92%	6.92%
Residential Line Loss	6.36%	6.36%
Residential Energy Rate (\$/kWh) <sup>1</sup>	\$0.1072	\$0.1097
Inflation Rate	2.28%	2.28%

<sup>1</sup> Future rates determined using a 2.28% annual escalator.

**Table 2 – Program Costs by Scenario and Program Year (Low Participation)**

Program Year	Program Delivery	Program Development	Incentives	Total Utility Costs	Gross Customer Costs
2020	\$5,589,858	\$0	\$12,627,358	\$18,217,216	\$44,400,875
2021	\$5,182,883	\$0	\$11,974,307	\$17,157,190	\$43,686,614
<b>2020-2021</b>	<b>\$10,772,741</b>	<b>\$0</b>	<b>\$24,601,665</b>	<b>\$35,374,406</b>	<b>\$88,087,489</b>

**Table 3 – Program Savings by Scenario and Program Year (Low Participation)**

Program Year	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
2020	55,813,201	94%	52,438,370	83%	43,710,772	14
2021	50,908,308	95%	48,135,804	87%	41,951,982	14
<b>2020-2021</b>	<b>106,721,509</b>	<b>94%</b>	<b>100,574,174</b>	<b>85%</b>	<b>85,662,754</b>	<b>14</b>

**Table 4 - Benefit/Cost Ratios by Measure Category (Low Participation)**

Program Year	PTRC	TRC	UCT	RIM	PCT
2020	0.56	0.51	1.25	0.34	1.62
2021	0.59	0.53	1.39	0.36	1.57
<b>2020-2021</b>	<b>0.58</b>	<b>0.52</b>	<b>1.32</b>	<b>0.35</b>	<b>1.60</b>

Table 5 through Table 7 provide cost-effectiveness results for the combination of PY2020 and PY2021 followed by the individual program year results.

**Table 5 – HES Program Level Cost-Effectiveness Results - PY2020 and PY2021  
(Low Participation)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1062	\$89,132,188	\$51,327,262	-\$37,804,926	0.58
Total Resource Cost Test (TRC) No Adder	\$0.1062	\$89,132,188	\$46,661,147	-\$42,471,041	0.52
Utility Cost Test (UCT)	\$0.0422	\$35,374,406	\$46,661,147	\$11,286,741	1.32
Rate Impact Test (RIM)		\$133,383,464	\$46,661,147	-\$86,722,317	0.35
Participant Cost Test (PCT)		\$88,087,489	\$140,514,426	\$52,426,937	1.60
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000021709
Discounted Participant Payback (years)					7.72

**Table 6 – HES Program Level Cost-Effectiveness Results - PY2020  
(Low Participation)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1058	\$44,550,698	\$25,136,886	-\$19,413,812	0.56
Total Resource Cost Test (TRC) No Adder	\$0.1058	\$44,550,698	\$22,851,714	-\$21,698,984	0.51
Utility Cost Test (UCT)	\$0.0433	\$18,217,216	\$22,851,714	\$4,634,498	1.25
Rate Impact Test (RIM)		\$66,854,919	\$22,851,714	-\$44,003,205	0.34
Participant Cost Test (PCT)		\$44,400,875	\$71,736,942	\$27,336,067	1.62
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000023000
Discounted Participant Payback (years)					7.65

**Table 7 – HES Program Level Cost-Effectiveness Results - PY2021  
(Low Participation)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1067	\$44,581,490	\$26,190,376	-\$18,391,114	0.59
Total Resource Cost Test (TRC) No Adder	\$0.1067	\$44,581,490	\$23,809,433	-\$20,772,058	0.53
Utility Cost Test (UCT)	\$0.0411	\$17,157,190	\$23,809,433	\$6,652,243	1.39
Rate Impact Test (RIM)		\$66,528,545	\$23,809,433	-\$42,719,112	0.36
Participant Cost Test (PCT)		\$43,686,614	\$68,777,484	\$25,090,870	1.57
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000020523
Discounted Participant Payback (years)					7.80

Table 8 and 9 provide cost-effectiveness results for the measure categories by program type for each program year.

**Table 8 – HES Measure Category Level Cost-Effectiveness Results - PY2020**

Program	Measure Category	P-TRC Benefits (\$)	P-TRC Costs (\$)	P-TRC Test	TRC Benefits (\$)	TRC Costs (\$)	TRC Test	Utility PV Benefits (\$)	Utility PV Costs (\$)	Utility Cost Test	Ratepayer PV Benefits (\$)	Ratepayer PV Costs (\$)	RIM Test	Participant PV Benefits (\$)	Participant PV Cost (\$)	PCT Test
Lighting	Lighting	\$6,976,424	\$2,956,627	2.36	\$6,342,204	\$2,956,627	2.15	\$6,342,204	\$5,671,537	1.12	\$6,342,204	\$21,276,137	0.30	\$25,038,487	\$1,814,049	13.80
Non-Lighting	Appliances	\$101,602	\$187,754	0.54	\$92,365	\$187,754	0.49	\$92,365	\$141,187	0.65	\$92,365	\$380,821	0.24	\$422,966	\$199,422	2.12
Non-Lighting	Building Shell	\$314,178	\$1,517,440	0.21	\$285,617	\$1,517,440	0.19	\$285,617	\$179,957	1.59	\$285,617	\$759,656	0.38	\$763,236	\$1,563,116	0.49
Non-Lighting	HVAC	\$6,623,534	\$15,076,004	0.44	\$6,021,394	\$15,076,004	0.40	\$6,021,394	\$4,331,117	1.39	\$6,021,394	\$16,095,596	0.37	\$15,660,867	\$15,462,348	1.01
Non-Lighting	Water Heating	\$351,084	\$220,632	1.59	\$319,168	\$220,632	1.45	\$319,168	\$257,855	1.24	\$319,168	\$1,091,704	0.29	\$1,267,994	\$158,698	7.99
Non-Lighting	Whole Building	\$7,955,594	\$18,644,166	0.43	\$7,232,358	\$18,644,166	0.39	\$7,232,358	\$4,362,793	1.66	\$7,232,358	\$18,601,650	0.39	\$18,266,676	\$18,472,351	0.99
New Homes	HVAC	\$1,085,035	\$2,081,308	0.52	\$986,395	\$2,081,308	0.47	\$986,395	\$1,453,900	0.68	\$986,395	\$3,590,583	0.27	\$3,972,059	\$1,709,434	2.32
New Homes	New Homes	\$1,632,193	\$3,569,620	0.46	\$1,483,812	\$3,569,620	0.42	\$1,483,812	\$1,623,409	0.91	\$1,483,812	\$4,635,064	0.32	\$5,933,941	\$4,743,356	1.25
New Homes	Water Heating	\$97,241	\$297,148	0.33	\$88,401	\$297,148	0.30	\$88,401	\$195,460	0.45	\$88,401	\$423,707	0.21	\$410,714	\$278,100	1.48

**Table 9 – HES Measure Category Level Cost-Effectiveness Results - PY2021**

Program	Measure Category	P-TRC Benefits (\$)	P-TRC Costs (\$)	P-TRC Test	TRC Benefits (\$)	TRC Costs (\$)	TRC Test	Utility PV Benefits (\$)	Utility PV Costs (\$)	Utility Cost Test	Ratepayer PV Benefits (\$)	Ratepayer PV Costs (\$)	RIM Test	Participant PV Benefits (\$)	Participant PV Cost (\$)	PCT Test
Lighting	Lighting	\$5,941,110	\$2,377,582	2.50	\$5,401,009	\$2,377,582	2.27	\$5,401,009	\$4,454,562	1.21	\$5,401,009	\$17,301,180	0.31	\$20,521,522	\$1,582,772	12.97
Non-Lighting	Appliances	\$126,835	\$249,064	0.51	\$115,305	\$249,064	0.46	\$115,305	\$168,052	0.69	\$115,305	\$453,294	0.25	\$505,112	\$273,776	1.84
Non-Lighting	Building Shell	\$326,575	\$1,518,307	0.22	\$296,886	\$1,518,307	0.20	\$296,886	\$180,825	1.64	\$296,886	\$773,741	0.38	\$777,062	\$1,563,116	0.50
Non-Lighting	HVAC	\$7,436,381	\$15,416,886	0.48	\$6,760,346	\$15,416,886	0.44	\$6,760,346	\$4,674,952	1.45	\$6,760,346	\$17,742,176	0.38	\$17,313,038	\$15,765,095	1.10
Non-Lighting	Water Heating	\$55,957	\$82,974	0.67	\$50,870	\$82,974	0.61	\$50,870	\$67,182	0.76	\$50,870	\$193,144	0.26	\$191,913	\$77,857	2.46
Non-Lighting	Whole Building	\$8,189,073	\$18,914,643	0.43	\$7,444,612	\$18,914,643	0.39	\$7,444,612	\$4,401,159	1.69	\$7,444,612	\$18,964,662	0.39	\$18,606,976	\$18,715,654	0.99
New Homes	HVAC	\$2,798,961	\$3,240,391	0.86	\$2,544,510	\$3,240,391	0.79	\$2,544,510	\$1,948,401	1.31	\$2,544,510	\$7,387,050	0.34	\$6,240,078	\$2,141,112	2.91
New Homes	New Homes	\$1,179,383	\$2,424,936	0.49	\$1,072,167	\$2,424,936	0.44	\$1,072,167	\$1,075,450	1.00	\$1,072,167	\$3,217,075	0.33	\$4,204,167	\$3,289,132	1.28
New Homes	Water Heating	\$136,102	\$356,707	0.38	\$123,729	\$356,707	0.35	\$123,729	\$186,607	0.66	\$123,729	\$496,224	0.25	\$417,616	\$278,100	1.50

**CERTIFICATE OF SERVICE**

Advice No. 20-10  
Docket No. 20-035-T09

I hereby certify that on October 9, 2020, a true and correct copy of the foregoing was served by electronic mail to the following:

**Utah Office of Consumer Services**

Michele Beck [mbeck@utah.gov](mailto:mbeck@utah.gov)

**Division of Public Utilities**

[dpudatarequest@utah.gov](mailto:dpudatarequest@utah.gov)

**Rocky Mountain Power**

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Mary Penfield  
Adviser, Regulatory Operations