

September 8, 2017

VIA ELECTRONIC FILING

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

Attn: Gary Widerburg
 Commission Secretary

RE: Advice No. 17-13
 Proposed Changes to Schedule 111, Residential Energy Efficiency
 Docket No. 17-035-T12

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 October 9, 2017 for these changes.

Ninth Revision of Sheet No. B.1		Tariff Index
Third Revision of Sheet No. 111.4	Schedule 111	Residential Energy Efficiency
Third Revision of Sheet No. 111.5	Schedule 111	Residential Energy Efficiency
Original Sheet No. 111.7	Schedule 111	Residential Energy Efficiency

The purpose of this filing is to propose changes to the *wattsmart* Homes Residential Energy Efficiency Program (“Program”) administered through Electric Service Schedule No. 111, specifically to remove expired offerings and to add a new custom multi-family offering. These tariff changes align with targets illustrated in Figure 1 below, and filed in the Demand Side Management (“DSM”) November 1st Deferred Account and Forecast Report on November 1, 2016, in Docket No. 16-035-30. Proposed changes to the Schedule 111 tariff sheets are included as Exhibit A.

Figure 1 – 2017 Budget and Savings Forecast from Nov 1st Report

***	2017 MWH Savings Forecast	2017 Budget Forecast
Home Energy Savings*	76,874	\$ 14,330,699

*Home Energy Savings was changed to wattsmart Homes after this forecast was filed.

DESCRIPTION OF CHANGES

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

1. Remove expired offerings from tariff sheets; and
2. Add new custom offering for multi-family properties.

REMOVAL OF EXPIRED OFFERINGS

The current Schedule 111 tariff sheets have several offerings that were set to expire January 1, 2017. These expired offerings will be removed to clean up the tariff sheets.

CUSTOM MULTI-FAMILY PROGRAM

Program Overview

The Custom Multi-Family Program (“MF Program”) will target multi-family properties with four or more units across Utah, and offer incentives on products such as:

- Appliances;
- Building Shell;
- HVAC;
- Lighting;
- Weatherization; and
- Water Heating

MF Program services provided to participating customers will include education on the benefits of energy efficiency, an energy audit/assessment of their property identifying qualifying energy savings measures that could be installed, the associated costs and savings estimates, with an explanation of the life-cycle and non-financial benefits of the retrofits. Once an energy audit has been completed, participating customers will be presented with energy efficiency options and may choose to move forward with all qualifying options, or select specific qualifying upgrades from the audit.

The turnkey approach of the MF Program is designed to target the hard to reach multifamily and low-income markets by enticing multifamily property owners to implement comprehensive energy efficiency retrofits. To encourage participation, the MF Program will help multi-family property owners/managers to access additional incentives and rebates, including gas and water utility rebates, access to Fannie, Freddie, and Federal Housing Administration green lending incentives, energy efficiency tax credits and deductions, and access to low-cost financing from various sources with whom this program has built partnerships.

Incentives

Customer incentives will be based on kilowatt hours saved from their project up to a percentage of their total project costs. The MF Program is expected to remain cost-effective when providing a maximum incentive of up to \$0.30/kWh up to 100 percent of total project costs for low income properties and up to \$0.25/kWh up to 70 percent of total projects costs for market rate properties. The offered incentive for low income and market rate properties will initially be set at their respective maximum up to amounts. Low income properties will be defined as properties where the majority of households earn less than 80 percent of the area median income, and market rate properties will be defined as properties where the majority of households earn more than 80 percent of the area median income. When a customer decides to participate, the Company will obtain

information from the property owner prior to conducting an energy audit, including number of units and income levels of tenants. The area median income or median household income will be determined using the current census data provided by the American Community Survey (“ACS”), which gets updated annually. The ACS census tracks area median income on a variety of scales, but for the purposes of the MF Program, the area median income for participating properties will be determined based on the county in which the participating property is located. The MF Program will target participation to be 50 percent low income customers and 50 percent market rate customers.

Table 7 below includes the maximum amounts for MF Program incentives, as well as the actual incentive amounts to be initially offered to customers. Actual offered incentives will be posted and maintained on the Company website, and updated through the 45-day notice process as needed, consistent with other wattsmart Homes offerings.

Table 7 – Custom Multifamily Program

Multifamily Property Type	Category	Maximum Incentive “up to”	Offered Incentive
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	\$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	\$0.25/kWh up to 70% of total project costs

Quality Assurance and Controls

A robust quality assurance regime is planned for the MF Program offerings, focused on the following:

Purchase and Installation Verification – Projects will be installed by both Trade Allies and the MF Program Vendor, International Center for Appropriate and Sustainable Technology (“ICAST”). For all projects installed by ICAST, they will conduct a post-inspection consisting of reviewing the installed products against the specifications of the energy efficient products that were recommended from the energy audit. For projects installed by Trade Allies, a randomized sample of customers will be reached via phone calls and/or site visits to confirm purchase information (equipment type, quantity, amount paid), installation status (fully installed, partially installed, placed in inventory for future installation, etc.), installation locations(s), and customer satisfaction.

MF Program Trade Allies – Each participating Trade Ally will be required to sign an agreement with the Company outlining participation terms and conditions. Trade Ally performance will be regularly monitored by ICAST through customer satisfaction surveys, on-site inspections, office visits, and ongoing communications. Trade Allies not meeting or exceeding quality, customer service, schedule, invoicing, and other requirements will be subject to removal from participation in the program.

Projected Costs and Energy Savings

The Company is anticipating a 2018 gross savings achievement of 5,092 MWh for the MF Program. Projected first year costs and savings are summarized in Figure 2 below. These projections were used in the initial program cost-effectiveness analysis. Annual MWh savings in Figure 2 are at the customer meter and do not include a net-to-gross adjustment.

Figure 2 – MF Program Projected 1st Year Costs, Incentives, and Savings

***	Delivery Cost	Incentives	Annual MWh Savings
2018	\$ 215,163	\$ 1,319,325	5,092

It should be noted that the MF Program Vendor will be paid on a pay-for-performance basis. Therefore, if savings are under or over achieved, delivery costs will be adjusted accordingly to align with the achieved savings.

Marketing

Outreach for the MF Program will be undertaken using traditional and digital marketing approaches including but not limited to:

- *Direct Marketing* – this will be comprised of marketing campaigns to multi-family properties using literature sent through traditional mail, email, phone calls, and in-person visits.
- *Digital Marketing* – this will be comprised of marketing content posted online, blogs, social media posts and comments, Google AdWords posted on relevant websites, and articles in newsletters.
- *In-Direct Marketing* – this will be comprised of writing and publishing articles in relevant publications, making presentations at industry conferences, and workshops and webinars.
- *Referral Campaign* – this will include building a referral network within the multi-family and energy efficiency industries. Key partners include the Utah Apartment Association for market rate properties and the Utah Housing Coalition for low-income properties. Lawyers, CPA firms, Realtors, Vendors, Lenders, Architects, Property Management firms and others interacting with multi-family properties in Utah will be targeted using Direct, In-Direct and Digital Marketing methods.

Program Website

Webpage content anticipated to be posted to the MF Program website in various formats is attached hereto as Exhibit B. Website content is intended to capture all relevant information and requirements associated with the MF Program. The website will also include additional information and links that may be relevant. Information contained on the website will be updated concurrently with any program changes and whenever else may be appropriate to update or add content. Information to be provided on the website may include, but not limited to, the following:

- MF Program overview;
- Benefits of participation;
- Eligibility requirements;

- Participation process and requirements;
- Incentives; and
- Customer support.

Upon approval of the MF Program, the information contained in Exhibit B will be posted to a webpage dedicated to the MF Program, consistent with other program websites.

STAKEHOLDER FEEDBACK

On June 13, 2017, the MF Program design and timeframe was initially discussed with the DSM Steering Committee. No adverse comments were expressed at that time by Steering Committee members, rather members were generally supportive of the concept to increase participation in the hard to reach multi-family and low income sectors. On August 30, 2017, a draft filing package for these changes was shared with the DSM Steering Committee. On September 5, 2017, the Company met with the DSM Steering Committee and discussed the MF Program filing materials. Not all Steering Committee members had been able to fully review the filing materials, however no concerns were raised during the meeting discussion.

COST-EFFECTIVENESS

The cost-effectiveness analysis for the MF Program, attached hereto as Exhibit C, was based on the maximum “up to” incentive levels. Table 5 below, pulled from Exhibit C, presents the expected cost-effectiveness of the MF Program for program year 2018 assuming no changes to the program. Detailed inputs and results are presented in Exhibit C, and sensitivity analyses are included as Exhibits D and E. The MF Program is expected to remain cost-effective from the Utility Cost Test perspective under all scenarios.

Table 5 – Multifamily Program Level Cost-Effectiveness Results - Expected Participation

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/ Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0753	\$4,153,613	\$3,047,652	-\$1,105,961	0.73
Total Resource Cost Test (TRC) No Adder	\$0.0753	\$4,153,613	\$2,770,593	-\$1,383,020	0.67
Utility Cost Test (UCT)	\$0.0278	\$1,534,488	\$2,770,593	\$1,236,105	1.81
Rate Impact Test (RIM)		\$8,405,157	\$2,770,593	-\$5,634,564	0.33
Participant Cost Test (PCT)		\$3,938,450	\$8,189,994	\$4,251,544	2.08
Lifecycle Revenue Impacts (\$/kWh)	\$0.0000145411				
Discounted Participant Payback (years)	4.68				

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

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

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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,

A handwritten signature in blue ink that reads "Michael S. Snow". The signature is fluid and cursive, with the first name being the most prominent.

Michael S. Snow
Manager, DSM Regulatory Affairs

Enclosures

Exhibit A

**ELECTRIC SERVICE SCHEDULES
STATE OF UTAH**

Schedule No.		Sheet No.
80	Summary of Effective Rate Adjustments	80
91	Surcharge To Fund Low Income Residential Lifeline Program	91
92	Low Income Residential Lifeline Program Surcharge Refund Credit	92
94	Energy Balancing Account (EBA) Pilot Program	94.1- 94.10
98	REC Revenue Adjustment	98
105	Irrigation Load Control Program	105.1 - 105.2
107	Solar Incentive Program	107.1 - 107.6
111	Residential Energy Efficiency	111.1 - 111.7
114	Air Conditioner Direct Load Control Program (Cool Keeper Program)	114.1 - 114.5
118	Low Income Weatherization	118.1 - 118.6
135	Net Metering Service	135.1 - 135.5
140	Non-Residential Energy Efficiency	140.1 - 140.25
193	Demand Side Management (DSM) Cost Adjustment	193.1 - 193.2
196	Sustainable Transportation and Energy Plan (STEP) Cost Adjustment Pilot Program	196.1 - 196.2
300	Regulation Charges	300.1 - 300.4

Schedule Numbers not listed are not currently used.

*These Schedules are not available to new customers or premises.

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
	With Thermostatic Valve	Flow Rate ≤ 1.5 GPM	\$54
Low Flow Aerator	--	Flow Rate ≤ 1.5 GPM	\$5
Advanced Power Strip	Load Sensing	--	\$10
	Occupancy Sensing	--	\$32
	Infrared Sensing	--	\$32

Table 3 – Building Envelope Incentives

Measure Type	Sub-Category	Minimum Efficiency Requirement	Customer/Mid-Market Incentive “up to”
Smart Thermostat	Electric Heat	Smart thermostats must be Wi-Fi enabled, programmable, online dashboard and/or mobile device app, with occupancy sensor enabled.	\$100
	Electric Cooling		\$50

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ELECTRIC SERVICE SCHEDULE NO. 111 – Continued
Table 4 – HVAC Incentives

Measure Type	Sub-Category		Minimum Efficiency Requirement	Customer/Mid-Market Incentive “up to”
Gas Furnace	--		≥ 95% AFUE gas furnace with ECM	\$300
	ECM on Existing furnace		--	\$150
Evaporative Cooler	First time install	Non-Self Install	≥ 3,500 CFM	\$500
		Self-Install	≥ 3,500 CFM	\$400
	Replacement	Non-Self Install	≥ 3,500 CFM	\$500
		Self-Install	≥ 3,500 CFM	\$400
	Premium	Non-Self Install	≥ 3,500 CFM	\$650
		Self-Install	≥ 3,500 CFM	\$500
	Multi-Family		≥ 2,000 CFM	\$100
	Portable		≥ 2,000 CFM	\$200
Central Air Conditioner	--		≥ 15 SEER	\$125
	--		≥ 17 SEER	\$200
	--		≥ 20 SEER	\$400
Heat Pump	Upgrade		≥ 9.0 HSPF, ≥ 15 SEER	\$250
			≥ 9.5 HSPF, ≥ 16 SEER	\$600
	Conversion		≥ 9.0 HSPF, ≥ 15 SEER	\$750
			≥ 9.5 HSPF, ≥ 16 SEER	\$850
	Ductless	Supplemental Heat	≥ 9.5 HSPF, ≥ 16 SEER	\$500
	Ductless	Single-Head	≥ 9.5 HSPF, ≥ 16 SEER	\$1,300
	Ductless	Multi-Head	≥ 9.5 HSPF, ≥ 16 SEER	\$1,800
	Multi-Family Ductless	Single/Multi-Head	≥ 9.5 HSPF, ≥ 16 SEER	\$400
Duct Sealing	Electric Heat	Existing Manufactured Home	--	\$500

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

Multifamily Property Type	Category	Incentive “up to”
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.

**ELECTRIC SERVICE SCHEDULES
STATE OF UTAH**

Schedule No.		Sheet No.
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107	Solar Incentive Program	107.1 - 107.6
111	Residential Energy Efficiency	111.1 - 111. 7 <u>6</u>
114	Air Conditioner Direct Load Control Program (Cool Keeper Program)	114.1 - 114.5
118	Low Income Weatherization	118.1 - 118.6
135	Net Metering Service	135.1 - 135.5
140	Non-Residential Energy Efficiency	140.1 - 140.25
193	Demand Side Management (DSM) Cost Adjustment	193.1 - 193.2
196	Sustainable Transportation and Energy Plan (STEP) Cost Adjustment Pilot Program	196.1 - 196.2
300	Regulation Charges	300.1 - 300.4

Schedule Numbers not listed are not currently used.

*These Schedules are not available to new customers or premises.

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

Equipment Type	Sub-Category	Minimum Efficiency Requirement	Customer/Mid-Market Incentive “up to”
Clothes Washer	—	CEE Tier 2 and above	\$50*
Refrigerator	(7.75 cu. ft.—32 cu. ft.)	CEE Tier 3	\$100*
Room Air Conditioner	--	ENERGY STAR Qualified	\$20
Freezer	—	ENERGY STAR Qualified	\$50*
Heat Pump Water Heater	Non-Self Install	AWS Tier 1 ≤ 55 gallons	\$575
		AWS Tier 2 and above ≤ 55 gallons	\$700
	Self-Install	AWS Tier 1 ≤ 55 gallons	\$400
		AWS Tier 2 and above ≤ 55 gallons	\$550
Low Flow Showerhead	--	Flow Rate ≤ 2.0 GPM	\$31
	With Thermostatic Valve	Flow Rate ≤ 1.5 GPM	\$54
Low Flow Aerator	--	Flow Rate ≤ 1.5 GPM	\$5
Advanced Power Strip	Load Sensing	--	\$10
	Occupancy Sensing	--	\$32
	Infrared Sensing	--	\$32

~~*Incentive will no longer be available beginning January 1, 2017.~~

Table 3 – Building Envelope Incentives

Measure Type	Sub-Category	Minimum Efficiency Requirement	Customer/Mid-Market Incentive “up to”
Air Sealing	Electric Heat	—	\$0.20/square foot*
Windows	Electric Heat	U Factor of ≤ 0.22	\$2.00/square foot*
	Electric Cooling	U Factor of ≤ 0.30	\$0.50/square foot*
		U Factor of ≤ 0.22	\$1.00/square foot*
Smart Thermostat	Electric Heat	Smart thermostats must be Wi-Fi enabled, programmable, online dashboard and/or mobile device app, with occupancy sensor enabled.	\$100
	Electric Cooling		\$50

~~*Incentive will no longer be available beginning January 1, 2017.~~

(continued)

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ELECTRIC SERVICE SCHEDULE NO. 111 – Continued
Table 4 – HVAC Incentives

Measure Type	Sub-Category		Minimum Efficiency Requirement	Customer/Mid-Market Incentive “up to”
Gas Furnace	--		≥ 95% AFUE gas furnace with ECM	\$300
	ECM on Existing furnace		--	\$150
Whole Home Upgrade Package	--		--	\$1,000*
Evaporative Cooler	First time install	Non-Self Install	≥ 3,500 CFM	\$500
		Self-Install	≥ 3,500 CFM	\$400
	Replacement	Non-Self Install	≥ 3,500 CFM	\$500
		Self-Install	≥ 3,500 CFM	\$400
	Premium	Non-Self Install	≥ 3,500 CFM	\$650
		Self-Install	≥ 3,500 CFM	\$500
	Whole House Ducted	Non-Self Install	≥ 3,500 CFM	\$1,300*
		Self-Install	≥ 3,500 CFM	\$1,000*
Multi-Family		≥ 2,000 CFM	\$100	
Portable		≥ 2,000 CFM	\$200	
Central Air Conditioner	--		≥ 15 SEER	\$125
	--		≥ 17 SEER	\$200
	--		≥ 20 SEER	\$400
	Best Practice Install and Proper Sizing		--	\$150*
Heat Pump	Upgrade		≥ 9.0 HSPF, ≥ 15 SEER	\$250
			≥ 9.5 HSPF, ≥ 16 SEER	\$600
	Conversion		≥ 9.0 HSPF, ≥ 15 SEER	\$750
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	Ductless	Supplemental Heat	≥ 9.5 HSPF, ≥ 16 SEER	\$500
	Ductless	Single-Head	≥ 9.5 HSPF, ≥ 16 SEER	\$1,300
	Ductless	Multi-Head	≥ 9.5 HSPF, ≥ 16 SEER	\$1,800
Multi-Family Ductless	Single/Multi-Head	≥ 9.5 HSPF, ≥ 16 SEER	\$400	
Duct Sealing	Electric Heat	--	R_{initial} ≥ R-2	\$400*
		With Insulation	--	\$800*
		Existing Manufactured Home	--	\$500
	New Manufactured Home	ENERGY STAR Qualified	\$1,000*	
	Electric Cooling	With Insulation	--	\$120*
		Existing Manufactured Home	--	\$200*
		New Manufactured Home	ENERGY STAR Qualified	\$500*

*Incentive will no longer be available beginning January 1, 2017.

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Exhibit B

Exhibit B

Custom Multifamily Program Anticipated Webpage Content

- **Program Description / Explanatory Introduction**

The Custom Multi-Family Program targets multi-family properties with four or more units across Utah, offering incentives on products such as:

- Appliances;
- Building Shell;
- HVAC;
- Lighting;
- Weatherization; and
- Water Heating

Multi-family Program services provided to participating customers will include education on the benefits of energy efficiency, an energy audit/assessment of their property identifying qualifying energy savings measures that could be installed, the associated costs and savings estimates, with an explanation of the life-cycle and non-financial benefits of the retrofits. Once an energy audit has been completed, participating customers will be presented with a project proposal and may 1) choose to move forward with the entire project installing all qualifying upgrades, 2) select a portion of qualifying upgrades from the project proposal, or 3) elect to do nothing.

The turnkey approach of the multi-family Program will aim to entice multifamily property owners to implement comprehensive energy efficiency retrofits as they plan ahead and replace energy systems across the entire property instead of waiting to replace equipment at the point of failure. To encourage participation, the multi-family Program will help multi-family customers access additional incentives and rebates, including gas and water utility rebates, access to Fannie, Freddie, and Federal Housing Administration green lending incentives, energy efficiency tax credits and deductions, and access to low-cost financing from various sources with whom this program has built partnerships. Other ancillary benefits to participants installing energy efficiency upgrades through the multi-family Program include increasing the value of their property, increasing net operating income, lower turn-over rates, higher occupancy, and more comfortable, healthier and safer homes for residents.

All eligible products installed as part of the multi-family Program will be certified by organizations such as ENERGY STAR, Consortium for Energy Efficiency, and/or Design Lights Consortium.

- **What are the benefits of this new multi-family program?**

1. Easy and simple engagement with a single point of contact for all multi-family customers;
2. Reduced operating costs and higher Net Operating Income that increases profitability;
3. Turn-key delivery of all available incentives that can help reduce financing gap;
4. Increased comfort, health and safety for tenants that leads to lower turn-over and higher occupancy;
5. Reduced utility bills and O&M costs.

- **Who can receive Incentives?**

Multi-family property owners and management companies who own rental properties served by the Company in the state of Utah where the tenant is billed on residential Schedules 1, 2, or 3 are eligible to participate. Outside lighting and common areas billed under non-residential rate schedules are eligible to receive incentives within this program, but may not receive additional equipment purchase and installation incentives within other within other programs.

- **What energy efficiency products are eligible to receive incentives?**

Since this is a holistic approach to energy savings for multi-family properties, all energy efficiency products that you are considering to install, that will result in energy savings, can be eligible to receive incentives so long as they're certified by organizations such as ENERGY STAR, Consortium for Energy Efficiency, and/or Design Lights Consortium, and fit within the following categories:

- Appliances;
- Building Shell;
- HVAC;
- Lighting;
- Weatherization; and
- Water Heating

- **Is there a cost to participate?**

There is no cost to participate for multi-family tenants. Multi-family property owners/managers will pay for participation when applicable.

- **How much will my incentive be?**

Customer incentives will be based on property type and dollar amount per kilowatt hour saved from their project up to a percentage of their total project costs. Low income property participants will receive \$0.30/kWh up to 100 percent of their total project costs, market rate properties will receive \$0.25/kWh up to 70 percent of their total projects costs. Low income properties are defined as properties where the majority of households earn less than 80 percent of the area median income, and market rate properties are defined as properties where the majority of households earn more than 80 percent of the area median income. When a customer decides to participate, the program will obtain information from the property owner prior to conducting an energy audit, including number of units and income levels of tenants. The area median income or median household income will be determined using the current census data provided by the American Community Survey ("ACS"), which gets updated annually. The ACS census tracks area median income on a variety of

scales, but for the purposes of the MF Program, the area median income for participating properties will be determined based on the county in which the participating property is located.

Multifamily Property Type	Category	Offered Incentive
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	\$0.25kWh up to 70% of total project costs

- **Can incentives go up or down if I delay my project/participation?**

Incentives may change at any time via Commission order or through a 45-day notice posted to this website. Any changes to incentives or eligible equipment will be published on the program’s website.

- **When will I receive my incentive?**

Participants will receive incentives within 45 days of project completion and receipt of required documentation. Alternately, participants have the option to reduce the total cost of the project by the incentive amount, in which case a 3rd party addendum will be required to allow the incentive to be paid to the program implementer.

- **When can I apply for this Program?**

You can apply when:

- You have a desire to evaluate the benefits of energy efficiency upgrades for your multi-family property and would like help in determining if this program is right for you; or
- You have determined the energy efficiency upgrades you want to install on your property and are ready to move towards implementation.

In either case, the program will first confirm your eligibility to participate in this program and then schedule a site visit to qualify the energy efficiency upgrades and determine the incentives.

- **Who has oversight of my project?**

The program administrator will coordinate the project from beginning to end, including scheduling pre and post installation inspections. The program administrator also offers an option to oversee the entire project implementation, if the participant so desires.

- **What if I have a question or encounter a problem?**

Please call 866-590-9220 or email rmp@icastusa.org

- **What documentation is needed to participate?**

There is no formal documentation required to participate, however, if it is unclear that the multi-family customer's property is eligible, the multi-family customer will be asked to furnish a current copy of their Rocky Mountain Power electric bill to clarify eligibility.

Program implementer will work with multi-family customer to collect basic property data including customer information such as business name, address, property details and contact information, required to complete the application process.

- **What's required for participation?**

Eligible multi-family customers must, before the installation of energy efficiency products, request an energy audit/assessment report from the program implementer that confirms the incentive amount. A post installation inspection by the program implementer is also required, to confirm energy savings, before the incentive is paid to customer.

Eligible multi-family customers also have the option to engage the program implementer to manage their entire project from energy audit to permitting to installation to financing the incentives.

- **Who is the Program Implementer/Administrator: ICAST?**

International Center for Appropriate and Sustainable Technology, or ICAST, is a 501c3 nonprofit organization hired by Rocky Mountain Power to launch and administer the custom multi-family program to multi-family properties with 4 or more units across Utah.

Exhibit C



Memorandum

To: Angela Long, PacifiCorp/Rocky Mountain Power
From: David Basak, Navigant
Date: August 22, 2017
Re: Cost Effectiveness for the Utah Multifamily Program – Expected Participation

Navigant has developed this memo in response to PacifiCorp's proposed Multifamily 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:

- **Avoided Costs:** Utilized PacifiCorp's 2017 Class 2 Demand-Side Management Decrement Study along with the Utah Multifamily load shapes from the recent 2016 Potential Study to calculate avoided costs.
- **Modeling Inputs:** Measure category savings provided by PacifiCorp in the file *PacifiCorp CE Model_MF_ICAST.xlsx*.
- **Energy Rates:** Utilized the rates provided by PacifiCorp and applied an escalation of 2.2% to arrive at estimated energy rates for PY2018.
- **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 Multifamily Program. The cost-effectiveness inputs are as follows:

Table 1 - Utility Inputs

Parameter	Value
Discount Rate	6.57%
Residential Line Loss	9.32%
Residential Energy Rate (\$/kWh)	\$0.1161
Inflation Rate ¹	2.22%

¹ Future rates determined using a 2.2% annual escalator.

Table 2 –Program Costs by Measure Category (Expected Participation)

Measure Category	Forecasted Admin	Incentives	Total Utility Costs	Gross Customer Costs
Appliances	\$1,589	\$11,280	\$12,869	\$116,250
Building Shell	\$16,902	\$114,580	\$131,482	\$458,000
HVAC	\$78,558	\$557,760	\$636,318	\$2,331,700
Lighting	\$101,166	\$553,325	\$654,491	\$790,000
Low Income Weatherization	\$4,838	\$9,000	\$13,838	\$9,000
Water Heating	\$12,110	\$73,380	\$85,490	\$233,500
Total	\$215,163	\$1,319,325	\$1,534,488	\$3,938,450

Table 3 – Program Savings by Measure Savings (Expected Participation)

Measure Category	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
Appliances	37,600	100%	37,600	100%	37,600	15
Building Shell	400,000	100%	400,000	100%	400,000	17
HVAC	1,859,200	100%	1,859,200	100%	1,859,200	13
Lighting	2,394,250	100%	2,394,250	100%	2,394,250	16
Low Income Weatherization	114,500	100%	114,500	100%	114,500	10
Water Heating	286,600	100%	286,600	100%	286,600	16
Total	5,092,150	100%	5,092,150	100%	5,092,150	15

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

Measure Category	PTRC	TRC	UCT	RIM	PCT
Appliances	0.21	0.19	1.73	0.32	0.59
Building Shell	0.63	0.57	2.07	0.38	1.52
HVAC	0.50	0.45	1.72	0.36	1.28
Lighting	1.47	1.34	1.82	0.30	4.85
Low Income Weatherization	2.64	2.40	2.40	0.26	13.61
Water Heating	0.70	0.64	1.83	0.31	2.10
Total	0.73	0.67	1.81	0.33	2.08

Table 5 provides cost-effectiveness results for the proposed measures in program year 2018.

Table 5 – Multifamily Program Level Cost-Effectiveness Results - Expected Participation

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0753	\$4,153,613	\$3,047,652	-\$1,105,961	0.73
Total Resource Cost Test (TRC) No Adder	\$0.0753	\$4,153,613	\$2,770,593	-\$1,383,020	0.67
Utility Cost Test (UCT)	\$0.0278	\$1,534,488	\$2,770,593	\$1,236,105	1.81
Rate Impact Test (RIM)		\$8,405,157	\$2,770,593	-\$5,634,564	0.33
Participant Cost Test (PCT)		\$3,938,450	\$8,189,994	\$4,251,544	2.08
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000145411
Discounted Participant Payback (years)					4.68

Table 6 and 11 provide cost-effectiveness results for each measure category in program year 2018.

Table 6 – Multifamily Appliances Cost-Effectiveness Results - Expected Participation (Load Shape – UT Multifamily Plug)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.2555	\$117,839	\$24,455	-\$93,384	0.21
Total Resource Cost Test (TRC) No Adder	\$0.2555	\$117,839	\$22,232	-\$95,607	0.19
Utility Cost Test (UCT)	\$0.0279	\$12,869	\$22,232	\$9,363	1.73
Rate Impact Test (RIM)		\$70,365	\$22,232	-\$48,133	0.32
Participant Cost Test (PCT)		\$116,250	\$68,776	-\$47,474	0.59
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000001242
Discounted Participant Payback (years)					n/a

Table 7 – Multifamily Building Shell Cost-Effectiveness Results - Expected Participation (Load Shape – UT Multifamily Cooling)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1018	\$474,902	\$299,042	-\$175,859	0.63
Total Resource Cost Test (TRC) No Adder	\$0.1018	\$474,902	\$271,857	-\$203,045	0.57
Utility Cost Test (UCT)	\$0.0282	\$131,482	\$271,857	\$140,375	2.07
Rate Impact Test (RIM)		\$713,221	\$271,857	-\$441,364	0.38
Participant Cost Test (PCT)		\$458,000	\$696,319	\$238,319	1.52
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000010081
Discounted Participant Payback (years)					8.41

**Table 8 – Multifamily HVAC Cost-Effectiveness Results - Expected Participation
(Load Shape – UT Multifamily Cooling)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1241	\$2,410,258	\$1,204,258	-\$1,206,000	0.50
Total Resource Cost Test (TRC) No Adder	\$0.1241	\$2,410,258	\$1,094,780	-\$1,315,478	0.45
Utility Cost Test (UCT)	\$0.0328	\$636,318	\$1,094,780	\$458,462	1.72
Rate Impact Test (RIM)		\$3,054,919	\$1,094,780	-\$1,960,138	0.36
Participant Cost Test (PCT)		\$2,331,700	\$2,976,360	\$644,660	1.28
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000058144
Discounted Participant Payback (years)					9.55

**Table 9 – Multifamily Lighting Cost-Effectiveness Results - Expected Participation
(Load Shape – Residential Lighting 7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0338	\$891,166	\$1,311,569	\$420,403	1.47
Total Resource Cost Test (TRC) No Adder	\$0.0338	\$891,166	\$1,192,336	\$301,169	1.34
Utility Cost Test (UCT)	\$0.0248	\$654,491	\$1,192,336	\$537,844	1.82
Rate Impact Test (RIM)		\$3,935,880	\$1,192,336	-\$2,743,544	0.30
Participant Cost Test (PCT)		\$790,000	\$3,834,714	\$3,044,714	4.85
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000066486
Discounted Participant Payback (years)					0.83

**Table 10 – Multifamily LIW Cost-Effectiveness Results - Expected Participation
(Load Shape – Residential ERWH 7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0152	\$13,838	\$36,486	\$22,648	2.64
Total Resource Cost Test (TRC) No Adder	\$0.0152	\$13,838	\$33,169	\$19,331	2.40
Utility Cost Test (UCT)	\$0.0152	\$13,838	\$33,169	\$19,331	2.40
Rate Impact Test (RIM)		\$127,284	\$33,169	-\$94,115	0.26
Participant Cost Test (PCT)		\$9,000	\$122,446	\$113,446	13.61
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000003610
Discounted Participant Payback (years)					n/a

**Table 11 – Multifamily Water Heating Cost-Effectiveness Results - Expected Participation
(Load Shape – Residential ERWH 7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0732	\$245,610	\$171,841	-\$73,769	0.70
Total Resource Cost Test (TRC) No Adder	\$0.0732	\$245,610	\$156,219	-\$89,391	0.64
Utility Cost Test (UCT)	\$0.0255	\$85,490	\$156,219	\$70,729	1.83
Rate Impact Test (RIM)		\$503,489	\$156,219	-\$347,270	0.31
Participant Cost Test (PCT)		\$233,500	\$491,379	\$257,879	2.10
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000008416
Discounted Participant Payback (years)					5.13

Exhibit D



Memorandum

To: Angela Long, PacifiCorp/Rocky Mountain Power
From: David Basak, Navigant
Date: August 22, 2017
Re: Cost Effectiveness for the Utah Multifamily Program – High +10% Participation

Navigant has developed this memo in response to PacifiCorp's proposed Multifamily 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:

- **Avoided Costs:** Utilized PacifiCorp's 2017 Class 2 Demand-Side Management Decrement Study along with the Utah Multifamily load shapes from the recent 2016 Potential Study to calculate avoided costs.
- **Modeling Inputs:** Measure category savings provided by PacifiCorp in the file *PacifiCorp CE Model_MF_ICAST.xlsx*.
- **Energy Rates:** Utilized the rates provided by PacifiCorp and applied an escalation of 2.2% to arrive at estimated energy rates for PY2018.
- **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 Multifamily Program. The cost-effectiveness inputs are as follows:

Table 1 - Utility Inputs

Parameter	Value
Discount Rate	6.57%
Residential Line Loss	9.32%
Residential Energy Rate (\$/kWh)	\$0.1161
Inflation Rate ¹	2.22%

¹ Future rates determined using a 2.2% annual escalator.

Table 2 –Program Costs by Measure Category (High +10% Participation)

Measure Category	Forecasted Admin	Incentives	Total Utility Costs	Gross Customer Costs
Appliances	\$1,589	\$12,408	\$13,997	\$127,875
Building Shell	\$16,902	\$126,038	\$142,940	\$503,800
HVAC	\$78,558	\$613,536	\$692,094	\$2,564,870
Lighting	\$101,166	\$608,658	\$709,824	\$869,000
Low Income Weatherization	\$4,838	\$9,900	\$14,738	\$9,900
Water Heating	\$12,110	\$80,718	\$92,828	\$256,850
Total	\$215,163	\$1,451,258	\$1,666,421	\$4,332,295

Table 3 – Program Savings by Measure Savings (High +10% Participation)

Measure Category	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
Appliances	41,360	100%	41,360	100%	41,360	15
Building Shell	440,000	100%	440,000	100%	440,000	17
HVAC	2,045,120	100%	2,045,120	100%	2,045,120	13
Lighting	2,633,675	100%	2,633,675	100%	2,633,675	16
Low Income Weatherization	125,950	100%	125,950	100%	125,950	10
Water Heating	315,260	100%	315,260	100%	315,260	16
Total	5,601,365	100%	5,601,365	100%	5,601,365	15

Table 4 - Benefit/Cost Ratios by Measure Category (High +10% Participation)

Measure Category	PTRC	TRC	UCT	RIM	PCT
Appliances	0.21	0.19	1.75	0.32	0.59
Building Shell	0.63	0.57	2.09	0.38	1.52
HVAC	0.50	0.46	1.74	0.36	1.28
Lighting	1.49	1.35	1.85	0.30	4.85
Low Income Weatherization	2.72	2.48	2.48	0.26	13.61
Water Heating	0.70	0.64	1.85	0.31	2.10
Total	0.74	0.67	1.83	0.33	2.08

Table 5 provides cost-effectiveness results for the proposed measures in program year 2018.

Table 5 – Multifamily Program Level Cost-Effectiveness Results - High +10% Participation

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0750	\$4,547,458	\$3,352,417	-\$1,195,041	0.74
Total Resource Cost Test (TRC) No Adder	\$0.0750	\$4,547,458	\$3,047,652	-\$1,499,806	0.67
Utility Cost Test (UCT)	\$0.0275	\$1,666,421	\$3,047,652	\$1,381,231	1.83
Rate Impact Test (RIM)		\$9,224,156	\$3,047,652	-\$6,176,504	0.33
Participant Cost Test (PCT)		\$4,332,295	\$9,008,993	\$4,676,698	2.08
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000159397
Discounted Participant Payback (years)					4.68

Table 6 and 11 provide cost-effectiveness results for each measure category in program year 2018.

Table 6 – Multifamily Appliances Cost-Effectiveness Results - High +10% Participation (Load Shape – UT Multifamily Plug)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.2552	\$129,464	\$26,901	-\$102,563	0.21
Total Resource Cost Test (TRC) No Adder	\$0.2552	\$129,464	\$24,455	-\$105,009	0.19
Utility Cost Test (UCT)	\$0.0276	\$13,997	\$24,455	\$10,458	1.75
Rate Impact Test (RIM)		\$77,243	\$24,455	-\$52,788	0.32
Participant Cost Test (PCT)		\$127,875	\$75,654	-\$52,221	0.59
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000001362
Discounted Participant Payback (years)					n/a

Table 7 – Multifamily Building Shell Cost-Effectiveness Results - High +10% Participation (Load Shape – UT Multifamily Cooling)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1015	\$520,702	\$328,946	-\$191,755	0.63
Total Resource Cost Test (TRC) No Adder	\$0.1015	\$520,702	\$299,042	-\$221,659	0.57
Utility Cost Test (UCT)	\$0.0279	\$142,940	\$299,042	\$156,103	2.09
Rate Impact Test (RIM)		\$782,852	\$299,042	-\$483,810	0.38
Participant Cost Test (PCT)		\$503,800	\$765,951	\$262,151	1.52
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000011051
Discounted Participant Payback (years)					8.41

**Table 8 – Multifamily HVAC Cost-Effectiveness Results - High +10% Participation
(Load Shape – UT Multifamily Cooling)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1237	\$2,643,428	\$1,324,684	-\$1,318,744	0.50
Total Resource Cost Test (TRC) No Adder	\$0.1237	\$2,643,428	\$1,204,258	-\$1,439,170	0.46
Utility Cost Test (UCT)	\$0.0324	\$692,094	\$1,204,258	\$512,164	1.74
Rate Impact Test (RIM)		\$3,352,555	\$1,204,258	-\$2,148,296	0.36
Participant Cost Test (PCT)		\$2,564,870	\$3,273,996	\$709,126	1.28
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000063725
Discounted Participant Payback (years)					9.55

**Table 9 – Multifamily Lighting Cost-Effectiveness Results - High +10% Participation
(Load Shape – Residential Lighting 7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0335	\$970,166	\$1,442,726	\$472,560	1.49
Total Resource Cost Test (TRC) No Adder	\$0.0335	\$970,166	\$1,311,569	\$341,403	1.35
Utility Cost Test (UCT)	\$0.0245	\$709,824	\$1,311,569	\$601,745	1.85
Rate Impact Test (RIM)		\$4,319,351	\$1,311,569	-\$3,007,782	0.30
Participant Cost Test (PCT)		\$869,000	\$4,218,185	\$3,349,185	4.85
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000072890
Discounted Participant Payback (years)					0.83

**Table 10 – Multifamily LIW Cost-Effectiveness Results - High +10% Participation
(Load Shape – Residential ERWH 7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0147	\$14,738	\$40,135	\$25,397	2.72
Total Resource Cost Test (TRC) No Adder	\$0.0147	\$14,738	\$36,486	\$21,748	2.48
Utility Cost Test (UCT)	\$0.0147	\$14,738	\$36,486	\$21,748	2.48
Rate Impact Test (RIM)		\$139,528	\$36,486	-\$103,042	0.26
Participant Cost Test (PCT)		\$9,900	\$134,690	\$124,790	13.61
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000003953
Discounted Participant Payback (years)					n/a

**Table 11 – Multifamily Water Heating Cost-Effectiveness Results - High +10% Participation
(Load Shape – Residential ERWH 7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0729	\$268,960	\$189,025	-\$79,935	0.70
Total Resource Cost Test (TRC) No Adder	\$0.0729	\$268,960	\$171,841	-\$97,119	0.64
Utility Cost Test (UCT)	\$0.0252	\$92,828	\$171,841	\$79,013	1.85
Rate Impact Test (RIM)		\$552,627	\$171,841	-\$380,786	0.31
Participant Cost Test (PCT)		\$256,850	\$540,517	\$283,667	2.10
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000009228
Discounted Participant Payback (years)					5.13

Exhibit E



Memorandum

To: Angela Long, PacifiCorp/Rocky Mountain Power
From: David Basak, Navigant
Date: August 22, 2017
Re: Cost Effectiveness for the Utah Multifamily Program – Low -10% Participation

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- **Avoided Costs:** Utilized PacifiCorp's 2017 Class 2 Demand-Side Management Decrement Study along with the Utah Multifamily load shapes from the recent 2016 Potential Study to calculate avoided costs.
- **Modeling Inputs:** Measure category savings provided by PacifiCorp in the file *PacifiCorp CE Model_MF_ICAST.xlsx*.
- **Energy Rates:** Utilized the rates provided by PacifiCorp and applied an escalation of 2.2% to arrive at estimated energy rates for PY2018.
- **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 Multifamily Program. The cost-effectiveness inputs are as follows:

Table 1 - Utility Inputs

Parameter	Value
Discount Rate	6.57%
Residential Line Loss	9.32%
Residential Energy Rate (\$/kWh)	\$0.1161
Inflation Rate ¹	2.22%

¹ Future rates determined using a 2.2% annual escalator.

Table 2 –Program Costs by Measure Category (Low -10% Participation)

Measure Category	Forecasted Admin	Incentives	Total Utility Costs	Gross Customer Costs
Appliances	\$1,589	\$10,152	\$11,741	\$104,625
Building Shell	\$16,902	\$103,122	\$120,024	\$412,200
HVAC	\$78,558	\$501,984	\$580,542	\$2,098,530
Lighting	\$101,166	\$497,993	\$599,159	\$711,000
Low Income Weatherization	\$4,838	\$8,100	\$12,938	\$8,100
Water Heating	\$12,110	\$66,042	\$78,152	\$210,150
Total	\$215,163	\$1,187,393	\$1,402,556	\$3,544,605

Table 3 – Program Savings by Measure Savings (Low -10% Participation)

Measure Category	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
Appliances	33,840	100%	33,840	100%	33,840	15
Building Shell	360,000	100%	360,000	100%	360,000	17
HVAC	1,673,280	100%	1,673,280	100%	1,673,280	13
Lighting	2,154,825	100%	2,154,825	100%	2,154,825	16
Low Income Weatherization	103,050	100%	103,050	100%	103,050	10
Water Heating	257,940	100%	257,940	100%	257,940	16
Total	4,582,935	100%	4,582,935	100%	4,582,935	15

Table 4 - Benefit/Cost Ratios by Measure Category (Low -10% Participation)

Measure Category	PTRC	TRC	UCT	RIM	PCT
Appliances	0.21	0.19	1.70	0.32	0.59
Building Shell	0.63	0.57	2.04	0.38	1.52
HVAC	0.50	0.45	1.70	0.36	1.28
Lighting	1.45	1.32	1.79	0.30	4.85
Low Income Weatherization	2.54	2.31	2.31	0.26	13.61
Water Heating	0.70	0.63	1.80	0.31	2.10
Total	0.73	0.66	1.78	0.33	2.08

Table 5 provides cost-effectiveness results for the proposed measures in program year 2018.

Table 5 – Multifamily Program Level Cost-Effectiveness Results - Low -10% Participation

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0757	\$3,759,768	\$2,742,887	-\$1,016,881	0.73
Total Resource Cost Test (TRC) No Adder	\$0.0757	\$3,759,768	\$2,493,533	-\$1,266,235	0.66
Utility Cost Test (UCT)	\$0.0283	\$1,402,556	\$2,493,533	\$1,090,978	1.78
Rate Impact Test (RIM)		\$7,586,158	\$2,493,533	-\$5,092,624	0.33
Participant Cost Test (PCT)		\$3,544,605	\$7,370,995	\$3,826,390	2.08
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000131425
Discounted Participant Payback (years)					4.68

Table 6 and 11 provide cost-effectiveness results for each measure category in program year 2018.

Table 6 – Multifamily Appliances Cost-Effectiveness Results - Low -10% Participation (Load Shape – UT Multifamily Plug)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.2559	\$106,214	\$22,010	-\$84,204	0.21
Total Resource Cost Test (TRC) No Adder	\$0.2559	\$106,214	\$20,009	-\$86,205	0.19
Utility Cost Test (UCT)	\$0.0283	\$11,741	\$20,009	\$8,268	1.70
Rate Impact Test (RIM)		\$63,488	\$20,009	-\$43,479	0.32
Participant Cost Test (PCT)		\$104,625	\$61,899	-\$42,726	0.59
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000001122
Discounted Participant Payback (years)					n/a

Table 7 – Multifamily Building Shell Cost-Effectiveness Results - Low -10% Participation (Load Shape – UT Multifamily Cooling)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1022	\$429,102	\$269,138	-\$159,964	0.63
Total Resource Cost Test (TRC) No Adder	\$0.1022	\$429,102	\$244,671	-\$184,431	0.57
Utility Cost Test (UCT)	\$0.0286	\$120,024	\$244,671	\$124,647	2.04
Rate Impact Test (RIM)		\$643,589	\$244,671	-\$398,918	0.38
Participant Cost Test (PCT)		\$412,200	\$626,687	\$214,487	1.52
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000009112
Discounted Participant Payback (years)					8.41

**Table 8 – Multifamily HVAC Cost-Effectiveness Results - Low -10% Participation
 (Load Shape – UT Multifamily Cooling)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1245	\$2,177,088	\$1,083,832	-\$1,093,256	0.50
Total Resource Cost Test (TRC) No Adder	\$0.1245	\$2,177,088	\$985,302	-\$1,191,786	0.45
Utility Cost Test (UCT)	\$0.0332	\$580,542	\$985,302	\$404,760	1.70
Rate Impact Test (RIM)		\$2,757,283	\$985,302	-\$1,771,980	0.36
Participant Cost Test (PCT)		\$2,098,530	\$2,678,724	\$580,194	1.28
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000052562
Discounted Participant Payback (years)					9.55

**Table 9 – Multifamily Lighting Cost-Effectiveness Results - Low -10% Participation
 (Load Shape – Residential Lighting 7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0343	\$812,166	\$1,180,412	\$368,246	1.45
Total Resource Cost Test (TRC) No Adder	\$0.0343	\$812,166	\$1,073,102	\$260,936	1.32
Utility Cost Test (UCT)	\$0.0253	\$599,159	\$1,073,102	\$473,943	1.79
Rate Impact Test (RIM)		\$3,552,409	\$1,073,102	-\$2,479,306	0.30
Participant Cost Test (PCT)		\$711,000	\$3,451,242	\$2,740,242	4.85
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000060083
Discounted Participant Payback (years)					0.83

**Table 10 – Multifamily LIW Cost-Effectiveness Results - Low -10% Participation
 (Load Shape – Residential ERWH 7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0158	\$12,938	\$32,837	\$19,899	2.54
Total Resource Cost Test (TRC) No Adder	\$0.0158	\$12,938	\$29,852	\$16,914	2.31
Utility Cost Test (UCT)	\$0.0158	\$12,938	\$29,852	\$16,914	2.31
Rate Impact Test (RIM)		\$115,039	\$29,852	-\$85,187	0.26
Participant Cost Test (PCT)		\$8,100	\$110,201	\$102,101	13.61
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000003268
Discounted Participant Payback (years)					n/a

**Table 11 – Multifamily Water Heating Cost-Effectiveness Results – Low -10% Participation
(Load Shape – Residential ERWH 7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0736	\$222,260	\$154,657	-\$67,603	0.70
Total Resource Cost Test (TRC) No Adder	\$0.0736	\$222,260	\$140,597	-\$81,663	0.63
Utility Cost Test (UCT)	\$0.0259	\$78,152	\$140,597	\$62,445	1.80
Rate Impact Test (RIM)		\$454,351	\$140,597	-\$313,754	0.31
Participant Cost Test (PCT)		\$210,150	\$442,241	\$232,091	2.10
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000007603
Discounted Participant Payback (years)					5.13

CERTIFICATE OF SERVICE

Docket No. 17-035-T12
Advice 17-13

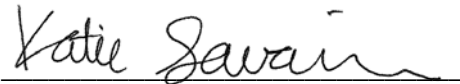
I hereby certify that on September 8, 2017, a true and correct copy of the foregoing was served by electronic mail to the following:

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