

PacifiCorp's Planned Changes to Wattmart Homes in Idaho May 2021

PacifiCorp is planning modifications to the Wattmart Homes program (“Program”) for residential customer energy efficiency offered through Schedule 118. Consistent with the flexible tariff process,¹ notice of changes will be posted on the Program website² at least 45 days prior to implementation. Proposed changes to the incentive tables are included in Exhibit A.

DESCRIPTION OF PLANNED WATTSMART HOMES CHANGES

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

1. Miscellaneous updates to incentives and eligibility criteria for the following measure categories:
 - a. Appliances;
 - b. Weatherization;
 - c. HVAC;
 - d. Lighting; and
 - e. New Homes.

MEASURE UPDATES

As a result of the Company's ongoing analysis of its programs, 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 current measure research, market conditions, and cost-effectiveness thresholds. Accordingly, it is proposed to make the following adjustments:

Table 1 – Appliance Incentives

- **Evaporative Coolers, Room Air Conditioners, and Smart Thermostats** – These measures are being shifted to Table 3 under HVAC Incentives. No other changes are being made to these offerings, except for Evaporative Coolers, as described under the Table 3 section below.
- **Advanced Power Strips** – This offering is being retired due to little applicability and participation in the market, and lack of cost effectiveness.
- **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 \$25. The initially offered incentive amount will be set at \$25 for equipment with a Clean Air Delivery Rating of 30-200.

¹ Order 29976 in Case No. PAC-E-05-10

² <https://www.wattsmarthomes.com/>

- **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.
- **Dishwasher** – This is a new measure being added to the Program that will be initially available through the instant rebate and post-purchase application channels. 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.
- **Freezer** – This is a new measure being added to the Program that will be initially available through the instant rebate and post-purchase application channels. 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 \$20.
- **Refrigerator** – This is a new measure being added to the Program that will be initially available through the instant rebate and post-purchase application channels. 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 \$50.
- **WiFi Smart Plug** – This is a new measure being added to the Program that will be initially available through the instant rebate and post-purchase application channels. WiFi smart plugs will enable customers to control and schedule the energy usage from their electrical outlets to be more energy efficient. The maximum and initially offered incentive amounts will be set at \$10 per plug.
- **Smart Home Energy Management System** – 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.
- **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 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 \$200. Initially offered incentives will be set at \$200 for heater controls that are mounted to the engine or hard wired, and \$150 for heater controls requiring an extension cord to use.

Table 2 – Weatherization Incentives

- **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.
- **Rooftop Heat Tape Controller** – This is a new measure being added to the Program that will initially be available through the post-purchase application channel. Heat tape timers are designed to reduce the run time of rooftop heat cables for snow melt and de-icing. The maximum and initially offered incentive for this new offering will be \$100.

Table 3 – HVAC Incentives

- **Heat Pumps** – There are new and existing offerings that fit under the heat pump category and will be consolidated into a single line item in Table 3. The maximum incentive for the heat pump category will be set at \$4,500. The offered incentives will be broken out as follows:
 - Heat Pump Upgrade – This is a current offering set at \$500 and will remain unchanged as part of these measure updates.
 - Heat Pump Conversion – This is a current offering divided into two tiers, but is being consolidated into a single tier as part of these measure updates. Customers will receive a \$650 incentives and contractors will receive a \$100 incentive.
 - Heat Pump Best Practices Installation and Proper Sizing – This is a current offering set at \$250 and will remain unchanged as part of these measure updates.
 - Ductless Heat Pump – This is a current offering set at \$800 and will remain unchanged as part of these modifications.
 - Ductless Heat Pump Conversion – This is a new offering being added under the Heat Pump category that will initially be available through the post-purchase application channel. This incentivizes customers to convert from forced air to ductless systems. The initially offered incentive amounts will be set at \$750 for customers and \$50 for contractors.
 - Ground Source Heat Pump Upgrade (from air source heat pump) – This is a current offering set at \$2,000 and will remain unchanged as part of these modifications.
 - Ground Source Heat Pump Conversion from Forced Air Furnace – This is a current offering set at \$3,000 and will remain unchanged as part of these modifications.
 - Variable Capacity Heat Pump – This is a new offering being added under the Heat Pump measure category that will initially be available through the post-purchase application channel. Variable capacity heat pumps allow equipment to operate at the actual load, at lower outdoor temperatures, and not cycle on/off. The initially offered incentive amounts for this new offering will be set at \$300 for customers and \$100 for contractors.

- **Supplemental Ductless Heat Pump** – This is a new offering being added under the Heat Pump category that will initially be available through the post-purchase application channel. Supplemental ductless heat pumps will help heat and cool bonus rooms and unconditioned spaces. The initially offered incentive amounts will be set at \$150 for customers and \$50 for contractors.
- **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 initially offered incentives for this new offering will be set at \$2,000 and \$300 for customers and contractors, respectively.
- **95% Gas Furnace Equipped w/ Electronically Commutated Motor** – This offering is being retired due to electronically commutated motors being adopted as a federal standard as of July 3, 2019.
- **Whole Home Upgrade Package** – This offering is being retired due to it no longer being cost effective.
- **Line Voltage Thermostat** – This is a new measure being added to the Program that will initially be available through the post-purchase application channel. Line voltage thermostats are designed for use with an electric baseboard, wall, and zonal heated homes. The maximum incentive for this offering will be set at \$50. The initially offered incentives will be set at \$30 for thermostats that are UL or CSA listed models, and \$50 for UL or CSA models that are also WiFi enabled.
- **Evaporative Coolers, Room Air Conditioner, and Smart Thermostats** – As mentioned above, these measures shifted from Table 1 to Table 3. No other changes are being made to these offerings, except for Evaporative Coolers, which will have a new offering added for lower Cubic Feet per Minute (CFM) models ranged between 500-1,999 CFM. The initially offered incentive for this new offering will be set at \$50. The maximum incentive amount for the Evaporative Cooler category will remain at \$150 as part of these modifications.
- **Bathroom Exhaust Fan** – This is a new measure being added to the Program that will initially be available through the 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, which will use less energy than standard models, reducing start up and steps while still maintaining adequate ventilation.

Table 4 – Lighting Incentives

- **LEDs (General, Specialty, Downlight, Fixture)** – The maximum incentive amounts for these offerings will be reduced to \$3 per bulb/fixture in order to maintain cost-effectiveness. It should be noted that all current offered lighting incentives are either at or below the \$3 amount, so lowering this maximum incentive will not impact current customer offerings.
- **Smart Light Switch** – This is a new measure being added to the Program that will be initially available through the instant rebate, mid-market, and post-purchase application channels. Smart light switches will enable customers to control and schedule their lighting operations to be more efficient and reduce lighting usage when it is not needed. The maximum and initially offered incentive amounts will be set at \$10 per switch.

Table 5 – Plumbing Incentives

- No changes are being made to this table.

Table 6 – New Homes Incentives

- **New Homes Heat Pumps** – There are new and existing offerings that fit under the new homes heat pump category and will be consolidated into a single line item in Table 6. The maximum incentive for the new homes heat pump category will be set at \$4,500. The offered incentives will be broken out as follows:
 - New Homes Heat Pump – This is a current offering set at \$500, but will be reduced to \$400 based on a decreased savings value from the measure analysis.
 - New Homes Ductless Heat Pump – This is a current offering set at \$1,300. This offering will be updated to be split between single and multi-head equipment. Single head equipment will receive a \$750 incentive while a multi-head unit will receive a \$1,300 incentive.
 - New Homes Supplemental Ductless Heat Pump – This offering will also be added to the New Homes Table as a standalone offering, as described in the Table 3 section above. The maximum and initially offered incentive amounts will be set at \$100.
 - Dual Fuel Heat Pump – This offering will also be added to the New Homes Table as a standalone offering, as described in the Table 3 section above. The initially offered incentive amounts will be set at \$2,000 for customers and \$300 for contractors.
- **New Homes Heat Pump Water Heater** – This is a current offering set at \$700 for Northwest Energy Efficiency Alliance (NEEA) Tier 3 - 4 equipment. A lower \$600 incentive will be offered going forward under this category for NEEA Tier 1 – 2 equipment.
- **New Homes Whole Home Performance Path, High Performance Manufactured Homes, and Manufactured Home Eco-rate** – These are current offerings that are being retired due to little or no applicability in the market. These offerings will be replaced with the new offerings described below.

- **New Homes Energy Star Certification** – This is a new offering being added to the Program, which requires new homes to be built above prescriptive building code requirements. The maximum and initially offered incentive amounts will be set at \$25.
- **New Homes Northwest Energy Efficient Manufactured (NEEM)** – This is a new offering being added to the Program, which requires new homes to be built with additional insulation, high efficiency ventilation and appliances, and smart thermostats in order to meet NEEM housing certification. The maximum incentive for this new offering will be set at \$1,500. The initially offered incentive amounts will be divided into two tiers: Tier 1 – Energy Star with NEEM 2.0 and Tier 2 – Energy Star with NEEM 2.0 and ductless heat pump. The initially offered incentive amounts for Tier 1 will be set at \$1,050 for customers and \$200 for contractors, and Tier 2 will be set at \$1,300 for customers and \$200 for contractors.
- **New Homes Home Energy Rating System (HERS)** – This is a new offering being added to the Program based on the HERS index. New homes will be incentivized to meet the various HERS tiers, which measure a home’s level of energy efficiency. For new homes with electric heat, the maximum incentive will be set at \$1,200. The initially offered incentive amounts for electrically heated homes will be set at \$400, \$800, and \$1,200 for homes meeting HERS index ranges of 70-63, 62-54, or 53 and lower, respectively. For new homes with gas heat, the maximum incentive will be set at \$600. The initially offered incentive amounts for gas heated homes will be set at \$200, \$400, and \$600 for homes meeting HERS index ranges of 70-63, 62-54, or 53 and lower, respectively.

COST-EFFECTIVENESS

Cost effectiveness analyses for these changes are attached hereto as Exhibits B and C, and were based on the maximum “up to” incentive levels listed in the flexible tariff tables. The Tables below, pulled from Exhibits B and C, present the expected cost-effectiveness for 2021-2022 assuming these proposed changes become effective. Additional details and inputs are included in Exhibits B and C. The Program is expected to remain cost-effective from the Utility Cost Test perspective at 1.04 and 1.08 for 2021 and 2022, respectively.

Table 5 (Exhibit B) – Wattsmart Homes Program (without NEBs) Cost Effectiveness PY2021

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit /Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0937	\$1,819,757	\$1,216,356	-\$603,401	0.67
Total Resource Cost Test (TRC) No Adder	\$0.0937	\$1,819,757	\$1,105,778	-\$713,979	0.61
Utility Cost Test (UCT)	\$0.0545	\$1,058,428	\$1,105,778	\$47,351	1.04
Rate Impact Test (RIM)		\$3,226,205	\$1,105,778	-\$2,120,427	0.34
Participant Cost Test (PCT)		\$1,458,662	\$2,967,012	\$1,508,350	2.03
Lifecycle Revenue Impacts (\$/kWh)				\$0.0000008435	

Table 5 (Exhibit C) – Wattsmart Homes Program (without NEBs) Cost Effectiveness PY2022

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit /Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0849	\$1,792,822	\$1,382,786	-\$410,035	0.77
Total Resource Cost Test (TRC) No Adder	\$0.0849	\$1,792,822	\$1,257,079	-\$535,743	0.70
Utility Cost Test (UCT)	\$0.0549	\$1,159,515	\$1,257,079	\$97,563	1.08
Rate Impact Test (RIM)		\$3,572,505	\$1,257,079	-\$2,315,427	0.35
Participant Cost Test (PCT)		\$1,401,196	\$3,328,951	\$1,927,756	2.38
Lifecycle Revenue Impacts (\$/kWh)				\$0.0000009124	

Exhibits Provided

Exhibit A – Clean/Redlined Wattsmart Homes incentive tables.

Exhibit B – Wattsmart Homes Program Cost Effectiveness 2021.

Exhibit C – Wattsmart Homes Program Cost Effectiveness 2022.

Exhibit A

EXHIBIT A

Idaho Wattsmart Homes Program – Current Offerings with Proposed Changes to Measures, Incentives, and Qualifications

This document includes the following three sections:

- Definitions of terms used in program documents
- Incentives – General Information
- Incentive tables

Definitions

Customer: Any party who has applied for, been accepted and receives service at the real property, or is the electricity user at the real property.

Energy Efficiency Incentive: Payments of money made by Company to Owner or Customer or other approved party for installation of an Energy Efficiency Measure pursuant to an approved Energy Efficiency Incentive Application.

Energy Efficiency Incentive Application: An application submitted by Owner or Customer to Rocky Mountain Power for Energy Efficiency Incentives.

Energy Efficiency Measure (EEM): A permanently installed measure which can improve the efficiency of the Customer's electric energy use.

New Home: A newly constructed residence.

Mid-Market: An approved third party (typically a contractor, manufacturer, or retailer) who installs Energy Efficiency Measures at the real property or sells Energy Efficiency Measures.

Owner: The person who has both legal and beneficial title to the real property, and is the mortgager under a duly recorded mortgage of real property, the trustor under a duly recorded deed of trust.

Prescriptive incentives: Maximum per unit incentives are listed in the program incentive tables for specific EEMs. Incentives are subject to change and current incentives can be found at <http://www.homeenergysavings.net/Idaho>.

Qualification and Installation Requirements: Requirements that must be met in order to receive an incentive for any EEM. Requirements are subject to change and current requirements can be found at <http://www.homeenergysavings.net/Idaho>.

Table 1 - Appliance Incentives

Measure	Customer/Mid-Market Incentive “Up To”
Clothes Washer	\$50
Evaporative Cooler	Tier 1 — \$75 Tier 2 — \$150
Room Air Conditioner	\$20
Heat Pump Water Heater	Tier 1 — \$600 Tier 2 and above — \$700
Advanced Power Strips	\$60
Smart Thermostat	\$100
Room Air Cleaner	\$25
Heat Pump Clothes Dryer	\$230
Dishwasher	\$20
Freezer	\$20
Refrigerator	\$50
Wifi Smart Plug	\$10
Smart Home Energy Management System	\$275
Engine Block Heater Control	\$200

Table 2 - Weatherization Incentives

Measure	Customer/Mid-Market Incentive “Up To”
Insulation — Attic	\$0.50/sf.
Insulation — Floor	\$0.50/sf.
Insulation — Wall	\$0.65/sf.
Windows	Tier 1 — \$1.00/sf Tier 2 — \$3.00/sf
Infiltration Control (Air Sealing)	\$.30/SqFt
Roof Heat Tape Controller	\$100

Table 3 - HVAC Incentives

Measure	Customer/Mid-Market Incentive “Up To”
Central Air Conditioner	\$100
Duct Sealing and Insulation	\$450
Duct Sealing Only – Pre-Insulated Ducts	\$250
Heat Pump Upgrade	\$4,500
Heat Pump Conversion	Tier 1 — \$750 Tier 2 — \$850
Heat Pump Best Practices Installation and Proper Sizing	\$250
Ductless Heat Pump	\$800
95% Gas Furnace Equipped w/ Electrically Commutated Blower Motor	\$250
Ground Source Heat Pump Upgrade from Air Source Heat Pump (ASHP)	\$2,000
Ground Source Heat Pump Conversion from Forced Air Furnace	\$3,000
Whole Home Upgrade Package	\$1,000

Measure	Customer/Mid-Market Incentive “Up To”
Manufactured Homes Duct Sealing	\$750
<u>Line Voltage Thermostat</u>	Tier 1: \$30 Tier 2: \$50
<u>Smart Thermostat</u>	\$100
<u>Room Air Conditioner</u>	\$20
<u>Bathroom Exhaust Fan</u>	\$10
<u>Evaporative Cooler</u>	\$150, 500 to 1999 CFM – \$50

Table 4 - Lighting Incentives

Measure	Customer/Mid-Market Incentive “Up To”
LEDs (Light Emitting Diodes) - General	\$13.00
LED – Specialty	\$39.00
LED – Downlight	\$13.00
LED Fixture	\$310
<u>Smart Light Switch</u>	\$10

Table 5 - Plumbing Incentives

Measure	Customer/Mid-Market Incentive “Up To”
Low Flow Showerheads	\$31
Low Flow Faucet Aerators	\$5

Table 6 - New Homes Incentives

Measure	Customer/Mid-Market Incentive “Up To”
New Homes Heat Pumps	\$4,500
New Homes Ductless Heat Pumps	\$1,300
New Homes Heat Pump Water Heater	\$700
New Homes Windows	\$3.00/sf.
New Homes Whole Home Performance Path	-\$5000
New High Performance Manufactured Homes	\$2,000
New Manufactured Homes ENERGY STAR	\$1,000
New Manufactured Homes Eco-rated Homes	\$1,250
<u>New Homes Energy Star v3.0 Certification</u>	\$25
<u>New Homes NEEM 2.0 Manufactured</u>	\$1,500
<u>New Homes HERS</u>	\$1,200

EXHIBIT A

Idaho Wattsmart Homes Program – Current Offerings with Proposed Changes to Measures, Incentives, and Qualifications

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Energy Efficiency Incentive Application: An application submitted by Owner or Customer to Rocky Mountain Power for Energy Efficiency Incentives.

Energy Efficiency Measure (EEM): A permanently installed measure which can improve the efficiency of the Customer's electric energy use.

New Home: A newly constructed residence.

Mid-Market: An approved third party (typically a contractor, manufacturer, or retailer) who installs Energy Efficiency Measures at the real property or sells Energy Efficiency Measures.

Owner: The person who has both legal and beneficial title to the real property, and is the mortgager under a duly recorded mortgage of real property, the trustor under a duly recorded deed of trust.

Prescriptive incentives: Maximum per unit incentives are listed in the program incentive tables for specific EEMs. Incentives are subject to change and current incentives can be found at <http://www.homeenergysavings.net/Idaho>.

Qualification and Installation Requirements: Requirements that must be met in order to receive an incentive for any EEM. Requirements are subject to change and current requirements can be found at <http://www.homeenergysavings.net/Idaho>.

Table 1 - Appliance Incentives

Measure	Customer/Mid-Market Incentive “Up To”
Clothes Washer	\$50
Heat Pump Water Heater	\$700
Room Air Cleaner	\$25
Heat Pump Clothes Dryer	\$230
Dishwasher	\$20
Freezer	\$20
Refrigerator	\$50
Wifi Smart Plug	\$10
Smart Home Energy Management System	\$275
Engine Block Heater Control	\$200

Table 2 - Weatherization Incentives

Measure	Customer/Mid-Market Incentive “Up To”
Insulation	\$0.65/sf.
Windows	\$3.00/sf
Infiltration Control (Air Sealing)	\$.30/SqFt
Rooftop Heat Tape Controller	\$100

Table 3 - HVAC Incentives

Measure	Customer/Mid-Market Incentive “Up To”
Central Air Conditioner	\$100
Duct Sealing and Insulation	\$450
Duct Sealing Only – Pre-Insulated Ducts	\$250
Heat Pump	\$4,500
Manufactured Homes Duct Sealing	\$750
Line Voltage Thermostat	\$50
Smart Thermostat	\$100
Room Air Conditioner	\$20
Bathroom Exhaust Fan	\$10
Evaporative Cooler	\$150

Table 4 - Lighting Incentives

Measure	Customer/Mid-Market Incentive “Up To”
LEDs (Light Emitting Diodes) - General	\$3
LED – Specialty	\$3
LED – Downlight	\$3
LED Fixture	\$3
Smart Light Switch	\$10

Table 5 - Plumbing Incentives

Measure	Customer/Mid-Market Incentive “Up To”
Low Flow Showerheads	\$31
Low Flow Faucet Aerators	\$5

Table 6 - New Homes Incentives

Measure	Customer/Mid-Market Incentive “Up To”
New Homes Heat Pumps	\$4,500
New Homes Heat Pump Water Heater	\$700
New Homes Windows	\$3.00/sf.
New Manufactured Homes ENERGY STAR	\$1,000
New Homes Energy Star v3.0 Certification	\$25
New Homes NEEM 2.0 Manufactured	\$1,500
New Homes HERS	\$1,200

Exhibit B



Memorandum

To: Jillian Fredrickson, PacifiCorp
From: David Basak, Guidehouse
Date: April 16, 2021
Re: Cost-Effectiveness Results for the Wattsmart Homes Program PY2021 – Idaho

Guidehouse estimated the cost-effectiveness results for the Idaho Wattsmart Homes Program, based on 2021 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall program and for the 6 measure categories.

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

- Table 1 - Wattsmart Homes Program Inputs
- Table 2 – Wattsmart Homes Annual Program Costs
- Table 3 – Wattsmart Homes Program – Savings by Measure Category
- Table 4 - Benefit/Cost Ratios by Measure Category
- Table 5 – Wattsmart Homes Program Level (without NEBs) Cost-Effectiveness Results
- Table 6 - Wattsmart Homes Appliances Cost-Effectiveness Results
- Table 7 - Wattsmart Homes Building Shell Cost-Effectiveness Results
- Table 8 - Wattsmart Homes HVAC Cost-Effectiveness Results
- Table 9 - Wattsmart Homes Lighting Cost-Effectiveness Results
- Table 10 - Wattsmart Homes New Homes Cost-Effectiveness Results
- Table 11 - Wattsmart Homes Water Heating Cost-Effectiveness Results
- Table 12 - Wattsmart Homes Non-Energy Benefits by Measure
- Table 13 - Wattsmart Homes Program (with NEBs) Cost-Effectiveness Results
- Table 14 - Wattsmart Homes HVAC (with NEBs) Cost-Effectiveness Results
- Table 15 - Wattsmart Homes Lighting (with NEBs) Cost-Effectiveness

Table 1 - Wattsmart Homes Program Inputs

Parameter	Value
Discount Rate	6.92%
Residential Line Loss	9.06%
Residential Energy Rate (\$/kWh) ¹	\$0.1036
Inflation Rate	2.28%

¹ Future rates determined using a 2.28% annual escalator.

Table 2 – Wattsmart Homes Annual Program Costs

Measure Group	Engineering Costs	Utility Admin	Program Delivery	Program Dev.	Incentives	Total Utility Costs	Gross Customer Costs
Appliances	\$0	\$2,219	\$52,713	\$0	\$56,800	\$111,732	\$85,682
Building Shell	\$0	\$624	\$14,818	\$0	\$27,471	\$42,913	\$93,473
HVAC	\$0	\$10,452	\$248,244	\$0	\$324,924	\$583,620	\$703,900
Lighting	\$0	\$6,000	\$33,430	\$0	\$103,658	\$143,088	\$29,910
New Homes	\$0	\$2,479	\$58,888	\$0	\$97,794	\$159,162	\$529,903
Water Heating	\$0	\$225	\$5,338	\$0	\$12,350	\$17,913	\$15,793
Total	\$0	\$22,000	\$413,430	\$0	\$622,998	\$1,058,428	\$1,458,662

Table 3 – Wattsmart Homes Program – Savings by Measure Category

Measure Group	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
Appliances	275,725	80%	221,386	97%	213,902	8
Building Shell	77,508	100%	77,508	91%	70,532	45
HVAC	1,298,494	95%	1,233,849	98%	1,208,391	11
Lighting	419,138	100%	419,138	78%	326,927	12
New Homes	308,028	84%	257,900	93%	239,854	32
Water Heating	27,921	100%	27,921	100%	27,921	13
Total	2,406,813	93%	2,237,701	93%	2,087,527	15

Table 4 - Benefit/Cost Ratios by Measure Category

Measure Group	PTRC	TRC	UCT	RIM	PCT
Appliances	0.57	0.51	0.63	0.26	2.57
Building Shell	0.86	0.78	1.83	0.41	2.03
HVAC with NEBs	0.65	0.59	0.96	0.34	2.01
HVAC	0.65	0.59	0.96	0.34	2.01
Lighting with NEBs	6.20	5.96	1.06	0.32	23.48
Lighting	2.67	2.42	1.06	0.32	17.69
New Homes	0.46	0.42	1.44	0.38	1.08
Water Heating	0.67	0.61	0.73	0.27	2.67
Total with NEBs	0.79	0.73	1.04	0.34	2.15
Total	0.67	0.61	1.04	0.34	2.03

Table 5 – Wattsmart Homes Program Level (without NEBs) Cost-Effectiveness Results

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0937	\$1,819,757	\$1,216,356	-\$603,401	0.67
Total Resource Cost Test (TRC) No Adder	\$0.0937	\$1,819,757	\$1,105,778	-\$713,979	0.61
Utility Cost Test (UCT)	\$0.0545	\$1,058,428	\$1,105,778	\$47,351	1.04
Rate Impact Test (RIM)		\$3,226,205	\$1,105,778	-\$2,120,427	0.34
Participant Cost Test (PCT)		\$1,458,662	\$2,967,012	\$1,508,350	2.03
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000008435

Table 6 through Table 11 provides cost-effectiveness results without NEBs for all 6 measures.

Table 6 - Wattsmart Homes Appliances Cost-Effectiveness Results (Load Shape – Residential_Dryer_7P, Residential_HPWH_7P, ID_Single_Family_Plug)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0950	\$136,456	\$77,154	-\$59,302	0.57
Total Resource Cost Test (TRC) No Adder	\$0.0950	\$136,456	\$70,140	-\$66,316	0.51
Utility Cost Test (UCT)	\$0.0778	\$111,732	\$70,140	-\$41,592	0.63
Rate Impact Test (RIM)		\$271,647	\$70,140	-\$201,507	0.26
Participant Cost Test (PCT)		\$85,682	\$220,405	\$134,723	2.57
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000006790

**Table 7 - Wattsmart Homes Building Shell Cost-Effectiveness Results
 (Load Shape – ID_Single_Family_Heat_Pump)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0765	\$100,503	\$86,293	-\$14,209	0.86
Total Resource Cost Test (TRC) No Adder	\$0.0765	\$100,503	\$78,448	-\$22,054	0.78
Utility Cost Test (UCT)	\$0.0326	\$42,913	\$78,448	\$35,535	1.83
Rate Impact Test (RIM)		\$190,826	\$78,448	-\$112,378	0.41
Participant Cost Test (PCT)		\$93,473	\$190,013	\$96,540	2.03
Lifecycle Revenue Impacts (\$/kWh)					\$0.000000903

**Table 8 - Wattsmart Homes HVAC Cost-Effectiveness Results
 (Load Shape – ID_Single_Family_Cooling, ID_Single_Family_Heat_Pump, ID_DHP_COOL_7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1004	\$951,580	\$619,064	-\$332,517	0.65
Total Resource Cost Test (TRC) No Adder	\$0.1004	\$951,580	\$562,785	-\$388,795	0.59
Utility Cost Test (UCT)	\$0.0616	\$583,620	\$562,785	-\$20,835	0.96
Rate Impact Test (RIM)		\$1,640,004	\$562,785	-\$1,077,219	0.34
Participant Cost Test (PCT)		\$703,900	\$1,413,196	\$709,296	2.01
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000025338

**Table 9 - Wattsmart Homes Lighting Cost-Effectiveness Results
 (Load Shape – Residential_Lighting_7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0211	\$62,760	\$167,358	\$104,598	2.67
Total Resource Cost Test (TRC) No Adder	\$0.0211	\$62,760	\$152,144	\$89,384	2.42
Utility Cost Test (UCT)	\$0.0480	\$143,088	\$152,144	\$9,056	1.06
Rate Impact Test (RIM)		\$474,966	\$152,144	-\$322,822	0.32
Participant Cost Test (PCT)		\$29,910	\$529,142	\$499,232	17.69
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000026404

**Table 10 - Wattsmart Homes New Homes Cost-Effectiveness Results
 (Load Shape – ID_Single_Family_Whole_House)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1390	\$547,103	\$252,190	-\$294,913	0.46
Total Resource Cost Test (TRC) No Adder	\$0.1390	\$547,103	\$229,264	-\$317,840	0.42
Utility Cost Test (UCT)	\$0.0404	\$159,162	\$229,264	\$70,101	1.44
Rate Impact Test (RIM)		\$600,966	\$229,264	-\$371,703	0.38
Participant Cost Test (PCT)		\$529,903	\$572,022	\$42,120	1.08
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000010154

**Table 11 - Wattsmart Homes Water Heating Cost-Effectiveness Results
 (Load Shape – Residential_HPWH_7P, Residential_ERWH_7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0797	\$21,356	\$14,297	-\$7,058	0.67
Total Resource Cost Test (TRC) No Adder	\$0.0797	\$21,356	\$12,997	-\$8,358	0.61
Utility Cost Test (UCT)	\$0.0668	\$17,913	\$12,997	-\$4,915	0.73
Rate Impact Test (RIM)		\$47,796	\$12,997	-\$34,798	0.27
Participant Cost Test (PCT)		\$15,793	\$42,233	\$26,440	2.67
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000005909

In addition to the energy benefits reported above, HVAC and Lighting in the Wattsmart Homes program offer significant non-energy benefits (NEBs). Table 12 through Table 15 detail the non-energy benefits and cost-effectiveness results.

Table 12 - Wattsmart Homes Non-Energy Benefits by Measure

Measure Name	Non-Energy Benefits Water (\$/yr)	Non-Energy Benefits Other (\$/yr)	Quantity	Measure Life	Total NEBs (\$/yr)	Discount Rate	Total Net Present Value Benefits
HVAC	\$0.00	\$3.78	8	15	\$30	6.92%	\$296.17
Lighting - General	\$0.00	\$0.75	29,708	12	\$22,281	6.92%	\$190,026.76
Lighting - Specialty	\$0.00	\$0.92	4,078	12	\$3,735	6.92%	\$31,857.45

The following tables provide the cost-effectiveness results after adding in the non-energy benefits detailed above beginning with the overall program results.

Table 13 - Wattsmart Homes Program (with NEBs) Cost-Effectiveness Results

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0937	\$1,819,757	\$1,438,537	-\$381,221	0.79
Total Resource Cost Test (TRC) No Adder	\$0.0937	\$1,819,757	\$1,327,959	-\$491,799	0.73
Utility Cost Test (UCT)	\$0.0545	\$1,058,428	\$1,105,778	\$47,351	1.04
Rate Impact Test (RIM)		\$3,226,205	\$1,105,778	-\$2,120,427	0.34
Participant Cost Test (PCT)		\$1,458,662	\$3,140,378	\$1,681,716	2.15
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000008435

**Table 14 - Wattsmart Homes HVAC (with NEBs) Cost-Effectiveness Results
 (Load Shape – ID_Single_Family_Heat_Pump)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1004	\$951,580	\$619,360	-\$332,220	0.65
Total Resource Cost Test (TRC) No Adder	\$0.1004	\$951,580	\$563,081	-\$388,499	0.59
Utility Cost Test (UCT)	\$0.0616	\$583,620	\$562,785	-\$20,835	0.96
Rate Impact Test (RIM)		\$1,640,004	\$562,785	-\$1,077,219	0.34
Participant Cost Test (PCT)		\$703,900	\$1,413,492	\$709,592	2.01
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000025338

**Table 15 - Wattsmart Homes Lighting (with NEBs) Cost-Effectiveness
 (Load Shape – Residential_Lighting_7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0211	\$62,760	\$389,243	\$326,482	6.20
Total Resource Cost Test (TRC) No Adder	\$0.0211	\$62,760	\$374,028	\$311,268	5.96
Utility Cost Test (UCT)	\$0.0480	\$143,088	\$152,144	\$9,056	1.06
Rate Impact Test (RIM)		\$474,966	\$152,144	-\$322,822	0.32
Participant Cost Test (PCT)		\$29,910	\$702,212	\$672,302	23.48
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000026404

Exhibit C



Memorandum

To: Jillian Fredrickson, PacifiCorp
From: David Basak, Guidehouse
Date: April 16, 2021
Re: Cost-Effectiveness Results for the Wattsmart Homes Program PY2022 – Idaho

Guidehouse estimated the cost-effectiveness results for the Idaho Wattsmart Homes Program, based on 2022 costs and savings estimates provided by PacifiCorp. This memo provides the cost-effectiveness results for the overall program and for the 6 measure categories.

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

- Table 1 - Wattsmart Homes Program Inputs
- Table 2 – Wattsmart Homes Annual Program Costs
- Table 3 – Wattsmart Homes Program – Savings by Measure Category
- Table 4 - Benefit/Cost Ratios by Measure Category
- Table 5 – Wattsmart Homes Program Level (without NEBs) Cost-Effectiveness Results
- Table 6 - Wattsmart Homes Appliances Cost-Effectiveness Results
- Table 7 - Wattsmart Homes Building Shell Cost-Effectiveness Results
- Table 8 - Wattsmart Homes HVAC Cost-Effectiveness Results
- Table 9 - Wattsmart Homes Lighting Cost-Effectiveness Results
- Table 10 - Wattsmart Homes New Homes Cost-Effectiveness Results
- Table 11 - Wattsmart Homes Water Heating Cost-Effectiveness Results
- Table 12 - Wattsmart Homes Non-Energy Benefits by Measure
- Table 13 - Wattsmart Homes Program (with NEBs) Cost-Effectiveness Results
- Table 14 - Wattsmart Homes HVAC (with NEBs) Cost-Effectiveness Results
- Table 15 - Wattsmart Homes Lighting (with NEBs) Cost-Effectiveness

Table 1 - Wattsmart Homes Program Inputs

Parameter	Value
Discount Rate	6.92%
Residential Line Loss	9.06%
Residential Energy Rate (\$/kWh) ¹	\$0.1060
Inflation Rate	2.28%

¹ Future rates determined using a 2.28% annual escalator.

Table 2 – Wattsmart Homes Annual Program Costs

Measure Group	Engineering Costs	Utility Admin	Program Delivery	Program Dev.	Incentives	Total Utility Costs	Gross Customer Costs
Appliances	\$0	\$6,141	\$57,801	\$0	\$59,300	\$123,242	\$90,445
Building Shell	\$0	\$1,752	\$16,487	\$0	\$28,843	\$47,082	\$96,253
HVAC	\$0	\$27,411	\$257,985	\$0	\$378,228	\$663,624	\$634,665
Lighting	\$0	\$0	\$33,000	\$0	\$104,300	\$137,300	\$30,100
New Homes	\$0	\$6,463	\$60,824	\$0	\$97,794	\$165,081	\$529,903
Water Heating	\$0	\$733	\$6,902	\$0	\$15,550	\$23,186	\$19,830
Total	\$0	\$42,500	\$433,000	\$0	\$684,015	\$1,159,515	\$1,401,196

Table 3 – Wattsmart Homes Program – Savings by Measure Category

Measure Group	Gross kWh Savings	Realization Rate	Adjusted Gross kWh Savings	Net to Gross Ratio	Net kWh Savings	Measure Life
Appliances	292,715	80%	235,065	97%	227,581	8
Building Shell	83,495	100%	83,495	91%	75,980	45
HVAC	1,306,494	99%	1,296,855	95%	1,235,923	13
Lighting	418,700	87%	364,269	74%	269,559	12
New Homes	308,028	84%	257,900	93%	239,854	32
Water Heating	34,955	100%	34,955	100%	34,955	13
Total	2,444,386	93%	2,272,538	92%	2,083,851	16

Table 4 - Benefit/Cost Ratios by Measure Category

Measure Group	PTRC	TRC	UCT	RIM	PCT
Appliances	0.59	0.54	0.66	0.27	2.64
Building Shell	0.91	0.83	1.86	0.42	2.15
HVAC with NEBs	0.85	0.77	1.05	0.41	1.92
HVAC	0.85	0.77	1.05	0.35	2.78
Lighting with NEBs	6.71	6.47	0.98	0.32	21.52
Lighting	2.67	2.43	0.98	0.32	16.03
New Homes	0.48	0.43	1.45	0.39	1.10
Water Heating	0.69	0.63	0.75	0.28	2.71
Total with NEBs	0.90	0.83	1.08	0.35	2.49
Total	0.77	0.70	1.08	0.35	2.38

Table 5 – Wattsmart Homes Program Level (without NEBs) Cost-Effectiveness Results

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0849	\$1,792,822	\$1,382,786	-\$410,035	0.77
Total Resource Cost Test (TRC) No Adder	\$0.0849	\$1,792,822	\$1,257,079	-\$535,743	0.70
Utility Cost Test (UCT)	\$0.0549	\$1,159,515	\$1,257,079	\$97,563	1.08
Rate Impact Test (RIM)		\$3,572,505	\$1,257,079	-\$2,315,427	0.35
Participant Cost Test (PCT)		\$1,401,196	\$3,328,951	\$1,927,756	2.38
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000009124

Table 6 through Table 11 provides cost-effectiveness results without NEBs for all 6 measures.

Table 6 - Wattsmart Homes Appliances Cost-Effectiveness Results (Load Shape – Residential_Dryer_7P, Residential_HPWH_7P, ID_Single_Family_Plug)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0973	\$150,228	\$89,075	-\$61,153	0.59
Total Resource Cost Test (TRC) No Adder	\$0.0973	\$150,228	\$80,978	-\$69,251	0.54
Utility Cost Test (UCT)	\$0.0798	\$123,242	\$80,978	-\$42,264	0.66
Rate Impact Test (RIM)		\$299,091	\$80,978	-\$218,114	0.27
Participant Cost Test (PCT)		\$90,445	\$238,924	\$148,479	2.64
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000007279

**Table 7 - Wattsmart Homes Building Shell Cost-Effectiveness Results
 (Load Shape – ID_Single_Family_Heat_Pump)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0750	\$105,829	\$96,411	-\$9,418	0.91
Total Resource Cost Test (TRC) No Adder	\$0.0750	\$105,829	\$87,647	-\$18,182	0.83
Utility Cost Test (UCT)	\$0.0334	\$47,082	\$87,647	\$40,564	1.86
Rate Impact Test (RIM)		\$209,494	\$87,647	-\$121,848	0.42
Participant Cost Test (PCT)		\$96,253	\$207,318	\$111,065	2.15
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000000970

**Table 8 - Wattsmart Homes HVAC Cost-Effectiveness Results
 (Load Shape – ID_Single_Family_Cooling, ID_Single_Family_Heat_Pump, ID_DHP_COOL_7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0788	\$901,002	\$766,559	-\$134,443	0.85
Total Resource Cost Test (TRC) No Adder	\$0.0788	\$901,002	\$696,872	-\$204,130	0.77
Utility Cost Test (UCT)	\$0.0580	\$663,624	\$696,872	\$33,248	1.05
Rate Impact Test (RIM)		\$1,968,325	\$696,872	-\$1,271,453	0.35
Participant Cost Test (PCT)		\$634,665	\$1,763,535	\$1,128,870	2.78
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000029627

**Table 9 - Wattsmart Homes Lighting Cost-Effectiveness Results
 (Load Shape – Residential_Lighting_7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0225	\$55,274	\$147,634	\$92,360	2.67
Total Resource Cost Test (TRC) No Adder	\$0.0225	\$55,274	\$134,213	\$78,939	2.43
Utility Cost Test (UCT)	\$0.0559	\$137,300	\$134,213	-\$3,087	0.98
Rate Impact Test (RIM)		\$417,187	\$134,213	-\$282,974	0.32
Participant Cost Test (PCT)		\$30,100	\$482,526	\$452,426	16.03
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000022930

**Table 10 - Wattsmart Homes New Homes Cost-Effectiveness Results
(Load Shape – ID_Single_Family_Whole_House)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.1405	\$553,022	\$264,045	-\$288,977	0.48
Total Resource Cost Test (TRC) No Adder	\$0.1405	\$553,022	\$240,041	-\$312,981	0.43
Utility Cost Test (UCT)	\$0.0419	\$165,081	\$240,041	\$74,960	1.45
Rate Impact Test (RIM)		\$616,959	\$240,041	-\$376,917	0.39
Participant Cost Test (PCT)		\$529,903	\$582,835	\$52,932	1.10
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000010200

**Table 11 - Wattsmart Homes Water Heating Cost-Effectiveness Results
(Load Shape – Residential_HPWH_7P, Residential_ERWH_7P)**

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0818	\$27,466	\$19,061	-\$8,404	0.69
Total Resource Cost Test (TRC) No Adder	\$0.0818	\$27,466	\$17,329	-\$10,137	0.63
Utility Cost Test (UCT)	\$0.0691	\$23,186	\$17,329	-\$5,857	0.75
Rate Impact Test (RIM)		\$61,449	\$17,329	-\$44,121	0.28
Participant Cost Test (PCT)		\$19,830	\$53,814	\$33,984	2.71
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000007422

In addition to the energy benefits reported above, HVAC and Lighting in the Wattsmart Homes program offer significant non-energy benefits (NEBs). Table 12 through Table 15 detail the non-energy benefits and cost-effectiveness results.

Table 12 - Wattsmart Homes Non-Energy Benefits by Measure

Measure Name	Non-Energy Benefits Water (\$/yr)	Non-Energy Benefits Other (\$/yr)	Quantity	Measure Life	Total NEBs (\$/yr)	Discount Rate	Total Net Present Value Benefits
HVAC	\$0.00	\$3.78	12	15	\$45	6.92%	\$444.26
Lighting - General	\$0.00	\$0.75	30,000	12	\$22,500	6.92%	\$191,894.54
Lighting - Specialty	\$0.00	\$0.92	4,000	12	\$3,680	6.92%	\$31,385.42

The following tables provide the cost-effectiveness results after adding in the non-energy benefits detailed above beginning with the overall program results.

Table 13 - Wattsmart Homes Program (with NEBs) Cost-Effectiveness Results

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0849	\$1,792,822	\$1,606,511	-\$186,311	0.90
Total Resource Cost Test (TRC) No Adder	\$0.0849	\$1,792,822	\$1,480,803	-\$312,019	0.83
Utility Cost Test (UCT)	\$0.0549	\$1,159,515	\$1,257,079	\$97,563	1.08
Rate Impact Test (RIM)		\$3,572,505	\$1,257,079	-\$2,315,427	0.35
Participant Cost Test (PCT)		\$1,401,196	\$3,494,623	\$2,093,427	2.49
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000009124

Table 14 - Wattsmart Homes HVAC (with NEBs) Cost-Effectiveness Results (Load Shape – ID_Single_Family_Heat_Pump)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0788	\$901,002	\$767,003	-\$133,999	0.85
Total Resource Cost Test (TRC) No Adder	\$0.0788	\$901,002	\$697,316	-\$203,686	0.77
Utility Cost Test (UCT)	\$0.0580	\$663,624	\$696,872	\$33,248	1.05
Rate Impact Test (RIM)		\$1,682,928	\$696,872	-\$986,056	0.41
Participant Cost Test (PCT)		\$920,062	\$1,763,979	\$843,918	1.92
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000022977

Table 15 - Wattsmart Homes Lighting (with NEBs) Cost-Effectiveness (Load Shape – Residential_Lighting_7P)

Cost-Effectiveness Test	Levelized \$/kWh	Costs	Benefits	Net Benefits	Benefit/Cost Ratio
Total Resource Cost Test (PTRC) + Conservation Adder	\$0.0225	\$55,274	\$370,914	\$315,640	6.71
Total Resource Cost Test (TRC) No Adder	\$0.0225	\$55,274	\$357,493	\$302,219	6.47
Utility Cost Test (UCT)	\$0.0559	\$137,300	\$134,213	-\$3,087	0.98
Rate Impact Test (RIM)		\$417,187	\$134,213	-\$282,974	0.32
Participant Cost Test (PCT)		\$30,100	\$647,753	\$617,653	21.52
Lifecycle Revenue Impacts (\$/kWh)					\$0.0000022930