

March 15, 2015

# Demand-Side Management

**2014  
ANNUAL  
REPORT**



**SUPPLEMENT 1:  
Cost-Effectiveness**



## TABLE OF CONTENTS

Table of Contents .....	i
List of Tables .....	i
Supplement 1: Cost-Effectiveness .....	1
Cost-Effectiveness .....	1
Methodology .....	2
Assumptions.....	3
Conservation Adder .....	5
Net-to-Gross.....	5
Results.....	6
2014 DSM Detailed Expense by Program .....	9
Cost-Effectiveness Tables by Program.....	15
Ductless Heat Pump Pilot .....	15
Energy Efficient Lighting .....	17
Energy House Calls.....	23
ENERGY STAR <sup>®</sup> Homes Northwest.....	27
Heating & Cooling Efficiency Program .....	29
Home Improvement Program .....	33
Home Products Program .....	35
Rebate Advantage .....	39
See ya later, refrigerator <sup>®</sup> .....	41
Student Energy Efficiency Kit .....	43
Weatherization Assistance for Qualified Customers .....	45
Weatherization Solutions for Eligible Customers.....	47
Building Efficiency .....	49
Custom Efficiency .....	53
Easy Upgrades .....	57
Irrigation Efficiency Rewards.....	65

## LIST OF TABLES

Table 1.	2014 non-cost-effective measures.....	8
Table 2.	2014 DSM detailed expenses by program (dollars).....	9
Table 3.	Cost-effectiveness summary by program.....	13

This page left blank intentionally.

## SUPPLEMENT 1: COST-EFFECTIVENESS

### Cost-Effectiveness

Idaho Power considers cost-effectiveness of primary importance in the design, implementation, and tracking of energy efficiency and demand response programs. Idaho Power's energy efficiency and demand response opportunities are preliminarily identified through the Integrated Resource Plan (IRP) process. Idaho Power uses third-party energy efficiency potential studies to identify achievable cost-effective energy efficiency potential that is added to the resources included in the IRP. In early 2014, Idaho Power convened a Program Planning Group to explore new opportunities to expand current demand-side management (DSM) programs and offerings. Because of Idaho Power's diversified portfolio of programs, most of the new potential for energy efficiency in Idaho Power's service area is based on additional measures to be added to existing programs rather than developing new programs.

Prior to the actual implementation of energy efficiency or demand response programs, Idaho Power performs a cost-effectiveness analysis to assess whether a potential program design or measure will be cost-effective from the perspective of Idaho Power and its customers. Incorporated in these models are inputs from various sources that use the most current and reliable information available. When possible, Idaho Power leverages the experiences of other utilities in the region and/or throughout the country to help identify specific program parameters. This is accomplished through discussions with other utilities' program managers and researchers. Idaho Power also uses electric industry research organizations, such as ESource, the Edison Electrical Institute (EEI), Consortium for Energy Efficiency (CEE), American Council for an Energy Efficient Economy (ACEEE), Advanced Load Control Alliance (ALCA), and Association of Energy Service Professionals (AESP), to identify similar programs and their results. Additionally, Idaho Power relies on the results of program impact evaluations and recommendations from consultants. In 2014, Idaho Power contracted with ADM Associates, Inc.; CLEAResult Consulting, Inc.; Evergreen Economics; Johnson Consulting Group; and Tetra Tech, MA for program evaluations and research.

Idaho Power's goal is for all programs to have benefit/cost (B/C) ratios greater than one for the total resource cost (TRC) test, utility cost (UC) test, and participant cost test (PCT) at the program and measure level where appropriate. If a particular measure or program is pursued even though it will not be cost-effective from each of the three tests, Idaho Power works with the Energy Efficiency Advisory Group (EEAG) to get input. If the measure or program is indeed offered, the company explains why the measure or program was implemented or continued. The company believes this aligns with the expectations delineated in the memorandum of understanding (MOU) under Idaho Public Utilities Commission (IPUC) Case No. IPC-E-09-09 and Public Utility Commission of Oregon (OPUC) Order No. 94-590.

In the OPUC Order No. 94-590, issued in UM 551, the OPUC outlines specific cost-effectiveness guidelines for energy efficiency measures and programs managed by program administrators. It is the expectation of the OPUC that measures and programs pass both the UC and TRC tests. Measures and programs which do not pass these tests may be offered by a utility if they meet one or more of the following additional conditions specified by Section 13 of Order No. 94-590.

- A. The measure produces significant non-quantifiable non-energy benefits
- B. Inclusion of the measure will increase market acceptance and is expected to lead to reduced cost of the measure
- C. The measure is included for consistency with other DSM programs in the region

- D. Inclusion of the measure helps to increase participation in a cost-effective program
- E. The package of measures cannot be changed frequently, and the measure will be cost effective during the period the program is offered
- F. The measure or package of measures is included in a pilot or research project intended to be offered to a limited number of customers
- G. The measure is required by law or is consistent with OPUC policy and/or direction

If Idaho Power determines a program or measures is not cost-effective but meets one or more of the exceptions set forth by Order No. 94-590, the company files an exceptions request with the OPUC to continue offering the measure or program within its Oregon service area.

Idaho Power endeavors to offer identical programs in both its Oregon and Idaho jurisdictions since some customers, contractors, and trade allies operate in both states. Program consistency is important for the participants' overall satisfaction with the programs. Offering different program designs would create confusion in the marketplace, could inhibit participation, and would add to administration costs. In addition, program infrastructure is designed to implement consistent programs across the service area.

## Methodology

For its cost-effectiveness methodology, Idaho Power relies on the Electric Power Research Institute (EPRI) *End Use Technical Assessment Guide* (TAG); the *California Standard Practice Manual* and its subsequent addendum, the National Action Plan for Energy Efficiency's (NAPEE) *Understanding Cost-Effectiveness of Energy Efficiency Programs: Best Practices, Technical Methods, and Emerging Issues for Policy-Makers*; and the *National Action Plan on Demand Response*. Traditionally, Idaho Power has primarily used the TRC test and the UC test to develop B/C ratios to determine the cost-effectiveness of DSM programs. These tests are still used because, as defined in the TAG and *California Standard Practice Manual*, they are most similar to supply-side tests and provide a useful basis to compare demand-side and supply-side resources.

For energy efficiency programs, each program's cost-effectiveness is reviewed annually from a one-year perspective. The annual energy-savings benefit value is summed over the life of the measure or program and is discounted to reflect 2014 dollars. The result of the one-year perspective is shown in *Supplement 1: Cost-Effectiveness*. Appendix 4 of the main *Demand-Side Management 2014 Annual Report* includes the program cost-effectiveness to-date by including the culmination of actual historic savings values and expenses as well as the ongoing energy savings benefit over the life of the measures included in a program.

The goal of demand response programs is to minimize or delay the need to build new supply-side resources. Unlike energy efficiency programs, demand response programs must acquire and retain participants each year to maintain a level of demand reduction capacity for the company. Demand response programs are expensive and generally have a higher initial investment than energy efficiency programs.

The methods used to determine the cost-effectiveness of the demand response programs was updated in 2014. As part of the public workshops in conjunction with Case No. IPC-E-13-14, Idaho Power and other stakeholders agreed on a new methodology for valuing demand-response. The settlement agreement, as approved in IPUC Order No. 32923 and OPUC order No. 13-482, defined annual cost of operating the three demand-response programs for the maximum allowable 60 hours be no more than \$16.7 million. This \$16.7 million value is the levelized annual cost of a 170 MW deferred resource over a 20-year life. The demand response value calculation will include this value even in years when the IRP

shows no peak-hour capacity deficits. The annual value calculation will be updated with each IRP based on changes that include, but are not limited to, need, capital cost, or financial assumptions. In 2014, the cost of operating the three demand response programs was \$10.6 million. Idaho Power estimates that if the three programs were dispatched for the full 60 hours, the total costs would have been approximately \$13.8 million and would have remained cost effective.

In reviewing the measure cost-effectiveness analyses, Idaho Power examined how the company defines a measure and the level of granularity to be shown in this report. As a result of this examination, the number of measures reported in *Supplement 1: Cost-Effectiveness* has been reduced from 455 in 2013 to 259 in 2014. Idaho Power offers attic insulation to Idaho residential customers in the Home Improvement Program. To a customer, attic insulation would be considered one measure or offering. In 2013, Idaho Power displayed 81 different attic insulation measure combinations representing various R-values, heating systems, and heating and cooling zones within its service area.

Idaho Power has consolidated the measure definition for the attic-, floor-, and wall-insulation and window measures in the Home Improvement Program. The company has also consolidated the lighting measures in the Easy Upgrades program. In 2014, Idaho Power made several changes to the standard lighting measure offering within Easy Upgrades. These changes resulted in over 100 lighting measure combination in the program. These lighting measures have been grouped under 26 similar categories.

## Assumptions

Idaho Power relies on research conducted by third-party sources to obtain savings and cost assumptions for various measures. These assumptions are routinely reviewed and updated as new information becomes available. For many of the measures within *Supplement 1: Cost-Effectiveness*, savings, costs, and load shapes were derived from either the Regional Technical Forum (RTF) or the *Idaho Power Energy Efficiency Potential Study* conducted by EnerNOC Utility Solutions Consulting Group (EnerNOC) in 2012. In 2013, EnerNOC provided Idaho Power with updated end-use load shapes. Those updated load shapes have been applied to each program and measure when applicable. Applied Energy Group (AEG) acquired EnerNOC and refreshed the energy efficiency potential analysis in 2014.

The RTF regularly reviews, evaluates, and recommends eligible energy efficiency measures and the estimated savings and costs associated with those measures. As the RTF updates these assumptions, Idaho Power applies them to current program offerings and assesses the need to make any program changes. Idaho Power staff participates in the RTF by attending the monthly meetings and contributing to various sub-committees. Because cost data from the RTF information is in 2006 dollars, measures with costs from the RTF have been escalated by 17.50232 percent in 2014. This percentage is provided by the RTF at [rtf.nwcouncil.org/measures/support/files/RTFStandardInformationWorkbook\\_v2\\_2.xlsx](http://rtf.nwcouncil.org/measures/support/files/RTFStandardInformationWorkbook_v2_2.xlsx).

Idaho Power also relies on other sources, such as the Northwest Power and Conservation Council (NWPCC), Northwest Energy Efficiency Alliance (NEEA), the Database for Energy Efficiency Resources (DEER), the Energy Trust of Oregon (ETO), the Bonneville Power Administration (BPA), third-party consultants, and other regional utilities. In 2013, ADM Associates, Inc., began developing a technical reference manual (TRM) for the Building Efficiency and Easy Upgrades programs. Idaho Power received the results of the TRM in 2014 and has applied those assumptions to the programs. Occasionally, Idaho Power will also use internal engineering estimates and calculations for savings and costs based on information gathered from previous projects.

In 2014, Idaho Power reviewed its policy to update measure energy savings throughout the year. In the past, when energy savings assumptions were updated during the calendar year by third-parties, such as

the RTF or an evaluator, Idaho Power immediately applied those assumptions retroactively for the entire year. This caused issues when budgets and goals are set at the beginning of the year using one set of assumptions and those assumptions are changed mid-year. This made it appear that some programs were not meeting their original goals. It has been recommended in process evaluations that the company “freeze” savings assumptions at a certain point and update assumptions once a year. After reviewing the practices of other utilities around the region and the impact of these frequent updates to program specialists and field staff, the company established a policy to freeze savings assumptions when the budgets and goals are set for the next calendar year unless code and standards changes or program updates necessitate a need to use updated savings. As a general rule, the 2014 energy savings reported for most programs will use the assumption set at the beginning of the year. These assumptions are discussed in more detail in the cost-effectiveness sections for each program.

The remaining inputs used in the cost-effectiveness models are obtained from the IRP process. The *Technical Appendix* of Idaho Power’s 2013 IRP is the source for the financial assumptions, including the discount rate and escalation rate. The 2013 IRP was acknowledged by the IPUC in Order No. 32980 on February 24, 2014 and by the OPUC in Order No. 14-253 on July 8, 2014. These DSM alternative costs vary by season and time of day and are applied to an end-use load shape to obtain the value of that particular measure or program. The DSM alternative energy costs are based on both the projected fuel costs of a peaking unit and forward electricity prices as determined by Idaho Power’s power supply model, AURORAxmp<sup>®</sup> Electric Market Model. The 2013 IRP planning process resulted in a significant drop in the DSM alternative costs used to value energy efficiency compared with previous IRPs. While impacts will vary from program to program depending on measure life and the end uses, decreases of program benefits of up to 40 to 50 percent have been seen. Multiple factors led to the reduction of the DSM alternative costs, but two of the primary impacts included a reduced carbon adder used in the 2013 IRP process and decreases in early-year natural gas price forecasts. While these benefit reductions have placed more burden on program cost-effectiveness, some of the impact has been mitigated by the recent addition of quantified non-energy benefits (NEB) in the region. The avoided capital cost of capacity is based on a gas-fired, simple-cycle turbine. In the 2013 IRP, the annual avoided capacity cost increased from \$94 per kilowatt (kW) from the 2011 IRP to \$102 per kW. When multiplied by the effective load carrying capacity (ELCC) of 93.4 percent, the annual avoided capacity cost is \$95.27/kW. The ELCC reduces the avoided capacity cost benefit based on the availability of a resource.

As recommended by the NAPEE *Understanding Cost-Effectiveness of Energy Efficiency Programs*, Idaho Power’s weighted average cost of capital (WACC) of 6.77 percent is used to discount future benefits and costs to today’s dollars. However, determining the appropriate discount rate for participant cost and benefits is difficult because of the variety of potential discount rates that can be used by the different participants as described in the TAG manual. Since the participant benefit is based on the anticipated bill savings of the customer, Idaho Power believes the WACC is not an appropriate discount rate to use. Because the customer bill savings is based on Idaho Power’s 2014 average customer segment rate and is not escalated, the participant bill savings is discounted using a real discount rate of 3.66 percent, which is based on the 2013 IRP’s WACC of 6.77 percent and an escalation rate of 3 percent. The formula to calculate the real discount rate is as follows:

$$((1 + \text{WACC}) \div (1 + \text{Escalation})) - 1 = \text{Real}$$

Line loss percentages are applied to the metered site energy savings to find the energy savings at the generation level. The *Demand-Side Management 2014 Annual Report* shows the estimated electrical savings at the customer meter level. Cost-effectiveness analyses are based on generation level energy savings. The demand response program reductions are reported at the generation level with the line

losses. In 2014, Idaho Power reviewed the system loss coefficients from 2012. Based on this study, the line loss factors were updated and reduced from 10.9 to 9.6 percent. The summer peak line loss factor was reduced from 13 to 9.7 percent.

## Conservation Adder

The *Pacific Northwest Electric Power Planning and Conservation Act* (Northwest Power Act) states:

...any conservation or resource shall not be treated as greater than that of any non-conservation measure or resource unless the incremental system cost of such conservation or resource is in excess of 110 per centum of the incremental system cost of the nonconservation measure or resource.<sup>1</sup>

As a result of the Northwest Power Act, most utilities in the Pacific Northwest add a 10 percent conservation adder in energy efficiency cost-effectiveness analyses. In OPUC Order No. 94-590, the OPUC commission states:

We support the staff's position that the effect of conservation in reducing uncertainty in meeting load growth is included in the ten percent cost adder and that no separate adjustment is necessary.

Additionally, in IPUC Order No. 32788 in Case No. GNR-E-12-01, "Staff noted that Rocky Mountain Power and Avista use a 10% conservation adder when calculating the cost-effectiveness of all their DSM programs." Staff recommended that the utilities have the option to use a 10 percent adder and the IPUC Commission agreed with the recommendation to allow utilities to use the 10 percent adder in the cost-effectiveness analyses for low-income programs.

After reviewing the practices of other utilities in the Pacific Northwest as well as the OPUC Order No. 94-590 and IPUC Order 32788, Idaho Power now includes the 10 percent conservation adder in all measure and program cost-effectiveness analyses.

## Net-to-Gross

Net-to-gross (NTG), or net-of-free-ridership (NTFR), is defined by NAPEE's *Understanding Cost-Effectiveness of Energy Efficiency Programs: Best Practices, Technical Methods, and Emerging Issues for Policy-Makers* as a ratio that does as follows:

Adjusts the impacts of the programs so that they only reflect those energy efficiency gains that are the result of the energy efficiency program. Therefore, the NTG deducts energy savings that would have been achieved without the efficiency program (e.g., 'free-riders') and increases savings for any 'spillover' effect that occurs as an indirect result of the program. Since the NTG attempts to measure what the customers would have done in the absence of the energy efficiency program, it can be difficult to determine precisely.

Capturing the effects of Idaho Power's energy efficiency efforts on free-ridership and spillover is difficult. Due to the uncertainty surrounding NTG percentages, Idaho Power used a NTG of 100 percent

---

<sup>1</sup> Northwest Power Act §3(4)(D). [nwcouncil.org/media/5227150/poweract.pdf](http://nwcouncil.org/media/5227150/poweract.pdf)

for all measure cost-effectiveness analyses. For the program cost-effectiveness analyses, the B/C ratios shown are based on a 100 percent NTG. A sensitivity analysis was conducted to show what the minimum NTG percentage needs to be for the program to remain (or become) cost-effective. These NTG percentages are shown in the program cost-effectiveness pages of *Supplement 1: Cost-Effectiveness*.

## Results

Idaho Power determines cost-effectiveness on a measure basis, where relevant, and program basis. As part of *Supplement 1: Cost-Effectiveness* and where applicable, Idaho Power publishes the cost-effectiveness by measure, calculating the PCT and ratepayer impact measure (RIM) test at the program level, listing the assumptions associated with cost-effectiveness, and citing sources and dates of metrics used in the cost-effectiveness calculation.

The B/C ratio from the participant cost perspective is not calculated for Weatherization Assistance for Qualified Customers (WAQC), Weatherization Solutions for Eligible Customers, See ya later, refrigerator<sup>®</sup>, Student Energy Efficiency Kit and Energy House Calls. These programs have few or no customer costs. For energy efficiency programs, the cost-effectiveness models do not assume ongoing participant costs.

For most programs, the *Demand-Side Management 2014 Annual Report Appendix 4* contains program UC and TRC B/C ratios using actual cost information over the life of the program through 2014. *Supplement 1: Cost-Effectiveness* contains annual cost-effectiveness metrics for each program using actual information from 2014, includes results of the PCT, and includes the application of a NTG factor where appropriate. Current customer energy rates are used in the calculation of the B/C ratios from a PCT and RIM perspective. Rate increases are not forecast or escalated. Where applicable, the cost-effectiveness results of demand response programs include historical expenses. A summary of the cost effectiveness by program can be found in Table 3.

In 2014, most of Idaho Power's energy efficiency programs were cost effective, except for the Ductless Heat Pump Pilot (DHP), ENERGY STAR<sup>®</sup> Homes Northwest, See ya later, refrigerator<sup>®</sup>, Student Energy Efficiency Kit, WAQC, and Weatherization Solutions for Eligible Customers.

The DHP Pilot has a UC of 1.77, TRC of 0.70, and PCT of 1.01. In fall 2013, the RTF approved ductless heat pump annual savings estimates for customers not screened for supplemental fuel use. RTF savings declined from the previously provisionally deemed savings of 3,500 annual kilowatt-hour (kWh) to a range between 292 kWh and 3,131 annual kWh. As a result of the lower kWh savings, the program did not pass the TRC and PCT. In 2014, Idaho Power included RTF-approved NEBs, accounting for annual avoided supplemental fuel costs and avoided capital expenses of A/C purchases that would have occurred in the absence of the installation of a DHP system. A RTF sub-committee, that was formed in 2014 to address the possible inclusion of NEBs for decreased health impacts from reduced wood-burning emissions. In November, the RTF presented its findings and recommendation on the inclusion of health benefits to be part of the cost-effective benefits in the cost-effective analysis of measures and programs. The RTF is waiting the council's guidance on the issue. Additionally, Idaho Power filed a cost-effectiveness exception request for the ductless heat pumps in UM-1710.

The ENERGY STAR Homes Northwest program has a UC of 1.64, TRC of 0.83, and PCT of 1.41. In 2014, 8 of 243 homes were single-family homes and 235 were townhomes. Although single-family homes are cost-effective, due to the lower kWh savings for townhomes versus single-family homes, the program was shown to be not cost-effective from a TRC perspective for 2014. The RTF reviewed

the savings assumptions for ENERGY STAR new construction for single family homes in 2014. The RTF opted to extend the sunset date for multi-family homes and will review the measure in 2015. Additionally, NEEA is planning to transition their Northwest ENERGY STAR Homes program to the national EPA ENERGY STAR Homes program. A second program, NEEA's Next Step Home program is still in the pilot stage; however, the pilot is not ready to launch as a standard program. Idaho Power will monitor these potential changes to the program for possible implementation in the future. The cost-effectiveness calculations for this program does not include the savings for the ENERGY STAR certified gas heated homes that Idaho Power has claimed in 2014. Because of Idaho Power's support of NEEA and the Northwest ENERGY STAR Homes brand, Idaho Power is claiming savings for 282 natural gas heated, ENERGY STAR certified homes, certified in Idaho Power's Idaho service area in 2014. These savings account for 195,372 kWh of annual savings from efficient cooling equipment, insulation, windows, doors, water heating, ventilation, appliances, and lighting. NEEA does not claim these electric savings.

See ya later, refrigerator<sup>®</sup> has a UC and TRC of 0.86. The lower cost-effectiveness ratios in 2014 over 2013 are largely due to the updated 2013 IRP DSM alternative costs. In 2014, the RTF updated the energy savings assumptions for freezer and refrigerator decommissioning and included estimates for NEBs. The updated energy savings and NEB assumptions will be applied in 2015. With the planned program changes in 2015 and the inclusion of NEBs, the program is expected to be cost effective in 2015.

WAQC had a TRC of 0.42, and Weatherization Solutions for Eligible Customers had a TRC of 0.50. The cost-effectiveness ratios were impacted by the change in DSM alternative costs and the updated per home savings. Idaho Power performed a billing analysis of the 2012 weatherization projects. In 2012 and 2013, Idaho Power claimed annual 2,684 kWh per home in WAQC. In 2014, the savings for single family and multi-family homes decreased to 1,551 kWh per year. The savings for manufactured homes decreased to 2,568 kWh per year. The annual savings for non-profits is 1.03 kWh/heated square foot. For Weatherization Solutions for Eligible Customers, the billing analysis shows that the per home annual savings increased. In 2012 and 2013, Idaho Power claimed 1,826 kWh per home. In 2014, the savings for single family and multi-family homes increased to 2,108 kWh/year. The savings for manufactured homes increased to 3,426 kWh/per year. Idaho Power adopted the following IPUC staff's recommendations from Case No. GNR-E-12-01 for calculating the programs' cost-effectiveness:

- Applied a 100-percent NTG.
- Claimed 100 percent of energy savings for each project.
- Included indirect administrative overhead costs. The overhead costs of 2.90 percent were calculated from the \$1,065,072 of indirect program expenses divided by the total DSM expenses of \$36,713,333 as shown in Appendix 3 of the *Demand-Side Management 2014 Annual Report*.
- Applied the 10-percent conservation preference adder.
- Amortized evaluation expenses over a three-year period.
- Claimed one dollar of NEBs for each dollar of utility and federal funds invested in health, safety, and repair measures.

Thirty nine individual measures in various programs are shown to be not cost-effective from either the UC or TRC perspective. These measures will be discontinued, analyzed for additional NEBs, modified to increase potential per unit savings, or monitored to examine their impact on the specific program's

overall cost-effectiveness. For several measures, Idaho Power filed cost-effectiveness exception request with the OPUC in compliance with Order No. 94-590. Measures and programs which do not pass these tests may be offered by utility if they meet one or more of the following additional conditions specified by Section 13 of Order No. 94-590. The filings and exception request is noted below.

Table 1. 2014 non-cost-effective measures

Program	Number of Measures	Notes
Building Efficiency	3	Cost-effectiveness exception request filed with OPUC Advice No. 14-10. OPUC Order No. 94-590, Section 13. Exceptions A, B, C, and D.
Ductless Heat Pump Pilot	5	Cost-effectiveness exception request filed with OPUC under UM-1710. OPUC Order No. 94-590, Section 13. Exceptions A and C.
Easy Upgrades	11	Cost-effectiveness exception request filed with OPUC Advice No. 14-06. OPUC Order No. 94-590, Section 13. Exceptions A, C, and D.
ENERGY STAR Homes Northwest	1	Reviewing program design and measure offering for 2016
Heating & Cooling Efficiency Program	6	Cost-effectiveness exception request filed with OPUC under UM-1710. OPUC Order No. 94-590, Section 13. Exceptions C and D. Measure to be reviewed in 2015. Pending updates from the RTF.
Home Improvement Program	1	Measure to be reviewed in 2015. Pending updates from the RTF.
Home Products Program	9	Program modified in 2015 to remove non cost-effective measures.
Irrigation Efficiency Rewards	1	Cost-effectiveness exception request filed with OPUC under UM-1710. OPUC Order No. 94-590, Section 13. Exceptions A, C, and D.
See ya later, refrigerator <sup>®</sup>	2	Program modified in 2015 to reduce costs and increase overall cost-effectiveness of the program.
<b>Total</b>	<b>39</b>	

Following the annual program cost-effectiveness results are tables that include measure-level cost-effectiveness. Exceptions to the measure-level tables are the demand response programs which do not provide incentives for installed end-use measures. Other programs not analyzed at the measure level include Custom Efficiency, the custom option of Irrigation Efficiency Rewards, and WAQC, where projects include multiple interactive measures that are analyzed at the project level. Due to the application of a per-home annual energy savings number for Weatherization Solutions for Eligible Customers determined by a billing analysis of the 2012 program participants, measure-level realized energy-saving data are unavailable for 2014. The measure level cost-effectiveness analysis is not included in this report due to the lack of realized data at the measure level.

The measure-level cost-effectiveness includes inputs of measure life, energy savings, incremental cost, incentives, program administration cost, and net benefit. Program administration costs include all non-incentive costs: labor, marketing, training, education, purchased services, and evaluation. Energy and expense data have been rounded to the nearest whole unit which may result in minor rounding differences.

## 2014 DSM Detailed Expense by Program

Included in this supplement is a detailed breakout of program expenses as shown in Appendix 2 of the *Demand-Side Management 2014 Annual Report*. These expenses are broken out by funding source major-expense type (incentives, labor/administration, materials, other expenses, and purchased services).

Table 2. 2014 DSM detailed expenses by program (dollars)

Sector/Program	Idaho Rider	Oregon Rider	Idaho Power	Total Program
<b>Energy Efficiency/Demand Response</b>				
<b>Residential</b>				
<b>A/C Cool Credit</b> .....	<b>\$ 962,286</b>	<b>\$ 56,988</b>	<b>\$ 446,372</b>	<b>\$ 1,465,646</b>
Labor/Administrative Expense .....	59,202	3,554	8,433	71,189
Materials and Equipment .....	216	11	0	228
Other Expense.....	36,483	1,920	0	38,403
Purchased Services.....	865,257	45,524	0	910,781
Incentives .....	1,128	5,979	437,939	445,046
<b>Ductless Heat Pump Pilot</b> .....	<b>235,099</b>	<b>9,614</b>	<b>6,733</b>	<b>251,446</b>
Labor/Administrative Expense .....	50,965	3,038	6,733	60,736
Materials and Equipment .....	4	0	0	4
Other Expense.....	41,413	2,183	0	43,596
Purchased Services.....	12,217	643	0	12,860
Incentives .....	130,500	3,750	0	134,250
<b>Energy Efficient Lighting</b> .....	<b>1,860,046</b>	<b>45,959</b>	<b>3,818</b>	<b>1,909,823</b>
Labor/Administrative Expense .....	39,051	2,256	3,818	45,126
Materials and Equipment .....	(180)	(9)	0	(190)
Other Expense.....	186,098	7,026	0	193,124
Purchased Services.....	295,300	8,615	0	303,915
Incentives .....	1,339,777	28,071	0	1,367,848
<b>Energy House Calls</b> .....	<b>186,732</b>	<b>8,174</b>	<b>3,080</b>	<b>197,987</b>
Labor/Administrative Expense .....	25,708	1,516	3,080	30,304
Materials and Equipment .....	13,684	3	0	13,687
Other Expense.....	9,261	473	0	9,734
Purchased Services.....	138,079	6,183	0	144,262
<b>ENERGY STAR® Homes Northwest</b> .....	<b>330,523</b>	<b>7,612</b>	<b>5,141</b>	<b>343,277</b>
Labor/Administrative Expense .....	33,646	2,000	4,391	40,038
Other Expense.....	63,808	3,358	750	67,917
Purchased Services.....	69	4	0	72
Incentives .....	233,000	2,250	0	235,250
<b>Heating &amp; Cooling Efficiency Program</b> .....	<b>340,551</b>	<b>14,627</b>	<b>6,836</b>	<b>362,014</b>
Labor/Administrative Expense .....	56,204	3,318	6,836	66,359
Materials and Equipment .....	5,335	320	0	5,655
Other Expense.....	50,745	2,835	0	53,579
Purchased Services.....	104,367	4,704	0	109,071
Incentives .....	123,900	3,450	0	127,350
<b>Home Energy Audit</b> .....	<b>164,579</b>	<b>(248)</b>	<b>6,318</b>	<b>170,648</b>
Labor/Administrative Expense .....	44,353	(248)	6,318	50,422
Materials and Equipment .....	22,427	0	0	22,427
Other Expense.....	41,395	0	0	41,395
Purchased Services.....	56,404	0	0	56,404

Table 2. 2014 DSM detailed expenses by program (continued)

Sector/Program	Idaho Rider	Oregon Rider	Idaho Power	Total Program
<b>Home Improvement Program</b> .....	<b>\$ 315,616</b>	<b>\$ 0</b>	<b>\$ 9,101</b>	<b>\$ 324,717</b>
Labor/Administrative Expense .....	71,686	0	9,101	80,788
Materials and Equipment .....	28	0	0	28
Other Expense.....	65,168	0	0	65,168
Purchased Services.....	7,335	0	0	7,335
Incentives .....	171,398	0	0	171,398
<b>Home Products Program</b> .....	<b>212,787</b>	<b>9,250</b>	<b>5,139</b>	<b>227,176</b>
Labor/Administrative Expense .....	53,811	3,102	5,139	62,052
Materials and Equipment .....	61	3	0	64
Other Expense.....	7,389	483	0	7,872
Purchased Services.....	9,741	484	0	10,225
Incentives .....	141,786	5,177	0	146,963
<b>Oregon Residential Weatherization</b> .....	<b>0</b>	<b>5,234</b>	<b>228</b>	<b>5,462</b>
Labor/Administrative Expense .....	0	3,466	228	3,694
Other Expense.....	0	154	0	154
Incentives .....	0	1,614	0	1,614
<b>Rebate Advantage</b> .....	<b>57,155</b>	<b>5,323</b>	<b>753</b>	<b>63,231</b>
Labor/Administrative Expense .....	7,064	413	753	8,230
Other Expense.....	2,091	110	0	2,201
Purchased Services.....	8,000	800	0	8,800
Incentives .....	40,000	4,000	0	44,000
<b>See ya later, refrigerator®</b> .....	<b>562,002</b>	<b>12,410</b>	<b>1,639</b>	<b>576,051</b>
Labor/Administrative Expense .....	33,696	1,844	1,639	37,179
Other Expense.....	61,177	2,218	0	63,395
Purchased Services.....	372,989	6,668	0	379,657
Incentives .....	94,140	1,680	0	95,820
<b>Shade Tree Program</b> .....	<b>143,750</b>	<b>66</b>	<b>3,474</b>	<b>147,290</b>
Labor/Administrative Expense .....	24,387	66	3,474	27,927
Materials and Equipment .....	2,533	0	0	2,533
Other Expense.....	36,566	0	0	36,566
Purchased Services.....	80,265	0	0	80,265
<b>Weatherization Assistance for Qualified Customers</b> .....	<b>0</b>	<b>0</b>	<b>1,320,112</b>	<b>1,320,112</b>
Labor/Administrative Expense .....	0	0	48,908	48,908
Other Expense.....	0	0	2,536	2,536
Purchased Services.....	0	0	1,268,668	1,268,668
<b>Weatherization Solutions for Eligible Customers</b> .....	<b>\$ 757,748</b>	<b>\$ 0</b>	<b>\$ 33,596</b>	<b>\$ 791,344</b>
Labor/Administrative Expense .....	6,659	0	33,596	40,255
Materials and Equipment .....	6,488	0	0	6,488
Other Expenses.....	6,958	0	0	6,958
Purchased Services.....	737,643	0	0	737,643
<b>Residential Total</b> .....	<b>\$ 6,128,874</b>	<b>\$ 175,010</b>	<b>\$ 1,852,341</b>	<b>\$ 8,156,225</b>

Table 2. 2014 DSM detailed expenses by program (continued)

Sector/Program	Idaho Rider	Oregon Rider	Idaho Power	Total Program
<b>Commercial/Industrial</b>				
<b>Building Efficiency</b> .....	\$ 1,212,907	\$ 31,052	\$ 14,315	\$ 1,258,273
Labor/Administrative Expense .....	121,949	7,171	14,315	143,435
Other Expense.....	25,871	1,362	0	27,233
Purchased Services.....	163,125	8,150	0	171,275
Incentives .....	901,961	14,370	0	916,331
<b>Custom Efficiency</b> .....	<b>6,705,219</b>	<b>418,537</b>	<b>49,299</b>	<b>7,173,054</b>
Labor/Administrative Expense .....	438,249	25,656	49,299	513,204
Materials and Equipment .....	118	6	0	124
Other Expense.....	286,725	6,950	0	293,675
Purchased Services.....	791,940	43,459	0	835,399
Incentives .....	5,188,187	342,465	0	5,530,652
<b>Easy Upgrades</b> .....	<b>3,020,323</b>	<b>112,623</b>	<b>17,996</b>	<b>3,150,942</b>
Labor/Administrative Expense .....	262,053	14,735	17,996	294,784
Other Expense.....	57,907	3,048	0	60,954
Purchased Services.....	599,823	31,570	0	631,392
Incentives .....	2,100,540	63,271	0	2,163,811
<b>FlexPeak Management</b> .....	<b>50,964</b>	<b>78,131</b>	<b>1,434,116</b>	<b>1,563,211</b>
Labor/Administrative Expense .....	49,576	2,981	7,062	59,620
Other Expense.....	1,387	41	0	1,429
Incentives .....	0	75,108	1,427,054	1,502,163
<b>Oregon Commercial Audit</b> .....	<b>0</b>	<b>9,464</b>	<b>0</b>	<b>9,464</b>
Labor/Administrative Expense .....	0	3,902	0	3,902
Other Expense.....	0	737	0	737
Purchased Services.....	0	4,825	0	4,825
<b>Commercial/Industrial Total</b> .....	<b>\$ 10,989,412</b>	<b>\$ 649,806</b>	<b>\$ 1,515,726</b>	<b>\$ 13,154,944</b>
<b>Irrigation</b>				
<b>Irrigation Efficiency</b> .....	<b>2,256,235</b>	<b>144,392</b>	<b>45,880</b>	<b>2,446,507</b>
Labor/Administrative Expense .....	183,159	11,002	44,685	238,846
Materials and Equipment .....	53	3	0	56
Other Expense.....	31,676	1,667	1,195	34,538
Purchased Services.....	2,846	0	0	2,846
Incentives .....	2,038,500	131,720	0	2,170,220
<b>Irrigation Peak Rewards</b> .....	<b>1,374,724</b>	<b>104,995</b>	<b>6,117,494</b>	<b>7,597,213</b>
Labor/Administrative Expense .....	37,294	2,242	41,791	81,326
Materials and Equipment .....	281	15	0	296
Other Expense.....	31,267	1,646	0	32,913
Purchased Services.....	1,305,881	68,967	0	1,374,848
Incentives .....		32,126	6,075,703	6,107,828
<b>Irrigation Total</b> .....	<b>\$ 3,630,958</b>	<b>\$ 249,387</b>	<b>\$ 6,163,374</b>	<b>\$ 10,043,719</b>
<b>Energy Efficiency/Demand Response Total</b> .....	<b>\$ 20,749,245</b>	<b>\$ 1,074,203</b>	<b>\$ 9,531,441</b>	<b>\$ 31,354,889</b>
<b>Market Transformation</b>				
<b>NEEA</b> .....	<b>3,140,621</b>	<b>165,296</b>	<b>0</b>	<b>3,305,917</b>
Purchased Services.....	3,140,621	165,296	0	3,305,917
<b>Market Transformation Total</b> .....	<b>\$ 3,140,621</b>	<b>\$ 165,296</b>	<b>\$ 0</b>	<b>\$ 3,305,917</b>

Table 2. 2014 DSM detailed expenses by program (continued)

Sector/Program	Idaho Rider	Oregon Rider	Idaho Power	Total Program
<b>Other Programs and Activities</b>				
<b>Residential</b>				
<b>Residential Energy Efficiency Education Initiative</b> .....	<b>394,895</b>	<b>14,844</b>	<b>13,352</b>	<b>423,091</b>
Labor/Administrative Expense .....	93,653	5,633	13,340	112,626
Materials and Equipment .....	958	50	0	1,008
Other Expense.....	299,961	9,144	12	309,117
Purchased Services.....	323	17	0	340
<b>Residential Total</b> .....	<b>\$ 394,895</b>	<b>\$ 14,844</b>	<b>\$ 13,352</b>	<b>\$ 423,091</b>
<b>Commercial/Industrial</b>				
<b>Commercial Education Initiative</b> .....	<b>72,613</b>	<b>3,829</b>	<b>163</b>	<b>76,606</b>
Labor/Administrative Expense .....	1,142	68	163	1,373
Other Expense.....	38,744	2,039	0	40,783
Purchased Services.....	32,728	1,723	0	34,450
<b>Commercial/Industrial Total</b> .....	<b>\$ 72,613</b>	<b>\$ 3,829</b>	<b>\$ 163</b>	<b>\$ 76,606</b>
<b>Other</b>				
<b>Energy Efficiency Direct Program Overhead</b> .....	<b>427,506</b>	<b>21,711</b>	<b>29,441</b>	<b>478,658</b>
Labor/Administrative Expense .....	208,377	12,517	29,441	250,335
Materials and Equipment .....	205,435	8,473	0	213,908
Other Expense.....	13,694	721	0	14,415
<b>Local Energy Efficiency Funds</b> .....	<b>9,100</b>	<b>0</b>	<b>0</b>	<b>9,100</b>
Incentives .....	9,100	0	0	9,100
<b>Other Total</b> .....	<b>\$ 436,606</b>	<b>\$ 21,711</b>	<b>\$ 29,441</b>	<b>\$ 487,758</b>
<b>Other Programs and Activities Total</b>	<b>\$ 904,114</b>	<b>\$ 40,384</b>	<b>\$ 42,956</b>	<b>\$ 987,455</b>
<b>Indirect Program Expense</b>				
<b>Residential Overhead</b> .....	<b>79,137</b>	<b>5,203</b>	<b>18,251</b>	<b>102,590</b>
Labor/Administrative Expense .....	46,523	3,403	18,251	68,177
Materials and Equipment .....	16	1	0	17
Other Expense.....	9,374	478	0	9,852
Purchased Services.....	23,223	1,321	0	24,544
<b>Commercial/Industrial Overhead</b> .....	<b>75,578</b>	<b>6,209</b>	<b>40,612</b>	<b>122,399</b>
Labor/Administrative Expense .....	34,185	3,932	40,612	78,728
Materials and Equipment .....	21	0	0	21
Other Expense.....	18,234	960	0	19,194
Purchased Services.....	23,138	1,317	0	24,456
<b>Energy Efficiency Accounting and Analysis</b> .....	<b>693,729</b>	<b>39,512</b>	<b>198,119</b>	<b>931,360</b>
Labor/Administrative Expense .....	395,862	23,800	195,604	615,265
Materials and Equipment .....	26	1	0	27
Other Expense.....	25,580	1,337	2,516	29,432
Purchased Services.....	272,263	14,374	0	286,636
<b>Energy Efficiency Advisory Group</b> .....	<b>5,702</b>	<b>301</b>	<b>0</b>	<b>6,003</b>
Labor/Administrative Expense .....	4,390	232	0	4,622
Other Expense.....	1,312	69	0	1,381
<b>Special Accounting Entries</b> .....	<b>(92,037)</b>	<b>(5,242)</b>	<b>0</b>	<b>(97,280)</b>
<b>Indirect Program Expenses Total</b> .....	<b>\$ 762,109</b>	<b>\$ 45,982</b>	<b>\$ 256,982</b>	<b>\$ 1,065,072</b>
<b>Totals</b>	<b>\$ 25,556,089</b>	<b>\$ 1,325,865</b>	<b>\$ 9,831,379</b>	<b>\$ 36,713,333</b>

Table 3. Cost-effectiveness summary by program

Program/Sector	2014 Benefit/Cost Tests			
	Utility Cost (UC)	Total Resource Cost (TRC)	Ratepayer Impact Measure (RIM)	Participant Cost (PCT)
Ductless Heat Pump Pilot .....	1.77	0.70	0.62	1.01
Energy Efficient Lighting .....	2.98	1.99	0.59	2.67
Energy House Calls .....	2.16	2.16	0.50	N/A
ENERGY STAR® Homes Northwest .....	1.64	0.83	0.61	1.41
Heating & Cooling Efficiency Program .....	3.74	1.09	0.79	1.45
Home Improvement Program .....	4.17	1.51	0.70	2.39
Home Products Program .....	1.94	4.52	0.57	7.28
Rebate Advantage .....	4.39	3.23	0.62	6.21
See ya later, refrigerator® .....	0.86	0.86	0.40	N/A
Student Energy Efficiency Kit .....	2.18	3.02	0.33	N/A
Weatherization Assistance for Qualified Customers .....	0.51	0.42	0.33	N/A
Weatherization Solutions for Eligible Customers .....	0.46	0.50	0.31	N/A
<b>Residential Energy Efficiency Sector .....</b>	<b>1.88</b>	<b>1.51</b>	<b>0.55</b>	<b>2.68</b>
Building Efficiency .....	5.05	2.08	0.98	2.27
Custom Efficiency .....	4.72	2.52	1.35	2.00
Easy Upgrades .....	4.08	2.35	0.94	2.85
<b>Commercial/Industrial Energy Efficiency Sector .....</b>	<b>4.58</b>	<b>2.42</b>	<b>1.17</b>	<b>2.24</b>
Irrigation Efficiency .....	5.67	1.83	1.39	1.63
<b>Irrigation Energy Efficiency Sector .....</b>	<b>5.67</b>	<b>1.83</b>	<b>1.39</b>	<b>1.63</b>
<b>Energy Efficiency Portfolio .....</b>	<b>3.49</b>	<b>1.89</b>	<b>0.99</b>	<b>2.09</b>



## COST-EFFECTIVENESS TABLES BY PROGRAM

### Ductless Heat Pump Pilot

Segment: Residential  
2014 Program Results

Cost Inputs (net present value [NPV])			Ref
Program Administration .....	\$	117,196	
Program Incentives.....		134,250	I
<b>Total Utility Cost</b> .....	<b>\$</b>	<b>251,446</b>	<b>P</b>
Measure Equipment and Installation (Incremental Participant Cost) .....	\$	767,015	M

  

Net Benefit Inputs (NPV)			Ref
<b>Resource Savings</b>			
2014 Annual Gross Energy (kWh) .....	462,747		
NPV Cumulative Energy (kWh).....	5,154,668	\$	403,529
10% Credit (Northwest Power Act) .....			40,353
<b>Total Electric Savings</b> .....		<b>\$</b>	<b>443,882</b> S
<b>Participant Bill Savings</b>			
NPV Cumulative Participant Savings .....		\$	460,293 B
<b>Other Benefits</b>			
Non-Utility Rebates/Incentives .....		\$	— NUI
Non-Energy Benefits.....		\$	178,221 NEB

Notes: Program will be monitored in 2015 for inclusion of additional NEBs.

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
Utility Cost Test.....	\$ 443,882	\$ 251,446	1.77
Total Resource Cost Test .....	622,102	884,211	0.70
Ratepayer Impact Measure Test...	443,882	711,739	0.62
Participant Cost Test.....	772,763	767,015	1.01

  

Benefits and Costs Included in Each Test	
Utility Cost Test.....	= S * NTG = P
Total Resource Cost Test.....	= (S + NUI + NEB) * NTG = P + ((M-I)*NTG)
Ratepayer Impact Measure Test .....	= S * NTG = P + (B * NTG)
Participant Cost Test.....	= B + I + NUI + NEB = M

  

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (Weighted Average Cost of Capital [WACC]) .....	6.77%
Real ((1 + WACC) / (1 + Escalation)) - 1 .....	3.66%
Escalation Rate.....	3.00%
Net-to-Gross (NTG) .....	100%
Minimum NTG Sensitivity .....	N/A
Average Customer Segment Rate/kWh.....	\$0.086
Line Losses.....	9.60%

Year:2014 Program: Ductless Heat Pump Pilot Market Segment: Residential Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/ Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Ductless Heat Pump	No supplemental fuel screen. Heating zone 2, cooling zone 1.	Zonal Electric	Unit	ENRes_SF_HeatPump	15	2,585.00	\$2,327.49	\$440.43	\$4,285.00	\$750.00	\$0.253	1.66	0.56	1, 2
Ductless Heat Pump	No supplemental fuel screen. Heating zone 3, cooling zone 1.	Zonal Electric	Unit	ENRes_SF_HeatPump	15	292.00	\$262.91	\$2,435.03	\$4,285.00	\$750.00	\$0.253	0.32	0.62	1, 2
Ductless Heat Pump	No supplemental fuel screen. Heating zone 2, cooling zone 2.	Zonal Electric	Unit	ENRes_SF_HeatPump	15	2,746.00	\$2,472.45	\$587.24	\$4,285.00	\$750.00	\$0.253	1.71	0.61	1, 2
Ductless Heat Pump	No supplemental fuel screen. Heating zone 1, cooling zone 3.	Zonal Electric	Unit	ENRes_SF_HeatPump	15	3,131.00	\$2,819.10	\$916.07	\$4,285.00	\$750.00	\$0.253	1.83	0.74	1, 2
Ductless Heat Pump	No supplemental fuel screen. Heating zone 2, cooling zone 3.	Zonal Electric	Unit	ENRes_SF_HeatPump	15	3,016.00	\$2,715.55	\$744.21	\$4,285.00	\$750.00	\$0.253	1.79	0.69	1, 2

<sup>a</sup> Average measure life.

<sup>b</sup> Estimated kWh savings measured at the customers meter, excluding line losses.

<sup>c</sup> Sum of NPV of avoided costs. Based on end-use load shape; measure life; and savings, including line losses and alternative costs by pricing period as provided in the 2013 Integrated Resource Plan (IRP). Includes 10 percent conservation adder from the Northwest Power Act.

<sup>d</sup> Based on 2013–2014 average customer costs for a one indoor/one outdoor unit installation.

<sup>e</sup> Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2014 actuals.

<sup>f</sup> Utility Cost Ratio = (NPV Avoided Costs)/((Admin Cost/kWh \* kWh Savings) + Incentives).

<sup>g</sup> Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh \* kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

<sup>1</sup> Regional Technical Forum (RTF). ResHeatingCoolingDuctlessHeatPumpsSF\_v2\_0.xlsm. 2014.

<sup>2</sup> Measure not cost-effective. Measure to be monitored in 2015 for inclusion of additional NEBs.

## Energy Efficient Lighting

Segment: Residential  
2014 Program Results

Cost Inputs (NPV)		Ref
Program Administration .....	\$ 543,975	
Program Incentives.....	1,367,848	I
Add: 2013 costs of give-away CFLs.....	1,145	
<b>Total Utility Cost .....</b>	<b>\$ 1,910,968</b>	P
Measure Equipment and Installation (Incremental Participant Cost) .....	\$ 6,606,452	M

Net Benefit Inputs (NPV)		Ref
<b>Resource Savings</b>		
2014 Annual Gross Energy (kWh) .....	12,882,151	
NPV Cumulative Energy (kWh).....	93,462,422	\$ 5,180,238
10% Credit (Northwest Power Act) .....	518,024	
<b>Total Electric Savings .....</b>	<b>\$ 5,698,262</b>	S
<b>Participant Bill Savings</b>		
NPV Cumulative Participant Savings .....	\$ 7,683,628	B
<b>Other Benefits</b>		
Non-Utility Rebates/Incentives .....	\$ —	NUI
Non-Energy Benefits.....	\$ 8,556,708	NEB

Notes: NEBs include PV of periodic bulb (capital) replacement costs.

Program costs include \$1,144.89 in costs from CFLs purchased in 2013 and given away in 2014.

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
Utility Cost Test.....	\$ 5,698,262	\$ 1,910,968	2.98
Total Resource Cost Test .....	14,254,970	7,149,572	1.99
Ratepayer Impact Measure Test...	5,698,262	9,594,596	0.59
Participant Cost Test.....	17,608,183	6,606,452	2.67

Benefits and Costs Included in Each Test	
Utility Cost Test.....	= S * NTG = P
Total Resource Cost Test.....	= (S + NUI + NEB) * NTG = P + ((M-I)*NTG)
Ratepayer Impact Measure Test .....	= S * NTG = P + (B * NTG)
Participant Cost Test.....	= B + I + NUI + NEB = M

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.77%
Real ((1 + WACC) / (1 + Escalation)) - 1 .....	3.66%
Escalation Rate.....	3.00%
Net-to-Gross (NTG) .....	100%
Minimum NTG Sensitivity .....	34%
Average Customer Segment Rate/kWh.....	\$0.086
Line Losses.....	9.60%

Year:2014 Program: Energy Efficient Lighting Market Segment: Residential Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/ Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Decorative and Mini-base CFL Retailer	Efficient Technology: Compact Fluorescent Lamp Type: Decorative and Mini-Base Lumen Category: 250 to 664 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	9	9.00	\$4.21	\$9.81	\$1.67	\$2.00	\$0.042	1.77	6.85	1
Decorative and Mini-base CFL Retailer	Efficient Technology: Compact Fluorescent Lamp Type: Decorative and Mini-Base Lumen Category: 665 to 1439 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	9	16.00	\$7.48	\$14.11	\$0.06	\$2.00	\$0.042	2.80	29.55	1
General Purpose CFL Retailer	Efficient Technology: Compact Fluorescent Lamp Type: General Purpose and Dimmable Lumen Category: 250 to 664 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	9	8.00	\$3.74	\$10.39	\$0.06	\$2.00	\$0.042	1.60	35.79	1
General Purpose CFL Retailer	Efficient Technology: Compact Fluorescent Lamp Type: General Purpose and Dimmable Lumen Category: 665 to 1439 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	9	8.00	\$3.74	\$2.89	\$0.06	\$2.00	\$0.042	1.60	16.80	1
General Purpose CFL Retailer	Efficient Technology: Compact Fluorescent Lamp Type: General Purpose and Dimmable Lumen Category: 1440 to 2600 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	8	14.00	\$5.82	\$2.83	\$0.06	\$2.00	\$0.042	2.25	13.37	1
Globe CFL Retailer	Efficient Technology: Compact Fluorescent Lamp Type: Globe Lumen Category: 250 to 664 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	12	6.00	\$3.69	\$10.90	\$0.06	\$2.00	\$0.042	1.64	46.97	1
Globe CFL Retailer	Efficient Technology: Compact Fluorescent Lamp Type: Globe Lumen Category: 665 to 1439 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	12	8.00	\$4.92	\$17.04	\$0.06	\$2.00	\$0.042	2.11	55.63	1

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Reflectors and Outdoor CFL Retailer	Efficient Technology: Compact Fluorescent Lamp Type: Reflectors and Outdoor Lumen Category: 250 to 664 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	8	11.00	\$4.57	\$23.89	\$0.06	\$2.00	\$0.042	1.86	54.65	1
Reflectors and Outdoor CFL Retailer	Efficient Technology: Compact Fluorescent Lamp Type: Reflectors and Outdoor Lumen Category: 665 to 1439 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	7	18.00	\$6.53	\$21.61	\$0.06	\$2.00	\$0.042	2.37	34.54	1
Reflectors and Outdoor CFL Retailer	Efficient Technology: Compact Fluorescent Lamp Type: Reflectors and Outdoor Lumen Category: 1440 to 2600 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	5	46.00	\$11.68	\$38.38	\$2.35	\$2.00	\$0.042	2.97	11.69	1
Three-Way CFL Retailer	Efficient Technology: Compact Fluorescent Lamp Type: Three-Way Lumen Category: 665 to 1439 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	9	13.00	\$6.08	\$17.06	\$4.17	\$2.00	\$0.042	2.39	4.91	1
Three-Way CFL Retailer	Efficient Technology: Compact Fluorescent Lamp Type: Three-Way Lumen Category: 1440 to 2600 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	8	33.00	\$13.71	\$30.36	\$6.24	\$2.00	\$0.042	4.05	5.78	1
General Purpose CFL Retailer	Efficient Technology: Compact Fluorescent Lamp Type: General Purpose and Dimmable Lumen Category: 3860 Lumen Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	8	69.00	\$28.68	\$29.40	\$10.12	\$2.00	\$0.042	5.85	4.46	2
General Purpose CFL Retailer	Efficient Technology: Compact Fluorescent Lamp Type: General Purpose and Dimmable Lumen Category: 4200 Lumen Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	8	87.00	\$36.16	\$27.75	\$12.34	\$2.00	\$0.042	6.39	4.00	2

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
General Purpose CFL Give Away	Efficient Technology: Compact Fluorescent Lamp Type: General Purpose and Dimmable Lumen Category: 665 to 1439 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	9	8.00	\$3.74	\$2.89	\$—	\$—	\$0.042	11.14	19.74	1
General Purpose CFL Give Away	Efficient Technology: Compact Fluorescent Lamp Type: General Purpose and Dimmable Lumen Category:1440 to 2600 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	8	14.00	\$5.82	\$2.83	\$—	\$—	\$0.042	9.89	14.71	1
General Purpose LED Give Away	Efficient Technology: LED Lamp Type: General Purpose and Dimmable Lumen Category: 665 to 1439 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	13	9.00	\$5.96	\$4.05	\$—	\$—	\$0.042	15.75	26.48	1
Decorative and Mini-base LED Retailer	Efficient Technology: LED Lamp Type: Decorative and Mini-Base Lumen Category: 250 to 664 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	12	13.00	\$8.00	\$10.83	\$8.62	\$3.00	\$0.042	2.26	2.05	1
General Purpose LED Retailer	Efficient Technology: LED Lamp Type: General Purpose and Dimmable Lumen Category: 250 to 664 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	12	10.00	\$6.16	\$11.49	\$2.56	\$3.00	\$0.042	1.80	5.92	1
General Purpose LED Retailer	Efficient Technology: LED Lamp Type: General Purpose and Dimmable Lumen Category: 665 to 1439 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	12	11.00	\$6.77	\$4.10	\$7.21	\$3.00	\$0.042	1.96	1.42	1
Globe LED Retailer	Efficient Technology: LED Lamp Type: Globe Lumen Category: 250 to 664 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	12	8.00	\$4.92	\$10.90	\$4.42	\$3.00	\$0.042	1.48	3.33	1
Globe LED Retailer	Efficient Technology: LED Lamp Type: Globe Lumen Category: 665 to 1439 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	12	12.00	\$7.39	\$17.04	\$3.84	\$3.00	\$0.042	2.11	5.62	1

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Reflectors and Outdoor LED Retailer	Efficient Technology: LED Lamp Type: Reflectors and Outdoor Lumen Category: 250 to 664 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	12	16.00	\$9.85	\$26.76	\$16.99	\$3.00	\$0.042	2.68	2.07	1, 3
Reflectors and Outdoor LED Retailer	Efficient Technology: LED Lamp Type: Reflectors and Outdoor Lumen Category: 665 to 1439 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	12	27.00	\$16.62	\$21.56	\$11.91	\$3.00	\$0.042	4.02	2.93	1, 3
Reflectors and Outdoor LED Retailer	Efficient Technology: LED Lamp Type: Reflectors and Outdoor Lumen Category: 1440 to 2600 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	12	60.00	\$36.93	\$45.12	\$26.43	\$3.00	\$0.042	6.69	2.83	1, 3

<sup>a</sup> Average measure life.

<sup>b</sup> Estimated kWh savings measured at the customers meter, excluding line losses.

<sup>c</sup> Sum of NPV of avoided costs. Based on end-use load shape; measure life; and savings, including line losses and alternative costs by pricing period as provided in the 2013 Integrated Resource Plan (IRP). Includes 10 percent conservation adder from the Northwest Power Act.

<sup>d</sup> Incremental participant cost prior to customer incentives.

<sup>e</sup> Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2014 actuals.

<sup>f</sup> Utility Cost Ratio = (NPV Avoided Costs)/((Admin Cost/kWh \* kWh Savings) + Incentives).

<sup>g</sup> Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh \* kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

<sup>1</sup> RTF. ResLightingCFLandLEDLamps\_v3\_3.xlsm. 2014.

<sup>2</sup> Tetra Tech. Appendix - IPC 2014 EEL Project 20150223.xlsx. 2015.

<sup>3</sup> RTF Reflectors and Outdoor LED lamp savings applied to LED Refelctor fixtures. Tetra Tech. IPC PY2014EEL Savings Development Recommendations. 2015.

This page left blank intentionally.

## Energy House Calls

Segment: Residential  
2014 Program Results

Cost Inputs (NPV)			Ref
Program Administration .....	\$	198,987	
Program Incentives.....		—	I
<b>Total Utility Cost.....</b>	<b>\$</b>	<b>198,987</b>	<b>P</b>
Measure Equipment and Installation (Incremental Participant Cost) .....	\$	—	M
Net Benefit Inputs (NPV)			Ref
<b>Resource Savings</b>			
2014 Annual Gross Energy (kWh) .....		579,126	
NPV Cumulative Energy (kWh).....	7,141,979	\$ 389,279	
10% Credit (Northwest Power Act) .....		38,928	
<b>Total Electric Savings .....</b>	<b>\$</b>	<b>428,207</b>	<b>S</b>
<b>Participant Bill Savings</b>			
NPV Cumulative Participant Savings .....	\$	658,458	B
<b>Other Benefits</b>			
Non-Utility Rebates/Incentives .....	\$	—	NUI
Non-Energy Benefits.....	\$	—	NEB

Notes: No participant cost.

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
Utility Cost Test.....	\$ 428,207	\$ 197,987	2.16
Total Resource Cost Test .....	428,207	197,987	2.16
Ratepayer Impact Measure Test...	428,207	856,455	0.50
Participant Cost Test.....	N/A	N/A	N/A

Benefits and Costs Included in Each Test	
Utility Cost Test.....	= S * NTG = P
Total Resource Cost Test.....	= (S + NUI + NEB) * NTG = P + ((M-I)*NTG)
Ratepayer Impact Measure Test .....	= S * NTG = P + (B * NTG)
Participant Cost Test.....	= N/A = N/A

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.77%
Real ((1 + WACC) / (1 + Escalation)) - 1 .....	3.66%
Escalation Rate.....	3.00%
Net-to-Gross (NTG) .....	100%
Minimum NTG Sensitivity .....	46%
Average Customer Segment Rate/kWh.....	\$0.086
Line Losses.....	9.60%

Year:2014 Program: Energy House Calls

Market Segment: Residential

Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/ Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
PTCS Duct Sealing	Single Wide (<= 1000 ft <sup>2</sup> ) Manufactured Home Duct Tightness PTCS Duct Sealing Heating Zone 1 (Electric FAF Heating System w/CAC)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	1,496.00	\$1,037.34	\$—	\$—	\$—	\$0.342	2.03	2.03	1
PTCS Duct Sealing	Single Wide (<= 1000 ft <sup>2</sup> ) Manufactured Home Duct Tightness Heating Zone 1 (Electric FAF Heating System w/o CAC)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	1,433.00	\$993.66	\$—	\$—	\$—	\$0.342	2.03	2.03	1
PTCS Duct Sealing	Single Wide (<= 1000 ft <sup>2</sup> ) Manufactured Home Duct Tightness Heating Zone 1 (Electric Heat Pump Heating System)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	887.00	\$615.06	\$—	\$—	\$—	\$0.342	2.03	2.03	1
PTCS Duct Sealing	Single Wide (<= 1000 ft <sup>2</sup> ) Manufactured Home Duct Tightness Heating Zone 2 (Electric FAF Heating System w/CAC)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	2,361.00	\$1,637.15	\$—	\$—	\$—	\$0.342	2.03	2.03	1
PTCS Duct Sealing	Single Wide (<= 1000 ft <sup>2</sup> ) Manufactured Home Duct Tightness Heating Zone 2 (Electric FAF Heating System w/o CAC)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	2,290.00	\$1,587.91	\$—	\$—	\$—	\$0.342	2.03	2.03	1
PTCS Duct Sealing	Single Wide (<= 1000 ft <sup>2</sup> ) Manufactured Home Duct Tightness Heating Zone 2 (Electric Heat Pump Heating System)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	1,664.00	\$1,153.84	\$—	\$—	\$—	\$0.342	2.03	2.03	1
PTCS Duct Sealing	Single Wide (<= 1000 ft <sup>2</sup> ) Manufactured Home Duct Tightness Heating Zone 3 (Electric FAF Heating System w/CAC)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	3,074.00	\$2,131.55	\$—	\$—	\$—	\$0.342	2.03	2.03	1
PTCS Duct Sealing	Single Wide (<= 1000 ft <sup>2</sup> ) Manufactured Home Duct Tightness Heating Zone 3 (Electric FAF Heating System w/o CAC)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	3,023.00	\$2,096.18	\$—	\$—	\$—	\$0.342	2.03	2.03	1
PTCS Duct Sealing	Single Wide (<= 1000 ft <sup>2</sup> ) Manufactured Home Duct Tightness Heating Zone 3 (Electric Heat Pump Heating System)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	2,324.00	\$1,611.49	\$—	\$—	\$—	\$0.342	2.03	2.03	1

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
PTCS Duct Sealing	Other (> 1000 ft <sup>2</sup> ) Manufactured Home Duct Tightness Heating Zone 1 (Electric FAF Heating System w/CAC)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	1,881.00	\$1,304.31	\$—	\$—	\$—	\$0.342	2.03	2.03	1
PTCS Duct Sealing	Other (> 1000 ft <sup>2</sup> ) Manufactured Home Duct Tightness Heating Zone 1 (Electric FAF Heating System w/o CAC)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	1,799.00	\$1,247.45	\$—	\$—	\$—	\$0.342	2.03	2.03	1
PTCS Duct Sealing	Other (> 1000 ft <sup>2</sup> ) Manufactured Home Duct Tightness Heating Zone 1 (Electric Heat Pump Heating System)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	1,093.00	\$757.90	\$—	\$—	\$—	\$0.342	2.03	2.03	1
PTCS Duct Sealing	Other (> 1000 ft <sup>2</sup> ) Manufactured Home Duct Tightness Heating Zone 2 (Electric FAF Heating System w/CAC)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	2,898.00	\$2,009.51	\$—	\$—	\$—	\$0.342	2.03	2.03	1
PTCS Duct Sealing	Other (> 1000 ft <sup>2</sup> ) Manufactured Home Duct Tightness Heating Zone 2 (Electric FAF Heating System w/o CAC)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	2,791.00	\$1,935.31	\$—	\$—	\$—	\$0.342	2.03	2.03	1
PTCS Duct Sealing	Other (> 1000 ft <sup>2</sup> ) Manufactured Home Duct Tightness Heating Zone 2 (Electric Heat Pump Heating System)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	2,022.00	\$1,402.08	\$—	\$—	\$—	\$0.342	2.03	2.03	1
PTCS Duct Sealing	Other (> 1000 ft <sup>2</sup> ) Manufactured Home Duct Tightness Heating Zone 3 (Electric FAF Heating System w/CAC)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	3,710.00	\$2,572.56	\$—	\$—	\$—	\$0.342	2.03	2.03	1
PTCS Duct Sealing	Other (> 1000 ft <sup>2</sup> ) Manufactured Home Duct Tightness Heating Zone 3 (Electric FAF Heating System w/o CAC)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	3,645.00	\$2,527.49	\$—	\$—	\$—	\$0.342	2.03	2.03	1
PTCS Duct Sealing	Other (> 1000 ft <sup>2</sup> ) Manufactured Home Duct Tightness Heating Zone 3 (Electric Heat Pump Heating System)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	2,813.00	\$1,950.57	\$—	\$—	\$—	\$0.342	2.03	2.03	1

<sup>a</sup> Average measure life.

<sup>b</sup> Estimated kWh savings measured at the customers meter, excluding line losses.

<sup>c</sup> Sum of NPV of avoided costs. Based on end-use load shape; measure life; and savings, including line losses and alternative costs by pricing period as provided in the 2013 Integrated Resource Plan (IRP). Includes 10 percent conservation adder from the Northwest Power Act.

<sup>d</sup> No participant cost.

<sup>e</sup> Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2014 actuals.

<sup>f</sup> Utility Cost Ratio = (NPV Avoided Costs)/((Admin Cost/kWh \* kWh Savings) + Incentives).

<sup>g</sup> Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh \* kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

<sup>h</sup> RTF. ResHeatingCoolingDuctSealingMH\_v2\_4.xlsm. 2012.

This page left blank intentionally.

## ENERGY STAR<sup>®</sup> Homes Northwest

Segment: Residential  
2014 Program Results

Cost Inputs (NPV)			Ref
Program Administration .....	\$	108,027	
Program Incentives.....		235,250	I
<b>Total Utility Cost.....</b>	<b>\$</b>	<b>343,277</b>	<b>P</b>
Measure Equipment and Installation (Incremental Participant Cost) .....	\$	580,994	M
Net Benefit Inputs (NPV)			Ref
<b>Resource Savings</b>			
2014 Annual Gross Energy (kWh) .....		332,682	
NPV Cumulative Energy (kWh).....	5,372,633	\$ 512,011	
10% Credit (Northwest Power Act) .....		51,201	
<b>Total Electric Savings .....</b>	<b>\$</b>	<b>563,212</b>	<b>S</b>
<b>Participant Bill Savings</b>			
NPV Cumulative Participant Savings .....	\$	576,302	B
<b>Other Benefits</b>			
Non-Utility Rebates/Incentives .....	\$	—	NUI
Non-Energy Benefits.....	\$	5,329	NEB

Notes: 2009 International Energy Conservation Code (IECC) adopted in Idaho in 2011.  
Oregon Residential Specialty Code adopted in Oregon in 2011.

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
Utility Cost Test.....	\$ 563,212	\$ 343,277	1.64
Total Resource Cost Test .....	568,541	689,021	0.83
Ratepayer Impact Measure Test...	563,212	919,579	0.61
Participant Cost Test.....	816,880	580,994	1.41

Benefits and Costs Included in Each Test	
Utility Cost Test.....	= S * NTG = P
Total Resource Cost Test.....	= (S + NUI + NEB) * NTG = P + ((M-I)*NTG)
Ratepayer Impact Measure Test .....	= S * NTG = P + (B * NTG)
Participant Cost Test.....	= B + I + NUI + NEB = M

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.77%
Real ((1 + WACC) / (1 + Escalation)) - 1 .....	3.66%
Escalation Rate.....	3.00%
Net-to-Gross (NTG) .....	100%
Minimum NTG Sensitivity .....	154%
Average Customer Segment Rate/kWh.....	\$0.086
Line Losses.....	9.60%

Year:2014 Program: ENERGY STAR Homes Northwest Market Segment: Residential Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
ENERGY STAR home	Home in Idaho or Montana with Heat Pump: Heating Zone 1 Cooling Zone 3	Single family home built to International Energy Conservation Code 2009 Code. Adopted 2011.	Home	Prog_Energy Star Homes NW	37	3,778.00	\$6,086.67	\$—	\$3,999.67	\$1,000.00	\$0.325	2.73	1.16	1
ENERGY STAR home	Home in Oregon with Heat Pump. BOP1 Equipment Upgrade - Heating Zone 1 Cooling Zone 3	New Single Family dwelling up to four units, permitted in Oregon under the 2011 Oregon Residential Specialty Code.	Home	Prog_Energy Star Homes NW	45	3,234.00	\$5,755.10	\$1,776.25	\$3,731.16	\$1,000.00	\$0.325	2.81	1.57	2
ENERGY STAR home	Multifamily—Heat Pump: Heating Zone 1 Cooling Zone 3	Multi-family home built to International Energy Conservation Code 2009 Code. Adopted 2011.	Home	Prog_Energy Star Homes NW	36	1,294.00	\$2,052.61	\$—	\$2,344.17	\$1,000.00	\$0.325	1.44	0.74	3, 4

<sup>a</sup> Average measure life.

<sup>b</sup> Estimated kWh savings measured at the customers meter, excluding line losses.

<sup>c</sup> Sum of NPV of avoided costs. Based on end-use load shape; measure life; and savings, including line losses and alternative costs by pricing period as provided in the 2013 Integrated Resource Plan (IRP). Includes 10 percent conservation adder from the Northwest Power Act.

<sup>d</sup> Incremental participant cost prior to customer incentives.

<sup>e</sup> Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2014 actuals.

<sup>f</sup> Utility Cost Ratio = (NPV Avoided Costs)/((Admin Cost/kWh \* kWh Savings) + Incentives).

<sup>g</sup> Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh \* kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

<sup>1</sup> RTF. ResNewSFStarWALDNT\_v2\_2.xls. 2012.

<sup>2</sup> RTF. ResNewSFStarOR\_v3\_0.xlsm. 2014.

<sup>3</sup> RTF. ResMFEstarHomes2012\_v1\_1.xlsm. 2012.

<sup>4</sup> Measure combination not cost-effective. Will monitor in 2015.

## Heating & Cooling Efficiency Program

Segment: Residential  
2014 Program Results

Cost Inputs (NPV)			Ref
Program Administration .....	\$	234,664	
Program Incentives.....		127,350	I
<b>Total Utility Cost.....</b>	<b>\$</b>	<b>362,014</b>	<b>P</b>
Measure Equipment and Installation (Incremental Participant Cost) .....	\$	1,012,896	M
Net Benefit Inputs (NPV)			Ref
<b>Resource Savings</b>			
2014 Annual Gross Energy (kWh) .....		1,099,464	
NPV Cumulative Energy (kWh).....	14,300,532	\$ 1,230,896	
10% Credit (Northwest Power Act) .....		123,090	
<b>Total Electric Savings .....</b>	<b>\$</b>	<b>1,353,986</b>	<b>S</b>
<b>Participant Bill Savings</b>			
NPV Cumulative Participant Savings .....	\$	1,345,380	B
<b>Other Benefits</b>			
Non-Utility Rebates/Incentives .....	\$	—	NUI
Non-Energy Benefits.....	\$	—	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
Utility Cost Test.....	\$ 1,353,986	\$ 362,014	3.74
Total Resource Cost Test .....	1,353,986	1,247,560	1.09
Ratepayer Impact Measure Test...	1,353,986	1,707,394	0.79
Participant Cost Test.....	1,472,730	1,012,896	1.45

Benefits and Costs Included in Each Test	
Utility Cost Test.....	= S * NTG = P
Total Resource Cost Test.....	= (S + NUI + NEB) * NTG = P + ((M-I)*NTG)
Ratepayer Impact Measure Test .....	= S * NTG = P + (B * NTG)
Participant Cost Test.....	= B + I + NUI + NEB = M

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.77%
Real ((1 + WACC) / (1 + Escalation)) - 1 .....	3.66%
Escalation Rate.....	3.00%
Net-to-Gross (NTG) .....	100%
Minimum NTG Sensitivity .....	77%
Average Customer Segment Rate/kWh.....	\$0.086
Line Losses.....	9.60%

Year:2014 Program: Heating & Cooling Efficiency Program Market Segment: Residential Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/ Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Evaporative Cooler	Evaporative cooler single family	Central A/C	Unit	ENRes_SF_CAC	12	416.00	\$565.50	\$—	\$—	\$150.00	\$0.213	2.37	2.37	1
Evaporative Cooler	Evaporative cooler manufactured home	Central A/C	Unit	ENRes_MH_CAC	12	309.00	\$462.57	\$—	\$—	\$150.00	\$0.213	2.14	2.14	1
Evaporative Cooler	Evaporative cooler multi-family	Central A/C	Unit	ENRes_MF_CAC	12	296.00	\$395.54	\$—	\$—	\$150.00	\$0.213	1.86	1.86	1
Water source heat pump	Open loop water source heat pump for existing and new construction- 14.00 EER 3.5 COP	Electric resistance /Oil Propane	Unit	ENRes_SF_HeatPump	20	8,927.00	\$10,313.90	\$—	\$8,360.00	\$1,000.00	\$0.213	3.55	1.01	2
Water source heat pump	Open loop water source heat pump –14.00 EER 3.5 COP	Air source heat pump	Unit	ENRes_SF_HeatPump	20	2,648.00	\$3,059.39	\$—	\$8,953.00	\$500.00	\$0.213	2.88	0.32	2, 3
Heat Pump Conversion	Single Family Home HVAC Conversions–Convert to Heat Pump 8.50 HSPF Heating Zone 1	Forced air furnace w/o central A/C	Unit	ENRes_SF_Heater	20	5,306.00	\$4,158.77	\$—	\$4,223.00	\$800.00	\$0.213	2.15	0.78	3, 4
Heat Pump Conversion	Single Family Home HVAC Conversions–Convert to Heat Pump 8.50 HSPF Heating Zone 2	Forced air furnace w/o central A/C	Unit	ENRes_SF_Heater	20	6,961.00	\$5,455.94	\$—	\$4,223.00	\$800.00	\$0.213	2.39	0.96	3, 4
Heat Pump Conversion	Single Family Home HVAC Conversions–Convert to Heat Pump 8.50 HSPF Heating Zone 3	Forced air furnace w/o central A/C	Unit	ENRes_SF_Heater	20	7,876.00	\$6,173.11	\$—	\$4,223.00	\$800.00	\$0.213	2.49	1.05	4
Heat Pump Conversion	Single Family Home HVAC Conversions–Convert to Heat Pump 8.50 HSPF Heating Zone 1 Cooling Zone 3	Forced air furnace with central A/C	Unit	ENRes_SF_HeatPump	20	4,380.00	\$5,060.48	\$—	\$6,456.00	\$800.00	\$0.213	2.92	0.68	3, 4
Heat Pump Conversion	Single Family Home HVAC Conversions–Convert to Heat Pump 8.50 HSPF Heating Zone 2 Cooling Zone 2	Forced air furnace with central A/C	Unit	ENRes_SF_HeatPump	20	6,451.00	\$7,453.23	\$—	\$6,456.00	\$800.00	\$0.213	3.43	0.95	3, 4
Heat Pump Conversion	Single Family Home HVAC Conversions–Convert to Heat Pump 8.50 HSPF Heating Zone 2 Cooling Zone 3	Forced air furnace with central A/C	Unit	ENRes_SF_HeatPump	20	6,035.00	\$6,972.60	\$—	\$6,456.00	\$800.00	\$0.213	3.34	0.90	3, 4

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/ Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Heat Pump Conversion	Single Family Home HVAC Conversions—Convert to Heat Pump 8.50 HSPF Heating Zone 3 Cooling Zone 1	Forced air furnace with central A/C	Unit	ENRes_SF_HeatPump	20	7,634.00	\$8,820.02	\$—	\$6,456.00	\$800.00	\$0.213	3.64	1.09	4
Heat Pump Upgrade	Existing Single Family Home Heat Pump—upgraded to 8.50 HSPF All Climates	Heat pump	Unit	ENRes_SF_HeatPump	20	2,597.00	\$3,000.47	\$—	\$1,905.00	\$250.00	\$0.213	3.74	1.22	1
Heat Pump Upgrade	Existing Single Family Home Heat Pump—upgraded to 9.0 HSPF/14 SEER Heating Zone 1	Heat pump	Unit	ENRes_SF_HeatPump	15	128.00	\$115.25	\$—	\$59.93	\$—	\$0.213	4.23	1.32	5, 6
Heat Pump Upgrade	Existing Single Family Home Heat Pump—upgraded to 9.0 HSPF/14 SEER Heating Zone 2	Heat pump	Unit	ENRes_SF_HeatPump	15	116.00	\$104.44	\$—	\$59.93	\$—	\$0.213	4.23	1.23	5, 6
Heat Pump Upgrade	Existing Single Family Home Heat Pump—upgraded to 9.0 HSPF/14 SEER Heating Zone 3	Heat pump	Unit	ENRes_SF_HeatPump	15	115.00	\$103.54	\$—	\$59.93	\$—	\$0.213	4.23	1.23	5, 6

<sup>a</sup> Average measure life.

<sup>b</sup> Estimated kWh savings measured at the customers meter, excluding line losses.

<sup>c</sup> Sum of NPV of avoided costs. Based on end-use load shape; measure life; and savings, including line losses and alternative costs by pricing period as provided in the 2013 Integrated Resource Plan (IRP). Includes 10 percent conservation adder from the Northwest Power Act.

<sup>d</sup> Incremental participant cost prior to customer incentives. Based on 2013-2014 median customer costs and RTF survey data.

<sup>e</sup> Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2014 actuals.

<sup>f</sup> Utility Cost Ratio = (NPV Avoided Costs)/((Admin Cost/kWh \* kWh Savings) + Incentives).

<sup>g</sup> Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh \* kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

<sup>1</sup> Idaho Power Energy Efficiency Potential Study by EnerNOC Utility Solutions Consulting. IPC Residential LoadMAP.

<sup>2</sup> Savings from Ecotope, Inc., heat pump sizing specifications and heat pump measure savings estimates. December 2009.

<sup>3</sup> Measure not cost-effective. Measure to be monitored in 2015. Measure included in the program to increase participation in a cost-effective program and to encourage adoption of higher efficiency equipment.

<sup>4</sup> Savings from RTF. Res\_SFHPConversion\_V2\_6.xlsm.2012.

<sup>5</sup> RTF. ResHeatingCoolingHeatPumpUpgradeSF\_v2\_8.xlsm.

<sup>6</sup> Customer receive incentive for going to an efficiency of at least an 8.5 HSPF heat pump. Incremental savings claimed for projects with an efficiency greater than a 9.0 HSPF. No additional incentive paid.

This page left blank intentionally.

## Home Improvement Program

Segment: Residential  
2014 Program Results

Cost Inputs (NPV)			Ref
Program Administration .....	\$	153,319	
Program Incentives.....		171,398	I
<b>Total Utility Cost.....</b>	<b>\$</b>	<b>324,717</b>	P
Measure Equipment and Installation (Incremental Participant Cost) .....	\$	742,927	M
Net Benefit Inputs (NPV)			Ref
<b>Resource Savings</b>			
2014 Annual Gross Energy (kWh) .....		838,929	
NPV Cumulative Energy (kWh).....	14,167,441	\$ 1,229,973	
10% Credit (Northwest Power Act) .....		122,997	
<b>Total Electric Savings .....</b>	<b>\$</b>	<b>1,352,970</b>	S
<b>Participant Bill Savings</b>			
NPV Cumulative Participant Savings .....	\$	1,604,978	B
<b>Other Benefits</b>			
Non-Utility Rebates/Incentives .....	\$	—	NUI
Non-Energy Benefits.....	\$	—	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
Utility Cost Test.....	\$ 1,352,970	\$ 324,717	4.17
Total Resource Cost Test .....	1,352,970	896,246	1.51
Ratepayer Impact Measure Test...	1,352,970	1,929,695	0.70
Participant Cost Test.....	1,776,376	742,927	2.39

Benefits and Costs Included in Each Test	
Utility Cost Test.....	= S * NTG = P
Total Resource Cost Test.....	= (S + NUI + NEB) * NTG = P + ((M-I)*NTG)
Ratepayer Impact Measure Test .....	= S * NTG = P + (B * NTG)
Participant Cost Test.....	= B + I + NUI + NEB = M

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.77%
Real ((1 + WACC) / (1 + Escalation)) - 1 .....	3.66%
Escalation Rate.....	3.00%
Net-to-Gross (NTG) .....	100%
Minimum NTG Sensitivity .....	42%
Average Customer Segment Rate/kWh.....	\$0.086
Line Losses.....	9.60%

Year:2014 Program: Home Improvement Program Market Segment: Residential Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Single Family: Attic Insulation	Greater than R38. Electric heat. Program weighted average.	Attic Insulation R20 or less	ft <sup>2</sup>	ENRes_SF_Heater	45	1.09	\$1.56	\$—	\$0.65	\$0.15	\$0.183	4.47	1.84	1
Single Family: Floor Insulation	Greater than R30 or fill floor cavity. Electric heat. Program weighted average.	Floor Insulation R5 or less	ft <sup>2</sup>	ENRes_SF_Heater	45	1.26	\$1.81	\$—	\$0.95	\$0.50	\$0.183	2.47	1.53	1
Single Family: Wall Insulation	Greater than R11 or fill wall cavity. Electric heat. Program weighted average.	Wall Insulation R5 or less	ft <sup>2</sup>	ENRes_SF_Heater	45	1.61	\$2.31	\$—	\$0.95	\$0.50	\$0.183	2.90	1.85	1
Single Family: Window	U-Factor of 0.30 or lower. Electric heat. Program weighted average.	Single pane metal, Single pane wood or double pane metal.	ft <sup>2</sup>	ENRes_SF_Heater	45	14.99	\$21.49	\$—	\$21.75	\$2.50	\$0.183	4.10	0.88	1, 2, 3

<sup>a</sup> Average measure life.

<sup>b</sup> Estimated kWh savings measured at the customers meter, excluding line losses.

<sup>c</sup> Sum of NPV of avoided costs. Based on end-use load shape; measure life; and savings, including line losses and alternative costs by pricing period as provided in the 2013 Integrated Resource Plan (IRP). Includes 10 percent conservation adder from the Northwest Power Act.

<sup>d</sup> Based on 2014 median customer costs.

<sup>e</sup> Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2014 actuals.

<sup>f</sup> Utility Cost Ratio = (NPV Avoided Costs)/((Admin Cost/kWh \* kWh Savings) + Incentives).

<sup>g</sup> Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh \* kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

<sup>1</sup> RTF. Weighted average of savings by heating and cooling zone, heating and cooling system, and insulation level or U-Factor. ResSFwx\_v2\_5\_IdahoPower\_withCAC\_ByCoolingZone.xlsm. 2011.

<sup>2</sup> RTF. Incremental costs from ResSFwx\_v2\_5\_IdahoPower\_withCAC\_ByCoolingZone.xlsm. 2011.

<sup>3</sup> Measure not cost-effective. Will monitor in 2015.

## Home Products Program

Segment: Residential  
2014 Program Results

Cost Inputs (NPV)		Ref
Program Administration .....	\$ 80,213	
Program Incentives.....	146,963	I
<b>Total Utility Cost .....</b>	<b>\$ 227,176</b>	P
Measure Equipment and Installation (Incremental Participant Cost) .....	\$ 222,076	M

Net Benefit Inputs (NPV)		Ref
<b>Resource Savings</b>		
2014 Annual Gross Energy (kWh) .....	652,129	
NPV Cumulative Energy (kWh).....	6,317,074	\$ 401,237
10% Credit (Northwest Power Act) .....		40,124
<b>Total Electric Savings .....</b>	<b>\$ 441,360</b>	S
<b>Participant Bill Savings</b>		
NPV Cumulative Participant Savings .....	\$ 545,312	B
<b>Other Benefits</b>		
Non-Utility Rebates/Incentives .....	\$ 200	NUI
Non-Energy Benefits.....	\$ 924,464	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
Utility Cost Test.....	\$ 441,360	\$ 227,176	1.94
Total Resource Cost Test .....	1,366,024	302,289	4.52
Ratepayer Impact Measure Test...	441,360	772,488	0.57
Participant Cost Test.....	1,616,939	222,076	7.28

Benefits and Costs Included in Each Test	
Utility Cost Test.....	= S * NTG = P
Total Resource Cost Test.....	= (S + NUI + NEB) * NTG = P + ((M-I)*NTG)
Ratepayer Impact Measure Test .....	= S * NTG = P + (B * NTG)
Participant Cost Test.....	= B + I + NUI + NEB = M

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.77%
Real ((1 + WACC) / (1 + Escalation)) - 1 .....	3.66%
Escalation Rate.....	3.00%
Net-to-Gross (NTG) .....	100%
Minimum NTG Sensitivity .....	51%
Average Customer Segment Rate/kWh.....	\$0.086
Line Losses.....	9.60%

Notes: One-time upstream clothes washer promotion for high-efficiency clothes washers with modified energy factor of 3.2 or higher and water factor of 2.9 or lower.

NEBs include NPV of avoided gas, water, and detergent savings for ENERGY STAR® clothes washers. Non-utility incentive includes \$50 per clothes washer incentive from upstream promotion.

NEBs also include the NPV of water savings from low-flow showerheads.

Year:2014 Program: Home Products Program Market Segment: Residential Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/ Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Clothes Washer	ENERGY STAR clothes washer MEF of 3.2 or higher and WF of 2.9 or lower, Any DHW, Any Dryer	Baseline clothes washers	Washer	ENRes_SF_Washer	14	121.00	\$94.60	\$592.03	\$275.94	\$50.00	\$0.012	1.84	2.48	1
Refrigerator	ENERGY STAR Refrigerator–Bottom Freezer w/lce thru door	Baseline refrigerator	Refrigerator	ENRes_SF_Refrigerator	17	16.00	\$14.16	\$—	\$6.66	\$30.00	\$0.946	0.31	0.65	2
Refrigerator	ENERGY STAR Refrigerator–Bottom Freezer w/o lce thru door	Baseline refrigerator	Refrigerator	ENRes_SF_Refrigerator	17	18.00	\$15.93	\$—	\$6.38	\$30.00	\$0.946	0.34	0.68	2, 3
Refrigerator	ENERGY STAR Refrigerator–Side-by-Side w/lce thru door	Baseline refrigerator	Refrigerator	ENRes_SF_Refrigerator	17	24.00	\$21.24	\$—	\$20.19	\$30.00	\$0.946	0.40	0.50	2, 3
Refrigerator	ENERGY STAR Refrigerator–Side-by-Side w/o lce thru door	Baseline refrigerator	Refrigerator	ENRes_SF_Refrigerator	17	21.00	\$18.58	\$—	\$25.31	\$30.00	\$0.946	0.37	0.41	2, 3
Refrigerator	ENERGY STAR Refrigerator - Top Freezer w/lce thru door	Baseline refrigerator	Refrigerator	ENRes_SF_Refrigerator	17	26.00	\$23.01	\$—	\$11.20	\$30.00	\$0.946	0.42	0.64	2, 3
Refrigerator	ENERGY STAR Refrigerator–Top Freezer w/o lce thru door	Baseline refrigerator	Refrigerator	ENRes_SF_Refrigerator	17	50.00	\$44.25	\$—	\$18.67	\$30.00	\$0.946	0.57	0.67	2, 3
Freezer	ENERGY STAR Freezer (no tiers)–Chest, Any Defrost	Baseline freezer	Freezer	ENRes_SF_Freezer	22	29.00	\$33.34	\$—	\$3.48	\$20.00	\$0.946	0.70	1.08	3, 4
Freezer	ENERGY STAR Freezer (no tiers)–Upright, Automatic Defrost	Baseline freezer	Freezer	ENRes_SF_Freezer	22	56.00	\$64.39	\$—	\$5.92	\$20.00	\$0.946	0.88	1.09	3, 4
Freezer	ENERGY STAR Freezer (no tiers)–Upright, Manual Defrost	Baseline freezer	Freezer	ENRes_SF_Freezer	22	28.00	\$32.19	\$—	\$2.96	\$20.00	\$0.946	0.69	1.09	3, 4
Low-flow showerhead	Low-flow showerhead 2.0 gpm Any Shower Any Water Heating Retail	Showerhead 2.2 gpm or higher	Showerhead	ENRes_SF_WtrHtr	10	66.78	\$34.79	\$108.76	\$28.20	\$7.00	\$0.012	4.46	4.95	5
Low-flow showerhead	Low-flow showerhead 1.75 gpm Any Shower Any Water Heating Retail	Showerhead 2.2 gpm or higher	Showerhead	ENRes_SF_WtrHtr	10	99.77	\$51.98	\$159.59	\$28.20	\$7.00	\$0.012	6.34	7.20	5

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/ Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Low-flow showerhead	Low-flow showerhead 1.5 gpm Any Shower Any Water Heating Retail	Showerhead 2.2 gpm or higher	Showerhead	ENRes_SF_WtrHtr	10	129.12	\$67.27	\$202.92	\$28.20	\$7.00	\$0.012	7.87	9.08	5

<sup>a</sup> Average measure life.

<sup>b</sup> Estimated kWh savings measured at the customers meter, excluding line losses.

<sup>c</sup> Sum of NPV of avoided costs. Based on end-use load shape; measure life; and savings, including line losses and alternative costs by pricing period as provided in the 2013 Integrated Resource Plan (IRP). Includes 10 percent conservation adder from the Northwest Power Act.

<sup>d</sup> Incremental participant cost prior to customer incentives.

<sup>e</sup> Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2014 actuals.

<sup>f</sup> Utility Cost Ratio = (NPV Avoided Costs)/((Admin Cost/kWh \* kWh Savings ) + Incentives).

<sup>g</sup> Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh \* kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

<sup>1</sup> RTF. ResClothesWasherSF\_v4.0.xls. Any DHW, Any Dryer. 2013. Adjusted savings by changing Electric Water Heating saturation from 55% to 52% to match IPC mix.

<sup>2</sup> RTF. ResRefrigerator\_v3\_1.xls. 2013.

<sup>3</sup> Measure not cost-effective. Will be removed from the program as a mail-in rebate measure.

<sup>4</sup> RTF. ResFreezer\_v2\_2.xlsm. 2012.

<sup>5</sup> RTF. ResShowerheads\_v2\_1.xlsm. 2011. Adjusted savings by changing Electric Water Heating saturation from 64% to 52% to match IPC mix.

This page left blank intentionally.

## Rebate Advantage

Segment: Residential  
2014 Program Results

Cost Inputs (NPV)		Ref
Program Administration .....	\$ 19,231	
Program Incentives .....	44,000	I
<b>Total Utility Cost .....</b>	<b>\$ 63,231</b>	P
Measure Equipment and Installation (Incremental Participant Cost) .....	\$ 70,468	M

Net Benefit Inputs (NPV)		Ref
<b>Resource Savings</b>		
2014 Annual Gross Energy (kWh) .....	269,643	
NPV Cumulative Energy (kWh) .....	3,872,902	\$ 252,221
10% Credit (Northwest Power Act) .....		25,222
<b>Total Electric Savings .....</b>	<b>\$ 277,443</b>	S
<b>Participant Bill Savings</b>		
NPV Cumulative Participant Savings .....	\$ 381,538	B
<b>Other Benefits</b>		
Non-Utility Rebates/Incentives .....	\$ —	NUI
Non-Energy Benefits .....	\$ 12,285	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
Utility Cost Test .....	\$ 277,443	\$ 63,231	4.39
Total Resource Cost Test .....	289,729	89,699	3.23
Ratepayer Impact Measure Test .....	277,443	444,768	0.62
Participant Cost Test .....	437,823	70,468	6.21

Benefits and Costs Included in Each Test	
Utility Cost Test .....	= S * NTG = P
Total Resource Cost Test .....	= (S + NUI + NEB) * NTG = P + ((M-I)*NTG)
Ratepayer Impact Measure Test .....	= S * NTG = P + (B * NTG)
Participant Cost Test .....	= B + I + NUI + NEB = M

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC) .....	6.77%
Real ((1 + WACC) / (1 + Escalation)) - 1 .....	3.66%
Escalation Rate .....	3.00%
Net-to-Gross (NTG) .....	100%
Minimum NTG Sensitivity .....	24%
Average Customer Segment Rate/kWh .....	\$0.086
Line Losses .....	9.60%

Year:2014 Program: Rebate Advantage

Market Segment: Residential

Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
ENERGY STAR® manufactured home	New ENERGY STAR Manufactured Home with Electric FAF: Heating Zone 1	Manufactured home built to Housing and Urban Development (HUD) code.	Home	ENRes_MH_Heater	26	5,420.00	\$5,335.39	\$277.29	\$1,617.53	\$1,000.00	\$0.071	3.85	2.80	1
ENERGY STAR manufactured home	New ENERGY STAR Manufactured Home with Electric FAF: Heating Zone 2	Manufactured home built to HUD code.	Home	ENRes_MH_Heater	27	6,847.00	\$6,951.21	\$283.62	\$1,617.53	\$1,000.00	\$0.071	4.68	3.44	1
ENERGY STAR manufactured home	New ENERGY STAR Manufactured Home with Electric FAF: Heating Zone 3	Manufactured home built to HUD code.	Home	ENRes_MH_Heater	27	8,057.00	\$8,179.62	\$283.62	\$1,617.53	\$1,000.00	\$0.071	5.20	3.87	1
ENERGY STAR manufactured home	New ENERGY STAR Manufactured Home with Heat Pump: Heating Zone 1 Cooling Zone 3	Manufactured home built to HUD code.	Home	ENRes_SF_Heatpump	23	3,254.00	\$4,219.56	\$256.87	\$1,617.53	\$1,000.00	\$0.071	3.43	2.42	1

<sup>a</sup> Average measure life.

<sup>b</sup> Estimated kWh savings measured at the customers meter, excluding line losses.

<sup>c</sup> Sum of NPV of avoided costs. Based on end-use load shape; measure life; and savings, including line losses and alternative costs by pricing period as provided in the 2013 Integrated Resource Plan (IRP). Includes 10 percent conservation adder from the Northwest Power Act.

<sup>d</sup> Incremental participant cost prior to customer incentives.

<sup>e</sup> Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2014 actuals.

<sup>f</sup> Utility Cost Ratio = (NPV Avoided Costs)/((Admin Cost/kWh \* kWh Savings) + Incentives).

<sup>g</sup> Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh \* kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

<sup>1</sup> RTF. NewMH\_EStar\_EcoRated\_v1\_3.xls. 2013.

## See ya later, refrigerator®

Segment: Residential  
2014 Program Results

Cost Inputs (NPV)			Ref
Program Administration .....	\$	480,231	
Program Incentives .....		95,820	I
<b>Total Utility Cost .....</b>	<b>\$</b>	<b>576,051</b>	<b>P</b>
Measure Equipment and Installation (Incremental Participant Cost) .....	\$	—	M
Net Benefit Inputs (NPV)			Ref
<b>Resource Savings</b>			
2014 Annual Gross Energy (kWh) .....		1,390,760	
NPV Cumulative Energy (kWh) .....	\$	447,821	
10% Credit (Northwest Power Act) .....		44,782	
<b>Total Electric Savings .....</b>	<b>\$</b>	<b>492,603</b>	<b>S</b>
<b>Participant Bill Savings</b>			
NPV Cumulative Participant Savings .....	\$	643,946	B
<b>Other Benefits</b>			
Non-Utility Rebates/Incentives .....	\$	—	NUI
Non-Energy Benefits .....	\$	—	NEB

Notes: No participant costs.

Program to be modified in 2015 to increase cost-effectiveness.

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
Utility Cost Test .....	\$ 492,603	\$ 576,051	0.86
Total Resource Cost Test .....	492,603	576,051	0.86
Ratepayer Impact Measure Test .....	492,603	1,219,997	0.40
Participant Cost Test .....	N/A	N/A	N/A

Benefits and Costs Included in Each Test	
Utility Cost Test .....	= S * NTG = P
Total Resource Cost Test .....	= (S + NUI + NEB) * NTG = P + ((M-I)*NTG)
Ratepayer Impact Measure Test .....	= S * NTG = P + (B * NTG)
Participant Cost Test .....	N/A N/A

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC) .....	6.77%
Real ((1 + WACC) / (1 + Escalation)) - 1 .....	3.66%
Escalation Rate .....	3.00%
Net-to-Gross (NTG) .....	100%
Minimum NTG Sensitivity .....	117%
Average Customer Segment Rate/kWh .....	\$0.086
Line Losses .....	9.60%

Year:2014 Program: See ya later, refrigerator<sup>®</sup> Market Segment: Residential Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Freezer Recycling	Freezer removal and decommissioning		Freezer	ENRes_SF_Freezer	5	478.00	\$136.00	\$—	\$—	\$30.00	\$0.345	0.70	0.70	1, 2
Refrigerator Recycling	Refrigerator removal and decommissioning		Refrigerator	ENRes_SF_SecRef	7	424.00	\$165.41	\$—	\$—	\$30.00	\$0.345	0.94	0.94	1, 2

<sup>a</sup> Average measure life.

<sup>b</sup> Estimated kWh savings measured at the customers meter, excluding line losses.

<sup>c</sup> Sum of NPV of avoided costs. Based on end-use load shape; measure life; and savings, including line losses and alternative costs by pricing period as provided in the 2013 Integrated Resource Plan (IRP). Includes 10 percent conservation adder from the Northwest Power Act.

<sup>d</sup> No participant cost.

<sup>e</sup> Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2014 actuals.

<sup>f</sup> Utility Cost Ratio = (NPV Avoided Costs)/((Admin Cost/kWh \* kWh Savings ) + Incentives).

<sup>g</sup> Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh \* kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

<sup>1</sup> RTF. ResFridgeFreezeDecommissioning\_v2.5.xlsm. 2012.

<sup>2</sup> Measure not cost-effective. Program modified in 2015 to increase cost-effectiveness.

## Student Energy Efficiency Kit

Segment: Residential  
2014 Program Results

Cost Inputs (NPV)			Ref
Program Administration .....	\$	209,630	
Program Incentives .....		—	I
<b>Total Utility Cost .....</b>	<b>\$</b>	<b>209,630</b>	<b>P</b>
Measure Equipment and Installation (Incremental Participant Cost) .....	\$	—	M

  

Net Benefit Inputs (NPV)			Ref
<b>Resource Savings</b>			
2014 Annual Gross Energy (kWh) .....	1,491,225		
NPV Cumulative Energy (kWh).....	7,254,382	\$	414,767
10% Credit (Northwest Power Act) .....			41,477
<b>Total Electric Savings .....</b>		<b>\$</b>	<b>456,243</b>
			<b>S</b>
<b>Participant Bill Savings</b>			
NPV Cumulative Participant Savings .....		\$	1,162,348
			<b>B</b>
<b>Other Benefits</b>			
Non-Utility Rebates/Incentives .....		\$	—
			<b>NUI</b>
Non-Energy Benefits .....		\$	177,143
			<b>NEB</b>

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
Utility Cost Test.....	\$ 456,243	\$ 209,630	2.18
Total Resource Cost Test .....	633,386	209,630	3.02
Ratepayer Impact Measure Test...	456,243	1,371,978	0.33
Participant Cost Test.....	N/A	N/A	N/A

Benefits and Costs Included in Each Test	
Utility Cost Test.....	$S * NTG = P$
Total Resource Cost Test.....	$(S + NUI + NEB) * NTG = P + ((M-I)*NTG)$
Ratepayer Impact Measure Test .....	$S * NTG = P + (B * NTG)$
Participant Cost Test.....	N/A

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.77%
Real $((1 + WACC) / (1 + Escalation)) - 1$ .....	3.66%
Escalation Rate.....	3.00%
Net-to-Gross (NTG) .....	100%
Minimum NTG Sensitivity .....	46%
Average Customer Segment Rate/kWh.....	\$0.086
Line Losses.....	9.60%

Notes: Energy savings as reported by National Energy Foundation for the fall 2013 kits and by Resource Action Plan for the spring 2014 kits. Non-energy benefits include NPV of avoided gas. Direct costs for the fall 2013 and spring 2014 kit offerings used for program costs.

This page left blank intentionally.

## Weatherization Assistance for Qualified Customers

Segment: Residential  
2014 Program Results

Cost Inputs (NPV)		Ref
Program Administration .....	\$ 192,753	
CAP Agency Payments .....	1,127,359	
<b>Total Program Expenses</b> .....	<b>\$ 1,320,112</b>	
Add: 2013 Evaluations Expenses (Amortized Year 2) .....	24,044	
<b>Total Utility Cost</b> .....	<b>\$ 1,344,156</b>	P
Idaho Power Indirect Overhead Expense Allocation—2.9% .....	\$ 38,981	OH
Additional State Funding.....	676,996	M

Net Benefit Inputs (NPV)		Ref
<b>Resource Savings</b>		
2014 Annual Gross Energy (kWh) .....	533,800	
NPV Cumulative Energy (kWh).....	7,661,240	\$ 638,646
10% Credit (Northwest Power Act) .....		63,865
<b>Total Electric Savings</b> .....	<b>\$ 705,511</b>	S
<b>Participant Bill Savings</b>		
NPV Cumulative Participant Savings .....	\$ 755,313	B
<b>Other Benefits</b>		
Non-Utility Rebates/Incentives .....	\$ —	NUI
Non-Energy Benefits .....		
Health and Safety .....	127,177	
Repair.....	33,576	
Other .....	—	
<b>Non-Energy Benefits Total</b> .....	<b>\$ 160,753</b>	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
Utility Cost Test.....	\$ 702,511	\$ 1,383,137	0.51
Total Resource Cost Test.....	563,263	2,060,133	0.42
Ratepayer Impact Measure Test ...	702,511	2,138,449	0.33
Participant Cost Test.....	N/A	N/A	N/A

Benefits and Costs Included in Each Test	
Utility Cost Test.....	= S * NTG = P + OH
Total Resource Cost Test.....	= (S + NUI + NEB) * NTG = P + OH + M
Ratepayer Impact Measure Test .....	= S * NTG = P + OH + (B * NTG)
Participant Cost Test.....	N/A N/A

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.77%
Real ((1 + WACC) / (1 + Escalation)) - 1 .....	3.66%
Escalation Rate.....	3.00%
Net-to-Gross (NTG).....	100%
Minimum NTG Sensitivity .....	239%
Average Customer Segment Rate/kWh.....	\$0.086
Line Losses.....	9.60%

Notes: Savings from the billing analysis of 2012 weatherization projects: single family/multi-family/townhomes = 1,551 kWh/per home, manufactured homes = 2,568 kWh/home, non-profits = 1.03 kWh/heated square foot. Program cost-effectiveness incorporated Idaho Public Utilities Commission (IPUC) staff recommendations from Case No. GNR-E-12-01. Recommendations include: Claimed 100% of savings; increased NTG to 100%; added a 10% conservation preference adder; health, safety, and repair non-energy benefits; amortized evaluation expenses over a three-year period; and allocation of indirect overhead expenses. No customer participant costs. Costs shown are from the DOE state weatherization assistance program.

This page left blank intentionally.

## Weatherization Solutions for Eligible Customers

Segment: Residential  
2014 Program Results

Cost Inputs (NPV)		Ref
Program Administration .....	\$ 129,140	
Weatherization LLC Payments .....	662,204	
<b>Total Program Expenses.....</b>	<b>\$ 791,344</b>	
Add: 2013 Evaluations Expenses (Amortized Year 2) .....	24,044	
<b>Total Utility Cost .....</b>	<b>\$ 815,389</b>	P
Idaho Power Indirect Overhead Expense Allocation—2.9% .....	\$ 23,646	OH
Additional State Funding.....	—	M

Net Benefit Inputs (NPV)		Ref
<b>Resource Savings</b>		
2014 Annual Gross Energy (kWh) .....	290,926	
NPV Cumulative Energy (kWh).....	4,175,448	\$ 348,068
10% Credit (Northwest Power Act) .....		34,807
<b>Total Electric Savings .....</b>	<b>\$ 382,875</b>	S
<b>Participant Bill Savings</b>		
NPV Cumulative Participant Savings .....	\$ 411,653	B
<b>Other Benefits</b>		
Non-Utility Rebates/Incentives .....	\$ —	NUI
Non-Energy Benefits .....		
Health and Safety .....	33,807	
Repair.....	3,692	
Other .....	—	
<b>Non-Energy Benefits Total .....</b>	<b>\$ 37,498</b>	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
Utility Cost Test.....	\$ 382,875	\$ 839,035	0.46
Total Resource Cost Test.....	420,373	839,035	0.50
Ratepayer Impact Measure Test ...	382,875	1,250,688	0.31
Participant Cost Test.....	N/A	N/A	N/A

Benefits and Costs Included in Each Test	
Utility Cost Test.....	= S * NTG = P + OH
Total Resource Cost Test.....	= (S + NUI + NEB) * NTG = P + OH + M
Ratepayer Impact Measure Test .....	= S * NTG = P + OH + (B * NTG)
Participant Cost Test.....	N/A N/A

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.77%
Real ((1 + WACC) / (1 + Escalation)) - 1 .....	3.66%
Escalation Rate.....	3.00%
Net-to-Gross (NTG).....	100%
Minimum NTG Sensitivity .....	219%
Average Customer Segment Rate/kWh.....	\$0.086
Line Losses.....	9.60%

Notes: Savings from the billing analysis of the 2012 weatherization projects. Single family/multi-family/townhomes = 2,108 kWh/per home. Manufactured homes = 3,426 kWh/home.

Program cost-effectiveness incorporated IPUC staff recommendations from Case No. GNR-E-12-01. Recommendations include:

Claimed 100% of savings; increased NTG to 100%; added a 10% conservation preference adder; health, safety, and repair non-energy benefits, and allocation of indirect overhead expenses.

No customer participant costs.

This page left blank intentionally.

## Building Efficiency

Segment: Commercial

2014 Program Results

Cost Inputs (NPV)			Ref
Program Administration .....	\$	341,943	
Program Incentives .....		916,331	I
<b>Total Utility Cost .....</b>	<b>\$</b>	<b>1,258,273</b>	<b>P</b>
Measure Equipment and Installation (Incremental Participant Cost) .....	\$	2,714,549	M
Net Benefit Inputs (NPV)			Ref
<b>Resource Savings</b>			
2014 Annual Gross Energy (kWh) .....		9,458,059	
NPV Cumulative Energy (kWh) .....	\$	5,771,079	
10% Credit (Northwest Power Act) .....		577,108	
<b>Total Electric Savings .....</b>	<b>\$</b>	<b>6,348,187</b>	<b>S</b>
<b>Participant Bill Savings</b>			
NPV Cumulative Participant Savings .....	\$	5,233,084	B
<b>Other Benefits</b>			
Non-Utility Rebates/Incentives .....	\$	—	NUI
Non-Energy Benefits .....	\$	—	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
Utility Cost Test .....	\$ 6,348,187	\$ 1,258,273	5.05
Total Resource Cost Test .....	6,348,187	3,056,492	2.08
Ratepayer Impact Measure Test .....	6,348,187	6,491,358	0.98
Participant Cost Test .....	6,149,415	2,714,549	2.27

Benefits and Costs Included in Each Test	
Utility Cost Test .....	= S * NTG = P
Total Resource Cost Test .....	= (S + NUI + NEB) * NTG = P + ((M-I)*NTG)
Ratepayer Impact Measure Test .....	= S * NTG = P + (B * NTG)
Participant Cost Test .....	= B + I + NUI + NEB = M

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC) .....	6.77%
Real ((1 + WACC) / (1 + Escalation)) - 1 .....	3.66%
Escalation Rate .....	3.00%
Net-to-Gross (NTG) .....	100%
Minimum NTG Sensitivity .....	28%
Average Customer Segment Rate/kWh .....	\$0.057
Line Losses .....	9.60%

Year:2014 Program: Building Efficiency

Market Segment: Commercial

Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/ Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Lighting	Interior Light Load Reduction. Part A: 10-19.9% below code.	Code standards	ft <sup>2</sup>	ENComm_InsLt	14	0.51	\$0.40	\$—	\$0.26	\$0.10	\$0.036	3.41	1.45	1
Lighting	Interior Light Load Reduction. Part B: 20-29.9% below code.	Code standards	ft <sup>2</sup>	ENComm_InsLt	14	1.03	\$0.82	\$—	\$0.51	\$0.20	\$0.036	3.44	1.49	1
Lighting	Interior Light Load Reduction. Part C: Equal to or greater than 30% below code.	Code standards	ft <sup>2</sup>	ENComm_InsLt	14	2.33	\$1.84	\$—	\$0.89	\$0.30	\$0.036	4.80	1.89	1
Lighting	Exterior Light Load Reduction. Minimum of 15% below code.	Code standards	kW	IPC_Outdoor Lighting	15	4,059.00	\$2,244.40	\$—	\$168.00	\$160.00	\$0.036	7.33	7.14	1
Lighting	Daylight Photo Controls	Code standards	ft <sup>2</sup>	ENComm_InsLt	14	0.94	\$0.74	\$—	\$0.91	\$0.25	\$0.036	2.62	0.79	1, 2
Lighting	Occupancy sensors	Code standards	sensor	ENComm_InsLt	8	366.00	\$172.43	\$—	\$38.26	\$25.00	\$0.036	4.52	3.35	1
Lighting	High Efficiency Exit Signs	Code standards	sign	IPC_8760	16	28.00	\$22.56	\$—	\$10.83	\$7.50	\$0.036	2.65	1.91	1
A/C	6-11 ton AC unit that meets CEE Tier 1 12-19 ton AC unit that meets CEE Tier 1 20-25 ton AC unit that meets CEE Tier 1 (≥ 65,000 Btu/hr & ≤ 300,000 Btu/hr)	Code standards	tons	ENComm_Cooling	15	40.30	\$43.93	\$—	\$36.18	\$30.00	\$0.036	1.40	1.17	3
A/C	0-5 ton AC unit that meets GEE Tier 2 6-11 ton AC unit that meets CEE Tier 2 12-19 ton AC unit that meets CEE Tier 2 20-25 ton AC unit that meets CEE Tier 2 (≤ 300,000 Btu/hr)	Code standards	tons	ENComm_Cooling	15	90.16	\$98.27	\$—	\$115.37	\$75.00	\$0.036	1.26	0.83	3, 4
A/C	0-5 ton Heat Pump (HP) unit that meets CEE Tier 1 6-11 ton HP unit that meets CEE Tier 1 12-19 ton HP unit that meets CEE Tier 1 20-25 ton HP unit that meets CEE Tier 1 (≤ 300,000 Btu/hr)	Code standards	tons	ENComm_Cooling	15	27.25	\$29.70	\$—	\$31.83	\$30.00	\$0.036	0.96	0.91	3, 4

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
A/C	6-11 ton AC VRF unit that meets CEE Tier 1 12-19 ton AC VRF unit that meets CEE Tier 1 20-25 ton AC VRF unit that meets CEE Tier 1 (≥ 65,000 Btu/hr & ≤ 300,000 Btu/hr)	Code standards	tons	ENComm_Cooling	15	132.60	\$144.53	\$—	\$115.37	\$75.00	\$0.036	1.81	1.20	3
A/C	6-11 ton HP VRF unit that meets CEE Tier 1 12-19 ton HP VRF unit that meets CEE Tier 1 20-25 ton HP VRF unit that meets CEE Tier 1 (≥ 65,000 Btu/hr & ≤ 300,000 Btu/hr)	Code standards	tons	ENComm_Cooling	15	332.91	\$362.86	\$—	\$95.30	\$75.00	\$0.036	4.17	3.38	3
A/C	Air-cooled chiller condenser, IPLV 14.0 EER or higher	Code standards	tons	ENComm_Cooling	20	472.44	\$653.55	\$—	\$86.12	\$80.00	\$0.036	6.74	6.34	1
A/C	Water-cooled chiller electronically operated, reciprocating and positive displacement	Code standards	tons	ENComm_Cooling	20	212.96	\$294.60	\$—	\$38.82	\$40.00	\$0.036	6.18	6.34	5
A/C	Airside economizer	Code standards	ton of cooling	ENComm_Cooling	15	344.00	\$374.95	\$—	\$81.36	\$75.00	\$0.036	4.29	4.00	1
A/C	Direct evaporative cooler	Code standards	tons	ENComm_Cooling	15	399.00	\$434.90	\$—	\$364.00	\$200.00	\$0.036	2.03	1.15	1
Building Shell	Reflective roof treatment	Code standards	ft <sup>2</sup> roof area	ENComm_Cooling	15	0.12	\$0.13	\$—	\$0.05	\$0.05	\$0.036	2.33	2.33	1
Controls	Energy Management System (EMS) controls. Part A: 2 strategies	Code standards	tons of cooling	ENComm_Cooling	15	454.00	\$494.84	\$—	\$162.49	\$70.00	\$0.036	5.73	2.77	1
Controls	EMS controls. Part B: 3 strategies	Code standards	tons of cooling	ENComm_Cooling	15	496.00	\$540.62	\$—	\$162.49	\$80.00	\$0.036	5.52	3.00	6
Controls	EMS controls. Part C: 4 strategies	Code standards	tons of cooling	ENComm_Cooling	15	498.95	\$543.84	\$—	\$162.49	\$90.00	\$0.036	5.04	3.01	1
Controls	EMS controls. Part D: 5 strategies	Code standards	tons of cooling	ENComm_Cooling	15	511.75	\$557.79	\$—	\$162.49	\$100.00	\$0.036	4.71	3.08	6
Controls	Guest room energy management system	Code standards	ton	ENComm_HVAC	11	384.00	\$272.92	\$—	\$57.50	\$50.00	\$0.036	4.28	3.83	1
Controls	Part A. Variable speed drive on HVAC system applications: -chilled water pumps -condenser water pumps -cooling tower fans	Code standards	HP	ENComm_HVAC	15	268.00	\$248.78	\$—	\$165.33	\$60.00	\$0.036	3.57	1.42	1

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/ Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Controls	Part B. Variable speed drive on HVAC system applications: -supply -return -outside air -make-up air -hot water pumps	Code standards	HP	ENComm_HVAC	15	996.00	\$924.57	\$—	\$142.05	\$100.00	\$0.036	6.81	5.20	1
Appliances w/Electric Water Heating	Efficient Laundry Machines (electric)	Code standards	unit	ENComm_WtrHtr	10	756.00	\$411.96	\$—	\$200.00	\$125.00	\$0.036	2.71	1.81	1
Appliances w/Electric Water Heating	ENERGY STAR® undercounter (residential style) dishwasher	Code standards	machine	ENComm_Misc	12	2,210.00	\$1,467.71	\$251.95	\$232.00	\$200.00	\$0.036	5.25	5.52	7
Appliances w/Electric Water Heating	ENERGY STAR commercial dishwasher	Code standards	machine	ENComm_Misc	12	5,561.00	\$3,693.19	\$679.51	\$3,978.00	\$500.00	\$0.036	5.27	1.05	7
Refrigeration	Refrigeration head pressure controls	Code standards	HP	ENComm_Refrigeration	16	225.00	\$191.49	\$—	\$166.60	\$40.00	\$0.036	3.98	1.10	1
Refrigeration	Refrigeration floating suction controls	Code standards	HP	ENComm_Refrigeration	16	77.00	\$65.53	\$—	\$53.75	\$10.00	\$0.036	5.13	1.16	1
Refrigeration	Efficient refrigeration condensers	Code standards	tons of refrigeration	ENComm_Refrigeration	15	114.00	\$91.90	\$—	\$35.00	\$20.00	\$0.036	3.81	2.35	1

<sup>a</sup> Average measure life.

<sup>b</sup> Estimated kWh savings measured at the customers meter, excluding line losses.

<sup>c</sup> Sum of NPV of avoided costs. Based on end-use load shape; measure life; and savings, including line losses and alternative costs by pricing period as provided in the 2013 Integrated Resource Plan (IRP). Includes 10 percent conservation adder from the Northwest Power Act.

<sup>d</sup> Incremental participant cost prior to customer incentives.

<sup>e</sup> Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2014 actuals.

<sup>f</sup> Utility Cost Ratio = (NPV Avoided Costs)/((Admin Cost/kWh \* kWh Savings) + Incentives).

<sup>g</sup> Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh \* kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

<sup>1</sup> Idaho Power Technical Reference Manual (TRM) prepared by ADM Associates, Inc. 2015.

<sup>2</sup> Measure not cost-effective. Measure to remain in the program due to unquantifiable non-energy benefits.

<sup>3</sup> Idaho Power TRM prepared by ADM Associates, Inc. 2015. Weighted average of 6-25 ton units.

<sup>4</sup> Measure not cost-effective. Measure to be monitored in 2015 to adjust weighted average. Measure included in the program to increase participation in a cost-effective program and to encourage adoption of higher efficiency equipment.

<sup>5</sup> Idaho Power TRM prepared by ADM Associates, Inc. 2015. Averaged water cooled chillers.

<sup>6</sup> Idaho Power TRM prepared by ADM Associates, Inc. 2015. Calculated from TRM spreadsheets.

<sup>7</sup> Idaho Power TRM prepared by ADM Associates, Inc. 2015. NEBs from water savings from RTF. ComDishwasher\_v1\_2.xlsm. 2012.

## Custom Efficiency

Segment: Industrial  
2014 Program Results

Cost Inputs (NPV)		Ref
Program Administration .....	\$ 1,642,402	
Program Incentives .....	5,530,652	I
<b>Total Utility Cost .....</b>	<b>\$ 7,173,054</b>	P
Measure Equipment and Installation (Incremental Participant Cost) .....	\$ 11,767,520	M

Net Benefit Inputs (NPV)		Ref
<b>Resource Savings</b>		
2014 Annual Gross Energy (kWh) .....	50,363,052	
NPV Cumulative Energy (kWh).....	488,278,575	\$ 30,749,957
10% Credit (Northwest Power Act) .....		3,074,996
<b>Total Electric Savings .....</b>	<b>\$ 33,824,952</b>	S
<b>Participant Bill Savings</b>		
NPV Cumulative Participant Savings .....	\$ 17,946,375	B
<b>Other Benefits</b>		
Non-Utility Rebates/Incentives .....	\$ —	NUI
Non-Energy Benefits.....	\$ —	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
Utility Cost Test.....	\$ 33,824,952	\$ 7,173,054	4.72
Total Resource Cost Test .....	33,824,952	13,409,922	2.52
Ratepayer Impact Measure Test...	33,824,952	25,119,430	1.35
Participant Cost Test.....	23,477,027	11,767,520	2.00

Benefits and Costs Included in Each Test	
Utility Cost Test.....	= S * NTG = P
Total Resource Cost Test.....	= (S + NUI + NEB) * NTG = P + ((M-I)*NTG)
Ratepayer Impact Measure Test .....	= S * NTG = P + (B * NTG)
Participant Cost Test.....	= B + I + NUI + NEB = M

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.77%
Real ((1 + WACC) / (1 + Escalation)) - 1 .....	3.66%
Escalation Rate.....	3.00%
Net-to-Gross (NTG) .....	100%
Minimum NTG Sensitivity .....	26%
Average Customer Segment Rate/kWh.....	\$0.037
Line Losses.....	9.60%

Notes: Energy savings are unique by project and are reviewed by Idaho Power engineering staff or third-party consultants. Each project must complete a certification inspection.  
Green Rewind initiative is available to agricultural, commercial, and industrial customers. Commercial and industrial motor rewinds are paid under Custom Efficiency.

Year:2014 Program: Custom Efficiency—Green Motors Market Segment: Industrial Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/ Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Green Motors Program Rewind	Motor size 15HP	Standard rewind practice	Motor	MF_Motors	8	601.00	\$272.56	\$—	\$157.66	\$30.00	\$0.050	4.54	1.45	1
Green Motors Program Rewind	Motor size 20HP	Standard rewind practice	Motor	MF_Motors	8	804.00	\$364.62	\$—	\$175.90	\$40.00	\$0.050	4.55	1.69	1
Green Motors Program Rewind	Motor size 25HP	Standard rewind practice	Motor	MF_Motors	8	1,052.00	\$477.10	\$—	\$200.98	\$50.00	\$0.050	4.65	1.88	1
Green Motors Program Rewind	Motor size 30HP	Standard rewind practice	Motor	MF_Motors	8	1,133.00	\$513.83	\$—	\$220.74	\$60.00	\$0.050	4.40	1.85	1
Green Motors Program Rewind	Motor size 40HP	Standard rewind practice	Motor	MF_Motors	8	1,319.00	\$598.18	\$—	\$269.75	\$80.00	\$0.050	4.10	1.78	1
Green Motors Program Rewind	Motor size 50HP	Standard rewind practice	Motor	MF_Motors	8	1,418.00	\$643.08	\$—	\$298.62	\$100.00	\$0.050	3.76	1.74	1
Green Motors Program Rewind	Motor size 60HP	Standard rewind practice	Motor	MF_Motors	9	1,476.00	\$751.67	\$—	\$352.19	\$120.00	\$0.050	3.88	1.76	1
Green Motors Program Rewind	Motor size 75HP	Standard rewind practice	Motor	MF_Motors	9	1,519.00	\$773.57	\$—	\$380.68	\$150.00	\$0.050	3.42	1.69	1
Green Motors Program Rewind	Motor size 100HP	Standard rewind practice	Motor	MF_Motors	9	2,005.00	\$1,021.07	\$—	\$472.24	\$200.00	\$0.050	3.40	1.78	1
Green Motors Program Rewind	Motor size 125HP	Standard rewind practice	Motor	MF_Motors	8	2,598.00	\$1,178.23	\$—	\$530.37	\$250.00	\$0.050	3.10	1.78	1
Green Motors Program Rewind	Motor size 150HP	Standard rewind practice	Motor	MF_Motors	8	3,089.00	\$1,400.90	\$—	\$590.78	\$300.00	\$0.050	3.08	1.88	1
Green Motors Program Rewind	Motor size 200HP	Standard rewind practice	Motor	MF_Motors	8	4,088.00	\$1,853.96	\$—	\$711.22	\$400.00	\$0.050	3.07	2.02	1
Green Motors Program Rewind	Motor size 250HP	Standard rewind practice	Motor	MF_Motors	9	4,972.00	\$2,532.05	\$—	\$914.10	\$500.00	\$0.050	3.38	2.18	1
Green Motors Program Rewind	Motor size 300HP	Standard rewind practice	Motor	MF_Motors	9	5,935.00	\$3,022.47	\$—	\$923.98	\$600.00	\$0.050	3.37	2.48	1
Green Motors Program Rewind	Motor size 350HP	Standard rewind practice	Motor	MF_Motors	9	6,919.00	\$3,523.59	\$—	\$968.43	\$700.00	\$0.050	3.37	2.68	1
Green Motors Program Rewind	Motor size 400HP	Standard rewind practice	Motor	MF_Motors	9	7,848.00	\$3,996.69	\$—	\$1,081.64	\$800.00	\$0.050	3.35	2.71	1
Green Motors Program Rewind	Motor size 450HP	Standard rewind practice	Motor	MF_Motors	9	8,811.00	\$4,487.11	\$—	\$1,182.32	\$900.00	\$0.050	3.35	2.76	1
Green Motors Program Rewind	Motor size 500HP	Standard rewind practice	Motor	MF_Motors	9	9,804.00	\$4,992.81	\$—	\$1,277.31	\$1,000.00	\$0.050	3.35	2.82	1
Green Motors Program Rewind	Motor size 600HP	Standard rewind practice	Motor	MF_Motors	7	14,689.00	\$5,833.73	\$—	\$1,882.27	\$1,200.00	\$0.050	3.02	2.23	1
Green Motors Program Rewind	Motor size 700HP	Standard rewind practice	Motor	MF_Motors	7	17,065.00	\$6,777.36	\$—	\$2,053.56	\$1,400.00	\$0.050	3.01	2.33	1

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/ Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Green Motors Program Rewind	Motor size 800HP	Standard rewind practice	Motor	MF_Motors	7	19,461.00	\$7,728.93	\$—	\$2,278.48	\$1,600.00	\$0.050	3.00	2.38	1
Green Motors Program Rewind	Motor size 900HP	Standard rewind practice	Motor	MF_Motors	7	21,847.00	\$8,676.53	\$—	\$2,511.92	\$1,800.00	\$0.050	3.00	2.41	1

<sup>a</sup> Average measure life.

<sup>b</sup> Estimated kWh savings measured at the customers meter, excluding line losses.

<sup>c</sup> Sum of NPV of avoided costs. Based on end-use load shape; measure life; and savings, including line losses and alternative costs by pricing period as provided in the 2013 Integrated Resource Plan (IRP). Includes 10 percent conservation adder from the Northwest Power Act.

<sup>d</sup> Incremental participant cost prior to customer incentives.

<sup>e</sup> Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2014 actuals.

<sup>f</sup> Utility Cost Ratio = (NPV Avoided Costs)/((Admin Cost/kWh \* kWh Savings) + Incentives).

<sup>g</sup> Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh \* kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

<sup>h</sup> RTF: IndGreenMotorRewind\_v2\_0.xlsm. 2013.

This page left blank intentionally.

## Easy Upgrades

Segment: Commercial

### 2014 Program Results

Cost Inputs (NPV)		Ref
Program Administration .....	\$ 987,131	
Program Incentives .....	2,163,811	I
<b>Total Utility Cost .....</b>	<b>\$ 3,150,942</b>	P
Measure Equipment and Installation (Incremental Participant Cost) .....	\$ 4,466,249	M

Net Benefit Inputs (NPV)		Ref
<b>Resource Savings</b>		
2014 Annual Gross Energy (kWh) .....	19,118,494	
NPV Cumulative Energy (kWh) .....	185,357,135	\$ 11,673,098
10% Credit (Northwest Power Act) .....		1,167,310
<b>Total Electric Savings .....</b>	<b>\$ 12,840,408</b>	S
<b>Participant Bill Savings</b>		
NPV Cumulative Participant Savings .....	\$ 10,578,142	B
<b>Other Benefits</b>		
Non-Utility Rebates/Incentives .....	\$ —	NUI
Non-Energy Benefits .....	\$ —	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
Utility Cost Test .....	\$ 12,840,408	\$ 3,150,942	4.08
Total Resource Cost Test .....	12,840,408	5,453,380	2.35
Ratepayer Impact Measure Test .....	12,840,408	13,729,083	0.94
Participant Cost Test .....	12,741,953	4,466,249	2.85

Benefits and Costs Included in Each Test	
Utility Cost Test .....	= S * NTG = P
Total Resource Cost Test .....	= (S + NUI + NEB) * NTG = P + ((M-I)*NTG)
Ratepayer Impact Measure Test .....	= S * NTG = P + (B * NTG)
Participant Cost Test .....	= B + I + NUI + NEB = M

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC) .....	6.77%
Real ((1 + WACC) / (1 + Escalation)) - 1 .....	3.66%
Escalation Rate .....	3.00%
Net-to-Gross (NTG) .....	100%
Minimum NTG Sensitivity .....	30%
Average Customer Segment Rate/kWh .....	\$0.057
Line Losses .....	9.60%

Notes: Measure inputs from Evergreen Consulting Group or the Technical Reference Manual prepared by ADM Associates, Inc. unless otherwise noted.

Year:2014 Program: Easy Upgrades

Market Segment: Commercial

Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Standard/High Performance T8 Fluorescents	4-foot T8	4-foot T12	Fixture	ENComm_InsLt	11	180.28	\$115.23	\$—	\$61.15	\$33.21	\$0.052	2.71	1.63	1
Standard T8 Fluorescents	6-foot T8	6-foot T12	Fixture	ENComm_InsLt	11	332.20	\$212.34	\$—	\$76.03	\$16.00	\$0.052	6.38	2.28	1
Standard T8 Fluorescents	8-foot T8	8-foot T12	Fixture	ENComm_InsLt	11	262.06	\$167.51	\$—	\$80.56	\$22.75	\$0.052	4.60	1.78	1
Standard/High Performance T8 Fluorescents	4-foot & 8-foot T8	8-foot T12HO	Fixture	ENComm_InsLt	11	564.84	\$361.05	\$—	\$75.36	\$46.18	\$0.052	4.78	3.45	1
T5 (Non-HO) Fluorescents	4-foot T5	4-foot T12	Fixture	ENComm_InsLt	11	156.85	\$100.26	\$—	\$76.21	\$36.18	\$0.052	2.26	1.19	1
T5/T8 High Bay - New Fixture	4-foot T8/T5	Fixture using > 200 input watts	Fixture	ENComm_InsLt	11	1,194.00	\$763.20	\$—	\$216.24	\$137.72	\$0.052	3.82	2.74	1
Relamp T8/T5HO to Reduced Wattage T8/T5HO	Reduced wattage T8/T5 re-lamp		Fixture	ENComm_InsLt	8	130.58	\$61.52	\$—	\$23.07	\$1.00	\$0.052	7.90	2.06	1
Permanent Fixture Removal	Permanent Fixture Removal		Fixture	ENComm_InsLt	8	878.14	\$413.71	\$—	\$35.78	\$22.73	\$0.052	6.05	5.08	1
Screw-in CFLs/cold-cathode	Screw-in CFLs/cold-cathode	Fixture using > 40 input watts	Fixture	ENComm_InsLt	6	164.23	\$57.99	\$—	\$33.23	\$5.08	\$0.052	4.26	1.39	1
Hardwired CFLs	Hardwired CFLs	Fixture using > 90 input watts	Fixture	ENComm_InsLt	6	366.94	\$129.57	\$—	\$94.75	\$50.00	\$0.052	1.88	1.14	1
LED Replacement Lamps	LED Replacement Lamps	Fixture using > 20 input watts	Fixture	ENComm_InsLt	12	154.10	\$106.58	\$—	\$48.66	\$24.25	\$0.052	3.30	1.88	1
Pulse Start/Electronic Metal Halide	Pulse Start/Electronic Metal Halide	Fixture using > 170 input watts	Fixture	ENComm_InsLt	11	1,091.70	\$697.81	\$—	\$153.66	\$105.55	\$0.052	4.30	3.32	1
LED Exit Sign	LED Exit Sign	Exit sign using ≥ 18 watts	Fixture	IPC_8760	12	230.68	\$144.62	\$—	\$68.69	\$40.00	\$0.052	2.78	1.79	1
Lighting Controls	Lighting Controls	Manual controls	Fixture	ENComm_InsLt	10	280.14	\$163.86	\$—	\$111.74	\$49.02	\$0.052	2.58	1.30	1
Standard/High Performance T8 Fluorescents	4-foot T8	4-foot T12	Fixture	IPC_Outdoor Lighting	11	166.42	\$68.76	\$—	\$61.15	\$13.80	\$0.052	3.06	0.99	1, 2
Standard T8 Fluorescents	6-foot T8	6-foot T12	Fixture	IPC_Outdoor Lighting	11	386.42	\$159.66	\$—	\$76.03	\$14.00	\$0.052	4.68	1.66	1

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Standard T8 Fluorescents	8-foot T8	8-foot T12	Fixture	IPC_Outdoor Lighting	11	303.92	\$125.57	\$—	\$80.56	\$19.50	\$0.052	3.56	1.30	1
Standard/High Performance T8 Fluorescents	4-foot & 8-foot T8	8-foot T12HO	Fixture	IPC_Outdoor Lighting	11	913.16	\$377.30	\$—	\$75.36	\$21.48	\$0.052	5.47	3.07	1
T5 (Non-HO) Fluorescents	4-foot T5	4-foot T12	Fixture	IPC_Outdoor Lighting	11	181.22	\$74.88	\$—	\$76.21	\$20.47	\$0.052	2.50	0.87	1, 2
T5/T8 High Bay - New Fixture	4-foot T8/T5	Fixture using > 200 input watts	Fixture	IPC_Outdoor Lighting	11	1,643.60	\$679.10	\$—	\$216.24	\$102.71	\$0.052	3.61	2.25	1
Permanent Fixture Removal	Permanent Fixture Removal		Fixture	IPC_Outdoor Lighting	8	1,018.40	\$302.47	\$—	\$35.78	\$14.09	\$0.052	4.51	3.41	1
Screw-in CFLs/cold-cathode	Screw-in CFLs/cold-cathode	Fixture using > 40 input watts	Fixture	IPC_Outdoor Lighting	6	190.46	\$41.20	\$—	\$33.23	\$5.08	\$0.052	2.75	0.96	1, 2
Hardwired CFLs	Hardwired CFLs	Fixture using > 90 input watts	Fixture	IPC_Outdoor Lighting	6	425.55	\$92.05	\$—	\$94.75	\$35.00	\$0.052	1.61	0.79	1, 2
LED Replacement Lamps	LED Replacement Lamps	Fixture using > 20 input watts	Fixture	IPC_Outdoor Lighting	12	178.71	\$80.31	\$—	\$48.66	\$19.25	\$0.052	2.81	1.39	1
Pulse Start/Electronic Metal Halide	Pulse Start/Electronic Metal Halide	Fixture using > 170 input watts	Fixture	IPC_Outdoor Lighting	11	1,265.40	\$522.83	\$—	\$153.66	\$45.68	\$0.052	4.69	2.38	1
Lighting Controls	Lighting Controls	Manual controls	Fixture	IPC_Outdoor Lighting	10	255.65	\$96.08	\$—	\$111.74	\$45.50	\$0.052	1.63	0.77	1, 2
Refrigeration Case Lighting	Case # 1 - T8 fluorescent lighting and electronic ballast (per lamp)	Case # 1 - T12 fluorescent lighting	Lamp	ENComm_Refrigeration	6	309.31	\$104.46	\$—	\$44.70	\$15.00	\$0.052	3.36	1.72	3
Refrigeration Case Lighting	Case # 2 - LED display case lighting (per linear foot)	Case # 2 - T12 fluorescent lighting	Linear foot	ENComm_Refrigeration	8	111.25	\$50.21	\$17.64	\$43.63	\$15.00	\$0.052	2.42	1.37	4
Refrigeration Case Lighting	Case # 3 - LED display case lighting (per linear foot)	Case #3 - T8 fluorescent lighting	Linear foot	ENComm_Refrigeration	8	77.75	\$35.09	\$16.36	\$45.33	\$10.00	\$0.052	2.50	1.04	5
Air Conditioning (AC) Units	6-11 ton AC unit that meets CEE Tier 1 12-19 ton AC unit that meets CEE Tier 1 20-25 ton AC unit that meets CEE Tier 1	Standard 6-11 ton AC unit Standard 12-19 ton AC unit Standard 20-25 ton AC unit	Tons	ENComm_Cooling	15	40.30	\$43.93	\$—	\$36.18	\$30.00	\$0.052	1.37	1.15	6

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
AC Units	1-5 ton AC unit that meets CEE Tier 2 6-11 ton AC unit that meets CEE Tier 2 12-19 ton AC unit that meets CEE Tier 2 20-25 ton AC unit that meets CEE Tier 2	Standard 1-5 ton AC unit Standard 6-11 ton AC unit Standard 12-19 ton AC unit Standard 20-25 ton AC unit	Tons	ENComm_Cooling	15	90.16	\$98.27	\$—	\$115.37	\$75.00	\$0.052	1.23	0.82	2, 6
AC Units	6-11 ton AC VRF unit that meets CEE Tier 1 12-19 ton AC VRF unit that meets CEE Tier 1 20-25 ton AC VRF unit that meets CEE Tier 1	Standard 6-11 ton AC VRF unit Standard 12-19 ton AC VRF unit Standard 20-25 ton AC VRF unit	Tons	ENComm_Cooling	15	132.60	\$144.53	\$—	\$115.37	\$75.00	\$0.052	1.76	1.18	6
Heat Pump (HP) units	1-5 ton HP unit that meets CEE Tier 1 6-11 ton HP unit that meets CEE Tier 1 12-19 ton HP unit that meets CEE Tier 1 20-25 ton HP unit that meets CEE Tier 1	Standard 1-5 ton HP unit Standard 6-11 ton HP unit Standard 12-19 ton HP unit Standard 20-25 ton HP unit	Tons	ENComm_Cooling	15	27.25	\$29.70	\$—	\$31.83	\$30.00	\$0.052	0.95	0.89	2, 6
HP Units	6-11 ton HP VRF unit that meets CEE Tier 1 12-19 ton HP VRF unit that meets CEE Tier 1 20-25 ton HP VRF unit that meets CEE Tier 1	Standard 6-11 ton HP VRF unit Standard 12-19 ton HP VRF unit Standard 20-25 ton HP VRF unit	Tons	ENComm_Cooling	15	332.91	\$362.86	\$—	\$95.30	\$75.00	\$0.052	3.93	3.22	6
Chillers	Air-cooled chiller condenser, IPLV 14.0 EER or higher	Standard air-cooled chiller	Tons	ENComm_Cooling	20	472.44	\$653.55	\$—	\$86.12	\$80.00	\$0.052	6.25	5.90	7
Chillers	Water-cooled chiller electronically operated, reciprocating and positive displacement	Standard water-cooled chiller	Tons	ENComm_Cooling	20	212.96	\$294.60	\$—	\$38.82	\$40.00	\$0.052	5.77	5.90	8
Economizers	Airside economizer control addition	No prior control	Ton of cooling	ENComm_Cooling	15	634.00	\$691.04	\$—	\$155.01	\$100.00	\$0.052	5.20	3.68	7
Economizers	Airside economizer control repair	Non-functional economizer	Ton of cooling	ENComm_Cooling	15	634.00	\$691.04	\$—	\$73.65	\$50.00	\$0.052	8.33	6.48	7
Evaporative coolers/Pre-coolers	Direct evaporative cooler	Replacing standard AC unit	Tons	ENComm_Cooling	15	399.00	\$434.90	\$—	\$364.00	\$200.00	\$0.052	1.97	1.13	7
Automated Controls	EMS controls with 2 strategies	Proposed strategy not existing (retrofit system)	Tons of cooling	ENComm_Cooling	15	918.00	\$1,000.59	\$—	\$197.98	\$125.00	\$0.052	5.79	4.07	7
Automated Controls	EMS controls with 3 strategies	Proposed strategy not existing (retrofit system)	Tons of cooling	ENComm_Cooling	15	1,243.00	\$1,354.83	\$—	\$197.98	\$150.00	\$0.052	6.31	5.16	9

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Automated Controls	EMS controls with 4 strategies	Proposed strategy not existing (retrofit system)	Tons of cooling	ENComm_Cooling	15	1,251.00	\$1,363.55	\$—	\$197.98	\$175.00	\$0.052	5.68	5.18	7
Automated Controls	EMS controls with 5 strategies	Proposed strategy not existing (retrofit system)	Tons of cooling	ENComm_Cooling	15	1,268.00	\$1,382.08	\$—	\$197.98	\$200.00	\$0.052	5.20	5.24	9
Automated Controls	EMS controls with 2 strategies	Proposed strategy not existing (new system)	Tons of cooling	ENComm_Cooling	15	454.00	\$494.84	\$—	\$162.49	\$70.00	\$0.052	5.29	2.66	7
Automated Controls	EMS controls with 3 strategies	Proposed strategy not existing (new system)	Tons of cooling	ENComm_Cooling	15	496.00	\$540.62	\$—	\$162.49	\$80.00	\$0.052	5.11	2.87	9
Automated Controls	EMS controls with 4 strategies	Proposed strategy not existing (new system)	Tons of cooling	ENComm_Cooling	15	498.95	\$543.84	\$—	\$162.49	\$90.00	\$0.052	4.69	2.89	7
Automated Controls	EMS controls with 5 strategies	Proposed strategy not existing (new system)	Tons of cooling	ENComm_Cooling	15	511.75	\$557.79	\$—	\$162.49	\$100.00	\$0.052	4.41	2.95	9
Automated Controls	Lodging room occupancy controls	Manual controls	Ton	ENComm_HVAC	11	430.00	\$305.61	\$—	\$150.61	\$75.00	\$0.052	3.14	1.77	7
Premium Windows	Low U-value, U-factor of .30 or less	Standard windows	Ft2 window area	ENComm_HVAC	25	5.89	\$8.37	\$—	\$5.92	\$2.50	\$0.052	2.98	1.34	7
Reflective Roofing	Adding reflective roof treatment	Non-reflective low pitch roof	Ft2 roof area	ENComm_Cooling	15	0.12	\$0.13	\$—	\$0.05	\$0.05	\$0.052	2.26	2.26	7
Wall Insulation	Increase to R11 min. insulation	Insulation level, R2.5 or less	Ft2 wall area	ENComm_HVAC	25	0.41	\$0.59	\$—	\$0.66	\$0.40	\$0.052	1.39	0.86	7, 10
Wall Insulation	Increase to R19 min. insulation	Insulation level, R2.5 or less	Ft2 wall area	ENComm_HVAC	25	0.47	\$0.66	\$—	\$0.66	\$0.55	\$0.052	1.15	0.97	7, 10
Computers	PC network power management	No central control software in place	Unit	ENComm_Office	4	135.00	\$28.75	\$—	\$12.00	\$10.00	\$0.052	1.69	1.51	7
Laundry Machines	High efficiency washer	Standard washer, electric HW	Unit	ENComm_WtrHtr	10	756.00	\$411.96	\$—	\$200.00	\$125.00	\$0.052	2.51	1.72	7
Stock Tank/Fountain	Energy free freeze resistant stock tank	Thermostatically controlled electric resistance element freeze protection	Unit	Comm_Agriculture	10	1,176.00	\$919.86	\$—	\$442.69	\$100.00	\$0.052	5.71	1.83	11

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Residential-type electric water heater	EF 0.94 or higher, 25-54 gallon EF 0.95 or higher, 45-54 gallon EF 0.93 or higher, 55-74 gallon EF 0.92 or higher, 75-99 gallon EF 0.85 or higher, 100-119 gallon	Standard electric water heater	Unit	ENComm_WtrHtr	13	154.14	\$106.90	\$—	\$67.90	\$50.00	\$0.052	1.84	1.41	12
Commercial-type electric water heater	25-34 gallon, standby loss 157 or lower 35-44 gallon, standby loss 185 or lower 45-54 gallon, standby loss 201 or lower 55-74 gallon, standby loss 238 or lower 75-99 gallon, standby by loss 249 or lower 100-119 gallon, standby loss 287 or lower	Standard electric water heater	Unit	ENComm_WtrHtr	13	68.17	\$47.27	\$—	\$29.74	\$20.00	\$0.052	2.01	1.42	13
Commercial showerhead, electric water heat	2.0 gpm or less installed in health club/fitness business	Showerhead using 2.2 gpm or greater	Unit	ENComm_WtrHtr	10	2,431.00	\$1,324.70	\$—	\$13.32	\$15.00	\$0.052	9.37	9.48	14
Commercial showerhead, electric water heat	2.0 gpm or less installed in commercial business (non health club/fitness business)	Showerhead using 2.2 gpm or greater	Unit	ENComm_WtrHtr	10	129.00	\$70.29	\$—	\$13.32	\$9.00	\$0.052	4.48	3.51	1
Refrigeration	Add refrigeration line insulation	No insulation present	Linear ft	ENComm_Refrigeration	11	9.75	\$5.98	\$—	\$4.46	\$2.00	\$0.052	2.38	1.20	7
Refrigeration	Install auto-closer - walk-in	no/damaged auto-closer, low temp	Door	ENComm_Refrigeration	8	2,547.00	\$1,149.63	\$—	\$139.32	\$125.00	\$0.052	4.47	4.23	7
Refrigeration	Install auto-closer - reach-in	Damaged auto-closer, low temp	Door	ENComm_Refrigeration	8	560.00	\$252.76	\$—	\$139.32	\$100.00	\$0.052	1.96	1.50	7
Refrigeration	Install auto-closer - walk-in	No/damaged auto-closer, med. Temp	Door	ENComm_Refrigeration	8	575.00	\$259.54	\$—	\$139.32	\$100.00	\$0.052	2.00	1.53	7
Refrigeration	Install auto-closer - reach-in	Damaged auto-closer, med. Temp	Door	ENComm_Refrigeration	8	373.00	\$168.36	\$—	\$139.32	\$70.00	\$0.052	1.88	1.06	7
Refrigeration	Add anti-sweat heat controls	Low/med. temp case w/out controls	Linear ft	ENComm_Refrigeration	8	208.00	\$93.88	\$—	\$40.00	\$40.00	\$0.052	1.85	1.85	7
Evaporative Fans	Add evaporative fan controls	low or med. temp. walk-in or reach-in with no controls	Fan	ENComm_Refrigeration	15	408.00	\$328.91	\$—	\$161.74	\$75.00	\$0.052	3.42	1.80	7
Evaporative Fans	Install ECM/PSC evap fan motor	Med. or low temp. walk-in	Motor	ENComm_Refrigeration	15	593.00	\$478.05	\$—	\$296.78	\$100.00	\$0.052	3.65	1.46	7

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Evaporative Fans	Install ECM/PSC evap fan motor	Med. or low temp. reach-in	Motor	ENComm_Refrigeration	15	318.00	\$256.36	\$—	\$84.45	\$60.00	\$0.052	3.35	2.54	7
Floating Head/Suction Pressures	Head pressure controller	Standard head pressure control	HP	ENComm_Refrigeration	16	440.00	\$374.47	\$—	\$272.60	\$80.00	\$0.052	3.64	1.27	7
Floating Head/Suction Pressures	Suction pressure controller	Standard suction pressure control	HP	ENComm_Refrigeration	16	104.00	\$88.51	\$—	\$86.91	\$20.00	\$0.052	3.48	0.96	7, 15
Vending Machines	Non-cooled snack control	Vending machine with no sensor	Sensor	ENComm_Misc	5	387.00	\$107.66	\$—	\$75.00	\$50.00	\$0.052	1.54	1.13	7
Commercial kitchen equipment	ENERGY STAR® undercounter (residential style) dishwasher	Standard dishwasher	Machine	ENComm_Misc	12	2,210.00	\$1,467.71	\$251.95	\$232.00	\$200.00	\$0.052	4.66	4.96	16
Commercial kitchen equipment	ENERGY STAR commercial dishwasher	Standard commercial dishwasher	Machine	ENComm_Misc	12	5,561.00	\$3,693.19	\$679.51	\$3,978.00	\$500.00	\$0.052	4.68	1.02	16
Commercial kitchen equipment	ENERGY STAR listed electric combination oven (6-14 pans)	Standard electric oven	Oven	ENComm_Cooking	10	12,999.00	\$7,577.91	\$—	\$1,674.17	\$1,100.00	\$0.052	4.27	3.22	17
Commercial kitchen equipment	ENERGY STAR listed electric combination oven (15-20 pans)	Standard electric oven	Oven	ENComm_Cooking	10	17,877.00	\$10,421.60	\$—	\$457.41	\$300.00	\$0.052	8.48	7.51	17
Commercial kitchen equipment	ENERGY STAR listed electric convection oven	Standard electric oven	Oven	ENComm_Cooking	10	1,672.00	\$974.71	\$—	\$946.42	\$300.00	\$0.052	2.52	0.94	15, 18
Commercial kitchen equipment	ENERGY STAR listed electric fryer	Standard fryer	Fryer	ENComm_Cooking	8	2,671.00	\$1,253.86	\$—	\$808.25	\$400.00	\$0.052	2.33	1.32	19
Commercial kitchen equipment	ENERGY STAR listed electric steamer - 3 pan	Standard steamer	Steamer	ENComm_Cooking	9	21,470.00	\$11,313.49	\$—	\$370.32	\$80.00	\$0.052	9.46	7.61	20
Commercial kitchen equipment	ENERGY STAR listed electric steamer - 4 pan	Standard steamer	Steamer	ENComm_Cooking	9	28,564.00	\$15,051.64	\$—	\$141.36	\$100.00	\$0.052	9.49	9.25	20
Commercial kitchen equipment	ENERGY STAR listed electric steamer - 5 pan	Standard steamer	Steamer	ENComm_Cooking	9	35,659.00	\$18,790.31	\$—	\$(276.91)	\$150.00	\$0.052	9.38	11.91	20
Commercial kitchen equipment	ENERGY STAR listed electric steamer - 6 pan	Standard steamer	Steamer	ENComm_Cooking	9	42,754.00	\$22,528.98	\$—	\$61.30	\$175.00	\$0.052	9.39	9.86	20
Commercial kitchen equipment	ENERGY STAR listed electric steamer -10 pan or larger	Standard steamer	Steamer	ENComm_Cooking	9	71,133.00	\$37,483.13	\$—	\$4,197.92	\$200.00	\$0.052	9.61	4.75	20

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Variable speed controls	Variable speed drive on HVAC system applications: -chilled water pumps -condenser water pumps -cooling tower fans	Single speed HVAC system fan/pump	Hp	ENComm_HVAC	15	268.00	\$248.78	\$—	\$165.33	\$60.00	\$0.052	3.36	1.39	7
Variable speed controls	Variable speed drive on HVAC system applications: -supply -return -outside air -make-up air -hot water pumps	Single speed HVAC system fan/pump	Hp	ENComm_HVAC	15	996.00	\$924.57	\$—	\$142.05	\$100.00	\$0.052	6.09	4.77	7

<sup>a</sup> Average measure life.

<sup>b</sup> Estimated kWh savings measured at the customers meter, excluding line losses.

<sup>c</sup> Sum of NPV of avoided costs. Based on end-use load shape; measure life; and savings, including line losses and alternative costs by pricing period as provided in the 2013 Integrated Resource Plan (IRP). Includes 10 percent conservation adder from the Northwest Power Act.

<sup>d</sup> Incremental participant cost prior to customer incentives.

<sup>e</sup> Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2014 actuals.

<sup>f</sup> Utility Cost Ratio = (NPV Avoided Costs)/((Admin Cost/kWh \* kWh Savings) + Incentives).

<sup>g</sup> Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh \* kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

<sup>1</sup> Evergreen Consulting Group, LLC. Idaho Power Lighting Tool. 2014.

<sup>2</sup> Measure not cost-effective. Measure to be monitored in 2015 to adjust weighted average. Measure included in the program to increase participation in a cost-effective program and to encourage adoption of higher efficiency equipment.

<sup>3</sup> Idaho Power Demand-Side Management Potential Study by Nexant, Inc. IPC DSM Potential - Commercial Model 081209.xlsm. 2009.

<sup>4</sup> RTF. ComGroceryDisplayCaseLEDs\_v2\_2 and ComGroceryCaseLEDs\_v1.1.xls. 2013. T12 to LED. Averaged the measures for less than 4 W/in ft and 4-8.5 W/in ft.

<sup>5</sup> RTF. ComGroceryDisplayCaseLEDs\_v2\_2 and ComGroceryCaseLEDs\_v1.1.xls. 2013. T8 to LED. Averaged the measures for less than 4 W/in ft and 4-8.5 W/in ft.

<sup>6</sup> Idaho Power Technical Reference Manual (TRM) prepared by ADM Associates, Inc. 2015. Weighted average of 6-25 ton units.

<sup>7</sup> Idaho Power TRM prepared by ADM Associates, Inc. 2015.

<sup>8</sup> Idaho Power TRM prepared by ADM Associates, Inc. 2015. Averaged water cooled chillers.

<sup>9</sup> Idaho Power TRM prepared by ADM Associates, Inc. 2015. Calculated from TRM spreadsheets.

<sup>10</sup> Measure not cost-effective. Measure to remain in the program due to unquantifiable non-energy benefits.

<sup>11</sup> RTF. AgStockWateringTank\_v2\_0.xlsm. 2013. Simple average of HZ 1, 2, & 3.

<sup>12</sup> RTF. ComDHWEfficientTank\_v3\_0.xlsm. 2014. Simple average of residential style water heaters.

<sup>14</sup> RTF. ComDHWEfficientTank\_v3\_0.xlsm. 2014. Simple average of commercial style water heaters.

<sup>14</sup> RTF. ComDHWShowerhead\_v3\_0.xlsm. 2013.

<sup>15</sup> Measure not cost-effective. Will monitor in 2015.

<sup>16</sup> Idaho Power TRM prepared by ADM Associates, Inc. 2015. NEBs from water savings from RTF. ComDishwasher\_v1\_2.xlsm. 2012.

<sup>17</sup> RTF. ComCookingCombinationOven\_v2\_0.xlsm. 2013.

<sup>18</sup> RTF. ComCookingConvectionOven\_v2\_0.xlsm. Simple average of half and full size ovens. 2013.

<sup>19</sup> RTF. ComCookingFryer\_v2\_0.xlsm. 2013.

<sup>20</sup> RTF. ComCookingSteamer\_v2\_0.xlsm. 2013.

## Irrigation Efficiency Rewards

Segment: Irrigation

### 2014 Program Results

Cost Inputs (NPV)		Ref
Program Administration .....	\$ 276,286	
Program Incentives .....	2,170,220	I
<b>Total Utility Cost .....</b>	<b>\$ 2,446,507</b>	P
Measure Equipment and Installation (Incremental Participant Cost) .....	\$ 18,183,495	M

Net Benefit Inputs (NPV)		Ref
<b>Resource Savings</b>		
2014 Annual Gross Energy (kWh) .....	18,463,611	
NPV Cumulative Energy (kWh) .....	133,860,495	\$ 12,599,723
10% Credit (Northwest Power Act) .....		1,259,972
<b>Total Electric Savings .....</b>	<b>\$ 13,859,695</b>	S
<b>Participant Bill Savings</b>		
NPV Cumulative Participant Savings .....	\$ 7,509,129	B
<b>Other Benefits</b>		
Non-Utility Rebates/Incentives .....	\$ —	NUI
Non-Energy Benefits .....	\$ 19,970,361	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
Utility Cost Test .....	\$ 13,859,695	\$ 2,446,507	5.67
Total Resource Cost Test .....	33,830,056	18,459,781	1.83
Ratepayer Impact Measure Test .....	13,859,695	9,955,636	1.39
Participant Cost Test .....	29,649,711	18,183,495	1.63

Benefits and Costs Included in Each Test	
Utility Cost Test .....	= S * NTG = P
Total Resource Cost Test .....	= (S + NUI + NEB) * NTG = P + ((M-I)*NTG)
Ratepayer Impact Measure Test .....	= S * NTG = P + (B * NTG)
Participant Cost Test .....	= B + I + NUI + NEB = M

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC) .....	6.77%
Real ((1 + WACC) / (1 + Escalation)) - 1 .....	3.66%
Escalation Rate .....	3.00%
Net-to-Gross (NTG) .....	100%
Minimum NTG Sensitivity .....	18%
Average Customer Segment Rate/kWh .....	\$0.059
Line Losses .....	9.60%

Notes: Energy savings are combined for projects under the Custom and Menu program. Savings under each Custom project is unique and individually calculated and assessed.

Green Rewind initiative is available to agricultural, commercial, and industrial customers. Agricultural motor rewinds are paid under Irrigation Efficiency.

Non-energy benefits, including yield, labor, and other benefits, reported by the customer.

Program cost-effectiveness modified in 2014 to reflect NTG of 100% for both Menu and Custom offering.

Year:2014 Program: Irrigation Efficiency Rewards Market Segment: Irrigation Program Type: Energy Efficiency

Measure Name <sup>a</sup>	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>b</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>c</sup>	NPV Avoided Costs <sup>d</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>e</sup>	Incentive/Unit	Admin Cost (\$/kWh) <sup>f</sup>	UC Ratio <sup>g</sup>	TRC Ratio <sup>h</sup>	
Nozzle Replacement	New flow-control-type nozzles replacing existing brass nozzles or worn out flow control nozzles of same flow rate or less.	Brass nozzles or worn out flow control nozzles of same flow rate or less	Unit	IPC_Irrigation	4	40.60	\$14.63	\$—	\$6.66	\$1.50	\$0.015	6.94	2.01	1
Nozzle Replacement	New nozzles replacing existing worn nozzles of same flow rate or less	Worn nozzle of same flow rate or less	Unit	IPC_Irrigation	4	40.60	\$14.63	\$—	\$2.49	\$0.25	\$0.015	17.03	4.72	1
Sprinklers	Rebuilt or new brass impact sprinklers		Unit	IPC_Irrigation	5	28.26	\$12.75	\$—	\$14.49	\$2.75	\$0.015	4.02	0.85	1, 2
Levelers	Rebuilt or new wheel line levelers		Unit	IPC_Irrigation	5	41.76	\$18.84	\$—	\$3.82	\$0.75	\$0.015	13.69	4.24	1
Sprinklers	Center pivot/linear move: Install new sprinkler package on an existing system		Unit	IPC_Irrigation	5	100.19	\$45.19	\$—	\$30.00	\$8.00	\$0.015	4.76	1.43	1
Gasket Replacement	New gaskets for hand lines, wheel lines or portable mainline		Unit	IPC_Irrigation	5	170.00	\$76.68	\$—	\$4.61	\$1.00	\$0.015	21.60	10.72	1
Drain Replacement	New drain hand lines, wheel lines, or portable mainline		Unit	IPC_Irrigation	5	176.25	\$79.50	\$—	\$16.06	\$3.00	\$0.015	14.09	4.25	1
Hub Replacement	New wheel line hubs		Unit	IPC_Irrigation	10	73.06	\$63.19	\$—	\$58.75	\$12.00	\$0.015	4.83	1.06	1
New Goose Necks	New goose neck with drop tube or boomback		Outlet	IPC_Irrigation	15	14.50	\$17.61	\$—	\$4.90	\$1.00	\$0.015	14.47	3.44	1
Pipe Repair	Cut and pipe press or weld repair of leaking hand lines, wheel lines, and portable mainline		Joint	IPC_Irrigation	8	84.48	\$59.65	\$—	\$21.15	\$8.00	\$0.015	6.44	2.66	1
Gasket Replacement	New center pivot base boot gasket		Unit	IPC_Irrigation	8	1,456.40	\$1,028.39	\$—	\$293.76	\$125.00	\$0.015	7.00	3.26	1

<sup>a</sup> Available measures in the Irrigation Efficiency Menu Incentive Option. For the Custom Incentive Option, projects are thoroughly reviewed by Idaho Power staff.

<sup>b</sup> Average measure life.

<sup>c</sup> Estimated kWh savings measured at the customers meter, excluding line losses.

<sup>d</sup> Sum of NPV of avoided costs. Based on end-use load shape; measure life; and savings, including line losses and alternative costs by pricing period as provided in the 2013 Integrated Resource Plan (IRP). Includes 10 percent conservation adder from the Northwest Power Act.

<sup>e</sup> Incremental participant cost prior to customer incentives.

<sup>f</sup> Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2014 actuals.

<sup>g</sup> Utility Cost Ratio = (NPV Avoided Costs)/((Admin Cost/kWh \* kWh Savings) + Incentives).

<sup>h</sup> Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh \* kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

<sup>1</sup> RTF. AgIrrigationHardware\_v3.xlsm. 2013. Three year weighted average of Western Idaho (13%), Eastern Washington & Oregon (4%), and Eastern & Southern Idaho (83%).

<sup>2</sup> Measure not cost-effective. Measure to remain in the program due to unquantifiable non-energy benefits.

Year:2014 Program: Irrigation Efficiency Rewards—Green Motors Market Segment: Irrigation Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/ Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Green Motors Program Rewind	Motor size 15HP	Standard rewind practice	Motor	IPC_Irrigation	18	317.00	\$445.29	\$—	\$157.66	\$30.00	\$0.050	9.71	2.57	1
Green Motors Program Rewind	Motor size 20HP	Standard rewind practice	Motor	IPC_Irrigation	18	425.00	\$596.99	\$—	\$175.90	\$40.00	\$0.050	9.75	3.03	1
Green Motors Program Rewind	Motor size 25HP	Standard rewind practice	Motor	IPC_Irrigation	17	595.00	\$797.05	\$—	\$200.98	\$50.00	\$0.050	9.99	3.45	1
Green Motors Program Rewind	Motor size 30HP	Standard rewind practice	Motor	IPC_Irrigation	17	640.00	\$857.33	\$—	\$220.74	\$60.00	\$0.050	9.32	3.39	1
Green Motors Program Rewind	Motor size 40HP	Standard rewind practice	Motor	IPC_Irrigation	17	746.00	\$999.32	\$—	\$269.75	\$80.00	\$0.050	8.52	3.25	1
Green Motors Program Rewind	Motor size 50HP	Standard rewind practice	Motor	IPC_Irrigation	17	802.00	\$1,074.34	\$—	\$298.62	\$100.00	\$0.050	7.67	3.17	1
Green Motors Program Rewind	Motor size 60HP	Standard rewind practice	Motor	IPC_Irrigation	20	765.00	\$1,170.15	\$—	\$352.19	\$120.00	\$0.050	7.39	3.00	1
Green Motors Program Rewind	Motor size 70HP	Standard rewind practice	Motor	IPC_Irrigation	20	788.00	\$1,205.33	\$—	\$380.68	\$150.00	\$0.050	6.36	2.87	1
Green Motors Program Rewind	Motor size 100HP	Standard rewind practice	Motor	IPC_Irrigation	20	1,040.00	\$1,590.80	\$—	\$472.24	\$200.00	\$0.050	6.31	3.03	1
Green Motors Program Rewind	Motor size 125HP	Standard rewind practice	Motor	IPC_Irrigation	20	1,157.00	\$1,769.76	\$—	\$530.37	\$250.00	\$0.050	5.75	3.01	1
Green Motors Program Rewind	Motor size 150HP	Standard rewind practice	Motor	IPC_Irrigation	20	1,376.00	\$2,104.75	\$—	\$590.78	\$300.00	\$0.050	5.71	3.19	1
Green Motors Program Rewind	Motor size 200HP	Standard rewind practice	Motor	IPC_Irrigation	20	1,821.00	\$2,785.42	\$—	\$711.22	\$400.00	\$0.050	5.67	3.47	1
Green Motors Program Rewind	Motor size 250HP	Standard rewind practice	Motor	IPC_Irrigation	20	2,823.00	\$4,318.10	\$—	\$914.10	\$500.00	\$0.050	6.73	4.09	1
Green Motors Program Rewind	Motor size 300HP	Standard rewind practice	Motor	IPC_Irrigation	20	3,370.00	\$5,154.79	\$—	\$923.98	\$600.00	\$0.050	6.71	4.72	1
Green Motors Program Rewind	Motor size 350HP	Standard rewind practice	Motor	IPC_Irrigation	20	3,929.00	\$6,009.85	\$—	\$968.43	\$700.00	\$0.050	6.70	5.16	1
Green Motors Program Rewind	Motor size 400HP	Standard rewind practice	Motor	IPC_Irrigation	20	4,456.00	\$6,815.95	\$—	\$1,081.64	\$800.00	\$0.050	6.66	5.23	1
Green Motors Program Rewind	Motor size 450HP	Standard rewind practice	Motor	IPC_Irrigation	20	5,003.00	\$7,652.65	\$—	\$1,182.32	\$900.00	\$0.050	6.65	5.34	1
Green Motors Program Rewind	Motor size 500HP	Standard rewind practice	Motor	IPC_Irrigation	20	5,567.00	\$8,515.35	\$—	\$1,277.31	\$1,000.00	\$0.050	6.66	5.47	1
Green Motors Program Rewind	Motor size 600HP	Standard rewind practice	Motor	IPC_Irrigation	20	6,193.00	\$9,472.89	\$—	\$1,882.27	\$1,200.00	\$0.050	6.27	4.32	1
Green Motors Program Rewind	Motor size 700HP	Standard rewind practice	Motor	IPC_Irrigation	20	7,195.00	\$11,005.56	\$—	\$2,053.56	\$1,400.00	\$0.050	6.25	4.56	1

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) <sup>a</sup>	Benefit			Cost			Benefit/Cost Tests		Source
						Annual Gross Energy Savings (kWh/yr) <sup>b</sup>	NPV Avoided Costs <sup>c</sup>	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost <sup>d</sup>	Incentive/Unit	Admin Cost (\$/kWh) <sup>e</sup>	UC Ratio <sup>f</sup>	TRC Ratio <sup>g</sup>	
Green Motors Program Rewind	Motor size 800HP	Standard rewind practice	Motor	IPC_Irrigation	20	8,205.00	\$12,550.47	\$—	\$2,278.48	\$1,600.00	\$0.050	6.24	4.67	
Green Motors Program Rewind	Motor size 900HP	Standard rewind practice	Motor	IPC_Irrigation	20	9,211.00	\$14,089.26	\$—	\$2,511.92	\$1,800.00	\$0.050	6.23	4.74	

<sup>a</sup> Average measure life.

<sup>b</sup> Estimated kWh savings measured at the customers meter, excluding line losses.

<sup>c</sup> Sum of NPV of avoided costs. Based on end-use load shape; measure life; and savings, including line losses and alternative costs by pricing period as provided in the 2013 Integrated Resource Plan (IRP). Includes 10 percent conservation adder from the Northwest Power Act.

<sup>d</sup> Incremental participant cost prior to customer incentives.

<sup>e</sup> Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2014 actuals.

<sup>f</sup> Utility Cost Ratio = (NPV Avoided Costs)/((Admin Cost/kWh \* kWh Savings ) + Incentives).

<sup>g</sup> Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh \* kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

<sup>h</sup> RTF. AgMotorsRewind\_v2\_0.xlsm. 2013.