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IDAHO POWER
An IDACORP Company

Supplement 1: Cost-Effectiveness

Demand-Side Management

2015 ANNUAL REPORT

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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. Idaho Power's Program Planning Group (PPG) explores 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 E Source, the Edison Electric 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 2015, Idaho Power contracted with ADM Associates, Inc. (ADM); Applied Energy Group (AEG); CLEAResult Consulting, Inc. (CLEAResult); 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 of the Idaho Public Utilities Commission (IPUC) and Public Utility Commission of Oregon (OPUC).

In the OPUC Order No. 94-590, issued in Utility Miscellaneous (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 that 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 (NEB)

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 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 it 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 2015 dollars. The result of the one-year perspective is shown in *Supplement 1: Cost-Effectiveness*. Appendix 4 of the main *Demand-Side Management 2015 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.

As part of the public workshops on 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 the annual cost of operating the three

demand response programs for the maximum allowable 60 hours to be no more than $16.7 million. This $16.7 million value is the levelized annual cost of a 170-megawatt (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 2015, the cost of operating the three demand response programs was $9 million. Idaho Power estimates that if the three programs were dispatched for the full 60 hours, the total costs would have been approximately $12.4 million and would have remained cost-effective.

As in 2014, 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.

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. 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 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 13.7 percent in 2015. This percentage is provided by the RTF at http://rtf.nwcouncil.org/measures/support/files/RTFStandardInformationWorkbook_v2_2_1.xlsx.

Idaho Power also uses a technical reference manual (TRM) developed by ADM for the Building Efficiency and Easy Upgrades programs. Idaho Power retained ADM as a consultant throughout 2015 to advise the company and provide updates to the TRM.

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. Occasionally, Idaho Power will also use internal engineering estimates and calculations for savings and costs based on information gathered from previous projects.

The company freezes savings assumptions when the budgets and goals are set for the next calendar year unless code and standard changes or program updates necessitate a need to use updated savings. As a general rule, the 2015 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. *Appendix C—Technical Appendix* of Idaho Power's 2013 IRP is the source for the financial assumptions, including the discount rate and escalation rate. 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® Electric Market Model. The avoided capital cost of capacity is based on a gas-fired, simple-cycle turbine. In the 2013 IRP, the annual avoided capacity cost is $102 per kilowatt (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. 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 2015 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 2015 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.

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 the utilities have the option to use a 10-percent adder, and the IPUC 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 includes the 10-percent conservation adder in all energy efficiency 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 an NTG of 100 percent 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 from either the TRC or UC perspective. 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 Easy Savings, Educational Distributions, Energy House Calls, See ya later, refrigerator®, Weatherization Assistance for Qualified Customers (WAQC), and Weatherization Solutions for Eligible Customers programs. 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 2015 Annual Report* Appendix 4 contains program UC and TRC B/C ratios using actual cost information over the life of the program through 2015. *Supplement 1: Cost-Effectiveness* contains annual cost-effectiveness metrics for each program using actual information from 2015 and includes results of the PCT. Current customer energy rates are used in

the calculation of the B/C ratios from a PCT and RIM perspective. Rate increases are not forecasted or escalated. A summary of the cost-effectiveness by program can be found in Table 3.

In 2015, most of Idaho Power's energy efficiency programs were cost-effective, except the Home Improvement Program and the weatherization programs for income-qualified customers.

The Home Improvement Program has a UC of 1.91 and TRC of 0.67. The RTF reduced savings for single-family home weatherization projects in 2015. With the changes, average savings estimates per project were just under 50 percent of 2014 projects. The lower savings were approved by the RTF in October 2014 and revised in spring 2015. These new savings were a result of the nearly 18-month RTF process to calibrate residential savings models. As a consequence, four of the six measures offered in the Home Improvement Program are no longer cost-effective from the TRC perspective. Idaho Power incorporated the new savings for all 2015 projects. In 2016, the company will evaluate the non-cost-effective measures and the impact on the program's cost-effectiveness to determine if these measures should be modified or removed from the program. Idaho Power will present possible program modification and seek suggestions from EEAG.

WAQC had a TRC of 0.43, and Weatherization Solutions for Eligible Customers had a TRC of 0.50. The cost-effectiveness ratios have remained steady compared to 2014. Idaho Power performed a billing analysis of the 2012 weatherization projects. In 2014 and 2015, Idaho Power claimed annual 1,551 kilowatt-hours (kWh) per home in WAQC. The savings for manufactured homes is 2,568 kWh per year. The annual savings for non-profits is 1.03 kWh/heated square foot (ft^2). For Weatherization Solutions for Eligible Customers, the billing analysis shows the per-home annual savings increased. In 2014 and 2015, Idaho Power claimed 2,108 kWh per home. 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 4.84 percent were calculated from the $1,891,042 of indirect program expenses divided by the total DSM expenses of $39,040,935 as shown in Appendix 3 of the *Demand-Side Management 2015 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.

Twenty-four individual measures in various programs are shown to not be 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 requests with the OPUC in compliance with Order No. 94-590. Measures and programs that do not pass these tests may be offered by the utility if they meet one or more of the additional conditions specified by Section 13 of Order No. 94-590. These exception requests were approved under Order No. 15-200 on June 23, 2015. The filings and exception requests are noted below.

Table 1. 2015 non-cost-effective measures

Program	Number of Measures	Notes
Building Efficiency	2	Cost-effectiveness exception request filed and approved with OPUC Advice No. 14-10. OPUC Order No. 94-590, Section 13. Exceptions A, B, C, and D.
Easy Upgrades	5	Cost-effectiveness exception request filed and approved with OPUC Advice No. 14-06. OPUC Order No. 94-590, Section 13. Exceptions A, C, and D.
Energy Efficient Lighting	2	Program is cost-effective with a UC of 4.53 and TRC of 4.23. The two non-cost-effective measures have a UC range of 4.63 and 9.12 and a TRC range of 0.82 and 0.94. These bulbs represent 0.5% of overall bulbs in the program.
Heating & Cooling Efficiency Program	9	Cost-effectiveness exception request for ductless heat pumps (DHP) filed with the OPUC under UM-1710. OPUC Order No. 94-590, Section 13. Exceptions A and C. Approved under Order No. 15-200. Other measures to be reviewed in 2016 pending updates from the RTF.
Home Improvement Program	4	The measures have a UC range of 1.32 and 2.43 and a TRC range of 0.49 and 0.92. The measures and the program will be reviewed in 2016.
Irrigation Efficiency Rewards	1	Cost-effectiveness exception request filed with the OPUC under UM-1710. OPUC Order No. 94-590,Section 13. Exceptions A, C, and D. Approved under Order No. 15-200.
Simple Steps, Smart Savings™/ Home Products Program	1	Non-cost-effective measure removed from the program in 2015.
Total	**24**	

Following the annual program cost-effectiveness results are tables that include measure-level cost-effectiveness. Exceptions to the measure-level tables are programs that are analyzed at the project level. These programs include Easy Savings, Custom Efficiency, the custom option of Irrigation Efficiency Rewards, WAQC, and Weatherization Solutions for Eligible Customers.

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.

2015 DSM Detailed Expenses by Program

Included in this supplement is a detailed breakout of program expenses as shown in Appendix 2 of the *Demand Side Management 2015 Annual Report*. These expenses are broken out by funding source major-expense type (incentives, labor/administration, materials, other expenses, and purchased services).

Table 2. 2015 DSM detailed expenses by program (dollars)

Sector/Program	Idaho Rider	Oregon Rider	Idaho Power	Total Program
Energy Efficiency/Demand Response				
Residential				
A/C Cool Credit	**$ 659,471**	**$ 45,825**	**$ 443,639**	**$ 1,148,935**
Labor/Administrative Expense	52,308	3,237	9,254	**64,800**
Materials and Equipment	(91,953)	4	0	**(91,949)**
Other Expense	29,363	1,545	0	**30,909**
Purchased Services	669,753	35,233	0	**704,986**
Incentives	0	5,805	434,385	**440,190**
Easy Savings	**0**	**0**	**127,477**	**127,477**
Labor/Administrative Expense	0	0	2,477	**2,477**
Materials and Equipment	0	0	125,000	**125,000**
Educational Distributions	**432,185**	**0**	**0**	**432,185**
Materials and Equipment	138,492	0	0	**138,492**
Other Expense	293,693	0	0	**293,693**
Energy Efficient Lighting	**1,997,292**	**60,800**	**5,291**	**2,063,383**
Labor/Administrative Expense	41,027	2,437	5,291	**48,754**
Other Expense	(144,406)	(4,832)	0	**(149,238)**
Purchased Services	313,585	15,886	0	**329,471**
Incentives	1,787,086	47,310	0	**1,834,396**
Energy House Calls	**194,939**	**15,057**	**4,108**	**214,103**
Labor/Administrative Expense	28,192	1,700	4,108	**34,001**
Materials and Equipment	2,258	109	0	**2,367**
Other Expense	12,675	520	0	**13,196**
Purchased Services	151,813	12,727	0	**164,540**
ENERGY STAR® Homes Northwest	**646,991**	**2,692**	**3,990**	**653,674**
Labor/Administrative Expense	29,759	1,777	3,990	**35,526**
Materials and Equipment	26	1	0	**28**
Other Expense	18,551	879	0	**19,430**
Purchased Services	656	35	0	**690**
Incentives	598,000	0	0	**598,000**
Heating & Cooling Efficiency Program/DHP Pilot	**583,663**	**25,186**	**17,520**	**626,369**
Labor/Administrative Expense	109,960	6,709	17,520	**134,188**
Other Expense	71,457	3,865	0	**75,322**
Purchased Services	141,046	6,113	0	**147,159**
Incentives	261,200	8,500	0	**269,700**
Home Energy Audit	**192,873**	**0**	**9,084**	**201,957**
Labor/Administrative Expense	53,556	0	9,084	**62,640**
Materials and Equipment	4,182	0	0	**4,182**
Other Expense	42,232	0	0	**42,232**
Purchased Services	92,902	0	0	**92,902**

Table 2. 2015 DSM detailed expenses by program (dollars) (continued)

Sector/Program	Idaho Rider	Oregon Rider	Idaho Power	Total Program
Home Improvement Program	**$ 259,898**	**$ 0**	**$ 12,611**	**$ 272,509**
Labor/Administrative Expense	75,113	0	12,611	**87,724**
Other Expense	49,674	0	0	**49,674**
Purchased Services	8,906	0	0	**8,906**
Incentives	126,204	0	0	**126,204**
Oregon Residential Weatherization	**0**	**5,341**	**467**	**5,808**
Labor/Administrative Expense	0	3,481	467	**3,948**
Other Expense	0	118	0	**118**
Incentives	0	1,742	0	**1,742**
Rebate Advantage	**80,243**	**4,351**	**843**	**85,438**
Labor/Administrative Expense	6,173	370	843	**7,386**
Materials and Equipment	52	3	0	**55**
Other Expense	8,018	379	0	**8,397**
Purchased Services	11,000	600	0	**11,600**
Incentives	55,000	3,000	0	**58,000**
See ya later, refrigerator®	**212,674**	**11,497**	**3,007**	**227,179**
Labor/Administrative Expense	26,241	1,534	3,007	**30,782**
Materials and Equipment	7,529	396	0	**7,926**
Other Expense	3,338	5,406	0	**8,744**
Purchased Services	164,346	3,951	0	**168,297**
Incentives	11,220	210	0	**11,430**
Shade Tree Program	**99,672**	**(66)**	**5,786**	**105,392**
Labor/Administrative Expense	32,948	(66)	5,786	**38,668**
Materials and Equipment	52	0	0	**52**
Other Expense	21,131	0	0	**21,131**
Purchased Services	45,541	0	0	**45,541**
Simple Steps, Smart Savings™/ Home Products Program	**$ 130,575**	**$ 6,676**	**$ 1,845**	**$ 139,096**
Labor/Administrative Expense	31,812	1,772	1,845	**35,428**
Other Expense	(2,018)	(216)	0	**(2,233)**
Purchased Services	31,883	1,450	0	**33,333**
Incentives	68,898	3,670	0	**72,568**
Weatherization Assistance for Qualified Customers	**0**	**0**	**1,315,032**	**1,315,032**
Labor/Administrative Expense	0	0	51,038	**51,038**
Materials and Equipment	0	0	24	**24**
Other Expense	0	0	1,793	**1,793**
Purchased Services	0	0	1,262,177	**1,262,177**
Weatherization Solutions for Eligible Customers	**1,204,147**	**0**	**39,122**	**1,243,269**
Labor/Administrative Expense	11,022	0	39,122	**50,144**
Materials and Equipment	7,784	0	0	**7,784**
Other Expense	28,893	0	0	**28,893**
Purchased Services	1,156,448	0	0	**1,156,448**
Residential Total	**$ 6,694,624**	**$ 177,359**	**$ 1,989,821**	**$ 8,861,805**

Table 2. 2015 DSM detailed expenses by program (dollars) (continued)

Sector/Program	Idaho Rider	Oregon Rider	Idaho Power	Total Program
Commercial/Industrial				
Building Efficiency	**$ 2,128,309**	**$ 16,075**	**$ 17,617**	**$ 2,162,001**
Labor/Administrative Expense	141,986	8,396	17,617	**167,999**
Materials and Equipment	4	0	0	**4**
Other Expense	36,004	1,895	0	**37,899**
Purchased Services	120,689	5,783	0	**126,473**
Incentives	1,829,626	0	0	**1,829,626**
Custom Efficiency	**8,345,435**	**604,636**	**62,558**	**9,012,628**
Labor/Administrative Expense	451,887	27,075	62,558	**541,520**
Materials and Equipment	71	4	0	**75**
Other Expense	206,022	4,978	0	**211,001**
Purchased Services	847,491	24,380	0	**871,870**
Incentives	6,839,963	548,199	0	**7,388,162**
Easy Upgrades	**4,155,406**	**177,713**	**17,746**	**4,350,865**
Labor/Administrative Expense	258,420	14,538	17,746	**290,704**
Other Expense	72,500	3,816	0	**76,315**
Purchased Services	712,278	37,489	0	**749,766**
Incentives	3,112,208	121,871	0	**3,234,079**
Flex Peak Program	**86,445**	**219,654**	**286,773**	**592,872**
Labor/Administrative Expense	75,681	4,680	13,291	**93,651**
Materials and Equipment	18	0	0	**18**
Other Expense	2,378	159	0	**2,537**
Purchased Services	8,368	440	0	**8,809**
Incentives	0	214,375	273,482	**487,857**
Oregon Commercial Audit	**0**	**4,251**	**0**	**4,251**
Labor/Administrative Expense	0	3,255	0	**3,255**
Other Expense	0	996	0	**996**
Commercial/Industrial Total	**$ 14,715,594**	**$ 1,022,330**	**$ 384,693**	**$ 16,122,617**
Irrigation				
Irrigation Efficiency	**1,714,399**	**61,295**	**60,018**	**1,835,711**
Labor/Administrative Expense	209,230	12,947	59,162	**281,339**
Materials and Equipment	738	39	0	**777**
Other Expense	45,749	2,408	856	**49,013**
Purchased Services	5,094	1,807	0	**6,901**
Incentives	1,453,588	44,094	0	**1,497,682**
Irrigation Peak Rewards	**1,018,139**	**222,614**	**6,018,079**	**7,258,831**
Labor/Administrative Expense	47,230	2,922	24,682	**74,834**
Materials and Equipment	92,306	15	0	**92,320**
Other Expense	4,403	232	0	**4,635**
Purchased Services	874,199	46,116	0	**920,315**
Incentives	0	173,330	5,993,396	**6,166,726**
Irrigation Total	**$ 2,732,537**	**$ 283,909**	**$ 6,078,097**	**$ 9,094,542**
Energy Efficiency/Demand Response	**$ 24,142,755**	**$ 1,483,597**	**$ 8,452,611**	**$ 34,078,964**
Market Transformation				
NEAA	**2,453,773**	**129,146**	**0**	**2,582,919**
Purchased Services	2,453,773	129,146	0	**2,582,919**
Market Transformation Total	**$ 2,453,773**	**$ 129,146**	**$ 0**	**$ 2,582,919**

Table 2. 2015 DSM detailed expenses by program (dollars) (continued)

Sector/Program	Idaho Rider	Oregon Rider	Idaho Power	Total Program
Other Programs and Activities				
Residential				
Residential Education Initiative	**$ 127,817**	**$ 7,391**	**$ 14,695**	**$ 149,903**
Labor/Administrative Expense	83,675	5,177	14,695	**103,546**
Materials and Equipment	74	4	0	**78**
Other Expense	42,382	2,121	0	**44,503**
Purchased Services	1,686	89	0	**1,775**
Residential Total	**$ 127,817**	**$ 7,391**	**$ 14,695**	**$ 149,903**
Commercial/Industrial				
Commercial Education	**61,755**	**3,262**	**232**	**65,250**
Labor/Administrative Expense	1,322	82	232	**1,635**
Other Expense	60,434	3,181	0	**63,614**
Commercial/Industrial Total	**$ 61,755**	**$ 3,262**	**$ 232**	**$ 65,250**
Other				
Energy Efficiency Direct Program Overhead	**231,713**	**12,967**	**28,179**	**272,858**
Labor/Administrative Expense	132,378	8,189	28,179	**168,745**
Materials and Equipment	30	2	0	**31**
Other Expense	99,305	4,777	0	**104,082**
Other Total	**$ 231,713**	**$ 12,967**	**$ 28,179**	**$ 272,858**
Other Programs and Activities Total	**$ 421,285**	**$ 23,620**	**$ 43,105**	**$ 488,011**
Indirect Program Expense				
Commercial/Industrial Energy Efficiency Overhead	**141,066**	**11,387**	**66,558**	**219,012**
Labor/Administrative Expense	84,390	7,945	66,558	**158,893**
Materials and Equipment	73	0	0	**73**
Other Expense	37,103	1,942	0	**39,045**
Purchased Services	19,500	1,500	0	**21,000**
Energy Efficiency Accounting and Analysis	**710,564**	**41,196**	**224,299**	**976,059**
Labor/Administrative Expense	401,673	24,853	219,968	**646,494**
Materials and Equipment	17	1	0	**18**
Other Expense	19,287	1,019	4,331	**24,637**
Purchased Services	289,587	15,323	0	**304,910**
Energy Efficiency Advisory Group	**24,976**	**1,360**	**857**	**27,193**
Labor/Administrative Expense	4,878	303	857	**6,037**
Other Expense	20,098	1,058	0	**21,156**
Residential Energy Efficiency Overhead	**584,299**	**33,036**	**34,839**	**652,174**
Labor/Administrative Expense	125,716	8,444	34,839	**168,999**
Materials and Equipment	66	3	0	**69**
Other Expense	437,744	23,022	0	**460,766**
Purchased Services	20,773	1,567	0	**22,340**
Special Accounting Entries	**15,830**	**775**	**0**	**16,605**
Special Accounting Entry	15,830	775	0	**16,605**
Indirect Program Expenses Total	**$ 1,476,734**	**$ 87,755**	**$ 326,553**	**$ 1,891,042**
Totals	**$ 28,494,548**	**$ 1,724,118**	**$ 8,822,269**	**$ 39,040,935**

Table 3. Cost-effectiveness summary by program

Program/Sector	2015 Benefit/Cost (B/C) Tests			
	Utility Cost (UC)	Total Resource Cost (TRC)	Ratepayer Impact Measure (RIM)	Participant Cost (PCT)
Easy Savings	2.61	2.95	0.58	N/A
Educational Distributions	2.05	2.60	0.54	N/A
Energy Efficient Lighting	4.53	4.23	0.69	5.39
Energy House Calls	2.81	2.96	0.56	N/A
ENERGY STAR® Homes Northwest	2.10	1.04	0.69	1.49
Heating & Cooling Efficiency Program/DHP Pilot	3.11	1.05	0.79	1.36
Home Improvement Program	1.91	0.67	0.61	1.05
Rebate Advantage	4.54	3.45	0.66	6.46
See ya later, refrigerator®	1.21	1.53	0.49	N/A
Simple Steps, Smart Savings™/ Home Products Program	3.37	4.83	0.68	6.62
Weatherization Assistance for Qualified Customers	0.54	0.43	0.35	N/A
Weatherization Solutions for Eligible Customers	0.45	0.50	0.31	N/A
Residential Energy Efficiency Sector	**2.31**	**2.11**	**0.62**	**3.82**
Building Efficiency	7.63	3.70	1.10	3.56
Custom Efficiency	4.03	1.77	1.32	1.37
Easy Upgrades	3.85	2.20	0.96	2.51
Commercial/Industrial Energy Efficiency Sector	**4.48**	**2.13**	**1.16**	**1.92**
Irrigation Efficiency	6.00	3.84	1.45	3.59
Irrigation Energy Efficiency Sector	**6.00**	**3.84**	**1.45**	**3.59**
Energy Efficiency Portfolio	**3.57**	**2.32**	**1.00**	**2.61**

Cost-Effectiveness Tables by Program

Easy Savings

Segment: Residential
2015 Program Results

Cost Inputs (net present value [NPV])		Ref
Program Administration	$ 127,477	
Program Incentives	–	I
Total Utility Cost	**$ 127,477**	P
Measure Equipment and Installation (Incremental Participant Cost)	$ –	M

Summary of Cost-Effectiveness Results			
Test	**Benefit**	**Cost**	**Ratio**
Utility Cost Test	$ 333,022	$ 127,477	2.61
Total Resource Cost Test	376,636	127,477	2.95
Ratepayer Impact Measure Test	333,022	576,570	0.58
Participant Cost Test	N/A	N/A	N/A

Net Benefit Inputs (NPV)			Ref
Resource Savings			
2015 Annual Gross Energy (kWh)	624,536		
NPV Cumulative Energy (kWh)	5,612,433	$ 302,747	
10% Credit (Northwest Power Act)		30,275	
Total Electric Savings		**$ 333,022**	S
Participant Bill Savings			
NPV Cumulative Participant Savings		$ 449,094	B
Other Benefits			
Non-Utility Rebates/Incentives		$ –	NUI
Non-Energy Benefits		$ 43,614	NEB

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

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	39%
Average Customer Segment Rate/kWh	$0.086
Line Losses	9.60%

Notes: Non-energy benefits include the NPV of water savings from low-flow showerheads and PV of periodic bulb (capital) replacement costs.
No participant cost.

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Educational Distributions

Segment: Residential
2015 Program Results

Cost Inputs (NPV)		Ref
Program Administration	$ 432,185	
Program Incentives	–	I
Total Utility Cost	**$ 432,185**	P
Measure Equipment and Installation (Incremental Participant Cost)	$ –	M

Summary of Cost-Effectiveness Results			
Test	**Benefit**	**Cost**	**Ratio**
Utility Cost Test	$ 884,615	$ 432,185	2.05
Total Resource Cost Test	1,124,237	432,185	2.60
Ratepayer Impact Measure Test	884,615	1,632,692	0.54
Participant Cost Test	N/A	N/A	N/A

Net Benefit Inputs (NPV)			Ref
Resource Savings			
2015 Annual Gross Energy (kWh)	1,669,495		
NPV Cumulative Energy (kWh)	15,049,917	$ 804,195	
10% Credit (Northwest Power Act)		80,420	
Total Electric Savings		**$ 884,615**	S
Participant Bill Savings			
NPV Cumulative Participant Savings		$ 1,200,507	B
Other Benefits			
Non-Utility Rebates/Incentives		$ –	NUI
Non-Energy Benefits		$ 239,622	NEB

Benefits and Costs Included in Each Test		
Utility Cost Test	= S * NTG	= P
Total Resource Cost Test	= (S + NUI + NEB) * NTG	= P
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	49%
Average Customer Segment Rate/kWh	$0.086
Line Losses	9.60%

Notes: Energy savings as reported by the *Resource Action Plan* for the 2014 to 2015 student kits. NEBs for kits include NPV of avoided gas.
NEBs for giveaway bulbs include PV of periodic bulb (capital) replacement costs.
No participant cost.

Year: 2015 **Program**: Education Distributions **Market Segment**: Residential **Program Type**: Energy Efficiency

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	**Measure Descriptions**	**Replacing**	**Measure Unit**	**End Use**	**Measure Life (yrs)[a]**	**Annual Gross Energy Savings (kWh/yr)[b]**	**NPV Avoided Costs[c]**	**Non-Energy Benefit (NEB)**	**Gross Incremental Participant Cost[d]**	**Incentive/ Unit**	**Admin Cost ($/kWh)[e]**	**UC Ratio[f]**	**TRC Ratio[g]**	**Source**
General Purpose LED Give away	Efficient Technology: LED Lamp Type: General Purpose and Dimmable Lumen Category: 665 to 1,439 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	13	9.00	$6.72	$3.92	–		$0.259	2.89	4.57	1
Student Energy Efficiency Kit (SEEK) Program	2014–2015 kit offering. Kits include: high-efficiency showerhead, showertimer, 13-W CFL, 18-W CFL, 23-W CFL, FilterTone alarm, digital thermometer, LED nightlight.	No kit	Kit	IPC_Student Kits	10	220.33	$129.05	$23.19	–		$0.259	2.26	2.67	2

[a] Average measure life.
[b] Estimated kWh savings measured at the customer's meter, excluding line losses.
[c] Sum of net present value (NPV) of avoided cost. Based on end-use load shape, measure life, savings including line losses, and alternative costs by pricing period as provided in the 2013 IRP. Includes a 10-percent conservation adder from the Northwest Power Act.
[d] No participant cost.
[e] Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2015 actuals.
[f] Utility Cost Ratio = (NPV Avoided Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)
[g] Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))
[1] RTF. ResLightingCFLandLEDLamps_v3_3.xlsm. 2014.
[2] Resource Action Programs. *2014–2015 Idaho Power Energy Wise Program Summary Report*. 2015.

Energy Efficient Lighting

Segment: Residential
2015 Program Results

Cost Inputs (NPV)			Ref
Program Administration	$	228,987	
Program Incentives		1,834,396	I
Total Utility Cost	**$**	**2,063,383**	P
Measure Equipment and Installation (Incremental Participant Cost)	$	4,199,689	M

Summary of Cost-Effectiveness Results					
Test		**Benefit**		**Cost**	**Ratio**
Utility Cost Test	$	9,350,188	$	2,063,383	4.53
Total Resource Cost Test		18,751,765		4,428,676	4.23
Ratepayer Impact Measure Test		9,350,188		13,479,641	0.69
Participant Cost Test		22,652,232		4,199,689	5.39

Net Benefit Inputs (NPV)				Ref
Resource Savings				
2015 Annual Gross Energy (kWh)	15,876,117			
NPV Cumulative Energy (kWh)	135,702,304	$	8,500,171	
10% Credit (Northwest Power Act)			850,017	
Total Electric Savings		**$**	**9,350,188**	S
Participant Bill Savings				
NPV Cumulative Participant Savings		$	11,416,258	B
Other Benefits				
Non-Utility Rebates/Incentives		$	–	NUI
Non-Energy Benefits		$	9,401,578	NEB

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	22%
Average Customer Segment Rate/kWh	$0.086
Line Losses	9.60%

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

Year: 2015 **Program**: Energy Efficient Lighting **Market Segment**: Residential **Program Type**: Energy Efficiency

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	**Measure Descriptions**	**Replacing**	**Measure Unit**	**End Use**	**Measure Life (yrs)[a]**	**Annual Gross Energy Savings (kWh/yr)[b]**	**NPV Avoided Costs[c]**	**Non-Energy Benefit (NEB)**	**Gross Incremental Participant Cost[d]**	**Incentive/ Unit**	**Admin Cost ($/kWh)[e]**	**UC Ratio[f]**	**TRC Ratio[g]**	**Source**
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	$4.80	$9.49	$1.61	$1.71	$0.014	2.61	8.21	(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	$8.52	$13.66	$0.06	$1.64	$0.014	4.57	78.99	(1)
Decorative and Mini-base CFL Retailer	Efficient Technology: Compact Fluorescent Lamp Type: Decorative and Mini-Base Lumen Category: 1440 to 2600 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	9	20.00	$10.66	$-	$0.06	$2.00	$0.014	4.67	31.34	(2)
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	$4.26	$10.05	$0.06	$0.50	$0.014	6.96	84.76	(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	$4.26	$2.80	$0.06	$0.56	$0.014	6.34	41.83	(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	$6.65	$2.74	$0.06	$0.50	$0.014	9.55	37.12	(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	$4.18	$10.55	$0.06	$1.74	$0.014	2.29	104.54	(1)

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs)[a]	Annual Gross Energy Savings (kWh/yr)[b]	NPV Avoided Costs[c]	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost[d]	Incentive/ Unit	Admin Cost ($/kWh)[e]	UC Ratio[f]	TRC Ratio[g]	Source
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	$5.57	$16.49	$0.06	$1.55	$0.014	3.35	130.63	(1)
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	$5.22	$23.12	$0.06	$1.31	$0.014	3.57	134.42	(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	$7.48	$20.91	$0.06	$1.82	$0.014	3.61	91.91	(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	$15.67	$29.38	$6.04	$1.99	$0.014	6.39	6.93	(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	$32.76	$29.40	$10.12	$0.50	$0.014	22.35	5.61	(3)
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	$41.30	$27.75	$12.34	$0.50	$0.014	24.04	5.09	(3)
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	$9.05	$10.48	$8.35	$2.02	$0.014	4.11	2.29	(1)

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs)[a]	Annual Gross Energy Savings (kWh/yr)[b]	NPV Avoided Costs[c]	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost[d]	Incentive/ Unit	Admin Cost ($/kWh)[e]	UC Ratio[f]	TRC Ratio[g]	Source
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	$6.96	$11.12	$2.48	$2.08	$0.014	3.13	6.90	(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	$7.65	$3.97	$6.98	$2.32	$0.014	3.09	1.63	(1)
General Purpose LED Retailer	Efficient Technology: LED Lamp Type: General Purpose and Dimmable Lumen Category: 1440 to 2600 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	12	22.00	$15.31	$3.89	$20.18	$3.00	$0.014	4.63	0.94	(1) (4)
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	$5.57	$10.55	$4.28	$2.16	$0.014	2.45	3.67	(1)
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	$11.13	$25.89	$16.44	$2.35	$0.014	4.33	2.22	(1)
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	$18.79	$20.86	$11.53	$3.00	$0.014	5.56	3.33	(1)
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	$41.75	$43.66	$25.57	$3.00	$0.014	10.87	3.23	(1)
Three-Way LED Retailer	Efficient Technology: LED Lamp Type: Three-Way Lumen Category: 665 to 1439 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	17	27.00	$25.61	$-	$30.70	$2.43	$0.014	9.12	0.82	(2) (4)

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs)[a]	Annual Gross Energy Savings (kWh/yr)[b]	NPV Avoided Costs[c]	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost[d]	Incentive/ Unit	Admin Cost ($/kWh)[e]	UC Ratio[f]	TRC Ratio[g]	Source
Three-Way LED Retailer	Efficient Technology: LED Lamp Type: Three-Way Lumen Category: 1440 to 2600 lumens Space Type: ANY	Baseline bulb	Lamp	ENRes_SF_Lighting	17	60.00	$56.92	$-	$44.34	$3.00	$0.014	14.82	1.26	(2)
LED Fixture Retailer	Efficient Technology: LED Lamp Type: Fixture Lumen Category: 250 to 664 lumens Space Type: ANY	Baseline bulb	Fixture	ENRes_SF_Lighting	12	16.00	$11.13	$25.89	$14.46	$5.61	$0.014	1.91	2.52	(1) (5)
LED Fixture Retailer	Efficient Technology: LED Lamp Type: Fixture Lumen Category: 665 to 1439 lumens Space Type: ANY	Baseline bulb	Fixture	ENRes_SF_Lighting	12	27.00	$18.79	$20.86	$10.14	$5.37	$0.014	3.27	3.77	(1) (5)

[a] Average measure life.
[b] Estimated kWh savings measured at the customer's meter, excluding line losses.
[c] Sum of NPV of avoided cost. Based on end-use load shape, measure life, savings including line losses, and alternative costs by pricing period as provided in the 2013 IRP. Includes 10% conservation adder from the Northwest Power Act.
[d] Incremental participant cost prior to customer incentives.
[e] Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2015 actuals.
[f] Utility Cost Ratio = (NPV Avoided Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)
[g] Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))
[1] RTF. ResLightingCFLandLEDLamps_v3_3.xlsm. 2014.
[2] BPA. Residential_Lighting_Measures_Effective_04_01_2015_retail_corrected. 2015.
[3] Tetra Tech. Appendix — IPC 2014 EEL Project 20150223.xlsx. 2015.
[4] Measure not cost-effective. Will monitor in 2016.
[5] RTF Reflectors and Outdoor LED lamp savings applied to LED Reflector fixtures. Tetra Tech. *IPC PY2014EEL Savings Development Recommendations*. 2015.

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Energy House Calls

Segment: Residential
2015 Program Results

Cost Inputs (NPV)			Ref
Program Administration	$	214,103	
Program Incentives		–	I
Total Utility Cost	**$**	**214,103**	P
Measure Equipment and Installation (Incremental Participant Cost)	$	–	M

Summary of Cost-Effectiveness Results					
Test		**Benefit**		**Cost**	**Ratio**
Utility Cost Test	$	601,642	$	214,103	2.81
Total Resource Cost Test		633,608		214,103	2.96
Ratepayer Impact Measure Test		601,642		1,070,276	0.56
Participant Cost Test		N/A		N/A	N/A

Net Benefit Inputs (NPV)				Ref
Resource Savings				
2015 Annual Gross Energy (kWh)	754,646			
NPV Cumulative Energy (kWh)	9,306,552	$	546,947	
10% Credit (Northwest Power Act)			54,695	
Total Electric Savings		**$**	**601,642**	S
Participant Bill Savings				
NPV Cumulative Participant Savings		$	856,173	B
Other Benefits				
Non-Utility Rebates/Incentives		$	–	NUI
Non-Energy Benefits		$	31,966	NEB

Benefits and Costs Included in Each Test		
Utility Cost Test	= S * NTG	= P
Total Resource Cost Test	= (S + NUI + NEB) * NTG	= P
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	36%
Average Customer Segment Rate/kWh	$0.086
Line Losses	9.60%

Notes: No participant cost.

Year: 2015 **Program**: Energy House Calls **Market Segment**: Residential **Program Type**: Energy Efficiency

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs)[a]	Annual Gross Energy Savings (kWh/yr)[b]	NPV Avoided Costs[c]	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost[d]	Incentive/ Unit	Admin Cost ($/kWh)[e]	UC Ratio[f]	TRC Ratio[g]	Source
PTCS Duct Sealing	Single Wide (<= 1000 sq. ft.) 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	$1,192.34	$–	$–	$–	$0.284	2.81	2.81	(1)
PTCS Duct Sealing	Single Wide (<= 1000 sq. ft.) 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	$1,142.13	$–	$–	$–	$0.284	2.81	2.81	(1)
PTCS Duct Sealing	Single Wide (<= 1000 sq. ft.) Manufactured Home Duct Tightness - Heating Zone 1 (Electric Heat Pump Heating System)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	887.00	$706.96	$–	$–	$–	$0.284	2.81	2.81	(1)
PTCS Duct Sealing	Single Wide (<= 1000 sq. ft.) 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	$1,881.76	$–	$–	$–	$0.284	2.81	2.81	(1)
PTCS Duct Sealing	Single Wide (<= 1000 sq. ft.) 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	$1,825.18	$–	$–	$–	$0.284	2.81	2.81	(1)
PTCS Duct Sealing	Single Wide (<= 1000 sq. ft.) Manufactured Home Duct Tightness - Heating Zone 2 (Electric Heat Pump Heating System)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	1,664.00	$1,326.24	$–	$–	$–	$0.284	2.81	2.81	(1)
PTCS Duct Sealing	Single Wide (<= 1000 sq. ft.) 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	$2,450.04	$–	$–	$–	$0.284	2.81	2.81	(1)
PTCS Duct Sealing	Single Wide (<= 1000 sq. ft.) 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	$2,409.39	$–	$–	$–	$0.284	2.81	2.81	(1)
PTCS Duct Sealing	Single Wide (<= 1000 sq. ft.) Manufactured Home Duct Tightness - Heating Zone 3 (Electric Heat Pump Heating System)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	2,324.00	$1,852.27	$–	$–	$–	$0.284	2.81	2.81	(1)

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs)[a]	Annual Gross Energy Savings (kWh/yr)[b]	NPV Avoided Costs[c]	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost[d]	Incentive/ Unit	Admin Cost ($/kWh)[e]	UC Ratio[f]	TRC Ratio[g]	Source
PTCS Duct Sealing	Other (> 1000 sq. ft.) 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	$1,499.19	$–	$–	$–	$0.284	2.81	2.81	(1)
PTCS Duct Sealing	Other (> 1000 sq. ft.) 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	$1,433.84	$–	$–	$–	$0.284	2.81	2.81	(1)
PTCS Duct Sealing	Other (> 1000 sq. ft.) Manufactured Home Duct Tightness - Heating Zone 1 (Electric Heat Pump Heating System)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	1,093.00	$871.14	$–	$–	$–	$0.284	2.81	2.81	(1)
PTCS Duct Sealing	Other (> 1000 sq. ft.) 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	$2,309.76	$–	$–	$–	$0.284	2.81	2.81	(1)
PTCS Duct Sealing	Other (> 1000 sq. ft.) 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	$2,224.48	$–	$–	$–	$0.284	2.81	2.81	(1)
PTCS Duct Sealing	Other (> 1000 sq. ft.) Manufactured Home Duct Tightness - Heating Zone 2 (Electric Heat Pump Heating System)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	2,022.00	$1,611.57	$–	$–	$–	$0.284	2.81	2.81	(1)
PTCS Duct Sealing	Other (> 1000 sq. ft.) 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	$2,956.94	$–	$–	$–	$0.284	2.81	2.81	(1)
PTCS Duct Sealing	Other (> 1000 sq. ft.) 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	$2,905.14	$–	$–	$–	$0.284	2.81	2.81	(1)
PTCS Duct Sealing	Other (> 1000 sq. ft.) Manufactured Home Duct Tightness - Heating Zone 3 (Electric Heat Pump Heating System)	Pre-existing duct leakage	Home	ENRes_MH_Heater	18	2,813.00	$2,242.02	$–	$–	$–	$0.284	2.81	2.81	(1)

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs)[a]	Annual Gross Energy Savings (kWh/yr)[b]	NPV Avoided Costs[c]	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost[d]	Incentive/ Unit	Admin Cost ($/kWh)[e]	UC Ratio[f]	TRC Ratio[g]	Source
General Purpose LED Direct Install	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	18.00	$12.53	$17.43	$–	$–	$0.284	2.45	5.86	(2)
Low flow faucet aerator	1.0-1.5 gpm kitchen or bathroom faucet aerator	Non- low flow faucet aerator	Aerator	ENRes_SF_WtrHtr	10	106.00	$62.68	$–	$–	$–	$0.284	2.08	2.08	(3)
Water heater pipe covers	Up to 6 feet	No existing coverage	Pipe wrap	ENRes_SF_WtrHtr	15	150.00	$127.29	$–	$–	$–	$0.284	2.99	2.99	(3)
Low flow showerheads	1.75 gpm Primary Shower Electric Water Heating Direct Install	Primary showerhead 2.2 Gpm or higher	Showerhead	ENRes_SF_WtrHtr	10	265.00	$156.69	$24.31	$–	$–	$0.284	2.08	2.41	(4)
Low flow showerheads	2.0 gpm Primary Shower Electric Water Heating Direct Install	Primary showerhead 2.2 Gpm or higher	Showerhead	ENRes_SF_WtrHtr	10	166.00	$98.15	$15.55	$–	$–	$0.284	2.08	2.41	(4)

[a] Average measure life.
[b] Estimated kWh savings measured at the customer's meter, excluding line losses.
[c] Sum of NPV of avoided cost. Based on end-use load shape, measure life, savings including line losses, and alternative costs by pricing period as provided in the 2013 IRP. Includes 10% conservation adder from the Northwest Power Act.
[d] No participant cost.
[e] Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2015 actuals.
[f] Utility Cost Ratio = (NPV Avoided Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)
[g] Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))
[1] RTF. ResHeatingCoolingDuctSealingMH_v2_4.xlsm. 2012.
[2] RTF. ResLightingCFLandLEDLamps_v3_3.xlsm. 2014.
[3] AEG. Idaho Power *Energy Efficiency Potential Study*. 2012.
[4] RTF. ResShowerheads_v2_1.xlsm. 2011.

ENERGY STAR® Homes Northwest

Segment: Residential
2015 Program Results

Cost Inputs (NPV)			Ref
Program Administration	$	55,674	
Program Incentives		598,000	I
Total Utility Cost	**$**	**653,674**	P
Measure Equipment and Installation (Incremental Participant Cost)	$	1,356,452	M

Summary of Cost-Effectiveness Results					
Test		**Benefit**		**Cost**	**Ratio**
Utility Cost Test	$	1,371,921	$	653,674	2.10
Total Resource Cost Test		1,462,817		1,412,126	1.04
Ratepayer Impact Measure Test		1,371,921		1,991,252	0.69
Participant Cost Test		2,026,474		1,356,452	1.49

Net Benefit Inputs (NPV)				Ref
Resource Savings				
2015 Annual Gross Energy (kWh)	773,812			
NPV Cumulative Energy (kWh)	12,486,002	$	1,247,201	
10% Credit (Northwest Power Act)			124,720	
Total Electric Savings		**$**	**1,371,921**	S
Participant Bill Savings				
NPV Cumulative Participant Savings		$	1,337,578	B
Other Benefits				
Non-Utility Rebates/Incentives		$	–	NUI
Non-Energy Benefits		$	90,896	NEB

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	92%
Average Customer Segment Rate/kWh	$0.086
Line Losses	9.60%

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

Year: 2015 **Program**: ENERGY STAR Homes Northwest **Market Segment**: Residential **Program Type**: Energy Efficiency

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	**Measure Descriptions**	**Replacing**	**Measure Unit**	**End Use**	**Measure Life (yrs)[a]**	**Annual Gross Energy Savings (kWh/yr)[b]**	**NPV Avoided Costs[c]**	**Non-Energy Benefit (NEB)**	**Gross Incremental Participant Cost[d]**	**Incentive/ Unit**	**Admin Cost ($/kWh)[e]**	**UC Ratio[f]**	**TRC Ratio[g]**	**Source**
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	$6,801.15	$–	$3,870.25	$1,000.00	$0.072	5.35	1.64	(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	$6,420.20	$1,738.59	$3,610.42	$1,000.00	$0.072	5.21	2.12	(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	$2,294.18	$152.89	$2,268.32	$1,000.00	$0.072	2.10	1.04	(3)

[a] Average measure life.
[b] Estimated kWh savings measured at the customers meter, excluding line losses.
[c] Sum of NPV of avoided cost. Based on end-use load shape, measure life, savings including line losses, and alternative costs by pricing period as provided in the 2013 IRP. Includes 10% conservation adder from the Northwest Power Act.
[d] Incremental participant cost prior to customer incentives.
[e] Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2015 actuals.
[f] Utility Cost Ratio = (NPV Avoided Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)
[g] Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))
[1] RTF. ResNewSFEStarWAIDMT_v2_2.xls. 2012.
[2] RTF. ResNewSFEStarOR_v3_0.xlsm. 2014
[3] RTF. ResMFEstarHomes2012_v1_1.xlsm. 2012.

Heating & Cooling Efficiency Program/DHP Pilot

Segment: Residential
2015 Program Results

Cost Inputs (NPV)			Ref
Program Administration	$	356,669	
Program Incentives		269,700	I
Total Utility Cost	**$**	**626,369**	P
Measure Equipment and Installation (Incremental Participant Cost)	$	1,707,386	M

Summary of Cost-Effectiveness Results					
Test		**Benefit**		**Cost**	**Ratio**
Utility Cost Test	$	1,948,565	$	626,369	3.11
Total Resource Cost Test		2,167,837		2,064,055	1.05
Ratepayer Impact Measure Test		1,948,565		2,460,570	0.79
Participant Cost Test		2,323,173		1,707,386	1.36

Net Benefit Inputs (NPV)				Ref
Resource Savings				
2015 Annual Gross Energy (kWh)	1,502,172			
NPV Cumulative Energy (kWh)	19,538,483	$	1,771,423	
10% Credit (Northwest Power Act)			177,142	
Total Electric Savings		**$**	**1,948,565**	S
Participant Bill Savings				
NPV Cumulative Participant Savings		$	1,834,201	B
Other Benefits				
Non-Utility Rebates/Incentives		$	–	NUI
Non-Energy Benefits		$	219,272	NEB

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	85%
Average Customer Segment Rate/kWh	$0.086
Line Losses	9.60%

Year: 2015 **Program**: Heating & Cooling Efficiency Program **Market Segment**: Residential **Program Type**: Energy Efficiency

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs)[a]	Annual Gross Energy Savings (kWh/yr)[b]	NPV Avoided Costs[c]	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost[d]	Incentive/ Unit	Admin Cost ($/kWh)[e]	UC Ratio[f]	TRC Ratio[g]	Source
Evaporative Cooler	Evaporative cooler single family	Central Air Conditioning	Unit	ENRes_SF_CAC	12	416.00	$621.80	$–	$–	$150.00	$0.237	2.50	2.50	(1)
Evaporative Cooler	Evaporative cooler manufactured home	Central Air Conditioning	Unit	ENRes_MH_CAC	12	309.00	$507.64	$–	$–	$150.00	$0.237	2.27	2.27	(1)
Evaporative Cooler	Evaporative cooler multi-family	Central Air Conditioning	Unit	ENRes_MF_CAC	12	296.00	$435.10	$–	$–	$150.00	$0.237	1.98	1.98	(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	$11,578.54	$–	$8,037.00	$1,000.00	$0.237	3.72	1.14	(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	$3,434.52	$–	$8,505.00	$500.00	$0.237	3.05	0.38	(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 air conditioning	Unit	ENRes_SF_Heater	20	5,306.00	$4,758.12	$–	$5,991.00	$800.00	$0.237	2.31	0.66	(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 air conditioning	Unit	ENRes_SF_Heater	20	6,961.00	$6,242.23	$–	$5,991.00	$800.00	$0.237	2.55	0.82	(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 air conditioning	Unit	ENRes_SF_Heater	20	7,876.00	$7,062.75	$–	$5,991.00	$800.00	$0.237	2.65	0.90	(3) (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 air conditioning	Unit	ENRes_SF_HeatPump	20	4,380.00	$5,680.97	$–	$3,622.00	$800.00	$0.237	3.09	1.22	(4)
Heat Pump Conversion	Single Family Home HVAC Conversions - Convert to Heat Pump 8.50 HSPF Heating Zone 2 Cooling Zone 1	Forced air furnace with central air conditioning	Unit	ENRes_SF_HeatPump	20	6,719.00	$8,714.71	$–	$3,622.00	$800.00	$0.237	3.64	1.67	(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 air conditioning	Unit	ENRes_SF_HeatPump	20	6,451.00	$8,367.11	$–	$3,622.00	$800.00	$0.237	3.59	1.62	(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 air conditioning	Unit	ENRes_SF_HeatPump	20	6,035.00	$7,827.55	$–	$3,622.00	$800.00	$0.237	3.51	1.55	(4)

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs)[a]	Annual Gross Energy Savings (kWh/yr)[b]	NPV Avoided Costs[c]	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost[d]	Incentive/ Unit	Admin Cost ($/kWh)[e]	UC Ratio[f]	TRC Ratio[g]	Source
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 air conditioning	Unit	ENRes_SF_HeatPump	20	7,634.00	$9,901.49	$–	$3,622.00	$800.00	$0.237	3.79	1.82	(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	$3,368.37	$–	$1,499.00	$250.00	$0.237	3.89	1.59	(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	$128.82	$–	$57.99	$–	$0.237	4.25	1.46	(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	$116.75	$–	$57.99	$–	$0.237	4.25	1.37	(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	$115.74	$–	$57.99	$–	$0.237	4.25	1.36	(5) (6)
Ductless Heat Pump	No supplemental fuel screen. Heating zone 2, cooling zone 1.	Zonal Electric	Unit	ENRes_SF_HeatPump	15	2,585.00	$2,601.66	$517.66	$4,800.00	$750.00	$0.237	1.91	0.58	(7) (8)
Ductless Heat Pump	No supplemental fuel screen. Heating zone 3, cooling zone 1.	Zonal Electric	Unit	ENRes_SF_HeatPump	15	292.00	$293.88	$2,871.08	$4,800.00	$750.00	$0.237	0.36	0.65	(7) (8)
Ductless Heat Pump	No supplemental fuel screen. Heating zone 2, cooling zone 2.	Zonal Electric	Unit	ENRes_SF_HeatPump	15	2,746.00	$2,763.70	$692.33	$4,800.00	$750.00	$0.237	1.97	0.63	(7) (8)
Ductless Heat Pump	No supplemental fuel screen. Heating zone 1, cooling zone 3.	Zonal Electric	Unit	ENRes_SF_HeatPump	15	3,131.00	$3,151.18	$1,081.33	$4,800.00	$750.00	$0.237	2.11	0.76	(7) (8)
Ductless Heat Pump	No supplemental fuel screen. Heating zone 2, cooling zone 3.	Zonal Electric	Unit	ENRes_SF_HeatPump	15	3,016.00	$3,035.44	$875.82	$4,800.00	$750.00	$0.237	2.07	0.71	(7) (8)
Prescriptive Duct Sealing	Duct Tightness - PTCS Duct Sealing - Average Heating System. Weighted average of Heating Zones 1-3.	Pre-existing duct leakage	Unit	ENRes_SF_Heater	20	1,588.69	$1,424.65	$–	$611.71	$350.00	$0.237	1.96	1.44	(9)
Electronically Commutated Motor (ECM) Blower Motor	ECM Blower Motor	Permanent split capacitor (PSC) motor	Unit	ENRes_SF_HVAC	18	515.00	$609.29	$–	$300.00	$50.00	$0.237	3.54	1.44	(10)
Whole House Fan	Whole House Fan	Displaced forced air dx cooling	Unit	ENRes_SF_CAC	18	446.00	$916.18	$–	$700.00	$200.00	$0.237	3.00	1.14	(11)

[a] Average measure life.
[b] Estimated kWh savings measured at the customer's meter, excluding line losses.
[c] Sum of NPV of avoided cost. Based on end-use load shape, measure life, savings including line losses, and alternative costs by pricing period as provided in the 2013 IRP. Includes 10% conservation adder from the Northwest Power Act.
[d] Incremental participant cost prior to customer incentives. Based on median customer costs and RTF survey data.
[e] Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2015 actuals.
[f] Utility Cost Ratio = (NPV Avoided Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)
[g] Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))
[1] Idaho Power *Energy Efficiency Potential Study* by EnerNOC Utility Solutions Consulting. IPC Residential LoadMAP.
[2] Savings from Ecotope, Inc., heat pump sizing specifications and heat pump measure savings estimates. December 2009.
[3] Measure not cost-effective. Measure to be monitored in 2016. Measure included in the program to increase participation and to encourage adoption of higher-efficiency equipment.
[4] Savings from RTF. Res_SFHPConversion_V2_6.xlsm.2012.
[5] RTF. ResHeatingCoolingHeatPumpUpgradeSF_v2_8.xlsm.
[6] Customers 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.
[7] RTF. ResHeatingCoolingDuctlessHeatPumpUpgradeSF_v2_.xlsm. 2014.
[8] Measure not cost-effective. Will continue to monitor in 2016.
[9] RTF. ResHeatingCoolingPrescriptiveDuctSeal_v1_0.xlsm. Weighted average of 2015 program participants in heating zone 1 (45%), heating zone 2 (43%), and heating zone 3 (12%). 2013.
[10] Idaho Power engineering calculations based on Integrated Design Lab inputs. 2015.
[11] AEG. Idaho Power *Energy Efficiency Potential Study*. 2012.

Home Improvement Program

Segment: Residential
2015 Program Results

Cost Inputs (NPV)			Ref
Program Administration	$	146,305	
Program Incentives		126,204	I
Total Utility Cost	**$**	**272,509**	P
Measure Equipment and Installation (Incremental Participant Cost)	$	747,426	M

Summary of Cost-Effectiveness Results					
Test		**Benefit**		**Cost**	**Ratio**
Utility Cost Test	$	520,177	$	272,509	1.91
Total Resource Cost Test		596,235		893,731	0.67
Ratepayer Impact Measure Test		520,177		852,045	0.61
Participant Cost Test		781,798		747,426	1.05

Net Benefit Inputs (NPV)				Ref
Resource Savings				
2015 Annual Gross Energy (kWh)	303,580			
NPV Cumulative Energy (kWh)	5,126,717	$	472,888	
10% Credit (Northwest Power Act)			47,289	
Total Electric Savings		**$**	**520,177**	S
Participant Bill Savings				
NPV Cumulative Participant Savings		$	579,536	B
Other Benefits				
Non-Utility Rebates/Incentives		$	–	NUI
Non-Energy Benefits		$	76,057	NEB

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	N/A
Average Customer Segment Rate/kWh	$0.086
Line Losses	9.60%

Year: 2015 **Program**: Home Improvement Program **Market Segment**: Residential **Program Type**: Energy Efficiency

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	**Measure Descriptions**	**Replacing**	**Measure Unit**	**End Use**	**Measure Life (yrs)[a]**	**Annual Gross Energy Savings (kWh/yr)[b]**	**NPV Avoided Costs[c]**	**Non-Energy Benefit (NEB)**	**Gross Incremental Participant Cost[d]**	**Incentive/ Unit**	**Admin Cost ($/kWh)[e]**	**UC Ratio[f]**	**TRC Ratio[g]**	**Source**
Multi Family - Attic Insulation	Greater than R38. Electric heat. Program weighted average.	Attic Insulation R20 or less	Square Feet	ENRes_MF_Heater	45	1.01	$1.63	$–	$0.65	$0.15	$0.482	2.56	1.43	(1)
Multi Family - Windows	U-Factor of 0.30 or lower. Electric heat. Program weighted average.	Single pane metal, Single pane wood or double pane metal.	Square Feet	ENRes_MF_Heater	45	13.89	$22.39	$–	$23.43	$2.50	$0.482	2.43	0.74	(1) (2) (3)
Single Family - Attic Insulation	Greater than R38. Electric heat. Program weighted average.	Attic Insulation R20 or less	Square Feet	ENRes_SF_Heater	45	0.47	$0.76	$0.16	$0.85	$0.15	$0.482	2.01	0.85	(3) (4)
Single Family - Floor Insulation	Greater than R30 or fill floor cavity. Electric heat. Program weighted average.	Floor Insulation R5 or less	Square Feet	ENRes_SF_Heater	45	0.68	$1.10	$0.23	$1.12	$0.50	$0.482	1.32	0.92	(3) (4)
Single Family - Wall Insulation	Greater than R11 or fill wall cavity. Electric heat. Program weighted average.	Wall Insulation R5 or less	Square Feet	ENRes_SF_Heater	45	1.49	$2.40	$0.51	$1.11	$0.50	$0.482	1.97	1.59	(4)
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.	Square Feet	ENRes_SF_Heater	45	5.81	$9.36	$2.31	$21.05	$2.50	$0.482	1.77	0.49	(3) (4)

[a] Average measure life.
[b] Estimated kWh savings measured at the customer's meter, excluding line losses.
[c] Sum of NPV of avoided cost. Based on end use load shape, measure life, savings including line losses, and alternative costs by pricing period as provided in the 2013 IRP. Includes 10% conservation adder from the Northwest Power Act.
[d] Based on average 2015 customer costs.
[e] Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2015 actuals.
[f] Utility Cost Ratio = (NPV Avoided Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)
[g] Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))
[1] RTF. Weighted average of savings by heating and cooling zone, heating and cooling system, and insulation level or U-Factor. ResWXMF_v2_2.xls. 2011.
[2] RTF. Incremental costs from ResWxMF_v2_2.xls. 2011.
[3] Measure not cost-effective. Will monitor in 2016.
[4] RTF. Weighted average of savings by heating and cooling zone, heating and cooling system, and insulation level or U-Factor. ResWXSF_v3_4.xls. 2015.
[5] RTF. Incremental costs from ResWxSF_v3_4.xls. 2015.

Rebate Advantage

Segment: Residential
2015 Program Results

Cost Inputs (NPV)			Ref
Program Administration	$	27,438	
Program Incentives		58,000	I
Total Utility Cost	**$**	**85,438**	P
Measure Equipment and Installation (Incremental Participant Cost)	$	89,884	M

Summary of Cost-Effectiveness Results					
Test		**Benefit**		**Cost**	**Ratio**
Utility Cost Test	$	388,148	$	85,438	4.54
Total Resource Cost Test		404,264		117,322	3.45
Ratepayer Impact Measure Test		388,148		591,871	0.66
Participant Cost Test		580,550		89,884	6.46

Net Benefit Inputs (NPV)				Ref
Resource Savings				
2015 Annual Gross Energy (kWh)	358,683			
NPV Cumulative Energy (kWh)	5,148,128	$	352,861	
10% Credit (Northwest Power Act)			35,286	
Total Electric Savings		**$**	**388,148**	S
Participant Bill Savings				
NPV Cumulative Participant Savings		$	506,433	B
Other Benefits				
Non-Utility Rebates/Incentives		$	–	NUI
Non-Energy Benefits		$	16,116	NEB

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	23%
Average Customer Segment Rate/kWh	$0.086
Line Losses	9.60%

Year: 2015 **Program**: Rebate Advantage **Market Segment**: Residential **Program Type**: Energy Efficiency

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	**Measure Descriptions**	**Replacing**	**Measure Unit**	**End Use**	**Measure Life (yrs)[a]**	**Annual Gross Energy Savings (kWh/yr)[b]**	**NPV Avoided Costs[c]**	**Non-Energy Benefit (NEB)**	**Gross Incremental Participant Cost[d]**	**Incentive/ Unit**	**Admin Cost ($/kWh)[e]**	**UC Ratio[f]**	**TRC Ratio[g]**	**Source**
ENERGY STAR manufactured home	New Energy Star Manufactured Home with Heat Pump - Heating Zone 1 Cooling Zone 3	Manufactured home built to Housing and Urban Development (HUD) code.	Home	Res_HVAC	23	3,254.00	$5,455.76	$269.93	$1,565.18	$1,000.00	$0.076	4.37	3.16	(1)
ENERGY STAR manufactured home	New Energy Star Manufactured Home with Heat Pump - Heating Zone 2 Cooling Zone 1	Manufactured home built to Housing and Urban Development (HUD) code.	Home	Res_HVAC	25	4,346.00	$7,737.09	283.34	$1,565.18	$1,000.00	$0.076	5.82	4.23	(1)
ENERGY STAR manufactured home	New Energy Star Manufactured Home with Heat Pump - Heating Zone 2 Cooling Zone 2	Manufactured home built to Housing and Urban Development (HUD) code.	Home	Res_HVAC	25	4,390.00	$7,815.42	$283.34	$1,565.18	$1,000.00	$0.076	5.86	4.27	(1)
ENERGY STAR manufactured home	New Energy Star Manufactured Home with Heat Pump - Heating Zone 2 Cooling Zone 3	Manufactured home built to Housing and Urban Development (HUD) code.	Home	Res_HVAC	25	4,472.00	$7,961.40	283.34	$1,565.18	$1,000.00	$0.076	5.94	4.33	(1)
ENERGY STAR manufactured home	New Energy Star Manufactured Home with Heat Pump - Heating Zone 3 Cooling Zone 1	Manufactured home built to Housing and Urban Development (HUD) code.	Home	Res_HVAC	26	5,516.00	10,089.34	$289.69	$1,565.18	$1,000.00	$0.076	7.11	5.23	(1)
ENERGY STAR manufactured home	New EcoRated Manufactured Home with Heat Pump - Heating Zone 1 Cooling Zone 3	Manufactured home built to Housing and Urban Development (HUD) code.	Home	Res_HVAC	24	3,619.00	$6,258.85	$276.76	$1,977.35	$1,000.00	$0.076	4.91	2.90	(1)

[a] Average measure life.
[b] Estimated kWh savings measured at the customer's meter, excluding line losses.
[c] Sum of NPV of avoided cost. Based on end use load shape, measure life, savings including line losses, and alternative costs by pricing period as provided in the 2013 IRP. Includes 10% conservation adder from the Northwest Power Act.
[d] Incremental participant cost prior to customer incentives.
[e] Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2015 actuals.
[f] Utility Cost Ratio = (NPV Avoided Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)
[g] Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))
[1] RTF. NewMH_EStar_EcoRated_v1_3.xls. 2013.

See ya later, refrigerator®

Segment: Residential
2015 Program Results

Cost Inputs (NPV)			Ref
Program Administration	$	215,749	
Program Incentives		11,430	I
Total Utility Cost	**$**	**227,179**	P
Measure Equipment and Installation (Incremental Participant Cost)	$	–	M

Summary of Cost-Effectiveness Results					
Test		**Benefit**		**Cost**	**Ratio**
Utility Cost Test	$	274,073	$	227,179	1.21
Total Resource Cost Test		348,456		227,179	1.53
Ratepayer Impact Measure Test		274,073		559,929	0.49
Participant Cost Test		N/A		N/A	N/A

Net Benefit Inputs (NPV)				Ref
Resource Savings				
2015 Annual Gross Energy (kWh)	720,208			
NPV Cumulative Energy (kWh)	4,154,550	$	249,157	
10% Credit (Northwest Power Act)			24,916	
Total Electric Savings		**$**	**274,073**	S
Participant Bill Savings				
NPV Cumulative Participant Savings		$	332,750	B
Other Benefits				
Non-Utility Rebates/Incentives		$	–	NUI
Non-Energy Benefits		$	74,382	NEB

Benefits and Costs Included in Each Test		
Utility Cost Test	= S * NTG	= P
Total Resource Cost Test	= (S + NUI + NEB) * NTG	= P
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	83%
Average Customer Segment Rate/kWh	$0.086
Line Losses	9.60%

Notes: No participant costs.
Program modified in 2015 to remove the participant incentive and to provide light-emitting diode (LED) bulbs to increase cost-effectiveness.

Year: 2015 **Program**: See ya later, refrigerator **Market Segment**: Residential **Program Type**: Energy Efficiency

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	**Measure Descriptions**	**Replacing**	**Measure Unit**	**End Use**	**Measure Life (yrs)[a]**	**Annual Gross Energy Savings (kWh/yr)[b]**	**NPV Avoided Costs[c]**	**Non-Energy Benefit (NEB)**	**Gross Incremental Participant Cost[d]**	**Incentive/ Unit**	**Admin Cost ($/kWh)[e]**	**UC Ratio[f]**	**TRC Ratio[g]**	**Source**
Freezer Recycling	Freezer removal and decommissioning		Freezer	ENRes_SF_Freezer	5	570.00	$185.95	$50.46	$–	$–	$0.300	1.09	1.38	(1)
Refrigerator Recycling	Refrigerator removal and decommissioning		Refrigerator	ENRes_SF_SecRef	6	356.00	$135.46	$41.09	$–	$–	$0.300	1.27	1.65	(1)
General Purpose LED Give away	Efficient Technology: LED Lamp Type: General Purpose and Dimmable Lumen Category: 665 to 1439 lumens Space Type: ANY		Lamp	ENRes_SF_Lighting	13	9.00	$6.72	$3.92	$–	$–	$0.300	2.49	3.94	(2)

[a] Average measure life.
[b] Estimated kWh savings measured at the customer's meter, excluding line losses.
[c] Sum of NPV of avoided cost. Based on end-use load shape, measure life, savings including line losses, and alternative costs by pricing period as provided in the 2013 IRP. Includes 10% conservation adder from the Northwest Power Act.
[d] No participant cost.
[e] Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2015 actuals.
[f] Utility Cost Ratio = (NPV Avoided Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)
[g] Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))
[1] RTF. ResFridgeFreezeDecommissioning_v3_1.xlsm. 2014.
[2] RTF. ResLightingCFLandLEDLamps_v3_3.xlsm. 2014.

Simple Steps, Smart Savings™/Home Products Program

Segment: Residential
2015 Program Results

Cost Inputs (NPV)			Ref
Program Administration	$	66,528	
Program Incentives		72,568	I
Total Utility Cost	**$**	**139,096**	P
Measure Equipment and Installation (Incremental Participant Cost)	$	268,936	M

Summary of Cost-Effectiveness Results					
Test		**Benefit**		**Cost**	**Ratio**
Utility Cost Test	$	468,399	$	139,096	3.37
Total Resource Cost Test		1,621,352		335,464	4.83
Ratepayer Impact Measure Test		468,399		693,381	0.68
Participant Cost Test		1,779,807		268,936	6.62

Net Benefit Inputs (NPV)				Ref
Resource Savings				
2015 Annual Gross Energy (kWh)	770,822			
NPV Cumulative Energy (kWh)	6,588,709	$	425,817	
10% Credit (Northwest Power Act)			42,582	
Total Electric Savings		**$**	**468,399**	S
Participant Bill Savings				
NPV Cumulative Participant Savings		$	554,286	B
Other Benefits				
Non-Utility Rebates/Incentives		$	–	NUI
Non-Energy Benefits		$	1,152,953	NEB

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	$0.086
Line Losses	9.60%

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

Year: 2015 **Program**: Simple Steps, Smart Savings/Home Products Program **Market Segment**: Residential **Program Type**: Energy Efficiency

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	**Measure Descriptions**	**Replacing**	**Measure Unit**	**End Use**	**Measure Life (yrs)[a]**	**Annual Gross Energy Savings (kWh/yr)[b]**	**NPV Avoided Costs[c]**	**Non-Energy Benefit (NEB)**	**Gross Incremental Participant Cost[d]**	**Incentive/ Unit**	**Admin Cost ($/kWh)[e]**	**UC Ratio[f]**	**TRC Ratio[g]**	**Source**
Refrigerator	ENERGY STAR Refrigerator - Any	Baseline refrigerator	Refrigerator	ENRes_SF_Refrigerator	17	29.00	$29.04	$–	$14.51	$30.00	$0.086	0.89	1.71	(1) (2)
Freezer	ENERGY STAR freezer No tiers. Any freezer	Baseline freezer	Freezer	ENRes_SF_Freezer	22	40.00	$51.71	$–	$4.26	$20.00	$0.086	2.21	6.71	(3) (4)
Clothes Washer	ENERGY STAR Clothes Washer - Any	Baseline clothes washers	Clothes washer	ENRes_SF_WtrHtr	14	121.00	$96.79		$80.43	$30.00	$0.086	2.40	1.07	(5)
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	$39.49	$104.09	$27.29	$7.00	$0.086	3.10	4.35	(6)
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	$58.99	$152.70	$27.29	$7.00	$0.086	3.79	5.90	(6)
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	$76.35	$194.11	$27.29	$7.00	$0.086	4.22	7.04	(6)

[a] Average measure life.
[b] Estimated kWh savings measured at the customer's meter, excluding line losses.
[c] Sum of NPV of avoided cost. Based on end-use load shape, measure life, savings including line losses, and alternative costs by pricing period as provided in the 2013 IRP. Includes 10% conservation adder from the Northwest Power Act.
[d] Incremental participant cost prior to customer incentives.
[e] Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2015 actuals.
[f] Utility Cost Ratio = (NPV Avoided Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)
[g] Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))
[1] RTF. ResRefrigerator_v3_1.xls. 2013.
[2] Measure not cost-effective. Removed from the program in early 2015.
[3] RTF. ResFreezer_v2_2.xlsm. 2012.
[4] Measure expected to not be cost-effective with new savings. Removed from the program in early 2015.
[5] BPA. UES_Measure_List_4_1_20151021.xlsx. 2015.
[6] RTF. ResShowerheads_v2_1.xlsm. 2011. Adjusted savings by changing Electric Water Heating saturation from 64% to 52% to match Idaho Power mix.

Weatherization Assistance for Qualified Customers

Segment: Residential
2015 Program Results

Cost Inputs (NPV)			Ref
Program Administration	$	114,229	
Community Action Partnership (CAP) Agency Payments		1,200,803	
Total Program Expenses	$	**1,315,032**	
Add: 2013 Evaluations Expenses (Amortized Year 3)		24,044	
Total Utility Cost	**$**	**1,339,076**	P
Idaho Power Indirect Overhead Expense Allocation—4.84%	$	64,811	OH
Additional State Funding		804,769	M

Summary of Cost-Effectiveness Results					
Test		**Benefit**		**Cost**	**Ratio**
Utility Cost Test	$	762,738	$	1,403,888	0.54
Total Resource Cost Test		945,162		2,208,657	0.43
Ratepayer Impact Measure Test		762,738		2,180,476	0.35
Participant Cost Test		N/A		N/A	N/A

Net Benefit Inputs (NPV)				Ref
Resource Savings				
2015 Annual Gross Energy (kWh)	550,021			
NPV Cumulative Energy (kWh)	7,894,048	$	693,398	
10% Credit (Northwest Power Act)			69,340	
Total Electric Savings		**$**	**762,738**	S
Participant Bill Savings				
NPV Cumulative Participant Savings		$	776,588	B
Other Benefits				
Non-Utility Rebates/Incentives		$	–	NUI
Non-Energy Benefits				
Health and Safety			153,863	
Repair			28,562	
Other			–	
Non-Energy Benefits Total		**$**	**182,424**	NEB

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	234%
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 = 1,551 kWh/per home. Manufactured homes = 2,568 kWh/home. Non-profits = 1.03 kWh/heated ft^2.
Program cost-effectiveness incorporated IPUC staff recommendations from case GNR-E-12-01. Recommendations include: claimed 100% of savings; increased NTG to 100%; added a 10% conservation preference adder; health, safety, and repair NEBs; and allocation of indirect overhead expenses.
No customer participant costs. Costs shown are from the US Department of Energy (DOE) state weatherization assistance program.

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Weatherization Solutions for Eligible Customers

Segment: Residential
2015 Program Results

Cost Inputs (NPV)			Ref
Program Administration	$	202,803	
Weatherization LLC Payments		1,040,466	
Total Program Expenses	$	**1,243,269**	
Add: 2013 Evaluations Expenses (Amortized Year 3)		24,044	
Total Utility Cost	**$**	**1,267,313**	P
Idaho Power Indirect Overhead Expense Allocation—4.84%	$	61,338	OH
Additional State Funding		–	M

Summary of Cost-Effectiveness Results					
Test		**Benefit**		**Cost**	**Ratio**
Utility Cost Test	$	600,401	$	1,328,651	0.45
Total Resource Cost Test		661,001		1,328,651	0.50
Ratepayer Impact Measure Test		600,401		1,939,955	0.31
Participant Cost Test		N/A		N/A	N/A

Net Benefit Inputs (NPV)				Ref
Resource Savings				
2015 Annual Gross Energy (kWh)	432,958			
NPV Cumulative Energy (kWh)	6,213,929	$	545,819	
10% Credit (Northwest Power Act)			54,582	
Total Electric Savings		**$**	**600,401**	S
Participant Bill Savings				
NPV Cumulative Participant Savings		$	611,304	B
Other Benefits				
Non-Utility Rebates/Incentives		$	–	NUI
Non-Energy Benefits				
Health and Safety			52,303	
Repair			8,296	
Other			–	
Non-Energy Benefits Total		**$**	**60,599**	NEB

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	221%
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 NEBs; and allocation of indirect overhead expenses.
No customer participant costs.

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Building Efficiency

Segment: Commercial
2015 Program Results

Cost Inputs (NPV)			Ref
Program Administration	$	332,374	
Program Incentives		1,829,626	I
Total Utility Cost	**$**	**2,162,001**	P
Measure Equipment and Installation (Incremental Participant Cost)	$	4,131,071	M

Summary of Cost-Effectiveness Results					
Test		**Benefit**		**Cost**	**Ratio**
Utility Cost Test	$	16,504,880	$	2,162,001	7.63
Total Resource Cost Test		16,504,880		4,463,445	3.70
Ratepayer Impact Measure Test		16,504,880		15,021,411	1.10
Participant Cost Test		14,689,037		4,131,071	3.56

Net Benefit Inputs (NPV)				Ref
Resource Savings				
2015 Annual Gross Energy (kWh)	23,232,017			
NPV Cumulative Energy (kWh)	225,023,280	$	15,004,436	
10% Credit (Northwest Power Act)			1,500,444	
Total Electric Savings		**$**	**16,504,880**	S
Participant Bill Savings				
NPV Cumulative Participant Savings		$	12,859,411	B
Other Benefits				
Non-Utility Rebates/Incentives		$	–	NUI
Non-Energy Benefits		$	–	NEB

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	16%
Average Customer Segment Rate/kWh	$0.057
Line Losses	9.60%

Year: 2015 **Program**: Building Efficiency **Market Segment**: Residential **Program Type**: Energy Efficiency

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	**Measure Descriptions**	**Replacing**	**Measure Unit**	**End Use**	**Measure Life (yrs)[a]**	**Annual Gross Energy Savings (kWh/yr)[b]**	**NPV Avoided Costs[c]**	**Non-Energy Benefit (NEB)**	**Gross Incremental Participant Cost[d]**	**Incentive/ Unit**	**Admin Cost ($/kWh)[e]**	**UC Ratio[f]**	**TRC Ratio[g]**	**Source**
Lighting	Interior Light Load Reduction. Part A: 10-19.9% below code.	Code standards	ft^2	ENComm_InsLt	14	0.51	$0.45	$–	$0.26	$0.10	$0.014	4.23	1.70	(1)
Lighting	Interior Light Load Reduction. Part B: 20-29.9% below code.	Code standards	ft^2	ENComm_InsLt	14	1.03	$0.92	$–	$0.51	$0.20	$0.014	4.27	1.75	(1)
Lighting	Interior Light Load Reduction. Part C: Equal to or greater than 30% below code.	Code standards	ft^2	ENComm_InsLt	14	2.33	$2.07	$–	$0.89	$0.30	$0.014	6.22	2.24	(1)
Lighting	Exterior Light Load Reduction. Minimum of 15% below code.	Code standards	kW	IPC_Outdoor Lighting	15	4,059.00	$2,557.05	$–	$168.00	$160.00	$0.014	11.79	11.37	(1)
Lighting	Daylight Photo Controls	Code standards	ft^2	ENComm_InsLt	14	0.94	$0.84	$–	$0.91	$0.25	$0.014	3.17	0.90	(1) (2)
Lighting	Occupancy sensors	Code standards	sensor	ENComm_InsLt	8	366.00	$195.53	$–	$38.26	$25.00	$0.014	6.49	4.51	(1)
Lighting	High Efficiency Exit Signs	Code standards	sign	IPC_8760	16	28.00	$25.38	$–	$10.83	$7.50	$0.014	3.22	2.26	(1)
Air conditioning (AC)	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	$48.81	$–	$36.18	$30.00	$0.014	1.60	1.33	(3)
Air conditioning	0-5 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 (≤ 300,000 Btu/hr)	Code standards	tons	ENComm_Cooling	15	90.16	$109.20	$–	$115.37	$75.00	$0.014	1.43	0.94	(3) (4)
Air conditioning	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	$33.01	$–	$31.83	$30.00	$0.014	1.09	1.02	(3)

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs)[a]	Annual Gross Energy Savings (kWh/yr)[b]	NPV Avoided Costs[c]	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost[d]	Incentive/ Unit	Admin Cost ($/kWh)[e]	UC Ratio[f]	TRC Ratio[g]	Source
Air conditioning	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	$160.61	$–	$115.37	$75.00	$0.014	2.09	1.37	(3)
Air conditioning	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	$403.23	$–	$95.30	$75.00	$0.014	5.06	4.03	(3)
Air conditioning	Air-cooled chiller condenser, IPLV 14.0 EER or higher	Code standards	tons	ENComm_Cooling	20	472.44	$729.04	$–	$86.12	$80.00	$0.014	8.42	7.86	(1)
Air conditioning	Water-cooled chiller electronically operated, reciprocating and positive displacement	Code standards	tons	ENComm_Cooling	20	212.96	$328.63	$–	$38.82	$40.00	$0.014	7.65	7.86	(5)
Air conditioning	Airside economizer	Code standards	ton of cooling	ENComm_Cooling	15	344.00	$416.66	$–	$81.36	$75.00	$0.014	5.22	4.84	(1)
Air conditioning	Direct evaporative cooler	Code standards	tons	ENComm_Cooling	15	399.00	$483.28	$–	$364.00	$200.00	$0.014	2.35	1.31	(1)
Building Shell	Reflective roof treatment	Code standards	ft^2 roof area	ENComm_Cooling	15	0.12	$0.14	$–	$0.05	$0.05	$0.014	2.72	2.72	(1)
Controls	Energy Management System (EMS) controls. Part A: 2 strategies	Code standards	tons of cooling	ENComm_Cooling	15	454.00	$549.90	$–	$162.49	$70.00	$0.014	7.20	3.26	(1)
Controls	EMS controls. Part B: 3 strategies	Code standards	tons of cooling	ENComm_Cooling	15	496.00	$600.77	$–	$162.49	$80.00	$0.014	6.91	3.55	(6)
Controls	EMS controls. Part C: 4 strategies	Code standards	tons of cooling	ENComm_Cooling	15	498.95	$604.34	$–	$162.49	$90.00	$0.014	6.23	3.57	(1)
Controls	EMS controls. Part D: 5 strategies	Code standards	tons of cooling	ENComm_Cooling	15	511.75	$619.85	$–	$162.49	$100.00	$0.014	5.78	3.65	(6)
Controls	Guest room energy management system	Code standards	ton	ENComm_HVAC	11	384.00	$305.83	$–	$57.50	$50.00	$0.014	5.52	4.86	(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	$277.85	$–	$165.33	$60.00	$0.014	4.36	1.64	(1)

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs)[a]	Annual Gross Energy Savings (kWh/yr)[b]	NPV Avoided Costs[c]	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost[d]	Incentive/ Unit	Admin Cost ($/kWh)[e]	UC Ratio[f]	TRC Ratio[g]	Source
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	$1,032.61	$–	$142.05	$100.00	$0.014	9.06	6.62	(1)
Appliances with Electric Water Heating	Efficient Laundry Machines (electric)	Code standards	unit	ENComm_WtrHtr	10	756.00	$466.46	$–	$200.00	$125.00	$0.014	3.44	2.22	(1)
Appliances with Electric Water Heating	ENERGY STAR® undercounter (residential style) dishwasher	Code standards	machine	ENComm_Misc	12	2,210.00	$1,652.76	$243.80	$232.00	$200.00	$0.014	7.16	7.21	(7)
Appliances with Electric Water Heating	ENERGY STAR commercial dishwasher	Code standards	machine	ENComm_Misc	12	5,561.00	$4,158.83	$657.52	$3,978.00	$500.00	$0.014	7.20	1.19	(7)
Refrigeration	Refrigeration head pressure controls	Code standards	horsepower	ENComm_Refrigeration	16	225.00	$214.94	$–	$166.60	$40.00	$0.014	4.98	1.27	(1)
Refrigeration	Refrigeration floating suction controls	Code standards	horsepower	ENComm_Refrigeration	16	77.00	$73.56	$–	$53.75	$10.00	$0.014	6.64	1.34	(1)
Refrigeration	Efficient refrigeration condensers	Code standards	tons of refrigeration	ENComm_Refrigeration	15	114.00	$103.17	$–	$35.00	$20.00	$0.014	4.78	2.82	(1)

[a] Average measure life.
[b] Estimated kWh savings measured at the customer's meter, excluding line losses.
[c] Sum of NPV of avoided cost. Based on end-use load shape, measure life, savings including line losses, and alternative costs by pricing period as provided in the 2013 IRP. Includes 10% conservation adder from the Northwest Power Act.
[d] Incremental participant cost prior to customer incentives.
[e] Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2015 actuals.
[f] Utility Cost Ratio = (NPV Avoided Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)
[g] Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))
[1] Idaho Power TRM prepared by ADM Associates, Inc. 2015.
[2] Measure not cost-effective. Measure to remain in the program due to unquantifiable NEBs.
[3] Idaho Power TRM prepared by ADM Associates, Inc. 2015. Weighted average of 6–25 ton units.
[4] Measure not cost-effective. Measure to be monitored in 2016 to adjust weighted average. Measure included in the program to increase participation in a cost-effective program and to encourage the adoption of higher-efficiency equipment.
[5] Idaho Power TRM prepared by ADM Associates, Inc. 2015. Averaged water cooled chillers.
[6] Idaho Power TRM prepared by ADM Associates, Inc. 2015. Calculated from TRM spreadsheets.
[7] Idaho Power TRM prepared by ADM Associates, Inc. 2015. NEBs from water savings from RTF. ComDishwasher_v1_2.xlsm. 2012.

Custom Efficiency

Segment: Industrial
2015 Program Results

Cost Inputs (NPV)			Ref
Program Administration	$	1,642,466	
Program Incentives		7,388,162	I
Total Utility Cost	**$**	**9,012,628**	P
Measure Equipment and Installation (Incremental Participant Cost)	$	18,909,276	M

Summary of Cost-Effectiveness Results					
Test		**Benefit**		**Cost**	**Ratio**
Utility Cost Test	$	36,315,759	$	$9,012,628	4.03
Total Resource Cost Test		36,315,759		20,533,742	1.77
Ratepayer Impact Measure Test		36,315,759		27,450,603	1.32
Participant Cost Test		25,826,137		18,909,276	1.37

Net Benefit Inputs (NPV)				Ref
Resource Savings				
2015 Annual Gross Energy (kWh)	55,247,192			
NPV Cumulative Energy (kWh)	504,683,660	$	33,014,326	
10% Credit (Northwest Power Act)			3,301,433	
Total Electric Savings		**$**	**36,315,759**	S
Participant Bill Savings				
NPV Cumulative Participant Savings		$	18,437,975	B
Other Benefits				
Non-Utility Rebates/Incentives		$	–	NUI
Non-Energy Benefits		$	–	NEB

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	37%
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: 2015 **Program**: Custom Efficiency—Green Motors **Market Segment**: Industrial **Program Type**: Energy Efficiency

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs)[a]	Annual Gross Energy Savings (kWh/yr)[b]	NPV Avoided Costs[c]	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost[d]	Incentive/ Unit	Admin Cost ($/kWh)[e]	UC Ratio[f]	TRC Ratio[g]	Source
Green Motors Program Rewind: Motor size 15HP	Green Motors Program Rewind: Motor size 15HP	Standard rewind practice	Motor	MF_Motors	8	601.00	$309.46	$–	$152.56	$30.00	$0.050	5.15	1.69	(1)
Green Motors Program Rewind: Motor size 20HP	Green Motors Program Rewind: Motor size 20HP	Standard rewind practice	Motor	MF_Motors	8	804.00	$413.98	$–	$170.21	$40.00	$0.050	5.16	1.97	(1)
Green Motors Program Rewind: Motor size 25HP	Green Motors Program Rewind: Motor size 25HP	Standard rewind practice	Motor	MF_Motors	8	1,052.00	$541.68	$–	$194.47	$50.00	$0.050	5.28	2.19	(1)
Green Motors Program Rewind: Motor size 30HP	Green Motors Program Rewind: Motor size 30HP	Standard rewind practice	Motor	MF_Motors	8	1,133.00	$583.39	$–	$213.60	$60.00	$0.050	5.00	2.16	(1)
Green Motors Program Rewind: Motor size 40HP	Green Motors Program Rewind: Motor size 40HP	Standard rewind practice	Motor	MF_Motors	8	1,319.00	$679.16	$–	$261.02	$80.00	$0.050	4.65	2.08	(1)
Green Motors Program Rewind: Motor size 50HP	Green Motors Program Rewind: Motor size 50HP	Standard rewind practice	Motor	MF_Motors	8	1,418.00	$730.14	$–	$288.96	$100.00	$0.050	4.27	2.03	(1)
Green Motors Program Rewind: Motor size 60HP	Green Motors Program Rewind: Motor size 60HP	Standard rewind practice	Motor	MF_Motors	9	1,476.00	$851.27	$–	$340.79	$120.00	$0.050	4.39	2.05	(1)
Green Motors Program Rewind: Motor size 75HP	Green Motors Program Rewind: Motor size 75HP	Standard rewind practice	Motor	MF_Motors	9	1,519.00	$876.07	$–	$368.37	$150.00	$0.050	3.88	1.97	(1)
Green Motors Program Rewind: Motor size 100HP	Green Motors Program Rewind: Motor size 100HP	Standard rewind practice	Motor	MF_Motors	9	2,005.00	$1,156.37	$–	$456.96	$200.00	$0.050	3.85	2.08	(1)
Green Motors Program Rewind: Motor size 125HP	Green Motors Program Rewind: Motor size 125HP	Standard rewind practice	Motor	MF_Motors	8	2,598.00	$1,337.73	$–	$513.21	$250.00	$0.050	3.52	2.08	(1)
Green Motors Program Rewind: Motor size 150HP	Green Motors Program Rewind: Motor size 150HP	Standard rewind practice	Motor	MF_Motors	8	3,089.00	$1,590.54	$–	$571.66	$300.00	$0.050	3.50	2.19	(1)
Green Motors Program Rewind: Motor size 200HP	Green Motors Program Rewind: Motor size 200HP	Standard rewind practice	Motor	MF_Motors	8	4,088.00	$2,104.94	$–	$688.20	$400.00	$0.050	3.48	2.36	(1)
Green Motors Program Rewind: Motor size 250HP	Green Motors Program Rewind: Motor size 250HP	Standard rewind practice	Motor	MF_Motors	9	4,972.00	$2,867.56	$–	$884.52	$500.00	$0.050	3.83	2.53	(1)
Green Motors Program Rewind: Motor size 300HP	Green Motors Program Rewind: Motor size 300HP	Standard rewind practice	Motor	MF_Motors	9	5,935.00	$3,422.96	$–	$894.08	$600.00	$0.050	3.82	2.87	(1)
Green Motors Program Rewind: Motor size 350HP	Green Motors Program Rewind: Motor size 350HP	Standard rewind practice	Motor	MF_Motors	9	6,919.00	$3,990.47	$–	$937.09	$700.00	$0.050	3.82	3.11	(1)

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs)[a]	Annual Gross Energy Savings (kWh/yr)[b]	NPV Avoided Costs[c]	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost[d]	Incentive/ Unit	Admin Cost ($/kWh)[e]	UC Ratio[f]	TRC Ratio[g]	Source
Green Motors Program Rewind: Motor size 400HP	Green Motors Program Rewind: Motor size 400HP	Standard rewind practice	Motor	MF_Motors	9	7,848.00	$4,526.27	$–	$1,046.64	$800.00	$0.050	3.80	3.15	(1)
Green Motors Program Rewind: Motor size 450HP	Green Motors Program Rewind: Motor size 450HP	Standard rewind practice	Motor	MF_Motors	9	8,811.00	$5,081.67	$–	$1,144.06	$900.00	$0.050	3.79	3.21	(1)
Green Motors Program Rewind: Motor size 500HP	Green Motors Program Rewind: Motor size 500HP	Standard rewind practice	Motor	MF_Motors	9	9,804.00	$5,654.37	$–	$1,235.98	$1,000.00	$0.050	3.79	3.28	(1)
Green Motors Program Rewind: Motor size 600HP	Green Motors Program Rewind: Motor size 600HP	Standard rewind practice	Motor	MF_Motors	7	14,689.00	$6,629.91	$–	$1,821.36	$1,200.00	$0.050	3.43	2.59	(1)
Green Motors Program Rewind: Motor size 700HP	Green Motors Program Rewind: Motor size 700HP	Standard rewind practice	Motor	MF_Motors	7	17,065.00	$7,702.32	$–	$1,987.11	$1,400.00	$0.050	3.42	2.71	(1)
Green Motors Program Rewind: Motor size 800HP	Green Motors Program Rewind: Motor size 800HP	Standard rewind practice	Motor	MF_Motors	7	19,461.00	$8,783.76	$–	$2,204.75	$1,600.00	$0.050	3.41	2.76	(1)
Green Motors Program Rewind: Motor size 900HP	Green Motors Program Rewind: Motor size 900HP	Standard rewind practice	Motor	MF_Motors	7	21,847.00	$9,860.69	$–	$2,430.63	$1,800.00	$0.050	3.41	2.80	(1)
Green Motors Program Rewind: Motor size 1500HP	Green Motors Program Rewind: Motor size 1500HP	Standard rewind practice	Motor	MF_Motors	7	35,891.00	$16,199.48	$–	$3,584.53	$3,000.00	$0.050	2.33	2.15	(1)

[a] Average measure life.
[b] Estimated kWh savings measured at the customer's meter, excluding line losses.
[c] Sum of NPV of avoided cost. Based on end-use load shape, measure life, savings including line losses, and alternative costs by pricing period as provided in the 2013 IRP. Includes 10% conservation adder from the Northwest Power Act.
[d] Incremental participant cost prior to customer incentives.
[e] Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2015 actuals.
[f] Utility Cost Ratio = (NPV Avoided Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)
[g] Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))
[1] RTF. IndGreenMotorsRewind_v2_0.xlsm. 2013.

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Easy Upgrades

Segment: Commercial
2015 Program Results

Cost Inputs (NPV)			Ref
Program Administration	$	1,116,786	
Program Incentives		3,234,079	I
Total Utility Cost	**$**	**4,350,865**	P
Measure Equipment and Installation (Incremental Participant Cost)	$	6,487,414	M

Summary of Cost-Effectiveness Results					
Test		**Benefit**		**Cost**	**Ratio**
Utility Cost Test	$	16,762,544	$	4,350,865	3.85
Total Resource Cost Test		16,762,544		7,604,200	2.20
Ratepayer Impact Measure Test		16,762,544		17,411,028	0.96
Participant Cost Test		16,294,243		6,487,414	2.51

Net Benefit Inputs (NPV)				Ref
Resource Savings				
2015 Annual Gross Energy (kWh)	23,594,701			
NPV Cumulative Energy (kWh)	228,536,205	$	15,238,677	
10% Credit (Northwest Power Act)			1,523,868	
Total Electric Savings		**$**	**16,762,544**	S
Participant Bill Savings				
NPV Cumulative Participant Savings		$	13,060,164	B
Other Benefits				
Non-Utility Rebates/Incentives		$	–	NUI
Non-Energy Benefits		$	–	NEB

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	33%
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: 2015 **Program**: Easy Upgrades **Market Segment**: Commercial **Program Type**: Energy Efficiency

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	Measure Descriptions	Replacing	Measure unit	End Use	Measure Life (yrs)[a]	Annual Gross Energy Savings (kWh/yr)[b]	NPV Avoided Costs[c]	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost[d]	Incentive/ Unit	Admin Cost ($/kWh)[e]	UC Ratio[f]	TRC Ratio[g]	Source
Standard/High Performance T8 Fluorescents	4-foot T8	4-foot T12	Fixture	ENComm_InsLt	11	180.28	$129.78	$–	$61.15	$33.21	$0.052	3.05	1.84	(1)
Standard T8 Fluorescents	6-foot T8	6-foot T12	Fixture	ENComm_InsLt	11	332.20	$239.15	$–	$76.03	$16.00	$0.052	7.19	2.56	(1)
Standard T8 Fluorescents	8-foot T8	8-foot T12	Fixture	ENComm_InsLt	11	262.06	$188.66	$–	$80.56	$22.75	$0.052	5.19	2.00	(1)
Standard/High Performance T8 Fluorescents	4-foot & 8-foot T8	8-foot T12HO	Fixture	ENComm_InsLt	11	564.84	$406.63	$–	$75.36	$46.18	$0.052	5.38	3.88	(1)
T5 (Non-HO) Fluorescents	4-foot T5	4-foot T12	Fixture	ENComm_InsLt	11	156.85	$112.92	$–	$76.21	$36.18	$0.052	2.55	1.34	(1)
T5/T8 High Bay - New Fixture	4-foot T8/T5	Fixture using > 200 input watts	Fixture	ENComm_InsLt	11	1,194.00	$859.57	$–	$216.24	$137.72	$0.052	4.30	3.09	(1)
Relamp T8/ T5HO to Reduced Wattage T8/ T5HO	Reduced wattage T8/T5 re-lamp		Fixture	ENComm_InsLt	8	130.58	$69.76	$–	$23.07	$1.00	$0.052	8.96	2.34	(1)
Permanent Fixture Removal	Permanent Fixture Removal		Fixture	ENComm_InsLt	8	878.14	$469.14	$–	$35.78	$22.73	$0.052	6.86	5.76	(1)
Screw-in CFLs/ cold-cathode	Screw-in CFLs/cold-cathode	Fixture using > 40 input watts	Fixture	ENComm_InsLt	6	164.23	$66.03	$–	$33.23	$5.08	$0.052	4.85	1.58	(1)
Hardwired CFLs	Hardwired CFLs	Fixture using > 90 input watts	Fixture	ENComm_InsLt	6	366.94	$147.52	$–	$94.75	$50.00	$0.052	2.14	1.30	(1)
LED Replacement Lamps	LED Replacement Lamps	Fixture using > 20 input watts	Fixture	ENComm_InsLt	12	154.10	$119.85	$–	$48.66	$24.25	$0.052	3.71	2.11	(1)
Pulse Start/ Electronic Metal Halide	Pulse Start/Electronic Metal Halide	Fixture using > 170 input watts	Fixture	ENComm_InsLt	11	1,091.70	$785.92	$–	$153.66	$105.55	$0.052	4.84	3.73	(1)
LED Exit Sign	LED Exit Sign	Exit sign using ≥ 18 watts	Fixture	IPC_8760	12	230.68	$163.16	$–	$68.69	$40.00	$0.052	3.14	2.02	(1)
Lighting Controls	Lighting Controls	Manual controls	Fixture	ENComm_InsLt	10	280.14	$184.93	$–	$111.74	$49.02	$0.052	2.91	1.46	(1)
Standard/High Performance T8 Fluorescents	4-foot T8	4-foot T12	Fixture	IPC_Outdoor Lighting	11	166.42	$78.94	$–	$61.15	$13.80	$0.052	3.52	1.13	(1)
Standard T8 Fluorescents	6-foot T8	6-foot T12	Fixture	IPC_Outdoor Lighting	11	386.42	$183.29	$–	$76.03	$14.00	$0.052	5.38	1.91	(1)
Standard T8 Fluorescents	8-foot T8	8-foot T12	Fixture	IPC_Outdoor Lighting	11	303.92	$144.16	$–	$80.56	$19.50	$0.052	4.08	1.50	(1)

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	Measure Descriptions	Replacing	Measure unit	End Use	Measure Life (yrs)[a]	Annual Gross Energy Savings (kWh/yr)[b]	NPV Avoided Costs[c]	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost[d]	Incentive/ Unit	Admin Cost ($/kWh)[e]	UC Ratio[f]	TRC Ratio[g]	Source
Standard/High Performance T8 Fluorescents	4-foot & 8-foot T8	8-foot T12HO	Fixture	IPC_Outdoor Lighting	11	913.16	$433.13	$–	$75.36	$21.48	$0.052	6.28	3.53	(1)
T5 (Non-HO) Fluorescents	4-foot T5	4-foot T12	Fixture	IPC_Outdoor Lighting	11	181.22	$85.96	$–	$76.21	$20.47	$0.052	2.88	1.00	(1)
T5/T8 High Bay - New Fixture	4-foot T8/T5	Fixture using > 200 input watts	Fixture	IPC_Outdoor Lighting	11	1,643.60	$779.60	$–	$216.24	$102.71	$0.052	4.14	2.58	(1)
Permanent Fixture Removal	Permanent Fixture Removal		Fixture	IPC_Outdoor Lighting	8	1,018.40	$352.51	$–	$35.78	$14.09	$0.052	5.26	3.97	(1)
Screw-in CFLs/ cold-cathode	Screw-in CFLs/cold-cathode	Fixture using > 40 input watts	Fixture	IPC_Outdoor Lighting	6	190.46	$48.57	$–	$33.23	$5.08	$0.052	3.24	1.13	(1)
Hardwired CFLs	Hardwired CFLs	Fixture using > 90 input watts	Fixture	IPC_Outdoor Lighting	6	425.55	$108.52	$–	$94.75	$35.00	$0.052	1.90	0.93	(1) (2)
LED Replacement Lamps	LED Replacement Lamps	Fixture using > 20 input watts	Fixture	IPC_Outdoor Lighting	12	178.71	$91.95	$–	$48.66	$19.25	$0.052	3.22	1.59	(1)
Pulse Start/ Electronic Metal Halide	Pulse Start/Electronic Metal Halide	Fixture using > 170 input watts	Fixture	IPC_Outdoor Lighting	11	1,265.40	$600.21	$–	$153.66	$45.68	$0.052	5.38	2.73	(1)
Lighting Controls	Lighting Controls	Manual controls	Fixture	IPC_Outdoor Lighting	10	255.65	$110.71	$–	$111.74	$45.50	$0.052	1.88	0.89	(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	$119.17	$–	$44.70	$15.00	$0.052	3.83	1.96	(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	$57.04	$17.07	$42.22	$15.00	$0.052	2.74	1.54	(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	$39.86	$15.83	$43.86	$10.00	$0.052	2.84	1.16	(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	$48.81	$–	$36.18	$30.00	$0.052	1.52	1.28	(6)
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	$109.20	$–	$115.37	$75.00	$0.052	1.37	0.91	(2) (6)

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	Measure Descriptions	Replacing	Measure unit	End Use	Measure Life (yrs)[a]	Annual Gross Energy Savings (kWh/yr)[b]	NPV Avoided Costs[c]	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost[d]	Incentive/ Unit	Admin Cost ($/kWh)[e]	UC Ratio[f]	TRC Ratio[g]	Source
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	$160.61	$–	$115.37	$75.00	$0.052	1.96	1.31	(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	$33.01	$–	$31.83	$30.00	$0.052	1.05	0.99	(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	$403.23	$–	$95.30	$75.00	$0.052	4.37	3.58	(6)
Chillers	Air-cooled chiller condenser, IPLV 14.0 EER or higher	Standard air-cooled chiller	Tons	ENComm_Cooling	20	472.44	$729.04	$–	$86.12	$80.00	$0.052	6.97	6.59	(7)
Chillers	Water-cooled chiller electronically operated, reciprocating and positive displacement	Standard water-cooled chiller	Tons	ENComm_Cooling	20	212.96	$328.63	$–	$38.82	$40.00	$0.052	6.43	6.59	(8)
Economizers	Airside economizer control addition	No prior control	Ton of cooling	ENComm_Cooling	15	634.00	$767.92	$–	$155.01	$100.00	$0.052	5.78	4.09	(7)
Economizers	Airside economizer control repair	Non-functional economizer	Ton of cooling	ENComm_Cooling	15	634.00	$767.92	$–	$73.65	$50.00	$0.052	9.26	7.20	(7)
Evaporative coolers/Pre-coolers	Direct evaporative cooler	Replacing standard AC unit	Tons	ENComm_Cooling	15	399.00	$483.28	$–	$364.00	$200.00	$0.052	2.19	1.26	(7)
Automated Controls	EMS controls with 2 strategies	Proposed strategy not existing (retrofit system)	Tons of cooling	ENComm_Cooling	15	918.00	$1,111.91	$–	$197.98	$125.00	$0.052	6.44	4.53	(7)
Automated Controls	EMS controls with 3 strategies	Proposed strategy not existing (retrofit system)	Tons of cooling	ENComm_Cooling	15	1,243.00	$1,505.56	$–	$197.98	$150.00	$0.052	7.01	5.73	(9)
Automated Controls	EMS controls with 4 strategies	Proposed strategy not existing (retrofit system)	Tons of cooling	ENComm_Cooling	15	1,251.00	$1,515.25	$–	$197.98	$175.00	$0.052	6.31	5.76	(7)

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	Measure Descriptions	Replacing	Measure unit	End Use	Measure Life (yrs)[a]	Annual Gross Energy Savings (kWh/yr)[b]	NPV Avoided Costs[c]	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost[d]	Incentive/ Unit	Admin Cost ($/kWh)[e]	UC Ratio[f]	TRC Ratio[g]	Source
Automated Controls	EMS controls with 5 strategies	Proposed strategy not existing (retrofit system)	Tons of cooling	ENComm_Cooling	15	1,268.00	$1,535.84	$–	$197.98	$200.00	$0.052	5.78	5.82	(9)
Automated Controls	EMS controls with 2 strategies	Proposed strategy not existing (new system)	Tons of cooling	ENComm_Cooling	15	454.00	$549.90	$–	$162.49	$70.00	$0.052	5.87	2.95	(7)
Automated Controls	EMS controls with 3 strategies	Proposed strategy not existing (new system)	Tons of cooling	ENComm_Cooling	15	496.00	$600.77	$–	$162.49	$80.00	$0.052	5.68	3.19	(9)
Automated Controls	EMS controls with 4 strategies	Proposed strategy not existing (new system)	Tons of cooling	ENComm_Cooling	15	498.95	$604.34	$–	$162.49	$90.00	$0.052	5.21	3.21	(7)
Automated Controls	EMS controls with 5 strategies	Proposed strategy not existing (new system)	Tons of cooling	ENComm_Cooling	15	511.75	$619.85	$–	$162.49	$100.00	$0.052	4.90	3.28	(9)
Automated Controls	Lodging room occupancy controls	Manual controls	Ton	ENComm_HVAC	11	430.00	$342.46	$–	$150.61	$75.00	$0.052	3.52	1.98	(7)
Premium Windows	Low U-value, U-factor of .30 or less	Standard windows	ft^2 window area	ENComm_HVAC	25	5.89	$9.35	$–	$5.92	$2.50	$0.052	3.33	1.50	(7)
Reflective Roofing	Adding reflective roof treatment	Non-reflective low pitch roof	ft^2 roof area	ENComm_Cooling	15	0.12	$0.14	$–	$0.05	$0.05	$0.052	2.51	2.51	(7)
Wall Insulation	Increase to R11 min. insulation	Insulation level, R2.5 or less	ft^2 wall area	ENComm_HVAC	25	0.41	$0.66	$–	$0.66	$0.40	$0.052	1.56	0.96	(7) (14)
Wall Insulation	Increase to R19 min. insulation	Insulation level, R2.5 or less	ft^2 wall area	ENComm_HVAC	25	0.47	$0.74	$–	$0.66	$0.55	$0.052	1.29	1.08	(7)
Computers	PC network power management	No central control software in place	Unit	ENComm_Office	4	135.00	$33.35	$–	$12.00	$10.00	$0.052	1.96	1.75	(7)
Laundry Machines	High efficiency washer	Standard washer, electric HW	Unit	ENComm_WtrHtr	10	756.00	$466.46	$–	$200.00	$125.00	$0.052	2.84	1.95	(7)
Stock Tank/ Fountain	Energy free freeze resistant stock tank	Thermostatically controlled electric resistance element freeze protection	Unit	Comm_Agriculture	10	1,176.00	$1,024.88	$–	$428.36	$100.00	$0.052	6.36	2.09	(10)

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	Measure Descriptions	Replacing	Measure unit	End Use	Measure Life (yrs)[a]	Annual Gross Energy Savings (kWh/yr)[b]	NPV Avoided Costs[c]	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost[d]	Incentive/ Unit	Admin Cost ($/kWh)[e]	UC Ratio[f]	TRC Ratio[g]	Source
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	$120.39	$–	$65.70	$50.00	$0.052	2.08	1.63	(11)
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	$53.24	$–	$28.78	$20.00	$0.052	2.26	1.65	(12)
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	$1,499.97	$–	$12.89	$15.00	$0.052	10.61	10.77	(13)
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	$79.60	$–	$12.89	$9.00	$0.052	5.07	4.06	(13)
Refrigeration	Add refrigeration line insulation	No insulation present	Linear ft	ENComm_Refrigeration	11	9.75	$6.74	$–	$4.46	$2.00	$0.052	2.69	1.36	(7)
Refrigeration	Install auto-closer - walk-in	No/damaged auto-closer, low temp	Door	ENComm_Refrigeration	8	2,547.00	$1,305.80	$–	$139.32	$125.00	$0.052	5.07	4.80	(7)
Refrigeration	Install auto-closer - reach-in	Damaged auto-closer, low temp	Door	ENComm_Refrigeration	8	560.00	$287.10	$–	$139.32	$100.00	$0.052	2.22	1.70	(7)
Refrigeration	Install auto-closer - walk-in	No/damaged auto-closer, med. Temp	Door	ENComm_Refrigeration	8	575.00	$294.79	$–	$139.32	$100.00	$0.052	2.27	1.74	(7)
Refrigeration	Install auto-closer - reach-in	Damaged auto-closer, med. Temp	Door	ENComm_Refrigeration	8	373.00	$191.23	$–	$139.32	$70.00	$0.052	2.14	1.20	(7)
Refrigeration	Add anti-sweat heat controls	Low/med. Temp case w/out controls	Linear ft	ENComm_Refrigeration	8	208.00	$106.64	$–	$40.00	$40.00	$0.052	2.10	2.10	(7)

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	Measure Descriptions	Replacing	Measure unit	End Use	Measure Life (yrs)[a]	Annual Gross Energy Savings (kWh/yr)[b]	NPV Avoided Costs[c]	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost[d]	Incentive/ Unit	Admin Cost ($/kWh)[e]	UC Ratio[f]	TRC Ratio[g]	Source
Evaporative fans	Add evaporative fan controls	Low or med. temp. walk-in or reach-in with no controls	Fan	ENComm_Refrigeration	15	408.00	$369.23	$–	$161.74	$75.00	$0.052	3.84	2.02	(7)
Evaporative fans	Install ECM/PSC evap fan motor	Med. or low temp. walk-in	Motor	ENComm_Refrigeration	15	593.00	$536.65	$–	$296.78	$100.00	$0.052	4.10	1.64	(7)
Evaporative fans	Install ECM/PSC evap fan motor	Med. or low temp. reach-in	Motor	ENComm_Refrigeration	15	318.00	$287.78	$–	$84.45	$60.00	$0.052	3.76	2.85	(7)
Floating head/suction pressures	Head pressure controller	Standard head pressure control	Horsepower	ENComm_Refrigeration	16	440.00	$420.33	$–	$272.60	$80.00	$0.052	4.09	1.42	(7)
Floating head/suction pressures	Suction pressure controller	Standard suction pressure control	Horsepower	ENComm_Refrigeration	16	104.00	$99.35	$–	$86.91	$20.00	$0.052	3.91	1.08	(7)
Vending machines	Non-cooled snack control	Vending machine with no sensor	Sensor	ENComm_Misc	5	387.00	$123.73	$–	$75.00	$50.00	$0.052	1.76	1.30	(7)
Commercial kitchen equipment	ENERGY STAR® undercounter (residential style) dishwasher	Standard dishwasher	Machine	ENComm_Misc	12	2,210.00	$1,652.76	$243.80	$232.00	$200.00	$0.052	5.25	5.47	(15)
Commercial kitchen equipment	ENERGY STAR commercial dishwasher	Standard commercial dishwasher	Machine	ENComm_Misc	12	5,561.00	$4,158.83	$657.52	$3,978.00	$500.00	$0.052	5.27	1.13	(15)
Commercial kitchen equipment	ENERGY STAR listed electric combination oven (6-14 pans)	Standard electric oven	Oven	ENComm_Cooking	10	12,999.00	$8,554.50	$–	$1,620.00	$1,100.00	$0.052	4.82	3.73	(16)
Commercial kitchen equipment	ENERGY STAR listed electric combination oven (15-20 pans)	Standard electric oven	Oven	ENComm_Cooking	10	17,877.00	$11,764.66	$–	$442.61	$300.00	$0.052	9.57	8.57	(16)
Commercial kitchen equipment	ENERGY STAR listed electric convection oven	Standard electric oven	Oven	ENComm_Cooking	10	1,672.00	$1,100.33	$–	$915.79	$300.00	$0.052	2.84	1.10	(17)
Commercial kitchen equipment	ENERGY STAR listed electric fryer	Standard fryer	Fryer	ENComm_Cooking	8	2,671.00	$1,422.28	$–	$782.10	$400.00	$0.052	2.64	1.54	(18)
Commercial kitchen equipment	ENERGY STAR listed electric steamer - 3 pan	Standard steamer	Steamer	ENComm_Cooking	9	21,470.00	$12,803.61	$–	$358.34	$80.00	$0.052	10.70	8.68	(19)
Commercial kitchen equipment	ENERGY STAR listed electric steamer - 4 pan	Standard steamer	Steamer	ENComm_Cooking	9	28,564.00	$17,034.10	$–	$136.78	$100.00	$0.052	10.74	10.50	(19)
Commercial kitchen equipment	ENERGY STAR listed electric steamer - 5 pan	Standard steamer	Steamer	ENComm_Cooking	9	35,659.00	$21,265.20	$–	$(267.95)	$150.00	$0.052	10.61	13.41	(19)

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	Measure Descriptions	Replacing	Measure unit	End Use	Measure Life (yrs)[a]	Annual Gross Energy Savings (kWh/yr)[b]	NPV Avoided Costs[c]	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost[d]	Incentive/ Unit	Admin Cost ($/kWh)[e]	UC Ratio[f]	TRC Ratio[g]	Source
Commercial kitchen equipment	ENERGY STAR listed electric steamer - 6 pan	Standard steamer	Steamer	ENComm_Cooking	9	42,754.00	$25,496.29	$–	$59.32	$175.00	$0.052	10.63	11.17	(19)
Commercial kitchen equipment	ENERGY STAR listed electric steamer -10 pan or larger	Standard steamer	Steamer	ENComm_Cooking	9	71,133.00	$42,420.07	$–	$4,062.08	$200.00	$0.052	10.88	5.47	(19)
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	$277.85	$–	$165.33	$60.00	$0.052	3.76	1.55	(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	$1,032.61	$–	$142.05	$100.00	$0.052	6.80	5.33	(7)

[a] Average measure life.
[b] Estimated kWh savings measured at the customer's meter, excluding line losses.
[c] Sum of NPV of avoided cost. Based on end-use load shape, measure life, savings including line losses, and alternative costs by pricing period as provided in the 2013 IRP. Includes 10% conservation adder from the Northwest Power Act.
[d] Incremental participant cost prior to customer incentives.
[e] Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2015 actuals.
[f] Utility Cost Ratio = (NPV Avoided Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)
[g] Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))
[1] Evergreen Consulting Group, LLC. Idaho Power Lighting Tool. 2014.
[2] Measure not cost-effective. Measure to be monitored 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.
[3] Idaho Power *Demand-Side Management Potential Study* by Nexant, Inc. IPC DSM Potential—Commercial Model 081209.xlsm. 2009.
[4] RTF. ComGroceryDisplayCaseLEDs_v2_2 and ComGroceryCaseLEDs_v1.1.xls. 2013. T12 to LED. Averaged the measures for less than 4 W/ln ft and 4–8.5 W/ln ft.
[5] RTF. ComGroceryDisplayCaseLEDs_v2_2 and ComGroceryCaseLEDs_v1.1.xls. 2013. T8 to LED. Averaged the measures for less than 4 W/ln ft and 4–8.5 W/ln ft.
[6] Idaho Power TRM prepared by ADM Associates, Inc. 2015. Weighted average of 6–25 ton units.
[7] Idaho Power TRM prepared by ADM Associates, Inc. 2015.
[8] Idaho Power TRM prepared by ADM Associates, Inc. 2015. Averaged water cooled chillers.
[9] Idaho Power TRM prepared by ADM Associates, Inc. 2015. Calculated from TRM spreadsheets.
[10] RTF. AgStockWateringTank_v2_0.xlsm. 2013. Simple average of HZ 1, 2, & 3.
[11] RTF. ComDHWEfficientTank_v3_0.xlsm. 2014. Simple average of residential style water heaters.
[12] RTF. ComDHWEfficientTank_v3_0.xlsm. 2014. Simple average of commercial style water heaters.
[13] RTF. ComDHWShowerhead_v3_0.xlsm. 2013.
[14] Measure not cost-effective. Measure to remain in the program due to unquantifiable NEBs.
[15] Idaho Power TRM prepared by ADM Associates, Inc. 2015. NEBs from water savings from RTF. ComDishwasher_v1_2.xlsm. 2012.
[16] RTF. ComCookingCombinationOven_v2_0.xlsm. 2013.
[17] RTF. ComCookingConvectionOven_v2_0.xlsm. Simple average of half and full-size ovens. 2013.
[18] RTF. ComCookingFryer_v2_0.xlsm. 2013.
[19] RTF. ComCookingSteamer_v2_0.xlsm. 2013.

Irrigation Efficiency Rewards

Segment: Irrigation
2015 Program Results

Cost Inputs (NPV)			Ref
Program Administration	$	338,029	
Program Incentives		1,497,682	I
Total Utility Cost	**$**	**1,835,711**	P
Measure Equipment and Installation (Incremental Participant Cost)	$	9,601,814	M

Summary of Cost-Effectiveness Results					
Test		**Benefit**		**Cost**	**Ratio**
Utility Cost Test	$	11,014,313	$	1,835,711	6.00
Total Resource Cost Test		38,180,490		9,939,842	3.84
Ratepayer Impact Measure Test		11,014,313		7,595,512	1.45
Participant Cost Test		34,423,660		9,601,814	3.59

Net Benefit Inputs (NPV)				Ref
Resource Savings				
2015 Annual Gross Energy (kWh)	14,027,411			
NPV Cumulative Energy (kWh)	101,698,208	$	10,013,012	
10% Credit (Northwest Power Act)			1,001,301	
Total Electric Savings		**$**	**11,014,313**	S
Participant Bill Savings				
NPV Cumulative Participant Savings		$	5,759,801	B
Other Benefits				
Non-Utility Rebates/Incentives		$	–	NUI
Non-Energy Benefits		$	27,166,177	NEB

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	17%
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.
NEBs including yield, labor, and other benefits reported by the customer.

Year: 2015 **Program**: Irrigation Efficiency Rewards **Market Segment**: Irrigation **Program Type**: Energy Efficiency

						Benefit			Cost			Benefit/Cost Tests		
Measure Name[a]	**Measure Descriptions**	**Replacing**	**Measure Unit**	**End Use**	**Measure Life (yrs)[b]**	**Annual Gross Energy Savings (kWh/yr)[c]**	**NPV Avoided Costs[d]**	**Non-Energy Benefit (NEB)**	**Gross Incremental Participant Cost[e]**	**Incentive/ Unit**	**Admin Cost ($/kWh)[f]**	**UC Ratio[g]**	**TRC Ratio[h]**	**Sources**
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	$16.34	$–	$6.45	$1.50	$0.024	6.60	2.20	(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	$16.34	$–	$2.41	$0.25	$0.024	13.35	4.83	(1)
Sprinklers	Rebuilt or new brass impact sprinklers		Unit	IPC_Irrigation	5	28.26	$14.22	$–	$14.02	$2.75	$0.024	4.15	0.97	(1) (2)
Levelers	Rebuilt or new wheel line levelers		Unit	IPC_Irrigation	5	41.76	$21.01	$–	$3.70	$0.75	$0.024	11.99	4.47	(1)
Sprinklers	Center pivot/linear move: Install new sprinkler package on an existing system		Unit	IPC_Irrigation	5	100.19	$50.41	$–	$29.03	$8.00	$0.024	4.84	1.60	(1)
Gasket Replacement	New gaskets for hand lines, wheel lines or portable mainline		Unit	IPC_Irrigation	5	170.00	$85.53	$–	$4.46	$1.00	$0.024	16.84	10.02	(1)
Drain Replacement	New drains hand lines, wheel lines or portable mainline		Unit	IPC_Irrigation	5	176.25	$88.68	$–	$15.54	$3.00	$0.024	12.27	4.48	(1)
Hub Replacement	New wheel line hubs		Unit	IPC_Irrigation	10	73.06	$70.13	$–	$56.85	$12.00	$0.024	5.10	1.20	(1)
New Goose Necks	New goose neck with drop tube or boomback		Outlet	IPC_Irrigation	15	14.50	$19.50	$–	$4.74	$1.00	$0.024	14.46	3.83	(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	$66.34	$–	$20.47	$8.00	$0.024	6.62	2.95	(1)
Gasket Replacement	New center pivot base boot gasket		Unit	IPC_Irrigation	8	1,456.40	$1,143.62	$–	$284.25	$125.00	$0.024	7.15	3.58	(1)

[a] Available measures in the Irrigation Efficiency Menu Incentive Option. For the Custom Incentive Option, projects are thoroughly reviewed by Idaho Power staff.
[b] Average measure life.
[c] Estimated peak demand reduction measured at the customer's meter, excluding line losses.
[d] Sum of NPV of avoided cost. Based on end-use load shape, measure life, savings including line losses, and alternative costs by pricing period as provided in the 2013 IRP. Includes 10% conservation adder from the Northwest Power Act.
[e] Incremental participant cost prior to customer incentives.
[f] Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2015 actuals.
[g] Utility Cost Ratio = (NPV Avoided Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)
[h] Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))
[1] RTF. AgIrrigationHardware_v3.xlsm. 2013. Three-year weighted average of western Idaho (13%), eastern Washington and Oregon (4%), and eastern and southern Idaho (83%).
[2] Measure not cost-effective. Measure to remain in the program due to unquantifiable NEBs.

Year: 2015 **Program**: Irrigation Efficiency Rewards—Green Motors **Market Segment**: Irrigation **Program Type**: Energy Efficiency

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	**Measure Descriptions**	**Replacing**	**Measure Unit**	**End Use**	**Measure Life (yrs)[a]**	**Annual Gross Energy Savings (kWh/yr)[b]**	**NPV Avoided Costs[c]**	**Non-Energy Benefit (NEB)**	**Gross Incremental Participant Cost[d]**	**Incentive/ Unit**	**Admin Cost ($/kWh)[e]**	**UC Ratio[f]**	**TRC Ratio[g]**	**Source**
Green Motors Program Rewind: Motor size 15HP	Green Motors Program Rewind: Motor size 15HP	Standard rewind practice	Motor	IPC_Irrigation	18	317.00	$495.22	$–	$152.56	$30.00	$0.050	10.80	2.94	(1)
Green Motors Program Rewind: Motor size 20HP	Green Motors Program Rewind: Motor size 20HP	Standard rewind practice	Motor	IPC_Irrigation	18	425.00	$663.94	$–	$170.21	$40.00	$0.050	10.84	3.47	(1)
Green Motors Program Rewind: Motor size 25HP	Green Motors Program Rewind: Motor size 25HP	Standard rewind practice	Motor	IPC_Irrigation	17	595.00	$886.32	$–	$194.47	$50.00	$0.050	11.11	3.95	(1)
Green Motors Program Rewind: Motor size 30HP	Green Motors Program Rewind: Motor size 30HP	Standard rewind practice	Motor	IPC_Irrigation	17	640.00	$953.35	$–	$213.60	$60.00	$0.050	10.36	3.88	(1)
Green Motors Program Rewind: Motor size 40HP	Green Motors Program Rewind: Motor size 40HP	Standard rewind practice	Motor	IPC_Irrigation	17	746.00	$1,111.25	$–	$261.02	$80.00	$0.050	9.47	3.73	(1)
Green Motors Program Rewind: Motor size 50HP	Green Motors Program Rewind: Motor size 50HP	Standard rewind practice	Motor	IPC_Irrigation	17	802.00	$1,194.67	$–	$288.96	$100.00	$0.050	8.53	3.63	(1)
Green Motors Program Rewind: Motor size 60HP	Green Motors Program Rewind: Motor size 60HP	Standard rewind practice	Motor	IPC_Irrigation	20	765.00	$1,299.67	$–	$340.79	$120.00	$0.050	8.21	3.43	(1)
Green Motors Program Rewind: Motor size 75HP	Green Motors Program Rewind: Motor size 75HP	Standard rewind practice	Motor	IPC_Irrigation	20	788.00	$1,338.75	$–	$368.37	$150.00	$0.050	7.07	3.28	(1)
Green Motors Program Rewind: Motor size 100HP	Green Motors Program Rewind: Motor size 100HP	Standard rewind practice	Motor	IPC_Irrigation	20	1,040.00	$1,766.88	$–	$456.96	$200.00	$0.050	7.01	3.47	(1)
Green Motors Program Rewind: Motor size 125HP	Green Motors Program Rewind: Motor size 125HP	Standard rewind practice	Motor	IPC_Irrigation	20	1,157.00	$1,965.65	$–	$513.21	$250.00	$0.050	6.39	3.44	(1)
Green Motors Program Rewind: Motor size 150HP	Green Motors Program Rewind: Motor size 150HP	Standard rewind practice	Motor	IPC_Irrigation	20	1,376.00	$2,337.72	$–	$571.66	$300.00	$0.050	6.34	3.65	(1)
Green Motors Program Rewind: Motor size 200HP	Green Motors Program Rewind: Motor size 200HP	Standard rewind practice	Motor	IPC_Irrigation	20	1,821.00	$3,093.74	$–	$688.20	$400.00	$0.050	6.30	3.97	(1)
Green Motors Program Rewind: Motor size 250HP	Green Motors Program Rewind: Motor size 250HP	Standard rewind practice	Motor	IPC_Irrigation	20	2,823.00	$4,796.05	$–	$884.52	$500.00	$0.050	7.48	4.68	(1)
Green Motors Program Rewind: Motor size 300HP	Green Motors Program Rewind: Motor size 300HP	Standard rewind practice	Motor	IPC_Irrigation	20	3,370.00	$5,725.36	$–	$894.08	$600.00	$0.050	7.45	5.39	(1)
Green Motors Program Rewind: Motor size 350HP	Green Motors Program Rewind: Motor size 350HP	Standard rewind practice	Motor	IPC_Irrigation	20	3,929.00	$6,675.06	$–	$937.09	$700.00	$0.050	7.45	5.89	(1)

						Benefit			Cost			Benefit/Cost Tests		
Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs)[a]	Annual Gross Energy Savings (kWh/yr)[b]	NPV Avoided Costs[c]	Non-Energy Benefit (NEB)	Gross Incremental Participant Cost[d]	Incentive/ Unit	Admin Cost ($/kWh)[e]	UC Ratio[f]	TRC Ratio[g]	Source
Green Motors Program Rewind: Motor size 400HP	Green Motors Program Rewind: Motor size 400HP	Standard rewind practice	Motor	IPC_Irrigation	20	4,456.00	$7,570.39	$–	$1,046.64	$800.00	$0.050	7.40	5.96	(1)
Green Motors Program Rewind: Motor size 450HP	Green Motors Program Rewind: Motor size 450HP	Standard rewind practice	Motor	IPC_Irrigation	20	5,003.00	$8,499.70	$–	$1,144.06	$900.00	$0.050	7.39	6.10	(1)
Green Motors Program Rewind: Motor size 500HP	Green Motors Program Rewind: Motor size 500HP	Standard rewind practice	Motor	IPC_Irrigation	20	5,567.00	$9,457.89	$–	$1,235.98	$1,000.00	$0.050	7.40	6.25	(1)
Green Motors Program Rewind: Motor size 600HP	Green Motors Program Rewind: Motor size 600HP	Standard rewind practice	Motor	IPC_Irrigation	20	6,193.00	$10,521.42	$–	$1,821.36	$1,200.00	$0.050	6.97	4.94	(1)
Green Motors Program Rewind: Motor size 700HP	Green Motors Program Rewind: Motor size 700HP	Standard rewind practice	Motor	IPC_Irrigation	20	7,195.00	$12,223.74	$–	$1,987.11	$1,400.00	$0.050	6.95	5.21	(1)
Green Motors Program Rewind: Motor size 800HP	Green Motors Program Rewind: Motor size 800HP	Standard rewind practice	Motor	IPC_Irrigation	20	8,205.00	$13,939.65	$–	$2,204.75	$1,600.00	$0.050	6.93	5.33	(1)
Green Motors Program Rewind: Motor size 900HP	Green Motors Program Rewind: Motor size 900HP	Standard rewind practice	Motor	IPC_Irrigation	20	9,211.00	$15,648.76	$–	$2,430.63	$1,800.00	$0.050	6.92	5.41	(1)
Green Motors Program Rewind: Motor size 1500HP	Green Motors Program Rewind: Motor size 1500HP	Standard rewind practice	Motor	IPC_Irrigation	20	12,681.00	$21,544.02	$–	$3,584.53	$3,000.00	$0.050	4.74	4.20	(1)

[a] Average measure life.
[b] Estimated kWh savings measured at the customer's meter, excluding line losses.
[c] Sum of NPV of avoided cost. Based on end-use load shape, measure life, savings including line losses, and alternative costs by pricing period as provided in the 2013 IRP. Includes 10% conservation adder from the Northwest Power Act.
[d] Incremental participant cost prior to customer incentives.
[e] Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2015 actuals.
[f] Utility Cost Ratio = (NPV Avoided Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)
[g] Total Resource Cost Ratio = (NPV Avoided Costs + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))
[1] RTF. AgMotorsRewind_v2_0.xlsm. 2013.