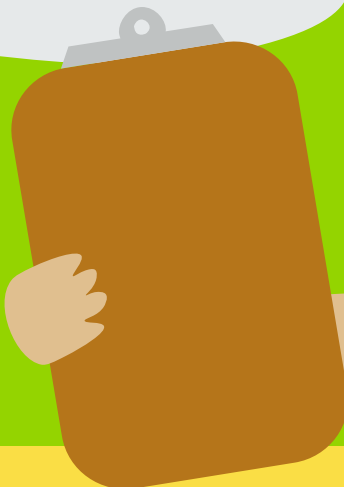


DEMAND-SIDE MANAGEMENT

2019

Annual Report

Supplement 1:
COST-EFFECTIVENESS



MARCH 15 • 2020

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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.

Prior to the actual implementation of energy efficiency or demand response programs, Idaho Power performs a preliminary cost-effectiveness analysis to assess whether a potential program design or measure may be cost-effective. 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, Northwest Energy Efficiency Alliance (NEEA) Regional Emerging Technology Advisory Committee, the Consortium for Energy Efficiency (CEE), American Council for an Energy-Efficient Economy (ACEEE), and Advanced Load Control Alliance (ALCA) to identify similar programs and their results. Additionally, Idaho Power relies on the results of program impact evaluations and recommendations from consultants.

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 test (UCT), and participant cost test (PCT) at the program and measure level where appropriate. Each cost-effectiveness test provides a different perspective, and Idaho Power believes each test provides value when evaluating program performance. In 2020, Idaho Power will begin using the UCT as the primary cost-effectiveness test as directed by the Idaho Public Utilities Commission (IPUC) in Order Nos. 34469 and 34503. The company will continue to calculate the TRC and PCT because each perspective can help inform the company and stakeholders about the effectiveness of a particular program or measure.

Idaho Power uses many assumptions when calculating the cost-effectiveness of a given program or measure. For some measures within the programs, savings can vary based on factors, such as participation levels or the participants' locations. For instance, heat pumps installed in the Boise area will have less savings than heat pumps installed in the McCall area. If program participation and savings increase, fixed costs (such as labor and marketing) are distributed more broadly, and the program cost-effectiveness increases.

When an existing program or measure is shown to be not cost-effective, Idaho Power works with the Energy Efficiency Advisory Group (EEAG) to get additional input. If the measure or program continues to be offered, the company must demonstrate why the measure or program was implemented or continued and the steps the company plans to take to improve its cost-effectiveness. The company believes this aligns with the expectations of the IPUC and Public Utility Commission of Oregon (OPUC).

In OPUC Order No. 94-590, issued in UM 551, the OPUC outlines specific cost-effectiveness guidelines for energy efficiency measures and programs managed by program administrators. The OPUC expects that measures and programs pass both the UCT and TRC tests. If Idaho Power determines a program or measure is not cost-effective but meets one or more of the exceptions set forth by Order No. 94-590, the company files an exceptions request with the OPUC to continue offering the measure or program within its Oregon service area.

Non cost-effective measures and programs may be offered by a utility if they meet one or more of the following additional conditions specified by Section 13 of OPUC 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

For operational and administrative efficiency, Idaho Power endeavors to offer identical programs in both its Oregon and Idaho jurisdictions. Some customers, contractors, and trade allies operate in both states. Offering different program designs would create confusion in the marketplace and could inhibit participation. 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*. In the past, Idaho Power has primarily used the TRC test for resource planning, however based on IPUC Order No. 34503, the company will transition to using the UCT as the primary test for energy efficiency resource planning. For program planning and evaluation, the company will primarily use the UCT to develop B/C ratios to determine the cost-effectiveness of DSM programs. The PCT provides the company the opportunity to

assess a program or measure from the participant perspective and to determine if it is in the best interest of the average customer.

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 2019 dollars. The result of the one-year perspective is shown in Table 3 and the Cost-Effectiveness Tables by Program section in this supplement.

The goal of demand response programs is to minimize or delay the need to build new supply-side resources. Unlike energy efficiency programs or supply-side resources, demand response programs must acquire and retain participants each year to maintain demand-reduction capacity for the company.

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. The annual value calculation will be updated with each Integrated Resource Plan (IRP) based on changes that include, but are not limited to, need, capital cost, or financial assumptions. This amount was reevaluated in the 2015, 2017, and 2019 (amended) IRPs to be \$18.5, \$19.8, and \$19.6 million, respectively.

This 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. In 2019, the cost of operating the three demand response programs was \$8.3 million. Idaho Power estimates that if the three programs were dispatched for the full 60 hours, the total costs would have been approximately \$11.5 million and would have remained cost-effective.

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 internally and with EEAG and updated as new information becomes available. For many of the measures within *Supplement 1: Cost-Effectiveness*, savings and costs were derived from either the Regional Technical Forum (RTF) or the *Idaho Power Energy Efficiency Potential Study* conducted by Applied Energy Group (AEG).

The RTF regularly reviews, evaluates, and recommends eligible energy efficiency measures and the estimated savings and costs associated with those measures. For instance, because of the rapid changes in the lighting market, the RTF is currently evaluating lighting measures on an annual basis. As the RTF updates these savings and cost 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 2012 dollars, measures with costs from the RTF are escalated to 2019 dollars. The costs are escalated by 11.6%, which is the percentage provided by the RTF in workbook RTFStandardInformationWorkbook_v4_1.xlsx.

Idaho Power uses a technical reference manual (TRM) developed by ADM Associates, Inc. for the savings and cost assumptions in the Commercial and Industrial (C&I) Energy Efficiency Program's New Construction and Retrofits options. In 2018, the company contracted with ADM to update the TRM. Idaho Power also relies on other sources for savings and cost assumptions, such as the Northwest Power and Conservation Council (NWPPCC), 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 established for the next calendar year unless code and standard changes or program updates necessitate a need to use updated savings. These assumptions are discussed in more detail in the cost-effectiveness sections for each program in the *Demand-Side Management 2019 Annual Report*. As a general rule, the 2019 energy savings reported for most programs will use the assumption set at the beginning of the year.

The remaining inputs used in the cost-effectiveness models are obtained from the IRP process. Idaho Power's 2017 IRP was acknowledged by the IPUC on February 9, 2018 and by the OPUC May 23, 2018 and is the source of all the financial assumptions for the cost-effectiveness analysis. *Appendix C—Technical Appendix* of Idaho Power's 2017 IRP contains the DSM alternate costs, discount rate, and escalation rate. These DSM alternate costs vary by season and time of day and are applied to an end-use load shape to obtain the value of a particular measure or program. The DSM alternate 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 2017 IRP, the annual avoided capacity cost is \$122 per kilowatt (kW).

Transmission and distribution (T&D) benefits are also included in the cost-effectiveness analyses. The estimated average value of energy efficiency on T&D deferral is \$3.76/kW per year or \$0.000429/kilowatt-hour (kWh). In compliance with Order No. 33365, this value is escalated and added to the 2017 DSM alternate energy costs and included in the cost-effectiveness analysis for 2019.

Idaho Power's 2019 amended IRP was filed on January 31, 2020 with the IPUC under case IPC-E-19-19 and with the OPUC under case LC 74. Because the 2019 IRP has not been acknowledged, the 2017 IRP is the source for all financial assumptions and cost-effectiveness analysis in 2019 and 2020. The 2019 amended IRP is expected to be the source of all assumptions and analysis for the 2021 program year.

As recommended by the NAPEE's *Understanding Cost-Effectiveness of Energy Efficiency Programs*, Idaho Power's weighted average cost of capital (WACC) of 6.74% is used to discount future benefits and costs to today's dollars. Once the DSM alternate costs and load shapes are applied to the annual kWh savings of a measure or program, the WACC is used to calculate the net present value (NPV) of the annual benefit for the UCT and TRC B/C ratios. 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. Because 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 2019 average customer segment rate and is not escalated, the participant bill savings is discounted using a real discount rate of 4.54%, which is based on the 2017 IRP's WACC of 6.74% and an escalation rate of 2.1%. The real discount rate is used to calculate the NPV of any participant benefits or costs for the PCT or ratepayer impact measure (RIM) B/C ratios.

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 2019 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. The system line-loss factor is 9.6% while the summer peak line-loss factor is 9.7%.

Conservation Adder

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

...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% conservation adder in energy efficiency cost-effectiveness analyses. In OPUC Order No. 94-590, the OPUC 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% adder, and the IPUC agreed with the recommendation to allow utilities to use the 10% 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 applies the 10% conservation adder in all energy efficiency measure and program cost-effectiveness analyses when calculating the TRC test.

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* as a ratio that does the following:

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% for nearly all measure and program cost-effectiveness analyses. The Home Energy Reports (HER) Pilot Program and Shade Tree Project were two exceptions.

There is a potential of double counting savings in the HER Pilot Program if a customer receives a report and also participates in a program such as the Energy Efficient Lighting Program. Idaho Power's third-party consultant estimated that less than 5% of the savings may be double counted, so a NTG of 95% was applied to the cost-effectiveness analysis.

For the Shade Tree Project, the evaluators recommended Idaho Power use a spillover factor of 24% to account for the shade the tree provides to the participant's neighboring homes. A NTG of 124% was applied to the program cost-effectiveness analysis.

For the program cost-effectiveness analyses, a sensitivity analysis was also 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 UCT 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 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 the Commercial Energy-Savings Kits, Educational Distributions, Energy House Calls, Multifamily Energy Savings Program, Shade Tree Project, 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.

Supplement 1: Cost-Effectiveness contains annual cost-effectiveness metrics for each program using actual information from 2019 and includes results of the UCT, TRC, PCT, and RIM. 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 2019, most of Idaho Power's energy efficiency programs were cost-effective from the UCT, except for Energy House Calls and the weatherization programs for income-qualified customers.

The UCT and TRC ratios for the Energy House Calls program are 0.96 and 1.30 respectively. In late 2018 and early 2019, Idaho Power and EEAG discussed a series of topics to comply with IPUC Order No. 34141. One part of the discussions revolved around the frequency of evaluations and the potential effect of evaluation costs to program cost-effectiveness. EEAG recommended that cost-effectiveness be calculated with and without the evaluation costs. Impact and process evaluations were conducted for the Energy House Calls program in 2019. If the evaluation costs were removed from the program's cost-effectiveness, the UCT and TRC ratios would be 1.11 and 1.49 respectively.

WAQC had a TRC of 0.43 and a UCT ratio of 0.35, and Weatherization Solutions for Eligible Customers had a TRC of 0.43 and a UCT ratio of 0.30. The cost-effectiveness ratios for both programs declined in 2019 from both the UCT and TRC perspective due to the adoption of the 2017 IRP DSM alternate cost assumptions. To calculate the programs' cost-effectiveness, Idaho Power adopted the following IPUC staff recommendations from Case No. GNR E-12-01:

- Applied a 100% NTG.
- Claimed 100% of energy savings for each project.
- Included indirect administrative overhead costs. The overhead costs of 2.459% were calculated from the \$1,194,640 of indirect program expenses divided by the total DSM expenses of \$48,584,696 as shown in Appendix 3 of the *Demand-Side Management 2019 Annual Report*.
- Applied the 10% 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.

Fifty-two out of 285 individual measures in various programs are shown to be not cost-effective from either the UCT or TRC perspective. Of the 52 measures, 14 are not cost-effective from the UCT perspective. These measures will be monitored to examine their impact on the specific program's overall cost-effectiveness. For most of the measures that fail the TRC, 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 UM-1710 or with the specific program advice filings. The filings and exception requests are noted in Table 1.

Table 1. 2019 non-cost-effective measures

Program	Number of Measures	Number Fail UCT	Notes
Energy House Calls	10	10	Measures not cost-effective from UCT due to the inclusion of evaluation costs in the administration costs. If the evaluation cost were to be removed, the measures and program would be cost-effective. All measures pass the TRC.
Heating & Cooling Efficiency Program	6	1	All measures except smart thermostats pass UCT. Cost-effectiveness exception request for ductless heat pumps (DHP) and open-loop water source heat pumps filed with the OPUC under UM-1710. OPUC Order No. 94-590, Section 13. Approved under Order No. 15-200. Exception request for the program and smart thermostats requested and approved with OPUC Advice No. 17-09.
Multifamily Energy Savings Program	2	2	Measures have UCTs of 0.90 and TRCs between 1.40 and 1.48. Measures not cost-effective due to the application of administration costs on a \$/kWh. Measure is included to increase savings in a cost-effective program.
Rebate Advantage	6	0	All measures pass UCT. Measures have a TRC between 0.62 and 0.98. Three measures would be cost-effective with TRC of 1.10 without the inclusion of administration costs. Meets OPUC Order No. 94-590, Section 10. Measure is included to increase savings in a cost-effective program.
Residential New Construction Pilot	1	0	Measure passes UCT. Pilot program in Idaho only.
New Construction and Retrofits	7	0	All measures pass UCT. Measures offered in both options. Cost-effectiveness exception request filed and approved with OPUC Advice No. 18-08. OPUC Order No. 94-590, Section 13. Exceptions C and D.
New Construction	2	0	All measures pass UCT. TRC between 0.92 and 0.97. Measures are included to increase participation a cost-effective program.
Retrofits	15	0	All measures pass UCT. TRC ranges from 0.75 to 0.99. Nine measures would be cost-effective without the inclusion of administration costs. Meets OPUC Order No. 94-590, Section 10. Cost-effectiveness exception request filed and approved with OPUC Advice No. 18-08. OPUC Order No. 94-590, Section 13. Exceptions C and D.
Irrigation Efficiency Rewards	3	1	Two measures pass UCT. TRC ranges from 0.67 to 0.86. Cost-effectiveness exception request filed with OPUC under UM-1710. OPUC Order No. 94-590, Section 13. Approved under Order No. 18-476. Exceptions A, C, and D.
Total	52	14	

In the following tables, find the annual program cost-effectiveness results that include measure-level cost-effectiveness. Exceptions to the measure-level tables are programs that are analyzed at the project level: the Custom Projects option of the C&I Energy Efficiency Program, the Custom Incentive Option of Irrigation Efficiency Rewards, the Shade Tree Project, 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 non-energy impacts/benefits. 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.

2019 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 2019 Annual Report*. These expenses are broken out by funding source major-expense type (labor/administration, materials, other expenses, purchased services, and incentives).

Table 2. 2019 DSM detailed expenses by program (dollars)

Sector/Program	Idaho Rider	Oregon Rider	Idaho Power	Total Program
Energy Efficiency Total	\$ 31,554,465	\$ 990,049	\$ 1,560,343	\$ 34,104,857
Residential Total	\$ 7,839,046	\$ 263,073	\$ 1,470,126	\$ 9,572,244
Easy Savings: Low-Income Energy				
Efficiency Education	–	–	145,494	145,494
Labor/Administrative Expense	–	–	20,487	20,487
Materials and Equipment	–	–	125,000	125,000
Purchased Services	–	–	7	7
Educational Distributions	2,989,184	91,688	–	3,080,873
Labor/Administrative Expense	40,954	2,172	–	43,125
Materials and Equipment	2,003,100	68,032	–	2,071,132
Purchased Services	945,130	21,485	–	966,615
Energy Efficient Lighting	2,026,977	99,285	–	2,126,262
Incentives	1,045,519	47,003	–	1,092,522
Labor/Administrative Expense	53,548	2,835	–	56,383
Other Expense	10,308	2,599	–	12,906
Purchased Services	917,602	46,848	–	964,450
Energy House Calls	143,570	18,324	–	161,894
Labor/Administrative Expense	17,195	929	–	18,124
Materials and Equipment	47	–	–	47
Other Expense	33,315	2,260	–	35,575
Purchased Services	93,012	15,135	–	108,147
Heating & Cooling Efficiency Program	478,560	20,619	–	499,179
Incentives	264,079	11,750	–	275,829
Labor/Administrative Expense	102,031	5,371	–	107,401
Materials and Equipment	–	(2,250)	–	(2,250)
Other Expense	35,173	2,426	–	37,599
Purchased Services	77,278	3,322	–	80,600
Home Energy Audit	230,786	–	–	230,786
Labor/Administrative Expense	62,838	–	–	62,838
Materials and Equipment	9,162	–	–	9,162
Other Expense	55,493	–	–	55,493
Purchased Services	103,293	–	–	103,293

Sector/Program	Idaho Rider	Oregon Rider	Idaho Power	Total Program
Multifamily Energy Savings Program	115,560	15,745	–	131,306
Labor/Administrative Expense	51,952	6,067	–	58,020
Materials and Equipment	31,754	1,474	–	33,228
Other Expense	(763)	1,870	–	1,107
Purchased Services	32,617	6,335	–	38,952
Oregon Residential Weatherization	–	5,982	–	5,982
Incentives	–	440	–	440
Labor/Administrative Expense	–	3,297	–	3,297
Other Expense	–	1,156	–	1,156
Purchased Services	–	1,089	–	1,089
Rebate Advantage	148,220	8,529	–	156,748
Incentives	103,000	6,000	–	109,000
Labor/Administrative Expense	17,471	921	–	18,392
Other Expense	7,654	403	–	8,057
Purchased Services	20,095	1,205	–	21,300
Residential New Construction Pilot Program	534,118	–	–	534,118
Incentives	431,000	–	–	431,000
Labor/Administrative Expense	59,816	–	–	59,816
Materials and Equipment	92	–	–	92
Other Expense	42,953	–	–	42,953
Purchased Services	257	–	–	257
Shade Tree Project	147,750	–	–	147,750
Labor/Administrative Expense	38,186	–	–	38,186
Materials and Equipment	365	–	–	365
Other Expense	3,772	–	–	3,772
Purchased Services	105,427	–	–	105,427
Simple Steps, Smart Savings™	87,599	2,900	–	90,499
Incentives	36,924	949	–	37,873
Labor/Administrative Expense	30,252	1,627	–	31,879
Other Expense	1,342	17	–	1,359
Purchased Services	19,080	307	–	19,388
Weatherization Assistance for Qualified Customers	–	–	1,303,727	1,303,727
Labor/Administrative Expense	–	–	49,541	49,541
Other Expense	–	–	351	351
Purchased Services	–	–	1,253,835	1,253,835
Weatherization Solutions for Eligible Customers	936,721	–	20,905	957,626
Labor/Administrative Expense	5,071	–	20,905	25,976
Other Expense	18,552	–	–	18,552
Purchased Services	913,098	–	–	913,098
Commercial/Industrial	\$ 21,265,992	\$ 552,857	\$ 52,501	\$ 21,871,350
Custom Projects	11,614,380	212,991	52,501	11,879,873
Incentives	9,074,101	115,341	–	9,189,442
Labor/Administrative Expense	600,676	31,692	52,501	684,869
Other Expense	373,639	7,306	–	380,944
Purchased Services	1,565,965	58,653	–	1,624,618
New Construction	3,365,862	182,614	–	3,548,476
Incentives	2,942,698	160,018	–	3,102,716
Labor/Administrative Expense	228,482	12,087	–	240,568
Other Expense	33,081	1,741	–	34,822
Purchased Services	161,601	8,769	–	170,370
Retrofits	6,131,117	149,939	–	6,281,056
Incentives	5,083,828	94,354	–	5,178,182
Labor/Administrative Expense	360,161	18,982	–	379,143

Sector/Program	Idaho Rider	Oregon Rider	Idaho Power	Total Program
Materials and Equipment	–	–	–	–
Other Expense	47,983	2,525	–	50,509
Purchased Services	639,145	34,077	–	673,222
Commercial Energy-Saving Kits	154,632	7,312	–	161,945
Labor/Administrative Expense	14,817	785	–	15,602
Materials and Equipment	106,555	5,201	–	111,755
Other Expense	1,702	90	–	1,792
Purchased Services	31,559	1,237	–	32,796
Irrigation Total	\$ 2,449,427	\$ 174,120	\$ 37,716	\$ 2,661,263
Irrigation Efficiency Rewards	2,449,427	174,120	37,716	2,661,263
Incentives	2,109,284	155,988	–	2,265,273
Labor/Administrative Expense	299,234	15,800	37,716	352,750
Materials and Equipment	7,575	399	–	7,974
Other Expense	29,767	1,720	–	31,487
Purchased Services	3,566	214	–	3,780
Market Transformation Total	\$ 2,585,017	\$ 136,053	\$ –	\$ 2,721,070
NEAA	2,585,017	136,053	–	2,721,070
Purchased Services	2,585,017	136,053	–	2,721,070
Other Program and Activities Total	\$ 2,160,635	\$ 127,298	\$ –	\$ 2,287,933
Commercial/Industrial Energy Efficiency Overhead	463,177	29,758	–	492,935
Labor/Administrative Expense	273,351	14,897	–	288,248
Other Expense	160,811	13,334	–	174,145
Purchased Services	29,015	1,527	–	30,542
Energy Efficiency Direct Program Overhead	251,229	13,390	–	264,620
Labor/Administrative Expense	237,814	12,529	–	250,342
Other Expense	13,416	862	–	14,277
Oregon Commercial Audit	–	7,262	–	7,262
Labor/Administrative Expense	–	620	–	620
Other Expense	–	592	–	592
Purchased Services	–	6,050	–	6,050
Residential Energy Efficiency Education Initiative...	152,579	8,272	–	160,851
Labor/Administrative Expense	86,940	4,581	–	91,521
Materials and Equipment	419	22	–	441
Other Expense	63,190	3,562	–	66,752
Purchased Services	2,031	107	–	2,137
Residential Energy Efficiency Overhead	1,293,650	68,615	–	1,362,265
Labor/Administrative Expense	187,432	10,358	–	197,790
Other Expense	1,085,308	57,122	–	1,142,430
Purchased Services	20,910	1,135	–	22,045
Indirect Program Expenses Total	\$ 959,330	\$ 46,138	\$ 189,173	\$ 1,194,640
Energy Efficiency Accounting and Analysis	927,383	44,457	189,173	1,161,013
Labor/Administrative Expense	420,450	22,179	160,389	603,018
Materials and Equipment	100	5	–	105
Other Expense	13,125	690	28,784	42,599
Purchased Services	493,708	21,583	–	515,291
Energy Efficiency Advisory Group	20,937	1,105	–	22,041
Labor/Administrative Expense	6,086	323	–	6,409
Other Expense	14,851	782	–	15,633

Sector/Program	Idaho Rider	Oregon Rider	Idaho Power	Total Program
Special Accounting Entries	11,009	576	–	11,586
Special Accounting Entry	11,009	576	–	11,586
Demand Response Total	\$ 810,533	\$ 467,100	\$ 6,998,563	\$ 8,276,196
Residential Total	\$ 495,703	\$ 30,762	\$ 351,200	\$ 877,665
A/C Cool Credit	495,703	30,762	351,200	877,665
Incentives	–	4,256	351,200	355,456
Labor/Administrative Expense	65,697	3,481	–	69,178
Materials and Equipment	(18,385)	(145)	–	(18,530)
Other Expense	16,713	880	–	17,593
Purchased Services	431,677	22,291	–	453,968
Commercial/Industrial Total	\$ 75,306	\$ 256,606	\$ 294,911	\$ 626,823
Flex Peak Program	75,306	256,606	294,911	626,823
Incentives	–	252,616	294,911	547,527
Labor/Administrative Expense	72,482	3,841	–	76,323
Other Expense	2,825	149	–	2,973
Irrigation Total	\$ 239,523	\$ 179,733	\$ 6,352,452	\$ 6,771,708
Irrigation Peak Rewards	239,523	179,733	6,352,452	6,771,708
Incentives	–	167,117	6,350,125	6,517,242
Labor/Administrative Expense	74,140	3,921	2,327	80,388
Materials and Equipment	24,470	1,288	–	25,758
Other Expense	1,384	73	–	1,457
Purchased Services	139,530	7,334	–	146,864
Grand Total	\$ 38,069,980	\$ 1,766,639	\$ 8,748,078	\$ 48,584,696

Table 3. Cost-effectiveness of 2019 programs by B/C test

Program/Sector	UCT	TRC	RIM	PCT
Educational Distributions	2.06	3.32	0.49	N/A
Energy Efficient Lighting*	4.04	5.17	0.52	11.72
Energy House Calls*	0.96	1.30	0.34	N/A
Heating & Cooling Efficiency Program	1.56	0.77	0.43	1.48
Multifamily Energy Savings Program	1.15	2.34	0.39	N/A
Rebate Advantage	1.82	1.14	0.39	2.55
Residential New Construction Pilot Program*	1.58	0.83	0.45	1.55
Shade Tree Project	1.09	1.16	0.52	N/A
Simple Steps, Smart Savings	1.40	5.56	0.43	11.10
Weatherization Assistance for Qualified Customers	0.35	0.43	0.21	N/A
Weatherization Solutions for Eligible Customers	0.30	0.43	0.18	N/A
Residential Energy Efficiency Sector	1.90	2.29	0.46	7.76
Commercial Energy-Saving Kits	1.57	2.52	0.60	N/A
Custom Projects*	3.62	1.92	1.06	1.73
New Construction*	3.15	2.88	0.77	3.52
Retrofits*	3.68	1.85	0.80	2.12
Commercial/Industrial Energy Efficiency Sector**	3.55	2.01	0.92	2.09
Irrigation Efficiency Rewards	2.44	3.13	0.98	3.16
Irrigation Energy Efficiency Sector***	2.46	3.13	0.98	3.16
Energy Efficiency Portfolio	2.72	2.12	0.76	2.79

*Evaluation costs included in cost-effectiveness ratios.

**Commercial/Industrial Energy Efficiency Sector cost-effectiveness ratios include savings and participant costs from Green Motors Rewinds.

***Irrigation Energy Efficiency Sector cost-effectiveness ratios include savings and participant costs from Green Motors Rewinds.

COST-EFFECTIVENESS TABLES BY PROGRAM

Educational Distributions

Segment: Residential
2019 Program Results

Cost Inputs		Ref
Program Administration	\$ 3,080,873	
Program Incentives.....	-	I
Total UC	\$ 3,080,873	P
Measure Equipment and Installation (Incremental Participant Cost).....	\$ -	M

Net Benefit Inputs (NPV)		Ref
Resource Savings		
2019 Annual Gross Energy (kWh).....	19,250,220	
NPV Cumulative Energy (kWh).....	125,844,838	\$ 6,333,292 S
10% Credit (Northwest Power Act).....	633,329	
Total Electric Savings	\$ 6,966,621	A
Participant Bill Savings		
NPV Cumulative Participant Bill Savings	\$ 9,898,712	B
Other Benefits		
Non-Utility Rebates/Incentives	\$ -	NUI
NEBs	\$ 3,276,178	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
UC Test	\$ 6,333,292	\$ 3,080,873	2.06
TRC Test	10,242,798	3,080,873	3.32
RIM Test	6,333,292	12,979,584	0.49
PCT	N/A	N/A	N/A

Benefits and Costs Included in Each Test			
UC Test.....	= S * NTG	= P	
TRC Test.....	= (A + NUI + NEB) * NTG	= P	
RIM Test	= S * NTG	= P + (B * NTG)	
PCT	N/A	N/A	

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.74%
Real ((1 + WACC) / (1 + Escalation)) - 1	4.54%
Escalation Rate	2.10%
Net-to-Gross (NTG)	100%
Minimum NTG Sensitivity	49%
Average Customer Segment Rate/kWh	\$0.085
Line Losses	9.60%

Notes: Energy savings as reported by the Franklin Energy for the 2018 to 2019 student kits.
Home Energy Report savings reported for August 2018 through December 2019.
NEBs for giveaway bulbs, welcome kit bulbs, and energy-saving kits include PV of periodic bulb replacement costs.
NEBs for student kit and energy-savings kit showerheads include the NPV of water and wastewater savings and, when applicable, gas (therm) savings.
No participant costs.

Year: 2019

Program: Educational Distributions

Market Segment: Residential

Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
General Purpose LED Give away	Efficient Technology: LED Lamp Type: General Purpose and Dimmable Lumen Category: 250 to 1049 lumens Space Type: ANY	Baseline bulb	Lamp	Residential-All-Lighting-All	13	8.64	\$4.30	\$1.98	-	-	\$0.476	1.05	1.63	1
Student Energy Efficiency Kit (SEEK) Program	2018–2019 kit offering. Kits include: high efficiency showerhead, showertimer, 3 LEDs, FilterTone alarm, digital thermometer, LED nightlight.	No kit	Kit	IPC_Student Kits	11	210.24	\$106.08	\$10.20	-	-	\$0.135	3.75	4.48	2
Energy-Saving Kit—weighted average of non-electric and electric kit	9 - 250 to 1049 lumen General Purpose bulbs 1 - 1.75 gpm showerhead and thermostatic shower valve combo (electric kit only) 3 - faucet aerators (electric kit only)	No kit	Kit	IPC_Energy-savings Kits (weighted)	11	308.87	\$136.54	\$105.33	-	-	\$0.272	1.63	3.05	3
Energy-Saving Kit (giveaway lightbulb only kit)	9 - 250 to 1049 lumen General Purpose bulbs	No kit	Kit	Residential-All-Lighting-All	13	77.76	\$38.72	\$17.85	-	-	\$0.272	1.83	2.86	1
Welcome Kit (lightbulb only kit)	4 - 250 to 1049 lumen General Purpose bulbs	No kit	Kit	Residential-All-Lighting-All	13	34.56	\$17.21	\$7.93	-	-	\$0.476	1.05	1.63	1
Home Energy Reports	Home energy report	No behavior change	Report	IPC_Home Energy Reports	1	338.11	\$19.81	\$-	-	-	\$0.024	2.35	2.58	4

^a Average measure life.

^b Estimated kWh savings measured at the customer’s meter, excluding line losses.

^c Sum of NPV of DSM alternate cost. Based on end-use load shape, measure life, savings including line losses, and alternate costs by pricing period as provided in the 2017 IRP. TRC test benefit calculation includes 10% conservation adder from the Northwest Power Act.

^d No participant costs.

^e Average program administration and overhead costs to achieve each kWh of savings for each initiative. Calculated from 2019 actuals.

^f UCT Ratio = (NPV DSM Alternate Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)

^g TRC Ratio = ((NPV DSM Alternate Costs * 110%) + NEB / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

¹ RTF. ResLighting_Bulbs_v6_1.xlsm. 2018.

² Franklin Energy. 2018-2019 Idaho Power Energy Wise Program Summary Report. 2019.

³ Lightbulbs - RTF. ResLighting_Bulbs_v6_1.xlsm. Showerhead - RTF. ThermostaticShowerRestrictionValve_v2_1. By Request installation rate reduced from 90% to 57%. Faucet aerators - RTF. Aerators_v1_1.xlsm.

⁴ Idaho Power HER Year 2 Final Program Summary. Aclara. 2020. Per report savings based on 17 months of savings from August 2018 to December 2019. Applied NTG of 95%.

Energy Efficient Lighting

Segment: Residential
2019 Program Results

Cost Inputs			Ref
Program Administration	\$	1,033,740	
Program Incentives.....		1,092,522	I
Total UC	\$	2,126,262	P
Measure Equipment and Installation (Incremental Participant Cost)	\$	1,748,299	M

Net Benefit Inputs (NPV)				Ref
Resource Savings				
2019 Annual Gross Energy (kWh).....		16,245,551		
NPV Cumulative Energy (kWh).....		173,846,043	\$ 8,599,070	S
10% Credit (Northwest Power Act).....			859,907	
Total Electric Savings	\$		9,458,976	A
Participant Bill Savings				
NPV Cumulative Participant Bill Savings	\$	14,473,895		B
Other Benefits				
Non-Utility Rebates/Incentives	\$	-		NUI
NEBs	\$	4,918,721		NEB

Summary of Cost-Effectiveness Results				
Test		Benefit	Cost	Ratio
UC Test	\$	8,599,070	\$ 2,126,262	4.04
TRC Test		14,377,698	2,782,039	5.17
RIM Test		8,599,070	16,600,157	0.52
PCT		20,485,138	1,748,299	11.72

Benefits and Costs Included in Each Test				
UC Test.....	= S * NTG		= P	
TRC Test.....	= (A + NUI + NEB) * NTG		= P + ((M-I) * NTG)	
RIM Test	= S * NTG		= P + (B * NTG)	
PCT	= B + I + NUI + NEB		= M	

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.74%
Real ((1 + WACC) / (1 + Escalation)) - 1	4.54%
Escalation Rate	2.10%
Net-to-Gross (NTG)	100%
Minimum NTG Sensitivity	25%
Average Customer Segment Rate/kWh	\$0.085
Line Losses	9.60%

Note: NEBs include PV of periodic bulb replacement costs.
Cost-effectiveness ratios includes evaluation costs that were incurred in 2019. Without evaluation costs, UCT and TRC would have been 4.06 and 5.18 respectively.

Year: 2019

Program: Energy Efficient Lighting

Market Segment: Residential

Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
Decorative and Mini-Base	Retail_LED_Decorative and Mini-Base_250 to 1049 lumens	Baseline bulb	Fixture	Residential All-Lighting	13	13.62	\$6.78	\$5.62	\$2.11	\$1.00	\$0.064	3.62	4.39	1
General Purpose, Dimmable, and Three-Way	Retail_LED_General Purpose, Dimmable, and Three-Way_250 to 1049 lumens	Baseline bulb	Fixture	Residential All-Lighting	13	11.64	\$5.80	\$2.42	\$0.81	\$0.73	\$0.064	3.93	5.66	1
General Purpose, Dimmable, and Three-Way	Retail_LED_General Purpose, Dimmable, and Three-Way_1050 to 1489 lumens	Baseline bulb	Fixture	Residential All-Lighting	13	26.84	\$13.36	\$6.39	\$4.65	\$0.83	\$0.064	5.25	3.31	1
General Purpose, Dimmable, and Three-Way	Retail_LED_General Purpose, Dimmable, and Three-Way_1490 to 2600 lumens	Baseline bulb	Fixture	Residential All-Lighting	13	8.99	\$4.48	\$2.42	\$1.83	\$0.79	\$0.064	3.28	3.05	1
Globe	Retail_LED_Globe_250 to 1049 lumens	Baseline bulb	Fixture	Residential All-Lighting	13	14.00	\$6.97	\$4.74	\$2.15	\$0.50	\$0.064	4.99	4.07	1
Globe	Retail_LED_Globe_1050 to 1489 lumens	Baseline bulb	Fixture	Residential All-Lighting	13	31.56	\$15.72	\$11.46	\$2.97	\$0.50	\$0.064	6.24	5.76	1
Globe	Retail_LED_Globe_1490 to 2600 lumens	Baseline bulb	Fixture	Residential All-Lighting	13	12.49	\$6.22	\$6.06	\$4.69	\$0.50	\$0.064	4.79	2.35	1
Reflectors and Outdoor	Retail_LED_Reflectors and Outdoor_250 to 1049 lumens	Baseline bulb	Fixture	Residential All-Lighting	13	8.00	\$3.98	\$2.09	\$0.28	\$0.80	\$0.064	3.04	8.17	1
Reflectors and Outdoor	Retail_LED_Reflectors and Outdoor_1050 to 1489 lumens	Baseline bulb	Fixture	Residential All-Lighting	13	9.64	\$4.80	\$2.09	\$0.69	\$0.96	\$0.064	3.04	5.64	1
Reflectors and Outdoor	Retail_LED_Reflectors and Outdoor_1490 to 2600 lumens	Baseline bulb	Fixture	Residential All-Lighting	13	55.53	\$27.65	\$10.58	\$4.64	\$2.00	\$0.064	4.98	5.00	1
LED Fixture Retailer	LED Indoor Fixture	Baseline bulb	Fixture	Residential All-Lighting	20	17.33	\$11.78	\$29.42	\$19.49	\$0.66	\$0.064	6.66	2.06	2
LED Fixture Retailer	LED Outdoor Fixture	Baseline bulb	Fixture	IPC Outdoor Lighting	20	33.48	\$17.15	\$39.33	\$37.95	\$0.81	\$0.064	5.81	1.45	2

^a Average measure life.

^b Estimated kWh savings measured at the customer's meter, excluding line losses.

^c Sum of NPV of DSM alternate cost. Based on end-use load shape, measure life, savings including line losses, and alternate costs by pricing period as provided in the 2017 IRP. TRC test benefit calculation 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 2019 actuals.

^f UCT Ratio = (NPV DSM Alternate Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)

^g TRC Ratio = ((NPV DSM Alternate Costs * 110%) + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

¹ RTF_ResLighting_Bulbs_v6_1.xlsm. 2018.

² RTF_ResLighting_Bulbs_v6_1.xlsm. 2018. Weighted average of actual fixture sales.

Energy House Calls

Segment: Residential
2019 Program Results

Cost Inputs		Ref
Program Administration	\$ 161,894	
Program Incentives.....	–	I
Total UC	\$ 161,894	P
Measure Equipment and Installation (Incremental Participant Cost).....	\$ –	M

Net Benefit Inputs (NPV)		Ref
Resource Savings		
2019 Annual Gross Energy (kWh).....	309,154	
NPV Cumulative Energy (kWh).....	3,580,288	\$ 155,871 S
10% Credit (Northwest Power Act).....		15,587
Total Electric Savings	\$ 171,458	A
Participant Bill Savings		
NPV Cumulative Participant Bill Savings	\$ 302,583	B
Other Benefits		
Non-Utility Rebates/Incentives	\$ –	NUI
NEBs	\$ 38,200	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
UC Test	\$ 155,871	\$ 161,894	0.96
TRC Test	209,659	161,894	1.30
RIM Test	155,871	464,477	0.34
PCT	N/A	N/A	N/A

Benefits and Costs Included in Each Test			
UC Test.....	= S * NTG		= P
TRC Test.....	= (A + NUI + NEB) * NTG		= P
RIM Test	= S * NTG		= P + (B * NTG)
PCT	N/A		N/A

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.74%
Real ((1 + WACC) / (1 + Escalation)) – 1	4.54%
Escalation Rate	2.10%
Net-to-Gross (NTG)	100%
Minimum NTG Sensitivity	104%
Average Customer Segment Rate/kWh	\$0.085
Line Losses	9.60%

Notes: NEBs include PV of periodic bulb replacement costs for direct-install LED bulbs.
NEBs for showerheads and faucet aerators include the NPV of water and wastewater savings.
Cost-effectiveness ratios includes evaluation costs that were incurred in 2019. Without evaluation costs, UCT and TRC would have been 1.11 and 1.49, respectively.
No participant costs.

Year: 2019

Program: Energy House Calls

Market Segment: Residential

Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
PTCS Duct Sealing	Manufactured Home Prescriptive Duct Sealing - Electric FAF - Heating Zone 1	Pre-existing duct leakage	Home	Residential- Manufactured Home Idaho -Heating-All	18	972.81	\$494.25	\$238.34	-	-	\$0.524	0.97	1.53	1, 2
PTCS Duct Sealing	Manufactured Home Prescriptive Duct Sealing - Electric FAF - Heating Zone 2 or 3	Pre-existing duct leakage	Home	Residential- Manufactured Home Idaho -Heating-All	18	1,248.19	\$634.17	\$282.72	-	-	\$0.524	0.97	1.50	1, 2
PTCS Duct Sealing	Manufactured Home Prescriptive Duct Sealing - Heat Pump - Heating Zone 1	Pre-existing duct leakage	Home	Residential- Manufactured Home Idaho -Heating-All	18	615.06	\$312.49	\$234.61	-	-	\$0.524	0.97	1.79	1, 2
PTCS Duct Sealing	Manufactured Home Prescriptive Duct Sealing - Heat Pump - Heating Zone 2 or 3	Pre-existing duct leakage	Home	Residential- Manufactured Home Idaho -Heating-All	18	875.72	\$444.93	\$282.72	-	-	\$0.524	0.97	1.68	1, 2
General Purpose LED Direct Install	Direct install - LED_General Purpose, Dimmable, and Three-Way_250 to 1049 lumens (Average High Use and Moderate Use)	baseline bulb	Lamp	Residential-All- Lighting-All	12	30.11	\$14.01	\$4.05	-	-	\$0.524	0.89	1.23	2, 3
Low-flow faucet aerator	Direct install. Kitchen. Manufactured Home. Electric Resistance Hot Water.	non- low flow faucet aerator	Aerator	Residential-All-Water Heating-Water Heater	10	59.38	\$24.59	\$55.13	-	-	\$0.524	0.79	2.64	2, 4
Low-flow faucet aerator	Direct install. Bathroom. Manufactured Home. Electric Resistance Hot Water.	non- low flow faucet aerator	Aerator	Residential-All-Water Heating-Water Heater	10	39.92	\$16.53	\$44.59	-	-	\$0.524	0.79	3.00	2, 4
Low-flow showerheads	Residential Showerhead Replacement_2_00gpm_Any Shower_ Electric Water Heating_Direct Install	any showerhead 2.2 gpm or higher	Showerhead	Residential-All-Water Heating-Water Heater	10	176.44	\$73.08	\$85.76	-	-	\$0.524	0.79	1.80	2, 5
Low-flow showerheads	Residential Showerhead Replacement_1_75gpm_Any Shower_ Electric Water Heating_Direct Install	any showerhead 2.2 gpm or higher	Showerhead	Residential-All-Water Heating-Water Heater	10	232.42	\$96.26	\$145.58	-	-	\$0.524	0.79	2.06	2, 5
Water heater pipe covers	Up to 6 ft	No existing coverage	Pipe wrap	Residential-All-Water Heating-Water Heater	10	78.02	\$32.31	\$-	-	-	\$0.524	0.79	0.87	2, 6

^a Average measure life.

^b Estimated kWh savings measured at the customer's meter, excluding line losses.

^c Sum of NPV of DSM alternate cost. Based on end-use load shape, measure life, savings including line losses, and alternate costs by pricing period as provided in the 2017 IRP. TRC test benefit calculation includes 10% conservation adder from the Northwest Power Act.

^d No participant costs.

^e Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2019 actuals.

^f UCT Ratio = (NPV DSM Alternate Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)

^g TRC Ratio = ((NPV DSM Alternate Costs * 110%) + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

¹ RTF. ResMHHeatingCoolingPrescriptiveDuctSeal_v2_0.xlsm. 2015.

² Measure not cost-effective. Program and measures not cost-effective due to the inclusion of 2019 evaluation costs. Program is cost-effective without these costs.

³ RTF. ResLighting_Bulbs_v6_1.xlsm. 2018..

⁴ RTF. Aerators_v1_1.xlsm. 2018.

⁵ RTF. Showerheads_v3.1.xlsm. 2016.

⁶ AEG. Potential Study. 2018.

Heating & Cooling Efficiency Program

Segment: Residential
2019 Program Results

Cost Inputs		Ref
Program Administration	\$ 223,350	
Program Incentives.....	275,829	I
Total UC	\$ 499,179	P
Measure Equipment and Installation (Incremental Participant Cost).....	\$ 1,288,832	M

Net Benefit Inputs (NPV)		Ref
Resource Savings		
2019 Annual Gross Energy (kWh).....	1,412,343	
NPV Cumulative Energy (kWh).....	15,755,403	\$ 779,665 S
10% Credit (Northwest Power Act).....	77,967	
Total Electric Savings	\$ 857,632	A
Participant Bill Savings		
NPV Cumulative Participant Bill Savings	\$ 1,321,701	B
Other Benefits		
Non-Utility Rebates/Incentives	\$ -	NUI
NEBs	\$ 304,990	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
UC Test	\$ 779,665	\$ 499,179	1.56
TRC Test	1,162,622	1,512,183	0.77
RIM Test.....	779,665	1,820,880	0.43
PCT	1,902,520	1,288,832	1.48

Benefits and Costs Included in Each Test			
UC Test.....	= S * NTG		= P
TRC Test.....	= (A + NUI + NEB) * NTG		= P + ((M-I) * NTG)
RIM Test	= S * NTG		= P + (B * NTG)
PCT	= B + I + NUI + NEB		= M

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.74%
Real ((1 + WACC) / (1 + Escalation)) - 1	4.54%
Escalation Rate	2.10%
Net-to-Gross (NTG)	100%
Minimum NTG Sensitivity	322%
Average Customer Segment Rate/kWh	\$0.085
Line Losses	9.60%

Note: NEBs include NPV of RTF values for annual operation and maintenance (O&M) savings and monetized comfort savings.
Program has a TRC cost-effectiveness exception approved under OPUC Advice No. 17-09.

Year: 2019

Program: Heating & Cooling Efficiency Program Market Segment: Residential

Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
Heat Pump Conversion	Existing Single Family and Manufactured Home HVAC Conversion to Heat Pump with Commissioning and Sizing (Heating & Cooling Zone Weighted Average)	Conversion to high efficiency heat pump	Unit	Residential-All-Heating-Air-Source Heat Pump	15	6,440.05	\$3,491.29	\$1,247.41	\$3,917.03	\$800.00	\$0.158	1.92	1.03	1, 2, 3, 4
Heat Pump Upgrade	Existing Single Family and Manufactured Home HVAC Heat Pump Upgrade (Heating & Cooling Zone Weighted Average)	Heat pump to heat pump upgrade	Unit	Residential-All-Heating-Air-Source Heat Pump	15	684.80	\$371.24	\$18.59	\$167.80	\$250.00	\$0.158	1.04	1.55	1, 2, 3, 4
Heat Pump Upgrade	New Construction Single Family and Manufactured Home HVAC Heat Pump Upgrade (Heating & Cooling Zone Weighted Average)	Heat pump to heat pump upgrade	Unit	Residential-All-Heating-Air-Source Heat Pump	15	712.75	\$386.40	\$17.88	\$168.62	\$250.00	\$0.158	1.07	1.57	1, 2, 3, 4
Open-Loop Heat Pump	Open loop water source heat pump for new construction - 14.00 EER 3.5 COP (Heating & Cooling Zone Weighted Average)	Electric resistance/ Oil Propane	Unit	Residential-All-Heating-Air-Source Heat Pump	20	8,134.44	\$5,377.41	-	\$9,995.12	\$1,000.00	\$0.158	2.35	0.52	5, 6
Open-Loop Heat Pump	Open loop water source heat pump - heat pump to open loop (Heating & Cooling Zone Weighted Average)	Electric resistance/ Oil Propane	Unit	Residential-All-Heating-Air-Source Heat Pump	20	7,811.00	\$5,163.60	-	\$6,669.73	\$1,000.00	\$0.158	2.31	0.72	5, 6
Ductless Heat Pump	Zonal to DHP. (Heating & Cooling Zone Weighted Average)	Zonal Electric	Unit	Residential-All-Heating-Air-Source Heat Pump	15	2,212.07	\$1,199.21	\$1,090.94	\$3,935.00	\$750.00	\$0.158	1.09	0.56	1, 5
Heat Pump Water Heater	Weighted average of tier 2 and tier 3, heating and cooling zone, and indoor, basement, garage install location.	Electric water heater	Unit	Residential-All-Water Heating-Heat Pump Water Heater	13	1,330.08	\$637.04	\$(40.81)	\$725.83	\$300.00	\$0.158	1.25	0.71	7
Evaporative Cooler	Evaporative Cooler	Central Air Conditioning	Unit	Residential-Single Family Idaho-Cooling-All	12	406.62	\$536.43	-	\$246.28	\$150.00	\$0.158	2.50	1.90	8
Prescriptive Duct Sealing	Duct Tightness - PTCS Duct Sealing - Average Heating System. Weighted average of Heating Zones 1-3.	Pre-existing duct leakage	Unit	Residential-Single Family Idaho -Heating-All	20	936.40	\$531.93	-	\$679.11	\$350.00	\$0.158	1.07	0.71	9
Electronically Commutated Motor (ECM) Blower Motor	ECM Blower Motor	permanent split capacitor (PSC) motor	Unit	IPC_ECM	18	2,683.11	\$1,607.88	-	\$300.00	\$50.00	\$0.158	3.39	2.44	10

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
Whole-House Fan	Whole-House Fan	Displaced forced air dx cooling	Unit	Residential-Single Family Idaho-Cooling-All	18	445.60	\$767.30	–	\$700.00	\$200.00	\$0.158	2.84	1.10	10
Smart Thermostat	Smart Thermostat	non wi-fi enabled thermostat/no thermostat	Unit	Residential-Single Family Idaho -Heating-All	5	649.88	\$111.47	–	\$315.53	\$75.00	\$0.158	0.63	0.29	11, 12

^a Average measure life.

^b Estimated kWh savings measured at the customer’s meter, excluding line losses.

^c Sum of NPV of DSM alternate cost. Based on end-use load shape, measure life, savings including line losses, and alternate costs by pricing period as provided in the 2017 IRP. TRC test benefit calculation 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 2019 actuals.

^f UCT Ratio = (NPV DSM Alternate Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)

^g TRC Ratio = ((NPV DSM Alternate Costs * 110%) + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

¹ RTF. ResSFExistingHVAC_v4_1.xlsx. Weighted average of 2019 participants in heating and cooling zones 1-3.

² RTF. ResHeatingCoolingCommissioningControlsSizingSF_v3_6.xlsm. Weighted average of 2019 participants in heating and cooling zones 1-3.

³ RTF. ResMHExistingHVAC_v3_4.xlsx. Weighted average of 2019 participants in heating and cooling zones 1-3.

⁴ RTF. ResMHHeatingCoolingCommissioningControlsSizing_v3_4.xlsx. Weighted average of 2019 participants in heating and cooling zones 1-3.

⁵ Measure not cost-effective.

⁶ RTF. ResGSHP_v2_6. 2016. Weighted average of 2019 participants in heating and cooling zones 1-3.

⁷ RTF. ResHPWH_v3_v.xlsm.2017. Measure cost-effective without inclusion of admin costs.

⁸ AEG. Potential Study. 2016.

⁹ RTF. ResSFDuctSealing_v5_1.xlsm. 2019. Measure would be cost-effective without inclusion of admin costs.

¹⁰ Idaho Power engineering calculations based on Integrated Design Lab inputs. 2015.

¹¹ RTF. ResConnectedTstats_v1.1.xlsm.

¹² Measure not cost-effective. Measure is being piloted and will be monitored in 2020.

Multifamily Energy Savings Program

Segment: Residential
2019 Program Results

Cost Inputs		Ref
Program Administration	\$ 131,306	
Program Incentives.....	–	I
Total UC	\$ 131,306	P
Measure Equipment and Installation (Incremental Participant Cost).....	\$ –	M

Net Benefit Inputs (NPV)		Ref
Resource Savings		
2019 Annual Gross Energy (kWh).....	346,107	
NPV Cumulative Energy (kWh).....	3,165,466	\$ 151,098 S
10% Credit (Northwest Power Act).....	15,110	
Total Electric Savings	\$ 166,207	A
Participant Bill Savings		
NPV Cumulative Participant Bill Savings	\$ 257,402	B
Other Benefits		
Non-Utility Rebates/Incentives	\$ –	NUI
NEBs	\$ 141,293	NEB

Notes: NEBs include PV of periodic bulb replacement costs for direct-install LED lightbulbs.
NEBS for showerheads and faucet aerators include the NPV of water and waste water savings.
No participant costs.

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
UC Test	\$ 151,098	\$ 131,306	1.15
TRC Test	307,501	131,306	2.34
RIM Test.....	151,098	388,708	0.39
PCT	N/A	N/A	N/A

Benefits and Costs Included in Each Test			
UC Test.....	= S * NTG		= P
TRC Test.....	= (A + NUI + NEB) * NTG		= P
RIM Test	= S * NTG		= P + (B * NTG)
PCT	N/A		N/A

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.74%
Real ((1 + WACC) / (1 + Escalation)) – 1	4.54%
Escalation Rate	2.10%
Net-to-Gross (NTG)	100%
Minimum NTG Sensitivity	87%
Average Customer Segment Rate/kWh	\$0.085
Line Losses	9.60%

Year: 2019

Program: Multifamily Energy Savings Program

Market Segment: Residential

Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
General Purpose LED Direct Install	Efficient Technology: LED Lamp Type: General Purpose and Dimmable Lumen Category: 250 to 1049 lumens Space Type: Average of Moderate and High-Use Interior	Baseline bulb	Lamp	Residential-All-Lighting-All	12	30.11	\$14.01	\$4.05	-	-	\$0.379	1.23	1.71	1
General Purpose LED Direct Install	Efficient Technology: LED Lamp Type: General Purpose and Dimmable Lumen Category: 250 to 1049 lumens Space Type: Exterior	Baseline bulb	Lamp	IPC_ Outdoor Lighting	12	42.16	\$14.44	\$6.43	-	-	\$0.379	0.90	1.40	1, 2
General Purpose LED Direct Install	Efficient Technology: LED Lamp Type: General Purpose and Dimmable Lumen Category: 1490 to 2600 lumens Space Type: Exterior	Baseline bulb	Lamp	IPC_ Outdoor Lighting	12	53.56	\$18.34	\$9.86	-	-	\$0.379	0.90	1.48	1, 2
Reflector LED Direct Install	Efficient Technology: LED Lamp Type: Reflectors and Outdoor Lumen Category: 250 to 1049 lumens Space Type: Exterior	Baseline bulb	Lamp	IPC_ Outdoor Lighting	12	51.96	\$24.18	\$9.34	-	-	\$0.379	1.23	1.83	1
Globe LED Direct Install	Efficient Technology: LED Lamp Type: Globe Lumen Category: 250 to 1049 lumens Space Type: Moderate Use Interior	Baseline bulb	Lamp	Residential-All-Lighting-All	12	16.79	\$7.81	\$5.29	-	-	\$0.379	1.23	2.18	1
Decorative LED Direct Install	Efficient Technology: LED Lamp Type: Decorative or Minibase Lumen Category: 250 to 1049 lumens Space Type: Average of Moderate and High Use Interior	Baseline bulb	Lamp	Residential-All-Lighting-All	12	23.42	\$10.90	\$6.43	-	-	\$0.379	1.23	2.08	1
Low-flow faucet aerator	Direct install. Kitchen. Multifamily Home. Electric Resistance Hot Water.	non- low flow faucet aerator	Aerator	Residential-All-Water Heating-Water Heater	10	43.94	\$18.20	\$40.81	-	-	\$0.379	1.09	3.65	3
Low-flow faucet aerator	Direct install. Bathroom. Multifamily Home. Electric Resistance Hot Water.	non- low flow faucet aerator	Aerator	Residential-All-Water Heating-Water Heater	10	47.54	\$19.69	\$53.06	-	-	\$0.379	1.09	4.15	3

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
Low-flow showerheads and thermostatic shower valve combination unit	Residential_Direct install_Valve and 1.75 gpm showerhead_Electric resistance DHW	Any showerhead 2.2 gpm or higher	Showerhead	Residential-All-Water Heating-Water Heater	10	254.87	\$105.56	\$178.37	-	-	\$0.379	1.09	3.05	4
Water heater pipe covers	up to 6 feet	No existing coverage	Pipe wrap	Residential-All-Water Heating-Water Heater	10	78.02	\$32.31	-	-	-	\$0.379	1.09	1.20	5

^a Average measure life.

^b Estimated kWh savings measured at the customer's meter, excluding line losses.

^c Sum of NPV of DSM alternate cost. Based on end-use load shape, measure life, savings including line losses, and alternate costs by pricing period as provided in the 2017 IRP. TRC test benefit calculation includes 10% conservation adder from the Northwest Power Act.

^d No participant costs.

^e Average program administration and overhead costs to achieve each kWh of savings. Calculated from 2019 actuals.

^f UCT Ratio = (NPV DSM Alternate Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)

^g TRC Ratio = ((NPV DSM Alternate Costs * 110%) + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

¹ RTF. ResLighting_Bulbs_v6_1.xlsm. 2018.

² Not cost-effective due to the application of admin costs.

³ RTF.Aerators_v1_1.xlsm. 2018

⁴ RTF. ResThermostaicShowerRestrictionValve_v2_1.xlsm. 2018.

⁵ AEG. Potential Study. 2018..

Rebate Advantage

Segment: Residential
2019 Program Results

Cost Inputs			Ref
Program Administration	\$	47,748	
Program Incentives.....		109,000	I
Total UC	\$	156,748	P
Measure Equipment and Installation (Incremental Participant Cost).....	\$	308,148	M

Net Benefit Inputs (NPV)			Ref
Resource Savings			
2019 Annual Gross Energy (kWh).....	353,615		
NPV Cumulative Energy (kWh).....	5,968,832	\$ 285,561	S
10% Credit (Northwest Power Act).....		28,556	
Total Electric Savings		\$ 314,117	A
Participant Bill Savings			
NPV Cumulative Participant Bill Savings		\$ 583,873	B
Other Benefits			
Non-Utility Rebates/Incentives		\$ -	NUI
NEBs		\$ 91,798	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
UC Test	\$ 285,561	\$ 156,748	1.82
TRC Test	405,915	355,897	1.14
RIM Test.....	285,561	740,621	0.39
PCT	784,671	308,148	2.55

Benefits and Costs Included in Each Test			
UC Test.....	= S * NTG		= P
TRC Test.....	= (A + NUI + NEB) * NTG		= P + ((M-I) * NTG)
RIM Test	= S * NTG		= P + (B * NTG)
PCT	= B + I + NUI + NEB		= M

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.74%
Real ((1 + WACC) / (1 + Escalation)) - 1	4.54%
Escalation Rate	2.10%
Net-to-Gross (NTG)	100%
Minimum NTG Sensitivity	75%
Average Customer Segment Rate/kWh	\$0.085
Line Losses	9.60%

Year: 2019

Program: Rebate Advantage

Market Segment: Residential

Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
ENERGY STAR [®] manufactured home	Estar_electric_Heating Zone (HZ) 1_Cooling Zone (CZ) 3	Manufactured home built to Housing and Urban Development (HUD) code.	Home	Residential-Manufactured Home Idaho -Heating-All	44	2,304.76	\$1,861.06	\$367.28	\$2,679.21	\$1,000.00	\$0.135	1.42	0.81	1,2
ENERGY STAR manufactured home	Estar_electric_HZ2_CZ2	Manufactured home built to HUD code.	Home	Residential-Manufactured Home Idaho -Heating-All	45	3,312.82	\$2,694.72	\$1,103.44	\$2,679.21	\$1,000.00	\$0.135	1.86	1.30	1
ENERGY STAR manufactured home	Estar_electric_HZ2_CZ3	Manufactured home built to HUD code.	Home	Residential-Manufactured Home Idaho -Heating-All	45	3,314.53	\$2,696.11	\$1,103.44	\$2,679.21	\$1,000.00	\$0.135	1.86	1.30	1
ENERGY STAR manufactured home	Estar_electric_HZ3_CZ1	Manufactured home built to HUD code.	Home	Residential-Manufactured Home Idaho -Heating-All	45	4,142.05	\$3,369.23	\$1,383.69	\$2,679.21	\$1,000.00	\$0.135	2.16	1.57	1
EcoRated manufactured home	EcoRated_electric_HZ1_CZ3	Manufactured home built to HUD code.	Home	Residential-Manufactured Home Idaho -Heating-All	42	2,521.36	\$2,003.92	\$366.75	\$2,948.20	\$1,000.00	\$0.135	1.50	0.78	1, 2
EcoRated manufactured home	EcoRated_electric_HZ2_CZ2	Manufactured home built to HUD code.	Home	Residential-Manufactured Home Idaho -Heating-All	43	3,572.70	\$2,862.71	\$1,112.63	\$2,948.20	\$1,000.00	\$0.135	1.93	1.24	1
Northwest Energy Efficient Manufactured (NEEM) home	NEEM_electric_HZ1_CZ3	Manufactured home built to HUD code.	Home	Residential-Manufactured Home Idaho -Heating-All	41	2,981.20	\$2,349.14	\$419.05	\$4,453.39	\$1,000.00	\$0.135	1.68	0.62	1, 2
NEEM home	NEEM_electric_HZ2_CZ1	Manufactured home built to HUD code.	Home	Residential-Manufactured Home Idaho -Heating-All	42	4,170.99	\$3,315.01	\$1,264.94	\$4,453.39	\$1,000.00	\$0.135	2.12	0.98	1, 2, 3
NEEM home	NEEM_electric_HZ2_CZ2	Manufactured home built to HUD code.	Home	Residential-Manufactured Home Idaho -Heating-All	42	4,172.51	\$3,316.22	\$1,264.94	\$4,453.39	\$1,000.00	\$0.135	2.12	0.98	1, 2, 3
NEEM home	NEEM_electric_HZ2_CZ3	Manufactured home built to HUD code.	Home	Residential-Manufactured Home Idaho -Heating-All	42	4,174.68	\$3,317.94	\$1,264.94	\$4,453.39	\$1,000.00	\$0.135	2.12	0.98	1, 2, 3
NEEM home	NEEM_electric_HZ3_CZ1	Manufactured home built to HUD code.	Home	Residential-Manufactured Home Idaho -Heating-All	43	5,155.10	\$4,130.64	\$1,602.52	\$4,453.39	\$1,000.00	\$0.135	2.44	1.19	1

^a Average measure life.

^b Estimated kWh savings measured at the customer's meter, excluding line losses.

^c Sum of NPV of DSM alternate cost. Based on end-use load shape, measure life, savings including line losses, and alternate costs by pricing period as provided in the 2017 IRP. TRC test benefit 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 2019 actuals.

^f UCT Ratio = (NPV DSM Alternate Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)

^g TRC Ratio = ((NPV DSM Alternate Costs * 110%) + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

¹ RTF. NewMHNewHomesandHVAC_v3_4.xlsm. 2017.

² Measure not cost-effective from TRC perspective.

³ Measure cost-effective without inclusion of admin costs.

Residential New Construction Pilot Program

Segment: Residential
2019 Program Results

Cost Inputs		Ref
Program Administration	\$ 103,118	
Program Incentives.....	431,000	I
Total UC	\$ 534,118	P
Measure Equipment and Installation (Incremental Participant Cost).....	\$ 1,308,273	M

Net Benefit Inputs (NPV)		Ref
Resource Savings		
2019 Annual Gross Energy (kWh).....	774,597	
NPV Cumulative Energy (kWh).....	13,452,789	\$ 841,991 S
10% Credit (Northwest Power Act).....	84,199	
Total Electric Savings	\$ 926,190	A
Participant Bill Savings		
NPV Cumulative Participant Savings	\$ 1,354,615	B
Other Benefits		
Non-Utility Rebates/Incentives	\$ -	NUI
NEBs	\$ 246,514	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
UC Test	\$ 841,991	\$ 534,118	1.58
TRC Test	1,172,704	1,411,391	0.83
RIM Test	841,991	1,888,733	0.45
PCT	2,032,129	1,308,273	1.55

Benefits and Costs Included in Each Test			
UC Test.....	= S * NTG	= P	
TRC Test.....	= (A + NUI + NEB) * NTG	= P + ((M-I) * NTG)	
RIM Test	= S * NTG	= P + (B * NTG)	
PCT	= B + I + NUI + NEB	= M	

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.74%
Real ((1 + WACC) / (1 + Escalation)) - 1	4.54%
Escalation Rate	2.10%
Net-to-Gross (NTG).....	100%
Minimum NTG Sensitivity	178%
Average Customer Segment Rate/kWh	\$0.085
Line Losses	9.60%

Notes: 2012 International Energy Conservation Code (IECC) with amendments adopted in Idaho in 2014.
Cost-effectiveness ratios includes evaluation costs that were incurred in 2019. Without evaluation costs, UCT and TRC would have been 1.66 and 0.85, respectively.

Year: 2019 Program: Residential New Construction Pilot Program Market Segment: Residential Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
ENERGY STAR home	Multifamily Central Electric Heating Zone 1 Cooling Zone 3	Multi-family home built to International Energy Conservation Code 2012 Code. Adopted 2014.	Home	Prog_Energy Star Homes NW	45	2,440.00	\$2,531.90	\$158.91	\$2,243.67	\$1,000.00	\$0.133	1.91	1.15	1
Next Step Home	Next Step Home - average per home savings.	Home built to International Energy Conservation Code 2012 Code. Adopted 2014.	Home	Residential-All-Heating-Air-Source Heat Pump	58	2,389.16	\$2,634.18	\$1,088.06	\$4,605.43	\$1,500.00	\$0.133	1.45	0.81	2

^a Average measure life.

^b Estimated kWh savings measured at the customer's meter, excluding line losses.

^c Sum of NPV of DSM alternate cost. Based on end-use load shape, measure life, savings including line losses, and alternate costs by pricing period as provided in the 2017 IRP. TRC test benefit calculation 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 2019 actuals.

^f UCT Ratio = (NPV DSM Alternate Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)

^g TRC Ratio = ((NPV DSM Alternate Costs * 110%) + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

¹ RTF. ResNewConstructionNEEAMFHomesIDMTv1.4.xlsm. 2017.

² NEEA circuit rider code enforcement initiative. 2019 average per home savings. Costs and NEBs from RTF. ResNCMTHouse_ID_v_3_1.xlsm. 2020.

Shade Tree Project

Segment: Residential
2019 Program Results

Cost Inputs		Ref
Program Administration	\$ 147,750	
Program Incentives.....	–	I
Total UC	\$ 147,750	P
Measure Equipment and Installation (Incremental Participant Cost).....	\$ –	M

Net Benefit Inputs (NPV)		Ref
Resource Savings		
2019 Annual Gross Energy (kWh) from 2013 to 2015 plantings.....	35,727	
Cumulative Energy (kWh) from 2019 plantings.....	2,741,157	
NPV Cumulative Energy (kWh).....	849,433	\$ 129,715 S
10% Credit (Northwest Power Act).....		12,971
Total Electric Savings	\$ 142,686	A
Participant Bill Savings		
NPV Cumulative Participant Savings.....	\$ 129,410	B
Other Benefits		
Non-Energy Impacts—Therms.....	\$ (17,506)	NUI
NEBs.....	\$ 16,254	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
UC Test	\$ 160,846	\$ 147,750	1.09
TRC Test	171,478.0	147,750	1.16
RIM Test	160,846	308,218	0.52
PCT	N/A	N/A	N/A

Benefits and Costs Included in Each Test		
UC Test.....	= S * NTG	= P
TRC Test.....	= (A + NUI * NTG)+ NEB	= P
RIM Test	= S * NTG	= P + (B * NTG)
PCT	N/A	N/A

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.74%
Real ((1 + WACC) / (1 + Escalation)) – 1	4.54%
Escalation Rate	2.10%
Net-to-Gross (NTG).....	124%
Minimum NTG Sensitivity	114%
Average Customer Segment Rate/kWh	\$0.085
Line Losses	9.60%

Notes: Annual Report shows incremental savings from the 2013 to 2015 planting years. Cost-effectiveness based on the trees distributed in 2019 to coincide with the 2019 financials.
Net-to-gross factor of 24% applied to energy savings and therm impacts to account for trees shading neighboring homes per evaluator’s recommendation.
Non-energy impacts include costs associated with increased home heating energy. Other NEBs associated with air quality, stormwater runoff, and carbon dioxide.

Simple Steps, Smart Savings™

Segment: Residential
2019 Program Results

Cost Inputs		Ref
Program Administration	\$ 52,626	
Program Incentives.....	37,873	I
Total UC	\$ 90,499	P
Measure Equipment and Installation (Incremental Participant Cost).....	\$ 70,915	M

Net Benefit Inputs (NPV)		Ref
Resource Savings		
2019 Annual Gross Energy (kWh).....	271,452	
NPV Cumulative Energy (kWh).....	2,482,699	\$ 126,595 S
10% Credit (Northwest Power Act).....	12,659	
Total Electric Savings	\$ 139,254	A
Participant Bill Savings		
NPV Cumulative Participant Bill Savings	\$ 201,880	B
Other Benefits		
Non-Utility Rebates/Incentives	\$ -	NUI
NEBs	\$ 547,455	NEB

Note: NEBs include the NPV of water savings from low-flow showerheads and clothes washers.

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
UC Test	\$ 126,595	\$ 90,499	1.40
TRC Test	686,710	123,541	5.56
RIM Test.....	126,595	292,379	0.43
PCT	787,208	70,915	11.10

Benefits and Costs Included in Each Test			
UC Test.....	= S * NTG		= P
TRC Test.....	= (A + NUI + NEB) * NTG		= P + ((M-I) * NTG)
RIM Test	= S * NTG		= P + (B * NTG)
PCT	= B + I + NUI + NEB		= M

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.74%
Real ((1 + WACC) / (1 + Escalation)) - 1	4.54%
Escalation Rate	2.10%
Net-to-Gross (NTG)	100%
Minimum NTG Sensitivity	72%
Average Customer Segment Rate/kWh	\$0.085
Line Losses	9.60%

Year: 2019

Program: Simple Steps, Smart Savings

Market Segment: Residential

Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
Clothes Washer	ENERGY STAR® clothes washer—Any	Baseline clothes washers	Clothes washer	Residential-All-Appliances-Clothes Washer	14	101.12	\$61.93	\$199.49	\$98.41	\$25.00	\$0.194	1.39	2.27	1, 2
Low-Flow Showerhead	Low-flow showerhead 2.0 gpm Any shower any water Heating Retail	Showerhead 2.2 gpm or higher	Showerhead	Residential-All-Water Heating-Water Heater	10	15.11	\$6.26	\$30.84	–	\$2.00	\$0.194	1.27	7.65	3
Low-Flow Showerhead	Low-flow showerhead 1.75 gpm Any shower any water Heating Retail	Showerhead 2.2 gpm or higher	Showerhead	Residential-All-Water Heating-Water Heater	10	41.27	\$17.09	\$86.82	–	\$6.00	\$0.194	1.22	7.54	3
Low-Flow Showerhead	Low-flow showerhead 1.5 gpm Any shower any water Heating Retail	Showerhead 2.2 gpm or higher	Showerhead	Residential-All-Water Heating-Water Heater	10	63.46	\$26.28	\$133.64	–	\$6.00	\$0.194	1.44	8.88	3

^a Average measure life.

^b Estimated kWh savings measured at the customer’s meter, excluding line losses.

^c Sum of NPV of DSM alternate cost. Based on end-use load shape, measure life, savings including line losses, and alternate costs by pricing period as provided in the 2017 IRP. TRC test benefit calculation 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 2019 actuals.

^f UCT Ratio = (NPV DSM Alternate Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)

^g TRC Ratio = ((NPV DSM Alternate Costs * 110%) + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

¹ BPA. UES_Measures_List.xlsx. 2018.

² NEBs from RTF. ResClothesWashers_v6_1.xlsm. 2016. Adjusted savings by changing Electric Water Heating saturation from 61% to 49% to match Idaho Power mix.

³ RTF. Showerheads_v3.1.xlsm. 2016. Adjusted savings by changing Electric Water Heating saturation from 60% to 49% to match Idaho Power mix.

Weatherization Assistance for Qualified Customers

Segment: Residential
2019 Program Results

Cost Inputs		Ref
Program Administration	\$ 192,478	
Community Action Partnership (CAP) Agency Payments.....	1,111,249	
Total Program Expenses/Total UC	\$ 1,303,727	P
Idaho Power Indirect Overhead Expense Allocation—2.459%.....	\$ 32,059	OH
Additional State Funding	649,763	M
Net Benefit Inputs (NPV)		Ref
Resource Savings		
2019 Annual Gross Energy (kWh).....	649,299	
NPV Cumulative Energy (kWh).....	9,974,715	\$ 464,856 S
10% Credit (Northwest Power Act).....		46,486
Total Electric Savings	\$ 511,342	A
Participant Bill Savings		
NPV Cumulative Participant Bill Savings	\$ 919,600	B
Other Benefits		
Non-Utility Rebates/Incentives	\$ -	NUI
NEBs		
Health and Safety	\$ 186,936	
Repair	12,202	
Other	137,556	
NEBs Total	\$ 336,694	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
UC Test	\$ 464,856	\$ 1,335,785	0.35
TRC Test	848,036	1,985,548	0.43
RIM Test.....	464,856	2,255,385	0.21
PCT	N/A	N/A	N/A

Benefits and Costs Included in Each Test			
UC Test.....	= S * NTG		= P + OH
TRC Test.....	= (A + NUI + NEB) * NTG		= P + OH + M
RIM Test	= S * NTG		= P + OH + (B * NTG)
PCT	N/A		N/A

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.74%
Real ((1 + WACC) / (1 + Escalation)) - 1	4.54%
Escalation Rate	2.10%
Net-to-Gross (NTG).....	100%
Minimum NTG Sensitivity	286%
Average Customer Segment Rate/kWh	\$0.085
Line Losses	9.60%

Notes: Savings updated in 2016 and based on a billing analysis of the 2013-2014 weatherization projects. 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 DOE state weatherization assistance program. Program has a cost-effectiveness exception approved under OPUC Order No. 15-200.

Weatherization Solutions for Eligible Customers

Segment: Residential
2019 Program Results

Cost Inputs		Ref
Program Administration	\$ 133,760	
Weatherization LLC Payments	823,867	
Total Program Expenses/Total UC	\$ 957,626	P
Idaho Power Indirect Overhead Expense Allocation—2.459%.....	\$ 23,548	OH
Additional State Funding	–	M
Net Benefit Inputs (NPV)		Ref
Resource Savings		
2019 Annual Gross Energy (kWh).....	504,988	
NPV Cumulative Energy (kWh).....	7,017,178	\$ 293,932 S
10% Credit (Northwest Power Act).....	29,393	
Total Electric Savings	\$ 323,325	A
Participant Bill Savings		
NPV Cumulative Participant Bill Savings	\$ 621,782	B
Other Benefits		
Non-Utility Rebates/Incentives	\$ –	NUI
NEBs		
Health and Safety	50,227	
Repair	5,086	
Other	40,002	
NEBs Total	\$ 95,315	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
UC Test	\$ 293,932	\$ 981,174	0.30
TRC Test	418,640	981,174	0.43
RIM Test.....	293,932	1,602,956	0.18
PCT	N/A	N/A	N/A

Benefits and Costs Included in Each Test			
UC Test.....	= S * NTG	= P + OH	
TRC Test.....	= (A + NUI + NEB) * NTG	= P + OH + M	
RIM Test	= S * NTG	= P + OH + (B * NTG)	
PCT	N/A	N/A	

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.74%
Real ((1 + WACC) / (1 + Escalation)) – 1	4.54%
Escalation Rate	2.10%
Net-to-Gross (NTG).....	100%
Minimum NTG Sensitivity	333%
Average Customer Segment Rate/kWh	\$0.085
Line Losses	9.60%

Notes: Savings updated in 2016 and based on a billing analysis of the 2013–2014 weatherization projects. 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.

Commercial Energy-Saving Kits

Segment: Commercial
2019 Program Results

Cost Inputs			Ref
Program Administration	\$	161,945	
Program Incentives.....		–	I
Total UC	\$	161,945	P
Measure Equipment and Installation (Incremental Participant Cost).....	\$	–	M

Net Benefit Inputs (NPV)				Ref
Resource Savings				
2019 Annual Gross Energy (kWh).....		569,594		
NPV Cumulative Energy (kWh).....	4,873,583	\$	253,848	S
10% Credit (Northwest Power Act).....			25,385	
Total Electric Savings		\$	279,233	A
Participant Bill Savings				
NPV Cumulative Participant Bill Savings		\$	262,986	B
Other Benefits				
Non-Utility Rebates/Incentives		\$	–	NUI
NEBs		\$	128,947	NEB

Summary of Cost-Effectiveness Results				
Test		Benefit	Cost	Ratio
UC Test	\$	253,848	\$ 161,945	1.57
TRC Test		408,179	161,945	2.52
RIM Test.....		253,848	424,930	0.60
PCT		N/A	N/A	N/A

Benefits and Costs Included in Each Test			
UC Test.....	= S * NTG		= P
TRC Test.....	= (A + NUI + NEB) * NTG		= P
RIM Test	= S * NTG		= P + (B * NTG)
PCT		N/A	N/A

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.74%
Real ((1 + WACC) / (1 + Escalation)) – 1	4.54%
Escalation Rate	2.10%
Net-to-Gross (NTG)	100%
Minimum NTG Sensitivity	64%
Average Customer Segment Rate/kWh	\$0.057
Line Losses	9.60%

Notes: NEBs include PV of periodic bulb replacement costs for direct-install LED bulbs and water, waste water, and therm savings from water-saving devices.

Year: 2019

Program: Commercial Energy-Saving Kits

Market Segment: Commercial

Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
Restaurant Commercial Kit	3-9W LEDs, 2-bathroom aerators, 2-kitchen aerators, 2-exit sign retrofit, 1-pre-rinse spray valve.		kit	IPC_Commercial Kit Restaurant	8	539.15	\$205.84	\$329.93	-	-	\$0.284	1.34	3.63	1
Retail Commercial Kit	2-9W LEDs, 2-8W LED BR30s, 1-bathroom aerator, 2-exit sign retrofit		kit	IPC_Commercial Kit Retail	11	240.56	\$122.71	\$6.89	-	-	\$0.284	1.80	2.08	1
Office Commercial Kit	2-9W LEDs, 2-bathroom aerators, 1-kitchen aerator, 2-exit sign retrofit, 1-advance power strip		kit	IPC_Commercial Kit Office	11	174.04	\$82.33	\$8.62	-	-	\$0.284	1.67	2.01	1

^a Average measure life.

^b Estimated kWh savings measured at the customer's meter, excluding line losses.

^c Sum of NPV of DSM Alternate cost. Based on end-use load shape, measure life, savings including line losses, and alternate costs by pricing period as provided in the 2017 IRP. TRC test benefit calculation 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 2019 actuals.

^f UCT Ratio = (NPV DSM Alternate Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)

^g TRC Ratio = ((NPV DSM Alternate Costs * 110%) + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

^h Idaho Power analysis based on average hours of use by building type. Assume 40% of kits distributed to businesses with electric water heat.

Custom Projects

Segment: Industrial
2019 Program Results

Cost Inputs		Ref
Program Administration	\$ 2,690,431	
Program Incentives.....	9,189,442	I
Total UC	\$ 11,879,873	P
Measure Equipment and Installation (Incremental Participant Cost).....	\$ 21,899,746	M

Net Benefit Inputs (NPV)		Ref
Resource Savings		
2019 Annual Gross Energy (kWh).....	70,433,920	
NPV Cumulative Energy (kWh).....	785,739,916	\$ 43,017,578 S
10% Credit (Northwest Power Act).....	4,301,758	
Total Electric Savings	\$ 47,319,336	A
Participant Bill Savings		
NPV Cumulative Participant Savings.....	\$ 28,599,081	B
Other Benefits		
Non-Utility Rebates/Incentives	\$ -	NUI
NEBs	\$ -	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
UC Test	\$ 43,017,578	\$ 11,879,873	3.62
TRC Test	47,319,336	24,590,176	1.92
RIM Test.....	43,017,578	40,478,953	1.06
PCT	37,788,523	21,899,746	1.73

Benefits and Costs Included in Each Test			
UC Test.....	= S * NTG		= P
TRC Test.....	= (A + NUI + NEB) * NTG		= P + ((M-I) * NTG)
RIM Test	= S * NTG		= P + (B * NTG)
PCT	= B + I + NUI + NEB		= M

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.74%
Real ((1 + WACC) / (1 + Escalation)) - 1	4.54%
Escalation Rate	2.10%
Net-to-Gross (NTG)	100%
Minimum NTG Sensitivity	35%
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 Projects, but the savings are not included in the program cost-effectiveness.
 Green Rewind savings are included in the sector cost-effectiveness.
 Cost-effectiveness ratios includes evaluation costs that were incurred in 2019. Without evaluation costs, UCT and TRC would have been 3.63 and 1.93, respectively.

Year: 2019

Program: Custom Projects—Green Motors

Market Segment: Industrial

Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
Green Motors Program Rewind: Motor size 15 HP	Green Motors Program Rewind: Motor size 15 HP	Standard rewind practice	Motor	MF_Motors	7	525.20	\$176.42	–	\$139.57	\$30.00	\$0.050	3.14	1.17	1
Green Motors Program Rewind: Motor size 20 HP	Green Motors Program Rewind: Motor size 20 HP	Standard rewind practice	Motor	MF_Motors	7	702.77	\$236.07	–	\$155.71	\$40.00	\$0.050	3.14	1.36	1
Green Motors Program Rewind: Motor size 25 HP	Green Motors Program Rewind: Motor size 25 HP	Standard rewind practice	Motor	MF_Motors	8	893.48	\$336.76	–	\$177.91	\$50.00	\$0.050	3.56	1.66	1
Green Motors Program Rewind: Motor size 30 HP	Green Motors Program Rewind: Motor size 30 HP	Standard rewind practice	Motor	MF_Motors	8	962.42	\$362.75	–	\$195.39	\$60.00	\$0.050	3.36	1.64	1
Green Motors Program Rewind: Motor size 40 HP	Green Motors Program Rewind: Motor size 40 HP	Standard rewind practice	Motor	MF_Motors	8	1,120.77	\$422.43	–	\$238.78	\$80.00	\$0.050	3.11	1.58	1
Green Motors Program Rewind: Motor size 50 HP	Green Motors Program Rewind: Motor size 50 HP	Standard rewind practice	Motor	MF_Motors	8	1,206.18	\$454.62	–	\$264.33	\$100.00	\$0.050	2.84	1.54	1
Green Motors Program Rewind: Motor size 60 HP	Green Motors Program Rewind: Motor size 60 HP	Standard rewind practice	Motor	MF_Motors	8	1,268.50	\$478.11	–	\$311.76	\$120.00	\$0.050	2.61	1.40	1
Green Motors Program Rewind: Motor size 75 HP	Green Motors Program Rewind: Motor size 75 HP	Standard rewind practice	Motor	MF_Motors	8	1,305.49	\$492.05	–	\$336.98	\$150.00	\$0.050	2.29	1.35	1
Green Motors Program Rewind: Motor size 100 HP	Green Motors Program Rewind: Motor size 100 HP	Standard rewind practice	Motor	MF_Motors	8	1,723.08	\$649.45	–	\$418.03	\$200.00	\$0.050	2.27	1.42	1
Green Motors Program Rewind: Motor size 125 HP	Green Motors Program Rewind: Motor size 125 HP	Standard rewind practice	Motor	MF_Motors	8	1,990.39	\$750.20	–	\$416.68	\$250.00	\$0.050	2.15	1.60	1
Green Motors Program Rewind: Motor size 150 HP	Green Motors Program Rewind: Motor size 150 HP	Standard rewind practice	Motor	MF_Motors	8	2,366.02	\$891.78	–	\$464.14	\$300.00	\$0.050	2.13	1.68	1
Green Motors Program Rewind: Motor size 200 HP	Green Motors Program Rewind: Motor size 200 HP	Standard rewind practice	Motor	MF_Motors	8	3,138.34	\$1,182.88	–	\$558.75	\$400.00	\$0.050	2.12	1.82	1
Green Motors Program Rewind: Motor size 250 HP	Green Motors Program Rewind: Motor size 250 HP	Standard rewind practice	Motor	MF_Motors	8	3,798.53	\$1,431.71	–	\$718.14	\$500.00	\$0.050	2.08	1.73	1
Green Motors Program Rewind: Motor size 300 HP	Green Motors Program Rewind: Motor size 300 HP	Standard rewind practice	Motor	MF_Motors	8	4,534.67	\$1,709.17	–	\$725.89	\$600.00	\$0.050	2.07	1.97	1
Green Motors Program Rewind: Motor size 350 HP	Green Motors Program Rewind: Motor size 350 HP	Standard rewind practice	Motor	MF_Motors	8	5,286.56	\$1,992.56	–	\$760.82	\$700.00	\$0.050	2.07	2.14	1

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
Green Motors Program Rewind: Motor size 400 HP	Green Motors Program Rewind: Motor size 400 HP	Standard rewind practice	Motor	MF_Motors	8	5,994.15	\$2,259.26	–	\$849.77	\$800.00	\$0.050	2.05	2.16	1
Green Motors Program Rewind: Motor size 450 HP	Green Motors Program Rewind: Motor size 450 HP	Standard rewind practice	Motor	MF_Motors	8	6,732.12	\$2,537.41	–	\$928.86	\$900.00	\$0.050	2.05	2.21	1
Green Motors Program Rewind: Motor size 500 HP	Green Motors Program Rewind: Motor size 500 HP	Standard rewind practice	Motor	MF_Motors	8	7,490.56	\$2,823.28	–	\$1,003.48	\$1,000.00	\$0.050	2.05	2.25	1
Green Motors Program Rewind: Motor size 600 HP	Green Motors Program Rewind: Motor size 600 HP	Standard rewind practice	Motor	MF_Motors	8	10,137.37	\$3,820.89	–	\$1,510.16	\$1,200.00	\$0.050	2.24	2.08	1
Green Motors Program Rewind: Motor size 700 HP	Green Motors Program Rewind: Motor size 700 HP	Standard rewind practice	Motor	MF_Motors	8	11,776.73	\$4,438.78	–	\$1,647.57	\$1,400.00	\$0.050	2.23	2.18	1
Green Motors Program Rewind: Motor size 800 HP	Green Motors Program Rewind: Motor size 800 HP	Standard rewind practice	Motor	MF_Motors	8	13,430.58	\$5,062.14	–	\$1,828.03	\$1,600.00	\$0.050	2.23	2.23	1
Green Motors Program Rewind: Motor size 900 HP	Green Motors Program Rewind: Motor size 900 HP	Standard rewind practice	Motor	MF_Motors	8	15,077.39	\$5,682.84	–	\$2,015.32	\$1,800.00	\$0.050	2.23	2.26	1
Green Motors Program Rewind: Motor size 1,500 HP	Green Motors Program Rewind: Motor size 1,500 HP	Standard rewind practice	Motor	MF_Motors	9	21,329.20	\$8,901.28	–	\$2,972.05	\$3,000.00	\$0.050	1.51	1.67	1
Green Motors Program Rewind: Motor size 4,500 HP	Green Motors Program Rewind: Motor size 4,500 HP	Standard rewind practice	Motor	MF_Motors	9	62,268.99	\$25,986.63	–	\$7,050.45	\$9,000.00	\$0.050	1.48	1.83	1

^a Average measure life.

^b Estimated kWh savings measured at the customer’s meter, excluding line losses.

^c Sum of NPV of DSM alternate cost. Based on end-use load shape, measure life, savings including line losses, and alternate costs by pricing period as provided in the 2017 IRP. TRC test benefit calculation 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 2019 actuals.

^f UCT Ratio = (NPV DSM Alternate Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)

^g TRC Ratio = ((NPV DSM Alternate Costs * 110%) + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

^h RTF: Ind_and_Ag_GreenMotorRewind_v3_1.xlsm. 2017.

New Construction

Segment: Commercial
2019 Program Results

Cost Inputs		Ref
Program Administration	\$ 445,760	
Program Incentives.....	3,102,716	I
Total UC	\$ 3,548,476	P
Measure Equipment and Installation (Incremental Participant Cost).....	\$ 4,847,075	M

Net Benefit Inputs (NPV)		Ref
Resource Savings		
2019 Annual Gross Energy (kWh).....	20,640,334	
NPV Cumulative Energy (kWh).....	200,184,926	\$ 11,176,675 S
10% Credit (Northwest Power Act).....		1,117,667
Total Electric Savings	\$ 12,294,342	A
Participant Bill Savings		
NPV Cumulative Participant Bill Savings	\$ 10,978,156	B
Other Benefits		
Non-Utility Rebates/Incentives	\$ -	NUI
NEBs	\$ 2,971,178	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
UC Test	\$ 11,176,675	\$ 3,548,476	3.15
TRC Test	15,265,520	5,292,835	2.88
RIM Test.....	11,176,675	14,526,633	0.77
PCT	17,052,051	4,847,075	3.52

Benefits and Costs Included in Each Test			
UC Test.....	= S * NTG		= P
TRC Test.....	= (A + NUI + NEB) * NTG		= P + ((M-I) * NTG)
RIM Test	= S * NTG		= P + (B * NTG)
PCT	= B + I + NUI + NEB		= M

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.74%
Real ((1 + WACC) / (1 + Escalation)) - 1	4.54%
Escalation Rate	2.10%
Net-to-Gross (NTG)	100%
Minimum NTG Sensitivity	32%
Average Customer Segment Rate/kWh	\$0.057
Line Losses	9.60%

Notes: Non-energy benefits/impacts on a \$/kWh for each end-use. Based on 2019 impact evaluation.
Cost-effectiveness ratios includes evaluation costs that were incurred in 2019. Without evaluation costs, UCT and TRC would have been 3.18 and 2.90, respectively.

Year: 2019

Program: New Construction

Market Segment: Commercial

Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
Lighting	Interior Light Load Reduction. Part A: 10-19.9% below code.	Code standards	ft ²	Commercial-Miscellaneous-Interior Lighting-All	14	0.44	\$0.27	-	\$0.14	\$0.10	\$0.032	2.37	1.93	1
Lighting	Interior Light Load Reduction. Part B: 20-29.9% below code.	Code standards	ft ²	Commercial-Miscellaneous-Interior Lighting-All	14	0.88	\$0.54	-	\$0.28	\$0.20	\$0.032	2.37	1.93	1
Lighting	Interior Light Load Reduction. Part C: Equal to or greater than 30% below code.	Code standards	ft ²	Commercial-Miscellaneous-Interior Lighting-All	14	2.00	\$1.23	-	\$0.65	\$0.30	\$0.032	3.38	1.90	1
Lighting	Exterior Light Load Reduction. Minimum of 15% below code.	Code standards	kW	IPC_Outdoor Lighting	15	4,059.00	\$1,688.82	-	\$287.00	\$200.00	\$0.032	5.12	4.46	1
Lighting	Daylight Photo Controls	Code standards	ft ²	Commercial-Miscellaneous-Interior Lighting-All	14	1.97	\$1.21	-	\$0.46	\$0.25	\$0.032	3.87	2.55	1
Lighting	Occupancy Sensors	Code standards	Sensor	Commercial-Miscellaneous-Interior Lighting-All	8	387.00	\$148.71	-	\$134.22	\$25.00	\$0.032	3.98	1.12	1
Lighting	High-Efficiency Exit Signs	Code standards	Sign	IPC_8760	16	28.00	\$17.41	-	\$10.83	\$7.50	\$0.032	2.07	1.63	1
A/C	Unitary Commercial A/C, Air Cooled (Cooling Mode). <= 5 tons. Split system & single package. Part A: Base to CEE Tier 1	Code standards	Tons	Commercial-Miscellaneous-Cooling-All	15	69.00	\$68.08	-	\$33.68	\$30.00	\$0.032	2.11	2.09	1
A/C	Unitary Commercial A/C, Air Cooled (Cooling Mode). <= 5 tons. Split system & single package. Part B: Base to CEE Tier 2	Code standards	Tons	Commercial-Miscellaneous-Cooling-All	15	108.00	\$106.56	-	\$60.30	\$75.00	\$0.032	1.36	1.84	1
Heat Pump	Heat Pumps, Air Cooled (Cooling Mode). <= 5 tons. Split system & single package. Part A: Base to CEE Tier 1	Code standards	Tons	Commercial-Miscellaneous-Cooling-All	15	69.00	\$68.08	-	\$153.00	\$30.00	\$0.032	2.11	0.48	1, 2
Heat Pump	Heat Pumps, Air Cooled (Cooling Mode). <= 5 tons. Split system & single package. Part B: Base to CEE Tier 2	Code standards	Tons	Commercial-Miscellaneous-Cooling-All	15	108.00	\$106.56	-	\$168.27	\$75.00	\$0.032	1.36	0.68	1, 2
VRF AC	Variable Refrigerant Flow Units. <= 64 tons. A/C. Part B: Base to CEE Tier 1	Code standards	Tons	Commercial-Miscellaneous-Cooling-All	15	82.50	\$81.40	-	\$69.24	\$75.00	\$0.032	1.05	1.25	1
VRF AC	Variable Refrigerant Flow Units. <= 5 tons. A/C. Part C: Base to CEE Tier 2	Code standards	Tons	Commercial-Miscellaneous-Cooling-All	15	118.00	\$116.42	-	\$181.50	\$100.00	\$0.032	1.12	0.69	1, 2

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
VRF Heat Pump	Variable Refrigerant Flow Units. <= 64 tons. Heat Pump. Part B: Base to CEE Tier 1	Code standards	Tons	Commercial-Miscellaneous-Cooling-All	15	124.00	\$122.34	-	\$141.75	\$75.00	\$0.032	1.55	0.92	1
VRF Heat Pump	Variable Refrigerant Flow Units. <= 5 tons. Heat Pump. Part C: Base to CEE Tier 2	Code standards	Tons	Commercial-Miscellaneous-Cooling-All	15	160.00	\$157.86	-	\$165.50	\$100.00	\$0.032	1.50	1.02	1, 2
A/C	Air-cooled chiller condenser, IPLV 14.0 EER or higher	Code standards	Tons	Commercial-Miscellaneous-Cooling-All	20	200.00	\$235.81	-	\$56.50	\$80.00	\$0.032	2.73	4.12	3
A/C	Water-cooled chiller electronically operated, reciprocating and positive displacement	Code standards	Tons	Commercial-Miscellaneous-Cooling-All	20	118.30	\$139.48	-	\$33.40	\$40.00	\$0.032	3.19	4.13	4
A/C	Airside economizer	Code standards	Ton of cooling	Commercial-Miscellaneous-Cooling-All	15	186.00	\$183.51	-	\$81.36	\$75.00	\$0.032	2.27	2.31	1
A/C	Direct evaporative cooler	Code standards	Tons	IPC_Evap Cooler	15	315.00	\$419.18	-	\$364.00	\$200.00	\$0.032	2.00	1.23	1
Building Shell	Reflective roof treatment	Code standards	ft ² roof area	Commercial-Miscellaneous-Cooling-All	15	0.12	\$0.11	-	\$0.05	\$0.05	\$0.032	2.13	2.34	1
Controls	Energy Management System (EMS) controls. Part A: 1 strategy	Code standards	Tons of cooling	Commercial-Miscellaneous-Ventilation-All	15	226.00	\$152.34	\$13.73	\$162.49	\$60.00	\$0.032	2.27	1.07	1
Controls	Energy Management System (EMS) controls. Part B: 2 strategies	Code standards	Tons of cooling	Commercial-Miscellaneous-Ventilation-All	15	408.00	\$275.02	\$18.31	\$162.49	\$70.00	\$0.032	3.31	1.83	1
Controls	EMS controls. Part C: 3 strategies	Code standards	Tons of cooling	Commercial-Miscellaneous-Ventilation-All	15	511.00	\$344.44	\$29.75	\$162.49	\$80.00	\$0.032	3.57	2.28	1
Controls	EMS controls. Part D: 4 strategies	Code standards	Tons of cooling	Commercial-Miscellaneous-Ventilation-All	15	568.00	\$382.86	\$48.06	\$162.49	\$90.00	\$0.032	3.54	2.60	1
Controls	EMS controls. Part E: 5 strategies	Code standards	Tons of cooling	Commercial-Miscellaneous-Ventilation-All	15	618.00	\$416.57	\$48.06	\$162.49	\$100.00	\$0.032	3.48	2.78	1
Controls	Guest room energy management system	Code standards	Ton	Commercial-Lodging-Ventilation-All	11	571.00	\$273.80	-	\$57.50	\$50.00	\$0.032	4.01	3.97	1
Controls	Part A. Variable speed drive on HVAC system applications: -chilled water pumps -condenser water pumps -cooling tower fans	Code standards	HP	Commercial-Miscellaneous-Ventilation-All	15	268.00	\$180.65	-	\$165.33	\$60.00	\$0.032	2.63	1.14	1

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
Controls	Part B. Variable speed drive on HVAC system applications: -supply -return -outside air -make-up air -hot water pumps	Code standards	HP	Commercial-Miscellaneous-Ventilation-All	15	996.00	\$671.36	-	\$142.05	\$100.00	\$0.032	5.09	4.25	1
Variable Speed Controls	Part C: Variable speed drive on Potato/Onion Storage Shed Ventilation	No VFD	HP	IPC_Onion Potato VSD	10	1,193.00	\$394.20	-	\$264.00	\$200.00	\$0.032	1.66	1.43	1
Demand Controlled Kitchen Ventilation Exhaust Hood	Demand Controlled Kitchen Ventilation Exhaust Hood	Kitchen hood with constant speed ventilation motor	HP	Commercial-Restaurant-Ventilation-All	15	4,423.00	\$2,983.59	-	\$1,991.00	\$200.00	\$0.032	8.74	1.54	1
Appliances with Electric Water Heating	Efficient Laundry Machines (electric)	Code standards	Unit	Commercial-Lodging-Water Heating-All	10	994.00	\$429.23	\$1,306.23	\$393.00	\$125.00	\$0.032	2.74	4.19	5
Appliances with Electric Water Heating	ENERGY STAR [®] undercounter (residential style) dishwasher	Code standards	Machine	Commercial-Restaurant-Water Heating-All	12	2,210.00	\$1,208.79	\$228.31	\$232.00	\$200.00	\$0.032	4.47	5.15	6
Appliances with Electric Water Heating	ENERGY STAR commercial dishwasher	Code standards	Machine	Commercial-Restaurant-Water Heating-All	12	5,561.00	\$3,041.66	\$615.74	\$3,978.00	\$500.00	\$0.032	4.49	0.95	6, 8
Refrigeration	Refrigeration head pressure controls	Code standards	HP	Commercial-Miscellaneous-Refrigeration-All	16	225.00	\$144.73	-	\$166.60	\$40.00	\$0.032	3.07	0.92	1, 7
Refrigeration	Refrigeration floating suction controls	Code standards	HP	Commercial-Miscellaneous-Refrigeration-All	16	77.00	\$49.53	-	\$53.75	\$10.00	\$0.032	3.97	0.97	1, 8
Refrigeration	Efficient refrigeration condensers	Code standards	Tons of refrigeration	Commercial-Miscellaneous-Refrigeration-All	15	114.00	\$69.94	-	\$35.00	\$20.00	\$0.032	2.96	1.99	1
Strip Curtains	For walk-in freezers	No protective barrier	Curtain/Door	Commercial-Warehouse-Refrigeration-All	4	4,865.00	\$925.48	-	\$213.00	\$150.00	\$0.032	3.03	2.76	1
Strip Curtains	For walk-in refrigerators	No protective barrier	Curtain/Door	Commercial-Warehouse-Refrigeration-All	4	3,024.00	\$575.27	-	\$213.00	\$150.00	\$0.032	2.33	2.04	1
Automatic High-Speed Doors	Freezer to Refrigerator	manual or electric warehouse door	Door	Commercial-Warehouse-Refrigeration-All	8	101,222.00	\$35,785.81	-	\$11,650.00	\$4,000.00	\$0.032	4.94	2.64	1
Automatic High-Speed Doors	Freezer to Dock	manual or electric warehouse door	Door	Commercial-Warehouse-Refrigeration-All	8	140,093.00	\$49,528.18	-	\$11,650.00	\$8,000.00	\$0.032	3.97	3.38	1

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
Smart Power Strips	Load-sensing, motion-sensing, or timer-controlled power strip	No existing load or motion-sensing, or timer-controlled power strip	Power strip	Commercial-Small Office-Office Equipment-All	4	118.00	\$23.66	-	\$33.00	\$10.00	\$0.032	1.72	0.71	1, 7
High-Volume, Low-Speed Fan	High-Volume, Low-Speed Fan	Standard high-speed fan	Fan	Commercial-Warehouse-Ventilation-All	15	16,733.00	\$10,860.62	-	\$3,185.00	\$2,000.00	\$0.032	4.28	3.21	1
Compressed Air	Air compressor VFD	No existing VFD	HP	Commercial-Miscellaneous-Miscellaneous-All	15	949.00	\$612.46	-	\$223.00	\$150.00	\$0.032	3.40	2.66	1
Compressed Air	No-Loss Condensate Drain	Open tube with ball valve	HP	Commercial-Miscellaneous-Miscellaneous-All	10	1,830.00	\$848.62	-	\$700.00	\$300.00	\$0.032	2.37	1.23	1
Compressed Air	Low Pressure Drop Filter	Standard filter	HP	Commercial-Miscellaneous-Miscellaneous-All	5	44.00	\$11.13	-	\$10.00	\$7.50	\$0.032	1.25	1.07	1
Compressed Air	Refrigerated Compressed Air Dryer	Standard air dryer	CFM	Commercial-Miscellaneous-Miscellaneous-All	10	10.62	\$4.92	-	\$6.00	\$2.00	\$0.032	2.10	0.85	1, 7
Compressed Air	Efficient Compressed Air Nozzle <= ¼ inch	Standard air nozzle	Unit	Commercial-Miscellaneous-Miscellaneous-All	15	602.50	\$388.84	-	\$49.50	\$30.00	\$0.032	7.89	6.22	1
Compressed Air	Efficient Compress Air Nozzle > ¼ inch	Standard air nozzle	Unit	Commercial-Miscellaneous-Miscellaneous-All	15	2,997.50	\$1,934.52	-	\$104.00	\$60.00	\$0.032	12.41	10.64	1
Engine Block Heater Controls	Wall-mounted engine block heater	Standard engine block heater without controls	Unit	IPC_Engine Block	15	2,733.00	\$1,144.23	-	\$70.00	\$50.00	\$0.032	8.32	7.99	1
Engine Block Heater Controls	Engine-mounted engine block heater	Standard engine block heater without controls	Unit	IPC_Engine Block	15	2,335.00	\$977.60	-	\$120.00	\$100.00	\$0.032	5.60	5.52	1
Dairy VFD	VFD on milking vacuum pump	No existing VFD	HP	Commercial-Miscellaneous-Miscellaneous-All	15	3,084.00	\$1,990.35	-	\$356.00	\$250.00	\$0.032	5.71	4.82	1

^a Average measure life.

^b Estimated kWh savings measured at the customer's meter, excluding line losses.

^c Sum of NPV of DSM alternate cost. Based on end-use load shape, measure life, savings including line losses, and alternate costs by pricing period as provided in the 2017 IRP. TRC test benefit calculation 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 2019 actuals.

^f UCT Ratio = (NPV DSM Alternate Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)

^g TRC Ratio = ((NPV DSM Alternate Costs * 110%) + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

¹ Idaho Power TRM prepared by ADM Associates, Inc. 2018.

² Measure not cost-effective from TRC perspective. Measure included in the program to increase participation in a cost-effective program and to encourage adoption of higher-efficiency equipment.

³ Idaho Power TRM prepared by ADM Associates, Inc. 2018. Averaged air-cooled chillers.

⁴ Idaho Power TRM prepared by ADM Associates, Inc. 2018. Averaged water-cooled chillers.

⁵ Idaho Power TRM prepared by ADM Associates, Inc. 2018. NEBs from water savings from RTF. ComClothesWashers_v5_1.xlsm. Simple average. 2018.

⁶ Idaho Power TRM prepared by ADM Associates, Inc. 2018. NEBs from water savings from RTF. ComDishwasher_v1_2.xlsm. 2012.

⁷ Measure not cost-effective from TRC perspective. Measure to be monitored in 2019. Measure included in the program to increase participation in a cost-effective program.

⁸ Measure not cost effective. Measure cost-effective without inclusion of admin costs.

Retrofits

Segment: Commercial
2019 Program Results

Cost Inputs		Ref
Program Administration	\$ 1,102,874	
Program Incentives.....	5,178,182	I
Total UC	\$ 6,281,056	P
Measure Equipment and Installation (Incremental Participant Cost).....	\$ 16,597,895	M

Net Benefit Inputs (NPV)		Ref
Resource Savings		
2019 Annual Gross Energy (kWh).....	42,674,418	
NPV Cumulative Energy (kWh).....	413,887,451	\$ 23,108,060 S
10% Credit (Northwest Power Act).....	2,310,806	
Total Electric Savings	\$ 25,418,866	A
Participant Bill Savings		
NPV Cumulative Participant Savings.....	\$ 22,697,619	B
Other Benefits		
Non-Utility Rebates/Incentives	\$ -	NUI
NEBs	\$ 7,384,724	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
UC Test	\$ 23,108,060	\$ 6,281,056	3.68
TRC Test	32,803,590	17,700,769	1.85
RIM Test.....	23,108,060	28,978,675	0.80
PCT	35,260,525	16,597,895	2.12

Benefits and Costs Included in Each Test			
UC Test.....	= S * NTG	= P	
TRC Test.....	= (A + NUI + NEB) * NTG	= P + ((M-I) * NTG)	
RIM Test	= S * NTG	= P + (B * NTG)	
PCT	= B + I + NUI + NEB	= M	

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.74%
Real ((1 + WACC) / (1 + Escalation)) - 1	4.54%
Escalation Rate	2.10%
Net-to-Gross (NTG)	100%
Minimum NTG Sensitivity	30%
Average Customer Segment Rate/kWh	\$0.057
Line Losses	9.60%

Note: Measure inputs from Evergreen Consulting Group or the TRM prepared by ADM Associates, Inc., unless otherwise noted.
Non-energy benefits/impacts on a \$/kWh for each end-use. Based on 2019 impact evaluation.
Cost-effectiveness ratios includes evaluation costs that were incurred in 2019. Without evaluation costs, UCT and TRC would have been 3.70 and 1.86, respectively.

Year: 2019

Program: Retrofits

Market Segment: Commercial

Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
Standard/High Performance T8 Fluorescents	4-foot T8	4-foot T12	fixture	Commercial-Miscellaneous-Interior Lighting-All	6	182.49	\$54.64	-	\$53.17	\$30.01	\$0.032	1.52	1.02	1
Standard T8 Fluorescents	6-foot T8	6-foot T12	fixture	Commercial-Miscellaneous-Interior Lighting-All	6	332.20	\$99.47	-	\$76.03	\$16.00	\$0.032	3.74	1.26	1
Standard T8 Fluorescents	4-foot T8	8-foot T12	fixture	Commercial-Miscellaneous-Interior Lighting-All	6	445.52	\$133.41	-	\$66.50	\$50.58	\$0.032	2.06	1.82	1
T5/T8 High Bay - New Fixture	4-foot T8/T5	Fixture using > 200 input watts	fixture	Commercial-Miscellaneous-Interior Lighting-All	9	1,195.77	\$508.65	-	\$206.92	\$135.44	\$0.032	2.93	2.28	1
Relamp T8/T5HO to Reduced Wattage T8/T5HO	Reduced wattage T8/T5 re-lamp	4' T8/T5 HO	fixture	Commercial-Miscellaneous-Interior Lighting-All	12	124.99	\$67.96	-	\$21.65	\$1.00	\$0.032	13.59	2.91	1
Permanent Fixture Removal	Permanent Fixture Removal		fixture	Commercial-Miscellaneous-Interior Lighting-All	6	876.59	\$262.48	-	\$29.48	\$22.73	\$0.032	5.17	5.02	1
LEDs	Screw-in or pin-based LED	Existing lamp using > input watts	fixture	Commercial-Miscellaneous-Interior Lighting-All	12	502.97	\$273.48	-	\$56.37	\$30.96	\$0.032	5.81	4.15	1
LEDs	LED tubes (type A, B & DM)	lamp using > 17 watts	fixture	Commercial-Miscellaneous-Interior Lighting-All	12	279.42	\$151.93	-	\$65.25	\$6.02	\$0.032	10.15	2.25	1
LEDs	LED Tubes (type C) or hardwired conversion	fixture using higher wattage	fixture	Commercial-Miscellaneous-Interior Lighting-All	12	312.08	\$169.68	-	\$99.52	\$15.60	\$0.032	6.63	1.70	1
LED Exit Sign	LED fixture or sign lighting retrofit kit	fixture using higher wattage	fixture	Commercial-Miscellaneous-Interior Lighting-All	12	429.23	\$233.38	-	\$180.93	\$61.64	\$0.032	3.10	1.32	1
Lighting Controls	New LED fixture or LED fixture kit with lighting control strategies	fixture using higher wattage	fixture	Commercial-Miscellaneous-Interior Lighting-All	12	545.54	\$296.62	-	\$239.55	\$103.76	\$0.032	2.45	1.27	1

Measure Name	Measure Descriptions	Replacing	Measure unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
Lighting Controls	New LED fixture with Networked Controls	fixture using higher wattage	fixture	Commercial-Miscellaneous-Interior Lighting-All	12	599.03	\$325.71	-	\$339.77	\$131.79	\$0.032	2.16	1.00	1
LED Exit Sign	LED Exit sign	fixture using higher wattage	fixture	IPC_8760	12	230.68	\$114.33	-	\$68.69	\$40.00	\$0.032	2.41	1.65	1
Lighting Controls	Lighting Controls	Manual controls	fixture	Commercial-Miscellaneous-Interior Lighting-All	10	179.65	\$83.73	-	\$90.10	\$27.59	\$0.032	2.51	0.96	1, 9
Standard T8 Fluorescents	6-foot T8	6-foot T12	fixture	IPC_Outdoor Lighting	6	386.42	\$69.62	-	\$76.03	\$14.00	\$0.032	2.64	0.87	1, 9
Standard T8 Fluorescents	4-foot T8	8-foot T12	fixture	IPC_Outdoor Lighting	6	496.54	\$89.46	-	\$83.27	\$41.88	\$0.032	1.55	0.99	1, 9
T5/T8 High Bay - New Fixture	4-foot T8/T5	Fixture using > 200 input watts	fixture	IPC_Outdoor Lighting	11	1,643.61	\$519.60	-	\$195.03	\$102.71	\$0.032	3.35	2.31	1
Permanent Fixture Removal	Permanent Fixture Removal		fixture	IPC_Outdoor Lighting	6	1,016.60	\$183.15	-	\$35.78	\$17.73	\$0.032	3.64	2.95	1
LEDs	Screw-in or pin-based LED	Existing lamp using > input watts	fixture	IPC_Outdoor Lighting	12	583.30	\$199.78	-	\$87.93	\$27.96	\$0.032	4.28	2.06	1
LEDs	LED tubes (type A, B & DM)	lamp using > 17 watts	fixture	IPC_Outdoor Lighting	12	324.04	\$110.98	-	\$66.98	\$6.02	\$0.032	6.77	1.58	1
LEDs	LED Tubes (type C) or hardwired conversion	fixture using higher wattage	fixture	IPC_Outdoor Lighting	12	342.71	\$117.38	-	\$113.60	\$6.85	\$0.032	6.59	1.04	1
LED Exit Sign	LED fixture or sign lighting retrofit kit	fixture using higher wattage	fixture	IPC_Outdoor Lighting	12	804.15	\$275.42	-	\$275.95	\$91.09	\$0.032	2.36	1.00	1
Lighting Controls	New LED fixture or LED fixture kit with lighting control strategies	fixture using higher wattage	fixture	IPC_Outdoor Lighting	12	1,324.18	\$453.54	-	\$427.62	\$198.89	\$0.032	1.88	1.06	1
Lighting Controls	New LED fixture with Networked Controls	fixture using higher wattage	fixture	IPC_Outdoor Lighting	12	1,454.01	\$498.00	-	\$456.12	\$261.72	\$0.032	1.62	1.09	1
Lighting Controls	Lighting Controls	Manual controls	fixture	IPC_Outdoor Lighting	10	364.55	\$105.44	-	\$109.12	\$27.59	\$0.032	2.20	0.90	1, 9
Refrigeration Case Lighting	Refrigeration Case Lighting		lamp	Commercial-Miscellaneous-Refrigeration-All	6	347.86	\$97.96	-	\$97.91	\$42.36	\$0.032	1.83	0.99	1, 9
Air Conditioning Units	<= 5 ton AC Unit. Base to CEE Tier 1	Code standards	tons	Commercial-Miscellaneous-Cooling-All	15	69.00	\$68.08	-	\$33.68	\$30.00	\$0.032	2.11	2.09	3
Air Conditioning Units	<= 5 ton AC Unit. Base to CEE Tier 2	Code standards	tons	Commercial-Miscellaneous-Cooling-All	15	108.00	\$106.56	-	\$60.30	\$75.00	\$0.032	1.36	1.84	3

Measure Name	Measure Descriptions	Replacing	Measure unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
Air Conditioning Units	<= 5 ton VRF. Base to CEE Tier 2	Code standards	tons	Commercial-Miscellaneous-Cooling-All	15	118.00	\$116.42	-	\$181.50	\$100.00	\$0.032	1.12	0.69	2, 3
Air Conditioning Units	<= 64 ton VRF. Base to CEE Tier 1	Code standards	tons	Commercial-Miscellaneous-Cooling-All	15	82.50	\$81.40	-	\$69.24	\$75.00	\$0.032	1.05	1.25	3
Heat Pump (HP) units	<= 5 ton HP Unit. Base to CEE Tier 1	Code standards	tons	Commercial-Miscellaneous-Cooling-All	15	69.00	\$68.08	-	\$153.00	\$30.00	\$0.032	2.11	0.48	2, 3
Heat Pump (HP) units	<= 5 ton HP Unit. Base to CEE Tier 2	Code standards	tons	Commercial-Miscellaneous-Cooling-All	15	108.00	\$106.56	-	\$168.27	\$75.00	\$0.032	1.36	0.68	2, 3
Heat Pump (HP) units	<= 5 ton Variable Refrigerant Flow (VRF). Base to CEE Tier 2	Code standards	tons	Commercial-Miscellaneous-Cooling-All	15	160.00	\$157.86	-	\$165.50	\$100.00	\$0.032	1.50	1.02	3
Heat Pump (HP) units	<= 64 ton VRF. Base to CEE Tier 1	Code standards	tons	Commercial-Miscellaneous-Cooling-All	15	124.00	\$122.34	-	\$141.75	\$75.00	\$0.032	1.55	0.92	2, 3
Chillers	Air-cooled chiller condenser, IPLV 14.0 EER or higher	Standard air-cooled chiller	tons	Commercial-Miscellaneous-Cooling-All	20	200.00	\$235.81	-	\$56.50	\$80.00	\$0.032	2.73	4.12	4
Chillers	Water-cooled chiller electronically operated, reciprocating and positive displacement	Standard water-cooled chiller	tons	Commercial-Miscellaneous-Cooling-All	20	118.30	\$139.48	-	\$33.40	\$40.00	\$0.032	3.19	4.13	5
Economizers	Airside economizer control addition	No prior control	ton of cooling	Commercial-Miscellaneous-Cooling-All	15	278.00	\$274.29	-	\$155.01	\$100.00	\$0.032	2.52	1.84	3
Economizers	Airside economizer control repair	Non-functional economizer	ton of cooling	Commercial-Miscellaneous-Cooling-All	15	278.00	\$274.29	-	\$73.65	\$50.00	\$0.032	4.66	3.66	3
Evaporative Cooler	Direct evaporative cooler	Replacing standard AC unit	tons	Commercial-Miscellaneous-Cooling-All	15	315.00	\$310.79	-	\$364.00	\$200.00	\$0.032	1.48	0.91	3
Automated Controls	EMS controls with 1 strategy	Proposed strategy not existing (retrofit system)	tons of cooling	Commercial-Miscellaneous-Ventilation-All	15	371.00	\$250.07	\$18.31	\$197.98	\$100.00	\$0.032	2.24	1.40	3
Automated Controls	EMS controls with 2 strategies	Proposed strategy not existing (retrofit system)	tons of cooling	Commercial-Miscellaneous-Ventilation-All	15	621.00	\$418.59	\$18.31	\$197.98	\$125.00	\$0.032	2.89	2.20	3
Automated Controls	EMS controls with 3 strategies	Proposed strategy not existing (retrofit system)	tons of cooling	Commercial-Miscellaneous-Ventilation-All	15	870.00	\$586.43	\$64.08	\$197.98	\$150.00	\$0.032	3.30	3.14	3
Automated Controls	EMS controls with 4 strategies	Proposed strategy not existing (retrofit system)	tons of cooling	Commercial-Miscellaneous-Ventilation-All	15	1,730.00	\$1,166.12	\$219.69	\$197.98	\$175.00	\$0.032	5.06	5.93	3

Measure Name	Measure Descriptions	Replacing	Measure unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
Automated Controls	EMS controls with 5 strategies	Proposed strategy not existing (retrofit system)	tons of cooling	Commercial-Miscellaneous-Ventilation-All	15	1,798.00	\$1,211.95	\$221.98	\$197.98	\$200.00	\$0.032	4.71	6.09	3
Automated Controls	EMS controls with 1 strategy	Proposed strategy not existing (new system)	tons of cooling	Commercial-Miscellaneous-Ventilation-All	15	226.00	\$152.34	\$13.73	\$162.49	\$60.00	\$0.032	2.27	1.07	3
Automated Controls	EMS controls with 2 strategies	Proposed strategy not existing (new system)	tons of cooling	Commercial-Miscellaneous-Ventilation-All	15	408.00	\$275.02	\$18.31	\$162.49	\$70.00	\$0.032	3.31	1.83	3
Automated Controls	EMS controls with 3 strategies	Proposed strategy not existing (new system)	tons of cooling	Commercial-Miscellaneous-Ventilation-All	15	511.00	\$344.44	\$29.75	\$162.49	\$80.00	\$0.032	3.57	2.28	3
Automated Controls	EMS controls with 4 strategies	Proposed strategy not existing (new system)	tons of cooling	Commercial-Miscellaneous-Ventilation-All	15	568.00	\$382.86	\$48.06	\$162.49	\$90.00	\$0.032	3.54	2.60	3
Automated Controls	EMS controls with 5 strategies	Proposed strategy not existing (new system)	tons of cooling	Commercial-Miscellaneous-Ventilation-All	15	618.00	\$416.57	\$48.06	\$162.49	\$100.00	\$0.032	3.48	2.78	3
Automated Controls	Lodging room occupancy controls	Manual controls	ton	Commercial-Lodging-Ventilation-All	11	665.00	\$318.87	-	\$150.61	\$75.00	\$0.032	3.31	2.04	3
Electronically Commutated Motor (ECM)	ECM motor in HVAC application	Shaded pole or permanent split capacitor motor	motor	Commercial-Miscellaneous-Ventilation-All	15	1,354.00	\$912.67	-	\$305.00	\$100.00	\$0.032	6.37	2.88	3
Premium Windows	Low U-value, U-factor of .30 or less	Standard windows	ft2 window area	Commercial-Miscellaneous-Heating-Electric Furnace	25	6.87	\$4.44	-	\$5.92	\$2.50	\$0.032	1.63	0.80	2, 3
Reflective Roofing	Adding reflective roof treatment	Non-reflective low pitch roof	ft2 roof area	Commercial-Miscellaneous-Cooling-All	15	0.12	\$0.11	-	\$0.05	\$0.05	\$0.032	2.13	2.34	3
Ceiling Insulation	Increase to R38 min. insulation	Insulation level, R11 or less	ft2 wall area	Commercial-Miscellaneous-Heating-Electric Furnace	25	2.00	\$1.29	-	\$1.38	\$0.35	\$0.032	3.12	0.99	3, 9
Wall Insulation	Increase to R11 min. insulation	Insulation level, R2.5 or less	ft2 wall area	Commercial-Miscellaneous-Heating-Electric Furnace	25	9.15	\$5.92	-	\$0.66	\$0.40	\$0.032	8.54	6.83	3
Wall Insulation	Increase to R19 min. insulation	Insulation level, R2.5 or less	ft2 wall area	Commercial-Miscellaneous-Heating-Electric Furnace	25	10.29	\$6.65	-	\$0.66	\$0.55	\$0.032	7.57	7.40	3
Computers	PC network power management	No central control software in place	unit	Commercial-Small Office-Office Equipment-All	4	148.00	\$29.68	-	\$12.00	\$10.00	\$0.032	2.01	1.95	3

Measure Name	Measure Descriptions	Replacing	Measure unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
Laundry Machines	High efficiency washer	Standard washer, electric HW	unit	Commercial-Lodging-Water Heating-All	8	994.00	\$353.09	\$1,089.25	\$393.00	\$125.00	\$0.032	2.25	3.48	3, 6
Stock Tank	Thermostatically controlled Stock Tank De-Icer	Non thermostatically controlled de-icer	unit	Commercial-Miscellaneous-Heating-Electric Furnace	10	3,030.00	\$973.69	-	\$51.60	\$50.00	\$0.032	6.63	7.21	3, 7
HVAC Fan Motor Belt	Type AX notched V-belt Type BX notched V-belt	Type A solid V-belt Type B solid V-belt	hp	Commercial-Miscellaneous-Ventilation-All	5	78.00	\$20.72	-	\$1.90	\$5.00	\$0.032	2.76	5.18	3
HVAC Fan Motor Belt	Synchronous belt	Standard fan belt	hp	Commercial-Miscellaneous-Ventilation-All	5	199.00	\$52.85	-	\$67.00	\$35.00	\$0.032	1.28	0.79	2, 3
Commercial showerhead, electric water heat	2.0 gpm or less installed in health club/fitness business	Showerhead using 2.2 gpm or greater	unit	Commercial-Small Heating-All	10	2,159.00	\$932.07	\$2,659.79	\$3.66	\$15.00	\$0.032	11.08	50.66	8
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	Commercial-Small Office-Water Heating-All	10	115.00	\$49.65	\$141.63	\$3.66	\$9.00	\$0.032	3.92	26.74	8
Smart Power Strips	Load-sensing, motion-sensing, or timer-controlled power strip	No existing load-sensing, motion-sensing, or timer-controlled power strip	power strip	Commercial-Small Office-Office Equipment-All	4	118.00	\$23.66	-	\$37.00	\$10.00	\$0.032	1.72	0.64	2, 3
Engine block heater	Stationary pump-driven circulating block heater	Thermosiphon electric resistance circulating block heater < 3 kW	unit	IPC_Engine Block	15	7,469.00	\$3,127.05	-	\$1,400.00	\$200.00	\$0.032	7.12	2.10	3
Engine block heater	Stationary pump-driven circulating block heater	Thermosiphon electric resistance circulating block heater 3 kW or greater	unit	IPC_Engine Block	15	17,633.00	\$7,382.41	-	\$1,950.00	\$1,500.00	\$0.032	3.58	3.23	3
Engine block heater	Wall mounted engine block heater	Thermosiphon electric resistance circulating block heater 3 kW or greater	unit	IPC_Engine Block	15	2,733.00	\$1,144.23	-	\$120.00	\$50.00	\$0.032	8.32	6.07	3
Engine block heater	Engine-mounted engine block heater	Thermosiphon electric resistance circulating block heater 3 kW or greater	unit	IPC_Engine Block	15	2,335.00	\$977.60	-	\$170.00	\$100.00	\$0.032	5.60	4.39	3
High Volume Low Speed Fan	High Volume Low Speed Fan	Standard high speed fan	Fan	Commercial-Warehouse-Ventilation-All	15	16,733.00	\$10,860.62	-	\$4,185.00	\$2,000.00	\$0.032	4.28	2.53	3
Compressed Air	Air compressor VFD	No existing VFD	HP	Commercial-Miscellaneous-Miscellaneous-All	15	949.00	\$612.46	-	\$223.00	\$150.00	\$0.032	3.40	2.66	3
Compressed Air	Low Pressure Drop Filter	Open tube with ball valve	HP	Commercial-Miscellaneous-Miscellaneous-All	5	44.00	\$11.13	-	\$10.00	\$7.50	\$0.032	1.25	1.07	3

Measure Name	Measure Descriptions	Replacing	Measure unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
Compressed Air	No-Loss Condensate Drain	Standard filter	HP	Commercial-Miscellaneous-Miscellaneous-All	10	1,830.00	\$848.62	-	\$700.00	\$300.00	\$0.032	2.37	1.23	3
Compressed Air	Efficient Compressed Air Nozzle <= 1/4 inch	Standard air nozzle	unit	Commercial-Miscellaneous-Miscellaneous-All	15	602.50	\$388.84	-	\$49.50	\$30.00	\$0.032	7.89	6.22	3
Compressed Air	Efficient Compress Air Nozzle > 1/4 inch	Standard air nozzle	unit	Commercial-Miscellaneous-Miscellaneous-All	15	2,997.50	\$1,934.52	-	\$104.00	\$60.00	\$0.032	12.41	10.64	3
Compressed Air	Refrigerated Compressed Air Dryer	Standard air dryer	CFM	Commercial-Miscellaneous-Miscellaneous-All	10	10.62	\$4.92	-	\$6.00	\$2.00	\$0.032	2.10	0.85	2, 3
Refrigeration	Install auto-closer - walk-in	no/damaged auto-closer, low temp	door	Commercial-Miscellaneous-Refrigeration-All	8	2,509.00	\$908.00	-	\$157.00	\$125.00	\$0.032	4.42	4.21	3
Refrigeration	Install auto-closer - reach-in	Damaged auto-closer, low temp	door	Commercial-Miscellaneous-Refrigeration-All	8	326.00	\$117.98	-	\$122.00	\$100.00	\$0.032	1.07	0.98	3, 9
Refrigeration	Install auto-closer - walk-in	No/damaged auto-closer, med. Temp	door	Commercial-Miscellaneous-Refrigeration-All	8	562.00	\$203.39	-	\$157.00	\$100.00	\$0.032	1.72	1.28	3
Refrigeration	Install auto-closer - reach-in	Damaged auto-closer, med. Temp	door	Commercial-Miscellaneous-Refrigeration-All	8	243.00	\$87.94	-	\$122.00	\$70.00	\$0.032	1.13	0.75	2, 3
Refrigeration	Add anti-sweat heat controls	Low/med. Temp case w/ out controls	linear ft	Commercial-Miscellaneous-Refrigeration-All	8	266.00	\$96.27	-	\$47.90	\$40.00	\$0.032	1.98	1.88	3
Automatic high speed doors	Freezer to Dock	manual or electric warehouse door	Door	Commercial-Warehouse-Refrigeration-All	8	155,659.00	\$55,031.35	-	\$12,650.00	\$8,000.00	\$0.032	4.24	3.43	3
Automatic high speed doors	Freezer to Refrigerator	manual or electric warehouse door	Door	Commercial-Warehouse-Refrigeration-All	8	112,469.00	\$39,762.05	-	\$12,650.00	\$4,000.00	\$0.032	5.23	2.69	3
Strip Curtain	For walk-in freezers	no protective barrier	Curtain/Door	Commercial-Warehouse-Refrigeration-All	4	4,865.00	\$925.48	-	\$274.00	\$150.00	\$0.032	3.03	2.37	3
Strip Curtain	For walk-in refrigerators	no protective barrier	Curtain/Door	Commercial-Warehouse-Refrigeration-All	4	3,024.00	\$575.27	-	\$274.00	\$150.00	\$0.032	2.33	1.71	3
Evaporative Fans	Add evaporative fan controls	low or med. temp. walk-in or reach-in with no controls	fan	Commercial-Miscellaneous-Refrigeration-All	15	696.00	\$426.98	-	\$161.74	\$75.00	\$0.032	4.39	2.55	3
Evaporative Fans	Install ECM/PSC evap fan motor	Med. or low temp. walk-in	motor	Commercial-Miscellaneous-Refrigeration-All	15	1,075.00	\$659.49	-	\$296.78	\$100.00	\$0.032	4.91	2.19	3

Measure Name	Measure Descriptions	Replacing	Measure unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
Evaporative Fans	Install ECM/PSC evap fan motor	Med. or low temp. reach-in	motor	Commercial-Miscellaneous-Refrigeration-All	15	429.00	\$263.18	-	\$84.45	\$60.00	\$0.032	3.57	2.95	3
Floating Head/Suction Pressures	Head pressure controller	Standard head pressure control	HP	Commercial-Miscellaneous-Refrigeration-All	16	440.00	\$283.03	-	\$272.60	\$80.00	\$0.032	3.01	1.09	3
Floating Head/Suction Pressures	Suction pressure controller	Standard suction pressure control	HP	Commercial-Miscellaneous-Refrigeration-All	16	104.00	\$66.90	-	\$86.91	\$20.00	\$0.032	2.87	0.82	2, 3
Demand Controlled Kitchen Ventilation Exhaust Hood	VFD installed on kitchen exhaust and/or makeup air fan	Kitchen hood with constant speed ventilation	HP	Commercial-Restaurant-Ventilation-All	15	4,423.00	\$2,983.59	-	\$1,991.00	\$200.00	\$0.032	8.74	1.54	3
Vending Machines	Non-cooled snack control	Vending machine with no sensor	sensor	Commercial-Miscellaneous-Miscellaneous-All	5	387.00	\$97.86	-	\$75.00	\$50.00	\$0.032	1.57	1.23	3
Commercial kitchen equipment	ENERGY STAR® undercounter (residential style) dishwasher	Code standards	machine	Commercial-Restaurant-Water Heating-All	12	2,210.00	\$1,208.79	\$228.31	\$232.00	\$200.00	\$0.032	4.47	5.15	3, 10
Commercial kitchen equipment	ENERGY STAR commercial dishwasher	Code standards	machine	Commercial-Restaurant-Water Heating-All	12	5,561.00	\$3,041.66	\$615.74	\$3,978.00	\$500.00	\$0.032	4.49	0.95	3, 9, 10
Commercial kitchen equipment	ENERGY STAR listed electric combination oven (6-15 pans)	Standard electric oven	oven	Commercial-Restaurant-Food Preparation-All	10	12,999.00	\$6,519.53	-	\$1,760.62	\$1,100.00	\$0.032	4.30	3.29	11
Commercial kitchen equipment	ENERGY STAR listed electric combination oven (16-20 pans)	Standard electric oven	oven	Commercial-Restaurant-Food Preparation-All	10	17,877.00	\$8,966.04	-	\$481.03	\$300.00	\$0.032	10.28	9.37	11
Commercial kitchen equipment	ENERGY STAR listed electric convection oven	Standard electric oven	oven	Commercial-Restaurant-Food Preparation-All	10	1,672.00	\$838.58	-	\$995.28	\$300.00	\$0.032	2.37	0.88	2, 12
Commercial kitchen equipment	ENERGY STAR listed electric fryer	Standard fryer	fryer	Commercial-Restaurant-Food Preparation-All	8	2,449.00	\$1,014.75	-	\$849.98	\$400.00	\$0.032	2.12	1.20	13
Commercial kitchen equipment	ENERGY STAR listed electric steamer - 3 pan	Standard steamer	steamer	Commercial-Restaurant-Food Preparation-All	9	21,470.00	\$9,837.89	-	\$389.45	\$80.00	\$0.032	12.83	10.05	14
Commercial kitchen equipment	ENERGY STAR listed electric steamer - 4 pan	Standard steamer	steamer	Commercial-Restaurant-Food Preparation-All	9	28,564.00	\$13,088.47	-	\$148.65	\$100.00	\$0.032	12.91	13.55	14
Commercial kitchen equipment	ENERGY STAR listed electric steamer - 5 pan	Standard steamer	steamer	Commercial-Restaurant-Food Preparation-All	9	35,659.00	\$16,339.50	-	-	\$150.00	\$0.032	12.66	13.92	14

Measure Name	Measure Descriptions	Replacing	Measure unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
Commercial kitchen equipment	ENERGY STAR listed electric steamer - 6 pan	Standard steamer	steamer	Commercial-Restaurant-Food Preparation-All	9	42,754.00	\$19,590.54	-	\$64.48	\$175.00	\$0.032	12.70	15.04	14
Commercial kitchen equipment	ENERGY STAR listed electric steamer -10 pan or larger	Standard steamer	steamer	Commercial-Restaurant-Food Preparation-All	9	71,133.00	\$32,594.24	-	\$4,414.68	\$200.00	\$0.032	13.16	5.36	14
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	Commercial-Miscellaneous-Ventilation-All	15	268.00	\$180.65	-	\$194.28	\$60.00	\$0.032	2.63	0.98	3, 9
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	Commercial-Miscellaneous-Ventilation-All	15	996.00	\$671.36	-	\$174.82	\$100.00	\$0.032	5.09	3.57	3
Variable speed controls	Variable speed drive on potato and onion storage shed ventilation	No existing VSD	HP	IPC_Onion Potato VSD	10	1,193.00	\$394.20	-	\$264.00	\$200.00	\$0.032	1.66	1.43	3
Dairy VFD	VFD on milking vacuum pump	No existing VSD	HP	Commercial-Miscellaneous-Miscellaneous-All	15	3,084.00	\$1,990.35	-	\$356.00	\$250.00	\$0.032	5.71	4.82	3

^a Average measure life.

^b Estimated kWh savings measured at the customer's meter, excluding line losses.

^c Sum of NPV of DSM alternate cost. Based on end-use load shape, measure life, savings including line losses, and alternate costs by pricing period as provided in the 2017 IRP. TRC test benefit calculation 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 2019 actuals.

^f UCT Ratio = (NPV DSM Alternate Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)

^g TRC Ratio = ((NPV DSM Alternate Costs * 110%) + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

¹ Evergreen Consulting Group, LLC. Idaho Power Lighting Tool. 2018.

² Measure not cost-effective from TRC perspective. Measure included in the program to increase participation in a cost-effective program and to encourage adoption of higher efficiency equipment.

³ Idaho Power TRM prepared by ADM Associates, Inc. 2018.

⁴ Idaho Power TRM prepared by ADM Associates, Inc. 2018. Averaged air cooled chillers.

⁵ Idaho Power TRM prepared by ADM Associates, Inc. 2018. Averaged water cooled chillers.

⁶ Idaho Power TRM prepared by ADM Associates, Inc. 2018. NEBs from water savings from RTF. ComClothesWashers_v5_1.xlsm. Simple average. 2018.

⁷ RTF. AgStockTankDe-Icer_v1_0.xlsm. 2018.

⁸ RTF. Showerheads_v3.1.xlsm.

⁹ Measure not cost-effective. Measure cost-effective without inclusion of admin costs.

¹⁰ Idaho Power TRM prepared by ADM Associates, Inc. 2018. NEBs from water savings from RTF. ComDishwasher_v1_2.xlsm. 2012.

¹¹ RTF. ComCookingCombinationOven_v2_3.xlsm. 2018.

¹² RTF. ComCookingConvectionOven_v2_3.xlsm. Simple average of half and full size ovens. 2018.

¹³ RTF. ComCookingFryer_v2_3.xlsm. 2018.

¹⁴ RTF. ComCookingSteamer_v2_4.xlsm. 2018.

Irrigation Efficiency Rewards

Segment: Irrigation
2019 Program Results

Cost Inputs		Ref
Program Administration	\$ 395,990	
Program Incentives.....	2,265,273	I
Total UC	\$ 2,661,263	P
Measure Equipment and Installation (Incremental Participant Cost).....	\$ 9,646,523	M

Net Benefit Inputs (NPV)		Ref
Resource Savings		
2019 Annual Gross Energy (kWh).....	10,073,455	
NPV Cumulative Energy (kWh).....	73,088,634	\$ 6,481,777 S
10% Credit (Northwest Power Act).....	648,178	
Total Electric Savings	\$ 7,129,954	A
Participant Bill Savings		
NPV Cumulative Participant Bill Savings	\$ 3,973,362	B
Other Benefits		
Non-Utility Rebates/Incentives	\$ -	NUI
NEBs	\$ 24,253,789	NEB

Summary of Cost-Effectiveness Results			
Test	Benefit	Cost	Ratio
UC Test	\$ 6,481,777	\$ 2,661,263	2.44
TRC Test	31,383,743	10,042,514	3.13
RIM Test.....	6,481,777	6,634,625	0.98
PCT	30,492,423	9,646,523	3.16

Benefits and Costs Included in Each Test			
UC Test.....	= S * NTG	=	P
TRC Test.....	= (A + NUI + NEB) * NTG	=	P + ((M-I) * NTG)
RIM Test	= S * NTG	=	P + (B * NTG)
PCT	= B + I + NUI + NEB	=	M

Assumptions for Levelized Calculations	
Discount Rate	
Nominal (WACC).....	6.74%
Real ((1 + WACC) / (1 + Escalation)) - 1	4.54%
Escalation Rate	2.10%
Net-to-Gross (NTG)	100%
Minimum NTG Sensitivity	41%
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. For Custom option, NEBs including yield, labor, and other benefits reported by the customer. For Menu option, NEBs from RTF. Green Rewind initiative is available to agricultural, commercial, and industrial customers. Agricultural motor rewinds are paid under Irrigation Efficiency Rewards, but the savings are not included in the program cost-effectiveness. Green Rewind savings are included in the sector cost-effectiveness.

Year: 2019

Program: Irrigation Efficiency Rewards

Market Segment: Irrigation

Program Type: Energy Efficiency

Measure Name ^a	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) ^b	Benefit			Cost			B/C Tests		Sources/ Notes
						Annual Gross Energy Savings (kWh/yr) ^c	NPV DSM Alternate Costs ^d	NEB	Gross Incremental Participant Cost ^e	Incentive/ Unit	Admin Cost (\$/kWh) ^f	UCT Ratio ^g	TRC Ratio ^h	
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	26.11	\$9.20	\$1.77	\$6.35	\$1.50	\$0.039	3.65	1.61	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	26.11	\$9.20	\$1.77	\$0.91	\$0.25	\$0.039	7.25	6.17	1
Sprinklers	Rebuilt or new brass impact sprinklers	Worn sprinkler	Unit	IPC_Irrigation	4	3.33	\$1.17	\$9.00	\$12.31	\$2.75	\$0.039	0.41	0.83	1, 2
Levelers	Rebuilt or new wheel line levelers	Worn wheel line leveler	Unit	IPC_Irrigation	5	4.59	\$1.97	\$4.68	\$6.23	\$0.75	\$0.039	2.12	1.07	1
Sprinklers	Center pivot/linear move: Install new sprinkler package on an existing system	Worn sprinkler system	Unit	IPC_Irrigation	5	24.30	\$10.45	\$11.00	\$25.15	\$8.00	\$0.039	1.17	0.86	1, 2
Gasket Replacement	New gaskets for hand lines, wheel lines, or portable mainline	Worn gasket	Unit	IPC_Irrigation	5	16.30	\$7.01	\$3.64	\$1.99	\$1.00	\$0.039	4.29	4.32	1
Drain Replacement	New drains, hand lines, wheel lines, or portable mainline	Worn drain	Unit	IPC_Irrigation	5	10.60	\$4.56	\$2.53	\$4.36	\$3.00	\$0.039	1.34	1.58	1
Hub Replacement	New wheel line hubs	Worn hubs	Unit	IPC_Irrigation	10	26.83	\$20.66	\$5.59	\$41.49	\$12.00	\$0.039	1.58	0.67	1, 2
New Goose Necks	New goose neck with drop tube or boomback	Worn gooseneck	Outlet	IPC_Irrigation	15	15.33	\$15.98	–	\$6.99	\$1.00	\$0.039	10.00	2.32	3
Pipe Repair	Cut and pipe press or weld repair of leaking hand lines, wheel lines, and portable mainline	Leaking pipe	Joint	IPC_Irrigation	8	46.88	\$30.13	\$11.58	\$12.08	\$8.00	\$0.039	3.07	3.22	1
Gasket Replacement	New center pivot base boot gasket	Worn gasket	Unit	IPC_Irrigation	8	1,950.04	\$1,253.37	–	\$391.29	\$125.00	\$0.039	6.23	2.95	1

^a Available measures in the Irrigation Efficiency Rewards 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 DSM alternate cost. Based on end-use load shape, measure life, savings including line losses, and alternate costs by pricing period as provided in the 2017 IRP. TRC test benefit calculation 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 2019 actuals.

^g UCT Ratio = (NPV DSM Alternate Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)

^h TRC Ratio = ((NPV DSM Alternate Costs * 110%) + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

¹ RTF_AgIrrigationHardware_v4_1.xlsm. 2019. Weighted average of Western Idaho (14.83%), Eastern Washington & Oregon (4.55%), and Eastern & Southern Idaho (80.63%).

² Measure not cost-effective. Measure to be monitored. Measure included to increase participation in a cost-effective program.

³ RTF_AgIrrigationHardware_v3_3.xlsm. 2016. Weighted average. Measure not included in v4_1.

Year: 2019

Program: Irrigation Efficiency Rewards—Green Motors

Market Segment: Irrigation

Program Type: Energy Efficiency

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
Green Motors Program Rewind: Motor size 15 HP	Green Motors Program Rewind: Motor size 15 HP	Standard rewind practice	Motor	IPC_Irrigation	18	222.19	\$259.80	–	\$128.35	\$30.00	\$0.050	6.32	2.05	1
Green Motors Program Rewind: Motor size 20 HP	Green Motors Program Rewind: Motor size 20 HP	Standard rewind practice	Motor	IPC_Irrigation	18	297.32	\$347.65	–	\$143.19	\$40.00	\$0.050	6.34	2.42	1
Green Motors Program Rewind: Motor size 25 HP	Green Motors Program Rewind: Motor size 25 HP	Standard rewind practice	Motor	IPC_Irrigation	17	447.57	\$505.70	–	\$163.60	\$50.00	\$0.050	6.99	2.99	1
Green Motors Program Rewind: Motor size 30 HP	Green Motors Program Rewind: Motor size 30 HP	Standard rewind practice	Motor	IPC_Irrigation	17	482.11	\$544.73	–	\$179.68	\$60.00	\$0.050	6.48	2.94	1
Green Motors Program Rewind: Motor size 40 HP	Green Motors Program Rewind: Motor size 40 HP	Standard rewind practice	Motor	IPC_Irrigation	17	561.43	\$634.35	–	\$219.58	\$80.00	\$0.050	5.87	2.82	1
Green Motors Program Rewind: Motor size 50 HP	Green Motors Program Rewind: Motor size 50 HP	Standard rewind practice	Motor	IPC_Irrigation	17	604.21	\$682.69	–	\$243.09	\$100.00	\$0.050	5.24	2.75	1
Green Motors Program Rewind: Motor size 60 HP	Green Motors Program Rewind: Motor size 60 HP	Standard rewind practice	Motor	IPC_Irrigation	21	553.16	\$704.80	–	\$286.69	\$120.00	\$0.050	4.77	2.47	1
Green Motors Program Rewind: Motor size 75 HP	Green Motors Program Rewind: Motor size 75 HP	Standard rewind practice	Motor	IPC_Irrigation	21	569.29	\$725.35	–	\$309.89	\$150.00	\$0.050	4.06	2.36	1
Green Motors Program Rewind: Motor size 100 HP	Green Motors Program Rewind: Motor size 100 HP	Standard rewind practice	Motor	IPC_Irrigation	21	751.39	\$957.37	–	\$384.42	\$200.00	\$0.050	4.03	2.50	1
Green Motors Program Rewind: Motor size 125 HP	Green Motors Program Rewind: Motor size 125 HP	Standard rewind practice	Motor	IPC_Irrigation	23	555.70	\$742.25	–	\$278.32	\$250.00	\$0.050	2.67	2.67	1
Green Motors Program Rewind: Motor size 150 HP	Green Motors Program Rewind: Motor size 150 HP	Standard rewind practice	Motor	IPC_Irrigation	23	660.58	\$882.33	–	\$310.01	\$300.00	\$0.050	2.65	2.83	1
Green Motors Program Rewind: Motor size 200 HP	Green Motors Program Rewind: Motor size 200 HP	Standard rewind practice	Motor	IPC_Irrigation	23	876.20	\$1,170.33	–	\$373.21	\$400.00	\$0.050	2.64	3.09	1
Green Motors Program Rewind: Motor size 250 HP	Green Motors Program Rewind: Motor size 250 HP	Standard rewind practice	Motor	IPC_Irrigation	19	1,357.04	\$1,636.65	–	\$479.67	\$500.00	\$0.050	2.88	3.29	1
Green Motors Program Rewind: Motor size 300 HP	Green Motors Program Rewind: Motor size 300 HP	Standard rewind practice	Motor	IPC_Irrigation	19	1,620.02	\$1,953.82	–	\$484.86	\$600.00	\$0.050	2.87	3.80	1
Green Motors Program Rewind: Motor size 350 HP	Green Motors Program Rewind: Motor size 350 HP	Standard rewind practice	Motor	IPC_Irrigation	19	1,888.64	\$2,277.79	–	\$508.18	\$700.00	\$0.050	2.87	4.16	1

Measure Name	Measure Descriptions	Replacing	Measure Unit	End Use	Measure Life (yrs) ^a	Benefit			Cost			B/C Tests		Source/ Notes
						Annual Gross Energy Savings (kWh/yr) ^b	NPV DSM Alternate Costs ^c	NEB	Gross Incremental Participant Cost ^d	Incentive/ Unit	Admin Cost (\$/kWh) ^e	UCT Ratio ^f	TRC Ratio ^g	
Green Motors Program Rewind: Motor size 400 HP	Green Motors Program Rewind: Motor size 400 HP	Standard rewind practice	Motor	IPC_Irrigation	19	2,141.43	\$2,582.66	-	\$567.59	\$800.00	\$0.050	2.85	4.21	1
Green Motors Program Rewind: Motor size 450 HP	Green Motors Program Rewind: Motor size 450 HP	Standard rewind practice	Motor	IPC_Irrigation	19	2,405.07	\$2,900.63	-	\$620.43	\$900.00	\$0.050	2.84	4.31	1
Green Motors Program Rewind: Motor size 500 HP	Green Motors Program Rewind: Motor size 500 HP	Standard rewind practice	Motor	IPC_Irrigation	19	2,676.03	\$3,227.42	-	\$670.27	\$1,000.00	\$0.050	2.85	4.42	1
Green Motors Program Rewind: Motor size 600 HP	Green Motors Program Rewind: Motor size 600 HP	Standard rewind practice	Motor	IPC_Irrigation	24	4,113.93	\$5,612.15	-	\$1,323.93	\$1,200.00	\$0.050	3.99	4.04	1
Green Motors Program Rewind: Motor size 700 HP	Green Motors Program Rewind: Motor size 700 HP	Standard rewind practice	Motor	IPC_Irrigation	24	4,779.22	\$6,519.72	-	\$1,444.40	\$1,400.00	\$0.050	3.98	4.26	1
Green Motors Program Rewind: Motor size 800 HP	Green Motors Program Rewind: Motor size 800 HP	Standard rewind practice	Motor	IPC_Irrigation	24	5,450.38	\$7,435.31	-	\$1,602.60	\$1,600.00	\$0.050	3.97	4.36	1
Green Motors Program Rewind: Motor size 900 HP	Green Motors Program Rewind: Motor size 900 HP	Standard rewind practice	Motor	IPC_Irrigation	24	6,118.68	\$8,346.99	-	\$1,766.79	\$1,800.00	\$0.050	3.96	4.43	1
Green Motors Program Rewind: Motor size 1,500 HP	Green Motors Program Rewind: Motor size 1,500 HP	Standard rewind practice	Motor	IPC_Irrigation	24	8,423.43	\$11,491.09	-	\$2,605.55	\$3,000.00	\$0.050	2.69	3.26	1

^a Average measure life.

^b Estimated kWh savings measured at the customer's meter, excluding line losses.

^c Sum of NPV of DSM alternate cost. Based on end-use load shape, measure life, savings including line losses, and alternate costs by pricing period as provided in the 2017 IRP. TRC test benefit calculation 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 2019 actuals.

^f UCT Ratio = (NPV DSM Alternate Costs) / ((Admin Cost/kWh * kWh Savings) + Incentives)

^g TRC Ratio = ((NPV DSM Alternate Costs * 110%) + NEB) / ((Admin Cost/kWh * kWh Savings) + Incentives + (Incremental Participant Cost - Incentives))

¹ RTF: Ind_and_Ag_GreenMotorRewind_v3_1.xlsm. 2017.