



## Evaluation Report for Idaho's FinAnswer Express Program (PY 2012 through 2013)

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## Executive Summary

This report describes the findings from Navigant’s impact and process evaluation of Rocky Mountain Power’s (RMP’s) Idaho FinAnswer Express program years 2012 through 2013 (PY 2012-2013), including program- and project-level gross and net realization rates, program cost-effectiveness results, and feedback from program participants concerning satisfaction and areas for improvement.

The program as a whole is operating effectively with an overall energy (kilowatt-hour [kWh]) realization rate of 98 percent, and demand (kilowatt [kW]) realization rate of 95 percent. The evaluation efforts found minor issues, addressed in the findings and recommendations sections below, however it appears FinAnswer Express’s transition to the *wattsmart* Business program will likely resolve most of them.

### *Program Background*

RMP’s FinAnswer Express program offered prescriptive incentives to commercial, industrial, and agricultural customers for the implementation of energy efficiency measures, including lighting; motors; heating, ventilation, and air conditioning (HVAC); building envelope; food service equipment; appliances; dairy/farm equipment; small compressed air; and other measures. The program also included a provision for custom incentives for energy efficiency measures (EEMs) not listed in the program’s prescriptive incentives tables.

### *Evaluation Objectives*

The impact and process evaluation of Idaho’s FinAnswer Express program independently assesses reported savings for PY 2012-2013 and recommends changes during the transition to the *wattsmart* Business program. This evaluation addresses the following objectives:

- » Verify the annual and combined 2012 through 2013 gross and net energy and demand impacts of RMP’s FinAnswer Express program<sup>1</sup>
- » Review the effectiveness of program operations, highlighting achievements and identifying opportunities for process improvement
- » Characterize participant motivations and trade ally feedback
- » Perform cost-effectiveness calculations on evaluated results for each year evaluated and in total

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<sup>1</sup> This evaluation verified site-level savings, as opposed to generation-level, which take into consideration transmission and distribution line loss savings.

### Impact Evaluation

The impact evaluation of RMP's FinAnswer Express program performed the following activities:

- » Quantifying the impacts of all measures and activities on annual gross energy consumption, while accounting for any interactions among technologies
- » Establishing post-implementation performance for installed measures and activities
- » Explaining discrepancies between the results of this study and the reported savings estimates

Evaluation metrics and parameters reported through this study include the following:

- » Gross program demand and energy savings estimates and realization rates for projects
- » Energy usage profiles for commercial and industrial technologies obtained through measurement and verification activities

The evaluation team characterized savings as “reported” and “evaluated.” Reported savings present project savings estimated at the time of measure installation. Evaluated savings present energy savings verified in a facility at the time of this evaluation.

### Summary of Impact Findings

The evaluation team conducted a combination of in-depth project file reviews, spreadsheet reviews, weather-normalized utility meter analysis, interviews with facility staff, and on-site audits to determine the evaluated savings for each project sampled during the 2012-2013 evaluation period. The verification sample included 21 of the 204 projects that participated in PY 2012-2013. The 21 projects represent 65 percent of reported program savings. The evaluation of this sample produced a savings estimate with 8 percent relative precision (margin of error) at the 90 percent confidence level.

The 2012-2013 gross program *demand savings* realization rate was 95 percent and the gross program *energy savings* realization rate was 98 percent. Table ES-1 provides the *program-level* reported and evaluated gross kilowatt (kW) and gross kilowatt-hour (kWh) realization rates at the customer meter.

**Table ES-1. Gross Program-Level Realization Rates for ID FinAnswer Express (PY 2012-2013)**

Program Year	Program-Reported kW	Gross Program Evaluated kW	Gross Program kW Realization Rate	Program-Reported kWh	Gross Program Evaluated kWh	Gross Program kWh Realization Rate
2012	847	827	98%	4,473,112	4,392,895	98%
2013	837	766	92%	5,356,043	5,24,745	98%
<b>All</b>	<b>1,684</b>	<b>1,594</b>	<b>95%</b>	<b>9,829,155</b>	<b>9,633,640</b>	<b>98%</b>

### Net-to-Gross (NTG) Ratio

The evaluation team used the results from program participant surveys to calculate a NTG ratio of 0.78 for Idaho’s FinAnswer Express PY 2012-2013. Section 3.3 provides further detail on the NTG results.

### Cost Effectiveness

The evaluation team used a cost-effectiveness model, calibrated and updated with RMP’s input parameters, to produce results for five primary cost tests: PacifiCorp’s Total Resource Cost test (PTRC), Total Resource Cost test (TRC), Utility Cost Test (UCT), Rate Impact Measure test (RIM), and the Participant Cost Test (PCT), for calculating the program’s benefit/cost ratios. Table ES-2 provides the cost-effectiveness results for the five cost tests over the evaluated PY 2012-2013.<sup>2</sup>

**Table ES-2. ID FinAnswer Express Cost-Benefit Results – PY 2012-2013 Combined (0.78 NTG)**

Benefit/Cost Test Performed	Evaluated Gross Savings (kWh)	Evaluated Net Savings (kWh)	Evaluated Costs	Evaluated Benefits	B/C Ratio
Total Resource Cost Test (PTRC)	9,633,640	7,514,239	\$3,327,166	\$5,728,991	1.72
Total Resource Cost Test (TRC)	9,633,640	7,514,239	\$3,327,166	\$5,208,174	1.57
Utility Cost Test (UCT)	9,633,640	7,514,239	\$1,738,520	\$5,208,174	3.00
Rate Impact Test (RIM)	9,633,640	7,514,239	\$6,969,331	\$5,208,174	0.75
Participant Cost Test (PCT)	9,633,640	7,514,239	\$3,237,236	\$7,642,567	2.36

### Process Evaluation

The process evaluation sought to characterize the FinAnswer Express program from the perspective of program staff, participants, and trade allies in order to identify both existing strengths and areas for refinement as the program transitions to become the prescriptive portion of Idaho’s *wattsmart* Business program.

The evaluation team surveyed 84 participants for PY 2012-2013 and combined results with information from program staff interviews to create a comprehensive view of the FinAnswer Express program from 2012 to 2013 in Idaho.

**Important findings** from the process evaluation include the following:

- » **The program has worked as intended for participants.** Participant respondents described the program operating as expected.
- » **The program leveraged trade allies successfully as a marketing source.** Of participant respondents, 58 percent learned about the program through a trade ally, vendor, or contractor.

<sup>2</sup> Section 3.3 provides cost-benefit inputs and results for each individual year of the evaluation.



Additionally, 10 percent of respondents learned about the program through a business colleague.

- » **Program satisfaction was high for participants.** Of participant respondents, 92 percent were satisfied with the program overall, and 96 percent of participants who worked with trade ally vendors were satisfied with their vendor. More than half of participant respondents also reported that the energy savings met their expectations and they received non-energy benefits.
- » **Financial incentives and economic information were the most influential components of the program.** Participant respondents reported that the program incentive and saving money motivated them to participate. They also indicated the program incentive and information on payback and energy savings were important to their decision to participate and install energy efficient equipment.
- » **Opportunities exist for past participants of the program to consider new energy efficient projects.** Only 39 percent of participant respondents indicated the potential for additional energy efficiency projects at their facilities. However, less than one-quarter of those had plans in place for those projects. This data indicates that an opportunity exists for RMP to play a role in motivating current and past participants to pursue additional energy efficiency projects through the utility.

### *Program Evaluation Recommendations*

FinAnswer Express is a well-functioning EE program. Program effectiveness could be enhanced for trade allies and customers by considering the following recommendations.

- » **Recommendation 1. When entering lighting project details into the program tracking database, use measure sub-types that allow for greater resolution in the application of effective useful life (EUL) values.** Capturing measure sub-types for lighting projects provides for greater detail when identifying conditions such as effective useful life (EUL) and savings estimates. For example, lighting controls, LEDs, CFLs and linear fluorescent lamps should each receive different EULs. PacifiCorp cannot apply this level of detail without first identifying sub-types within the database. The four lighting groups listed here are a suggested starting point for the applicable sub-types, but the final selection should be determined, at least in part, by the intended future source of the EUL. It is likely that the shift to the *wattsmart* Business program in PY 2014 will include adding measure sub-types, but as of this evaluation in PY 2012-2013, they are not apparent.
- » **Recommendation 2. Use greater resolution in the application of effective useful life (EUL) values in the program tracking database.** Applying a single EUL to all lighting measures potentially underrepresents energy savings, cost-effectiveness, and associated resource value for LEDs, as well as overestimates the life expectancy of lighting controls. EULs are currently based on the 2008 version of DEER and heavily weighted toward fluorescent lamps. Lighting measures contribute nearly 90 percent of total program savings and fine-tuning the EUL applied for these projects will offer greater confidence in the final cost benefit ratio for this measure category.<sup>3</sup>

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<sup>3</sup> See Figure 5 in section 3.4 for the direct impacts of EUL adjustments on PacifiCorp's Total Resource Cost test.

PacifiCorp currently tracks projects which include LED lamps at the measure level so applying an LED EUL should not be difficult. However, the database tracks lighting control savings in aggregate with lighting fixtures, and projects that may combine multiple technologies are often entered as “lighting packages.” PacifiCorp must list these technologies separately in order to apply varying EULs (see recommendation #1).<sup>4</sup>

- » **Recommendation 3. Expand information message to include other opportunities.** Customers were mostly satisfied with the program and their measures, but the majority were not aware that they could make additional improvements. The program’s information on energy savings opportunities and payback, as well as the design that reduces first costs, help customers overcome barriers to moving forward. Program managers could include short information on additional measures that customers may want to consider. This could be provided with the incentive disbursement or in some other form. Customers tend to find the case studies valuable, but they may not have seen businesses similar to themselves in the marketing materials. One way to nudge customers would be to flag key measures that other similar customers have installed based on tracking data. For example, a convenience store may be see: “Establishments similar to yours have saved money through projects that include improvements to: Lighting, Energy Management Systems, and LED Case Lighting”. Current tracking data may not collect enough information about customers to populate this suggestion system, and program managers may want to use other resources to make suggestions. A more general statement could be included with the program materials to remind customers that they probably have other areas where they could improve. However, this will not help customers over the information barrier. The level of effort put into encouraging more energy efficiency activity should be in proportion to the program performance towards goals and cost-effectiveness.

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<sup>4</sup> The updated 2014 version of DEER provides guidance on EUL by specific lighting technology, but further secondary research in this area is advisable prior to implementation of this recommendation.

## 1 Introduction

This report describes the findings from Navigant Consulting, Inc.'s (Navigant's) impact and process evaluation of Idaho's FinAnswer Express program years 2012-2013 (PY 2012-2013). This section provides a description of Idaho's FinAnswer Express program, along with a discussion of the underlying program theory and logic model depicting the activities, outputs, and desired outcomes of the program.<sup>5</sup>

### 1.1 Program Description

Rocky Mountain Power (RMP)'s FinAnswer Express program in Idaho offered prescriptive incentives to commercial, industrial, customers for the implementation of energy efficiency measures (EEMs), including lighting; motors; heating, ventilating, and air conditioning (HVAC); building envelope; food service equipment; appliances;; dairy/farm equipment; small compressed air; and other measures. Incentives were available for both retrofit projects and new construction/major renovation projects. The program also included a provision for custom incentives for EEMs not listed in the program's prescriptive incentives tables. Customers were eligible if served under RMP's commercial, industrial, or general service rate schedules: 6, 6A, 8, 9, 12, 19, 23, 23A, 24, 35 and 35A. .

#### 1.1.1 Program Delivery

Trade Ally Coordinators recruited, trained, and maintained a network of trade ally vendors and contractors who submit a participation agreement to request to become an approved vendor under the FinAnswer Express program.<sup>6</sup> Approved trade allies promoted the program and appeared on the RMP website as a participating trade ally. Some trade allies worked with the program for multiple measures, such as contractors that installed both lighting and HVAC; other allies specialized in just one area (i.e., shops that conducted green motor rewinds). This trade ally network, known as the Energy Efficiency Alliance (EEA), along with RMP project managers working with energy engineering consultants, functioned as the primary channels for program delivery.

#### 1.1.2 Program Eligibility

Program brochures provided specific eligibility criteria and requirements for each type of equipment incentivized under the FinAnswer Express program. RMP paid incentives upon project completion. For retrofit lighting and custom incentive measures, RMP capped incentives so that simple payback was not less than one year.

RMP provided specific tools such as a lighting calculator to enable the trade allies to accurately estimate savings and potential incentives to aid in customer decision-making. If the estimated incentive exceeded

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<sup>5</sup> The descriptions provided in this section apply to the FinAnswer Express program prior to its transition to the *wattsmart* Business program in November of 2014. See the RMP website for updated program descriptions and eligibility requirements under the new *wattsmart* Business program.

<sup>6</sup> Nexant Inc. and its subcontractors, Evergreen Consulting and Green Motors Practices Group, acted as Trade Ally Coordinators for the lighting, HVAC, motors, food service, building envelope, and office measures (majority of the 2012-2013 FinAnswer Express projects in Idaho). Cascade Energy acted as Trade Ally Coordinator for, dairy/farm, and small compressed air projects for PY 2012-2013.

a specified threshold, PacifiCorp flagged the project for pre-inspection. The pre-inspection served as a baseline to ensure quality savings estimates by verifying the number and operation of currently installed equipment.

Non-lighting retrofits and new construction equipment purchased through trade allies or other vendors had the option of using the post-purchase incentive path where the customer makes an efficient purchase that meets the program requirements and applies for an incentive through RMP after purchasing the equipment. After purchase and installation, the customer or trade ally submits project documentation noting completion of the project to the trade ally coordinator. Trade allies also receive assistance from the trade ally coordinator before submitting the application. For example, these allies may need to ensure that equipment qualifies, understand trade-offs between equipment, get help filling out applications, and estimate savings.

## ***1.2 Program Changes from 2012 to 2013***

During the evaluated period from January 2012 to December 2013, there were no major changes to the FinAnswer Express program (Tariff 115). However, in July 2012, the Commission approved flexible management of the tariff. This allowed the program staff to update the program to ensure that it kept up with changing market and customer needs. Updates under the flexible tariff were used for updating qualifying measures, and enhancing the trade ally relationships. RMP began marketing the FinAnswer Express program under the *wattsmart* campaign during PY 2011 and in November, 2014 formally transitioned FinAnswer Express to become the prescriptive portion of the *wattsmart* Business program. Future evaluations will no longer include a separate FinAnswer Express program as part of the evaluation portfolio.

### 1.3 Program Participation

PY 2012-2013 results included 204 completed FinAnswer Express projects in Idaho: 81 projects in 2012 and 123 in 2013 and reported 9,829 MWh in energy savings over the two-year period. Table 1 summarizes the program project counts that included the installation of the associated measure category.<sup>7</sup>

**Table 1. Idaho FinAnswer Express Project Details (PY 2012-2013)**

Measure Category	Measure Type Counts <sup>8</sup>	2012-2013 Reported Energy Savings (kWh)
Lighting	173	8,694,494
HVAC	20	586,911
Dairy Farm Equipment	16	266,128
Building Shell	15	150,828
Food Service	11	73,004
Compressed Air	2	56,783
Motors	1	1,009
<b>Total</b>	<b>238</b>	<b>9,829,157</b>

### 1.4 Program Theory and Logic Model

Program logic models depict the primary program activities, the actions required to implement the program, the outputs expected to result from each activity, and the expected short-, mid-, and long-term outcomes of those activities. This includes marketing, participant recruitment, and training, among others. The outputs depict tangible, tracked, or tallied “products” resulting from each primary activity (i.e., marketing materials, training documents, and databases of recruited participants). Outcomes represent the intended results of successful deployment of the identified activities.

Developing a logic model that clearly provides the theory of action and change is an important step in evaluation, allowing the evaluator and program actors to see inside the program “black box.”<sup>9</sup> Program logic models provide a framework for an evaluation by highlighting key linkages between program activities and expected outcomes. The process and impact evaluations focus on these linkages, particularly those on the critical path to achieving savings goals. The evaluation identifies properly

<sup>7</sup> Measure categories here are from the program database and do not adjust for any incorrect classifications.

<sup>8</sup> For lack of a better term, Navigant uses “measure type counts” in this table even though these numbers more strictly align with *the number of line items in the tracking database* by measure category. A single project could have multiple line items in the tracking database for the same measure category, as well as include multiple measure categories.

<sup>9</sup> Sue Funnell and Patricia Rogers, 2011, *Purposeful Program Theory: Effective Use of Theories of Change and Logic Models*, John Wiley & Sons.

working linkages in the program logic model, as well as weak or broken linkages that could cause program shortfalls in achieving the intended short-, mid-, or long-term outcome(s).<sup>10</sup> With this foundation, the evaluation team can then make informed choices related to the prioritization and focus of evaluation resources.

The evaluation team reviewed program documentation and spoke with program managers and administrators to verify the underlying theory for the FinAnswer Express program pre- and post-purchase logic models (Figure 1 and Figure 2).<sup>11</sup>

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<sup>10</sup> Section 4.2, Question 3 provides more specifics on the logic model review.

<sup>11</sup> The transition to the new *wattsmart* Business program renders the FinAnswer Express logic model obsolete beginning November 2014. Appendix E provides the new *wattsmart* Business program logic model for use in future evaluations.

Figure 1. FinAnswer Express Program Pre-Purchase Logic Model (developed 2011)

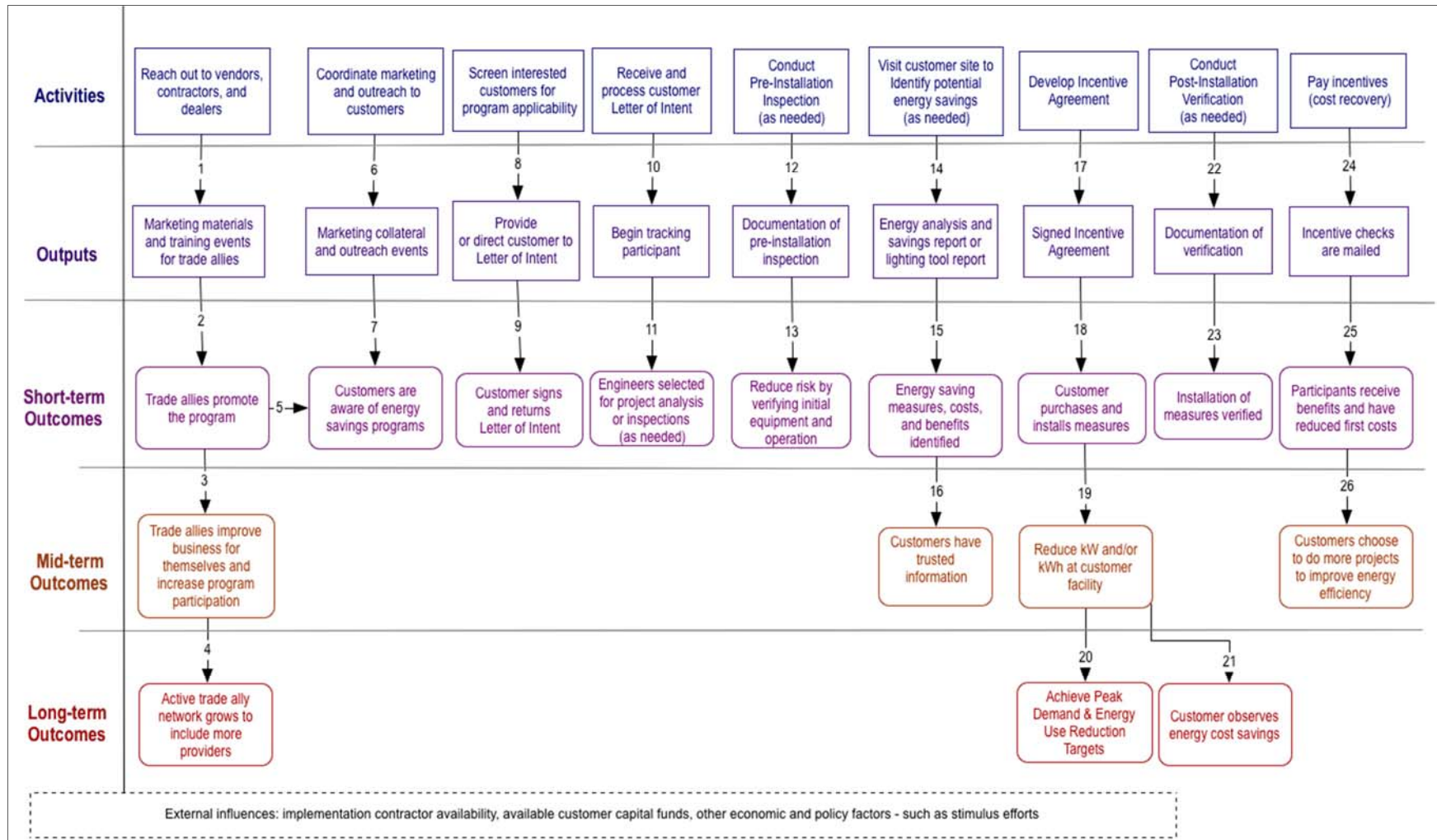
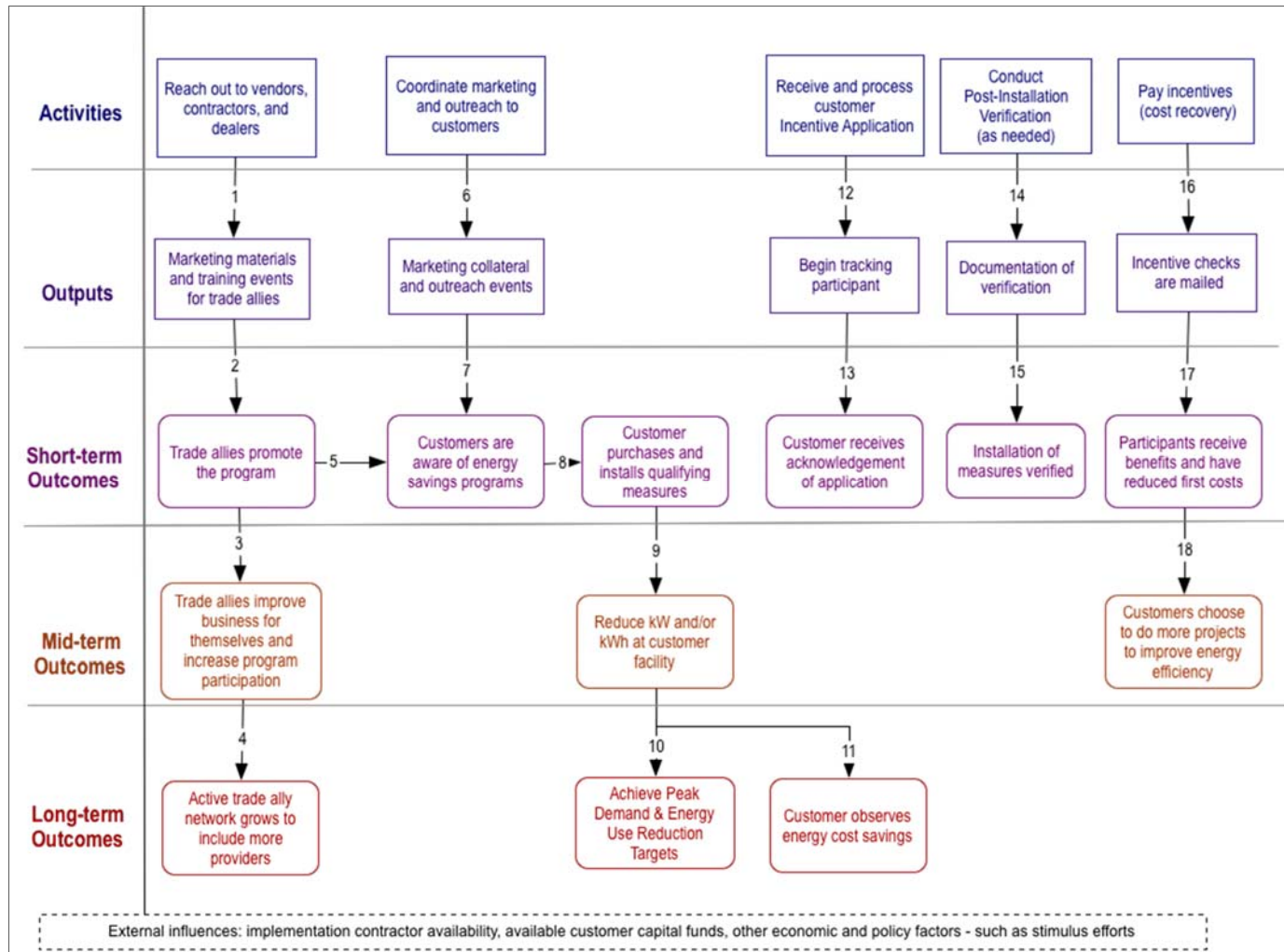


Figure 2. FinAnswer Express Program Post-Purchase Logic Model (developed 2011)





The FinAnswer Express program designed the pre-purchase path to overcome three non-residential customer barriers to implementing energy efficiency projects: high first costs, long payback periods, and lack of trusted information. The program’s primary intervention for overcoming these barriers is through the provision of technical assistance and incentives. The following describes the linkages within the program logic, with numbers corresponding to those shown in the pre-purchase path logic model figure (Figure 1):

1. RMP and the trade ally coordinator reach out to trade allies to develop an EEA that covers eligible EEMs.
2. RMP provides the EEA with marketing materials, estimation software tools (lighting), and training on the program. In addition, RMP holds annual vendor meetings and workshops to review the FinAnswer Express program and the support available for participating allies.<sup>12</sup> Newsletters provide allies with program information between meetings and workshops.
3. The EEA promotes the program to customers.
4. The program, through increased awareness and participation, and the EEA, through increased business, benefit from the EEA promoting the program.
5. Trade ally success with the program encourages more EEA participation.
6. RMP coordinates marketing efforts with the trade ally coordinator and outreach through account managers.
7. Customers become aware of the program or general energy efficiency assistance through marketing and trade allies.
8. Aware customers express interest through the RMP efficiency program phone number, online inquiry form, email to the energy expert, or through their customer or community manager. RMP directs customer inquiries to the appropriate manager or to the third-party trade ally coordinator, as applicable.
9. Managers and third-party trade ally coordinators direct retrofit lighting and custom project customers to submit a letter of intent (LOI) to begin the program process. New construction lighting projects and non-lighting projects start with the incentive application; see the post-purchase logic model in Figure 2.
10. The trade ally coordinator and the RMP PM receive and review submitted LOIs; they coordinate to ensure project tracking by the appropriate office. The trade ally coordinator manages most projects.
11. If necessary for the project, the trade ally coordinator schedules an inspection of the customer facility before participation.
12. The inspector conducts an inspection and submits an inspection report to the trade ally coordinator.

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<sup>12</sup> These events are held at least annually; vendors are not required to attend. The public is welcome at vendor events.

13. The pre-installation inspection reduces the risk of miscalculating energy savings by verifying initial equipment and operating conditions.
14. If necessary, a trade ally or outside engineer performs an energy analysis to identify measures and estimate associated energy savings and investment costs. For retrofit lighting projects, the trade ally performs calculations using a lighting software tool. For custom, PM-directed projects, an engineer may perform an audit of the site.
15. Project files document energy savings.
16. The program provides energy savings estimates to the customer. The customer can rely on this information to make decisions, reducing information barriers.
17. The trade ally coordinator or RMP PM creates an incentive agreement for the customer. The customer signs the incentive agreement.
18. The customer or their contractor purchase or install EEMs. Customers or trade allies submit notification of project completion along with receipts/invoices.
19. EEMs reduce energy consumption (and, in some cases, demand) at the facility.
20. Reduced energy consumption contributes to meeting annual program targets.
21. Customers experience reduced energy costs.
22. If project size necessitates it, an inspector examines the measures to verify proper installation.
23. Verification ensures that expected savings occur.
24. RMP processes incentives after the final incentive calculations and mails the incentive checks.
25. The customer receives the incentive. Incentives reduce customer costs for the project and the payback period.
26. Successful project completion encourages additional energy efficiency action on the part of the customer.

The FinAnswer Express program designed the post-purchase path to use incentives to overcome commercial and industrial customer barriers to implementing energy efficiency projects: high upfront costs and long payback periods. The following list describes the linkages within the program logic, with numbers corresponding to those shown in the logic model (Figure 2):

1. RMP and the trade ally coordinator reach out to trade allies to develop an EEA that includes allies for all eligible EEMs.
2. RMP provides the EEA with marketing materials, estimation software tools (lighting), and training on the program. In addition, RMP holds annual vendor meetings and workshops to review the FinAnswer Express program and the support available for participating allies. Newsletters provide allies with program information between meetings and workshops.
3. The EEA promotes the program to customers.

4. The program, through increased awareness and participation, and the EEA, through increased business, benefit from the EEA's promotion of the program. The EEA promotes the program, increasing program awareness and participation, and increasing EEA business.
5. Success with the program encourages more EEA participation.
6. RMP coordinates marketing efforts with account managers and Nexant.
7. Customers become aware of the program or general energy efficiency assistance through marketing and trade allies. Some customers, especially large customers working with a RMP customer account manager, may come into the program without working with a trade ally and instead receive information about the program from a RMP PM.
8. Customers purchase and install (if required) qualifying EEMs. Qualifying EEMs are those listed on RMP's prescriptive incentive tables.
9. EEMs reduce energy consumption (and, in some cases, demand) at the facility.
10. Reduced energy consumption contributes to meeting annual program targets.
11. Customers experience reduced energy costs.
12. Customers submit a completed incentive application (available on RMP's website) and submit receipts/invoices. RMP processes the incentive applications.
13. RMP adds the customer's project to a program project tracking database and sends the customer an "application received" notification.
14. If project size necessitates it, an inspector examines the measures to verify proper installation.
15. Verification ensures that expected savings occur.
16. RMP processes incentives after the final incentive calculation and mails incentive checks.
17. The customer receives the incentive. Incentives reduce customer costs for the project.
18. Successful project completion encourages additional energy efficiency action on the part of the customer.

As part of the program evaluation, the evaluation team compared program outcomes in place with the outcomes expected in the logic model. In order to make this comparison, the team identified indicators for each expected outcome, as well as sources of indicator data. In some cases, the team directly observed these indicators from program tracking data or other archives, or through analysis of survey or interview responses.

Table 2 identifies key indicators and data sources for FinAnswer Express program outcomes (short, medium, and long term) shown in the logic models.

**Table 2. Indicators and Data Sources for Program Outcomes**

Outcome	Indicator	Data Source
<b>Short-Term Outcomes</b>		
Trade allies promote the program	Trade ally behavior; customer awareness	Trade ally interviews customer surveys
Customers are aware of the program	Non-participant awareness	Customer surveys
Customer signs and returns LOI	LOI in project file; date of LOI tracked	Project files, program tracking database
Engineers selected for inspections and analysis (as needed)	Engineering firms identified	Program tracking database
Risk reduced by verifying initial equipment and operation	Pre-inspections	Program tracking database; customer surveys
Customer purchases and installs qualifying measures	Invoices, lighting worksheets, verification, customer reports installation	Program tracking database; customer surveys
Customer receives acknowledgement of application	Letter in project file, customer reports receipt of acknowledgement	Project files, customer surveys
Installation of measures verified	Verification in project file	Project files, customer surveys
Customers receive benefits and have reduced first costs	Customer's receipt of benefits and reduced first costs	Program tracking database, customer surveys
<b>Mid-Term Outcomes</b>		
Trade allies improve business for themselves and increase participation	Trade ally business impact, customer participation	Trade ally interviews, program tracking database
Customers have trusted information	Customers find guidance valuable	Customer surveys
kW and/or kWh at customer facility reduced	Customers realize expected savings	Customer surveys
Customers choose to do more projects to increase energy efficiency	Repeat participation, spillover	Customer surveys, program tracking database
<b>Long-Term Outcomes</b>		
Trade ally network grows to include more active providers	EEA activity	Program tracking database
Achieve peak demand and energy use reduction targets	Reported program savings meet savings targets	Program savings targets; third-party administrator contracts; program-reported savings in program tracking database
Customers observe energy cost savings	Customers realize expected savings	Customer surveys

## 2 Evaluation Methodology

The following section describes the evaluation methodologies used in Idaho’s FinAnswer Express program over PY 2012-2013. The evaluation team developed and informed these methods through an independent review of evaluation best practices.<sup>13</sup>

### 2.1 *Impact Evaluation Methodology*

This section summarizes the impact evaluation methods used to develop project- and program-level realization rates for the FinAnswer Express program. Findings provide RMP staff with the independent and quantitative feedback they can use to increase program efficacy.

The impact evaluation of Idaho’s FinAnswer Express program characterized energy and demand impacts for incented projects in PY 2012-2013, by:

- » Quantifying the impacts of all measures and activities on annual gross energy consumption while accounting for any interactions among technologies
- » Establishing post-implementation performance for installed measures and activities
- » Explaining discrepancies between the results of this study and the reported savings estimates

Evaluation metrics and parameters reported through this effort include the following:

- » Gross program demand and energy savings estimates and realization rates for projects
- » Energy usage profiles for commercial and industrial technologies metered through on-site measurement and verification (M&V) activities

See section 3 for gross impact results.

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<sup>13</sup> See Appendix D for detail on measurement and verification (M&V) best practices.

The sample for Idaho’s FinAnswer Express program contained lighting, HVAC, building shell, and dairy equipment measures, and the team used the International Performance Measurement and Verification Protocols (IPMVP) Option A to determine savings, using post-installation logged data for most projects and spot readings or reviewed deemed values for the remainder.<sup>14</sup> Table 3 provides a brief explanation of options A, B, and C for reference.

**Table 3. IPMVP Evaluation Options A, B, and C**

IPMVP M&V Option	Measure Performance Characteristics	Data Requirements
<p><b>Option A:</b> Engineering calculations based on spot or short-term measurements, and/or historical data. Deemed energy savings fall in this option.</p>	Constant Performance	<ul style="list-style-type: none"> <li>• Verified installation</li> <li>• Nameplate or stipulated performance parameters</li> <li>• Spot measurements</li> <li>• Run-time hour measurements</li> <li>• Some <i>estimated</i> (non-measured) data, including baseline schedule or power</li> </ul>
<p><b>Option B:</b> Engineering calculations using metered data.</p>	Constant or variable performance	<ul style="list-style-type: none"> <li>• Verified installation</li> <li>• Nameplate or stipulated performance parameters</li> <li>• End-use metered data</li> <li>• All parameters measured, including baseline and post-retrofit</li> </ul>
<p><b>Option C:</b> Analysis of utility meter (or sub-meter) data using techniques from simple comparison to multi-variant regression analysis.</p>	Variable performance	<ul style="list-style-type: none"> <li>• Verified installation</li> <li>• Utility metered or end-use metered data</li> <li>• Engineering estimate of savings input to SAE model</li> </ul>

For lighting projects, the evaluation team applied IPMVP Option A using pre-retrofit lighting counts (provided in project documentation and verified through customer interview) in combination with visually verified post-retrofit fixture specifications and quantities or code lighting power density (LPD) to determine the system’s baseline connected load. The team then converted the lighting counts to total connected load through reference tables sourced from the Regional Technical Forum (RTF) and, as necessary, California’s 2010 NRR-DR Procedures Manual. These reference tables contain the deemed, fixture-level energy demand for thousands of individual lighting fixture/lamp/ballast combinations. The team confirmed hours of use (HOU) using daily and weekly lighting use profiles custom generated for each site based on logged fixture on/off cycling data collected over a minimum period of four weeks.

<sup>14</sup> For more information regarding IPMVP options and definitions, see [http://www.evo-world.org/index.php?option=com\\_content&view=article&id=272&Itemid=397&lang=en](http://www.evo-world.org/index.php?option=com_content&view=article&id=272&Itemid=397&lang=en).

The team used Option A for weather dependent HVAC retrofit projects, verifying equipment specifications and quantities and taking post-retrofit spot measurements of the incanted equipment. Short-term monitoring involved logging equipment supply current and using spot measurements to determine power over a period of at least four weeks. Navigant also collected operating schedules during the site walkthrough, and confirmed them with logged data, then used this data to characterize the sequence of operations and operating hours for the equipment. Regressions were created to relate the equipment's energy consumption to outdoor weather conditions from the nearest NOAA weather station. Navigant then used TMY3 weather data for the specific project location, using separate regressions for occupied and unoccupied schedules, to create an annual profile of site-specific weather conditions. The team then calculated energy consumption and demand for the equipment on an annual basis by applying the regression of equipment power to the annual weather conditions and operating schedule at the site. Savings was calculated by comparing the post-retrofit consumption and demand profiles with the pre-retrofit consumption and demand profiles.

Navigant used Option A to evaluate the building shell retrofit project in the sample. The team verified the characteristics and area totals for the retrofit, including the building schedule and HVAC setpoints, insulation levels, and/or glazing characteristics, and gathered both pre- and post-retrofit characteristics and area totals. The team then created an annual weather profile was created using TMY3 weather data specific to the site, and calculated the pre- and post-retrofit energy consumption and demand using annual hourly weather conditions, building schedules and the details of the building shell retrofit. Savings was calculated by comparing pre- and post-retrofit energy consumption and demand. Savings from windows were calculated using deemed values.

The dairy farm equipment retrofit project was evaluated using Option A. The evaluation team verified equipment specifications and quantities, and then took post-retrofit spot measurements of the incanted equipment. Short-term monitoring involved logging current to the installed VFD over a period of several weeks in order to characterize the load and operating hours for the equipment. Navigant then calculated energy and demand savings for the equipment on an annual basis.

### **2.1.1 Project File Reviews**

A thorough review of the FinAnswer Express project files allowed the evaluation team to increase the accuracy of calculated measure savings and demand reductions, thereby ensuring that they were representative of installed conditions. The evaluation team reviewed each project file, characterizing data gaps, looking for consistency issues, and checking for accuracy of the information used to estimate project-level savings. Identifying missing data early in the evaluation cycle ensured PacifiCorp could follow up on additional requests efficiently.

Figure 3 presents an example of the overview of parameters verified through the project file review process. Note: the values below are fictitious and not actual examples from the RMP database.

**Figure 3. Parameters Verified through Project File Reviews (example)**

<b>FinAnswer Express Project Summary - Lighting</b>	
<b>Project Name</b>	<i>Fictitious Example</i>
<b>Customer Name</b>	<i>Acme Corp, Inc.</i>
<b>Project Number</b>	<i>FE000_00###</i>
<b>Energy Savings Claimed (kWh)</b>	<i>120,243</i>
<b>Verified Energy Savings (kWh)</b>	<i>determined through on-site evaluation</i>
<b>Energy Savings Realization Rate</b>	<i>determined through on-site evaluation</i>
<b>Demand Savings Claimed (kW)</b>	<i>30.0</i>
<b>Verified Demand Savings (kW)</b>	<i>determined through on-site evaluation</i>
<b>Demand Saving Realization Rate</b>	<i>determined through on-site evaluation</i>
<b>Total Project Cost</b>	<i>\$78,669</i>
<b>Verified Total Project Cost</b>	<i>\$78,669</i>
<b>Reported Incentive</b>	<i>\$18,324</i>
<b>Verified Incentive</b>	<i>\$18,324</i>
<b>Energy Realization Rate Notes</b>	<i>Example, filled in after analysis completed: The kWh realization rate is above 100% because data loggers showed that some areas have 8,760 operating hours rather, than the claimed 5,280 hours of use.</i>
<b>Demand Realization Rate Notes</b>	<i>Example, filled in after analysis completed: Higher demand RR is due to our estimated demand diversity factor being 0.85 rather than the claimed 0.78.</i>
<b>Other Site Notes</b>	<i>QC Check Complete</i>

*Verified energy and demand savings from the site specific analysis.*

### 2.1.2 Sampling Frame Development

For the evaluation of the Energy FinAnswer program, the evaluation team adopted a *ratio estimation* approach to sampling, which achieved increased precision and reliability by taking advantage of a relatively stable correlation between an auxiliary variable and the variable of interest (i.e., the ratio of actual savings to program-reported savings). This approach served to reduce the overall coefficient of variation (CV) within the population.<sup>15</sup>

<sup>15</sup> For Idaho’s FinAnswer Express program, the evaluation team assumed a standard CV of 0.4 for Tiers 1 and 2 and 0.6 for Tier 3 when developing the sample framework. The CV corresponds to the expected standard deviation of the realization rate for the program in this evaluation cycle. Navigant selected these CV values based on experience with similar C&I energy efficiency program evaluation results.



Moreover, the evaluation team proportionately stratified the sample by program-reported savings into three subgroups (i.e., strata). The evaluation team selected projects proportionately within each stratum to ensure the following:

1. The evaluation of the largest projects and contributors to program performance
2. The fair representation of medium and smaller projects in the evaluation

The impact evaluation achieved 90/8 confidence and precision across PY 2012-2013 by energy savings (kWh).<sup>16</sup> Table 4 provides an overview of the impact evaluation framework representing 65 percent of the reported FinAnswer Express program savings.

**Table 4. Overview of the ID FinAnswer Express Evaluation Sampling Framework**

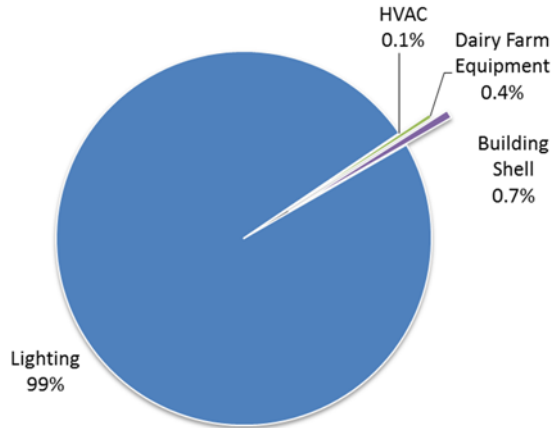
Sample Strata	kWh Threshold for Stratification (lower limit)	Total Number of Projects	Projects in Sample	Program-Reported MWh	Gross Sample Reported MWh	Portion of Reported Savings Evaluated <sup>17</sup>
1	500,000	4	4	4,814	4,814	100%
2	100,000	9	6	1,925	1,281	67%
3	0	191	11	3,090	295	10%
<b>Total</b>	-	204	21	9,829	6,391	65%

<sup>16</sup> The evaluation team planned for 90/10 by program and state. Actual CV for strata 1 is 0.08, strata 2 is 0.50, and strata 3 is 0.45.

<sup>17</sup> This percentage represents the portion of the reported program savings that fell within the bounds of the evaluation sample frame. It does not represent the relation between the reported and evaluated savings numbers in the prior two columns.

Figure 4 shows the distribution of measure categories across the final sample frame.

**Figure 4. Measure Categories Included in Sample Frame**



### 2.1.3 Gross Energy and Demand Realization Rate Calculation

The impact evaluation team combined gross energy and demand realization rates for each project in the impact evaluation sample to form *program-level* realization rates for each program year. The team researched the following technical issues in order to accurately determine *gross* program impacts and realization rates:

- » The appropriateness of the pre-installation technology performance baseline via project file and secondary literature review
- » Installation and quantity of claimed measures
- » Baseline and measure performance characteristics of the measures installed, and revision of performance variables (i.e., operating hours) as needed
- » Load shapes for the EEMs installed through the programs
- » Demand savings (kW) and energy savings (kWh) impacts of the efficiency measures installed for sampled projects<sup>18</sup>

<sup>18</sup> The evaluation team combined individual measure-strata realization rates into a weighted average realization rate for the given measure, as well as for the sample as a whole. The team applied the sample-level weighted realization rate to measures in the population not reflected or under-represented in the sample. The team also applied measure-level weighted realization rates to measures with sufficient representation in the sample (i.e., lighting, HVAC, and building shell) in order to extrapolate them to the population.

### 2.1.4 Program Cost Effectiveness

The cost effectiveness of utility-funded programs in the state are typically analyzed using tests prescribed by the California Standard Practice Manual.<sup>19</sup> For the purposes of this evaluation, RMP specifically required the following cost-effectiveness tests:

- » PacifiCorp Total Resource Cost Test (PTRC)
- » Total Resource Cost Test (TRC)
- » Utility Cost Test (UCT)
- » Ratepayer Impact (RIM)
- » Participant Cost Test (PCT)

The evaluation team worked with RMP to understand the PTRC and construct a tool that calculates the PTRC at the measure, program, and portfolio levels. Table 5 presents details of the cost-effectiveness tests accepted by RMP.

**Table 5. Details of Cost-Effectiveness Tests<sup>20</sup>**

Test	Acronym	Key Question Answered	Summary Approach
Participant Cost Test	PCT	Will the participants benefit over the measure life?	Comparison of costs and benefits of the customer installing the measure
Utility Cost Test	UCT	Will utility revenue requirements increase?	Comparison of program administrator costs to supply-side resource costs
Ratepayer Impact Measure	RIM	Will utility rates increase? Considers rate impacts on all participants, and the potential for cross-subsidization	Comparison of program administrator costs and utility bill reductions to supply-side resource costs
Total Resource Cost Test	TRC	Will the total costs of energy in the utility service territory decrease?	Comparison of program administrator and customer costs to utility resource savings
PacifiCorp Total Resource Cost Test	PTRC	Will the total costs of energy in the utility service territory decrease when a proxy for benefits of conservation resources is included?	Comparison of program administrator and customer costs to utility resource savings including 10 percent benefits adder

Section 3.4 provides the inputs to the cost-benefit model as well as the results and findings for each of the evaluated program years.

<sup>19</sup> The California Standard Practice Manual is an industry-accepted manual identifying cost and benefit components and cost-effectiveness calculation procedures. Definitions and methodologies of these cost-effectiveness tests can be found at [http://www.energy.ca.gov/greenbuilding/documents/background/07-I\\_CPUC\\_STANDARD\\_PRACTICE\\_MANUAL.PDF](http://www.energy.ca.gov/greenbuilding/documents/background/07-I_CPUC_STANDARD_PRACTICE_MANUAL.PDF).

<sup>20</sup> Navigant modified Table 2-2 from: NAPEE, November 2008, *Understanding Cost-effectiveness of Energy efficiency Programs: Best Practices, Technical Methods, and Emerging Issues for Policy – Makers*. <http://www.epa.gov/cleanenergy/documents/suca/cost-effectiveness.pdf>.

## 2.2 *Validity and Reliability of Impact M&V Findings*

The evaluation team identified several sources of uncertainty associated with estimating the impacts of the FinAnswer Express program. Examples of such sources include the following:

- » Sample selection bias
- » Physical measurement bias (i.e., meter bias, sensor placement, and non-random selection of equipment or circuits to monitor)
- » Engineering analysis error (i.e., baseline assumptions, engineering model bias, and modeler bias)

The evaluation team remained cognizant of these issues throughout the evaluation process and adopted methods to reduce the uncertainty arising from these sources, thereby improving the validity and reliability of study findings.

### 2.2.1 **Reducing Uncertainty from Sample Selection Bias**

Evaluators recognize the problem that selection bias creates for program evaluation, even when adhering to impact evaluation sample design protocols, if the selected projects did not choose to participate in the evaluation effort. In an effort to minimize non-response bias, the evaluation team established and implemented the following recruitment protocols:

- » Notified participants as early as possible in the evaluation process
- » Accurately characterized M&V activities and the duration of the evaluation process
- » Maintained brief and frequent communication with participants and informed them of any changes/additions to the evaluation effort

The intent of these protocols was to give each participant ample time to prepare documentation and secure the appropriate resources to support the evaluation effort. Brief and frequent contact with each participant ensured the participant remained engaged.

### 2.2.2 **Reducing Uncertainty from Physical Measurement Error**

Inevitable error occurs with all physical measurement. For the impact evaluation of the FinAnswer Express program, a large measurement effort involved installing lighting/current/power loggers to determine the operating characteristics of incandescent technologies across a broad range of applications. The evaluation team took the following steps to minimize the possible introduction of uncertainty resulting from bias/error by this process:

- » **Backup Loggers:** Prior evaluation experience indicates that lighting loggers sometimes fail in the field due to flickering or battery issues. To account for this possibility, the evaluation team deployed backup loggers for each site to ensure meeting the sample size requirements even if a percentage of the loggers failed.
- » **Logger Calibration:** To minimize measurement error from improper calibration of the lighting/current/power loggers, the evaluation team checked all loggers used in the field to ensure proper calibration prior to deployment. Field staff received training to use consistent

measurement intervals whenever possible, and to synchronize the logger deployment activities (i.e., time delay), to ensure proper data comparisons across a uniform period.

- » **Logger Placement:** The field staff used a prescribed protocol for the placement and installation of loggers on circuits (i.e., current transformer placement) and fixtures (i.e., uniform distance from the lamps) to minimize biases arising from the improper placement of loggers.
- » **Logging Period:** Usage patterns for retrofit measures may vary from month to month, so sampling for a short duration could introduce a degree of error into the overall results. The evaluation team reduced this type of error by typically deploying loggers for a minimum of four weeks, and supplemented them with available facility records (i.e., Energy Management System [EMS] trends, production logs). The team calibrated the facility records, which spanned multiple months or years, with the collected logger data.
- » **Logged Data Quality:** Poor quality data can also be a significant source of error and uncertainty. The evaluation team applied various quality assurance checks to minimize the potential impact of this problem, including the use of consistent spot measurements comparable against both the EMS and logger data, and qualified analysts review all logger files to ensure results represented the investigated technologies.
- » **Lighting Logger Review:** The evaluation team reviewed lighting loggers to identify inconsistencies in operating characteristics and/or extended periods of inactivity. The team followed up with field staff and facility managers to ensure that the suspicious findings were in fact reasonable, and removed inaccurate results from the analysis.

### 2.2.3 Reducing Uncertainty from Engineering Analysis Error

The evaluation team adopted the following protocols to minimize uncertainty from engineering analysis error in this study:

- » Peer review of all project analysis findings to ensure the consistent use of methods and assumptions throughout the impact evaluation
- » Development of data collection protocols that yielded appropriate inputs into the analysis models and review of all field observations with the evaluation team

## 2.3 *Net-to-Gross (NTG) Methodology*

The evaluation team used interviewee self-reported responses to assess the program’s influence on the participants’ decisions to implement EEMs and determine what would have occurred absent program intervention. This estimation included an examination of the program’s influence on three key characteristics of the project: its timing, its level of efficiency, and its scope (i.e. the size of the project). This estimate represents the amount of savings attributed to the program that would have occurred without its intervention, referred to as “*free-ridership*.”

The team’s measurement of net savings then estimated program influence on the broader market because of the indirect effects of the program’s activities. This estimate, referred to as “*spillover*,” represents the amount of savings that occurred because of the program’s intervention and influence but

not currently reported by any PacifiCorp program. Navigant classified spillover savings into two categories based on measure types: “like” spillover and “unlike” spillover.

- » **“Like” spillover** – energy savings associated with additional high-efficiency equipment installed outside of the program of the same end-use as what that participant installed through the program. For example, if the participant installed high-efficiency lighting fixtures as part of the program, “like” spillover would be limited to any additional high-efficiency lighting installed without any assistance from RMP but influenced by program activity. This type of spillover is quantifiable using program tracking savings as a proxy.
- » **“Unlike” spillover** – the savings associated with any other high-efficiency equipment installed outside of the program that are *not* of the same end-use category as installed through the program. Continuing the example above, if the participant installed high-efficiency lighting through the program, the high-efficiency HVAC equipment installed outside of the program would be considered “unlike” spillover as it is not the same end-use. This type of spillover is not quantifiable, but it is useful to document and track.

The evaluation team adjusted the program’s net savings by both free-ridership and “like” spillover savings at the measure level, and then extrapolated to the program. The net savings are the program-reported savings minus any free-ridership savings, plus any identified spillover savings – as shown in the following equation:

$$\text{Net Program Savings} = \text{Gross Program Savings} - \text{Free-Ridership Savings} + \text{“Like” Spillover Savings}$$

Often, this finding is described as an NTG ratio. This ratio is the net program savings divided by the gross program savings – as shown in the following equation:

$$\text{Net-to-Gross Ratio} = \text{Net Program Savings} \div \text{Gross Program Savings}$$

The evaluation team calculated the Idaho Energy FinAnswer NTG ratio of 0.78 using a sample of 84 projects. Section 3.3 provides the results of the NTG analysis.<sup>21</sup>

## 2.4 Process Methodology

This section describes the methodology used to complete the process evaluation.

### 2.4.1 Process Evaluation Research Questions

Discussions with program staff and a review of the program theory and logic identified seven overarching research questions to guide the process evaluation:

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<sup>21</sup> Where possible, Navigant adhered to the NTG guidelines as set forth by the Department of Energy (DOE) Uniform Methods Project (UMP) when calculating the NTG ratios. (Dan Violette and Pamela Rathbun, 2014, *Estimating Net Savings: Common Practices*, National Renewable Energy Laboratory [NREL]).

1. What are the program goals, concept, and design?
2. Do program staff and administrators have the resources and capacity to implement the program as planned? If not, what more is needed?
3. Is the program staff delivering the program in accordance with the logic model?
4. Is the program marketing effective? Specifically, how do participants find out about the programs?
5. What is the program influence on participant actions? Specifically, what do participants identify as most important to their projects (i.e., program information, incentive/credit, payback, engineering, and their own company goals)? What would they have done differently without the program?
6. What barriers are preventing customers from taking actions to reduce energy consumption and demand, and which jeopardize program cost-effectiveness?
7. Are participants achieving planned outcomes? Specifically, are participants feeling satisfied?

Evaluation staff used a mixed-methods approach to explore these questions including, program documentation review, interviews of program staff, near-participants, and participants. Table 6 shows the seven research questions and associated methods used to answer each. Section 4.2 provides the answers to these questions.

**Table 6. Approaches to Answer Research Questions**

	Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7
Program Documentation Review	X	X	X	X			
Program Staff and Administrator Interviews	X	X	X	X			
Participant Surveys				X	X	X	X

#### 2.4.2 Process Data Collection Activities

Interviews with program staff and participants supported the development of the program overview and logic model, as well as aided in the evaluation conclusions and recommendations for the FinAnswer Express program.

Navigant reviewed program marketing materials, websites, program manuals, savings measurement tools, regulatory filings, annual reports, previous evaluations, and project tracking data. This review was designed to identify how the program is marketed, how trade allies are supported, and how the process for enrollment, administration, and tracking works. The team also verified that the existing program logic model, developed in 2011, continued to represent the 2012-2013 program theory, activities, and outcomes through interviews with program administrators. In addition, the evaluation team developed a new logic model for the *wattsmart* Business program (detailed in Appendix E) for use in future evaluations as the FinAnswer Express program transitions to *wattsmart*.

The evaluation team interviewed two program management staff with the following objectives in mind:

- » Understand the design and goals of the FinAnswer Express program
- » Understand any program changes that have been implemented in Idaho going into the PY 2012-2013 cycle, and changes occurring during this cycle
- » Follow up on how recommendations from the previous evaluation were implemented (or not)
- » Support confirmation or revision of the existing program logic model
- » Identify program strengths, weaknesses, and opportunities for improvement from program staff perspective
- » Identify other actionable ideas the program staff hopes to gain from the evaluation

The team conducted telephone surveys with 84 participants who completed projects during the evaluated PY 2012-2013. Table 7 provides the timing and sampling frame for participant surveys.

**Table 7. Sample Frame for Participant Surveys in 2012 through 2013**

Time Period	Sample	Unique Sites	Program Projects
First Half 2012 (Projects completed Jan 1, 2012-Jun 30, 2012)	20	27	33
Second Half 2012 through 2013 (Projects completed Jul 1, 2012-Dec 31, 2013)	64	131	171
<b>Total</b>	<b>84</b>	<b>158</b>	<b>204</b>

Participant survey research objectives included the following:

- » Describe how customers come to participate in the program
- » Understand overall customer satisfaction with the program, including (where appropriate) marketing, application materials, inspections, customer service, and the incentive or credit
- » Understand program influence on customer actions, including free ridership and spillover
- » Identify barriers customers are facing that prevent increasing energy efficiency



### 3 Impact Evaluation Findings

This section summarizes the impact evaluation findings for each project included in the 2012-2013 evaluation sample while leveraging the evaluation strategies previously discussed for the FinAnswer Express program.

The evaluation team further characterized savings as “reported” and “evaluated.” Reported savings present project savings estimated at the time of measure installation. Evaluated savings present energy savings verified in a facility during the evaluation process.

#### 3.1 Program-Level Gross Savings Results

The 2012-2013 gross program *demand savings* realization rate was 95 percent, and the gross program *energy savings* realization rate was 98 percent. Table 8 provides the *program-level* reported and evaluated gross kilowatt (kW) and gross kilowatt-hour (kWh) realization rates.<sup>22</sup>

**Table 8. Gross Program-Level Realization Rates for ID FinAnswer Express (PY 2012-2013)**

Program Year	Program-Reported kW	Gross Program Evaluated kW	Gross Program kW Realization Rate	Program-Reported kWh	Gross Program Evaluated kWh	Gross Program kWh Realization Rate
2012	847	827	98%	4,473,114	4,392,895	98%
2013	837	766	92%	5,356,043	5,240,745	98%
All	1,684	1,594	95%	9,829,157	9,633,640	98%

#### 3.2 On-Site Verification Results

The evaluation team applied final realization rates for program-level demand (kW) and energy (kWh) savings from on-site field verification. The 21 projects sampled and visited included 20 lighting measures, four building shell measures, one HVAC measure, and one dairy farm equipment measure. Although the team calculated realization rates for every project site visited, only the program-level realization rates are statistically valid at the stated, overall evaluation’s confidence and precision.

##### 3.2.1 Energy Savings Results

Table 9 details the energy savings realization rate for all projects in the evaluation sample for PY 2012-2013. The sample yielded an overall realization rate in 2012 of 98 percent and in 2013 of 98 percent.

<sup>22</sup> Evaluated savings are at the customer meter.

Lighting project realization rates vary due to differences in operating hours, discrepancies in installed fixture counts, and/or HVAC interactive effects. However, the adjustments balanced out across projects and the lighting category as a whole achieved a perfect 100 percent realization rate.

RMP’s standard lighting tool does not credit energy and demand savings towards HVAC interactive effects, the influence that may be substantial for any particular project, especially in buildings with electric resistance heating. The evaluation team does include these interactive effects in the evaluated savings results and provided the RTF reference tables in Appendix C.<sup>23</sup>

The overall excellent program realization rate is echoed in the above average Customer Self-Reported Ratio (CSRR) for the lighting projects incentivized through this program. The CSRR is determined by dividing the lighting hours of use (as confirmed via data logging) by the hours of use stated by the participant during the on-site interview. The average value for this ratio across PacifiCorp’s service area is 75 percent (N=125); however, the ID FinAnswer Express program averaged a CSRR of 78 percent (N=20). Given that the self-reported hours of use typically match with the hours used in the *ex-ante* calculations, this suggests that reported savings are, on average, based annual use estimates 22 percent larger than verified.

The only HVAC measure included in the impact sample was for small return fan VFDs which were evaluated using IPMVP Option A and deemed values, resulting in a 94 percent realization rate. However it should be noted that this project represented only one percent of the claimed HVAC savings for the program since most of the program savings come from lighting projects.

The team used IPMVP Option A to evaluate the dairy farm VFD equipment. The logged data showed substantially lower hours of use and somewhat higher load than used to determine the deemed *ex-ante* savings, resulting in a low realization rate. However as only one project was included in the impact sample the low realization rate does not necessarily mean the deemed values are inappropriate.

One project in the impact evaluation sample contained all four building shell measures included in the sample. These were all evaluated using IPMVP Option A, using bin calculations with TMY3 weather data to normalize savings to a typical year for insulation and deemed calculators for windows and cool roof savings. The fourth measure classified as building shell was actually several small roof top HVAC units, which were also evaluated using a deemed calculator. The realization rate of 126 percent reflects increased savings in the insulation calculations.

**Table 9. ID FinAnswer Express Project-Level Energy (kWh) Realization Rates**

Project ID	Year	Reported kWh	Evaluated kWh	Realization Rate
FESen_62442	2013	2,713,357	2,768,418	102%
FESen_61442	2012	938,111	800,108	85%
FESen_61567	2012	662,434	700,368	106%

<sup>23</sup> <http://rtf.nwccouncil.org/subcommittees/nonreslighting/> (accessed July, 2014)

Project ID	Year	Reported kWh	Evaluated kWh	Realization Rate
FENBL_002341	2012	500,545	567,709	113%
FENBL_001460	2012	427,318	752,190	176%
FE000_000111	2012	307,655	324,674	106%
FE000_000714	2013	190,791	102,046	53%
FENBL_002950	2013	132,798	112,952	85%
FENBL_002734	2012	118,947	132,378	111%
FE000_000143	2012	103,819	89,136	86%
FENBL_001486	2012	92,522	81,824	88%
FENBL_003087	2013	54,193	35,932	66%
FENBL_003206	2013	32,960	34,158	104%
FE000_000022	2012	31,876	29,401	92%
FENBL_003920	2013	30,678	30,818	100%
FECBL_000115	2013	25,050	7,858	31%
FENBL_004517	2013	10,699	13,382	125%
FESen_62704	2013	7,883	5,282	67%
FESen_62705	2013	4,621	5,470	118%
FENBL_004496	2013	3,266	3,583	110%
FE000_000145	2012	1,214	880	72%

Project-level evaluation yielded significant differences between the reported and verified energy savings estimates for a number of projects completed during the 2012-2013 program years. Ten projects yielded evaluated energy savings that varied from reported values by more than 20 percent. Table 10 lists these 10 projects and provides further detail on the variations found with each, including:

- » **Lighting Hours of Use (HOU) Realization Rate** is the ratio of *verified* HOU over the *reported* HOU. If this ratio is greater than one, the lighting system is operating more than reported and thereby increasing overall energy savings (unless there are under performing controls, but that possibility was not observed in the sampled projects). A ratio less than one can occur under two conditions:
  - If the lights have automated controls, it is likely these controls are reducing overall system run time beyond the deemed/claimed reduction. This results in either an increase in the project’s net impact, if the controls were part of the incentivized lighting project, or a reduction of the net impact, if the controls were in place prior to the project.<sup>24</sup>
  - If the lights have manual controls, it is likely the occupant(s) have overestimated the baseline HOU. In this situation, the team adjusted the baseline down to reflect the verified HOU, reducing the realization rate accordingly.

<sup>24</sup> It is also possible that a system with controls overstated the baseline operating hours, but the team did not observe this for the Wyoming FinAnswer Express program PY 2011-2013.

- » **HVAC Interactive Impact** is a multiplier quantifying the impact of the lighting system’s waste heat on a building’s HVAC system, aggregated over both the heating and cooling seasons. More efficient lighting systems reduce heat waste and therefore reduce air conditioning load in the summer. However, this reduction in lighting waste heat also increases mechanical heating loads in the winter. Interactive impacts greater than one show a net increase to lighting savings, whereas impacts less than one show a net decrease to savings due to the higher HVAC load. Unfortunately, many other nuances of building construction, orientation, shading, and HVAC system design also influence HVAC interactive impacts, making it impractical to calculate a site specific coefficient for each project. Instead, the team applied deemed values from the Regional Technical Forum (RTF) to each project.<sup>25</sup>

**Table 10. ID FinAnswer Express Measure-Level Energy (kWh) Realization Rate Explanations**

Project ID	Energy Realization Rate	Lighting HOU Realization Rate	HVAC Interactive Impacts	Measure Type	Notes
FENBL_001460	176%	116%	103%	Lighting	Hours of use were higher than used in <i>ex-ante</i> calculations. <i>Ex-ante</i> baseline for new facility was based on whole building LPD rather than space type LPD even though project only included lighting for part of the building.
FE000_000714	53%	71%	96%	Building Shell / HVAC / Lighting	Measure includes HVAC and lighting as well as building shell. Logged lighting hours were significantly less than <i>ex-ante</i> values and baseline lighting power density used for <i>ex-ante</i> calculations exceeded code value. Some roof top HVAC units were smaller than reported capacity. Building Shell 133% RR (24% of project reported kWh); Lighting 27% RR (74% of project reported kWh); HVAC 100% RR (2% of project reported kWh)
FENBL_002950	85%	73%	100%	Lighting	The logged hours of use were lower than the <i>ex-ante</i> values in most areas.
FENBL_003087	66%	75%	96%	Lighting	Logged hours of use were significantly lower than <i>ex-ante</i> values.
FECBL_000115	31%	not LTG	not LTG	Other	<i>Ex-ante</i> savings are based on a deemed approach that applies savings of 2,505 kWh/hp and 0.370 kW/hp. This suggests an approximate run time of 6,770 hours per year for this measure. The actual run time for the 10 hp pump in this project is closer to 2,373 hours per year (6.5 hours per day; 365 days per year). This difference in run hours accounts for 65% of the reduction in savings.
FENBL_004517	125%	NA	100%	Lighting	Two more lights installed than the 17 claimed in the project file and <i>ex-ante</i> savings values exceed savings from provided data. The lighting HOU realization rate is not available for this suite due to data logger malfunction, the verified hours of use are based on the customer self-reported hours of use.

<sup>25</sup> The evaluation team provided PacifiCorp with Site Specific Measurement & Verification Plans (SSMVPs) explaining in greater detail the findings and savings calculations for each site. However, these are proprietary to PacifiCorp and contain customer sensitive information and are not intended for public use.

Project ID	Energy Realization Rate	Lighting HOU Realization Rate	HVAC Interactive Impacts	Measure Type	Notes
FESen_62704	67%	73%	103%	Lighting	Savings is low because lighting logging proved the hours of use are much lower than was claimed.
FESen_62705	118%	18%	103%	Lighting	Occupancy sensors exist on 43 percent of lighting load, resulting in significantly higher savings compared to baseline than claimed.
FE000_000145	72%	76%	103%	Lighting	Logged hours of use were lower than <i>ex-ante</i> value.

*Note: It is common for individual project realization rates to vary widely from 100 percent due to changes in business plans or time between installation and verification. These fluctuations may or may not have a significant impact on the overall program-level realization rates due to weighting and are shown for informational purposes only.*

### 3.2.2 Demand Savings Results

Table 11 provides project-level demand realization rates for the projects in the impact evaluation sample for PY 2012-2013. The sample yielded an overall realization rate in 2012 of 95 percent.

Lighting projects’ demand realization rates vary due to the occasional difference in reported versus verified fixture counts. There are also a few cases where the incorrect demand diversity factor was applied (based on building type). Verified demand can also differ due to HVAC interactive impacts. A limited number of fixtures also have minor differences in reported versus verified wattages.

The sole project in the sample classified as “other” consisted of a VFD installed on a milk vacuum pump at a dairy. Logged data indicated that the maximum load on this VFD driven pump was higher than predicted by the deemed demand savings, resulting in a substantial decrease in demand savings.

Demand savings from the HVAC and building shell measures matched the *ex-ante* values, largely due to the used of deemed calculators to determine them.

**Table 11. ID FinAnswer Express Project-Level Demand (kW) Realization Rates**

Project ID	Year	Reported kW	Evaluated kW	Realization Rate
FESen_62442	2013	0	271	NA
FESen_61442	2012	90	72	81%
FESen_61567	2012	83	89	108%
FENBL_002341	2012	110	84	77%
FENBL_001460	2012	107	104	98%
FE000_000111	2012	29	29	102%
FE000_000714	2013	0	44	NA
FENBL_002950	2013	0	23	NA
FENBL_002734	2012	29	27	94%
FE000_000143	2012	11	10	97%
FENBL_001486	2012	28	28	101%
FENBL_003087	2013	0	12	NA
FENBL_003206	2013	0	1	NA
FE000_000022	2012	15	15	100%
FENBL_003920	2013	0	5	NA
FECBL_000115	2013	0	0	NA
FENBL_004517	2013	0	8	NA
FESen_62704	2013	0	3	NA
FESen_62705	2013	0	2	NA
FENBL_004496	2013	0	2	NA
FE000_000145	2012	3	2	86%

### 3.3 Program-Level Net Savings Results

The evaluation team calculated an average NTG ratio of 0.78 for the FinAnswer Express program using self-reported responses to free-ridership and spillover survey and interview questions from the 84 projects completed during the PY 2012-2013 evaluation (Table 12).

**Table 12. Savings-Weighted Program Influence for PY 2012-2013**

Part of Year	Free-Ridership Score	Like Spillover Score	Unlike Spillover Score <sup>26</sup>	Net Savings Ratio
First Half 2012 (completed Jan 1, 2012-June 30, 2012)	0.118	0.00	Yes, Not Scored	0.882
Second Half 2012 through 2013 (completed July 1, 2012-December 31, 2013)	0.248	0.00	Yes, Not Scored	0.752
<b>Savings-Weighted Total</b>	<b>0.22</b>	<b>0.0</b>	<b>NA</b>	<b>0.78</b>

Table 7 in section 2.4.2 provides the number of surveys completed during the identified timeframes.

Table 13 provides evaluated program-level demand and energy savings with the NTG ratio of 0.78 applied.

**Table 13. Net Program-Level Realization Rates for ID FinAnswer Express (PY 2012-2013)**

Program Year	Program-Reported kW	Net Program Evaluated kW	Net Program kW Realization Rate	Program-Reported kWh	Net Program Evaluated kWh	Net Program kWh Realization Rate
2012	847	645	76%	4,473,114	3,426,458	77%
2013	837	598	71%	5,356,043	4,087,781	76%
<b>All</b>	<b>1,684</b>	<b>1,243</b>	<b>74%</b>	<b>9,829,157</b>	<b>7,514,239</b>	<b>76%</b>

<sup>26</sup> Research determined whether unlike spillover was present; however, Navigant recommends further research to estimate potential savings. See Section 2.3 for additional detail on like and unlike spillover.

### 3.4 Cost-Effectiveness Calibration and Analysis

The evaluation team initialized and validated the cost-effectiveness model used for this evaluation using prior inputs and outputs from previous evaluation cycles, to ensure similar inputs yielded similar outputs for the current cycle. The evaluation team worked through a range of input assumptions pertaining to avoided cost data formats, financial assumptions regarding discount and escalation rates, participant costs and benefits, and other input parameters. Table 14 provides an overview of cost-effectiveness input values used by the evaluation team in the cost-effectiveness analysis.

**Table 14. Cost-Effectiveness Evaluation Input Values**

Input Description	2012	2013	2012-2013
Discount Rate	7.17%	6.88%	-
Inflation Rate	1.80%	1.90%	-
Commercial Line Loss	10.75%	10.75%	10.75%
Industrial Line Loss	7.52%	7.52%	7.52%
Measure Life	12 Years	12 Years	12 Years
Commercial Retail Rate	\$0.084	\$0.089	-
Industrial Retail Rate	\$0.055	\$0.069	-
Gross Customer Costs	\$1,585,539	\$1,651,697	\$3,237,236
Program Costs	\$761,001	\$977,519	\$1,738,520
Program Delivery	\$440,391	\$361,731	\$802,122
Incentives	\$320,610	\$615,788	\$936,398

*The discount rates and inflation rates are based on the 2011 IRP for 2012 and the 2013 IRP for 2013. Measure specific load shapes and the System Load Shape Decrement were used for all program years. Program Delivery includes: engineering, program implementation, marketing, and utility administration costs.*

Table 15 through Table 17 provide detailed cost-effectiveness figures for each program year and the combined PY 2012-2013 evaluation period.

**Table 15. ID FinAnswer Express Cost-Benefit Results – 2012 (0.78 NTG)**

Benefit/Cost Test Performed	Evaluated Gross Savings (kWh)	Evaluated Net Savings (kWh)	Evaluated Costs	Evaluated Benefits	B/C Ratio
Total Resource Cost Test (PTRC)	4,392,895	3,426,458	\$1,677,111	\$2,957,609	1.76
Total Resource Cost Test (TRC)	4,392,895	3,426,458	\$1,677,111	\$2,688,736	1.60
Utility Cost Test (UCT)	4,392,895	3,426,458	\$761,001	\$2,688,736	3.53
Rate Impact Test (RIM)	4,392,895	3,426,458	\$2,984,820	\$2,688,736	0.90
Participant Cost Test (PCT)	4,392,895	3,426,458	\$1,585,539	\$3,171,661	2.00



**Table 16. ID FinAnswer Express Cost-Benefit Results – 2013 (0.78 NTG)**

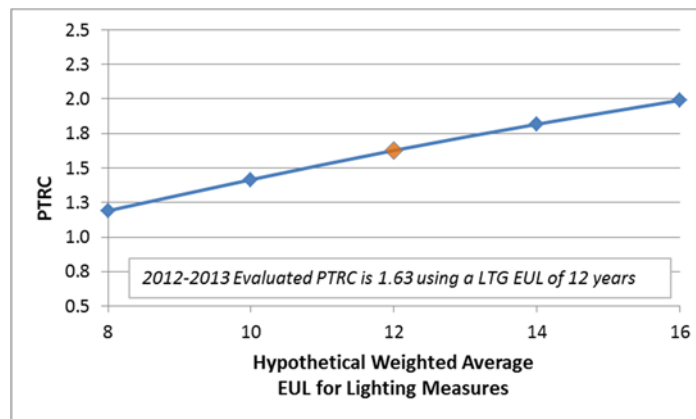
Benefit/Cost Test Performed	Evaluated Gross Savings (kWh)	Evaluated Net Savings (kWh)	Evaluated Costs	Evaluated Benefits	B/C Ratio
Total Resource Cost Test (PTRC)	5,240,745	4,087,781	\$1,650,054	\$2,771,382	1.68
Total Resource Cost Test (TRC)	5,240,745	4,087,781	\$1,650,054	\$2,519,438	1.53
Utility Cost Test (UCT)	5,240,745	4,087,781	\$977,519	\$2,519,438	2.58
Rate Impact Test (RIM)	5,240,745	4,087,781	\$3,984,511	\$2,519,438	0.63
Participant Cost Test (PCT)	5,240,745	4,087,781	\$1,651,697	\$4,470,906	2.71

**Table 17. ID FinAnswer Express Cost-Benefit Results – PY 2012-2013 Combined (0.78 NTG)**

Benefit/Cost Test Performed	Evaluated Gross Savings (kWh)	Evaluated Net Savings (kWh)	Evaluated Costs	Evaluated Benefits	B/C Ratio
Total Resource Cost Test (PTRC)	9,633,640	7,514,239	\$3,327,166	\$5,728,991	1.72
Total Resource Cost Test (TRC)	9,633,640	7,514,239	\$3,327,166	\$5,208,174	1.57
Utility Cost Test (UCT)	9,633,640	7,514,239	\$1,738,520	\$5,208,174	3.00
Rate Impact Test (RIM)	9,633,640	7,514,239	\$6,969,331	\$5,208,174	0.75
Participant Cost Test (PCT)	9,633,640	7,514,239	\$3,237,236	\$7,642,567	2.36

Navigant recommends using a greater level of granularity for lighting EULs in the program tracking database in order to provide more accurate cost-benefit results (Recommendation #3). The current EUL for lighting projects uses a value from the 2008 version of DEER, weighted heavily by fluorescent lighting. LED lamps, lighting controls, and other measures installed by the FinAnswer Express program require differing EULs. Figure 5 shows the effects varying the lighting EULs has on the PTRC test specifically. If the weighted average EUL varies by two years from the current value, then the PTRC shifts approximately 12 percent. However, the PTRC does not dip below 1.0 so long as the EUL remains above 5.9 years.

**Figure 5. Hypothetical Cost-Benefit Results for PTRC Test with Varied Lighting EULs**



## 4 Process Evaluation Findings

This section describes the findings from Idaho’s FinAnswer Express process evaluation data collection activities, including participant and program staff interviews.

### 4.1 Participant Findings

The evaluation team surveyed 84 participants out of the 158 unique participants over two surveys completed in October and November 2014.

Participating firms represented manufacturing, retail, agricultural, educational, and other industries, as listed in Table 18. Firms were mostly concentrated in manufacturing, retail, dairy/agricultural, and educational services. However, there is a wide range of industries represented, and no single industry is representative of the entire participant population.

**Table 18. Primary Industry of FinAnswer Express Survey Respondents**

Primary Industry	Respondents	Percentage
Manufacturing	14	17%
Retail	13	15%
Dairy/Agricultural	12	14%
Educational Services	12	14%
Repair and Maintenance Services	7	8%
Finance and Insurance	4	5%
Professional, Scientific, and Technical Services	4	5%
Public Administration/Governmental Services	3	4%
Non-Profits and Religious Organizations	3	4%
Accommodation	2	2%
Other (Single Respondent from Type)	10	12%
<b>Total</b>	<b>84</b>	<b>100%</b>

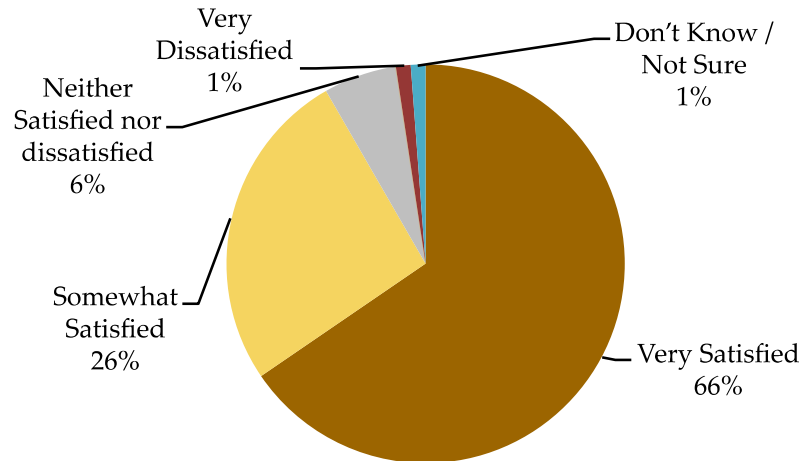
Only 37 percent ( $n = 84$ ) of respondents were able to estimate the percentage of total annual operating costs attributable to electricity. Responses ranged from one percent to 40 percent, with the median portion of operating expenses at 10 percent and the average 18 percent. These results suggest that the value of energy efficiency varies significantly among participants.

#### 4.1.1 Program Satisfaction

When asked to rate their overall satisfaction with the FinAnswer Express program, 92 percent of respondents were satisfied: 66 percent (55) were very satisfied and 26 percent (22 respondents) were

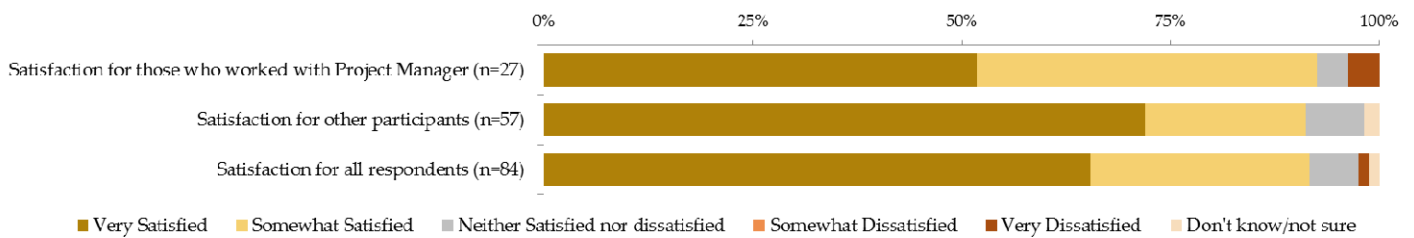
somewhat satisfied. The remainder were split, with six percent (five respondents) “neither satisfied nor dissatisfied,” and one percent (one respondent) “very dissatisfied,” as Figure 6 shows.

**Figure 6. Participant Satisfaction with the FinAnswer Express Program Overall**



Satisfaction with the program overall was fairly consistent between projects completed with and without a project manager. For both groups, more than 90 percent of participants were satisfied with their experience, as shown in Figure 7.

**Figure 7. Participant Satisfaction by Project Path**



The evaluation team asked all of those that were not at least somewhat satisfied what could be done to improve their satisfaction. The “very dissatisfied” respondent said that they would need “a bigger rebate to make it worthwhile.” All of the four respondents who were “neither satisfied nor dissatisfied” with the program suggested that the process should be streamlined; similarly, one wanted faster incentive processing. The other two one wanted “better engineers,” one wanted a “cheaper electric bill.” The last response indicates a general thought towards the electric company rather a reflection on program improvement.

When asked for any other suggestions for the FinAnswer Express program, no respondents had suggestions. Five respondents indicated that they would like to be contacted about program offerings in

the future. Ten respondents took the opportunity to say that they appreciated the program rather than offer suggestions.

#### 4.1.2 Program Awareness and Motivation

Participants found out about the FinAnswer Express program mostly from trade allies. Participants also commonly identified other business colleagues, RMP representatives, and previous participation as sources of awareness (see Table 19).

**Table 19. Source of Awareness of Program Participants**

Source of Awareness	Respondent Count	Percentage
Trade ally, vendor, or contractor	49	58%
Another business colleague	8	10%
RMP account representative	5	6%
Previous participation in RMP programs	4	5%
RMP website	3	4%
Conference, workshop, or event	3	4%
RMP energy audit or assessment	2	3%
RMP printed materials or brochures	1	1%
Another RMP program	1	1%
Email from the state	1	1%
Don't know/Not sure/No response	7	8%
<b>Total</b>	<b>84</b>	<b>100%</b>

Participants reported a variety of motivations for their involvement with the FinAnswer Express program, as indicated in Table 20. The most common motivators were obtaining an incentive, saving money on electric bills, replacing old or poorly working equipment, and saving money on maintenance costs.

**Table 20. Participant Motivations for Participation**

Motivation for Participation	Respondent Count	Percentage
To obtain an incentive	20	24%
To save money on electric bills	19	23%
To replace old or poorly working equipment	16	19%
To save money on maintenance costs	10	12%
To save energy (no costs mentioned)	7	8%
To acquire the latest technology	3	4%
To replace broken or failed equipment	2	3%
To improve operations, production, or quality	2	1%
To comply with a standard or requirement	1	1%
Recommendation by contractors/vendors	1	1%
Recommended by colleague	1	1%
To improve comfort	1	1%
Other "To reduce power usage"	1	1%
<b>Total</b>	<b>84</b>	<b>100%</b>

### 4.1.3 Program Participation Process

The majority of surveyed participants (76 percent or 64 of 84) completed retrofit lighting projects with the program (see Table 21). All 64 lighting retrofit projects and four new construction projects where the participant worked with a project manager went through the pre-purchase incentive path. Ten of the retrofit projects were non-lighting, and these were mostly variable frequency drives (VFDs) and dairy retrofits; these non-lighting retrofit projects went through the post-purchase incentive path. In addition, six new construction projects went through the post-purchase incentive path.

**Table 21. Breakdown of Participation Paths for Survey Respondents**

Incentive Path	Survey Respondents
<b>Pre-Purchase Path Total</b>	<b>68</b>
Lighting retrofit	64
Project manager lighting new construction	4
<b>Post-Purchase Path Total</b>	<b>16</b>
Non-lighting retrofit	10
Other new construction	6
<b>Total</b>	<b>84</b>

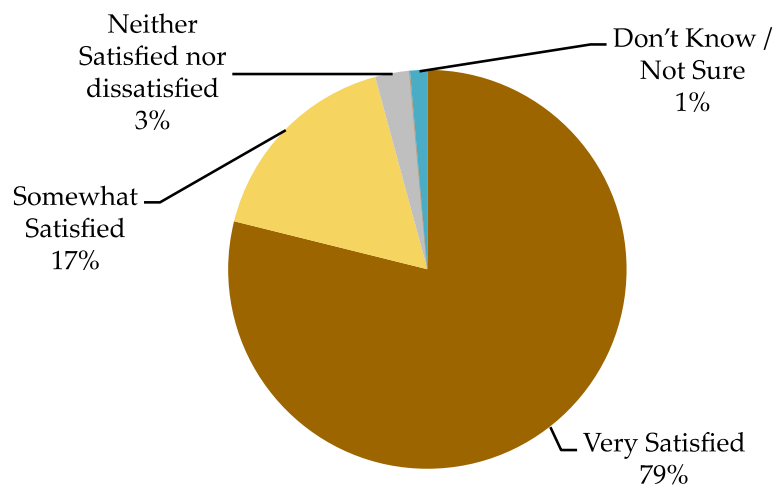
Participant responses indicate that the FinAnswer Express program functioned smoothly during PY 2012-2013. Participation will be discussed here in three logical steps: pre-installation, measure installation, and post-installation.

#### 4.1.3.1 Pre-Installation

Before participants install equipment with the FinAnswer Express program in Idaho, they may work with a RMP project manager, or a vendor (who can be a trade ally vendor), or both depending on the project. About one-third of surveyed participants (27 out of 84) had worked with a project manager on their project and received a report from the energy analysis that included recommendations of equipment retrofits and other energy efficiency improvements. Most (19 out of 27) respondents indicated that they found this report valuable. A handful (5 out of 27) of respondents either did not recall the report (three) or were did not know how to rate its value to them (two). The other three, all completing lighting retrofits with the program, said they did not find the report valuable. One said that “it wasn’t educational; we just changed out the lights,” another said “it needed to be more detailed about what to install,” and the other said, “it would take 46 years to recover costs in savings.” These responses suggest that most customers are getting what they need from the energy analysis, but some may need more guidance from the project manager to use the information provided.

The majority of respondents (71 of 84) worked with a trade ally from the RMP EEA on their project, based on the program tracking data. Respondents were asked to rate their satisfaction with the EEA trade ally with whom they worked (see Figure 8). Nearly all (96 percent) were satisfied; 78 percent were “very satisfied,” and 17 percent were “somewhat satisfied” with the vendor. Two respondents (3 percent) were “neither satisfied nor dissatisfied” with the vendor; both of these respondents were discussing package lighting projects. When asked what the vendor could have done to increase satisfaction, one of these said that the vendor should “take more interest in our company,” and the other said that the vendor should provide more information on what would be installed.

**Figure 8. Respondent Satisfaction with Energy Efficiency Alliance Vendor (n = 71 respondents)**

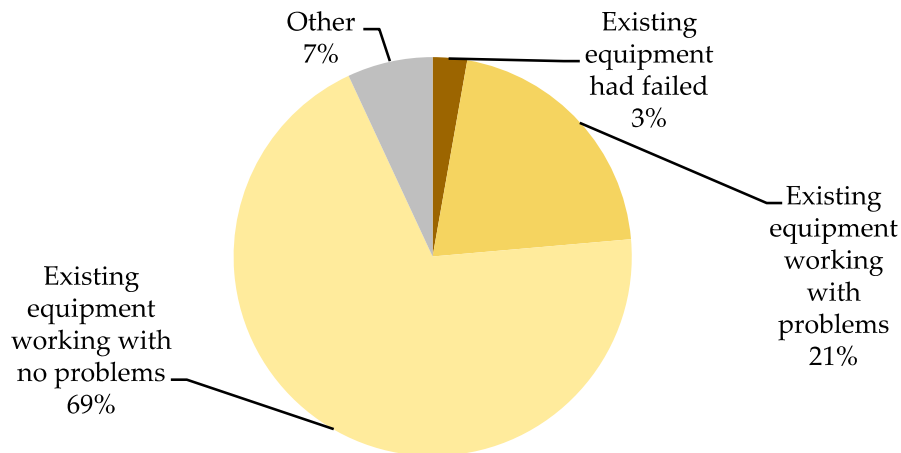


When requested by the program administrators, an inspector conducts a pre-installation inspection. This inspection is intended to document the equipment that will be replaced to ensure that savings are calculated appropriately. A small portion of participants (three of 84) had a pre-installation inspection date in the tracking data and recalled a visit to their site before installation, and all were somewhat (one) or very (two) satisfied with the inspector conducting the visit.

#### 4.1.3.2 Installed Energy Efficiency Measures

The 84 projects discussed with FinAnswer Express participants included 89 measures; five projects had multiple measures, and the survey asked about up to two project measures. Installation of EEMs can include new installations or retrofits of existing equipment. The majority of project measures (81 percent or 72 out of 89) replaced existing equipment (includes two multiple measure projects). Another 18 percent of measures (16 out of 88) discussed with respondents involved new installations (includes four multiple measure projects).<sup>27</sup> The respondent for the remaining one measure was not sure whether the measure replaced existing equipment; their package lighting project was not designated as new construction. For the measures that replaced existing equipment, the majority of equipment (69 percent) was working with no problems, as shown in Figure 9. All of the equipment that was identified as failed or working with problems was lighting equipment.

**Figure 9. Status of Replaced Equipment (n = 72 measures)**



The evaluation team asked respondents about the benefits of the EEMs that they installed with the program, both expected energy benefits and other potential (non-energy) benefits. The majority of respondents indicated that the equipment was meeting energy savings expectations and was also providing other non-energy benefits. The respondent’s energy savings expectations were met for 67 percent of measures (60 out of 89), while 10 percent of measures (9 out of 89) were not meeting energy savings expectations. Respondents did not know about the performance for the remaining 22 percent of measures (10 out of 89). Out of the nine measures that did not meet respondent’s energy savings expectations, seven were lighting measures; one was heat reclamation at a dairy, and one was a VFD for dairy vacuum pumps.

<sup>27</sup> Refers to 12 new construction measures and four dairy measures that were totally new installations but not new construction.



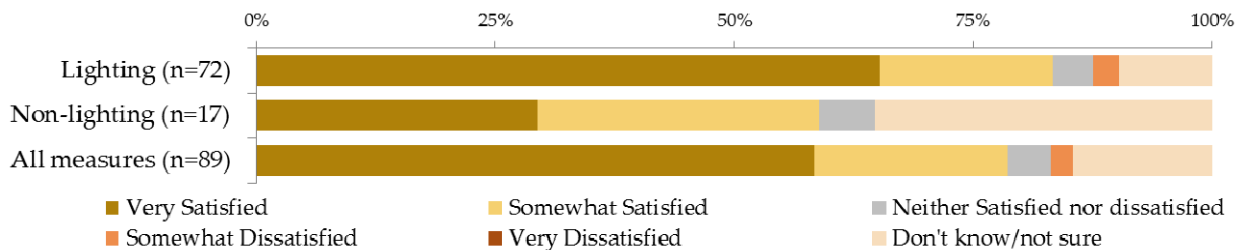
About half (55 percent) of survey respondents (46 of 84) indicated that they expected the equipment to provide other benefits besides energy savings; they offered 57 other benefits (more than one response was allowed). As shown in Table 22, 80 percent (37 out of 46) of the respondents expecting non-energy benefits indicated better lighting quality. Three respondents each described less frequent replacement of equipment and increased control, and two respondents each described longer equipment life and less maintenance. There were other benefits identified by single respondents.

**Table 22. Non-Energy Benefits Expected of FinAnswer Express Projects (n = 46 respondents)**

Non-Energy Benefits	Number of Respondents	Percentage of Respondents
Better lighting quality	37	80%
Less frequent replacement	3	7%
Increased control	3	7%
Longer life	2	4%
Less maintenance	2	4%
Other (single response)	10	22%
<b>Total</b>	<b>57</b>	<b>100%</b>

The evaluation team asked respondents about their satisfaction with the measures that they installed through the program. Respondents were satisfied with 79 percent of measures (70 out of 89). The portions of respondents reporting being “very satisfied” was significantly higher for lighting measures (65 percent) than non-lighting (29 percent) measures. Overall, respondents indicated that they were very satisfied with 58 percent of measures; respondents were somewhat satisfied with 29 percent of measures. Respondents were neither satisfied nor dissatisfied with four percent of measures; and respondents were somewhat dissatisfied with two percent of measures, as shown in Figure 10. Respondents reported that they not sure if they satisfied with the performance of the measure for 13 measures (15 percent).

**Figure 10. Participant Satisfaction with Installed Measures**



Both measures where the respondent was somewhat dissatisfied were lighting measures. One said, “the lighting was fine, but we were told we wouldn’t be able to get more.” The other wanted to see more energy cost savings on their bill. Neither of these responses is specific to the performance of the lighting measure. Three of the neutral measures were lighting and one was non-lighting. For lighting, one said, “the equipment would not work in our wet areas,” another wanted a lower power bill, and the third did not like searching online. The non-lighting respondent’s reason had to do with a contractor or inspector and not the equipment, “never sent anyone to look at the roof.” From all of these responses, only one stood out as a problem with a measure: a package lighting project in a wet area. This indicates that vendors should take greater care to ensure that the proper equipment is selected with the customer needs in mind. In addition, customers consider many aspects of the measure and the context when determining what they think about its performance.

#### ***4.1.3.3 Post-Installation***

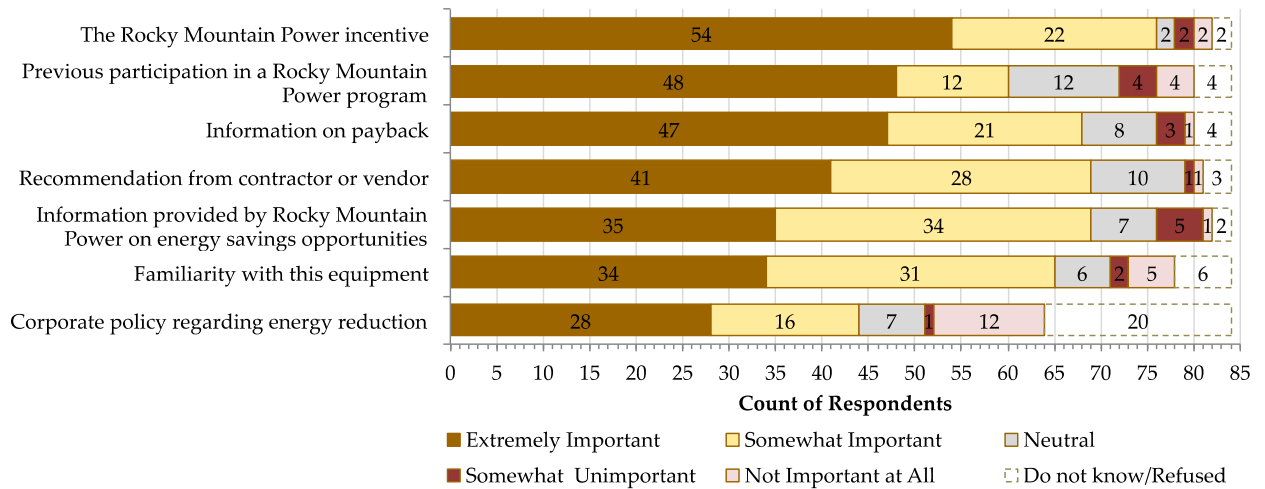
After the measures are installed through the program, the program administrator may send a representative to verify the installation. Three of the surveyed respondents had a post-installation inspection date in the tracking data and recalled an inspection. Out of these three respondents, two indicated that they were “very satisfied” when asked about their post-installation inspection, and one indicated they were “somewhat satisfied.”

#### 4.1.4 Program Influence

The evaluation team asked participants several questions about the program’s influence on the project that they completed with the FinAnswer Express program. These questions can be grouped into three general areas of influence: factors influencing the actual equipment installed as part of the project (Influential factors), what would have happened in the absence of the program (Free-ridership), and the program influence on future energy efficiency purchases (Spillover).

The evaluation team asked respondents how influential seven factors were in their decision to purchase the equipment installed through the FinAnswer Express program. They were asked to rate the importance of each factor on a scale of one to five, with one being “not at all important” and five being “extremely important.” As shown in Figure 11, the participants most commonly identified the RMP incentive, previous participation, and information provided on payback as extremely important influences on customer decisions to select the equipment that they installed through the program. Corporate policies on energy savings appeared to be least influential on the decision of which equipment to purchase.

**Figure 11. Factors Influencing Project Decisions (n = 84)**



#### 4.1.5 Further Energy Efficiency Opportunities and Barriers

To assess additional energy efficiency opportunities with the surveyed customers, respondents were asked if they thought there were additional energy efficiency improvements their organizations could make. Thirty-three respondents (39 percent) affirmed there were additional energy efficiency opportunities. When asked what these improvements might be, 29 respondents indicated the 32 measures listed in Table 23 (three respondents were not sure and one response did not make; multiple responses were allowed). Respondents most commonly mentioned additional lighting improvements or VFDs. Thirty-nine respondents (46 percent) stated that there were no further energy efficiency opportunities for their firms, and 12 (14 percent) were not sure or refused to answer.

**Table 23. Potential Further Energy Efficiency Measures**

Additional Measures	Respondent Count
Lighting	13
VFD	4
Motors	3
HVAC	3
Heating	3
Timers and/or controls	2
Hot water heaters	1
Plate cooler	1
Signage	1
Weatherization	1
<b>Total</b>	<b>32</b>

Of the 33 respondents who identified additional energy efficiency improvements, eight indicated that plans were in place to make these changes. Of these eight, four (50 percent) said that incentives from RMP were part of their plans. When asked about factors preventing them from making these changes, two respondents did not identify any barriers. The other 31 respondents identified high upfront costs (28 respondents) and their lack of access to the necessary capital (three respondents) as barriers.<sup>28</sup> Three other responses were given, two did not make sense as barriers, “use more water on our meters” and “make them smaller,” but one indicated weather as a barrier. The program cannot address the weather, but the incentives offered by the program help to overcome high upfront costs for some customers.

<sup>28</sup> Multiple responses were allowed.

## 4.2 Overall Process Findings

The evaluation team sought to answer seven process evaluation research questions. This section lists the questions and summarized answers.

### 1. What are the program goals, concept, and design?

The FinAnswer Express program in Idaho sought to improve energy efficiency of existing equipment at commercial and industrial sites. The concept behind FinAnswer Express was to offer prescriptive and custom incentives to commercial and industrial customers that implemented energy efficiency projects. PacifiCorp designed the program in a way to make the process easy and simple for customers to apply for rebates for energy efficiency projects, by offering a comprehensive set of deemed measures. PacifiCorp also provided a provision for customers to apply for incentives for measures not listed on the program's prescriptive incentive tables. In addition to offering incentives for measures, program administrators continued to coordinate a trade ally network to engage trade allies in energy efficiency and the RMP energy efficiency programs.

### 2. Do program staff and administrators have the resources and capacity to implement the program as planned, and if not, what is needed?

Yes. Program managers and administrators indicated they had the resources and capacity to implement the program as planned. No participants indicated concerns about access to program resources or lack of support when offered the opportunity to speak freely about the program.

### 3. Is the program being delivered in accordance with the logic model?

All activities and expected outputs and outcomes occurred based on program logic for both the pre- and post-purchase paths. The program activities to reach out to the trade allies and customers, and also reach customers through trade allies, were working; membership in the EEA was increasing, and customers learned about the program mostly through these allies. Project applications and incentives were being processed; customers were getting their incentives. Project inspections were recalled, and favorably, by the small portion of respondents whose projects had them. The one mid-term outcome of the program theory that is occurring, but to a limited extent, is that program participation is intended to influence customers to pursue more projects in the future. According to participant survey results, less than 10 percent of FinAnswer Express participant respondents reported they had plans to pursue energy efficiency in the future.

### 4. Is the program marketing effective? Specifically, how do participants find out about the programs?

Participants most commonly reported to learn about the program through vendors, as expected from the program logic. Specifically, 58 percent of respondents heard about the program from vendors and contractors, and 10 percent heard about the program from business colleagues.

**5. What is the program influence on participant actions? Specifically, what do participants identify as most important to their projects (i.e. program information, incentive/credit, payback, engineering, their own company goals, etc.)?**

The evaluation team found many influential factors that motivated participant respondents to participate in the program. Program participants reported that they were most influenced to participate in the FinAnswer Express program by the ability to obtain an incentive (24 percent) and saving money on electric bills (23 percent). Additionally, 19 percent of respondents were motivated to replace poorly working equipment, and 12 percent were motivated to save money on maintenance costs. Other reasons were given by less than 10 percent of respondents each. When asked about important items influencing their decisions, customers also reported the incentive as extremely important. However, when considering extremely and somewhat important together, information provided on payback, information provided on energy savings opportunities, and recommendations by contractors were important.

**6. What barriers are preventing customers from taking actions to reduce energy consumption and demand, and which jeopardize program cost effectiveness?**

Participant respondents reported costs to be a major barrier to conducting more energy efficiency projects. Specifically, 90 percent of participant respondents who identified future projects and barriers (28 of 31) reported high upfront costs as a barrier. No other barriers to completing energy efficiency actions stood out as common themes. In addition, there were no indications of concerns that jeopardize program cost effectiveness.

**7. Are participants achieving planned outcomes? Specifically, are participants feeling satisfied?**

Yes, participants are achieving planned outcomes. Nearly all (92 percent) of respondents were satisfied with the program. While satisfaction was not different overall, the split of very satisfied and somewhat satisfied (ratings of 5 and 4) were different for projects completed with and without a program manager. Respondents were more satisfied with the performance of lighting measures (83 percent) than non-lighting measures (59 percent). In addition, 96 percent of participants who worked with a trade ally reported satisfaction with the vendor.

## 5 Program Evaluation Recommendations

### 5.1 PY 2012-2013 Recommendations

The evaluation team recommends that RMP consider undertaking the following steps to improve the program experience for participants, engineers, and program staff as the FinAnswer Express program transitions to the *wattsmart* Business program.

- » **Recommendation 1. When entering lighting project details into the program tracking database, use measure sub-types that allow for greater resolution in the application of effective useful life (EUL) values.** Capturing measure sub-types for lighting projects provides for greater detail when identifying conditions such as effective useful life (EUL) and savings estimates. For example, lighting controls, LEDs, CFLs and linear fluorescent lamps should each receive different EULs. PacifiCorp cannot apply this level of detail without first identifying sub-types within the database. The four lighting groups listed here are a suggested starting point for the applicable sub-types, but the final selection should be determined, at least in part, by the intended future source of the EUL. It is likely that the shift to the *wattsmart* Business program in PY 2014 will include adding measure sub-types, but as of this evaluation in PY 2012-2013, they are not apparent.
- » **Recommendation 2. Use greater resolution in the application of effective useful life (EUL) values in the program tracking database.** Applying a single EUL to all lighting measures potentially underrepresents energy savings, cost-effectiveness, and associated resource value for LEDs, as well as overestimates the life expectancy of lighting controls. EULs are currently based on the 2008 version of DEER and heavily weighted toward fluorescent lamps. Lighting measures contribute nearly 90 percent of total program savings and fine-tuning the EUL applied for these projects will offer greater confidence in the final cost benefit ratio for this measure category.<sup>29</sup> PacifiCorp currently tracks projects which include LED lamps at the measure level so applying an LED EUL should not be difficult. However, the database tracks lighting control savings in aggregate with lighting fixtures, and projects that may combine multiple technologies are often entered as “lighting packages.” PacifiCorp must list these technologies separately in order to apply varying EULs (see recommendation #1).<sup>30</sup>
- » **Recommendation 3. Expand information message to include other opportunities.** Customers were mostly satisfied with the program and their measures, but the majority are not aware that they could make additional improvements. The program’s information on energy savings opportunities and payback, as well as the design that reduces first costs, help customers overcome barriers to moving forward. Program managers could include short information on additional measures that customers may want to consider. This could be provided with the incentive disbursement or in some other form. Customers tend to find the case studies valuable,

<sup>29</sup> See Figure 5 in section 3.4 for the direct impacts of EUL adjustments on PacifiCorp’s Total Resource Cost test.

<sup>30</sup> The updated 2014 version of DEER provides guidance on EUL by specific lighting technology, but further secondary research in this area is advisable prior to implementation of this recommendation.

but they may not have seen businesses similar to themselves in the marketing materials. One way to nudge customers would be to flag key measures that other similar customers have installed based on tracking data. For example, a convenience store may be see: “Establishments similar to yours have saved money through projects that include improvements to: Lighting, Energy Management Systems, and LED Case Lighting”. Current tracking data may not collect enough information about customers to populate this suggestion system, and program managers may want to use other resources to make suggestions. A more general statement could be included with the program materials to remind customers that they probably have other areas where they could improve. However, this will not help customers over the information barrier. The level of effort put into encouraging more energy efficiency activity should be in proportion to the program performance towards goals and cost-effectiveness.

## 5.2 PY 2009-2011 Recommendation Review

The evaluation team reviewed the recommendations made in the prior 2011-2013 program evaluation to track any progress made by RMP. The following lists the prior recommendations and the results of this review:

- » **Review marketing messages and channels to engage commercial and industrial customers who are not aware of efficiency opportunities.** Half of participants and three-quarters of non-participants did not believe there are additional opportunities to improve electric efficiency at their firm. Marketing collateral that educates and challenges customers to reevaluate their position may be necessary to reach these customers. Reaching new customers is essential to ensure long-term success of the program in cost-effectively meeting energy savings goals.

Non-participants indicated that their three most preferred methods of learning about programs and opportunities from RMP were email, mail, and RMP printed materials and brochures. However, of these, only printed material and brochures was identified as a common way that non-participants who were aware of RMP program offerings became aware of these programs. Extending the campaign to customer email may provide an additional avenue to generate program participation leads. This may also be the most cost-effective method of reaching out to the rural Idaho territory. The previous evaluation of this program, covering 2006-2008 also found low awareness among non-participants; expanded communications or marketing of the program was recommended.

*Review Results – That recommendation was based on non-participant awareness. Non-participants were not included in data collection for this evaluation, so we cannot compare non-participant awareness to determine how it has changed. The evaluation team did speak to program staff and managers, who indicated that they continue to reach out to customers. The marketing campaigns were revised to roll out the wattsmart Business program. It would be appropriate to reevaluate this measure in the next evaluation cycle, when the wattsmart Business program has been in place for the entire period.*

- » **Continue to nurture and develop the trade ally network.** The program logic indicates that one long-term outcome is expansion of active vendors and contractors in the trade ally network. The



program has been able to include more vendors and contractors over time: 28 trade allies were listed in the EEA at the end of 2009, and 84 trade allies were listed at the end of 2011. Vendors are a critical program delivery mechanism for post-purchase incentive programs, like FinAnswer Express. Such growth suggests that the effort to recruit new trade allies has been successful and the challenge will be in keeping these trade allies supported and active with the program. Third-party program administrators, serving as trade ally coordinators, should continue their efforts to develop and nurture strong vendor relationships. Strong relationships encourage trade ally vendors to take the time to market the program effectively.

***Review Results** – The third-party program administrator advised the evaluation team that they had changed and extended their engagement process. This process still focuses the most attention on allies who are delivering projects. Trade allies working with the new program design (in Utah) believe it simplifies their work, and this same program change is approved in Idaho as of November 2014. The program should continue its efforts to engage allies.*



# Idaho's FinAnswer Express Program (PY 2012 through 2013)

## APPENDIX

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## Appendix A Glossary<sup>1</sup>

**Adjustments:** For M&V analyses, factors that modify baseline energy or demand values to account for independent variable values (conditions) in the reporting period.

**Allowances:** Represent the amount of a pollutant that a source is permitted to emit during a specified time in the future under a cap and trade program. Often confused with credits earned in the context of project-based or offset programs, in which sources trade with other facilities to attain compliance with a conventional regulatory requirement. Cap and trade program basics are discussed at the following EPA website: <<http://www.epa.gov/airmarkets/cap-trade/index.html>>.

**Assessment boundary:** The boundary within which all the primary effects and significant secondary effects associated with a project are evaluated.

**Baseline:** Conditions, including energy consumption and related emissions, that would have occurred without implementation of the subject project or program. Sometimes referred to as “business-as-usual” conditions. Defined as either project-specific baselines or performance standard baselines.

**Baseline period:** The period of time selected as representative of facility operations before the energy efficiency activity takes place.

**Bias:** The extent to which a measurement or a sampling or analytic method systematically underestimates or overestimates a value.

**Co-benefits:** The impacts of an energy efficiency program other than energy and demand savings.

**Coincident demand:** The metered demand of a device, circuit, or building that occurs at the same time as the peak demand of a utility’s system load or at the same time as some other peak of interest, such as building or facility peak demand. This should be expressed to indicate the peak of interest (e.g., “demand coincident with the utility system peak”). Diversity factor is defined as the ratio of the sum of the demands of a group of users to their coincident maximum demand. Therefore, diversity factors are always equal to one or greater.

**Comparison group:** A group of consumers who did not participate in the evaluated program during the program year and who share as many characteristics as possible with the participant group.

**Confidence:** An indication of how close a value is to the true value of the quantity in question. Confidence is the likelihood that the evaluation has captured the true impacts of the program within a certain range of values (i.e., precision).

---

<sup>1</sup> Glossary definitions are provided to assist readers of this report, and are adapted from the Model Energy Efficiency Program Impact Evaluation Guide, US Environmental Protection Agency, November 2007

**Cost-effectiveness:** An indicator of the relative performance or economic attractiveness of any energy efficiency investment or practice. In the energy efficiency field, the present value of the estimated benefits produced by an energy efficiency program is compared to the estimated total costs to determine if the proposed investment or measure is desirable from a variety of perspectives (e.g., whether the estimated benefits exceed the estimated costs from a societal perspective).

**Database for Energy-Efficient Resources (DEER):**

A California database designed to provide well-documented estimates of energy and peak demand savings values, measure costs, and effective useful life.

**Demand Side Management (DSM):** See “Energy efficiency.”

**Deemed savings:** An estimate of an energy savings or energy-demand savings outcome (gross savings) for a single unit of an installed energy efficiency measure that (a) has been developed from data sources and analytical methods that are widely considered acceptable for the measure and purpose and (b) is applicable to the situation being evaluated.

**Demand:** The time rate of energy flow. Demand usually refers to electric power measured in kW (equals kWh/h) but can also refer to natural gas, usually as Btu/hr, kBtu/hr, therms/day, etc.

**Direct emissions:** Direct emissions are changes in emissions at the site (controlled by the project sponsor or owner) where the project takes place. Direct emissions are the source of avoided emissions for thermal energy efficiency measures (e.g., avoided emissions from burning natural gas in a water heater).

**Effective Useful Life (EUL):** An estimate of the median number of years that the efficiency measures installed under a program are still in place and operable.

**Energy efficiency:** The use of less energy to provide the same or an improved level of service to the energy consumer in an economically efficient way; or using less energy to perform the same function. “Energy conservation” is a term that has also been used, but it has the connotation of doing without a service in order to save energy rather than using less energy to perform the same function. Demand Side Management (DSM) is also frequently used to refer to actively-managed energy efficiency initiatives.

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

**Engineering model:** Engineering equations used to calculate energy usage and savings. These models are usually based on a quantitative description of physical processes that transform delivered energy into useful work such as heat, lighting, or motor drive. In practice, these models may be reduced to simple equations in spreadsheets that calculate energy usage or savings as a function of measurable attributes of customers, facilities, or equipment (e.g., lighting use = watts × hours of use).

**Error:** Deviation of measurements from the true value.

**Evaluation:** The performance of studies and activities aimed at determining the effects of a program; any of a wide range of assessment activities associated with understanding or documenting program performance, assessing program or program-related markets and market operations; any of a wide range of evaluative efforts including assessing program-induced changes in energy efficiency markets, levels of demand or energy savings, and program cost-effectiveness.

**Evaluation, Measurement and Verification (EM&V):** Data collection, monitoring, and analysis associated with the calculation of gross and net energy and demand savings from individual sites or projects which is performed in conjunction with a program or portfolio evaluation (see Evaluation).

**Evaluated savings estimate:** Savings estimates reported by an evaluator after the energy impact evaluation has been completed. Often referred to as “*Ex Post*” Savings (from the Latin for “after the fact”).

**Free driver:** A non-participant who has adopted a particular efficiency measure or practice as a result of the evaluated program.

**Free rider:** A program participant who would have implemented the program measure or practice in the absence of the program. Free riders can be total, partial, or deferred.

**Gross savings:** The change in energy consumption and/or demand that results directly from program-related actions taken by participants in an efficiency program, regardless of why they participated.

**Impact evaluation:** An evaluation of the program-specific, directly induced changes (e.g., energy and/or demand usage) attributable to an energy efficiency program.

**Independent variables:** The factors that affect energy use and demand, but cannot be controlled (e.g., weather or occupancy).

**Interactive factors:** Applicable to IPMVP Options A and B; changes in energy use or demand occurring beyond the measurement boundary of the M&V analysis.

**Load shapes:** Representations such as graphs, tables, and databases that describe energy consumption rates as a function of another variable such as time or outdoor air temperature.

**Market effect evaluation:** An evaluation of the change in the structure or functioning of a market, or the behavior of participants in a market, that results from one or more program efforts. Typically, the resultant market or behavior change leads to an increase in the adoption of energy-efficient products, services, or practices.

**Market transformation:** A reduction in market barriers resulting from a market intervention, as evidenced by a set of market effects, that lasts after the intervention has been withdrawn, reduced, or changed.

**Measurement:** A procedure for assigning a number to an observed object or event.

**Measurement and Verification (M&V):** Data collection, monitoring, and analysis associated with the calculation of gross energy and demand savings from individual sites or projects. M&V can be a subset of program impact evaluation.

**Measurement boundary:** The boundary of the analysis for determining direct energy and/or demand savings.

**Metering:** The collection of energy consumption data over time through the use of meters. These meters may collect information with respect to an end-use, a circuit, a piece of equipment, or a whole building (or facility). Short-term metering generally refers to data collection for no more than a few weeks. End-use metering refers specifically to separate data collection for one or more end-uses in a facility, such as lighting, air conditioning or refrigeration. Spot metering is an instantaneous measurement (rather than over time) to determine an energy consumption rate.

**Monitoring:** Gathering of relevant measurement data, including but not limited to energy consumption data, over time to evaluate equipment or system performance (e.g., chiller electric demand, inlet evaporator temperature and flow, outlet evaporator temperature, condenser inlet temperature, and ambient dry-bulb temperature and relative humidity or wet-bulb temperature) for use in developing a chiller performance map (e.g., kW/ton vs. cooling load and vs. condenser inlet temperature).

**Net savings:** The total change in load that is attributable to an energy efficiency program. This change in load may include, implicitly or explicitly, the effects of free drivers, free riders, energy efficiency standards, changes in the level of energy service, and other causes of changes in energy consumption or demand.

**Net-to-gross ratio (NTGR):** A factor representing net program savings divided by gross program savings that is applied to gross program impacts to convert them into net program load impacts.

**Non-participant:** Any consumer who was eligible but did not participate in the subject efficiency program, in a given program year. Each evaluation plan should provide a definition of a non-participant as it applies to a specific evaluation.

**Normalized annual consumption (NAC) analysis:** A regression-based method that analyzes monthly energy consumption data.

**Participant:** A consumer that received a service offered through the subject efficiency program, in a given program year. The term “service” is used in this definition to suggest that the service can be a wide variety of services, including financial rebates, technical assistance, product installations, training,

energy efficiency information or other services, items, or conditions. Each evaluation plan should define “participant” as it applies to the specific evaluation.

**Peak demand:** The maximum level of metered demand during a specified period, such as a billing month or a peak demand period.

**Persistence study:** A study to assess changes in program impacts over time (including retention and degradation).

**Portfolio:** Either (a) a collection of similar programs addressing the same market (e.g., a portfolio of residential programs), technology (e.g., motor efficiency programs), or mechanisms (e.g., loan programs) or (b) the set of all programs conducted by one organization, such as a utility (and which could include programs that cover multiple markets, technologies, etc.).

**Potential studies:** Studies conducted to assess market baselines and savings potentials for different technologies and customer markets. Potential is typically defined in terms of technical potential, market potential, and economic potential.

**Precision:** The indication of the closeness of agreement among repeated measurements of the same physical quantity.

**Primary effects:** Effects that the project or program are intended to achieve. For efficiency programs, this is primarily a reduction in energy use per unit of output.

**Process evaluation:** A systematic assessment of an energy efficiency program for the purposes of documenting program operations at the time of the examination, and identifying and recommending improvements to increase the program’s efficiency or effectiveness for acquiring energy resources while maintaining high levels of participant satisfaction.

**Program:** A group of projects, with similar characteristics and installed in similar applications. Examples could include a utility program to install energy-efficient lighting in commercial buildings, a developer’s program to build a subdivision of homes that have photovoltaic systems, or a state residential energy efficiency code program.

**Project:** An activity or course of action involving one or multiple energy efficiency measures, at a single facility or site.

**Rebound effect:** A change in energy-using behavior that yields an increased level of service and occurs as a result of taking an energy efficiency action.

**Regression analysis:** Analysis of the relationship between a dependent variable (response variable) to specified independent variables (explanatory variables). The mathematical model of their relationship is the regression equation.



**Reliability:** Refers to the likelihood that the observations can be replicated.

**Remaining Useful Life (RUL):** An estimate of the remaining number of years that a technology being replaced under an early retirement program would have remained in place and operable. Accurate estimation of the RUL is important in determining lifetime program savings and cost effectiveness.

**Reported savings estimate:** Forecasted savings used for program and portfolio planning purposes. Often referred to as "*Ex Ante*" Savings (from the Latin for "before the event").

**Reporting period:** The time following implementation of an energy efficiency activity during which savings are to be determined.

**Resource acquisition program:** Programs designed to directly achieve energy and/or demand savings, and possibly avoided emissions.

**Retrofit isolation:** The savings measurement approach defined in IPMVP Options A and B, and ASHRAE Guideline 14, that determines energy or demand savings through the use of meters to isolate the energy flows for the system(s) under consideration.

**Rigor:** The level of expected confidence and precision. The higher the level of rigor, the more confident one is that the results of the evaluation are both accurate and precise.

**Spillover:** Reductions in energy consumption and/or demand caused by the presence of the energy efficiency program, beyond the program-related gross savings of the participants. There can be participant and/or nonparticipant spillover.

**Statistically adjusted engineering (SAE) models:** A category of statistical analysis models that incorporate the engineering estimate of savings as a dependent variable.

**Stipulated values:** See "deemed savings."

**Takeback effect:** See "rebound effect."

**Uncertainty:** The range or interval of doubt surrounding a measured or calculated value within which the true value is expected to fall within some degree of confidence.

## Appendix B Sample to Population Extrapolation Methodology

Navigant calculated program level evaluated savings by first determining a realization rate for each strata based on project-level savings, regardless of the type of measures installed. Using the evaluation sample, the team then determined a realization rate for each combination of measure category and sample strata. If a given combination of measure category and project strata appears in the evaluation sample, the realization rate for that specific combination is based on verified results for all sampled measures matching that combination. If a given measure-strata combination is not present in the sample frame, the realization is estimated using the general strata level realization rate, which represents a blend of all measure types in similarly sized projects.

Once each measure-strata combination has the most applicable and accurate realization rate available, the three strata level realization rates for each measure are weighted based on kWh savings. This measure level, weighted realization rate is the final realization rate calculated for each measure category. These measure level realization rates are then mapped to the population of all measures installed through the program. In this way, the performance of each individual measure category is proportionally represented in the program results regardless of the frequency with which it appeared in the evaluation sample, while maintaining the overall statistical validity of the stratified random sample as a whole. Table 1 shows these realization rates by measure category, as well as the distribution of reported energy savings for the current PY 2012-2013 evaluation.

**Table 1. Measure-Level Realization Rates for Idaho FinAnswer Express (PY 2012-2013)**

Measure Category	2012-2013 Reported Energy Savings (kWh)	Sample as % of Total Population for that Measure	2012-2013 Realization Rate
Lighting	8,694,494	73%	100%
HVAC	586,911	1%	96%
Dairy Farm Equipment	266,128	9%	31%
Building Shell	150,828	30%	126%
Food Service	73,004	0%	93%
Compressed Air	56,783	0%	84%
Motors	1,009	0%	84%

*Navigant did not sample at the measure category-level at a 90/10 confidence and precision and provide these results for informational purposes only.*



Figure 1 provides the detail breakdown by measure category and strata used to arrive at the blended, weighted realization rates.

**Figure 1. Measure Category / Strata Level Realization Rate Detail**

Sample Results	Claimed Savings in Population				Claimed kWh (sample)			Verified kWh (sample)			Realization Rate (sample)			RR Normalizing Factor (Population)			Weighted Realization Rate end goal
	Tier 1	Tier 2	Tier 3	Total	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3	
Lighting - CI	4,814,447	1,353,351	2,526,696	8,694,494	4,814,447	1,232,079	269,912	4,836,603	1,449,058	240,730	100%	118%	89%	0.5537	0.1557	0.2906	100%
HVAC - CI	0	421,997	164,914	586,911	0	3,552	0	0	3,552	0	100%	100%	84%	0.0000	0.7190	0.2810	96%
Dairy Farm Equipm	0	0	266,128	266,128	0	0	25,050	0	0	7,858	100%	100%	31%	0.0000	0.0000	1.0000	31%
Building Shell - CI	0	130,009	20,819	150,828	0	45,697	0	0	60,766	0	100%	133%	84%	0.0000	0.8620	0.1380	126%
Food Service	0	19,827	53,177	73,004	0	0	0	0	0	0	100%	118%	84%	0.0000	0.2716	0.7284	93%
Compressed Air -	0	0	56,783	56,783	0	0	0	0	0	0	100%	100%	84%	0.0000	0.0000	1.0000	84%
Motors - CI	0	0	1,009	1,009	0	0	0	0	0	0	100%	100%	84%	0.0000	0.0000	1.0000	84%
<b>Sub-Total</b>	4,814,447	1,925,184	3,089,526	9,829,157	4,814,447	1,281,328	294,962	4,836,603	1,513,376	248,588							
Other	0	0	0	0	0	0	0	0	0	0	100%	100%	100%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
<b>TOTAL</b>	4,814,447	1,925,184	3,089,526	9,829,157	4,814,447	1,281,328	294,962	4,836,603	1,513,376	248,588	100%	118%	84%	0.4898128	0.1958646	0.3143226	<b>98.8%</b>

## Appendix C RTF Reference Tables

The following tables provide the HVAC interactive impacts used by Navigant to calculate lighting savings for the evaluation of PY 2012-2013 FinAnswer Express program.

**Table 2. HVAC Interactive Factors (A)**

Building Type	Electric Resistance w/ Cooling	Electric Resistance w/o Cooling	Heat Pump w/ Cooling
Automotive Repair	87%	87%	102%
College or University	68%	68%	96%
Exterior 24 Hour Operation	100%	100%	100%
Hospital	29%	29%	65%
Industrial Plant with One Shift	61%	61%	81%
Industrial Plant with Three Shifts	61%	61%	81%
Industrial Plant with Two Shifts	61%	61%	81%
Library	87%	87%	102%
Lodging	69%	69%	90%
Manufacturing	61%	61%	81%
Office <20,000 sf	69%	69%	96%
Office >100,000 sf	91%	91%	102%
Office 20,000 to 100,000 sf	92%	92%	102%
Other Health, Nursing, Medical Clinic	92%	92%	102%
Parking Garage	100%	100%	100%
Restaurant	43%	43%	73%
Retail 5,000 to 50,000 sf	68%	68%	93%
Retail Anchor Store >50,000 sf Multistory	71%	71%	97%
Retail Big Box >50,000 sf One-Story	82%	82%	103%
Retail Boutique <5,000 sf	76%	76%	98%
Retail Mini Mart	69%	69%	95%
Retail Supermarket	85%	85%	97%
School K-12	57%	57%	86%
Street & Area Lighting (Photo Sensor Controlled)	100%	100%	100%
Warehouse	61%	61%	81%
Worship	87%	87%	102%
Other	87%	87%	102%

Source: NW Regional Technical Forum - Standard Protocol Calculator - <http://rtf.nwccouncil.org/subcommittees/nonreslighting/>

**Table 3. HVAC Interactive Factors (B)**

Building Type	Heat Pump w/o Cooling	Gas, Oil, or Biomass w/ Cooling	Gas, Oil, or Biomass w/o Cooling
Automotive Repair	102%	103%	103%
College or University	96%	111%	111%
Exterior 24 Hour Operation	100%	100%	100%
Hospital	65%	94%	94%
Industrial Plant with One Shift	81%	96%	96%
Industrial Plant with Three Shifts	81%	96%	96%
Industrial Plant with Two Shifts	81%	96%	96%
Library	102%	103%	103%
Lodging	90%	105%	105%
Manufacturing	81%	96%	96%
Office <20,000 sf	96%	112%	112%
Office >100,000 sf	102%	107%	107%
Office 20,000 to 100,000 sf	102%	108%	108%
Other Health, Nursing, Medical Clinic	102%	108%	108%
Parking Garage	100%	100%	100%
Restaurant	73%	96%	96%
Retail 5,000 to 50,000 sf	93%	103%	103%
Retail Anchor Store >50,000 sf Multistory	97%	110%	110%
Retail Big Box >50,000 sf One-Story	103%	112%	112%
Retail Boutique <5,000 sf	98%	104%	104%
Retail Mini Mart	95%	105%	105%
Retail Supermarket	97%	105%	105%
School K-12	86%	100%	100%
Street & Area Lighting (Photo Sensor Controlled)	100%	100%	100%
Warehouse	81%	96%	96%
Worship	102%	103%	103%
Other	102%	103%	103%

Source: NW Regional Technical Forum - Standard Protocol Calculator - <http://rtf.nwcouncil.org/subcommittees/nonreslighting/>

**Table 4. HVAC Interactive Factors (C)**

Building Type	Cooling w/o Heat	Refrigerated Space	None/Exterior
Automotive Repair	100%	130%	100%
College or University	100%	130%	100%
Exterior 24 Hour Operation	100%	100%	100%
Hospital	100%	130%	100%
Industrial Plant with One Shift	100%	130%	100%
Industrial Plant with Three Shifts	100%	130%	100%
Industrial Plant with Two Shifts	100%	130%	100%
Library	100%	130%	100%
Lodging	100%	130%	100%
Manufacturing	100%	130%	100%
Office <20,000 sf	100%	130%	100%
Office >100,000 sf	100%	130%	100%
Office 20,000 to 100,000 sf	100%	130%	100%
Other Health, Nursing, Medical Clinic	100%	130%	100%
Parking Garage	100%	100%	100%
Restaurant	100%	130%	100%
Retail 5,000 to 50,000 sf	100%	130%	100%
Retail Anchor Store >50,000 sf Multistory	100%	130%	100%
Retail Big Box >50,000 sf One-Story	100%	130%	100%
Retail Boutique <5,000 sf	100%	130%	100%
Retail Mini Mart	100%	130%	100%
Retail Supermarket	100%	130%	100%
School K-12	100%	130%	100%
Street & Area Lighting (Photo Sensor Controlled)	100%	100%	100%
Warehouse	100%	130%	100%
Worship	100%	130%	100%
Other	100%	130%	100%

Source: NW Regional Technical Forum - Standard Protocol Calculator - <http://rtf.nwcouncil.org/subcommittees/nonreslighting/>

## Appendix D EM&V Best Practices

The term “best practices” refers to practices that, when compared against other practices, produce superior results. In the context of this study, the evaluation team defined best practices to be those methods, procedures, and protocols that maximized the accuracy and statistical validity of impact evaluation findings. The specific best practices considered in this study were compiled through a review of secondary literature, a comparison of similar programs and evaluation outcomes, and prior evaluation experience. Table 5 details the specific evaluation, measurement, and verification (EM&V) studies reviewed for this effort.

**Table 5. EM&V Best Practice Studies Reviewed**

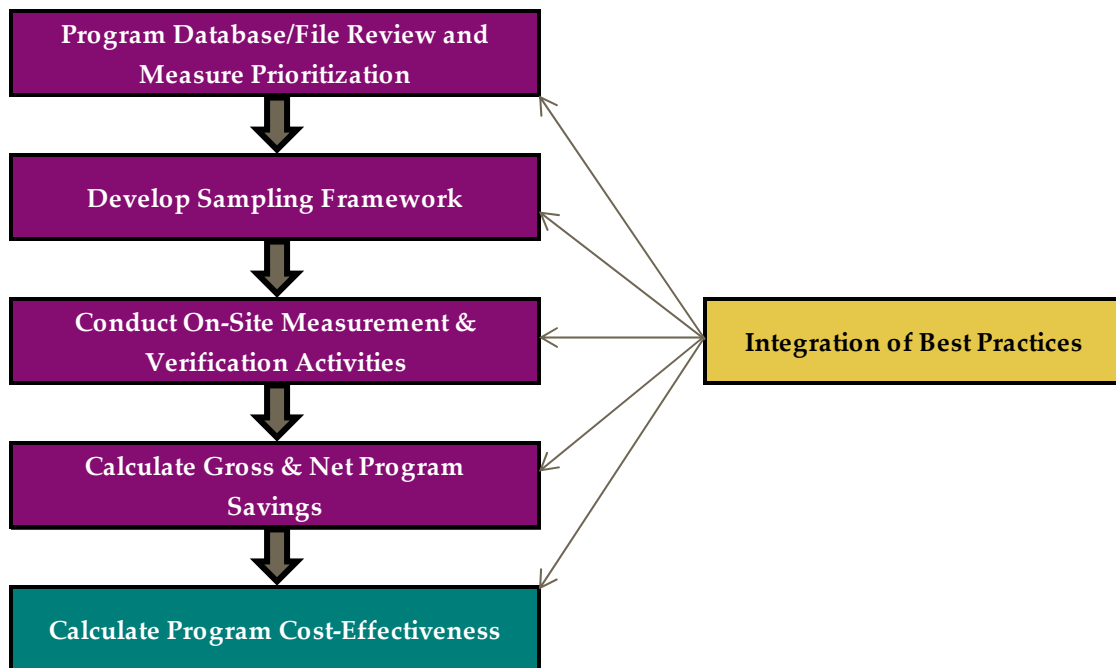
Organization	Study Name	Publication Year
National Renewable Energy Laboratory (NREL) Department of Energy (DOE)	The Uniform Methods Project: Methods for Determining Energy Efficiency Savings for Specific Measures	2013
The Brattle Group	Measurement and Verification Principles for Behavior-Based Efficiency Programs	2011
Berkeley National Laboratory	Review of Evaluation, Measurement, and Verification Approaches Used to Estimate the Load Impacts and Effectiveness of Energy Efficiency Programs	2010
State of California, Public Utilities Commission	Best Practices Benchmarking for Energy Efficiency Programs	2009
Enbridge Gas Distribution	DSM Best Practices for Natural Gas Utilities: the Canadian Experience	2008
Consortium for Energy Efficiency	Energy Efficiency Program Evaluation: A Guide to the Guides	2008
Minnesota Office of Energy Security	Measurement and Verification Protocols for Large Custom CIP Projects - Version 1.0	2008
Northern California Power Agency	E, M & V Best Practices: Lessons Learned from California Municipal Utilities	2008
National Action Plan for Energy Efficiency Leadership Group	Model Energy Efficiency Program Impact Evaluation Guide: A Resource of the National Action Plan for Energy Efficiency	2007
State of California, Public Utilities Commission	California Energy Efficiency Evaluation Protocols: Technical, Methodological, and Reporting Requirements for Evaluation Professionals	2006
American Council for an Energy-Efficient Economy	America's Best: Profiles of America's Leading Energy Efficiency Programs	2003

Each report presented valuable insight into best practices within the field of EM&V. However, the evaluation team documented, characterized, and prioritized those best practices with the following properties:

- » Cross-cutting best practices with a high level of representation across each of the studies reviewed
- » Best practices consistent with past evaluation experience and interviews with program managers in other jurisdictions
- » Best practices demonstrating the most applicability towards Rocky Mountain Power’s C&I Programs

The subsequent M&V methods developed for the Impact and Process Evaluation of PacifiCorp’s 2012-2013 C&I Programs reflect the outcome of this independent review. Figure 2 provides an illustration of how the Best Practices Review informed the overall evaluation methods chosen for this effort.

**Figure 2. Overview of Impact Evaluation Strategy**





## Appendix E *wattsmart* Business Program Logic Model

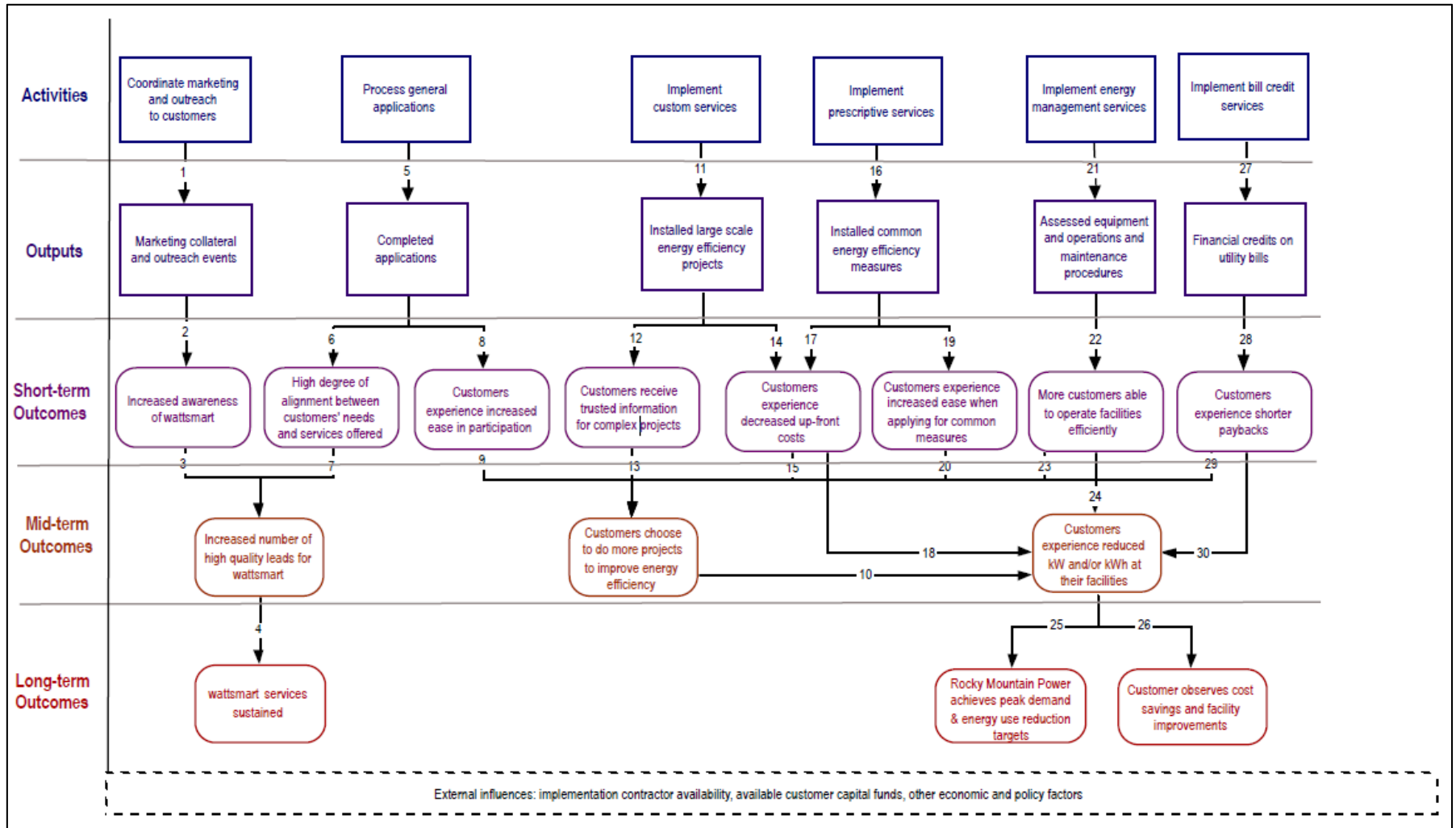
The *wattsmart* program is an umbrella program encompassing all of Rocky Mountain Power’s energy efficiency services. The *wattsmart* program provides customers with a suite of programs based on the former Rocky Mountain Power energy efficiency programs:

- » Energy FinAnswer – offers incentives for large-scale energy efficiency projects
- » FinAnswer Express – offers incentives for small-scale energy efficiency projects, including prescriptive measures
- » Energy Management Services (formally called Recommissioning) – offers incentives for optimizing equipment and operating and maintenance procedures
- » Bill Credit Services – offers financial credits on utility bills for energy efficiency projects

The logic model presented in Figure E-1, therefore, depicts the logic for each activity carried out by implementers as part of the *wattsmart* program. As shown, implementers perform marketing and outreach, processes applications, and implement the four energy efficiency services (Energy FinAnswer, FinAnswer Express, Energy Management Services, and Bill Credit Services).

The overall purpose of developing the *wattsmart* program is to offer customers with a streamlined application process for energy efficiency services. By offering one energy efficiency program, customers do not need to choose a specific energy efficiency program. Instead, customers submit one application and program staff can direct customers to the most applicable service. By providing a suite of services catered to unique customer needs, *wattsmart* intends the program to generate higher quality leads and encourage customers to carry out more energy efficiency projects. Ultimately, implementers expect the program to generate enough energy savings and demand reductions for Rocky Mountain Power to meet its energy use reduction targets. The list following Figure E-1 describes the detailed program theory by referencing the numbered links in the figure.

Figure E-1. *wattsmart* Business Program Logic Model (2013)



Each number in the following list corresponds to a linkage in the logic model diagram and provides further details for the *wattsmart* program theory.

1. Rocky Mountain Power staff coordinates marketing and outreach to customers through marketing collateral and outreach events.
2. Marketing and outreach functions increase customer awareness of *wattsmart*.
3. Increasing customer awareness of *wattsmart* increases the number of high quality leads, defined as eligible customers that can directly benefit from program services than would have occurred without any marketing or outreach.
4. Program sustainability over time improves with increased customer awareness of *wattsmart*.
5. Program staff processes general applications to ensure completeness and direct customers to the best *wattsmart* service.
6. Processing general applications ensures that customers' needs align with program services.
7. Aligning customers' needs with program services means that more customers can or are willing to participate in *wattsmart*, resulting in greater leads for program services.
8. Allowing customers to submit general applications for the entire *wattsmart* program is intended to ease the customers' experiences with the application process, making it simpler and more direct.
9. By making the application process simple, customers will be more likely to conduct more energy efficiency projects.
10. When customers conduct more energy efficiency projects, they continue to experience reduced demand and/or energy savings at their facilities.
11. Customers may use the custom offerings portion of the *wattsmart* Business program to install large-scale, site-specific energy efficiency projects.
12. The custom portion of *wattsmart* provides customers with trusted information on complex energy efficiency project that they would not receive otherwise.
13. Providing trusted information to customers on complex projects allows them to follow through with more energy efficiency projects than they would have otherwise.
14. Participation in the custom portion of *wattsmart* provides customers financial incentives which help decrease upfront costs for energy efficiency projects.
15. By decreasing upfront costs, participants are able to conduct even more energy efficiency projects.
16. Customers may use the prescriptive offerings portion of *wattsmart* to install common energy efficiency measures such as lighting and/or HVAC equipment.
17. The prescriptive service provides incentives for common energy efficiency measures, thereby decreasing customers' upfront costs for efficiency improvements.

18. By helping to cover some of the upfront costs, customers are able to install energy efficiency equipment and hence reduce their energy costs or demand at their facilities.
19. The purpose of offering an “express” program is to provide customers with a simple means to receive financial incentives for common measures.
20. When customers feel that the incentive process is easy, they are more likely to conduct more energy efficiency projects through *wattsmart*.
21. Program staff provides a variety of energy management services to assess customers’ operations and maintenance (O&M) procedures and equipment.
22. The overall purpose of providing energy management services is to help more customers operate their facilities efficiently.
23. By participating in this program, program staff identifies energy efficiency opportunities, which allow customers to install more energy efficiency projects in the future.
24. When customers operate their facilities efficiently, they generate demand reductions and energy savings.
25. When individual customers can generate demand reductions and energy savings, Rocky Mountain Power can achieve peak demand and energy use targets.
26. When customers are able to save energy, they also receive added benefits of energy cost savings and facility improvements.
27. Providing bill credit services allows customers to receive financial credits on their utility bills for energy efficiency projects.
28. Bill credits are intended to provide customers with shorter paybacks for energy efficiency projects.
29. Receiving bill credits allow customers to install more energy efficiency projects.
30. When install more energy efficient projects, they generate energy savings and reduced demand.

## Appendix F FinAnswer Express Participant Survey

### Variables

Variable Name	Description	Type
&CONTACT	Respondent name	Text
&FIRM	Company name	Text
&PROGRAM	"FinAnswer Express" "Energy FinAnswer" "Self-Direction Credit"	Text
&PROG_CODE	1="FinAnswer Express" 2="Energy FinAnswer" 3="Self-Direction Credit"	Numeric
&SITE	Address	Text
&YEAR	Year of project completion	YYYY
&PACIFICORP	"Rocky Mountain Power" or "Pacific Power"	Text
&PREDATE	Date of first inspection	Date MMYYYY
&POSTDATE	Date of post inspection	Date MMYYYY
&INSTALLED_MEASURES	List of installed measures	Text
&MEASURE_1	Name of Measure 1	Text
&MEASURE_2	Name of Measure 2	Text
&MULT_MEASURES	Flag for more than one measure	BINARY
&INCENTIVE	Amount paid for participation	Numeric
&PM	Flag for PM delivered project 1 = PM deliver project	BINARY
&NC	Flag for New construction project 1 = new construction project	BINARY

### Introduction and Screen

**INTRO1.** Hello, this is INTERVIEWER, calling on behalf of &PACIFICORP. We are conducting an independent evaluation of &PACIFICORP's energy efficiency programs. This is not a sales call. May I please speak with &CONTACT?

1. YES, THAT IS ME → **SKIP TO INTRO3**
2. YES, LET ME TRANSFER YOU
3. NOT NOW → **SCHEDULE APPT AND CALL BACK**
4. NO/REFUSED → **TERMINATE**

**INTRO2.** Hello, this is INTERVIEWER, calling on behalf of &PACIFICORP. We are conducting an independent evaluation of &PACIFICORP's energy efficiency programs. This is not a sales call. &PACIFICORP is evaluating its &PROGRAM program and would appreciate your input."

I'd like to let you know that this call may be monitored or recorded for quality assurance purposes. Also, all of your responses will be kept confidential and will not be revealed to anyone outside of the research team. Do you have a few minutes to answer questions about your experience with the program? **[IF NEEDED, READ: "This survey is for research purposes only and will take about 15 minutes."]**

1. YES → **SKIP TO IS2**
2. NOT NOW → **MAKE APPT. TO CALL BACK**

3. NO/REFUSED → **TERMINATE**

**INTRO3.** &PACIFICORP is evaluating its &PROGRAM program and would appreciate your input. I'd like to let you know that this call may be monitored or recorded for quality insurance purposes. Also, all of your responses will be kept confidential and will not be revealed to anyone outside of the research team. Do you have a few minutes to answer questions about your experience with the program? **[IF NEEDED, READ: "This survey is for research purposes only and will take about 15 minutes."]**

1. YES → Thanks!
2. NOT NOW → **MAKE APPT. TO CALL BACK**
3. NO/REFUSED → **TERMINATE**

**[IF VERIFICATION NEEDED, THEY CAN CALL SHAWN GRANT AT 801-220-4196].**

**IS2a.** &PACIFICORP records indicate that your firm received an incentive from the &PROGRAM program in &YEAR after installing &INSTALLED\_MEASURES at &SITE, is this correct?

1. YES → **SKIP TO IS3**
2. NO, DID NOT PARTICIPATE
3. NO, ONE OR MORE MEASURES ARE INCORRECT → **SKIP TO IS2d**
4. NO, ADDRESS IS INCORRECT → **SKIP TO IS2e**
88. DON'T KNOW/NOT SURE → **TERMINATE**
99. REFUSED

**IS2b.** Is there someone else that might be familiar with this project?

1. Yes
2. No → **TERMINATE**
88. Don't know → **TERMINATE**

**IS2c.** May I speak with that person?

1. Yes → **RETURN TO INTRO2**
2. Not now → **SCHEDULE CALLBACK**
3. No → **TERMINATE**

**IS2d.** Which of these efficiency improvements were installed? [READ AND SELECT ALL THAT APPLY]

1. &MEASURE\_1
2. &MEASURE\_2
3. &INSTALLED\_MEASURES
4. None of these
88. DON'T KNOW/NOT SURE
99. REFUSED

**[IF IS2a < 4, SKIP TO IS3]**

**IS2e.** What is the correct address where the equipment was installed?

1. **[RECORD RESPONSE]**
88. DON'T KNOW/NOT SURE

99. REFUSED

**IS3.** Are you the person most familiar with &FIRM's decision to move forward with this project?

- 1. YES
- 2. NO → **SKIP to IS2b**
- 88. DON'T KNOW/NOT SURE → **SKIP to IS2b**
- 99. REFUSED → **SKIP to IS2b**

**Project Recall**

**PR1.** Today, I'm going to focus on the project I mentioned with the &INSTALLED\_MEASURES. To your knowledge, did you work with &PACIFICORP on other projects before this one?

- 1. YES
- 2. NO
- 88. DON'T KNOW/NOT SURE
- 99. REFUSED

**PR2.** And, to your knowledge, did you work with &PACIFICORP on other projects since this one?

- 1. YES
- 2. NO
- 88. DON'T KNOW/NOT SURE
- 99. REFUSED

**Awareness & Participation**

**AP1.** How did you first become aware of &PROGRAM? **[DO NOT READ; CHECK ALL THAT APPLY]**

- 1. Account Representative or Other &PACIFICORP Staff
- 2. &PACIFICORP Radio Advertisement
- 3. &PACIFICORP Print Advertisement
- 4. &PACIFICORP Printed Materials/Brochure
- 5. &PACIFICORP Online Advertisement
- 6. &PACIFICORP TV Advertisement
- 7. &PACIFICORP Newsletter
- 8. &PACIFICORP Website
- 9. Previous Participation in &PACIFICORP Programs
- 10. Conference, Workshop, or Event [SPECIFY]
- 11. &PACIFICORP Sponsored Energy Audit or Technical Assessment
- 12. From Trade Ally, Vendor, or Contractor
- 13. Another Business Colleague

- 14. Family, Friend, or Neighbor
- 15. Another Energy Efficiency Program (CONFIRM NOT A PACIFICORP PROGRAM)
- 16. Other [SPECIFY]
- 88. DON'T KNOW/NOT SURE
- 99. REFUSE

**AP2. Why did your firm decide to participate in the program? [DO NOT READ; CHECK ALL THAT APPLY]**

- 1. To save money on electric bills.
- 2. To save money on maintenance costs
- 3. To obtain an incentive.
- 4. To replace old or poorly working equipment.
- 5. To replace broken or failed equipment.
- 6. To acquire the latest technology.
- 7. Because the program was sponsored by &PACIFICORP
- 8. Previous experience with &PACIFICORP
- 9. To protect the environment/be "green"
- 10. To save energy (no costs mentioned)
- 11. To comply with a standard or policy requirement
- 12. Recommendation by contractors/vendors
- 13. Recommended by colleague
- 14. Recommended by family, friend or neighbor
- 15. To improve operations, production, or quality
- 16. To improve value of property
- 17. To improve comfort
- 18. Other [SPECIFY]: \_\_\_\_\_
- 88. DON'T KNOW/NOT SURE
- 99. REFUSE

**[IF MORE THAN ONE RESPONSE TO AP2]**

**AP2a. Of those reasons, which one was most influential in the decision to participate in the program?**

**[ALLOW ONLY ONE RESPONSE..]**

- 1. To save money on electric bills.
- 2. To save money on maintenance costs
- 3. To obtain an incentive.
- 4. To replace old or poorly working equipment.
- 5. To replace broken or failed equipment.
- 6. To acquire the latest technology.
- 7. Because the program was sponsored by &PACIFICORP
- 8. Previous experience with &PACIFICORP
- 9. To protect the environment/be "green"
- 10. To save energy (no costs mentioned)
- 11. To comply with a standard or policy requirement
- 12. Recommendation by contractors/vendors



- 13. Recommended by colleague
- 14. Recommended by family, friend or neighbor
- 15. To improve operations, production, or quality
- 16. To improve value of property
- 17. To improve comfort
- 18. Other [SPECIFY]: \_\_\_\_\_
- 88. DON'T KNOW/NOT SURE
- 99. REFUSED

**Website Section**

**WW1.** Have you ever visited the &PACIFICORP *wattsmart* energy efficiency website?

- 1. YES
- 2. NO → **SKIP to EE1**
- 88. DON'T KNOW/NOT SURE → **SKIP to EE1**
- 99. REFUSED → **SKIP to EE1**

**WW2.** How many times have you visited the &PACIFICORP *wattsmart* energy efficiency website in the last year?

- 1. ONCE
- 2. SELDOM (LESS THAN ONCE PER MONTH; 2 to10 TIMES)
- 3. ABOUT ONCE PER MONTH (10 to 13 TIMES)
- 4. FREQUENTLY (MORE THAN ONCE PER MONTH; MORE THAN 13 TIMES)
- 88. DON'T KNOW/NOT SURE
- 99. REFUSED

**WW3.** Why did you visit the &PACIFICORP *wattsmart* energy efficiency website?

- 1. **[RECORD RESPONSE]**
- 88. DON'T KNOW/NOT SURE
- 99. REFUSED

**WW4.** Were you able to find the information you needed on the *wattsmart* website?

- 1. YES
- 2. NO
- 88. DON'T KNOW/NOT SURE
- 99. REFUSED

**Pre-Installation Section**

**[IF &PROG\_CODE=2 OR &PREDATE not NULL, ask EE1; ELSE, skip to EE3]**

**EE1.** When you first became involved with the &PROGRAM program, representative from &PACIFICORP came out to your facility to inspect existing equipment. Using a scale of 1 to 5 where 1 indicates 'very dissatisfied' and 5 indicates 'very satisfied', how satisfied were you with the energy engineer who came out to your facility?

1. VERY DISSATISFIED
2. SOMEWHAT DISSATISFIED
3. NEITHER SATISFIED NOR DISSATISFIED
4. SOMEWHAT SATISFIED → **SKIP TO EE3**
5. VERY SATISFIED → **SKIP TO EE3**
88. DON'T KNOW/NOT SURE → **SKIP TO EE3**
99. REFUSED → **SKIP TO EE3**

**EE2.** What could the representative have done differently that would have made you more satisfied?

1. **[RECORD RESPONSE]**
88. DON'T KNOW/NOT SURE
99. REFUSED

**EE3.** Using a scale of 1 to 5 where 1 indicates 'very dissatisfied' and 5 indicates 'very satisfied', how satisfied were you with the vendor you worked with on this project? [A vendor may be a retailer, engineer, or distributor]

1. VERY DISSATISFIED
2. SOMEWHAT DISSATISFIED
3. NEITHER SATISFIED NOR DISSATISFIED
4. SOMEWHAT SATISFIED → **SKIP TO EE5**
5. VERY SATISFIED → **SKIP TO EE5**
6. **DID NOT WORK WITH A VENDOR → SKIP TO EE5**
7. **DO NOT RECALL → SKIP TO EE5**
88. DON'T KNOW/NOT SURE → **SKIP TO EE5**
99. REFUSED → **SKIP TO EE5**

**EE4.** What could they have done differently that would have made you more satisfied?

1. **[RECORD RESPONSE]**
88. DON'T KNOW/NOT SURE
99. REFUSED

**[IF &PROG\_CODE=2 OR &PM=1, ASK EE5; ELSE, skip to IM1]**

**EE5.** As part of the program, you received a report from the energy analysis that included recommendations of equipment retrofits and other energy efficiency improvements. Did you find this report valuable?

1. YES → **SKIP TO IM1**
2. NO
3. DON'T RECALL RECEIVING A REPORT → **SKIP TO IM1**
88. DON'T KNOW/NOT SURE → **SKIP TO IM1**
99. REFUSED → **SKIP TO IM1**

EE6. Why not?

1. [RECORD RESPONSE]
88. DON'T KNOW/NOT SURE
99. REFUSED

**Installed Measures**

[IF &NC=1, SKIP to FR1]

READ: I'm going to ask a few questions about the equipment that you installed.

[SET &MEASURE\_# = &MEASURE\_1]

**IM1.** Did the &MEASURE\_# installed through the program replace existing equipment or was it a new installation?

1. REPLACED EXISTING EQUIPMENT → SKIP TO IM2
2. TOTALLY NEW INSTALLATION → SKIP TO IM3
88. DON'T KNOW/NOT SURE → SKIP TO IM1A
99. REFUSED → SKIP TO IM1A

**IM1A.** Could you please provide contact information for someone who would know the specifics of the equipment installation?

1. [COLLECT: IM\_CONTACT\_NAME, IM\_CONTACT\_PHONE, and IM\_CONTACT\_EMAIL]  
→ SKIP TO IC1

**IM2.** What was the operating condition of the equipment that the &MEASURE\_# replaced?

1. EXISTING EQUIPMENT HAD FAILED
2. EXISTING EQUIPMENT WORKING BUT WITH PROBLEMS
3. EXISTING EQUIPMENT WORKING WITH NO PROBLEMS
4. OTHER [SPECIFY]: \_\_\_\_\_
88. DON'T KNOW/NOT SURE
99. REFUSED

**IM3.** Have the energy savings related to this equipment met your expectations?

1. YES
2. NO
88. DON'T KNOW/NOT SURE
99. REFUSED

**IM4a.** Did you anticipate any other benefits beyond energy savings from the \$MEASURE\_#?

1. YES
2. NO → SKIP TO IM5
88. DON'T KNOW/NOT SURE → SKIP TO IM5
99. REFUSED → SKIP TO IM5

**IM4b.** What other benefits did you anticipate? [CHECK ALL THAT APPLY; DO NOT READ]

1. Better lighting quality (lighting specific)
2. Quicker on/off (lighting specific)
3. Increased control (lighting specific)
4. Less frequent replacement (lighting specific)
5. Decreased heat output (lighting specific)
6. Increased water pressure (sprinkler specific)
7. Other [SPECIFY]
88. DON'T KNOW/NOT SURE
99. REFUSED

**IM4c.** Since the project was completed, have you seen those benefits?

1. YES
2. NO
3. ONLY SOMEWHAT [SPECIFY]
88. DON'T KNOW/NOT SURE
99. REFUSED

**IM5.** Using a scale of 1 to 5 where 1 indicates 'very dissatisfied' and 5 indicates 'very satisfied', overall, how satisfied were you with the performance of the &MEASURE\_#?

1. VERY DISSATISFIED
2. SOMEWHAT DISSATISFIED
3. NEITHER SATISFIED NOR DISSATISFIED
4. SOMEWHAT SATISFIED → SKIP TO P11
5. VERY SATISFIED → SKIP TO P11
88. DON'T KNOW/NOT SURE → SKIP TO P11
99. REFUSED → SKIP TO P11

**IM6.** What would have made you more satisfied with the performance of this equipment?

1. [RECORD RESPONSE]
88. DON'T KNOW/NOT SURE
99. REFUSED

[IF MULT\_MEASURES=1 SET &MEASURE\_#=&MEASURE\_2 GO BACK TO IM1; ELSE GO TO NEXT SECTION]

### Post-Installation

[IF &PROG\_CODE =2 OR &PROG\_CODE=3 OR &POSTDATE not NULL, ask P11; else, skip to FR1]

**PI1.** After your project was installed, [IF &POSTDATE >0, "around &POSTDATE"], a program representative came out to your facility to verify your installation. Using a scale of 1 to 5 where 1 indicates 'very dissatisfied' and 5 indicates 'very satisfied', how satisfied were you with the inspection?

1. VERY DISSATISFIED
2. SOMEWHAT DISSATISFIED
3. NEITHER SATISFIED NOR DISSATISFIED
4. SOMEWHAT SATISFIED → SKIP TO FR1

- 5. VERY SATISFIED → **SKIP TO FR1**
- 88. DON'T KNOW/NOT SURE → **SKIP TO FR1**
- 99. REFUSED → **SKIP TO FR1**

**PI2.** What could the engineer have done differently that would have made you more satisfied with the inspection?

- 1. **[RECORD RESPONSE]**
- 88. DON'T KNOW/NOT SURE
- 99. REFUSED

**Free Ridership**

**FR1.** With the &PROGRAM program, &FIRM received [IF &PM=1 or &PROG\_CODE=2 add “technical assistance identifying energy saving opportunities and”] financial incentives of &INCENTIVE for installing &INSTALLED\_MEASURES with the program.

On a scale from 1 to 5, with 1 being not important at all and 5 being extremely important, how important was each of the following factors in deciding which equipment to install. If a factor is not applicable to you, please say so. **[NOTE: Respondents can also state that a particular factor is Not Applicable, please code N/A as 6. ]**

- A. RECOMMENDATION FROM CONTRACTOR OR VENDOR
- B. INFORMATION PROVIDED BY &PACIFICORP ON ENERGY SAVING OPPORTUNITIES
- C. INFORMATION ON PAYBACK
- D. THE &PACIFICORP INCENTIVE [if &PROG\_CODE = 3, replace “Incentive” with “credit”]
- E. FAMILIARITY WITH THIS EQUIPMENT
- F. PREVIOUS PARTICIPATION WITH A &PACIFICORP PROGRAM
- G. CORPORATE POLICY REGARDING ENERGY REDUCTION

**[IF &MULT\_MEASURES=1, say “I’ll be asking the next questions first about &MEASURE\_1 and again for &MEASURE\_2]**

**[SET &MEASURE\_# = &MEASURE\_1]**

**[READ: “When answering these next questions, think specifically about &MEASURE\_# installed through the program.”]**

**[**

**FR2A.** Without the program, meaning without either the technical assistance or the financial incentive, would you have still completed the exact same &MEASURE\_# project?

- 1. YES
- 2. NO → **SKIP TO FR3**
- 88. DON'T KNOW/NOT SURE → **SKIP TO FR3**
- 99. REFUSED → **SKIP TO FR3**

**FR2B.** Without the program, meaning without either the technical assistance or the financial incentive, would you have still installed the &MEASURE\_# at the same time?

1. YES → **SKIP TO FR7**
2. NO → **SKIP TO FR4**
88. DON'T KNOW/NOT SURE → **SKIP TO FR4**
99. REFUSED → **SKIP TO FR4**

**FR3.** Without the program, would you have installed any &MEASURE\_# equipment?

1. YES
2. NO → **SKIP TO FR7**
88. DON'T KNOW/NOT SURE
99. REFUSED

**FR4.** Would you have installed this equipment within 12 months of when you did with the program?

1. YES
2. NO → **SKIP TO FR7**
88. DON'T KNOW/NOT SURE → **SKIP TO FR7**
99. REFUSED → **SKIP TO FR7**

**FR5.** Relative to the energy efficiency of &MEASURE\_# installed through the program, how would you characterize the efficiency of equipment you would have installed without the program?

1. Just as efficient as installed with the program
2. Lower than installed through the program, but better than the standard efficiency
3. Standard efficiency
88. DON'T KNOW/NOT SURE
99. REFUSED

**FR6.** Would you have installed more, less, or the same amount of &MEASURE\_#?

1. MORE → **Compared to the installed amount, how much more? [RECORD in FR61]**
2. LESS → **Compared to the installed amount, how much less? [RECORD in FR62]**
3. SAME
88. DON'T KNOW/NOT SURE
99. REFUSED

**FR7.** In your own words, can you please describe what impact the program had on your decision to complete these energy efficiency improvements for &MEASURE\_#??

1. **[RECORD RESPONSE]**
88. DON'T KNOW/NOT SURE
99. REFUSED

**[IF MULT\_MEASURES=1 SET &MEASURE\_#=&MEASURE\_2 GO BACK TO FR2A; ELSE GO TO NEXT SECTION]**

**Spillover**

**SP1.** Now I'd like to ask about energy efficiency improvements other than those you installed through the program. Since participating in this program, have you purchased or installed any additional energy efficiency improvements for your organization?

1. YES
2. NO → **SKIP TO B1**
88. DON'T KNOW/NOT SURE → **SKIP TO B1**
99. REFUSED → **SKIP TO B1**

**[IF &MULT\_MEASURES=1, say "I'll be asking the next questions first about &MEASURE\_1 and again for &MEASURE\_2]**

**[SET &MEASURE\_# = &MEASURE\_1]**

**SP2.** Did you purchase or install any energy efficiency improvements that are the same as &MEASURE\_#?

1. YES --> SP3
2. NO --> **[IF MULT\_MEASURES=1 SET &MEASURE\_#=&MEASURE\_2 GO BACK TO SP2; ELSE GO TO SP9]**
3. 88. DON'T KNOW/NOT SURE → **SKIP TO SP9**
4. 99. REFUSED → **SKIP TO SP9**

**SP3.** How many did you purchase or install?

1. **[RECORD RESPONSE]**
88. DON'T KNOW/NOT SURE
99. REFUSED →

**SP4.** Relative to the energy efficiency of the equipment installed through the program, how would you characterize the efficiency of this equipment?

1. Just as efficient as installed within the program
2. Lower than installed through the program, but better than the standard efficiency
3. Standard efficiency
88. DON'T KNOW/NOT SURE
99. REFUSED

**SP5.** Did you receive an incentive from &PACIFICORP or another organization for this equipment?

1. YES
2. NO → **SKIP TO SP7**
88. DON'T KNOW/NOT SURE → **SKIP TO SP7**
99. REFUSED → **SKIP TO SP7**

**SP6.** What program or sponsor provided an incentive?

1. **&PACIFICORP**

**2. [RECORD RESPONSE]**

88. DON'T KNOW/NOT SURE

99. REFUSED

**SP7.** I'm going to read a statement about the equipment that you purchased on your own. On a scale from 1 to 5, with 1 indicating that you "strongly disagree" and 5 indicating that you "strongly agree", please rate the following statement:

My experience with &PACIFICORP's &PROGRAM program influenced my decision to install additional high efficiency equipment on my own. Would you say you...**[READ 1-5]**

1. STRONGLY DISAGREE
2. SOMEWHAT DISAGREE
3. NEITHER AGREE OR DISAGREE
4. SOMEWHAT AGREE
5. STRONGLY AGREE
88. DON'T KNOW/NOT SURE
99. REFUSED

**[IF SP6 < 1]**

**SP8.** Why did you not apply for an incentive from &PACIFICORP for this equipment?

- 1. [RECORD RESPONSE]**
88. DON'T KNOW/NOT SURE
99. REFUSED

**[IF MULT\_MEASURES=1 SET &MEASURE\_#=&MEASURE\_2 GO BACK TO SP2; ELSE GO TO SP9]**

**SP9.** Did you purchase or install any other equipment? **[DO NOT READ; CHECK ALL THAT APPLY. SPECIFY DETAILED INFORMATION ABOUT EQUIPMENT TYPE] [IF NEEDED:]** What type of equipment is that?

1. Lighting [SPECIFY]: \_\_\_\_\_
2. HVAC (heating and cooling) [SPECIFY]: \_\_\_\_\_
3. Variable drive [SPECIFY]: \_\_\_\_\_
4. Efficient motor [SPECIFY]: \_\_\_\_\_
5. Refrigeration [SPECIFY]: \_\_\_\_\_
6. Building envelope [SPECIFY]: \_\_\_\_\_
7. Compressed air [SPECIFY]: \_\_\_\_\_
8. Chiller [SPECIFY]: \_\_\_\_\_
9. Pump [SPECIFY]: \_\_\_\_\_
10. Irrigation (gaskets, drains, sprinklers) [SPECIFY]: \_\_\_\_\_
11. Automatic Milker Takeoffs [SPECIFY]: \_\_\_\_\_
12. Other [SPECIFY]: \_\_\_\_\_
88. DON'T KNOW/NOT SURE
99. REFUSED



**Barriers**

**B1.** Now I'd like to ask about other potential energy efficiency improvements. Do you think there are other changes that you could make to improve electric efficiency at &FIRM?

- 1. YES
- 2. NO → **SKIP TO IC1**
- 88. DON'T KNOW/NOT SURE → **SKIP TO IC1**
- 99. REFUSED → **SKIP TO IC1**

**B2.** Could you provide some examples of changes you think would improve electric efficiency at &FIRM?

- 1. **[RECORD RESPONSE: PROBE FOR ADDITIONAL]**
- 88. DON'T KNOW/NOT SURE
- 99. REFUSED

**B3.** Are plans in place to make any of those changes?

- 1. YES
- 2. NO → **SKIP TO B5**
- 88. DON'T KNOW/NOT SURE → **SKIP TO B5**
- 99. REFUSED → **SKIP TO B5**

**B4.** Is assistance from &PACIFICORP part of those plans?

- 1. YES
- 2. NO
- 88. DON'T KNOW/NOT SURE
- 99. REFUSED

**B5.** What factors could prevent &FIRM from making these changes? **[DO NOT READ; CHECK ALL THAT APPLY]**

- 1. HIGH UPFRONT COSTS
- 2. LACK OF ACCESS TO CAPITAL
- 3. LONG PAYBACK PERIOD; SLOW RATE OF RETURN
- 4. LOW PRIORITY/LACK OF INTEREST OF SENIOR/CORPORATE MANAGEMENT IN ENERGY EFFICIENCY
- 5. LACK OF INFORMATION ABOUT SAVINGS AND PERFORMANCE
- 6. LACK OF ASSIGNED ENERGY STAFF
- 7. OTHER [SPECIFY]
- 8. NONE
- 88. DON'T KNOW/NOT SURE
- 99. REFUSED

**[IF MORE THAN ONE RESPONSE TO B5]**

**B6.** Which of these do you think is the most challenging factor? **[IF B5 = 7 and > 2 "other" reasons, enter most important reason in option 8 at B6]**

- 1. HIGH UPFRONT COSTS
- 2. LACK OF ACCESS TO CAPITAL

3. LONG PAYBACK PERIOD; SLOW RATE OF RETURN
4. LOW PRIORITY/LACK OF INTEREST OF SENIOR/CORPORATE MANAGEMENT IN ENERGY EFFICIENCY
5. LACK OF INFORMATION ABOUT SAVINGS AND PERFORMANCE
6. LACK OF RESPONSIBLE/ACCOUNTABLE ENERGY STAFF
7. DISPLAY OTHER FROM B6
8. OTHER (SPECIFY MOST IMPORTANT OTHER REASON IN B6, IF > 2 REASONS):
88. DON'T KNOW/NOT SURE
99. REFUSED

### Satisfaction

**IC1.** Using a scale of 1 to 5 where 1 indicates 'very dissatisfied' and 5 indicates 'very satisfied', how satisfied were you overall with the program?

1. VERY DISSATISFIED
2. SOMEWHAT DISSATISFIED
3. NEITHER SATISFIED NOR DISSATISFIED
4. SOMEWHAT SATISFIED → **SKIP TO FB1**
5. VERY SATISFIED → **SKIP TO FB1**
88. DON'T KNOW/NOT SURE → **SKIP TO FB1**
99. REFUSED → **SKIP TO FB1**

**IC1A.** What could the program have done that would have made you more satisfied with the program overall?

1. **[RECORD RESPONSE]**
88. DON'T KNOW/NOT SURE
99. REFUSED

### Firmographics

**FB1.** Now I have a few final, general questions about your company for comparison purposes only. Which of the following best describes your company's primary activities?

1. ACCOMMODATION
2. ARTS, ENTERTAINMENT, AND RECREATION
3. CONSTRUCTION
4. DAIRY / AGRICULTURAL
5. EDUCATIONAL SERVICES
6. FINANCE AND INSURANCE
7. FOOD SERVICES
8. FOOD PROCESSING
9. HEALTH CARE
10. MANUFACTURING
11. MINING
12. NON-PROFITS AND RELIGIOUS ORGANIZATIONS
13. PROFESSIONAL, SCIENTIFIC, AND TECHNICAL SERVICES

- 14. PUBLIC ADMINISTRATION / GOVERNMENTAL SERVICES
- 15. OIL AND GAS
- 16. RETAIL
- 17. REFRIGERATED WAREHOUSE
- 18. REAL ESTATE / PROPERTY MANAGEMENT
- 19. REPAIR AND MAINTENANCE SERVICES
- 20. TRANSPORTATION
- 21. WAREHOUSES OR WHOLESALER
- 22. OTHER [SPECIFY]: \_\_\_\_\_
- 23. NOT COMPANY, RESIDENCE
- 88. DON'T KNOW/NOT SURE
- 99. REFUSED

**FB2.** Approximately what percentage of your total annual operating costs does your electricity bill at this site represent?

- 1. [RECORD RESPONSE]
- 88. DON'T KNOW/NOT SURE
- 99. REFUSED

**FB3.** About how many people does your firm employ at this site?

- 1. [RECORD RESPONSE]
- 88. DON'T KNOW/NOT SURE
- 99. REFUSED

**END1.** Those are all of the questions that I have for you. Is there anything about your experiences with &PACIFICORP's &PROGRAM program you'd like to mention that we did not talk about today?

- 1. [RECORD RESPONSE]
- 88. DON'T KNOW/NOT SURE
- 99. REFUSED

**[THANK RESPONDENT AND TERMINATE SURVEY]**

## Appendix G FinAnswer Express Trade Ally Survey Guide

### Introduction

The Energy Efficiency Alliance (EEA) is a collaboration between Rocky Mountain Power or Pacific Power and local contractors, distributors, manufacturers, and other vendors to promote sales and incentives for the installation of energy-efficient equipment in several states. As part of the evaluation of the 2012-2013 FinAnswer Express Program (run through the EEA) in Idaho, EMI Consulting will be conducting 115 online surveys with trade allies in order to achieve the following objectives:

- To understand how trade allies come to be involved in the program alliance
- To characterize how trade allies would improve the program for themselves and for customers
- To characterize the value of participation to trade allies' business
- To determine the level of program-like activity occurring without program support (spillover), including assessing how different program sales are from typical sales and how the efficiency of products may be changing
- To characterize how trade allies prefer to receive communication from the EEA and how this communication may be improved

For the purposes of this research, a trade ally was defined as any firm/vendor who enrolled in the Energy Efficiency Alliance in 2013 or earlier and is listed on the program's website as of June 2014. The evaluation team assumed that any trade ally listed on this website had been involved with the FinAnswer Express program. The evaluation team further determined that in order to achieve the objectives described above, the most appropriate sample design was a proportional stratification with separate strata for each state and activity level (i.e., where a TA was deemed active if the firm has completed at least one project through the EEA, otherwise it was considered inactive). This allows for estimates of key interval measures separately for each state and also to identify possible differences between active and inactive allies. Table 1 shows the populations of TAs for each state and the target completes for each of these strata.

**Table 6. Population and Sample Targets by State and Activity Level**

State	Population			Target Completes		
	N	% Active	% Inactive	Active	Inactive	Total
UT	242	45%	55%	25	31	56
WY	133	42%	58%	15	21	36
WA	87	54%	46%	12	11	23
<b>TOTAL</b>	<b>462</b>	-	-	<b>52</b>	<b>63</b>	<b>115</b>

### Sample Variables

Variable	Definition
\$_PACIFICORP	Pacific Power/Rocky Mountain Power
\$_ENROLL_DATE	Date vendor enlisted with EEA
\$_ACTIVE	Whether TA is listed as active or inactive on website
\$_SLC_AREA	Trade Ally based in or near Salt Lake City (Yes/No)

### Fielding Instructions

The trade ally survey will be fielded online using Qualtrics. To conduct the survey, EMI Consulting will send the population of registered Utah, Wyoming, Idaho, and Washington trade allies an email with a link to the survey. If needed, EMI Consulting will follow-up after one week with a reminder email to complete the survey and again in another week if needed. EMI Consulting will close the availability to participate as quotas are met. To solicit participation among trade allies, EMI Consulting will distribute \$25 (\$50 for WA) Amazon gift cards to any trade ally that successfully completes the survey.

### Online Survey

#### Introduction

*{NOTE: THE ROCKY MOUNTAIN POWER OR PACIFIC POWER LOGOS WILL BE INCLUDED ON THIS PAGE AS APPROPRIATE FOR EACH STATE}*

A1. Thank you for taking the time to complete this survey about your experiences with the Energy Efficiency Alliance. Your feedback will be used to improve <\$\_PACIFICORP> services to Energy Efficiency Alliance vendors. The survey should take roughly 15 minutes. For completing the survey, we will provide you with a \$25 (\$50 for WA) Amazon gift card. Your responses are completely confidential and the results of this survey will only be shared with PacifiCorp in aggregate.

A2. How familiar are you with your company's involvement with the Energy Efficiency Alliance?

0. Not at all familiar
1. Somewhat familiar **[SKIP TO A4]**
2. Very familiar **[SKIP TO A4]**

A3A. The Energy Efficiency Alliance is a <\$\_PACIFICORP> program that offers energy efficiency training to partnering vendors and support to vendors working on energy efficiency projects through <\$\_PACIFICORP>'s energy efficiency programs. Are you familiar with your company's involvement with the Energy Efficiency Alliance?

1. Yes **[SKIP TO A4]**
2. No
- 8. Don't know

A3B. Thank you for your interest in completing this survey; however, we are looking for feedback from people familiar with the Energy Efficiency Alliance. If you know someone else at your company who is familiar with the program, please enter their email address in the box below.

Thank you for your time! [TERMINATE]

**We'd first like to get a little background information.**

A4. What types of energy efficiency products do you work with? (Select all that apply)

1. Lighting
2. Heating, cooling, and ventilation products
3. Appliances (e.g., stoves, refrigerators, washer/dryers)
4. Office equipment
5. Building envelope (e.g., windows, insulation)
6. Plumbing and water heating
7. Compressed air
8. Motors, drives, and pumps
9. Controls or energy management systems
10. Food service
11. Farm and dairy
12. Irrigation
96. Other (Please Specify)
- 98. Don't know

A5. In which state are you most familiar with your firm's work with the Energy Efficiency Alliance?

1. Utah
2. Washington
3. Wyoming
4. Idaho

A6. In which additional state or states do you work with the Energy Efficiency Alliance? (Select all that apply)

1. Utah [SHOW IF NOT SELECTED IN PREVIOUS QUESTION]
2. Washington [SHOW IF NOT SELECTED IN PREVIOUS QUESTION]
3. Wyoming [SHOW IF NOT SELECTED IN PREVIOUS QUESTION]
4. Idaho [SHOW IF NOT SELECTED IN PREVIOUS QUESTION]
5. I don't work with the Energy Efficiency Alliance in any other states

A7. Please answer the remaining questions in this survey based on your firm's experience in [RESPONSE TO A6] only.

### Program Awareness

We'd like to ask you about your experiences with the Energy Efficiency Alliance.

B1. Our records show that your firm joined the Energy Efficiency Alliance in <\$\_ENROLL\_DATE>. Is that correct?

1. Yes **[SKIP TO B3]**
2. No, our firm joined the Energy Efficiency Alliance in a different year - Please specify: [Specific Year] **[SKIP TO B3]**
3. Our firm joined the Energy Efficiency Alliance but I do not know when we joined. **[SKIP TO B3]**
4. No, our firm has not joined the Energy Efficiency Alliance
- 8. I do not know if we joined the Energy Efficiency Alliance

B2. Thank you for your interest in completing this survey, but we are looking for feedback from vendors participating in the Energy Efficiency Alliance. If you know someone else at your company who is familiar with the program, please enter their email address below. Thank you for your time!

**[TERMINATE]**

B3. How did you first hear about the Energy Efficiency Alliance? [ALLOW ONLY ONE CHOICE; ROTATE]

1. Advertising [Please SPECIFY SOURCE: \_\_\_\_\_]
2. Utility or Energy Efficiency Alliance Representative
3. Other Contractor/Vendor
4. Customer
5. Other [Please Specify]
- 8. Don't know

B4. What motivated your company to participate in the Energy Efficiency Alliance? Please rank each of the following items in order from most important to least important.

**[RANDOMIZE RESPONSES; RANK ORDER]**

1. We wanted our company listed on the program's website.
2. We wanted to advertise our firm as being part of the Energy Efficiency Alliance.
3. We wanted to receive updated information about energy efficiency rebates and programs for our customers.
4. We wanted to attend training and workshops on energy efficiency topics.
5. Other [Please Specify]

### Spillover

E1. We'd now like to ask you a few questions about your firm's work. Does your firm measure its sales primarily in terms of products or projects?

1. Products
2. Projects **[SKIP TO E2b]**

E2a. Approximately, how many products does your firm sell in a given year in [RESPONSE TO A6]?

1. [SPECIFY]
8. Don't know

E2a2. Approximately, how many products did your firm sell through the FinAnswer Express program in the period 2012-2013 in [RESPONSE TO A6]?

1. [SPECIFY]
8. Don't know

[ASK IF E1=2]

E2b. Approximately, how many projects does your firm complete in a given year in [RESPONSE TO A6]?

1. [SPECIFY]
8. Don't know

[ASK IF E1=2]

E2b2. Approximately, how many projects did your firm complete through the FinAnswer Express program in the period 2012-2013 in [RESPONSE TO A6]?

1. [SPECIFY]
8. Don't know

E3. To the best of your knowledge, what percentage of your firm's products/projects qualify for energy efficiency incentives through FinAnswer Express in [Response to A6]?

1. [SPECIFY %]
- 8. Don't know

E4. [IF E3 = 0, SKIP TO E5] Of the products/projects that are eligible, what percentage are sold or installed using incentives from the FinAnswer Express Program in [Response to A6]?

1. [SPECIFY %]
- 7. Our firm does not work on these products
- 8. Don't know

E5. If the FinAnswer Express Program did not exist, please estimate what percentage of your firm's products/projects would be energy efficient in [Response to A6]?

1. [SPECIFY %]
- 7. Our firm does not work on these products
- 8. Don't know

E6. How influential has the FinAnswer Express Program been in motivating your firm to stock program-eligible equipment at in [Response to A6], on a scale of 1 to 5, with 1 being not at all influential and 5



being extremely influential? [CREATE MATRIX BASED ON RESPONSES FROM A6; RANDOMIZE ORDER OF MATRIX ENTRIES; RANDOMIZE ORDER OF RESPONSES]

1. Not at all influential
2. Slightly influential
3. Somewhat influential
4. Very influential
5. Extremely influential
- 8. Don't know

### **Program Communications**

C1. We'd now like to ask you some questions about your firm's interactions with the Energy Efficiency Alliance. How valuable are the communications you receive from Energy Efficiency Alliance staff, on a scale of 1-5 with 1 being not at all valuable and 5 being extremely valuable?

**[SLIDER BAR]**

1. Not at all valuable
2. Slightly valuable
3. Somewhat valuable
4. Moderately valuable
5. Extremely valuable
- 7. Not applicable

C2. What type of communication from the Energy Efficiency Alliance do you find most useful?

1. Email
2. Printed mail
3. Telephone correspondence
4. In-person correspondence
5. Prefer not to receive communication
6. Other [Please Specify]
- 8. Don't know

C3. What additional information, if any, would be valuable to your firm?

1. **[RECORD RESPONSE]**
2. None

-8. Don't know

C4. How would you describe the frequency of communication you receive from the Energy Efficiency Alliance, on a scale of 1 to 5 with 1 being way too infrequent and 5 being way too frequent?

**[SLIDER BAR]**

1. Way too infrequent
2. Not quite frequent enough
3. Just right
4. A little too frequent
5. Way too frequent
- 8. Don't know

C5. How frequently would you prefer to receive communications from the Energy Efficiency Alliance?

1. Weekly
2. Monthly
3. Quarterly
4. Annually
5. Other [Please Specify]
- 8. Don't know

C6. Please rate the usefulness of any training/events you attended in 2012-2013, on a scale of 1-5 with 1 being not at all useful and 5 being extremely useful.

1. **[CREATE MATRIX OF EVENTS THAT OCCURRED IN 2012/2013; WITH USEFULNESS ON TOP. PROVIDE OPTION OF "DID NOT ATTEND," "COLLEAGUE ATTENDED EVENT," "DON'T REMEMBER"; RANDOMIZE ORDER OF EVENTS IN MATRIX IF POSSIBLE]**

### **Program Participation**

D2A. **[Skip to D3 if A4 ≠ 1]** Have you used the Energy Efficiency Alliance's lighting software tool?

1. Yes
2. No **[Skip to D3]**
- 8. Don't know **[Skip to D3]**

D2B. **[Skip to D3 if A4 ≠ 1]** How satisfied are you with the program's lighting software tool, on a scale of 1 to 5, with 1 being very dissatisfied and 5 being very satisfied?

1. Very dissatisfied
2. Mostly dissatisfied
3. Neither satisfied nor dissatisfied
4. Mostly satisfied **[Skip to D3]**
5. Very satisfied **[Skip to D3]**
- 8. Don't know **[Skip to D3]**

D2C. Why were you dissatisfied with the lighting software tool?

1. [RECORD RESPONSE]
- 8. Don't know

D3. How useful are the brochures that explain the FinAnswer Express Program for your customers?

1. Not at all useful
2. Slightly useful
3. Moderately useful
4. Very useful\_ [Skip to D5A]
5. Extremely useful [Skip to D5A]
- 7. Did not receive any brochures [Skip to D5A]
- 8. Don't know [Skip to D5A]

D4. What could be changed to improve the usefulness of the program brochures for your customers?

1. [RECORD RESPONSE]
- 8. Don't know

D5A. Does your firm advertise the FinAnswer Express program to customer(s) in [Response to A6]?

1. Yes
2. No
- 8. Don't know

D5B. [DISPLAY IF D5A = 1] In what ways does your firm advertise the FinAnswer Express program?  
[ROTATE]

1. We advertise rebates to customers
2. We advertise energy efficient equipment to customers
3. Other [Please SPECIFY]
- 8. Don't know

D6A. Does your firm complete FinAnswer Express paperwork for your customer(s) in [Response to A6]?

1. Yes
2. No [Skip to D7A]
- 8. Don't know [Skip to D7A]

D6B. [DISPLAY IF D6A = 1] In what ways does your firm complete FinAnswer Express paperwork for your customers?

1. We complete the rebate form for the customer
2. We processing rebate form for the customer
3. Other (Please Specify)
- 8. Don't know



D7A. Overall, how satisfied are you with the FinAnswer Express Program, on a scale of 1 to 5 with 1 being very dissatisfied and 5 being very satisfied?

1. Very dissatisfied
2. Moderately dissatisfied
3. Neither satisfied nor dissatisfied
4. Moderately satisfied **[SKIP TO D8]**
5. Very satisfied **[SKIP TO D8]**
- 8. Don't know **[SKIP TO D8]**

D7B. **[SHOW IF D7A = 1, 2, or 3]** Why were you not more satisfied with your experiences with the FinAnswer Express Program?

1. **[RECORD RESPONSE]**
- 8. Don't know

D8. What, if anything, prevented your firm from completing more activity through the FinAnswer Express Program in 2012-2013 in **[Response to A6]**? **[ROTATE]**

1. Too much hassle for the customer to participate in the program
2. Too much hassle for our firm to participate in the program
3. Equipment does not qualify for an incentive
4. Customer(s) not interested in energy efficient equipment
5. Our own internal resource constraints (i.e. staffing)
6. Other **[Please Specify]**
- 8. Don't know

D9A. Overall, how satisfied are you with the Energy Efficiency Alliance, on a scale of 1 to 5 with 1 being very dissatisfied and 5 being very satisfied?

1. Very dissatisfied \_
2. Moderately dissatisfied
3. Neither satisfied nor dissatisfied
4. Moderately satisfied **[Skip to F1]**
5. Very satisfied **[Skip to F1]**
- 8. Don't know **[Skip to F1]**

D9B. Why were you not more satisfied with your experiences with the Energy Efficiency Alliance?

1. **[RECORD RESPONSE]**
- 8. Don't know

### Value to Business

F1. How influential are the following at helping you successfully sell energy efficiency products/projects to your customers in **[Response to A6]**, on a scale of 1 to 5, with 1 being not at all influential and 5 being extremely influential. **[CREATE MATRIX OF SERVICES AND INFLUENCE SCALE]**

1. FinAnswer Express customer incentives
2. Knowledge gained through the Energy Efficiency Alliance

3. [\$\_PACIFICORP] brochures summarizing customer incentives
3. Use of the Online Lighting Tool
4. Your firm's name on the list of qualifying vendors

F2. Has participation in the Energy Efficiency Alliance changed how your firm conducts its business in any way?

1. Yes
2. No [**Skip to F4**]
- 8. Don't know [**Skip to F4**]

F3. How has the Energy Efficiency Alliance changed how your firm conducts its business?

1. [**RECORD RESPONSE**]
- 8. Don't know

F4. Has participation in the Energy Efficiency Alliance influenced your firm's sales in any other way?

1. [**RECORD RESPONSE**]
- 8. Don't know

### Program Improvement

G1. Almost done! We'd now like to ask you about ways in which the program could be improved. What topics would you like the Energy Efficiency Alliance to discuss at future trainings or events?

1. [**RECORD RESPONSE**]
- 8. Don't know

G2. What additional services can the Energy Efficiency Alliance offer to help you better understand energy efficiency opportunities for your customers and/or energy efficiency incentives through [\$\_PACIFICORP]?

1. [**RECORD RESPONSE**]
- 8. Don't know

G3. What can [\$\_PACIFICORP] do to improve the program for you and your customers?

1. [**RECORD RESPONSE**]
- 8. Don't know

### Recruitment for Web Usability Study

H1. [**ASK IF \$\_SLC\_AREA= Y**] [\$\_PACIFICORP] also plans to assess the usability of its website for participating trade allies. For an additional \$100 incentive, would you consider participating in this study?

1. Yes
2. No [**SKIP TO I1**]
- 8. Don't know at this time [**SKIP TO I1**]
- 9. Refused [**SKIP TO I1**]



H2. **[ASK IF H1 = 1]** The study would take place in-person, at your office and last approximately 30 to 45 minutes. Studies will occur during the week of August 4<sup>th</sup>. Please provide your phone number so that we may contact you regarding this study:

1. **[SPECIFY PHONE]**
2. Prefer email **[CONFIRM EMAIL]**
- 9. Refused

### **Gift Card Offer/ Closing**

I1. Please provide any additional feedback you would like to provide about the Energy Efficiency Alliance or the [\$\_PACIFICORP] incentive programs.

1. **[RECORD RESPONSE]**
- 9. Refused

I2. As a thank you for participating in this survey, we'd like to offer you a \$25 Amazon gift card **[FOR WA: "\$50 Amazon gift card"]**. Would you like to accept this offer?

1. Yes
2. No **[SKIP TO I4]**
- 9. Refused **[SKIP TO I4]**

I3. Please list the email address where you would like us to send the Amazon gift card.

1. **[RECORD RESPONSE]**
- 9. Refused

I4. Those are all the questions we have at this time. Thank you for your time. Your feedback is extremely valuable and will be used to improve the Energy Efficiency Alliance's programs. If you have any other comments, please enter them in the field below.

1. **[TEXT FIELD]**