



Evaluation Report for Wyoming's FinAnswer Express Program (PY 2011 through 2013)

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March 19, 2015

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Executive Summary

This report describes the findings from Navigant’s impact and process evaluation of Rocky Mountain Power (RMP)’s Wyoming FinAnswer Express program years 2011 through 2013 (PY 2011-2013), 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 (kWh) realization rate of 101 percent, and demand (kW) realization rate of 99 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; irrigation; dairy/farm equipment; small compressed air; and other measures. The program also included a provision for custom incentives for EEMs not listed in the program’s prescriptive incentives tables.

Evaluation Objectives

The impact and process evaluation of Wyoming’s FinAnswer Express program independently assesses reported savings for PY 2011-2013 and recommends changes during the transition to the *wattsmart* Business program. This evaluation addresses the following objectives:

- » Verify the annual and combined 2011 through 2013 gross and net energy and demand impacts of RMP’s FinAnswer Express program¹
- » 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

Impact Evaluation

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

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

- » 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 2011-2013 evaluation period. The verification sample included 34 of the 833 projects that participated in the 2011-2013 program years. The 34 projects represent 33 percent of reported program savings. The evaluation of this sample produced a savings estimate with 15 percent relative precision (margin of error) at the 90 percent confidence level.

The 2011-2013 gross program demand savings realization rate was 99 percent and the gross program energy savings realization rate was 101 percent. Such strong results indicate the installation of EE measures as reported, and typically result from effective supervision by program implementers and program managers. 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 WY FinAnswer Express (PY 2011-2013)

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
2011	1,134	1,117	99%	4,628,329	4,761,497	103%
2012	1,531	1,537	100%	7,156,891	7,189,442	100%
2013	1,385	1,358	98%	7,550,837	7,655,523	101%
All	4,050	4,012	99%	19,336,057	19,606,463	101%

Net-to-Gross (NTG) Ratio

The evaluation team used the results from program participant surveys to calculate an NTG ratio of 0.76 for Wyoming’s FinAnswer Express PY 2011-2013. 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 2011-2013 evaluated program years.²

Table ES-2. WY FinAnswer Express Cost-Benefit Results – PY 2011-2013 Combined (0.76 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)	19,606,463	14,900,912	\$9,055,998	\$13,036,253	1.44
Total Resource Cost Test (TRC)	19,606,463	14,900,912	\$9,055,998	\$11,851,139	1.31
Utility Cost Test (UCT)	19,606,463	14,900,912	\$4,742,589	\$11,851,139	2.50
Rate Impact Test (RIM)	19,606,463	14,900,912	\$16,470,280	\$11,851,139	0.72
Participant Cost Test (PCT)	19,606,463	14,900,912	\$8,677,441	\$17,712,619	2.04

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 Wyoming’s *wattsmart* Business program.

From January 2011 through December 2013, the evaluation team surveyed 189 participants and the 8 trade allies familiar with the Wyoming market and working with the Energy Efficiency Alliance (EEA), and combined results with information from program staff interviews to create a comprehensive view of the FinAnswer Express program from 2011 to 2013.

Important findings from the process evaluation include the following:

- » **Trade allies were generally satisfied with the EEA and the program’s effect on their business; they are actively promoting the program and desire continued assistance.** The majority of trade allies (63 percent) were satisfied with both the EEA and the FinAnswer Express program.

² Section 3.4 provides cost-benefit inputs and results for each individual year of the evaluation.

Most indicated that EEA communication was valuable and that EEA delivered it at a good frequency. Some trade allies mentioned that their business and their sales changed due to the program. Half of the trade allies indicated the customer incentives, knowledge gained through the EEA, and brochures as influential services for helping them successfully sell energy efficient products. Trade allies bear the administrative burden of the program, explaining the program to customers and filling out applications. They desired more information and marketing materials.

- » **Participants were mostly satisfied with the program and have achieved expected energy savings.** When asked to rate their overall satisfaction with the program, 84 percent of respondents were satisfied, including 61 percent who were very satisfied. The majority of respondents indicated that the equipment was meeting energy savings expectations (83 percent lighting, 70 percent non-lighting). Nearly all respondents who expected other benefits said they had experienced these benefits. The most commonly cited non-energy benefit was better lighting quality.
- » **Opportunities exist for past participants of the program to consider new energy-efficient projects.** Of total participants, 44 percent indicated a potential for future energy-efficient projects. Just over one-third (36 percent) of those that thought there were additional things that could be done did not have any plans in place. The remainder had plans in place; about half of these plans included assistance from RMP. These findings indicate an opportunity for the program to increase repeat participation.

Program Evaluation Recommendations

The evaluation team suggests the following actions to improve program effectiveness and trade ally and customer experience of the FinAnswer Express 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 (i.e., lighting controls, LEDs, CFLs and linear fluorescent lamps should each receive different EULs). PacifiCorp cannot apply this level of detail without first identifying appropriate 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 updated measure sub-type protocols allowing for this level of granularity, but as of PY 2011-2013 evaluation 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 the 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.³ PacifiCorp currently tracks some of the projects which include LED lamps at the measure level, so applying an LED EUL consistently 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).⁴

- » **Recommendation 3. Leverage existing relationships with program participants for repeat participation.** Over half of participants did not think there were any additional actions they could take to improve efficiency at their site. This program has high repeat participation; if customers are not sure what more they could do, they may benefit from additional information on other measures. To reach customers with a variety of motivations to complete EE projects, include guidance that customers may save on operations and maintenance costs or see better process control with program measures. The program could do this, for example, through expanding the use of case studies or providing program marketing materials with incentive checks.
- » **Recommendation 4. Provide trade allies with fresh and up to date marketing material.** The trade allies surveyed generally found the brochures helpful, but they also were concerned about out-of-date materials. In addition, they prefer communication via email. While the program currently updates case studies and information on the website, providing trade allies with links to the newest marketing material via email as it becomes available, or reminding them of case studies applicable to their products and services, would enhance current trade ally satisfaction.

³ See Figure 5 in section 3.4 for the direct impacts of EUL adjustments on PacifiCorp’s Total Resource Cost test.

⁴ 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’s impact and process evaluation of Wyoming’s FinAnswer Express program years 2011-2013 (PY 2011-2013). This section provides a description of Wyoming’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.⁵

1.1 Program Description

Rocky Mountain Power’s (RMP) FinAnswer Express program offered prescriptive incentives to commercial, industrial, and irrigation customers for the implementation of energy efficiency measures (EEMs), including lighting; motors; heating, ventilating, and air conditioning (HVAC); building envelope; food service equipment; appliances; irrigation; 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.

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.⁶ 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.

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

⁶ 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 2011-2013 FinAnswer Express projects in Wyoming.). Cascade Energy acted as Trade Ally Coordinator for irrigation, dairy/farm, and small compressed air projects for the 2011-2013 program years.

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 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 2011 to 2013

During the evaluated period from January 2011 to December 2013, there were no major changes to the FinAnswer Express program (Tariff 115). RMP filed for minor changes to the program to keep up with changing market conditions and improve communications in November, 2010, approved October, 2011. There were also updates to the way that customers fund the energy efficiency (Tariff 191), but they did not relate to program operations. Throughout the period, the program worked to simplify the analysis tools and incentive calculations for common upgrades, update qualifying measures, and enhance the trade ally relationships. These actions ensured that the program kept up with the changing market and customer needs. RMP began marketing the FinAnswer Express program under the *wattsmart* campaign during PY 2012 and in December, 2014 formally transitioned FinAnswer Express to become the prescriptive portion of the *wattsmart* Business program.

1.3 Program Participation

From 2011 to 2013, there were 833 unique FinAnswer Express projects completed in Wyoming: 241 projects in 2011, 302 projects in 2012, and 290 projects in 2013. Through 2013, the program reported 19,336 MWh in energy savings; Table 1 summarizes the 1,037 specific measures installed through the 833 projects from 2011 through 2013.

Table 1. Wyoming FinAnswer Express Project Details (PY 2011-2013)

Measure Category	Measure Type Counts ⁷	2011-2013 Reported Energy Savings (kWh)
Lighting	683	15,317,756
HVAC	92	2,017,262
Motors	184	1,275,295
Food Service	19	273,331
Compressed Air	3	182,935
Building Shell	19	53,620
Other	2	146,949
Irrigation	35	68,908
Total	1,037	19,336,057

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.”⁸ 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 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).⁹ 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).¹⁰

⁷ 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.

⁸ Sue Funnell and Patricia Rogers, 2011, *Purposeful Program Theory: Effective Use of Theories of Change and Logic Models*, John Wiley & Sons.

⁹ Section 4.3, Question 3 provides more specifics on the logic model review.

¹⁰ The transition to the new *wattsmart* Business program renders the FinAnswer Express logic model obsolete beginning December 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)

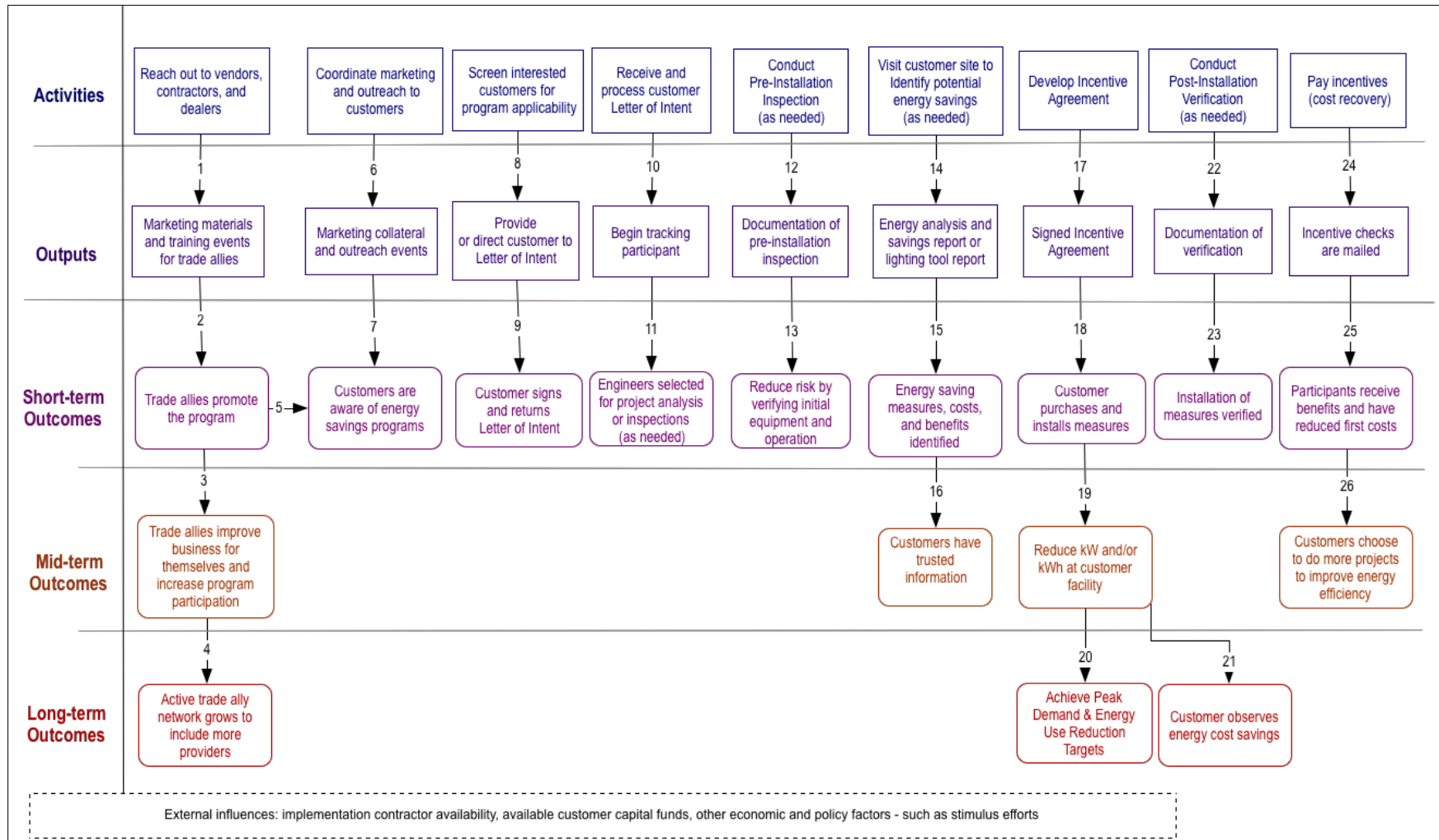
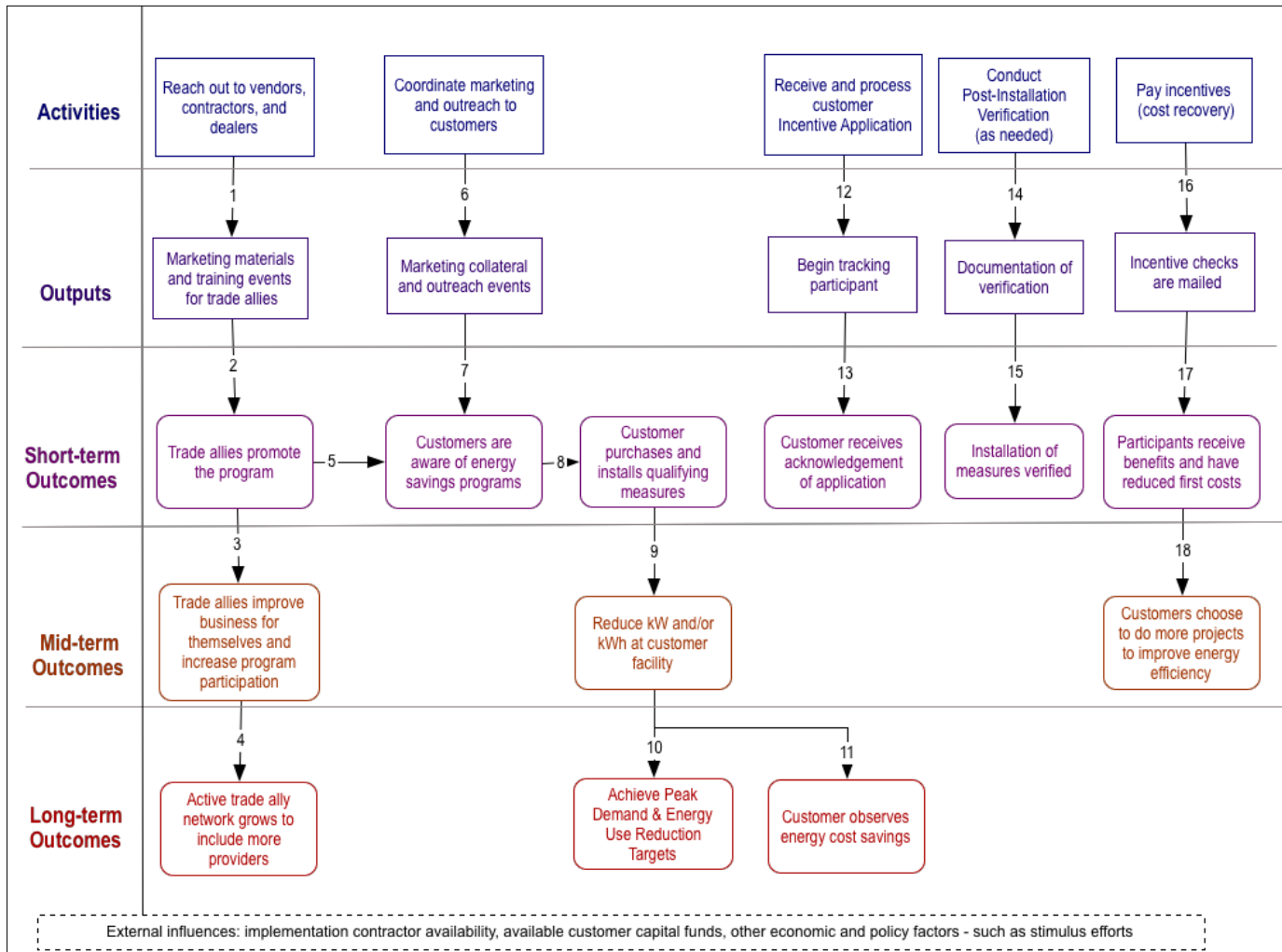


Figure 2. FinAnswer Express Program Post-Purchase Logic Model (developed 2011)



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.¹¹ 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.

¹¹ 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 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 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
Short-Term Outcomes		
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
Mid-Term Outcomes		
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
Long-Term Outcomes		
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 Wyoming’s FinAnswer Express program over PY 2011-2013. The evaluation team developed and informed these methods through an independent review of evaluation best practices.¹²

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 and advance the research and policy objectives of the Wyoming Public Service Commission.

The impact evaluation of Wyoming’s FinAnswer Express program characterized energy and demand impacts for incented projects in PY 2011-2013, 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.

¹² See Appendix D for detail on measurement and verification (M&V) best practices.

The sample for Wyoming’s FinAnswer Express program contained lighting, HVAC, motor, and food service measures. The team used International Performance Measurement and Verification Protocols (IPMVP) options A and C to estimate savings for these measures.¹³ Table 3 provides a brief explanation of IPMVP options A, B and C.

Table 3: IPMVP Evaluation Options A, B, and C

IPMVP M&V Option	Measure Performance Characteristics	Data Requirements
<p>Option A: 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"> • Verified installation • Nameplate or stipulated performance parameters • Spot measurements • Run-time hour measurements • Some <i>estimated</i> (non-measured) data, including baseline schedule or power
<p>Option B: Engineering calculations using metered data.</p>	Constant or variable performance	<ul style="list-style-type: none"> • Verified installation • Nameplate or stipulated performance parameters • End-use metered data • All parameters measured, including baseline and post-retrofit
<p>Option C: 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"> • Verified installation • Utility metered or end-use metered data • Engineering estimate of savings input to SAE model

For lighting projects, the evaluation team applied 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 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 fixture on/off cycling data, and in some cases logged post-retrofit circuits for current, collected over a minimum period of four weeks.

Navigant applied IPMVP Option C to estimate savings for the VFD controls on HVAC pumps and fans measures sampled for this evaluation, and Option A for the other motor measures associated with

¹³ 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.

refrigeration evaporator fans. It is not practical to log the refrigeration fans and the team did not have access to EMS data for these projects, so instead chose to apply deemed savings (Option A) to these measures.

The team applied deemed savings based on visually verified measure installation for Food Service measures (IPMVP Option A).

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)

FinAnswer Express Project Summary - Lighting	
Project Name	<i>Fictitious Example</i>
Customer Name	<i>Acme Corp, Inc.</i>
Project Number	<i>FE000_00###</i>
Energy Savings Claimed (kWh)	<i>120,243</i>
Verified Energy Savings (kWh)	<i>determined through on-site evaluation</i>
Energy Savings Realization Rate	<i>determined through on-site evaluation</i>
Demand Savings Claimed (kW)	<i>30.0</i>
Verified Demand Savings (kW)	<i>determined through on-site evaluation</i>
Demand Saving Realization Rate	<i>determined through on-site evaluation</i>
Total Project Cost	<i>\$78,669</i>
Verified Total Project Cost	<i>\$78,669</i>
Reported Incentive	<i>\$18,324</i>
Verified Incentive	<i>\$18,324</i>
Energy Realization Rate Notes	<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>
Demand Realization Rate Notes	<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>
Other Site Notes	<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.¹⁴

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 90/15 confidence and precision across PY 2011-2013 by energy savings (kWh).¹⁵ Table 4 provides an overview of the impact evaluation framework representing 33 percent of the reported Energy FinAnswer program savings.

Table 4. Overview of the WA 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 ¹⁶
1	200,000	19	13	6,536	5,181	79%
2	60,000	83	11	6,379	909	14%
3	0	731	10	6,421	281	4%
Total	-	833	34	19,336	6,371	33%

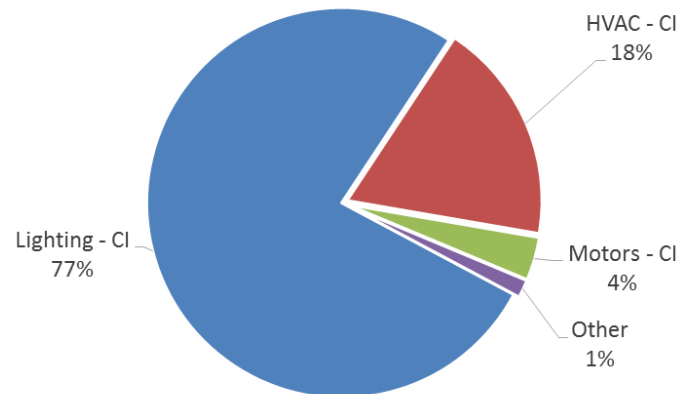
¹⁴ For Wyoming’s FinAnswer Express program, the evaluation team assumed a standard coefficient of variation (CV) of 0.4 for developing the sample framework. The CV corresponds to the expected standard deviation of the realization rate for the program in this evaluation cycle.

¹⁵ The evaluation team planned for 90/10 by program and state. Actual CV for strata 1 is 0.36, strata 2 is 0.61, and strata 3 is 0.64. Although the final program realization rate is very close to 100%, a significant number of projects fell significantly above and below that center point. Specifically, strata 2 and strata 3 missed the target due to less than expected consistency in the realization rates (wider distribution of RR toward both the high and low extremes), resulting in the less than overall expected precision in the population level results.

¹⁶ 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 projects¹⁷

¹⁷ 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, motors and food service) 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.¹⁸ 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 measure, program, and portfolio levels. Table 5 presents details of the cost-effectiveness tests accepted by RMP.

Table 5. Details of Cost-Effectiveness Tests¹⁹

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 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.

¹⁸ 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.

¹⁹ Navigant modified Table 2-2 from: NAPEE, *Understanding Cost-effectiveness of Energy efficiency Programs: Best Practices, Technical Methods, and Emerging Issues for Policy – Makers*, November 2008. <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:

- » **Back-up 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 time 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.

A program’s net savings are adjusted by both free-ridership and 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:

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

Often, this finding is described as a “net-to-gross 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 0.76 using a sample of 189 projects. Section 3.3 provides the results of the NTG analysis.²⁰

2.4 Process Methodology

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

2.4.1 Overview of Steps in the Process Evaluation

The evaluation team undertook the following activities in order to meet the objectives of this evaluation:

- » **Process Evaluation Research Question Development.** The evaluation team and RMP staff established key evaluation questions through the development of the 2011 through 2013 evaluation plan.

²⁰ 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]).

- » **Program Documentation Review.** The evaluation team reviewed program documentation, including regulatory filings, brochures, application forms, and websites.
- » **Logic Model Verification.** The evaluation team worked with program staff to verify the logic model for the FinAnswer Express program, which describes the intended program design, activities, outputs, and outcomes for the 2011-2013 evaluation.²¹
- » **Process Data Collection Activities.** The evaluation team collected process data through interviews with program staff, telephone surveys with participating customers and online surveys with trade allies working with the program.
- » **Process Data Analysis and Synthesis.** The evaluation team assessed the effectiveness of the program processes by analyzing in-depth interview data, participant survey data, and trade ally survey data.

2.4.2 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:

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?

²¹ The logic model for the FinAnswer Express program becomes obsolete for future evaluations as the program transitions to the *wattsmart* Business program. Appendix E provides the new *wattsmart* Business logic model detail.

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 0 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
Trade Ally Surveys			X	X		X	

2.4.3 Program Documentation Review

The evaluation team 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.

2.4.4 Logic Model Verification

The evaluation team verified that the existing program logic model, developed in 2011, continued to represent the current 2011-2013 program theory through interviews with program administrators, evaluation finding reviews, and assessments of whether the program produced the intended activities, outputs, and outcomes. The evaluation team also 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*.

2.4.5 Process Data Collection Activities

Interviews with program staff, participants, and trade allies 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. The evaluation team reviewed all interview and survey response data for missing or erroneous entries before tabulating the frequency of similar responses within categories. After they analyzed data from each data collection activity individually for findings, the evaluation team identified common process findings across activities.

2.4.5.1 Program Staff Interviews

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 Wyoming going into the PY 2011-2013 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

2.4.5.2 Participant Surveys

The team conducted four semi-annual telephone surveys across the three-year evaluation. Due to a change in program evaluation objectives, these surveys have not been identical. All four waves of surveys included questions about program influence and satisfaction. The first and last surveys also included additional process questions on how customers learned about the program, the equipment installed, its operation, and interaction with trade allies.²² The evaluation team did not re-sample from the measures completed during previous cycles.

Table 7 provides the timing and sampling frame for participant surveys. The evaluation team surveyed 192 participants, 82 of which received the surveys with all of the process evaluation questions included.²³

Table 7. Sample Frame for Participant Surveys in 2011 through 2013

Time Period	Sample	Unique Sites	Program Projects
All of 2011 (Projects completed Jan 1, 2011-Dec 31, 2011)	41	201	239
First Half 2012 (Projects completed Jan 1, 2012-Jun 30, 2012)	17	70	119
Second Half 2012 (Projects completed Jul 1, 2012-Dec 31, 2012)	63	131	183
First Half 2013 (Projects completed Jan 1, 2013-Jun 30, 2013)	47	94	138
Second Half 2013 (Projects completed Jul 1, 2013-Dec 31, 2013)	24	112	146
Total	192	496	825

²² After the first semi-annual survey, the program evaluation direction was to focus only on net savings and drop the process evaluation. The program direction changed again before the last survey to re-include process evaluation.

²³ The process team distributed the last version of the survey to participants who completed projects in 2011 and in the first half of 2012, as well as in the second half of 2013. Three of the participants had not completed their projects at the time of the NTG calculations, contributing to the “N” of 189, as described section 0.

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

2.4.5.3 Trade Ally Surveys

The evaluation team defined a trade ally as any firm or vendor who:

- » Enrolled in the EEA in 2013 or earlier; and
- » Appeared on the program’s website as of June 2014.²⁴

Based on these criteria, the research team identified 133 trade allies based in Wyoming.²⁵

The evaluation team surveyed the population of trade allies online in August 2014, including a screening question for states in which the respondent was familiar. A total of eight respondents indicated they were most familiar with the program in Wyoming, seven based in Wyoming and one based in Utah. Table 8 shows the distribution of the 83 respondents to the survey.

Table 8. Trade Ally Location and Familiarity with FinAnswer Express by State

		State by Location			Total
		Utah	Washington	Wyoming	
State by Familiarity	Utah	48	0	9	57
	Washington	1	17	0	18
	Wyoming	1	0	7	8
Total		50	17	16	83

The overall objectives of the trade ally surveys were to do the following:

- » Understand how trade allies come to be involved in the program alliance
- » Characterize how trade allies would improve the program for themselves and for customers
- » Characterize the value of participation to trade allies’ businesses

²⁴ The team assumed any trade ally listed on the program’s website had been involved with the FinAnswer Express program.

²⁵ The evaluation team only successfully surveyed 83 out of the 133 identified trade allies.

- » Determine the level of program-like activity occurring with knowledge of the program, but without the program support (spillover), which includes assessing how different program sales are from typical sales and how the efficiency of products is changing
- » Characterize communication with trade allies

The team used mostly closed-ended survey questions to facilitate the collection of easily summarized and analyzed quantitative data. The team coded any open-ended questions into categories where possible.

3 Impact Evaluation Findings

This section summarizes the impact evaluation findings for each project included in the 2011-2013 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 2011-2013 gross program demand savings realization rate was 99 percent, and the gross program energy savings realization rate was 101 percent. Table 9 provides the *program-level* reported and evaluated gross kilowatt (kW) and gross kilowatt-hour (kWh) realization rates.

Table 9. Gross Program-Level Realization Rates for WY FinAnswer Express (PY 2011-2013)

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
2011	1,134	1,117	99%	4,628,329	4,761,497	103%
2012	1,531	1,537	100%	7,156,891	7,189,442	100%
2013	1,385	1,358	98%	7,550,837	7,655,523	101%
All	4,050	4,012	99%	19,336,057	19,606,463	101%

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 34 projects sampled and visited included 33 lighting measures, 22 HVAC measures, 25 motor measures, and four food service measures. 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. For information on how Navigant extrapolated on-site project-level results to the population as a whole, including measure category realization rates and strata-level realization rates, see Appendix B.

3.2.1 Energy Savings Results

Table 10 details the energy savings realization rate for all projects in the evaluation sample for the 2011-2013 program years. The sample-level realization rates are 98 percent in 2011, 100 percent in 2012, and 102 percent in 2013.²⁶

Lighting project realization rates vary due to differences in operating hours, discrepancies in installed fixture counts, and/or HVAC interactive effects. Nevertheless, the lighting category as a whole achieved a realization rate of 98 percent. This may in part, be attributed to the better than average Customer Self-Reported Ratio (CSRR) for this program. This ratio is determined by dividing the hours of used 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%; however, the WY FinAnswer Express program averaged a CSRR of 90%.

RMP's standard lighting tool does not credit energy and demand savings towards HVAC interactive effects, the influence which 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. Appendix C includes the RTF reference tables for HVAC interactive impacts. The RTF's service area does not cover Wyoming, but the values from the Northwest RTF are still appropriate for this state.

The HVAC measures included VFD installations on pumps and fans. The majority of these projects performed better than the claimed savings suggested. However, there was one HVAC project implemented in a public assembly space that received very low use, and therefore had a very low realization rate. Balancing this out was another large chiller project that saved much more energy than reported, giving the HVAC category as a whole achieved a 108 percent kWh realization rate.

The motor category consisted of mostly small, refrigeration system evaporator fan motors, for which the team applied deemed savings values, resulting in realization rates of around 100 percent. However, there was also one large motor with VFD controls included in the evaluation sample that performed much better than reported (project level realization rate of 158%), this boosted the category's overall kWh realization rate up to 126 percent.

The food service measure category had very few measures in the sample and the team used deemed savings values and verified measure counts to calculate the 98 percent kWh realization rate.

²⁶ For comparison, the *overall program-level* realization rates by year are: 102 percent in 2011, 100 percent in 2012, and 101 percent in 2013.

Table 10. WY FinAnswer Express Project-Level Energy (kWh) Realization Rates

Project ID	Year	Reported kWh	Evaluated kWh	Realization Rate
FE000_000331	2013	1,675,082	1,648,411	98%
FENBL_004697	2013	541,955	744,899	137%
FEWC2_000033	2012	460,554	317,782	69%
FENW2_000290	2012	406,850	431,261	106%
FE000_000368	2013	288,262	597,854	207%
FEW2S_62731	2011	260,648	203,247	78%
FENBL_002572	2012	257,180	307,120	119%
FEWC2_000034	2012	256,324	276,830	108%
FENW2_000533	2013	245,255	223,182	91%
FENW2_000523	2013	213,407	279,563	131%
FEWC2_000054	2013	213,148	129,603	61%
FENW2_000279	2012	206,779	204,711	99%
FENW2_000282	2012	155,588	158,700	102%
FEWC2_000101	2013	134,096	159,574	119%
FEWC2_000099	2013	120,558	155,520	129%
FENW2_000405	2012	94,815	1,359	1%
WYL00203	2011	91,416	108,785	119%
FENW2_000695	2013	88,638	82,757	93%
FENW2_000450	2012	83,758	25,965	31%
FENW2_000393	2012	68,348	66,508	97%
FENW2_000422	2012	58,806	84,739	144%
FENW2_000515	2013	58,723	24,076	41%
FENW2_000357	2012	57,411	57,411	100%
FENW2_000676	2013	52,554	21,547	41%
FE000_000183	2013	43,340	39,439	91%
FENW2_000394	2012	42,386	32,213	76%
FENW2_000444	2012	40,360	46,010	114%
FENW2_000276	2012	14,615	14,139	97%
FENW2_000672	2013	35,122	36,527	104%
FENW2_000460	2012	34,308	45,287	132%
FENW2_000602	2013	30,900	32,754	106%
WYL00375	2011	16,702	21,212	127%
WYL00238	2011	16,620	15,955	96%
FENW2_000557	2013	6,862	5,627	82%



Project-level evaluation yielded significant differences between the reported and verified energy savings estimates for a number of projects completed during the 2011-2013 program years. Nine projects yielded evaluated energy savings that varied from reported values by more than 20 percent.

Table 11 lists these nine 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.²⁷
 - 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.
- » **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.

²⁷ 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.

Table 11. WY 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_004697	137%	-	-	HVAC	Trend data showed VFDs operated at lower speeds than used for <i>ex-ante</i> calculations.
FEWC2_000033	69%	51%	103%	Lighting	<i>Ex-ante</i> baseline hours of use were much too high so occupancy sensors do not provide as much savings as expected. This is probably because building areas have highly variable usage patterns that were hard to estimate.
FE000_000368	207%	-	-	HVAC	Pumps and cooling tower fan VFDs ran at lower speeds than used for <i>ex-ante</i> calculations resulting in increased savings. <i>Ex-post</i> results based on EMS data.
FEW2S_62731	78%	-	-	Lighting	Specific HOU realization rate and HVAC interactive impacts cannot be provided because the project covered multiple buildings, each covered in its own analysis workbook. Verified fixture wattages were higher than those used for the <i>ex-ante</i> calculations resulting in decreased savings.
FENW2_000523	131%	112%	112%	Lighting	Hours of use were higher than in the <i>ex-ante</i> calculations and interactive effects were not included in <i>ex-ante</i> savings, resulting in high realization rate. Some de-lamping had also occurred at the facility.
FEWC2_000054	61%	79%	111%	Lighting	<i>This project had both lighting and HVAC measures, with roughly a 50/50 share of reported savings. The LTG project has an 89% RR. The drop occurring because ex-ante hours of use had a single estimate throughout the ex-ante analysis. The HVAC measure only achieved a 32% realization rate, with energy and demand savings for the chiller and the VFDs determined based on logged data extrapolated to whole year savings based on TMY3 data.</i>
FEWC2_000099	129%	131%	108%	Lighting	Most areas had roughly 20% higher hours of use than used for <i>ex-ante</i> calculations and the addition of interactive effects resulted in a high realization rate.
FENW2_000405	1%	-	-	HVAC	Pumps operate in a lead/lag configuration which reduces savings by half. In addition, pumps are only used during infrequent events. Therefore <i>ex-post</i> HOU are a very small percentage of the hours used for deemed <i>ex-ante</i> savings.
FENW2_000450	31%	71%	100%	Lighting	Code baseline LPD used for <i>ex-ante</i> savings was too high and hours of use did not account for seasonality which further reduced savings.
FENW2_000422	144%	124%	1.03	Lighting	Baseline hours of use averaged 24% higher than <i>ex-ante</i> values (increases savings), with additional savings attributed to occupancy sensors achieving better than deemed savings; interactive effects also minimally increased savings.
FENW2_000515	41%	42%	100%	Lighting	Hours of use were significantly lower than reported and used for the <i>ex-ante</i> savings and seasonal use further reduced realization rate.

Project ID	Energy Realization Rate	Lighting HOU Realization Rate	HVAC Interactive Impacts	Measure Type	Notes
FENW2_000676	41%	40%	103%	Lighting	Hours of use were significantly lower than reported and used for the <i>ex-ante</i> savings
FENW2_000394	76%	67%	100%	Lighting	Hours of use were significantly lower than reported and used for the <i>ex-ante</i> savings
FENW2_000460	132%	77%	102%	Lighting	<i>Ex-ante</i> savings did not report weekend use in areas which showed operation in logged data. There were also longer weekday hours of use than reported for halls and lobby areas. Despite being spread over more of the week than claimed, the actual hours of use are less than expected because the coincident diversity factor is very low (only a minimal number of lights are on at a given time)..
WYL00375	127%	115%	103%	Lighting	Hours of use were higher than used for <i>ex-ante</i> calculations and interactive effects provided additional savings.

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 12 provides project-level demand realization rates for the projects in the impact evaluation sample for PY 2011-2013. The sample yielded an overall realization rate in 2011 of 94 percent, 2012 of 94 percent, and in 2013 of 100 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.

HVAC and motor measure demand savings generally vary due to greater than expected part loading. Otherwise, these measures are often prescriptive and the demand realization rates are 100 percent. None of the measures evaluated in these two categories have realization rates below 100 percent.

Similarly, the food service measures are prescriptive and have demand savings realization rates of 100 percent.

Table 12. WY FinAnswer Express Project-Level Demand (kW) Realization Rates

Project ID	Year	Reported kW	Evaluated kW	Realization Rate
FE000_000331	2013	324	324	100%
FENBL_004697	2013	0	0	NA
FEWC2_000033	2012	82	82	100%
FENW2_000290	2012	71	80	112%
FE000_000368	2013	21	38	181%
FEW2S_62731	2011	70	0	0%
FENBL_002572	2012	0	0	NA
FEWC2_000034	2012	44	51	117%
FENW2_000533	2013	38	40	105%
FENW2_000523	2013	39	46	119%
FEWC2_000054	2013	36	63	174%
FENW2_000279	2012	39	39	100%
FENW2_000282	2012	36	35	97%
FEWC2_000101	2013	62	61	99%
FEWC2_000099	2013	35	40	115%
FENW2_000405	2012	0	0	NA
WYL00203	2011	30	34	112%
FENW2_000695	2013	15	15	100%
FENW2_000450	2012	55	17	31%
FENW2_000393	2012	2	4	225%
FENW2_000422	2012	19	20	103%
FENW2_000515	2013	8	7	92%
FENW2_000357	2012	12	12	100%
FENW2_000676	2013	12	12	103%
FE000_000183	2013	14	14	100%
FENW2_000394	2012	13	13	101%
FENW2_000444	2012	11	9	84%
FENW2_000276	2012	3	3	92%
FENW2_000672	2013	5	5	104%
FENW2_000460	2012	12	12	102%
FENW2_000602	2013	9	9	101%
WYL00375	2011	3	4	124%
WYL00238	2011	7	7	103%

3.3 Program-Level Net Savings Results

The evaluation team calculated an average NTG ratio of 0.76 for the FinAnswer Express program using self-reported responses to free-ridership and spillover survey and interview questions from the 189 projects completed during the PY 2011-2013 evaluation (Table 13).

Table 13. Savings-Weighted Program Influence for PY 2011-2013

Part of Year	Free-Ridership Score	Like Spillover Score	Unlike Spillover Score ²⁸	Net Savings Ratio
Second Half 2012 (completed Jul 1, 2012-Dec 31, 2012)	0.01	0.00	Yes, Not Scored	0.99
First Half 2013 (completed Jan 1, 2013-Jun 30, 2013)	0.31	0.01	Yes, Not Scored	0.70
Second Half 2013 & Gap (completed 2011, Jan 1 2012 – Jun 30, 2012, July 1, 2013-December 31, 2013)	0.33	0.00	Yes, Not Scored	0.67
Savings-Weighted Total	0.24	0.00	NA	0.76

Table 7 in section 2.4.5 provides the number of surveys completed during the identified timeframes.

Table 14 provides evaluated program-level demand and energy savings with the NTG ratio of 0.76 applied.

Table 14. Net Program-Level Realization Rates for WY FinAnswer Express (PY 2011-2013)

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
2011	1,134	849	75%	4,628,329	3,618,738	78%
2012	1,531	1,168	76%	7,156,891	5,463,976	76%
2013	1,385	1,032	75%	7,550,837	5,818,198	77%
All	4,050	3,049	75%	19,336,057	14,900,912	77%

²⁸ 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 15 provides an overview of cost-effectiveness input values used by the evaluation team in the cost-effectiveness analysis.

Table 15. Cost-Effectiveness Evaluation Input Values

Input Description	2011	2012	2013	2011-2013
Discount Rate	7.17%	7.17%	6.88%	-
Inflation Rate	1.80%	1.80%	1.90%	-
Commercial Line Loss	7.64%	8.90%	8.90%	-
Industrial Line Loss	4.76%	5.61%	5.61%	-
Measure Life	13 Years	13 Years	13 Years	13 Years
Commercial Retail Rate	\$0.0751	\$0.0794	\$0.0827	-
Industrial Retail Rate	\$0.0562	\$0.0583	\$0.0613	-
Gross Customer Costs	\$2,473,531	\$3,127,095	\$3,076,815	\$8,677,441
Program Costs	\$1,198,177	\$1,602,502	\$1,941,910	\$4,742,589
Program Delivery	\$745,310	\$838,181	\$877,652	\$2,461,143
Incentives	\$452,867	\$764,321	\$1,064,258	\$2,281,446

The discount rates and inflation rates are based on the 2011 IRP for 2011-2012 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 administrative costs.

Table 16 through Table 19 provide detailed cost-effectiveness figures for each program year and the combined PY 2011-2013 evaluation period.

Table 16. WY FinAnswer Express Cost-Benefit Results – 2011 (0.76 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)	4,761,497	3,618,738	\$2,625,193	\$3,267,751	1.24
Total Resource Cost Test (TRC)	4,761,497	3,618,738	\$2,625,193	\$2,970,683	1.13
Utility Cost Test (UCT)	4,761,497	3,618,738	\$1,198,177	\$2,970,683	2.48
Rate Impact Test (RIM)	4,761,497	3,618,738	\$3,858,273	\$2,970,683	0.77
Participant Cost Test (PCT)	4,761,497	3,618,738	\$2,473,531	\$3,952,993	1.60

Table 17. WY FinAnswer Express Cost-Benefit Results – 2012 (0.76 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)	7,189,442	5,463,976	\$3,214,774	\$5,285,553	1.64
Total Resource Cost Test (TRC)	7,189,442	5,463,976	\$3,214,774	\$4,805,049	1.49
Utility Cost Test (UCT)	7,189,442	5,463,976	\$1,602,502	\$4,805,049	3.00
Rate Impact Test (RIM)	7,189,442	5,463,976	\$5,869,756	\$4,805,049	0.82
Participant Cost Test (PCT)	7,189,442	5,463,976	\$3,127,095	\$6,379,129	2.04

Table 18. WY FinAnswer Express Cost-Benefit Results – 2013 (0.76 NTG)

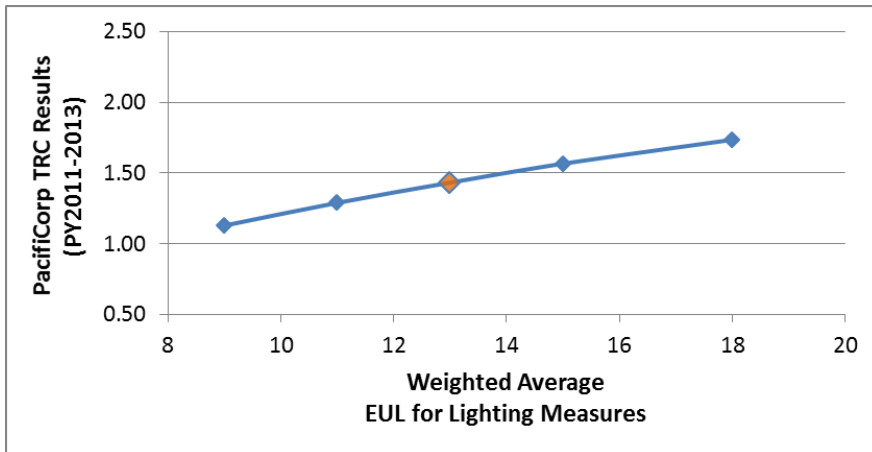
Benefit/Cost Test Performed	Evaluated Gross Savings (kWh)	Evaluated Net Savings (kWh)	Evaluated Costs	Evaluated Benefits	B/C Ratio
Total Resource Cost Test (PTRC)	7,655,523	5,818,198	\$3,216,031	\$4,482,948	1.39
Total Resource Cost Test (TRC)	7,655,523	5,818,198	\$3,216,031	\$4,075,407	1.27
Utility Cost Test (UCT)	7,655,523	5,818,198	\$1,941,910	\$4,075,407	2.10
Rate Impact Test (RIM)	7,655,523	5,818,198	\$6,742,251	\$4,075,407	0.60
Participant Cost Test (PCT)	7,655,523	5,818,198	\$3,076,815	\$7,380,497	2.40

Table 19. WY FinAnswer Express Cost-Benefit Results – PY 2011-2013 Combined (0.76 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)	19,606,463	14,900,912	\$9,055,998	\$13,036,253	1.44
Total Resource Cost Test (TRC)	19,606,463	14,900,912	\$9,055,998	\$11,851,139	1.31
Utility Cost Test (UCT)	19,606,463	14,900,912	\$4,742,589	\$11,851,139	2.50
Rate Impact Test (RIM)	19,606,463	14,900,912	\$16,470,280	\$11,851,139	0.72
Participant Cost Test (PCT)	19,606,463	14,900,912	\$8,677,441	\$17,712,619	2.04

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 #2). The current EUL for Wyoming FinAnswer Express program is a flat 13 years for all measures. Figure 5 shows the effects varying the lighting EULs has on the PTRC test specifically. If a weighted average EUL were to vary by 2 years from the current value, then the PTRC shifts approximately 10 percent.

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



4 Process Evaluation Findings

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

4.1 Participant Findings

The evaluation team surveyed 192 participants out of the 496 unique participants over three surveys.²⁹ Based on the survey fielding methodology, this sample is representative of the population. The respondents reported on 205 measures. Of these, 149 measures were lighting and 56 were non-lighting.

Table 20 provides a distribution of participating industry types and shows that no single industry is representative of the entire participant population.

Table 20. Primary Industry of FinAnswer Express Survey Respondents

Primary Industry	Respondent Count	Percentage
Educational Services	23	12%
Public Administration/Governmental Services	23	12%
Retail	23	12%
Professional, Scientific, and Technical Services	22	11%
Oil and Gas	16	8%
Manufacturing	13	7%
Non-Profits and Religious Organizations	10	5%
Arts, Entertainment, and Recreation	7	4%
Health Care	6	3%
Real Estate/Property Management	6	3%
Repair and Maintenance Services	5	3%
Warehouses or Wholesaler	5	3%
Construction	4	2%
Dairy/Agricultural	4	2%
Food Services	4	2%
Finance and Insurance	3	2%
Accommodation	2	1%
Mining	2	1%
Transportation	1	1%
Don't Know/Not Sure	13	7%
Total	192	100%

²⁹ The third survey included process questions and was conducted with participants completing projects from January 2011 through June 2012 and from July 2013 through December 2013. The first and second surveys only included basic project questions and overall satisfaction; these were conducted with participants completing projects from July 2012 through June 2013. Therefore, the number of respondents varies significantly by question.

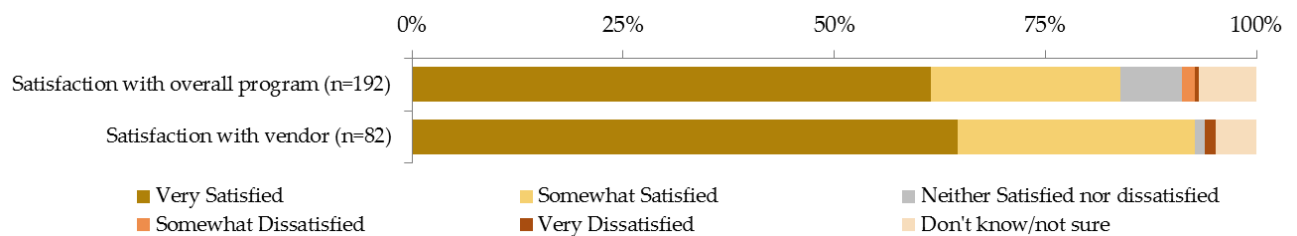
4.1.1 Program Satisfaction

The majority of respondents indicated being very satisfied with multiple aspects of the program, answering with five on a satisfaction scale from one to five.³⁰ Surveys polled satisfaction with the pre-installation report, installed measures, post-installation inspection, and vendor assistance, as well as for initial equipment status, energy savings benefits, non-energy benefits, and overall project satisfaction.

Overall, 84 percent of respondents (161 of 192) were satisfied with the program: 61 percent were very satisfied and 22 percent were somewhat satisfied. The remaining 16 percent were split up as seven percent (14 of 192) neither satisfied nor dissatisfied, two percent (3 of 192) dissatisfied, one percent (1 of 192) very dissatisfied, and seven percent (13 of 192) not sure. Those 17 respondents who did not indicate satisfaction were asked what could be different about the program to improve their perception. Their responses indicate a desire for the program to: provide greater incentive (5 respondents), reduce the complexity (4 respondents), shorten the time to get the incentive (2 respondents), and singular responses (6 respondents). The singular responses included: “not recommended to anymore, because of the waste money for not saving money” and “Better understanding of program.” Customers often indicate a preference for higher incentives, but reduced complexity and quicker are items that can be addressed by programs.

Similarly, 93 percent of respondents who had a vendor listed in the program tracking data (76 of 82) were satisfied with their vendor: 65 percent were very satisfied and 28 percent were somewhat satisfied.³¹ Of the remaining six respondents, one was neither satisfied nor dissatisfied, one was very dissatisfied, and four were not sure. Both overall and vendor satisfaction are shown in Figure 6.

Figure 6. Overall and Vendor Satisfaction



The FinAnswer Express program provides some participants with a pre-installation report that describes the energy analysis of the project. Pre-purchase path participants were asked about their perspective on the report, and most (90 percent) thought the pre-installation report was valuable, while ten percent did not find it valuable. Half of the six respondents who did not find the report valuable said that they already knew the information, one just wanted new fixtures, one said that everything was new, and one mentioned dissatisfaction with the whole program.

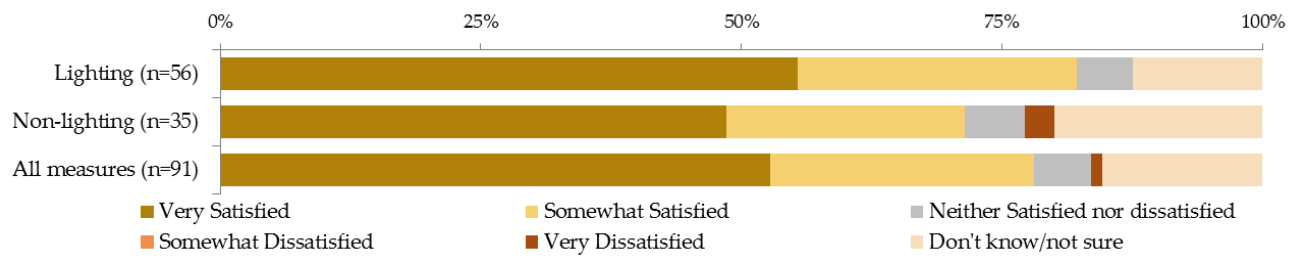
³⁰ The team used a satisfaction scale from one to five, where 1= Very Dissatisfied, 2= Somewhat Dissatisfied, 3= Neutral, 4= Somewhat Satisfied, and 5= Very Satisfied.

³¹ Of the remaining nine projects, seven were project manager path projects and two did not recall working with a vendor.

Participants on the pre-purchase path have a pre-installation inspection. All (8) of these respondents were very satisfied with the initial inspection (100 percent). Based on project scope and quality assurance plans, some projects receive a final inspection. All (16) of these respondents who recalled the final inspection were satisfied with it (94 percent were very satisfied).

Measure-specific questions covered measure satisfaction, the condition of the replaced equipment, and expected and received benefits. Most respondents (78 percent overall) were satisfied or very satisfied with their measure performance. Lighting measures had a satisfaction rate (82 percent) than non-lighting measures (71 percent). Figure 7 illustrates the reported satisfaction with both lighting and non-lighting measures.

Figure 7. Measure Performance Satisfaction by Measure Type (n=91)



The evaluation team asked those who were not satisfied what would have made them more satisfied with the performance of the equipment. Only one of the six respondents was disappointed with the quality of the measure; they would be more satisfied with the measure if “the lamps lasted for a longer period of time.” The other five respondents where were not satisfied indicated program rather than measure characteristics: two wanted lower costs, two wanted higher incentives, and one wanted it to be easier to get program materials. These responses demonstrate the extent that participant perspectives in any one aspect of the program experience carry over to others. They do not indicate any concerns with the measures included in the program.

Twelve percent, of all measures (six percent for lighting and 27 percent for non-lighting) were for new construction projects. Participants who installed measures that were not for new construction were asked about the condition of the equipment replaced by the measure. Most lighting measures replaced existing equipment that was working with no problems (62 percent), indicating a more conscious shift toward energy efficiency (early replacement) than if the equipment was already having problems or failed (23 percent). Non-lighting installations were more balanced between replacing working and failing equipment; 30 percent were failing or failed while 25 percent were working fine. This is in keeping with the program design, which encourages participants to install more efficient options to the minimum code baseline. Table 21 provides the distribution of responses. Responses in the other category included: “functional,” “retrofit”, and “all of the above.”

Table 21. Operating Condition of Replaced Equipment by Measure Type (n=180)

	Lighting (n=138)	Non-Lighting (n=42)
Existing equipment had failed	2%	7%
Existing equipment working but with problems	21%	23%
Existing equipment working with no problems	62%	25%
Totally new installation	6%	27%
Other	7%	14%
Don't know/Not Sure	2%	4%

Most respondents reported that the energy savings related to each measure met their expectations: 83 percent for lighting measures and 70 percent for non-lighting measures. Only one measure was not meeting energy savings expectations; this customer was very dissatisfied overall due to the measure not meeting savings expectations. For all other measures, respondents were not sure if the equipment was meeting savings expectations. Although only one respondent was dissatisfied due to energy savings not meeting expectations, the program and EEA staff may be able to work with trade allies to ensure that expectations for energy savings are not overstated.

In addition, for about half of the measures (49 of 91), participants reported that they anticipated other benefits beyond energy savings related to each measure. Respondents that anticipated non-energy benefits were asked to select which benefits they anticipated; by far, the most commonly anticipated benefit was better lighting quality, mentioned by 36 of the 43 respondents (Table 22).³²

Table 22. Anticipated Non-Energy Benefits from Program Participants

Non-Energy Benefits Anticipated	Respondent Count	Percentage
Better lighting quality	36	64%
Increased control	6	101%
Decreased heat output	5	9%
Quicker on/off	5	9%
Less frequent replacement	4	7%
Total	56	100%

Finally, the evaluation team asked participants whether they had seen these non-energy benefits since completing the project. For lighting measures, a large majority (94 percent) of respondents said they had experienced these benefits. For non-lighting measures, all 16 (100 percent) respondents *who expected other benefits* said they had experienced these benefits.

³² More than one response was allowed; the respondents gave a total of 56 responses for 49 measures. Respondents were allowed to speak freely. Their responses were coded into pre-defined categories.

4.1.2 Program Awareness and Motivation

The evaluation team asked participants how they heard or became aware of the FinAnswer Express program. The most significant sources of awareness came from trade allies, vendors, contractors and account representatives and other RMP staff.³³ A small portion (less than 5 percent) of respondents heard about the program through indirect marketing channels, including the RMP website, printed materials, and print advertisements. Table 23 shows all sources of awareness for program participants.

Table 23. Source of Awareness of Program Participants

Source of Awareness	Respondent Count	Percentage
Trade Ally, Vendor, or Contractor	36	44%
Account Representative or Other RMP Staff	18	22%
Another Business Colleague	10	12%
Conference, Workshop, or Event	1	1%
Family, Friend, or Neighbor	1	1%
RMP Print Advertisement	1	1%
RMP Printed Materials/Brochure	1	1%
RMP Website	1	1%
Previous Participation in RMP Programs	1	1%
Other	6	7%
Don't Know/Not Sure	6	7%
Total	82	100%

Other included Engineers, Custodians, and City Council Meetings.

³³ Participant awareness questions were only asked in the last participant survey (82 respondents).

4.1.3 Program Influence

The participant surveys identified many influential factors that motivated program participants. The ability to obtain an incentive and to save money on maintenance costs influenced program participants to participate in the FinAnswer Express program the most, identified as most important by 22 percent and 21 percent of respondents, respectively. Other influential factors included improving operations, production, and quality (13 percent) and saving money on electricity (7 percent), as shown in Table 24.

Table 24. Most Influential Reason for Participating in the Program

Reasons for Participation	Mentions*	Most Important	Percent Most Important
To obtain an incentive	27	18	22%
To save money on maintenance costs	22	17	21%
To improve operations, production, or quality	13	11	13%
To save money on electric bills	10	6	7%
Other (single response)	5	5	6%
To replace old or poorly working equipment	5	4	5%
To save energy (no costs mentioned)	13	4	5%
Recommended by colleague	5	4	5%
To receive another benefit	4	4	5%
To acquire the latest technology	6	3	4%
To benefit the customers	2	2	2%
Not sure	3	4	5%
Total	117	82	100%

More than one response allowed.

Respondents ranked the importance of factors influencing equipment installation decisions (Figure 8). The most important factors included the company incentive (62 percent) and recommendations from a contractor or a vendor (50 percent).

Figure 8. Importance of Factors for Participants to Decide to Install Equipment

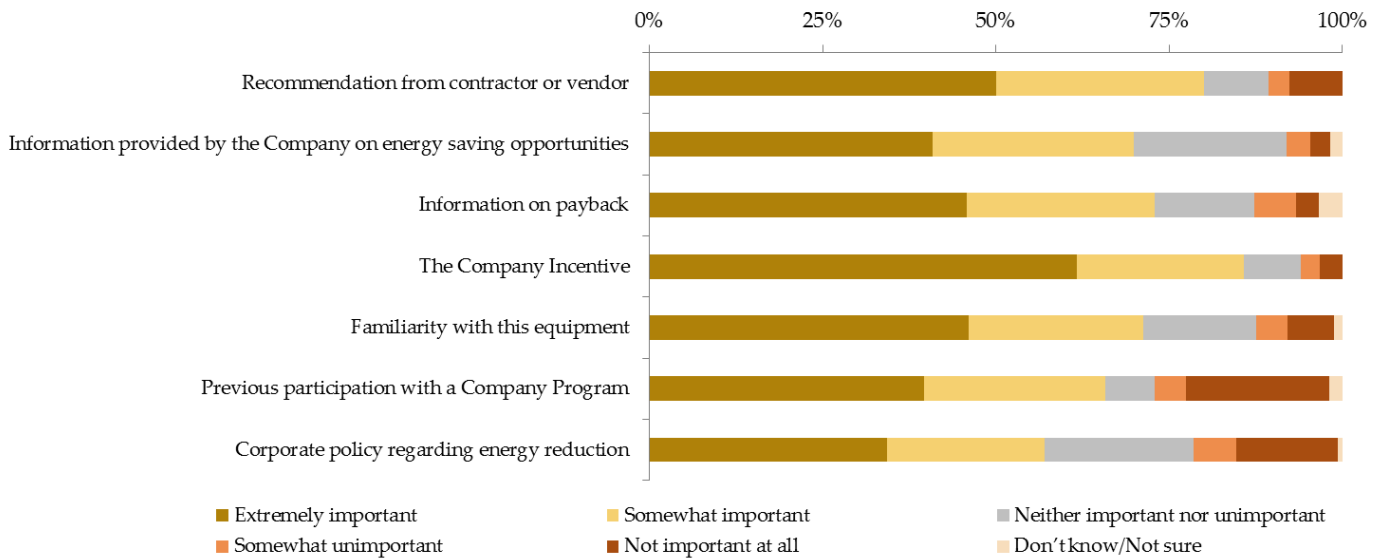


Figure does not display responses that were unknown or not applicable.

4.1.4 Further Energy Efficiency Opportunities and Barriers

Participant surveys provided insight both into the barriers that prevented participants from taking action, and about plans for future energy efficiency projects. Respondents shared their current plans, potential future plans, and whether current plans included assistance from RMP. The evaluation team also asked respondents to list specific examples of energy-efficient plans and to select factors that may prevent them from making these plans.

The majority of respondents (57 percent) indicated that they were not sure (18 percent) or there were *no other changes they could make to improve energy efficiency at their organization* (39 percent). For those who thought there were changes they could make (44 percent) they had varying degrees of commitment: about an equal portion had plans that included RMP’s assistance (15 percent), had plans that did not include RMP (13 percent), and had no plans in place (16 percent).³⁴ This information suggests that participants are happy with the program, but it may not enable all participants to identify new projects; we note here that this program is not designed to identify all energy efficient options but does intend for participants to continue to improve. Table 25 combines multiple responses concerning participants’ potential for additional energy-efficiency.

Table 25. Potential for Further Energy Efficiency

Potential for Additional Energy Efficiency	Respondent Count	Percentage
No potential for energy efficiency	75	39%
Potential for energy efficiency, but no plan in place	30	16%
Energy efficiency plans with RMP	28	15%
Energy efficiency plans without RMP	24	13%
Not sure about potential for energy efficiency	35	18%
Total	192	100%

Respondents with potential for additional energy efficiency projects (82) were asked to describe what they might be. Thirty respondents had an answer, and of these eight did not indicate a specific technology or mechanism. Of the 22 who had a specific idea, 13 mentioned lighting, three mentioned drives, and two mentioned scheduling. Additional responses included: constructing a new facility, conducting a major renovation, and updating boilers and refrigeration. One customer was considering conducting irrigation with pivots at night rather than during the day, but only if there were an incentive; the team notes that this proposed measure does not save energy, it moves the load period.

³⁴ Respondents were asked, “Is assistance from RMP included in those plans?”

Respondents who indicated at least some potential for implementing energy-efficient projects (82) reported barriers that might prevent implementation of those plans. The most influential barriers included lack of access to capital (35 percent) and high upfront costs (23 percent). However, 20 percent of these respondents indicated that there were no barriers. Table 26 lists the barriers reported by respondents. Other responses were recoded when they fit pre-determined barriers or were mentioned by more than one respondent; remaining other responses included: “the weather or falling behind in the irrigation schedule” and “we are studying it.”

Table 26. Barriers to Participants’ Future Energy Efficiency Plans

Barriers to Energy Efficiency	Mentions	Percentage
Lack of access to capital	30	35%
High upfront cost	18	23%
None	16	20%
Other	7	8%
Lease or tenant ownership limits	3	4%
Time	2	3%
Low priority/lack of interest among senior management	1	1%
Not sure	5	6%
Total	82	100%

4.2 Trade Ally Findings

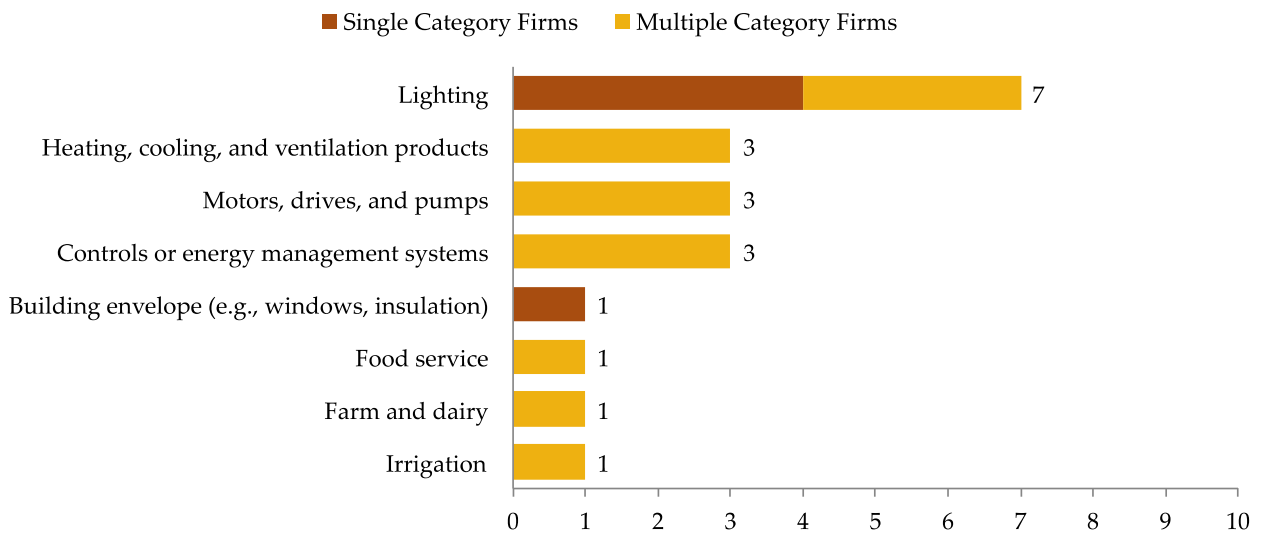
This section focuses on the eight respondents indicating familiarity with the program in Wyoming, presenting the trade ally perspective on program awareness and motivations, program communications, program project experience, spillover, and program suggestions.³⁵

³⁵ As Table 8 in section 2.4.5.3 indicates, eight trade ally participants that were familiar with Wyoming programs reside in Wyoming, and one resides in Utah.

4.2.1 Trade Ally Respondent Information

The evaluation team asked Wyoming trade allies to select all of the categories in which they sell energy-efficient products. The majority of trade allies (7 out of 8) work with lighting products, with four of these seven working exclusively in lighting. Other categories included HVAC products (3), motors, drives, and pumps (3), and controls or EMSs (3). Figure 9 shows the distribution of trade allies by the category of equipment and by whether firms work exclusively within that category or within multiple categories.

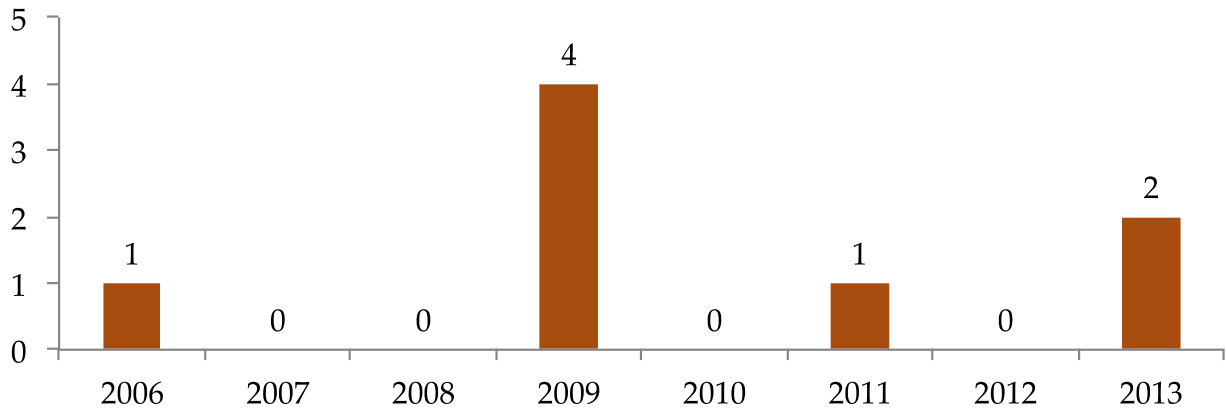
Figure 9. Number of Trade Allies with Energy-Efficient Products by Category



4.2.2 EEA Program Awareness and Motivation

In general, survey data shows that trade allies are continuously enrolling in the EEA and that they desire to be part of the EEA for advertising purposes and to learn more about energy efficiency. Figure 10 displays the year in which respondents joined the EEA.

Figure 10. Number of Trade Allies by the Year in Which They Joined the EEA (n=8)



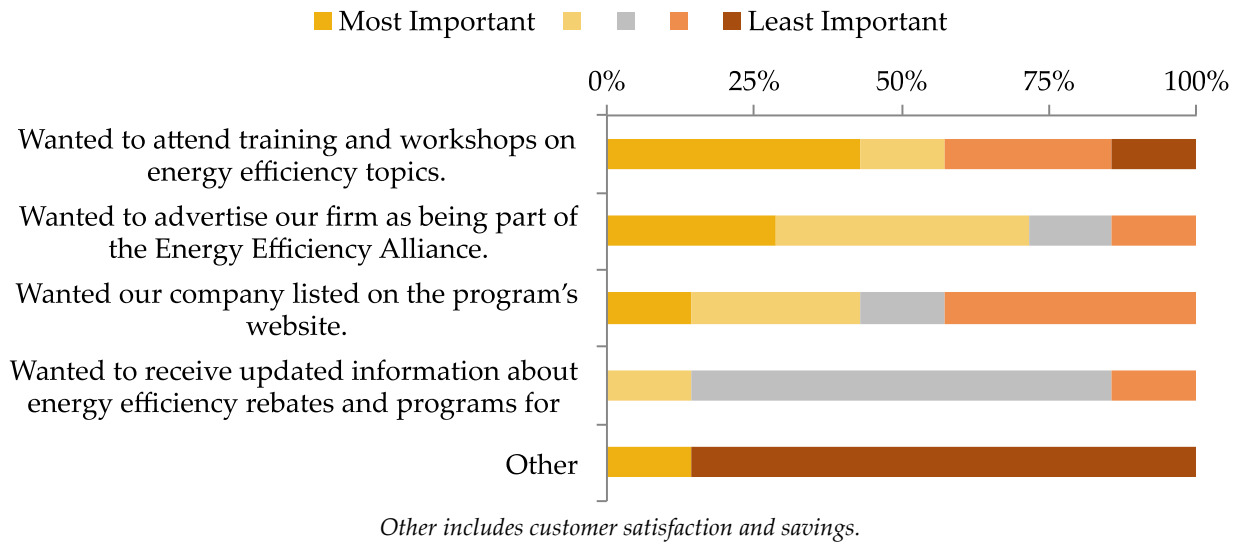
The evaluation team asked trade allies how they first heard about the EEA. The majority of trade allies (75 percent) became aware of the EEA through their utility or EEA representative. Two respondents did not know how they heard about the EEA. Table 27 highlights these results.

Table 27. How Trade Allies Heard about the EEA

Method of Awareness	Frequency	Percentage
Utility or Energy Efficiency Alliance Representative	6	75%
Don't Know	2	25%
Total	8	100%

The evaluation team asked respondents to describe their motivation for participating in the EEA and therefore the RMP program. They ranked the motivations listed in Figure 11 in order from most important to least important. The most important motivation was the desire to attend training and workshops. One respondent did not respond.

Figure 11. Trade Ally Motivation for Participating in the EEA Ranked by Importance (n=7)



4.2.3 EEA Program Communications

The evaluation team asked trade allies a set of questions to understand the value of current communications with the EEA and to determine how communications can improve. The majority (62 percent) felt that the communications received from the EEA were either valuable or extremely valuable (Figure 12).

Figure 12. Trade Ally Rating of the Value of Communication with the EEA (n=8)

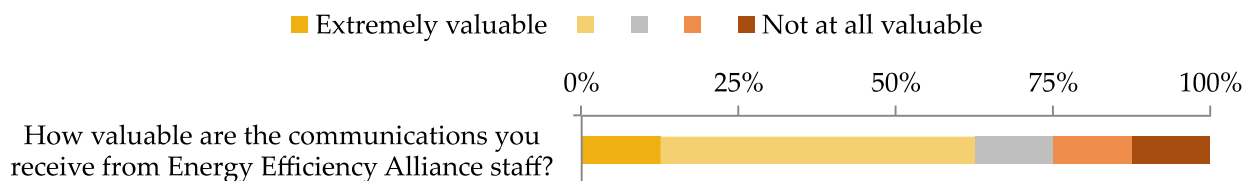


Table 28 shows the preferred modes of communication with the EEA. Email was the preferred mode of communication for the majority of trade allies (63 percent), followed by in-person correspondence (25 percent) and telephone correspondence (13 percent). All trade allies preferred some form of communication to no communication.

Table 28. Trade Ally Preferred Modes of Communication with the EEA

Mode of Communication	Frequency	Percentage
Email	5	63%
In-person correspondence	2	25%
Telephone correspondence	1	13%
Printed mail	0	0%
Prefer not to receive communication	0	0%
Total	8	100%

The evaluation team then asked trade allies to assess the frequency of current communications. The majority of trade allies believe the current frequency of communications is just right (75 percent). Two believe it is exceptionally infrequent (Figure 13); one would like weekly and reports never getting communications, and the other would like monthly communications and is not sure how frequent communications are between them and the trade ally coordinator.

Figure 13. Trade Ally Assessment of the Current Frequency of Communication with the EEA (n=8)

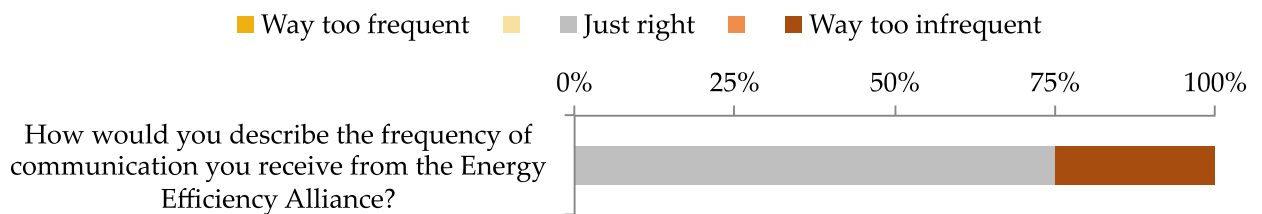


Table 29 shows the trade allies prefer monthly or weekly communications. While most (six of eight) respondents indicated that the current communication was just about right, and they mostly prefer monthly communications, only two respondents report currently having monthly communications. They also report current communication frequencies of daily through quarterly. This suggests that the allies are satisfied with the informational newsletters and contact that is not project specific coming monthly, but they take advantage of the opportunity to communicate more frequently for project specific needs.

Table 29. Trade Ally Preferred Frequency of Communications with the EEA

Preferred Frequency of Communication	Frequency	Percentage
Weekly	1	13%
Monthly	7	88%
Quarterly	0	0%
Annually	0	0%
Total	8	100%

The evaluation team asked trade allies if they had received and read the EEA newsletter. The majority of trade allies (63 percent) recalled receiving and reading the newsletter. Table 30 summarizes the trade allies' actions with the EEA newsletter.

Table 30. Trade Ally Actions with the EEA Newsletter

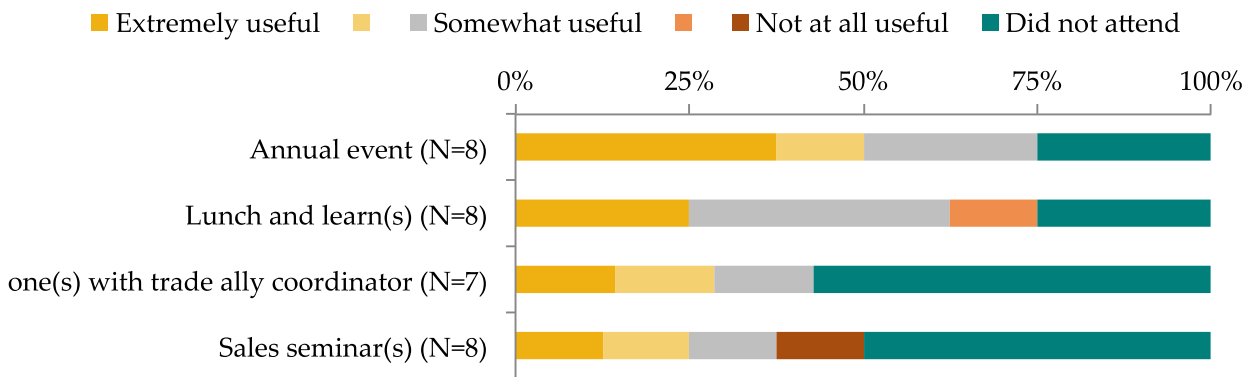
Newsletter Actions	Frequency	Percentage
Received and read newsletter	5	63%
Received and did not read newsletter	0	0%
Did not receive newsletter	1	13%
Not sure	2	25%
Total	8	100%

Trade allies also provided the following suggestions for improving the quality of the EEA newsletter:

- » Advertise or give more information about products that can be used for rebates
- » Make newsletters available to customers to use as a marketing tool
- » Ensure the newsletters have correct information

Trade allies were also asked to rate the usefulness of training and events that they attended from 2011 to 2013. The annual event and lunch-and-learns were the most widely attended events. Figure 14 compares the usefulness and attendance rate for each event type. Responses were not required.

Figure 14. Usefulness Rating and Attendance Rate of Trade Ally Trainings and Events

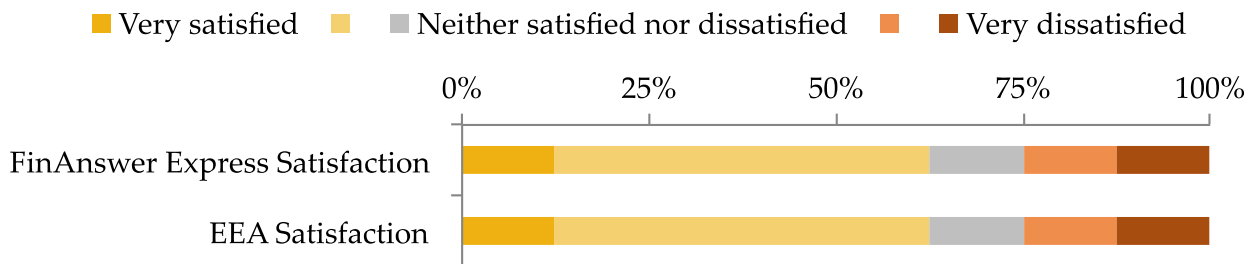


4.2.4 Program Project Experience

Trade allies were asked about their satisfaction with the FinAnswer Express program and with the EEA overall. Most trade allies were satisfied or very satisfied with the program (63 percent) and the EEA (63 percent). Figure 15 compares the trade ally satisfaction ratings.³⁶ Dissatisfied and neutral respondents discussed the following issues that contributed to their dissatisfaction:

- » Process is too complicated and time consuming
- » Would like more personal interactions to gain information
- » Would like to get recognition and limit the number of vendors in the EEA

Figure 15. Trade Ally Satisfaction Rating of the FinAnswer Express Program and the EEA (n=8)

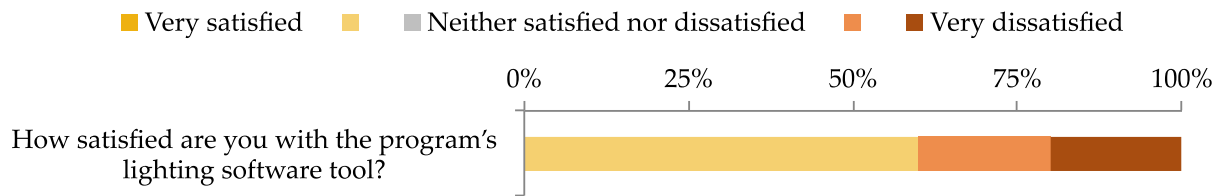


³⁶ The one trade ally who was very dissatisfied with both the program and the EEA said that additional one on one support from the trade ally coordinator would improve satisfaction. This ally’s sales include products that qualify 15 percent of the time, but only five percent go through the program. Additional assistance may bring more projects from this ally.

Out of the seven trade allies that work with lighting projects, five (71 percent) used the lighting software tool and of those, 60 percent were satisfied with the tool. Figure 16 shows the satisfaction results. Those who were dissatisfied mentioned that the tool was:

- » Too complicated, and
- » Very time and labor intensive.

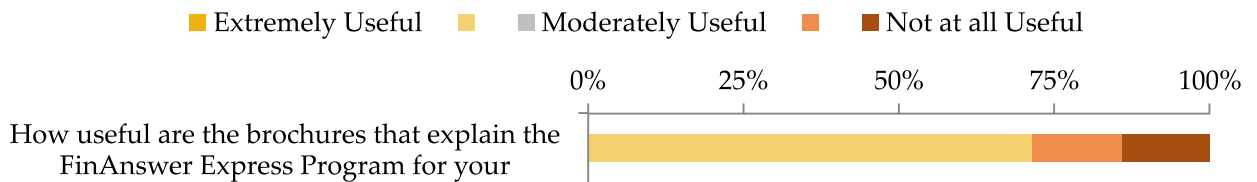
Figure 16. Trade Ally Satisfaction Rating of the Lighting Software Tool (n=7)



Trade allies were asked to rate the usefulness of the FinAnswer Express brochures. Most, 71 percent, thought the brochures were useful. Figure 17 shows the brochure ratings. Trade allies dissatisfied with the brochures indicated that they were:

- » Too generic and needed examples of proposals, and
- » Outmoded with trade allies preferring information online.

Figure 17. Trade Ally Usefulness Rating of FinAnswer Express Brochures (n=7)



The evaluation team then asked the trade allies if they advertise for the FinAnswer Express program, and how they advertised. Table 31 shows that only two of eight advertised the program at all.³⁷ Out of the trade allies that advertise, both advertise rebates and energy-efficient equipment to customers.

Table 31. Trade Allies That Advertise for the FinAnswer Express program

	Frequency	Percentage
Advertised for FX	2	25%
Did not advertise	5	63%
Don't know	1	13%
Total	8	100%

More trade allies reported that they do paperwork for their customers (38 percent), as shown in Table 32. Out of the trade allies that complete paperwork, one out of three (33 percent) complete the rebate form for their customers and no trade allies process the rebate form.

Table 32. Trade Allies That Complete Paperwork for Their Customers

	Frequency	Percentage
Completed paperwork	3	38%
Did not complete paperwork	5	63%
Don't know	0	0%
Total	8	100%

³⁷ Trade allies were asked, “Did you advertise the FinAnswer Express program in...?” with options for the state. Then, they were asked about the content of advertising: the rebate, the efficient equipment, or something else.

Table 33 displays the barriers that limited trade allies from completing more projects with the EEA. The most significant barrier pertained to internal resource constraints. Other barriers mentioned by trade allies included the program process being too slow.

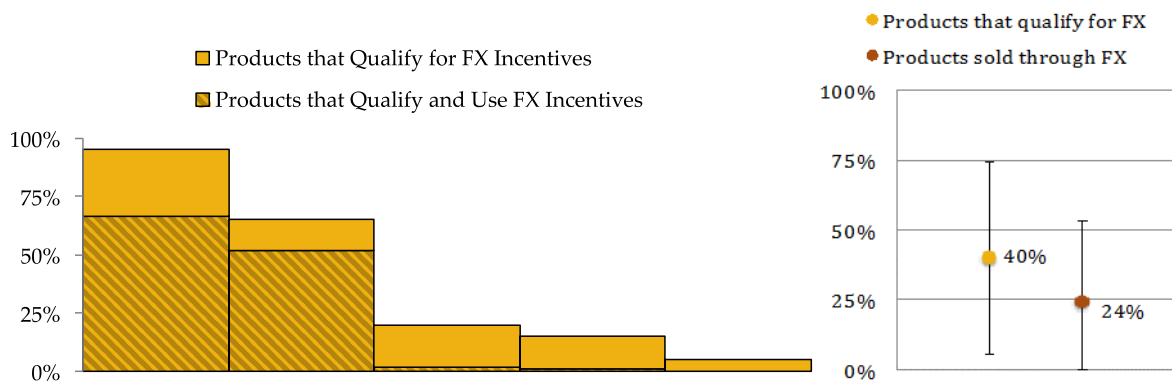
Table 33. Barriers That Limit Trade Allies from Completing Projects with the EEA (n=8)

Barrier	Frequency	Percentage
Our own internal resource constraints (i.e., staffing)	5	63%
Equipment does not qualify for an incentive	2	25%
Too much hassle for the customer to participate in the program	2	25%
Too much hassle for our firm to participate in the program	2	25%
Customer(s) not interested in energy-efficient equipment	2	25%
Other	1	13%

4.2.5 Efficient Sales Outside of the Program

The average portion of efficient sales outside of the program for Wyoming trade allies is 16 percent. Trade allies first reported the percentage of their total products or projects that qualify for the program. They then reported what percentage of those products or projects are sold or installed using program incentives. On average for each trade ally, 40 percent of all products sold by trade allies qualify for incentives, and 24 percent are sold using incentives. The percentage difference between these numbers is the portion of efficient sales outside of the program, or the potential spillover. Figure 18 displays both the percentage of total products that qualified and sold through the program, as well as the results as a histogram of all responses and as a 95 percent confidence interval for the average percentage of products across all respondents. The non-crosshatched portion of the histogram represents possible spillover.

Figure 18. Percentage of Total Products That Qualify for the FinAnswer Express (FX) Program and That Are Sold Using Program Incentives (n=5)



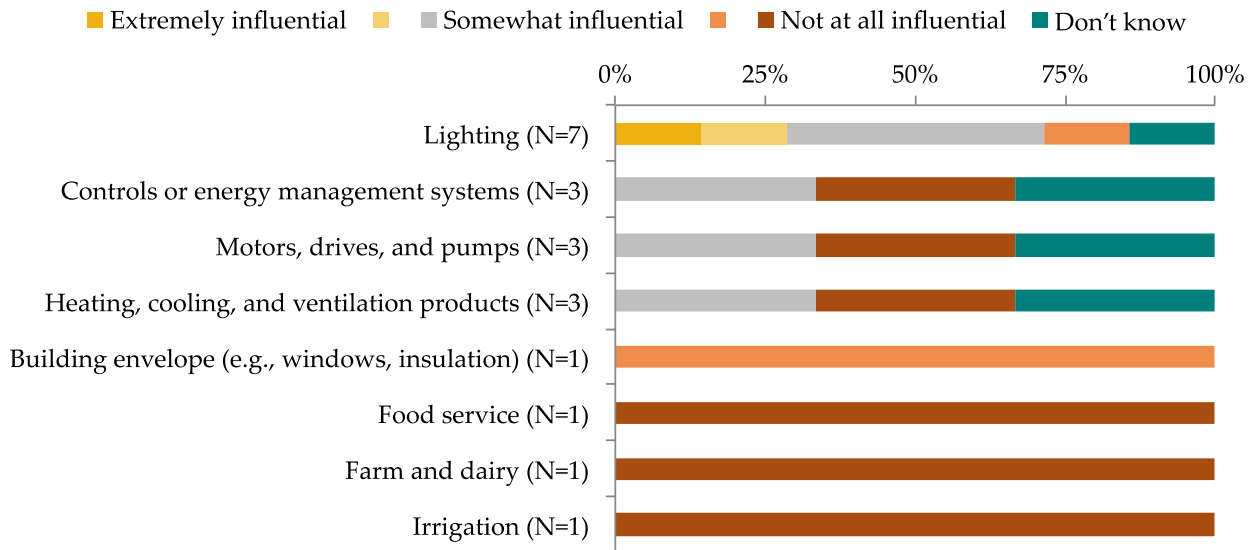
All respondents who completed these questions indicated some sales without the program. Figure 18 shows a high variability in the percentage of qualifying products sold through the FinAnswer Express

program. This is expected given the wide range of company industries (e.g., lighting, HVAC), company functions (e.g., distributor, contractors), and company sizes that compose the trade ally sample. Due to this large variability and to a small sample size, the results of the spillover effect are not statistically significant.

4.2.6 Value to Business

Trade allies reported that the program had a significant effect on their businesses in terms of their ability to stock and sell energy-efficient products. These findings imply that the potential spillover defined in the previous section may be due to the program. The evaluation team asked trade allies how influential the program has been in motivating their firm to stock program-eligible equipment. Trade allies answered this question for each of the product categories that they work in (see Figure 9). Figure 19 shows the influence ratings, along with the number of trade allies that responded for each product category. The results indicate that the program is somewhat influential for lighting projects, but not at all influential for other categories.

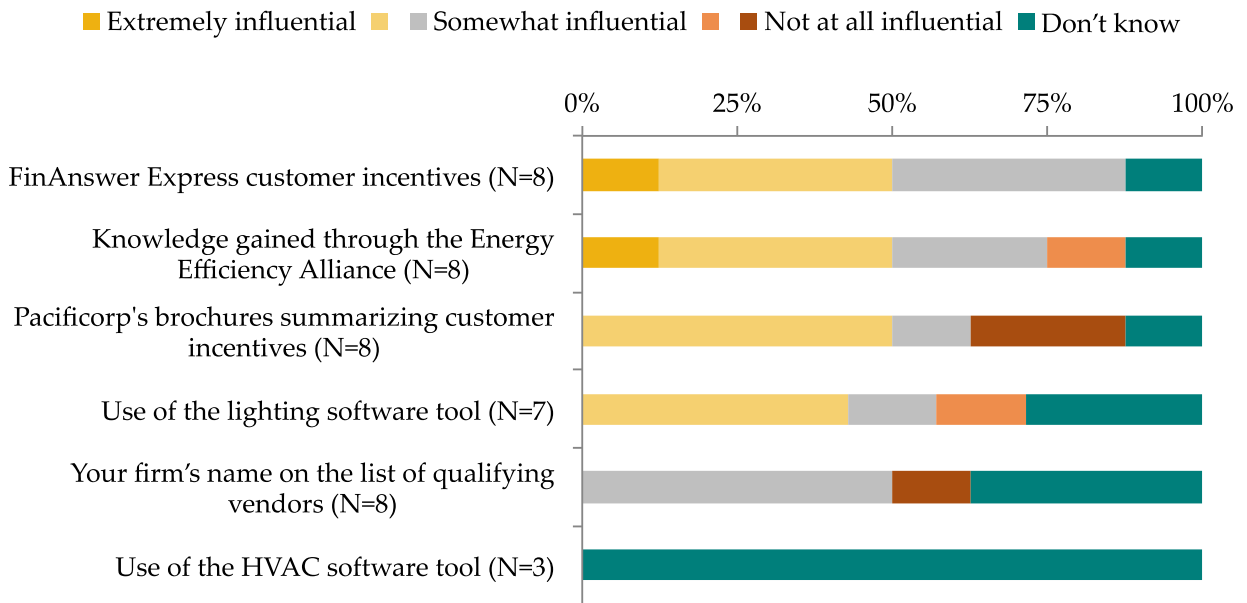
Figure 19. Trade Ally Influence Rating for Stocking Program-Eligible Equipment by Product Category



The EEA provides a trade ally coordinator contact as well as other services to assist the allies. Nearly all respondents found the trade ally coordinator to be valuable to their participation in the program. The one who did not find the coordinator valuable was dissatisfied with the program overall and wanted for the program to stop changing. Trade allies depend on the trade ally coordinator mostly for project support (three of eight) and incentive training (two of eight). The coordinators are also sought after to help complete incentive paperwork (one), provide technology training (one), and to provide customer support (one). The communications section (above) deals with other perceptions that trade allies have about this contact because they mostly communicate with the same person.

Figure 20 reports the influence of other program services (besides the trade ally coordinator) in helping firms to successfully sell energy-efficient products and projects to customers. Customer incentives and knowledge gained were the most influential services. Response rates vary, as responses were not required for these questions.

Figure 20. Trade Ally Influence Rating of Program Services in Helping Sell Energy-Efficient Products



The evaluation team also asked trade allies whether the program has significantly changed their business and sales. Roughly one-third (38 percent) reported that the program changed their business by encouraging higher-quality, more efficient products, as well as keeping their firm aware of energy efficient technologies. Table 34 displays these results of the impacts to trade allies businesses versus trade ally sales.

Table 34. Reported Businesses and Sales Changes Due to the FinAnswer Express Program

Program Impact on Business	Frequency	Percentage	Program Impact on Sales	Frequency	Percentage
Business changed	3	38%	Sales changed	2	25%
Business did not change	1	13%	Sales did not change	4	50%
Don't know	4	50%	Don't know	2	25%
Total	8	100%	Total	8	100%

4.2.7 Trade Ally Suggestions for Program Improvement

Multiple questions polled the trade allies on ideas for FinAnswer Express improvements. Improvement questions asked for topics for future trainings and events, additional services offered through the program, and general program improvement.

Trade allies suggested the following as topics for future trainings and events:

- » Tool Training (Lighting and HVAC)
- » Streamlining/Web-based Software
- » Qualified Products

Trade allies suggested the following as additional services offered through the FinAnswer Express program:

- » More one-on-one interaction with coordinators
- » Create simple tools for determining energy savings

Trade allies suggested the following as general improvements to the FinAnswer Express program:

- » Keep the program consistent
- » Simplify tools

4.3 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 Wyoming 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. Trade allies reported satisfaction with the amount of communication they received from program administrators and the majority (62 percent) of trade allies valued the communications they received from the program.

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

All activities and expected outputs and outcomes occurred. Trade allies were actively engaged in the program and participation appeared to be increasing. The one aspect of the program theory that was occurring to a limited extent was that program participation was intended to influence customers to pursue more projects in the future. According to participant survey results, only 39 percent of FinAnswer Express participant respondents reported they had opportunities for additional energy efficiency at their organization. Of those who had opportunities, about half already had plans in place to pursue those opportunities.

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

The majority (66 percent) of participants most commonly became aware of the FinAnswer Express program from trade allies, vendors, contractors, account representatives, and other RMP staff. This implies that the program successfully leveraged trade allies and staff as a marketing source. Direct marketing channels have been less effective at raising program awareness according to participant respondents. Only three (3.6 percent) participant respondents reported to learn about the FinAnswer Express program through direct marketing channels, including the Rocky Mountain website, printed materials/brochure, or a printed advertisement.

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)?

The evaluation team found many influential factors motivated participant respondents to participate in the program. Program participants were most influenced to participate in the FinAnswer Express program by the ability to obtain an incentive (29 percent), reducing energy costs (23 percent), and improving operations, production, and quality (15 percent). Additionally, the factors most commonly rated 'extremely important' in deciding which equipment to install were the RMP incentive (62 percent) and recommendations from a contractor or a vendor (50 percent). This implies that the financial assistance provided by the program and the informational assistance provided by trade allies encouraged the installation of more efficient equipment.

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, participant respondents reported the following barriers to conducting more energy efficiency projects: lack of access to capital (35 percent) and high upfront costs (23 percent). Not all participants are concerned about being able to move forward with future projects; 20 percent said there was nothing that would impede their moving forward. Another additional barrier may be that participants have difficulty identifying additional opportunities because over half (57 percent) of participant respondents said they either did not or did not know if there were changes they could make to further improve energy efficiency at their organization.

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

Yes, participants are achieving planned outcomes. The majority of participant respondents were satisfied with the overall program (84 percent): 61 percent were very satisfied, and 22 percent were somewhat satisfied. Those who were not satisfied wanted greater incentives, less complexity, quicker turnaround, and more program information. Most respondents reported that the energy savings related to each measure met their expectations. Participant respondents also reported receiving the following non-energy benefits: better lighting quality, decreased heat output, quicker on/off, and less frequent replacements.

5 Program Evaluation Recommendations

5.1 PY 2011-2013 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 (i.e., lighting controls, LEDs, CFLs and linear fluorescent lamps should each receive different EULs). PacifiCorp cannot apply this level of detail without first identifying appropriate 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 updated measure sub-type protocols allowing for this level of granularity, but as of PY 2011-2013 evaluation 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 the 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.³⁸ PacifiCorp currently tracks some of the projects which include LED lamps at the measure level, so applying an LED EUL consistently 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).³⁹
- » **Recommendation 3. Leverage existing relationships with program participants for repeat participation.** Over half of participants did not think there were any additional actions they could take to improve efficiency at their site. This program has high repeat participation; if customers are not sure what more they could do, they may benefit from additional information on other measures. To reach customers with a variety of motivations to complete EE projects, include guidance that customers may save on operations and maintenance costs or see better process control with program measures. The program could do this, for example, through

³⁸ See Figure 5 in section 3.4 for the direct impacts of EUL adjustments on PacifiCorp’s Total Resource Cost test.

³⁹ 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.

expanding the use of case studies or providing program marketing materials with incentive checks.

- » **Recommendation 4. Provide trade allies with fresh and up to date marketing material.** The trade allies surveyed generally found the brochures helpful, but they also were concerned about out-of-date materials. In addition, they prefer communication via email. While the program currently updates case studies and information on the website, providing trade allies with links to the newest marketing material via email as it becomes available, or reminding them of case studies applicable to their products and services, would enhance current trade ally satisfaction.

5.2 PY 2009-2010 Recommendation Review

The evaluation team reviewed the recommendations made in the prior PY 2009-2010 program evaluation to track progress made by RMP. The following lists the review results for each recommendation.

- » **Recommendation 1. All project files should include energy and demand savings calculations and expectations.** In select cases, there was limited information on expected savings estimates outside of the program tracking database. Providing this information consistently across all projects will streamline verification activities.
Review Results – RMP has implemented this recommendation and the live, digital files provided significant improvements in project review. These files allowed the evaluation team to more clearly and accurately read the project measure list, enabled a more expeditious data entry process prior to project analysis, facilitated greater certainty in identifying the ECM of interest, and improved the ability to explain discrepancies between ex-ante and ex-post results.
- » **Recommendation 2. The “Equipment Location” field on the FinAnswer Express application should be an application requirement for motor measures.** A large number of incented motor measures were unable to be located at participant facilities, which introduced uncertainty into the verified savings estimates.
Review Results – This year’s evaluation covered three motor projects, comprising 25 measure instances and 18 percent of the reported energy savings for this measure category. These projects were well documented and the evaluation team was able to effectively and efficiently identify the measures to be evaluated on site.
- » **Recommendation 3.** In order to appropriately credit additional savings for preexisting T-12 fixtures that consume more energy than the assumed program baseline of energy-efficient lamps and magnetic ballast combinations, the **evaluation team recommends documenting the preexisting wattage** for all T-12 fixture replacements in the project application files.
Review Results – Having been provided with the live version of RMP’s lighting analysis workbooks, the team felt confident in the reporting of baseline fixture wattages during the course of this evaluation.

- » **Recommendation 4. Implement the following future NTG evaluation changes:**
 - The evaluation team recommends **increasing the frequency of data collection** activities to minimize recall issues. The company reports this recommendation is currently being implemented through quarterly survey efforts.
 - The evaluation team recommends **prioritizing quantitative spillover** as an area of inquiry on subsequent evaluations to ensure balanced and comprehensive net savings estimates.
 - The evaluation team recommends **increasing the level of documentation** on customer interactions with RMP. This will serve to better codify the baseline customer situation and enhance the accuracy of net savings estimates.

Review Results – RMP worked with the evaluation team to move to semi-annual surveys for program influence. For this program evaluation, the first half of the program years under evaluation, January 2011 through June 2012, were not included in this new more frequent approach. The methodologies for the NTG calculations were updated to quantify like spillover. A market characterization could still improve the understanding of the spillover effects of this program.

- » **Recommendation 5. RMP could expand customer recognition of the EEA;** this is in keeping with the best practice of leveraging utility credibility to help vendors sell the program. RMP has already made headway towards expanding this recognition by featuring some allies in advertisements. Other opportunities to further increase customer recognition of trade allies include the following:
 - EEA signage with RMP logo (e.g., window clings)
 - Energy efficiency achievement awards and award events (with publicly available criteria, such as so many kWh saved or so many projects completed)
 - Improved customer access to trade ally information (e.g., an interactive or location based search instead of a PDF).

Review Results – RMP developed interactive vendor search for customers to identify vendors on the same page where they learn about the program.

- » **Recommendation 6. Move towards web-based application processing to improve program implementer responsiveness and reduce administration cost.** This is a best practice in energy efficiency programs, but its feasibility for implementation depends on the structure of customer data within each utility. RMP has shown progress towards developing this capability by adopting a tracking system that can be web-enabled and testing a web-based application process with a program for residential customers. However, RMP, like all utilities, faces significant challenges in enabling external access to its systems due to the competing need to protect critical IT infrastructure. Nexant is moving towards web-based processing accessible by the program delivery team.

Review Results – Some forms could be accessed online, and trade allies used email for project submissions. The revised application process with the rollout of the wattsmart Business program should further improve this step.

- » **Recommendation 7. RMP would benefit from an internal review of quality control practices to base practices on a program’s relationship with vendors, the number of vendors, the types of measures, the project volume, and the variability in the size of projects.** This best practice would accept fewer quality reviews of projects with consistent measures and vendors, while adding quality reviews to the less consistent and higher risk projects. The benefits will have to be weighed with the risks from RMP’s own perspective due to delivery through a third-party administrator.

Review Results – Program third party trade ally representative staff indicated that they do follow up with vendors, especially with earlier submissions. The revised application process with the rollout of the wattsmart Business program should further improve this step.

Appendix A Glossary⁴⁰

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).

⁴⁰ 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 35 shows these realization rates by measure category, as well as the distribution of reported energy savings for the current PY 2011-2013 evaluation.

Table 35. Measure-Level Realization Rates for Wyoming FinAnswer Express (PY 2011-2013)

Measure Category	2011-2013 Reported Energy Savings (kWh)	Sample as % of Total Population for that Measure	2011-2013 Realization Rate
Lighting	15,317,756	32%	99%
HVAC	2,017,262	58%	108%
Motors	1,275,295	18%	126%
Food Service	273,331	35%	98%
Compressed Air	182,935	0%	87%
Building Shell	53,620	0%	101%
Additional Measures	146,949	0%	87%
Irrigation	68,908	0%	103%

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 21. 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	4,670,387	4,986,835	5,660,534	15,317,756	3,989,424	599,911	281,215	3,839,783	580,207	289,164	96%	97%	103%	0.3049	0.3256	0.3695	99%
HVAC - CI	1,288,009	579,597	149,656	2,017,262	1,011,328	165,185	0	1,399,217	69,755	0	138%	42%	103%	0.6385	0.2873	0.0742	108%
Motors - CI	575,049	283,824	416,423	1,275,295	180,280	48,958	0	284,163	47,247	0	158%	97%	103%	0.4509	0.2226	0.3265	126%
Food Service	0	191,783	81,548	273,331	0	95,069	0	0	91,033	0	100%	96%	103%	0.0000	0.7017	0.2983	98%
Compressed Air -	0	182,935	0	182,935	0	0	0	0	0	0	100%	87%	100%	0.0000	1.0000	0.0000	87%
Irrigation - Ag	0	0	68,908	68,908	0	0	0	0	0	0	100%	100%	103%	0.0000	0.0000	1.0000	103%
Building Shell - CI	2,651	6,743	44,226	53,620	0	0	0	0	0	0	107%	87%	103%	0.0494	0.1258	0.8248	101%
Additional Measu	0	146,949	0	146,949	0	0	0	0	0	0	100%	87%	100%	0.0000	1.0000	0.0000	87%
Sub-Total	6,536,096	6,378,666	6,421,296	19,336,057	5,181,032	909,123	281,215	5,523,163	788,242	289,164							
Other	0	0	0	0	0	0	0	0	0	0	100%	100%	100%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
TOTAL	6,536,096	6,378,666	6,421,296	19,336,057	5,181,032	909,123	281,215	5,523,163	788,242	289,164	107%	87%	103%	0.3380263	0.3298845	0.3320892	98.8%

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 2011-2013 FinAnswer Express program.

Table 36. 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 37. 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 38. 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 39 details the specific evaluation, measurement, and verification (EM&V) studies reviewed for this effort.

Table 39. EM&V Best Practice Studies Reviewed

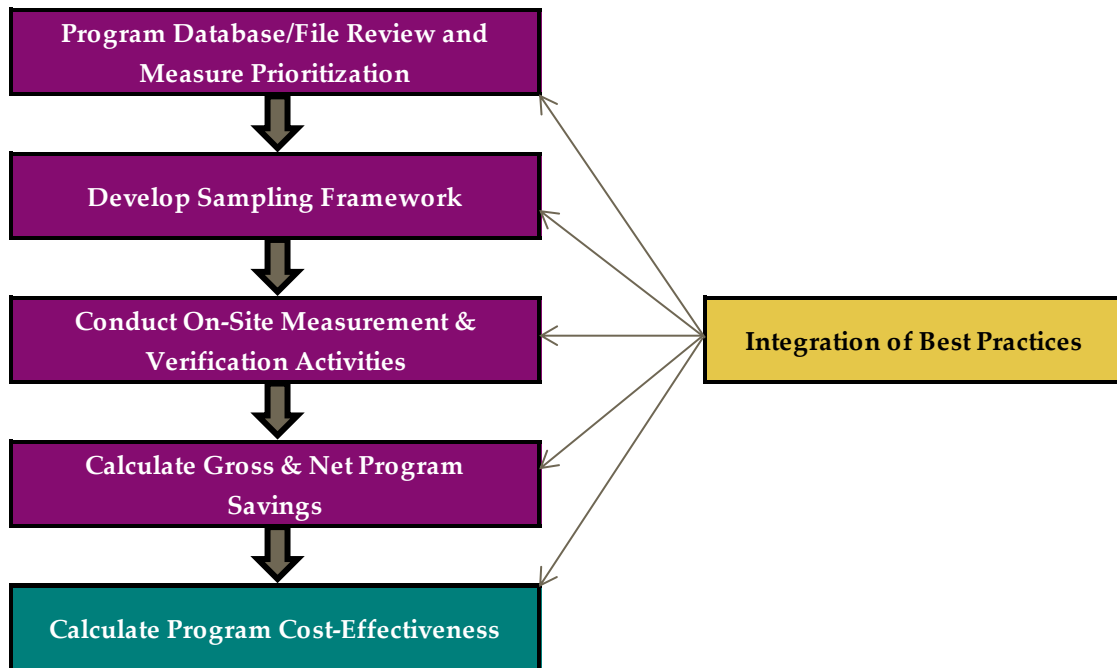
Organization	Study Name	Publication Year
National Renewable Energy Laboratory (NREL) Department of Energy (DOE)	The Uniform Methods Project: Methods for Determining Energy Efficiency Savings for Specific Measures	2013
The Brattle Group	Measurement and Verification Principles for Behavior-Based Efficiency 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 2011-2013 C&I Programs reflect the outcome of this independent review. Figure 22 provides an illustration of how the Best Practices Review informed the overall evaluation methods chosen for this effort.

Figure 22. Overview of Impact Evaluation Strategy



Appendix E *wattsmart* Business Program Logic Model

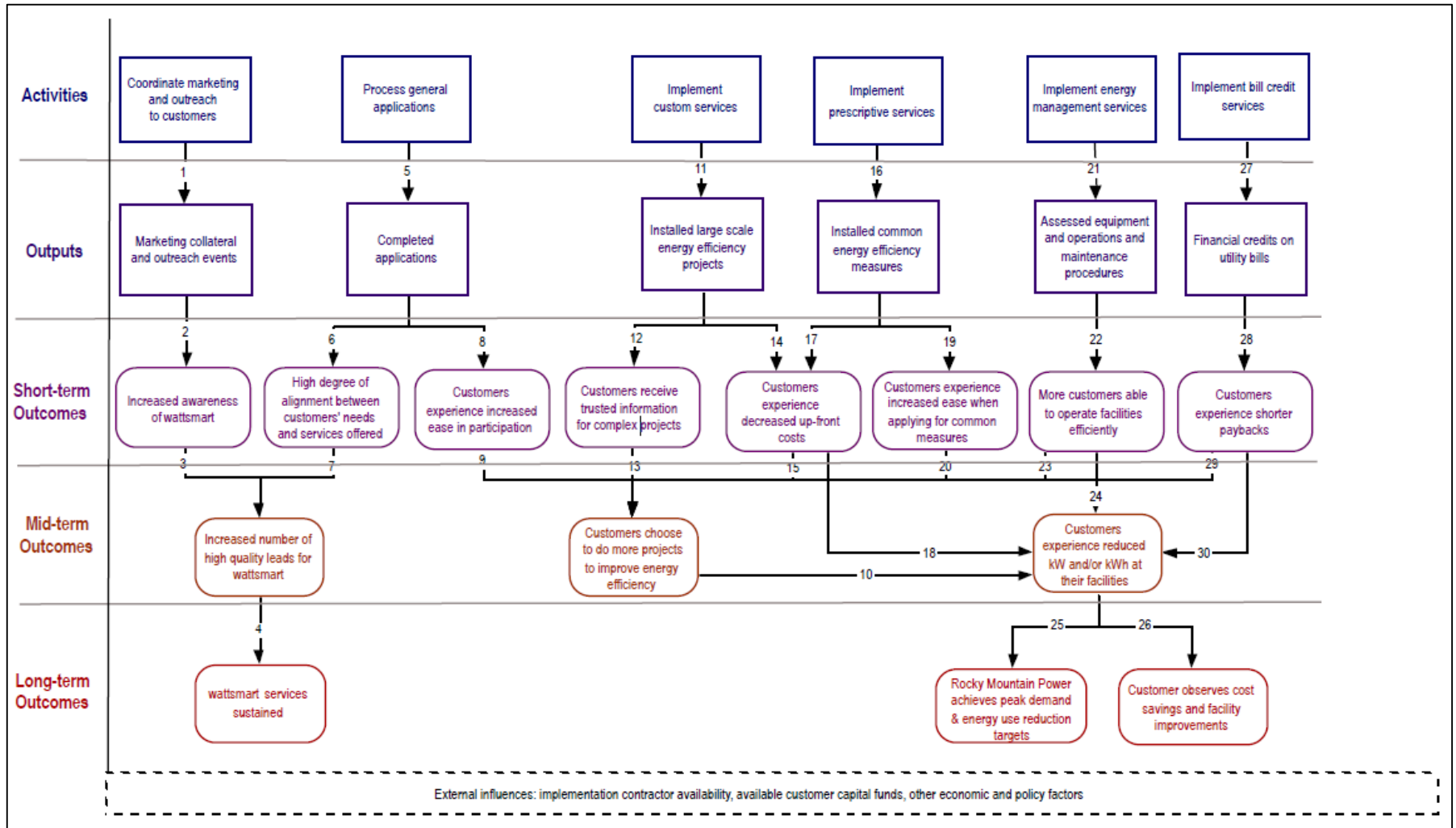
The *wattsmart* program is an umbrella program encompassing all of Rocky Mountain Power’s energy efficiency services. The *wattsmart* program provides customers with a suite of programs based on the former Rocky Mountain Power energy efficiency programs:

- » 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 23 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 23 describes the detailed program theory by referencing the numbered links in the figure.

Figure 23. 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]

P11. 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 2011-2013 FinAnswer Express Program (run through the EEA) in Wyoming, 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 40. 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
TOTAL	462	-	-	52	63	115

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, 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

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. 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 2011-2013 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 2011-2013 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 2011-2013, 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 2011/2013; 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 2011-2013 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 4th. 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]**

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