



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

Prepared for:
Rocky Mountain Power



Prepared by:



Navigant Consulting, Inc.
1375 Walnut Street
Suite 200
Boulder, CO 80302

303.728.2500
www.navigant.com

In Partnership with:



EMI CONSULTING
EMI Consulting
83 Columbia Street
Suite 400
Seattle, WA 98104

206.621.1160
www.emiconsulting.com



March 30, 2015

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Executive Summary

This report describes the findings from Navigant’s impact and process evaluation of Rocky Mountain Power’s (RMP’s) Utah FinAnswer Express program years 2012 through 2013 (PY 2012-2013), including program- and project-level gross and net realization rates, program cost-effectiveness results, and feedback from program participants concerning satisfaction and areas for improvement. The program as a whole received an overall energy (kilowatt-hour [kWh]) realization rate of 87 percent, and demand (kilowatt [kW]) realization rate of 101 percent.

Program Background

RMP’s FinAnswer Express program offered prescriptive incentives to commercial, industrial, and agricultural customers for the implementation of energy efficiency measures (EEMs), 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 provided incentives for both retrofit projects and new construction/major renovation projects.

Evaluation Objectives

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

- » Verify the annual and combined 2012 through 2013 gross and net energy and demand impacts of RMP’s FinAnswer Express 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:

- » 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:

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

- » Gross program demand and energy savings estimates and realization rates for projects
- » Energy usage profiles for commercial and industrial (C&I) 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, interviews with facility staff, temporary data logging, custom analysis, and on site audits to determine the evaluated savings for each project sampled during the 2012-2013 evaluation period. The verification sample included 42 of the 2,863 projects incentivized in the 2012-2013 program years. The 42 projects represent six percent of reported program savings. The evaluation of this sample produced a savings estimate with 13 percent relative precision (margin of error) at the 90 percent confidence level.

Navigant found significant variation in the sample of smaller projects which led to a coefficient of variation (CV) of 1.32 for the Tier 3 strata. This impacted the relative precision of the overall sample to miss the intended 90/10 target. Section 3 provides more detail around the realization rates for specific projects.

The 2012-2013 gross program demand savings realization rate was 101 percent and the gross program energy savings realization rate was 87 percent. The 13 percent reduction in kWh savings resulted primarily from discrepancies in claimed versus verified hours of use (HOU) in lighting projects. In order to better understand these lighting HOU discrepancies, Navigant conducted a thorough review of the lighting project population which revealed that projects over 200,000 kWh make up just over three percent of incentivized lighting projects, yet account for approximately 39 percent of total lighting savings. By focusing on the accuracy of the claimed savings for these large projects, either through data logging or other cost-effective means that do not interfere with customer participation, PacifiCorp can directly impact their overall program savings. To quantify this further, for every five percent increase to the realization rate of a large lighting project over 200,000 kWh, PacifiCorp will achieve a 1.5 percent increase to the program-level realization rate.²

² These increases are due to large projects accounting for nearly 40 percent of total program savings and are based on the 2,309 lighting projects in the PY 2012-2013 population, 77 projects above the 200,000 kWh threshold.

Table ES-1 provides the *program-level* reported and evaluated gross kW and gross kWh realization rates at the customer meter.

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

Program Year	Program Reported kW	Gross Program Evaluated kW	Gross Program kW Realization Rate	Program Reported kWh	Gross Program Evaluated kWh	Gross Program kWh Realization Rate
2012	9,545	9,587	100%	41,859,968	36,528,555	87%
2013	12,045	12,260	102%	56,838,236	48,939,073	86%
All	21,590	21,847	101%	98,698,204	85,467,628	87%

Net-to-Gross (NTG) Ratio

The evaluation team used the results from program participant surveys to calculate an NTG ratio of 0.79 for Utah’s FinAnswer Express PY 2012-2013. Section 3.3 provides further detail on the NTG results.

Cost-Effectiveness

The evaluation team used a cost-effectiveness model, calibrated and updated with RMP’s input parameters, to produce results for five primary cost tests: PacifiCorp’s Total Resource Cost test (PTRC), Total Resource Cost test (TRC), Utility Cost Test (UCT), Rate Impact Measure test (RIM), and the Participant Cost Test (PCT), for calculating the program’s benefit/cost ratios. Table ES-2 provides the cost-effectiveness results for the five cost tests over the 2012-2013 evaluated program years.³

Table ES-2. UT FinAnswer Express Cost-Benefit Results – PY 2012-2013 Combined (0.79 NTG)

Benefit/Cost Test Performed	Evaluated Gross Savings (kWh)	Evaluated Net Savings (kWh)	Evaluated Costs	Evaluated Benefits	B/C Ratio
PacifiCorp Total Resource Cost Test (PTRC)	85,467,628	67,519,426	\$37,192,284	\$61,287,343	1.65
Total Resource Cost Test (TRC)	85,467,628	67,519,426	\$37,192,284	\$55,715,767	1.50
Utility Cost Test (UCT)	85,467,628	67,519,426	\$17,738,570	\$55,715,767	3.14
Rate Impact Measure Test (RIM)	85,467,628	67,519,426	\$72,777,089	\$55,715,767	0.77
Participant Cost Test (PCT)	85,467,628	67,519,426	\$38,491,961	\$80,623,946	2.09

³ Section 3.4 provides cost-benefit inputs and results for each individual year of the evaluation.

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 Utah's *wattsmart* Business program. The evaluation team surveyed 271 participants for PY 2012-2013 and 57 trade allies 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 2012 to 2013.

Important findings from the process evaluation include the following:

- » **The program is working as intended for trade allies.** Trade allies were very positive when discussing the FinAnswer Express program and particularly enjoyed the training sessions and workshops aimed at improving their businesses. The majority of trade allies indicated that their business and sales improved due to the program, with the customer incentives and the lighting software tool being the most influential services they could offer. The majority of trade allies found out about the program from their utility or Energy Efficiency Alliance (EEA) representative, and while most indicated that EEA communication was valuable, 28 percent wanted more frequent communication.
- » **Participants are satisfied with the program and are achieving expected energy savings.** When asked to rate their overall satisfaction with the program, 90 percent were satisfied (73 percent of respondents were very satisfied and 17 percent were somewhat satisfied). Saving money on energy bills and receiving incentives influenced program participation the most. The majority of respondents indicated that the equipment was meeting energy savings expectations and also providing other non-energy benefits. The most commonly cited non-energy benefit was better lighting quality.
- » **Many trade allies do not feel like they are getting credit for the projects that they complete.** While the program has about 276 vendors in Utah signed on to the EEA, only a small percentage of these trade allies receive credit for completing projects. One contributing factor is that only the trade ally that completed the program paperwork receives credit for a project. In situations where the product supplier completed the program paperwork, the trade ally that installed the measures does not get credit. Project counts and savings are a major consideration in recognizing trade allies in the annual awards program. The EEA website displays award winners and completed project counts so customers can take this into consideration when choosing a vendor.
- » **Most trade allies who participated in the web usability study reported that they rarely, if ever, visit the website.** Trade allies found the website difficult to navigate and indicated they could not easily find the information they were after.

Program Evaluation Recommendations

The evaluation team suggests a few items to help improve the effectiveness and trade ally and customer experience of the FinAnswer Express program.

- » **Recommendation 1. Review procedure for determining claimed hours of use for lighting projects with savings above 200,000 kWh.** The primary driver for discrepancies between reported and evaluated energy savings for the FinAnswer Express program is a difference in claimed HOU for lighting measures. Navigant recommends that PacifiCorp analyze the benefits of increasing the HOU accuracy, either through the increased use of data loggers or other means, for large projects over 200,000 kWh, against the associated costs or potential customer pushback of implementing a new procedure.
- » **Recommendation 2. When entering lighting project details into the program tracking database, use measure sub-types that allow for greater resolution in the application of effective useful life (EUL) values.** Capturing measure sub-types for lighting projects provides for greater detail when identifying conditions such as effective useful life (EUL) and savings estimates. For example, lighting controls, LEDs, CFLs and linear fluorescent lamps should each receive different EULs. PacifiCorp cannot apply this level of detail without first identifying sub-types within the database. The four lighting groups listed here are a suggested starting point for the applicable sub-types, but the final selection should be determined, at least in part, by the intended future source of the EUL. It is likely that the shift to the *wattsmart* Business program in PY 2014 will include adding measure sub-types, but as of this evaluation in PY 2012-2013, they are not apparent.
- » **Recommendation 3. Use greater resolution in the application of effective useful life (EUL) values in the program tracking database.** Applying a single EUL to all lighting measures potentially underrepresents energy savings, cost-effectiveness, and associated resource value for LEDs, as well as overestimates the life expectancy of lighting controls. EULs are currently based on the 2008 version of DEER and heavily weighted toward fluorescent lamps. Lighting measures contribute over 80 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.⁴ PacifiCorp currently tracks projects which include LED lamps at the measure level so applying an LED EUL should not be difficult. However, the database tracks lighting control savings in aggregate with lighting fixtures, and projects that may combine multiple technologies are often entered as “lighting packages.” PacifiCorp must list these technologies separately in order to apply varying EULs (see recommendation #2).⁵
- » **Recommendation 4. Review and enhance the usability of the website.** Both trade allies and customers were challenged to find key information about the program for their purposes. Most participants in the web usability study struggled to navigate the pages, especially when presented with large blocks of text. The program will have greater reach if customers landing on the main *wattsmart* Business program site can find applicable information quickly. Improving website usability is particularly important if marketing messages will continue to direct traffic to the site.

⁴ See Figure 5 in section 3.4 for the direct impacts of EUL adjustments on PacifiCorp’s Total Resource Cost test.

⁵ The updated 2014 version of DEER provides guidance on EUL by specific lighting technology, but further secondary research in this area is advisable prior to implementation of this recommendation.

1. Introduction

This report describes the findings from Navigant Consulting, Inc.'s (Navigant's) impact and process evaluation of Utah's FinAnswer Express program years 2012-2013 (PY 2012-2013). This section provides a description of Utah'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.⁶

1.1 Program Description

Rocky Mountain Power's (RMP's) FinAnswer Express program in Utah offered prescriptive incentives to commercial, industrial, and agricultural 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. Customers were eligible if served under RMP's commercial, industrial, or agricultural general service rate schedules: 6, 6A, 6B, 8, 9, 9A, 10, 12, 15, 21, 23 and to supplementary service under Schedule 31. Dairy barns served on a residential rate schedule.

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.⁷ 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 both costs and incentives so that simple payback was not less than one year.

⁶ The descriptions provided in this section apply to the FinAnswer Express program prior to its transition to the *wattsmart* Business program in July of 2013. See the RMP website for updated program descriptions and eligibility requirements under the new *wattsmart* Business program.

⁷ 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, office, and appliance measures (majority of the 2012-2013 FinAnswer Express projects in Utah). Cascade Energy acted as Trade Ally Coordinator for irrigation, dairy/farm, and small compressed air projects for the 2012-2013 program years. Sentry acted as Trade Ally Coordinators for lighting, controls, and motor measures.

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 2012 to 2013

During the evaluated period from January 2012 to December 2013, there were two notable changes to the FinAnswer Express program (Tariff 115). In May of 2012, RMP modified the program to meet the current needs of both the consumer and PacifiCorp. These changes included: improvement of the analysis tools and incentive calculations for common upgrades, revised comprehensive measures, updating and adding qualifying measures, and enhancing the trade ally relationships. One measure update that impacted a large portion of the program was new federal standards for linear fluorescent lighting. The program responded through gradual reductions in incentives for lamps that would become standard measures, communicating with trade allies working in the lighting space to prepare, and informing customers through multiple media of the change.

In May of 2013, the company filed a request to cancel the existing commercial and industrial (C&I) energy efficiency (EE) programs and consolidate them into a new *wattsmart* Business program (Tariff 140). The Public Service Commission (PSC) of Utah approved this filing with an effective date of July 1, 2013. Therefore, the FinAnswer Express program ceased to start new projects after July 1, 2013, but allowed the completion of projects already in progress under the program. Marketing had already shifted to the *wattsmart* brand before this evaluation period.

1.3 Program Participation

PY 2012-2013 results included 3,418 FinAnswer Express projects completed in Utah: 1,433 projects in 2012 and 1,985 in 2013 and reported 98,698 MWh in energy savings over the two-year period. Table 1 summarizes the program project counts that included the installation of the associated measure category.⁸

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

Measure Category	Measure Type Counts ⁹	2012-2013 Reported Energy Savings (kWh)
Lighting	2,337	80,706,001
HVAC	429	8,928,085
Office	141	5,014,232
Building Shell	64	1,042,979
Irrigation	118	926,106
Motors	218	721,579
Food Service	81	688,530
Dairy Farm Equipment	13	354,926
Compressed Air	11	261,304
Refrigeration	3	50,744
Appliance	2	2,318
Controls	1	1,400
Total	3,418	98,698,204

Project counts can equal more than the 3,418 unique projects as some projects installed multiple measure categories.

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.

⁸ Measure categories here are from the program database and do not adjust for any incorrect classifications.

⁹ 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.

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.”¹⁰ 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).¹¹ 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).¹²

¹⁰ Sue Funnell and Patricia Rogers, 2011, *Purposeful Program Theory: Effective Use of Theories of Change and Logic Models*, John Wiley & Sons.

¹¹ Section 4.3, Question 3 provides more specifics on the logic model review.

¹² The FinAnswer Express logic model described in this section correctly depicts the program theory used for the 2012-2013 program years, but will become obsolete as the program transitions to the *wattsmart* Business program. Appendix E provides the new logic model and theory developed for the *wattsmart* program.

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

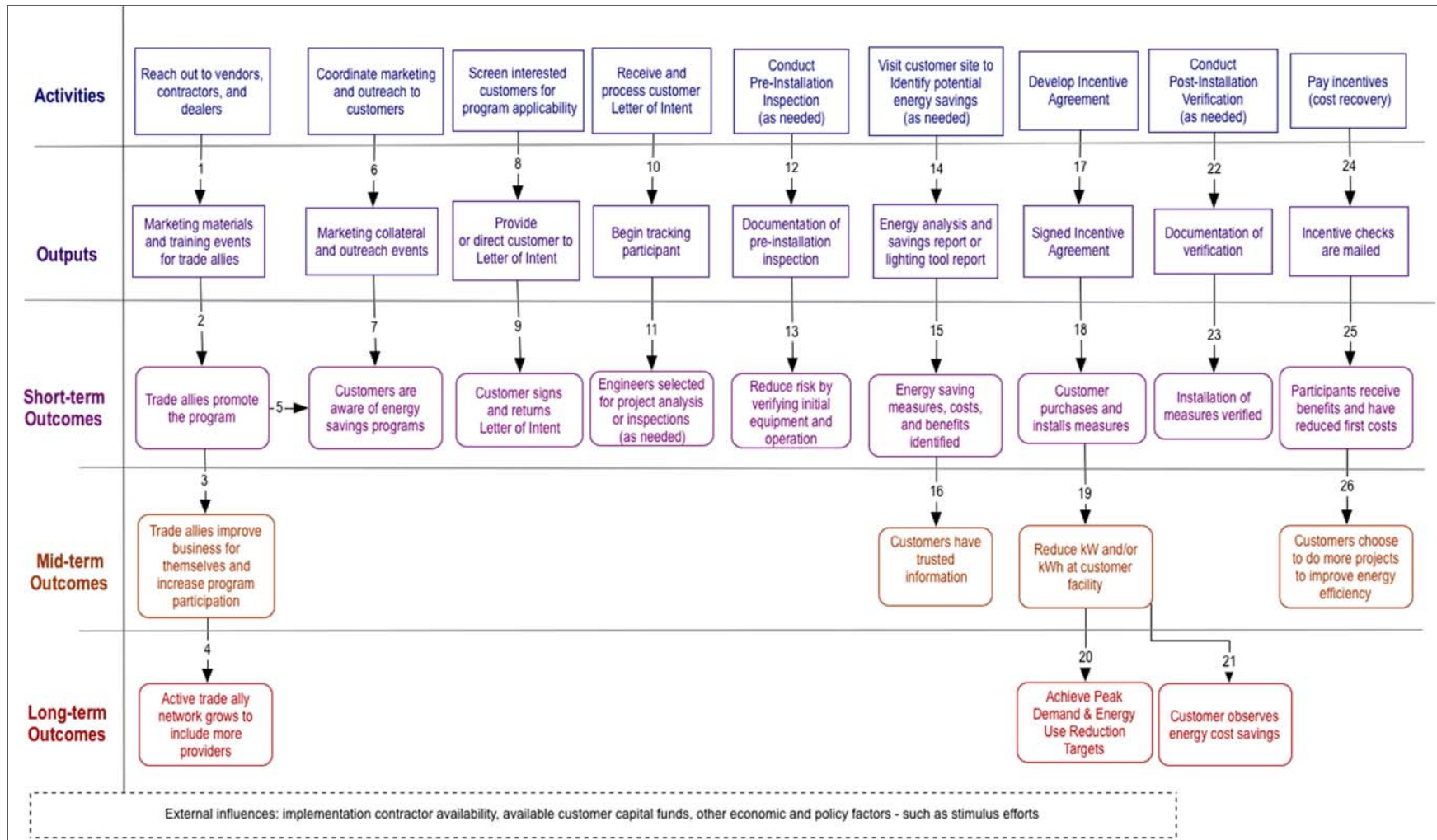
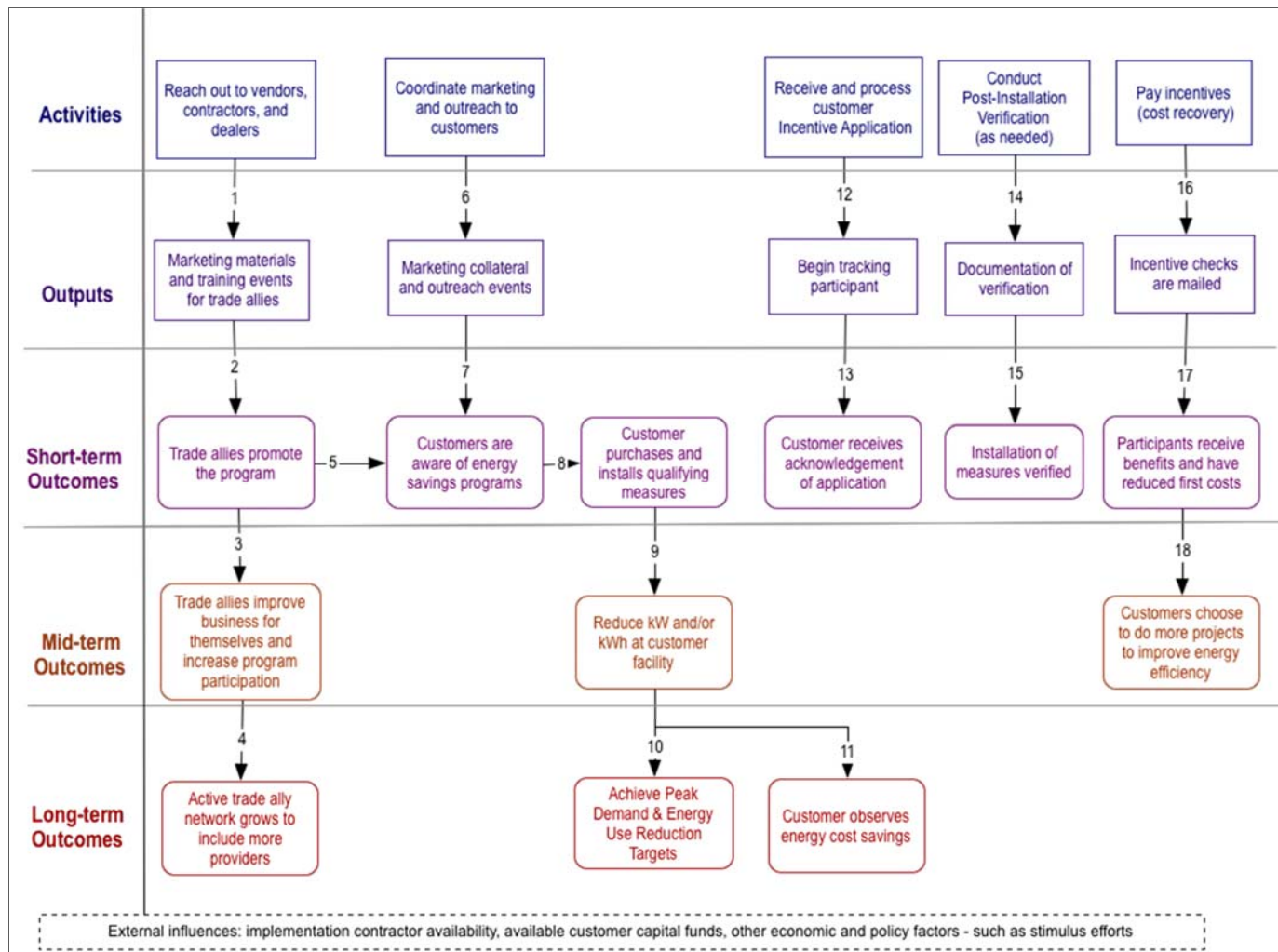


Figure 2. FinAnswer Express Program Post-Purchase Logic Model (2011)



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.¹³ 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 EE 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.
10. The Trade Ally Coordinator and the RMP program manager (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.

¹³ 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 EE action on the part of the customer.

The FinAnswer Express program designed the post-purchase path to use incentives to overcome C&I customer barriers to implementing EE 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 an RMP customer account manager, may come into the program without working with a trade ally and instead receive information about the program from an 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 Utah’s FinAnswer Express program over PY 2012-2013. The evaluation team developed and informed these methods through an independent review of evaluation best practices.¹⁴

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 Utah Public Service Commission.

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

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

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

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

See section 3 for gross impact results.

The sample for Utah’s FinAnswer Express program contained lighting, HVAC, office, building shell, irrigation, motor, and refrigeration measures and the team used a combination of International Performance Measurement and Verification Protocol (IPMVP) Option A and Option C to estimate savings.¹⁵ Table 3 provides a brief explanation of Options A, B, and C.

¹⁴ See Appendix D for detail on measurement and verification (M&V) best practices.

¹⁵ 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.

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>	<p>Constant performance</p>	<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>	<p>Constant or variable performance</p>	<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 multivariate regression analysis.</p>	<p>Variable performance</p>	<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.

Weather dependent HVAC retrofit projects were evaluated using Option A. The evaluation team verified equipment specifications and quantities and then took post-retrofit spot measurements of the incanted equipment. Short-term monitoring involved logging both equipment current and weather conditions (including dry bulb or wet bulb outdoor air temperatures) over a period of four weeks. Operating schedules were also collected during the site walkthrough. This data was then used to characterize the sequence of operations and operating hours for the equipment. Regressions were created to relate the equipment’s energy consumption to outdoor weather conditions. Using TMY3 weather data for the specific project location, an annual profile of site-specific weather conditions was created. Energy consumption and demand were then calculated for the equipment on an annual basis, by applying the regression of equipment power to the annual weather conditions and operating schedule at the site. Savings was calculated by comparing the post-retrofit consumption and demand profiles with the pre-retrofit consumption and demand profiles.

The Office – PC power management software measure was evaluated under Option A, using trend data extracted from the network’s central server to characterize the energy consumption and operating hours of all computer equipment controlled by the power management software.

Building shell retrofit projects were evaluated using Option A. The evaluation team verified the characteristics and area totals for the retrofit, including the building schedule and HVAC setpoints, insulation levels and/or glazing characteristics. Both pre- and post-retrofit characteristics and area totals were gathered. An annual weather profile was created using TMY3 weather data specific to the site. The pre- and post-retrofit energy consumption and demand were then calculated using annual hourly weather conditions, building schedules and the details of the building shell retrofit. Savings was calculated by comparing pre- and post-retrofit energy consumption and demand.

Irrigation projects were evaluated by conducting a thorough inspection of installed equipment and operating conditions. Following a desk review of each project—including analysis of current and historical billing data (elements of IPMVP Option C)—deemed savings values were applied to determine annual energy and demand savings.

Weather dependent motor retrofit projects were evaluated using Option A. The evaluation team verified equipment specifications and quantities and then took post-retrofit spot measurements of the incanted equipment. Short-term monitoring involved logging both equipment current and weather conditions (including dry bulb or wet bulb outdoor air temperatures) over a period of four weeks. This data was then used to characterize the sequence of operations and operating hours for the motors. Regressions were created to relate the equipment’s energy consumption to outdoor weather conditions. Using TMY3 weather data for the specific project location, an annual profile of site-specific weather conditions was created. Energy consumption and demand were then calculated for the equipment on an annual basis, by applying the regression of equipment power to the annual weather conditions at the site. Savings was calculated by comparing the post-retrofit consumption and demand profiles with the pre-retrofit consumption and demand profiles.

Refrigeration projects were evaluated using Option A. The evaluation team verified equipment specifications and quantities, and then took post-retrofit spot measurements of the incanted equipment. Short-term monitoring involved logging current over a period of four weeks using 15-minute interval data in order to characterize the sequence of operations and operating hours for the equipment. Energy and demand savings were then calculated for each piece of equipment on an annual basis. If the project involved lighting retrofits within the refrigerated space, the interactive effects of the lighting contributions to cooling load were also considered in the energy and demand calculations.

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 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.¹⁶

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 90/13 confidence and precision across PY 2012-2013 by energy savings (kWh).¹⁷ Table 4 provides an overview of the impact evaluation framework representing six percent of the reported Energy FinAnswer program savings.

Table 4. Overview of the UT 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 ¹⁸
1	215,000	76	13	33,262	4,210	13%
2	54,000	324	15	32,280	1,436	4%
3	0	2,463	14	33,158	270	1%
Total	-	2,863	42	98,699	5,917	6%

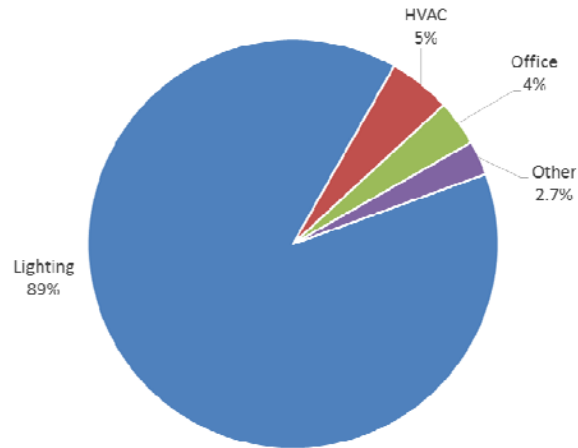
¹⁶ For Utah’s FinAnswer Express program, the evaluation team assumed a standard CV of 0.4 for developing the sample framework. The CV corresponds to the expected standard deviation of the realization rate for the program in this evaluation cycle. Navigant selected a CV of 0.4 based on experience with similar C&I energy efficiency program evaluation results.

¹⁷ The evaluation team planned for 90/10 by program and state. Actual CV for strata 1 is 0.22, strata 2 is 0.18, and strata 3 is 1.32. Strata 3 showed significantly more variation in realization rates than typical for a program with this level of maturity, resulting in the less than expected precision.

¹⁸ 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 projects¹⁹

¹⁹ 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. For well represented measures in the sample (i.e., lighting, HVAC, motors, food service, building shell, controls, etc.), the team applied measure/strata weighted realization rates to extrapolate to the population. For under-represented measures, or measures not reflected in the sample at all, the team applied only strata-level realization rates to extrapolate to the population. Appendix B explains this extrapolation methodology in greater detail.

2.1.4 Program Cost-Effectiveness

The cost-effectiveness of utility-funded programs in the state is typically analyzed using tests prescribed by the California Standard Practice Manual.²⁰ 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 Measure Test (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 Tests²¹

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 Test	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.

²⁰ 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.

²¹ 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:

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

measurement intervals whenever possible, and to synchronize the logger deployment activities (i.e., time delay), to ensure proper data comparisons across a uniform 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 “like” spillover savings at the measure level and then extrapolated to the program. The net savings are the program-reported savings minus any free-ridership savings, plus any identified spillover savings – as shown in the following equation:

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

Often, this finding is described as 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 Utah Energy FinAnswer NTG ratio of 0.79 using a sample of 271 projects. Section 3.3 provides the results of the NTG analysis.²²

2.4 Process Methodology

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

2.4.1 Process Evaluation Research Questions

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

²² Where possible, Navigant adhered to the NTG guidelines as set forth by the Department of Energy (DOE) Uniform Methods Project (UMP) when calculating the NTG ratios. (Dan Violette and Pamela Rathbun, 2014, *Estimating Net Savings: Common Practices*, National Renewable Energy Laboratory [NREL]).

1. What are the program goals, concept, and design?
 2. Do program staff and administrators have the resources and capacity to implement the program as planned? If not, what more is needed?
 3. Is the program staff delivering the program in accordance with the logic model?
 4. Is the program marketing effective? Specifically, how do participants find out about the programs?
 5. What is the program influence on participant actions? Specifically, what do participants identify as most important to their projects (i.e., program information, incentive/credit, payback, engineering, and their own company goals)? What would they have done differently without the program?
 6. What barriers are preventing customers from taking actions to reduce energy consumption and demand, and which jeopardize program cost-effectiveness?
 7. Are participants achieving planned outcomes? Specifically, are participants feeling satisfied?
- Evaluation staff used a mixed-methods approach to explore these questions including program documentation review, interviews of program staff, near-participants, and participants. Table 6 shows the seven research questions and associated methods used to answer each. Section 4.3 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			
Web Usability Assessment				X			
Participant Surveys				X	X	X	X
Trade Ally Surveys			X	X		X	

2.4.2 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.

Navigant reviewed program marketing materials, websites, program manuals, savings measurement tools regulatory filings, annual reports, previous evaluations, and project tracking data. This review was designed to identify how the program is marketed, how trade allies are supported, and how the process for enrollment, administration, and tracking works. The team also verified that the existing program logic model, developed in 2011, continued to represent the current 2012-2013 program theory through interviews with program administrators, evaluation finding reviews, and assessments of whether the program produced the intended activities, outputs, and outcomes. In addition, the evaluation team

developed a new logic model for the *wattsmart* Business program (detailed in Appendix E) for use in future evaluations as the FinAnswer Express program transitions to *wattsmart*.

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

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

The team conducted 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.²³ The evaluation team did not re-sample from the measures completed during previous cycles.

²³ 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.

Table 7 provides the timing and sampling frame for participant surveys. The evaluation team surveyed 271 participants, 125 of which received the surveys with all of the process evaluation questions included.²⁴

Table 7. Sample Frame for Participant Surveys in 2012 Through 2013

Time Period	Sample	Unique Sites	Program Projects
First Half 2012 (Projects completed Jan. 1, 2012-June 30, 2012)	58	293	298
Second Half 2012 (Projects completed July 1, 2012-Dec. 31, 2012)	73	734	799
First Half 2013 (Projects completed Jan. 1, 2013-June 30, 2013)	73	608	673
Second Half 2013 (Projects completed July 1, 2013-Dec. 31, 2013)	67	841	904
Total	271	2,476	2,674

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

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

- » Enrolled in the EEA in 2013 or earlier
- » Appeared on the program’s website as of June 2014²⁵

Based on these criteria, the research team identified 242 trade allies based in Utah.

²⁴ The process team distributed the last version of the survey to participants who completed projects in the first half of 2012 and in the second half of 2013.

²⁵ The team assumed any trade ally listed on the program’s website had been involved with the FinAnswer Express program.

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 57 respondents indicated they were most familiar with the program in Utah, 48 based in Utah and nine based in Wyoming. 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
- » Determine the level of program-like activity occurring without the program support. The survey sought to determine how program sales are different from other sales and how the efficiency of products stocked 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.

2.4.2.1 Web Usability Studies

The evaluation team conducted a series of web usability sessions with C&I customers and trade allies in Utah to evaluate the usability of the new *wattsmart* incentive website. The team randomly contacted 150 C&I customers from a sample of past incentive program participants and completed web usability sessions with 11 customers. To help recruit usability session participants, the evaluation team offered \$75 Amazon gift cards for participation and conducted the customer sessions remotely via GoToMeeting. The evaluation team used moderator guides to lead participants through the *wattsmart* website and observed the ease of navigation to needed and relevant information. The open-ended questions allowed participants to interact with the website as naturally as possible.

The evaluation team contacted 38 active trade allies from the EEA website and conducted sessions with 11 participants. Trade ally selections maintained a representative sample of project types, trade ally types, and participation levels. Participants included 10 lighting trade allies and one HVAC trade ally,

and included five distributors/suppliers, four contractors, and two manufacturing representatives. The team instructed respondents to think out loud during the process of navigating the website in order to discover how the trade allies' experiences of the website differed from the customers' experiences. The team conducted trade ally sessions onsite in the Salt Lake City metropolitan area. Conducting these sessions in person allowed the evaluation team to observe in detail how the trade allies conducted business and the limitations of their technological set-ups.

The web usability sessions research objectives and questions included:

- » How do customers use the *wattsmart* webpages to find information about the program?
- » How and when do trade allies engage with the website and EEA web portal?
- » What aspects of the *wattsmart* webpages do customers and trade allies find the most useful and challenging?
- » What aspects of the EEA web portal do trade allies find most useful? What could improve the usefulness of the portal?
- » What are some possible solutions to the challenges identified by customers and trade allies?

Appendix F provides further detail on the web usability study.

3. Impact Evaluation Findings

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

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

3.1 Program-Level Gross Savings Results

The 2012-2013 gross program demand savings realization rate was 101 percent, and the gross program energy savings realization rate was 87 percent. Table 9 provides the *program-level* reported and evaluated gross kilowatt (kW) and gross kilowatt-hour (kWh) realization rates.²⁶

Table 9. Gross Program-Level Realization Rates for UT FinAnswer Express (PY 2012-2013)

Program Year	Program Reported kW	Gross Program Evaluated kW	Gross Program kW Realization Rate	Program Reported kWh	Gross Program Evaluated kWh	Gross Program kWh Realization Rate
2012	9,545	9,587	100%	41,859,968	36,528,555	87%
2013	12,045	12,260	102%	56,838,236	48,939,073	86%
All	21,590	21,847	101%	98,698,204	85,467,628	87%

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 42 projects sampled and visited included 35 lighting measures, eight HVAC measures, two office measures, three building shell measures, eight irrigation measures, one motor measure, and one refrigeration measure. Although the team calculated realization rates for every project site visited, only the program-level realization rates are statistically valid at the stated, overall evaluation’s confidence and precision. 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 2012-2013 program years. The sample yielded an overall realization rate in 2012 of 84 percent and in 2013 of 83 percent.

²⁶ Evaluated savings are at the customer meter.

Lighting project realization rates vary due to differences in operating hours, discrepancies in installed fixture counts, and/or HVAC interactive effects.²⁷ However, the lighting category as a whole achieved an 87 percent realization rate. When viewed by project strata, the largest lighting projects achieved a 97 percent RR, medium sized lighting projects achieved a 101 percent RR, and the smallest lighting projects fell short of expectations with a realization rate of only 61 percent.

The low program realization rate and higher than expected variance in sample Tier 3 can both be linked to a lower than average Customer Self-Reported Ratio (CSRR) for the lighting projects incentivized through this program. The CSRR is determined by dividing the lighting hours of use (as confirmed via data logging) by the hours of use stated by the participant during the on-site interview. The average value for this ratio across PacifiCorp's service area is 75 percent (N=125); however, the UT FinAnswer Express program averaged a CSRR of 67 percent (N=37). At the sample strata level, the CSRR for the individual sample strata breaks down as follows: Tier 1 0.71 (N=15), the Tier 2 is 0.71 (N=11), and Tier 3 is 0.54 (N=11). Given that the self-reported hours of use typically match with the hours used in the *ex-ante* calculations, it appears that reported savings are often based incorrect hours of use.

The most common mistakes in reported hours of use are applying overly broad classifications to zoning (i.e. applying the same hours of use to a conference room as the hallway), ignoring seasonality (i.e. reduced summer occupancy in the education sector), and forgetting occupied hours outside of normal business hours (i.e. missing night or weekend hours for janitorial tasks).

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 eight HVAC measures evaluated suggest a realization rate for this measure of 93 percent.

The two office measures were both part of a PC power management project and treated with deemed savings for a 100 percent realization rate.²⁸

The three building shell measures were also treated prescriptively, with only minor corrections to the inputs used for the calculation of savings for these projects, the realization rate is 102 percent.

²⁷ RMP does not credit energy and demand savings towards HVAC interactive effects, which may be substantial. The evaluation team does include these interactive effects in the evaluated savings results, and applies them in accordance with the best practices as described in the lighting calculator used by the Regional Technical Forum. <http://rtf.nwcouncil.org/subcommittees/nonreslighting/> (accessed July, 2014).

²⁸ The evaluation team could not confirm or directly measure wattages for individual components within the network for the PC Power Mgmt. Software, and the facility staff were unable to pull a performance report that would allow for a greater level of rigor in evaluation.

The eight irrigation measures are also evaluated using deemed savings, however there was a low installation rate for one project in particular and the overall realization rate for this measure is 67 percent.

Only one motor measure was included in the sample. It performed much as expected and the realization rate for that project is 92 percent.

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

Project ID	Year	Reported kWh	Evaluated kWh	Realization Rate
FENBL_003881	2013	743,855	793,208	107%
FENBL_002887	2013	479,715	479,065	100%
FENBL_004645	2013	257,744	348,356	135%
FENBL_004691	2013	329,140	322,315	98%
FENBL_001871	2012	293,247	301,993	103%
FENBL_002335	2012	317,200	301,346	95%
FE000_000158	2013	227,795	264,687	116%
FENBL_003185	2013	266,111	255,654	96%
FENBL_004648	2013	253,545	228,855	90%
FESen_61764	2013	235,727	226,308	96%
FE000_000322	2013	224,723	204,324	91%
FENBL_003194	2013	183,185	179,095	98%
FE000_000572	2013	135,378	174,736	129%
FE000_000300	2013	248,524	168,319	68%
FE000_000078	2012	129,055	125,115	97%
FENBL_004283	2013	118,260	117,450	99%
FENBL_004506	2013	133,794	107,147	80%
FENBL_003997	2013	333,097	224,116	67%
FENBL_002600	2012	87,801	103,002	117%
FENBL_001811	2012	97,680	97,680	100%
FENBL_004247	2013	94,770	96,228	102%
FENBL_001749	2012	54,100	85,308	158%
FENBL_002902	2013	93,785	82,369	88%
FENBL_002373	2012	55,636	74,169	133%
FENBL_004385	2013	56,121	67,827	121%
FE000_000135	2012	61,580	59,504	97%
FENBL_001352	2012	77,112	59,063	77%

Project ID	Year	Reported kWh	Evaluated kWh	Realization Rate
FENBL_002231	2012	58,094	49,614	85%
FE000_000433	2013	37,334	37,334	100%
FECBL_000206	2013	22,517	23,945	106%
FENBL_003556	2013	17,958	13,962	78%
FENBL_003139	2013	11,190	11,716	105%
FENBL_002028	2012	10,622	11,098	104%
FENBL_002559	2012	22,620	9,977	44%
FECBL_000052	2012	30,180	9,624	32%
FENBL_002280	2012	7,321	7,664	105%
FENBL_002885	2013	7,665	7,533	98%
FENBL_001965	2012	25,062	5,890	24%
FENBL_002725	2012	8,988	5,562	62%
FENBL_004140	2013	9,292	4,372	47%
FENBL_001703	2012	11,008	2,530	23%
FE000_000389	2013	48,000	998	2%

Project-level evaluation yielded a range of differences between the reported and verified energy savings estimates for a number of projects completed during the 2012-2013 program years; 17 projects yielded evaluated energy savings that varied from reported values by more than 20 percent. Table 11 lists these 17 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.²⁹
 - 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

²⁹ It is also possible that a system with controls overstated the baseline operating hours, but the team did not observe this for the Utah FinAnswer Express program PY 2012-2013.

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.

Table 11. UT 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_003881	107%	94%	110%	Lighting	Interactive effects reduced savings due to increase in electric heating at the facility resulting in low realization rate. Verified hours of use were also slightly lower than the <i>ex-ante</i> values.
FENBL_004645	135%	157%	96%	Lighting	Hours of use in some areas were significantly higher than <i>ex-ante</i> values resulting in increased savings.
FE000_000572	129%	114%	104%	Lighting	Verified hours of use were higher than <i>ex-ante</i> values. Interactive effects provided additional increase in savings.
FE000_000300	68%	43%	100%	Lighting	ECM #1 is lighting and contributes 65% of total savings for the project. Verified hours of use were lower than claimed. This lighting system does not have automated controls and HVAC interaction is negligible. ECM #3 - hot water circulation pump VFD - is 9% of the total reported savings for the project; this measure is required by code, but the hot water reset controls are eligible as they are not required by code; measure level RR for ECM 3 is 13%. The HVAC and cool roof ECMs both have RR very close to 100%.
FENBL_001749	158%	not LTG	not LTG	HVAC	VFDs installed on an HVAC air handler. This equipment gets fairly constant use based on time of day and the VFDs are performing better than the reported, deemed values.
FENBL_002373	133%	139%	96%	Lighting	Based on logged data, hours of use were significantly higher than those used for the <i>ex-ante</i> calculations resulting in the high realization rate.
FENBL_004385	121%	104%	n/a	Lighting	<i>Exterior lights do not generate HVAC interactive impacts and are controlled via time clock, so the verified HOU closely match claimed. However, increase in realization rate stems from ex-ante calculations that appear to have an error in associating time clock use with a decrease in savings.</i>
FENBL_001352	77%	79%	96%	Lighting	Hours of use were over 20% lower than those used in <i>ex-ante</i> calculations. Interactive effects also resulted in a slight reduction in savings which contributed to the low realization rate.
FENBL_003556	78%	71%	103%	Lighting	<i>Ex-ante</i> hours of use were about 30% higher than logger verified or self-reported hours. The inclusion of interactive effects brought the savings back up slightly

Project ID	Energy Realization Rate	Lighting HOU Realization Rate	HVAC Interactive Impacts	Measure Type	Notes
FENBL_002559	44%	46%	96%	Lighting	Based on logged data, hours of use were less than half of those used in the <i>ex-ante</i> calculations resulting in the low realization rate.
FECBL_000052	32%	not LTG	not LTG	Irrigation	The primary source of reported savings for this project are a VFD that was later bypassed by the customer. Therefore, that ECM received no verifiable savings. A significant portion of the irrigation hardware is being used for replacements on an as-needed basis; at the time of the site visit, the customer had installed 90 of the 120 impact sprinklers and 50 of the 100 new drains. All sprinkler nozzles and gaskets have been installed.
FENBL_001965	24%	21%	111%	Lighting	Based on logged data, hours of use were only about 20% of those used in the <i>ex-ante</i> calculations resulting in the low realization rate. Primary drivers for this correction to operating hours are a ballroom that was reported as in use 17 hours per day, 7 days per week; but that actually only gets light/irregular usage. Claimed hours of use also failed to account for seasonality in that the site has reduced "holiday" hours for June and July.
FENBL_002725	62%	52%	103%	Lighting	Hours of use are much lower in many areas than those used in the <i>ex-ante</i> calculations resulting in reduced savings.
FENBL_004140	47%	58%	103%	Lighting	Hours of use were significantly less than the <i>ex-ante</i> values resulting in lower savings.
FENBL_001703	23%	44%	96%	Lighting	Based on logged data, hours of use were less than half of those used in the <i>ex-ante</i> calculations. Also, only 21 of the 55 claimed fixtures were found on site.
FE000_000389	2%	not LTG	not LTG	Refrigeration	This project reported as a refrigeration measure but it is actually a motor measure. The realization rate is extremely low because the fans have static pressure controls that are also part of the baseline; due to these controls, logged data shows that the fans have very low annual hours of use.

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 2012-2013. The sample yielded an overall realization rate of 98 percent; 2012 of 97 percent, and in 2013 of 99 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 measures achieved a demand realization rate of 116%, largely due to better (lower) part loads.

Building shell measures were largely prescriptive, as reflected in the 106% demand realization rate. Similarly, the demand savings for motors, food service, and dairy equipment are all just above 100%. The Office (Network PC Power Management Software) measure also achieved 100 percent realization rate for demand reduction based on deemed savings.

The refrigeration measure category has a demand realization rate of 87 percent. This differs from the measure's energy realization rate because the energy savings are primarily adjusted due to lower than expected hours of use.

Even though the energy realization rate for the irrigation measures was low, this measure category collectively achieved a 105 percent demand realization rate due to VFD measure that brought the overall average up.

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

Project ID	Year	Reported kW	Evaluated kW	Realization Rate
FENBL_003881	2013	160	176	110%
FENBL_002887	2013	53	53	99%
FENBL_004645	2013	61	59	97%
FENBL_004691	2013	36	36	101%
FENBL_001871	2012	33	34	102%
FENBL_002335	2012	43	43	100%
FE000_000158	2013	88	159	181%
FENBL_003185	2013	29	29	101%
FENBL_004648	2013	52	52	100%
FESen_61764	2013	53	57	106%
FE000_000322	2013	47	46	98%
FENBL_003194	2013	26	33	128%
FE000_000572	2013	21	24	112%
FE000_000300	2013	82	111	135%
FE000_000078	2012	24	24	101%
FENBL_004283	2013	18	17	97%
FENBL_004506	2013	34	35	102%
FENBL_003997	2013	66	71	45%
FENBL_002600	2012	18	19	107%
FENBL_001811	2012	0	0	NA
FENBL_004247	2013	14	14	102%
FENBL_001749	2012	0	0	NA
FENBL_002902	2013	11	11	97%
FENBL_002373	2012	22	21	97%
FENBL_004385	2013	1	1	70%
FE000_000135	2012	19	18	96%
FENBL_001352	2012	22	21	97%
FENBL_002231	2012	11	11	103%
FE000_000433	2013	23	23	100%
FECBL_000206	2013	16	16	100%
FENBL_003556	2013	5	4	86%
FENBL_003139	2013	2	2	96%
FENBL_002028	2012	5	5	104%
FENBL_002559	2012	6	6	96%
FECBL_000052	2012	9	7	72%
FENBL_002280	2012	3	3	97%
FENBL_002885	2013	0	0	NA
FENBL_001965	2012	3	3	111%

Project ID	Year	Reported kW	Evaluated kW	Realization Rate
FENBL_002725	2012	5	5	101%
FENBL_004140	2013	4	4	105%
FENBL_001703	2012	3	1	36%
FE000_000389	2013	7	6	87%

3.3 Program-Level Net Savings Results

The evaluation team calculated an average NTG ratio of 0.79 for the FinAnswer Express program using self-reported responses to free-ridership and spillover survey and interview questions from the 271 projects completed during the PY 2012-2013 evaluation (Table 13).

Table 13. Savings-Weighted Program Influence for PY 2012-2013

Part of Year	Free-Ridership Score	Like Spillover Score	Unlike Spillover Score ³⁰	Net Savings Ratio
First Half 2012 (completed Jan 1, 2012-June 30, 2012)	0.18	0.00	Yes, Not Scored	0.82
Second Half 2012 (completed July 1, 2012-December 31, 2012)	0.25	0.00	Yes, Not Scored	0.75
First Half 2013 (completed Jan 1, 2013-June 30, 2013)	0.17	0.02	Yes, Not Scored	0.86
Second Half 2013 (completed July 1, 2013-December 31, 2013)	0.25	0.02	Yes, Not Scored	0.77
Savings Weighted Total	0.22	0.01	NA	0.79

Table 7 in section 2.4.2 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 0.79 applied.

Table 14. Net Program-Level Realization Rates for UT FinAnswer Express (PY 2012-2013)

Program Year	Program Reported kW	Net Program Evaluated kW	Net Program kW Realization Rate	Program Reported kWh	Net Program Evaluated kWh	Net Program kWh Realization Rate
2012	7,540	7,574	100%	33,069,375	28,857,558	87%
2013	9,515	9,685	102%	44,902,206	38,661,867	86%
All	17,056	17,259	101%	77,971,581	67,519,426	87%

³⁰ 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	2012	2013	2012-2013
Discount Rate	7.17%	6.88%	-
Inflation Rate	1.80%	1.90%	-
Commercial Line Loss	8.71%	8.71%	8.71%
Industrial Line Loss	5.85%	5.85%	5.85%
Measure Life	14 Years	14 Years	14 Years
Commercial Retail Rate	\$0.079	\$0.082	-
Industrial Retail Rate	\$0.054	\$0.056	-
Gross Customer Costs	\$17,849,284	\$20,642,677	\$38,491,961
Program Costs	\$7,711,680	\$10,026,890	\$17,738,570
Program Delivery	\$3,376,267	\$3,407,368	\$6,783,635
Incentives	\$4,335,413	\$6,619,522	\$10,954,935

The discount rates and inflation rates are based on the 2011 Integrated Resource Plan (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 utility administration costs.

Table 16 through Table 18 provide detailed cost-effectiveness figures for each program year and the combined PY 2012-2013 evaluation period.

Table 16. UT FinAnswer Express Cost-Benefit Results – 2012 (0.79 NTG)

Benefit/Cost Test Performed	Evaluated Gross Savings (kWh)	Evaluated Net Savings (kWh)	Evaluated Costs	Evaluated Benefits	B/C Ratio
Total PacifiCorp Resource Cost Test (PTRC)	36,528,555	28,857,558	\$17,477,201	\$29,613,806	1.69
Total Resource Cost Test (TRC)	36,528,555	28,857,558	\$17,477,201	\$26,921,642	1.54
Utility Cost Test (UCT)	36,528,555	28,857,558	\$7,711,680	\$26,921,642	3.49
Rate Impact Measure Test (RIM)	36,528,555	28,857,558	\$30,313,072	\$26,921,642	0.89
Participant Cost Test (PCT)	36,528,555	28,857,558	\$17,849,284	\$32,944,770	1.85

Table 17. UT FinAnswer Express Cost-Benefit Results – 2013 (0.79 NTG)

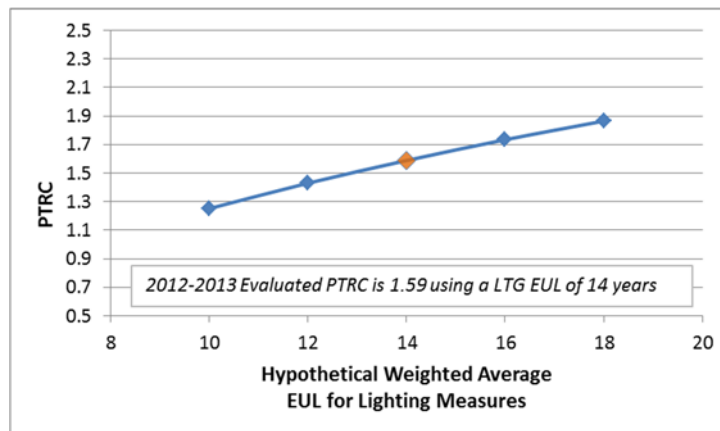
Benefit/Cost Test Performed	Evaluated Gross Savings (kWh)	Evaluated Net Savings (kWh)	Evaluated Costs	Evaluated Benefits	B/C Ratio
Total PacifiCorp Resource Cost Test (PTRC)	48,939,073	38,661,867	\$19,715,083	\$31,673,537	1.61
Total Resource Cost Test (TRC)	48,939,073	38,661,867	\$19,715,083	\$28,794,125	1.46
Utility Cost Test (UCT)	48,939,073	38,661,867	\$10,026,890	\$28,794,125	2.87
Rate Impact Measure Test (RIM)	48,939,073	38,661,867	\$42,464,017	\$28,794,125	0.68
Participant Cost Test (PCT)	48,939,073	38,661,867	\$20,642,677	\$47,679,177	2.31

Table 18. UT FinAnswer Express Cost-Benefit Results – PY 2012-2013 Combined (0.79 NTG)

Benefit/Cost Test Performed	Evaluated Gross Savings (kWh)	Evaluated Net Savings (kWh)	Evaluated Costs	Evaluated Benefits	B/C Ratio
Total PacifiCorp Resource Cost Test (PTRC)	85,467,628	67,519,426	\$37,192,284	\$61,287,343	1.65
Total Resource Cost Test (TRC)	85,467,628	67,519,426	\$37,192,284	\$55,715,767	1.50
Utility Cost Test (UCT)	85,467,628	67,519,426	\$17,738,570	\$55,715,767	3.14
Rate Impact Measure Test (RIM)	85,467,628	67,519,426	\$72,777,089	\$55,715,767	0.77
Participant Cost Test (PCT)	85,467,628	67,519,426	\$38,491,961	\$80,623,946	2.09

Navigant recommends using a greater level of granularity for lighting EULs in the program tracking database in order to provide more accurate cost-benefit results (Recommendation #3). The current EUL for lighting projects uses a value from the 2008 version of DEER, weighted heavily by fluorescent lighting. LED lamps, lighting controls, and other measures installed by the FinAnswer Express program require differing EULs. Figure 5 shows the effects varying the lighting EULs has on the PTRC test specifically. If the weighted average EUL varies by two years from the current value, then the PTRC shifts approximately 10 percent. However, the PTRC does not dip below 1.0 so long as the EUL remains above 6.5 years.

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



4. Process Evaluation Findings

This section describes the findings from Utah’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 271 participants out of the 2,476 unique participants over four surveys.³¹ Based on the survey fielding methodology, this sample is representative of the population. The respondents reported on a total of 283 measures. Of these, 242 measures were lighting and 41 were non-lighting. Participating firms represented a number of different industries, including retail, manufacturing, dairy/agricultural, public administration, and other industries as listed in Table 19. Firms were mostly concentrated in retail, real estate, nonprofit, and manufacturing industries. However, there is a wide range of industries represented, and no single industry is representative of the entire participant population.

Table 19. Primary Industry of FinAnswer Express Survey Respondents

Primary Industry	Respondents	Percent
Retail	40	15%
Real Estate/ Property Management	39	14%
Nonprofits and Religious Organizations	29	11%
Manufacturing	28	10%
Warehouses or Wholesaler	21	8%
Educational Services	16	6%
Dairy/Agricultural	11	4%
Professional, Scientific, and Technical Services	10	4%
Public Administration/Governmental Services	10	4%
Repair and Maintenance Services	10	4%
Construction	9	3%
Health Care	9	3%
Finance and Insurance	7	3%
Accommodation	5	2%
Arts, Entertainment, and Recreation	5	2%
Food Services	5	2%
Transportation	2	1%
Food Processing	1	0%
Mining	1	0%
Do Not Know/Not Sure	13	5%
Total	271	100%

³¹ The first and fourth surveys included process questions; there were 125 respondents to these surveys, representing 129 measures. The second and third surveys only included basic project questions and overall satisfaction. Therefore, the number of respondents varies greatly by question.

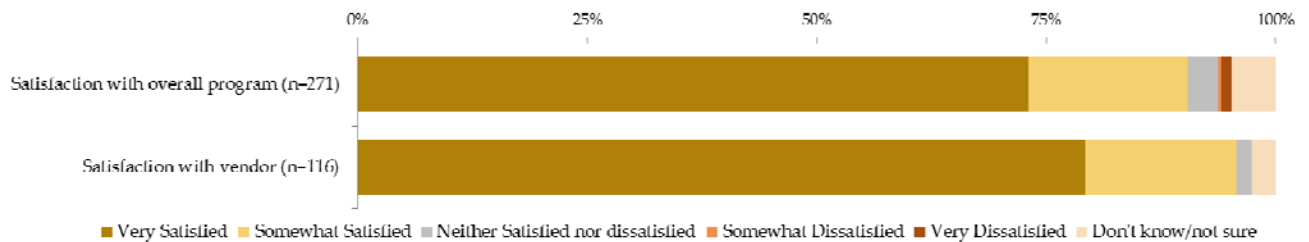
4.1.1 Program Satisfaction

The majority of respondents were very satisfied with multiple aspects of the program. Surveys polled satisfaction of the pre-installation report, installed measures, post-installation inspection, and vendor assistance, as well as for existing equipment status, energy savings benefits, non-energy benefits, and overall project satisfaction.

Overall, 90 percent of respondents (245 of 271) were satisfied with the program: 73 percent were very satisfied and 17 percent were somewhat satisfied. Only one percent of respondents voiced dissatisfaction with the program, and provided reasons such as disappointment with the savings achieved (4 respondents), time waiting for incentives (3 respondents), size of incentives (3 respondents), failure to receive incentives or observe savings (1 respondent), and quality of representative (1 respondent).

The evaluation team also asked about satisfaction with the vendor, and 96 percent of respondents, who had a vendor, were satisfied with the interaction: 79 percent were very satisfied and 16 percent were somewhat satisfied.³² Of the remaining five respondents, two were neither satisfied nor dissatisfied and three were not sure. No respondents indicated dissatisfaction with vendors. Both overall and vendor satisfaction are shown in Figure 6.

Figure 6. Overall and Vendor Satisfaction

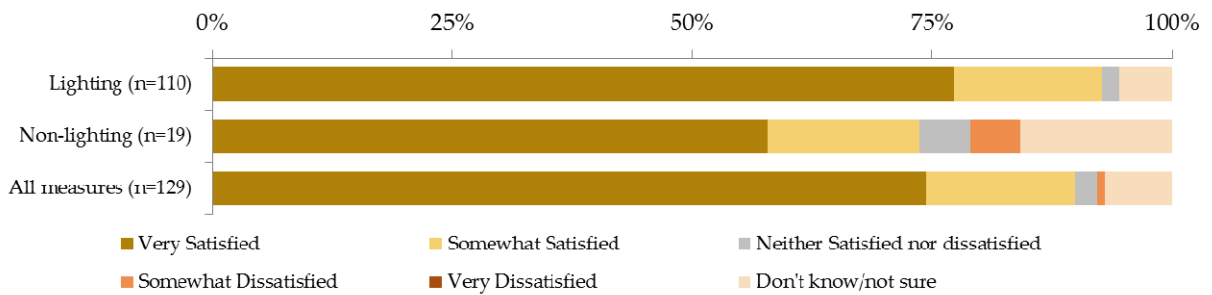


The FinAnswer Express program provides some participants with a pre-installation report that describes the energy analysis of the project. The team asked pre-purchase path participants about their perspective on the report, and the majority of respondents (89 percent) thought the pre-installation report was valuable, while seven percent did not find it valuable and four percent were not sure. The two respondents who did not find the report valuable said that they “it did not really apply to us besides the lighting,” and “it didn't have more information than I already knew.” These responses indicate that some customers are well informed about their energy savings projects. Also, some participants have post-purchase inspections due to the scope of their project or quality measures by the program; these participants are identified in program tracking data. Of those with final inspections (30 of 125), the vast majority (22 of 30) were satisfied (20 were very satisfied). The other eight were not sure.

³² The program tracking data showed 116 participants used a vendor.

Measure-specific questions covered measure satisfaction, the condition of the replaced equipment, and expected and received benefits. Most respondents (90 percent overall) were satisfied or very satisfied with their measure performance. Lighting measures (93 percent) had higher rates of satisfied customers than non-lighting measures (74 percent). Figure 7 illustrates the reported satisfaction with both lighting and non-lighting measures. Three of the four respondents who were not satisfied with their measure were disappointed with the energy savings from the measure; one wanted the lights to be brighter.

Figure 7. Measure Performance Satisfaction by Measure Type (n=129 measures)



The team asked participants about the operating condition of the equipment replaced during the incentivized project. Most lighting measures replaced existing equipment that was still working with no problems (63 percent), indicating a more conscious shift toward energy efficiency (early replacement) than if the equipment was already having problems (22 percent). Most non-lighting measures were totally new installations (32 percent) or the respondent wasn't sure how to answer (32 percent). Twenty-seven percent of non-lighting measures replaced existing equipment that had failed (15 percent) or had problems (12 percent) and perhaps needed replacement anyway. This is in keeping with the program design, which encourages participants to install more efficient options to the minimum code baseline. Table 20 shows these responses.³³

³³ The team recoded open-ended responses such as "wanted to upgrade," "upgrade needed - no problems," or "not energy efficient" as "existing equipment working with no problems."

Table 20. Operating Condition of Replaced Equipment by Measure Type (n=283 measures)

	Lighting (n=242)	Non-lighting (n=41)	Overall (n=283)
Existing equipment had failed	1%	15%	3%
Existing equipment working but with problems	22%	12%	20%
Existing equipment working with no problems	63%	10%	55%
Totally new installation	2%	32%	7%
Other	2%	0%	2%
Don't know/ not sure	9%	32%	12%

Most respondents reported that the energy savings related to each measure met their expectations. For lighting measures, slightly over half (58 percent) of respondents said that the energy savings met their expectations, while for non-lighting measures, 50 percent of respondents said that the energy savings met their expectations. More than one third of respondents (35 percent overall) were not sure if the equipment was meeting expectations, and eight percent said the equipment was not meeting expectations. Energy savings was the primary concern for participants who were not satisfied with their measure performance. All of those who said the equipment was not meeting energy savings expectations had worked with a trade ally; 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 68 percent of measures (88 of 129), participants reported they anticipated other benefits beyond energy savings related to each measure. Respondents were more likely to anticipate non-energy benefits from lighting measures (71 percent) than non-lighting measures (53 percent). Respondents that anticipated non-energy benefits were asked to select which benefits they anticipated; the 86 respondents indicated 108 benefits (see Table 21). Respondents most frequently mentioned anticipating better lighting quality (54 percent).

Table 21. Anticipated Non-energy Benefits from Program Participants

Non-energy benefits anticipated	Respondent Count	Percentage
Better lighting quality	58	54%
Less frequent replacement	13	12%
Less labor/maintenance	9	8%
Monetary/tax benefits	8	7%
Quicker on/off	4	4%
Improved aesthetics	3	3%
Increased safety	3	3%
Increased control	2	2%
Increased water pressure	2	2%
Other (single response)	6	6%
Total	108	100%

Finally, participants were asked whether they had seen these non-energy benefits since completing the project. Overall, 89 percent of measures were providing the anticipated non-energy benefits: this was 100

percent (10 of 10) for non-lighting measures and 87 percent (68 of 78) for lighting measures. Of the remaining 10 lighting measures, four were somewhat meeting the anticipated non-energy benefits, four were not, and for two measures, respondents were not sure.

4.1.2 Program Awareness and Motivation

The most significant sources of awareness came from trade allies, vendors, and contractors (45 percent) and account representatives or other RMP staff (13 percent). This implies that the program successfully leveraged trade allies and staff as a marketing source. A small portion (less than five percent) of respondents heard about the program through indirect marketing channels, including the RMP website, newsletter, and print advertisements. Table 22 shows all sources of awareness for program participants.

Table 22. Source of Awareness of Program Participants (n=125)

Source of Awareness	Respondent Count	Percentage
Trade Ally, Vendor, or Contractor	60	45%
Account Representative or other RMP Staff	17	13%
Previous Participation in RMP Programs	14	11%
Another Business Colleague	12	9%
Family, Friend, or Neighbor	5	4%
Another Energy Efficiency Program	3	2%
RMP Website	2	2%
RMP Newsletter	1	1%
RMP Print Advertisement	1	1%
RMP Sponsored Energy Audit or Technical Assessment	1	1%
Other	10	8%
Don't Know/Not Sure	7	5%
Total	133	100%

More than one response was allowed; 125 respondents gave 133 sources. Most other responses were recoded where they fit into categories, such as another business colleague; those that remained in the other category included statements like: "Church," "Common knowledge," and "I knew about it."

4.1.3 Program Influence

The evaluation team found many influential factors that motivated program participants through the participant surveys.³⁴ Program participants were most influenced to participate in the FinAnswer Express program by the prospect of saving money on their electric bills (28 percent). Other influential factors included obtaining the incentive (12 percent), replacing old or poorly working equipment (10 percent), and saving energy (no costs mentioned) (10 percent) (see Table 23). There is also a significant amount of variability in the results, indicating many influential factors. One interesting finding is that while nearly as many respondents mentioned the program incentive (41) as saving money (49) influential in their decision, far fewer though the incentive was most important in their decision. This suggests that customers consider the incentive as an added benefit of the measure.

³⁴ Measure-specific questions were asked in all participant surveys; general program influence questions were asked in the first and last participant surveys only.

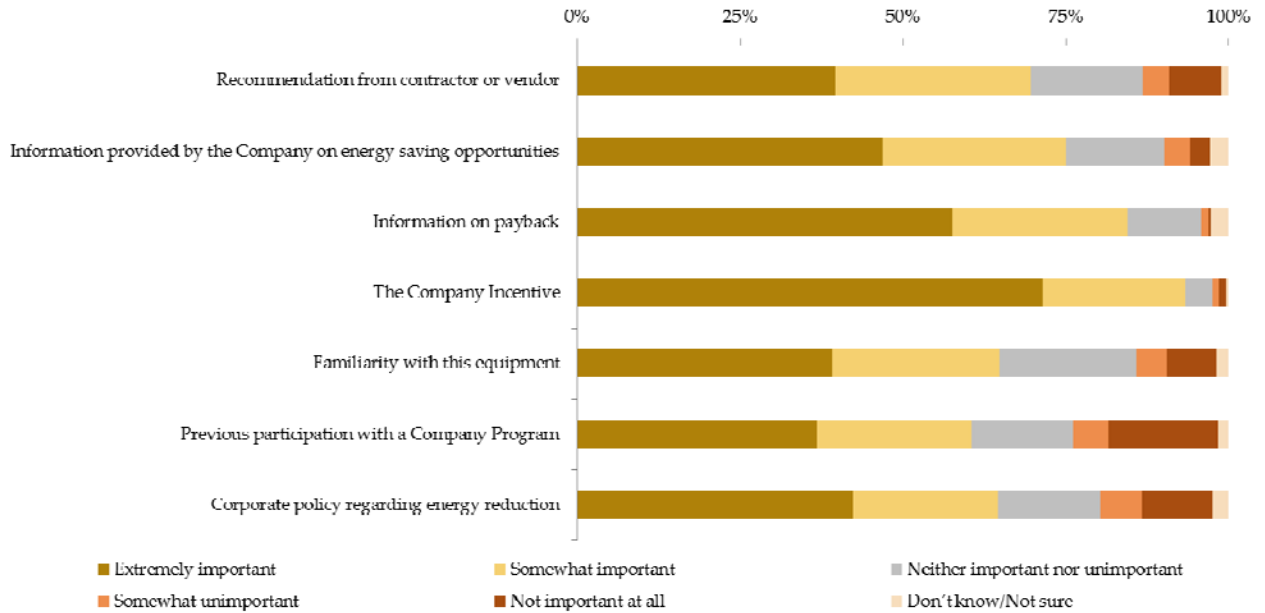
Table 23. Reason for Participating in the Program

Reasons for Participation	Mentions	Most Important	Percent Most Important
To save money on electric bills	49	35	28%
To obtain an incentive	41	15	12%
To replace old or poorly working equipment	20	13	10%
To save energy (no costs mentioned)	19	13	10%
To save money on maintenance costs	24	7	6%
To acquire the latest technology	7	4	3%
Recommendation by contractors/vendors	4	4	3%
To improve comfort	4	4	3%
To improve operations, production, or quality	5	3	2%
Because the program was sponsored by RMP	2	2	2%
Previous experience with RMP	2	2	2%
To replace broken or failed equipment	2	1	1%
To comply with a standard or policy requirement	1	1	1%
Recommended by family, friend or neighbor	1	1	1%
To protect the environment/be "green"	1	0	0%
Recommended by colleague	1	0	0%
Other	18	16	13%
Not sure	1	4	3%
Total	202	125	100%

More than one response was allowed; Fifty-five respondents gave more than one reason. One respondent gave five reasons.

Respondents were asked to rank the importance of certain factors in deciding which equipment to install for each project specified. Figure 8 highlights these findings. The most important factors included the Company incentive (72 percent) and information about payback (59 percent). This implies that the assistance provided by the program (both financial and informational) encouraged the installation of more efficient equipment. This ranking of importance does not show the "most important" as discussed above. Figure 8 does not display responses that were unknown or not applicable.

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



4.1.4 Further Energy Efficiency Opportunities and Barriers

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

Most respondents (53 percent) indicated there is no potential to develop further energy efficiency for their organization. Many respondents (23 percent) indicated that there is some potential to improve efficiency, but no plans are in place. Of the 58 respondents that indicated having current plans for energy efficiency projects, 46 (79 percent) respondents had plans that included RMP’s assistance. Overall, these responses suggest that participants are happy with the program and plan to work with the Company for future projects, but participation alone does not enable them to identify new projects. Table 24 combines multiple responses concerning participants’ current and future energy efficient plans.

Table 24. Potential for Participants to have Current or Future Energy Efficiency Plans

Potential for Energy Efficiency Plans	Respondent Count	Percentage
No potential for further energy efficiency	143	53%
Potential for energy efficiency, but none in place	61	23%
Energy efficiency plans in place with RMP's help	46	17%
Energy efficiency plans in place without RMP's help	12	4%
Not sure	9	3%
Total	271	100%

Respondents who indicated at least some potential for implementing future energy efficient projects or that they were not sure (128 respondents) were asked what they would do. Just over two-thirds (68 percent, or 87 respondents) were able to respond; 18 of them did not mention a specific technology or mechanism. The remaining 69 respondents mentioned 78 improvements. The most common improvements were lighting, HVAC, and controls, as shown in Table 25.

Table 25. Future Energy Efficient Project Measures

Potential Measure	Mentions	Percent of Mentions
Lighting	34	44%
HVAC	14	18%
Controls or sensors	12	15%
Envelope	3	4%
Compressed air	2	3%
Irrigation (nozzles)	2	3%
Motors	2	3%
Scheduling	2	3%
Solar	2	3%
Cool roof	1	1%
Dairy	1	1%
Motors	1	1%
VFD	1	1%
Water heating	1	1%
Total	78	100%

Respondents who indicated at least some potential for implementing future energy efficient projects or that they were not sure (128 respondents) were also asked about barriers that prevented implementation of those plans. The most influential barriers were high upfront costs (31 percent) and lack of access to capital (25 percent); see Table 26. Barriers to Future Energy Efficiency. Those that indicated some other reason included: no time to work on projects, long term capital plans, landlord-tenant relationships, and desires to wait for equipment burnout.

Table 26. Barriers to Future Energy Efficiency

Reason for Participation	Mentions	Most Important	Percent Most Important
High upfront cost	43	40	31%
Lack of access to capital	39	32	25%
Other	27	27	21%
None	19	19	15%
Low priority/lack of interest among senior management in energy efficiency	4	4	2%
Long payback periods	1	1	1%
Lack of information about savings and performance	1	1	1%
Not sure	5	5	1%
Total	138	128	100%

Survey allowed more than one response.

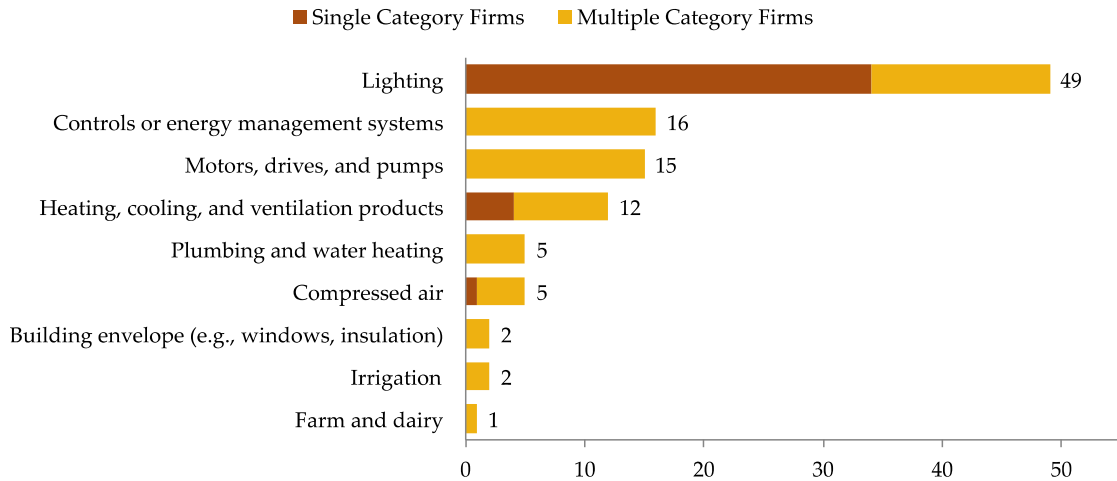
4.2 Trade Ally Findings

This section focuses on the 57 respondents indicating familiarity with the program in Utah. It describes the trade ally respondents and then presents the trade ally perspective on program awareness and motivations, program communications, program project experience, value of the program to their business, spillover, and program suggestions.

4.2.1 Trade Ally Respondent Information

Utah trade allies were asked to select all of the categories in which they sell energy efficient products. The majority of trade allies (49 out of 57) indicated they work with lighting products. Of the 49 trade allies that worked with lighting, 34 worked exclusively with lighting products. Other popular categories were controls or energy management systems (16), motors, drives, and pumps (15), and HVAC products (12). Figure 9 shows the distribution of trade allies by the category of equipment and also by whether firms work exclusively within that category or within multiple categories.

Figure 9. Number of Trade Allies with Energy Efficient Products by Category (n=57)

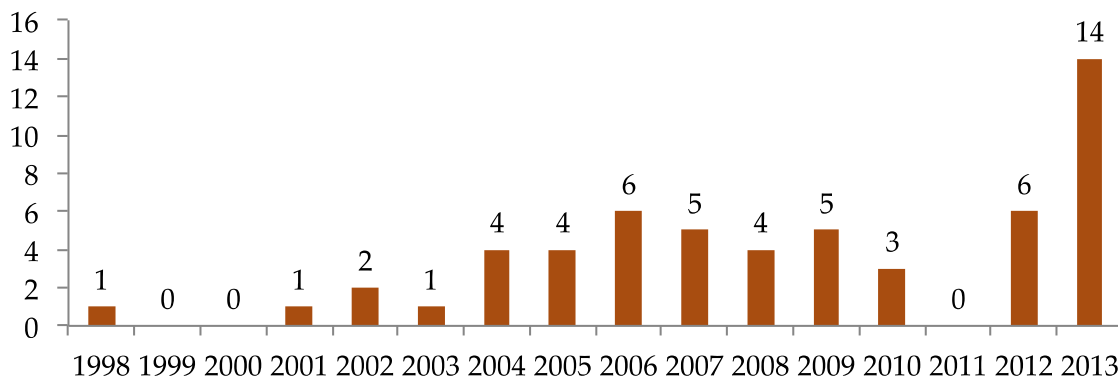


While the program has about 276 vendors in Utah signed on to the EEA, most projects were completed by a small percentage of trade allies. One contributing factor is that only the trade ally that completed the program paperwork receives credit for a project. In situations where the product supplier completed the program paperwork, the trade ally that installed the measures does not get credit for the project. Trade ally coordinators may want to consider new ways to demonstrate that trade allies are active in the EEA. This appears to be a challenge mostly for lighting, where wholesalers and distributors serve in the trade ally function alongside contractors.

4.2.2 EEA Program Awareness and Motivation

In general, survey data shows that trade allies are increasingly enrolling in the EEA and that this increase may be due to communications from utility staff and the desire to attend the EEA trainings and workshops. Figure 10 displays the year in which respondents joined the EEA. Of those surveyed, more than half joined the EEA in the past five years; one has been part of EEA since 1998.

Figure 10. Number of Trade Allies by the Year They the EEA (n=56)



Trade allies were asked how they first heard about the EEA. The majority of trade allies (51 percent) became aware of the EEA through their utility or EEA representative. Respondents also heard about the EEA through other contractors and vendors (23 percent) and through internet searches (5 percent). Table 27 highlights these results.

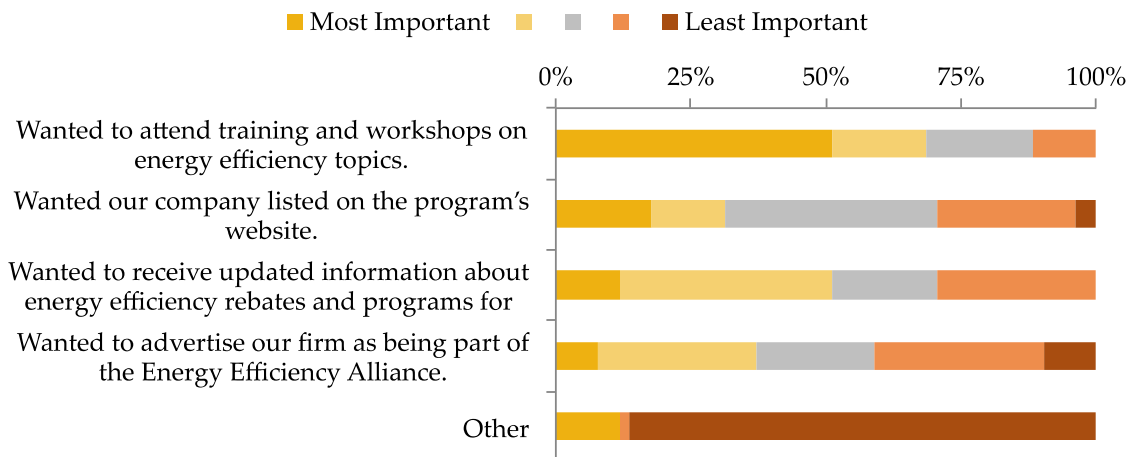
Table 27. How Trade Allies Heard about the EEA

Method of Awareness	Count	Percentage
Utility or Energy Efficiency Alliance Representative	29	51%
Other Contractor/Vendor	13	23%
Previous Employer	4	7%
Internet Search	3	5%
Customer	1	2%
Don't know	7	12%
Total	57	100%

Respondents were asked to describe their motivation for participating in the EEA. 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. Other important reasons that were not listed include:

- » Providing incentives for customers
- » Using rebates as marketing tools

Figure 11. Trade Ally Motivation for Participating the EEA ranked by Importance (n=51)



4.2.3 EEA Program Communications

Trade allies mostly find the EEA communication helpful and at the right level of frequency; they prefer to be contacted via email, and report gaining value from meetings and newsletters. Details of each of these findings are below.

Trade allies were asked a set of questions to evaluate the value of current communications with the EEA and to determine how communications can improve. Over three-quarters (78 percent) felt that the communications received from the EEA were either valuable or extremely valuable. Figure 12 shows the value of communications.

Figure 12. Trade Ally Rating of the Value of Communication with the EEA (n=55)

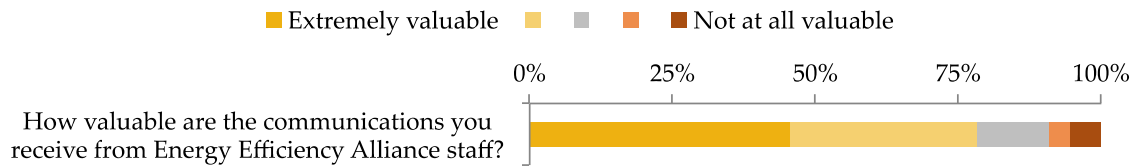


Table 28 shows the preferred modes of communication with the EEA. Email was the preferred mode of communication for the majority of trade allies (63 percent), followed by telephone correspondence (21 percent), and in-person correspondence (14 percent). All trade allies preferred some form of communication to no communication.

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

Mode of Communication	Count	Percentage
Email	35	63%
Telephone correspondence	12	21%
In-person correspondence	8	14%
Printed mail	0	0%
Did not receive any communication	1	2%
Prefer not to receive communication	0	0%
Total	56	100%

Trade allies were also asked to assess the frequency of current communications. The vast majority of trade allies believe the current frequency of communications is just right (68 percent) while some believe it is not frequent enough (28 percent) and a few believe that it is too frequent (four percent). The two respondents who rate current communications as too frequent reported that they were not sure (one) or had project specific communications (one). Of the sixteen who rate current communications as not frequent enough, twelve had monthly or less frequent communications, and one each reported weekly, daily, project specific, and not sure as their frequency. Figure 13 shows the assessment of communication frequency.

Figure 13. Trade Ally Assessment of the Current Frequency of Communication with the EEA (n=57)

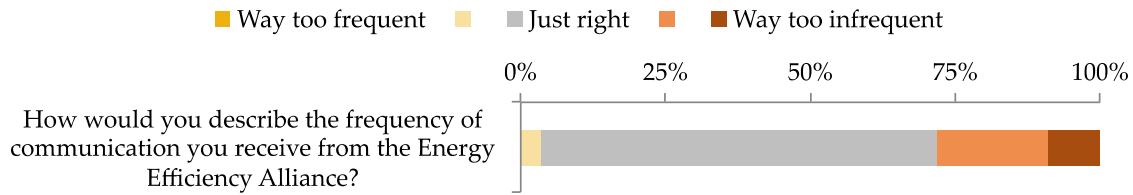


Table 29 shows the trade allies preferences for communications. The majority of trade allies prefer monthly communication (58 percent) and many others prefer quarterly communications (30 percent). Preference for communication frequency was not related to the reported current communication except that no respondents preferred weekly communications who had current communication of monthly or less often. Respondents believe that they have someone that they can reach as needed.

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

Preferred Frequency of Communication	Count	Percentage
Weekly	5	9%
Monthly	33	58%
Quarterly	17	30%
Annually	0	0%
Other	2	4%
Total	57	100%

Trade allies were asked if they had received and read the EEA newsletter. The majority of trade allies (52 percent) recalled receiving and reading the newsletter; however, 20 percent reported that they did not receive the newsletter. Table 30 summarizes the trade allies' actions with the EEA newsletter.

Table 30. Trade Ally Actions with the EEA Newsletter

Newsletter Actions	Count	Percentage
Received and read newsletter	29	52%
Received and did not read newsletter	1	2%
Did not receive newsletter	11	20%
Not sure	15	27%
Total	56	100%

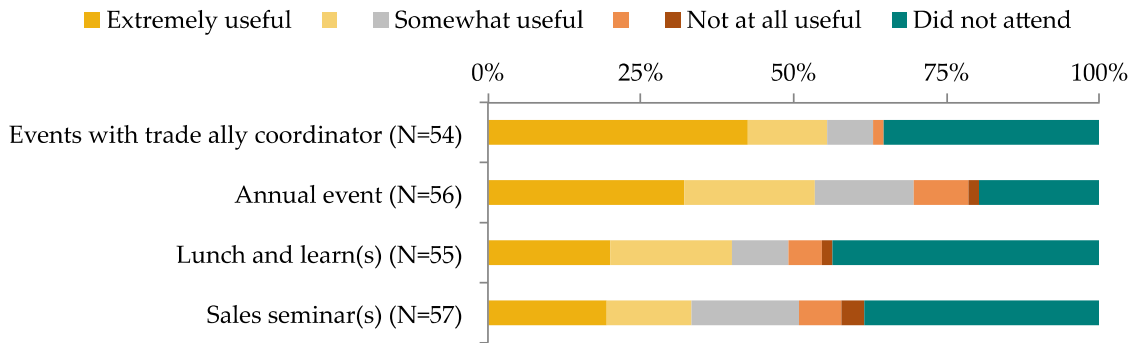
Trade allies also provided suggestions for improving the quality of the EEA newsletter: Advertise or give more information about products that can be used for rebates

- » Make newsletters available to customers to use as a marketing tool
- » Spotlights of trade allies and their projects, specifically for installers

Trade allies were also asked to rate the usefulness of training and events that they attended from 2012 to 2013. The annual event was the most widely attended event, and lunch and learns were the least attended events.

Figure 14 compares the usefulness and attendance rate for each event type. Response rates vary as responses were not required. Since most trade allies indicated that they joined to learn more about energy efficiency topics and rebates, it may be important to note that when they are able to attend events, they find the lunch and learns and events with trade ally coordinators most useful.

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

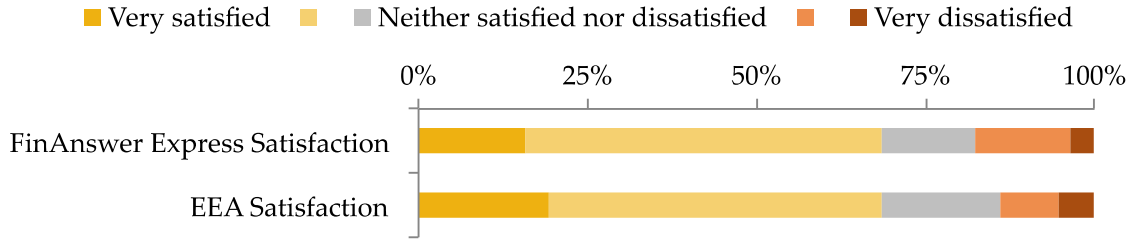


4.2.4 Program Project Experience

Trade allies have a range of involvement with the EEA and completing projects with the FinAnswer Express program. They are mostly satisfied overall and the majority of those who use the lighting tool like it. The majority find the brochures helpful. More details on their experience are included here. 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 (68 percent) and the EEA (68 percent). Figure 15 compares the trade ally satisfaction ratings. Dissatisfied respondents discussed the following issues that contributed to their dissatisfaction:

- » Process is too complicated and time consuming
- » More personal interactions to gain information
- » More incentives for LEDs and for good lighting design

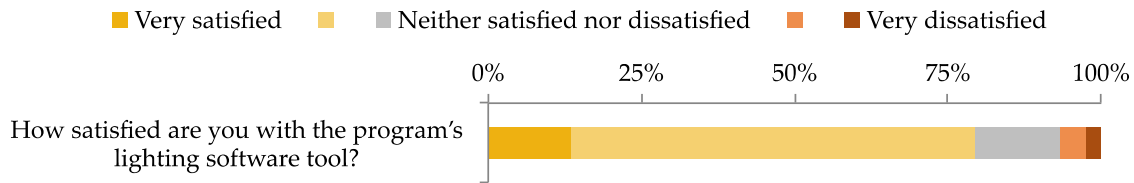
Figure 15. Trade Ally Satisfaction Rating of the FinAnswer Express program and the EEA (n=57)



Of the 49 trade allies that work with lighting projects, 44 (90 percent) trade allies reported that they used the lighting software tool and most (80 percent) were satisfied with the tool.³⁵ Figure 16 illustrates the satisfaction results. Those who were dissatisfied mentioned that the tool was:

- » Too complicated
- » Very time and labor intensive
- » Too rigid

Figure 16. Trade Ally Satisfaction Rating of the Lighting Software Tool (n=44)

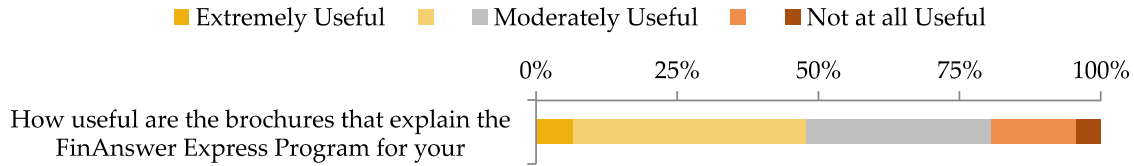


Trade allies were asked to rate the usefulness of the FinAnswer Express brochures. Most trade allies (80 percent) thought the brochures were moderately or extremely useful. Figure 17 shows the brochure ratings. Trade allies dissatisfied with the brochures indicated that they were:

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

³⁵ The lighting trade allies who did not use the lighting tool were wholesalers or distributors.

Figure 17. Trade Ally Usefulness Rating of FinAnswer Express brochures (n=46)



Trade allies were asked if they advertise for the FinAnswer Express program and if they do the program paperwork for their customers. Table 31 shows that just less than half of trade allies advertise. Out of the trade allies that advertised, 20 out of 26 (77 percent) said that they advertised rebates while 11 out of 26 (42 percent) said that they advertised energy efficient equipment to customers. Some other trade allies advertised through flyers, word of mouth, and online.

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

	Count	Percentage
Advertised for FX	26	46%
Did not advertise	24	42%
Don't know	7	12%
Total	57	100%

More than three-fourths (77 percent) of trade allies reported that they do paperwork for their customers, as shown in Table 32.

Table 32. Trade Allies that Complete Paperwork for their Customers

	Count	Percentage
Completed paperwork	44	77%
Did not complete paperwork	13	23%
Don't know	0	0%
Total	57	100%

Out of the trade allies that completed paperwork, 28 out of 44 (64 percent) complete the rebate form for their customers, and only 3 out of 44 (7 percent) process the rebate form.

Table 33 displays the barriers that limited trade allies from completing more projects with the EEA. The most significant barrier pertained to equipment that does not qualify for an incentive. A few respondents indicated that nothing prevented them from completing more projects, one of these saying “Nothing prevented me from dealing with the program; in fact without [the program,] I wouldn't be in the business!!” Other barriers mentioned by trade allies included:

- » Lack of incentive for the trade ally
- » Design Lights Consortium is too limited
- » Program process is too slow

Table 33. Barriers that Limit Trade Allies from Completing projects with the EEA (n=57)

Barrier	Count	Percentage
Equipment does not qualify for an incentive	13	23%
Our own internal resource constraints (i.e. staffing)	11	19%
Too much hassle for the customer to participate in the program	9	16%
Too much hassle for our firm to participate in the program	9	16%
Customer(s) not interested in energy efficient equipment	8	14%
Nothing prevents us	3	5%
The incentives are not enough for customers	3	5%
Distributors get credit	2	4%
Customers not in the service territory	2	4%
We don't do the paperwork	2	4%
Other (single response)	8	14%
Total	57	100%

4.2.5 Efficient Sales Outside of the Program

The average potential market spillover for Utah trade allies is 22 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, 53 percent of the products sold by trade allies qualify for incentives and 42 percent are sold using incentives. The percent difference between these numbers determines the potential spillover. Figure 18 shows the percentage of total qualifying products sold through the program. Results are displayed as a histogram that shows all responses and as a 95 percent confidence interval for the average percentage of products across all respondents. The potential spillover is represented in the histogram by the area that is not crosshatched.

Figure 18. Percentage of Total Products Sold by Trade Allies that Qualify for the FinAnswer Express (FX) Program and that are Sold Using Program Incentives (n=42)

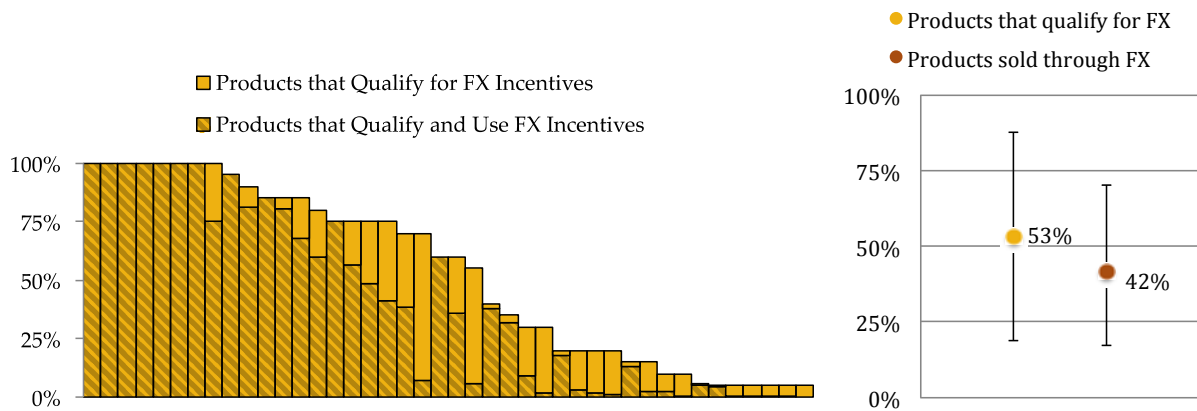
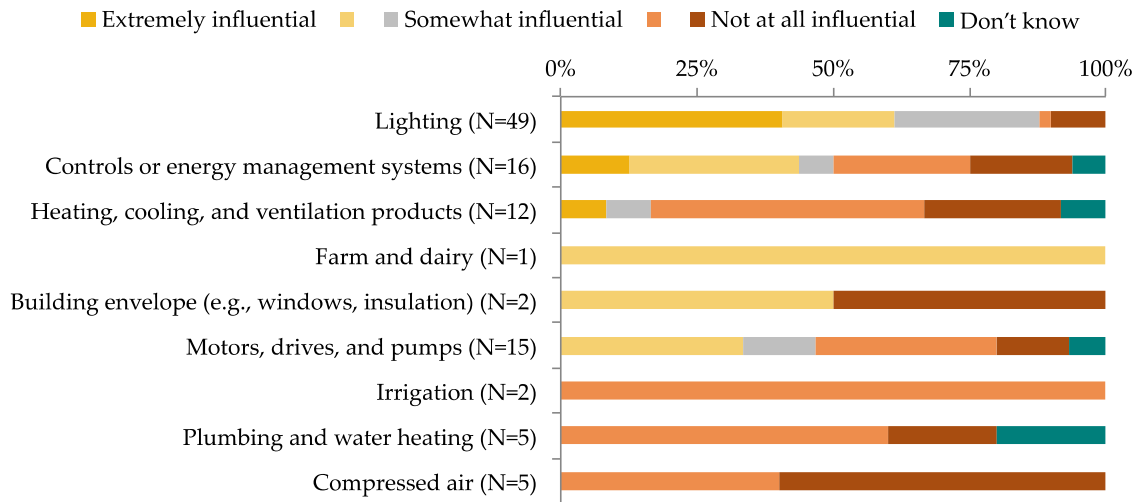


Figure 18 shows a very significant amount of variability in the percentage of products that qualify and are sold through the FinAnswer Express program. This is expected given the wide range of technologies (e.g., lighting, HVAC, etc.), functions (e.g., distributor, contractors, etc.), and sizes that comprised the trade ally sample. Due to this large variability, the results of the spillover effect are not statistically significant. Navigant recommends that in the future, PacifiCorp conduct more detailed data collection with trade allies designed to adequately quantify market spillover.

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. Trade allies were asked 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 categories where the program is the most influential included farm and dairy, lighting, and building envelope products.

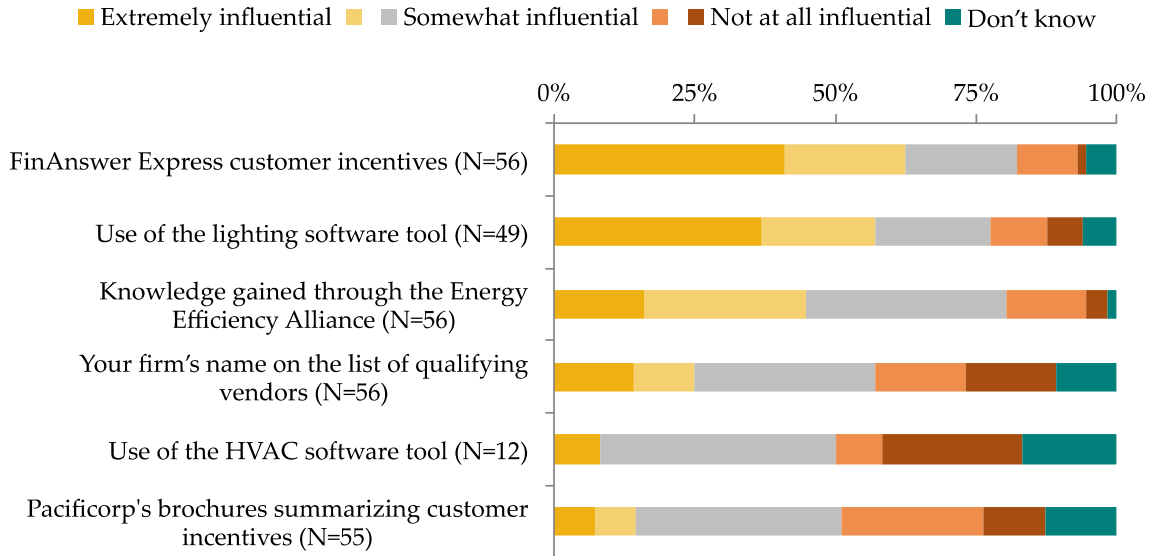
Figure 19. Trade Ally Influence Rating for stocking Program-eligible Equipment by Product Category



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 two who did not find the coordinator valuable were neutral with the program overall; both of these allies look to the trade ally coordinator for customer support. Trade allies depend on the trade ally coordinator mostly for project support (19 of 57), incentive training (nine of 57), and customer support (eight of 57). The coordinators are also sought after to help sell projects/products (six), complete incentive paperwork (five), and other (nine).

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 the lighting software tool 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



Trade allies were also asked whether the program has significantly changed their business and sales. The majority of trade allies reported that the program did change their business (56 percent) and their sales (53 percent). Table 34 displays these results.

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

Program impact on Business	Count	Percentage	Program impact on Sales	Count	Percentage
Business changed	32	56%	Sales changed	30	53%
Business did not change	21	37%	Sales did not change	22	39%
Don't know	4	7%	Don't know	5	9%
Total	57	100%	Total	57	100%

Trade allies who recalled completing more projects or selling more products that qualified for the FinAnswer Express program were more likely to report that the program had changed their business or sales. Trade allies that said the program did change their business mentioned that it:

- » Added projects and strengthened sales
- » Encouraged energy efficient and higher quality products
- » Helped keep their firm more aware of energy efficiency

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:

- » New Incentives (e.g., LEDs, HVAC, Fans, Controls)
- » Tool Training
- » Streamlining / Web-based Software
- » Industry Forecasts
- » Ethics for Competitors

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

- » More one-on-one interaction with coordinators
- » Less paperwork or streamlined paperwork
- » More explanation and information for non-lighting projects

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

- » Provide references to help trade allies find customers
- » Simplify tools
- » Work as a partner to trade allies providing training and support
- » Create online features
- » Speed up processing for rebates

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 Utah 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 indicated that they had a primary program contact to which they could reach and receive prompt and knowledgeable assistance. Trade allies reported the frequency of communication to be just right and the majority (78 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 trade ally participation appeared to be increasing. The one aspect of the program theory that was occurring but to a limited extent was that program participation was intended to influence customers to pursue more projects in the future, and less than half of respondents (44 percent) thought there were more actions they could take to pursue energy efficiency in the future. However, among those who knew they could take action and had plans in place, the majority had already planned to work with RMP on those projects.

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

Participants most commonly became aware of the FinAnswer Express program from trade allies (including vendors and contractors) (45 percent), RMP staff and account representatives (13 percent), and through prior participation in RMP programs (11 percent). This implies that the program successfully leveraged trade allies and RMP staff for marketing the program. Trade allies may be marketing because of how the program impacts their business; the majority of trade allies reported that the program did change their business (56 percent) and their sales (53 percent). Direct marketing channels have been less effective at raising program awareness according to participant respondents. Only four percent of participant respondents reported to learn about the FinAnswer Express program through indirect marketing channels including the RMP website, RMP newsletter, 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, etc.)?

The evaluation team found many influential factors that motivated participant respondents to participate in the program. Program participants were most influenced to participate in the FinAnswer Express program because they wanted to save money on electric bills (28 percent), to obtain an incentive (12 percent), save energy (10 percent), or replace old equipment (10 percent). Additionally, the RMP incentive (72 percent) and information on payback (59 percent) were identified as extremely important to the decision to install the equipment. This implies that the financial and informational assistance provided by the program 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 high upfront costs (31 percent) and lack of access to capital (25 percent) to be primary barriers to further energy efficiency. Another additional barrier may be that participants are unaware of additional opportunities because over half (53 percent) of participant respondents did not believe there were additional actions that they could take to improve energy efficiency at their facility.

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 (90 percent); 73 percent of respondents were very satisfied and 17 percent were somewhat satisfied. Nearly all (96 percent) respondents who had a vendor listed in the program tracking data were satisfied with their vendor: 79 percent were very satisfied and 16 percent were somewhat satisfied. Additionally, most respondents reported that the energy savings related to each measure met their expectations. Participant respondents most commonly reported anticipating and receiving non-energy benefits, such as: better lighting quality, less labor and maintenance, and less frequent replacements. .

4.4 Web Usability Findings

The web usability sessions targeted two groups, C&I customers and trade allies, with similar results and findings for each. Both had difficulties navigating and finding information and materials due to inconsistent links and titles during the hands-on study sessions. However, an even larger issue for RMP moving forward is that neither group reported using the website at all on their own to research program information. C&I customers simply ask the known trade allies for information and trade allies directly contact program staff for the documents and information they need. For full details, see Appendix F.

5. Program Evaluation Recommendations

5.1 PY 2012-2013 Recommendations

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

- » **Recommendation 1. Review procedure for determining claimed hours of use for lighting projects with savings above 200,000 kWh.** The primary driver for discrepancies between reported and evaluated energy savings for the FinAnswer Express program is a difference in claimed HOU for lighting measures. Navigant recommends that PacifiCorp analyze the benefits of increasing the HOU accuracy, either through the increased use of data loggers or other means, for large projects over 200,000 kWh, against the associated costs or potential customer pushback of implementing a new procedure.
- » **Recommendation 2. When entering lighting project details into the program tracking database, use measure sub-types that allow for greater resolution in the application of effective useful life (EUL) values.** Capturing measure sub-types for lighting projects provides for greater detail when identifying conditions such as effective useful life (EUL) and savings estimates. For example, lighting controls, LEDs, CFLs and linear fluorescent lamps should each receive different EULs. PacifiCorp cannot apply this level of detail without first identifying sub-types within the database. The four lighting groups listed here are a suggested starting point for the applicable sub-types, but the final selection should be determined, at least in part, by the intended future source of the EUL. It is likely that the shift to the *wattsmart* Business program in PY 2014 will include adding measure sub-types, but as of this evaluation in PY 2012-2013, they are not apparent.
- » **Recommendation 3. Use greater resolution in the application of effective useful life (EUL) values in the program tracking database.** Applying a single EUL to all lighting measures potentially underrepresents energy savings, cost-effectiveness, and associated resource value for LEDs, as well as overestimates the life expectancy of lighting controls. EULs are currently based on the 2008 version of DEER and heavily weighted toward fluorescent lamps. Lighting measures contribute over 80 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.³⁶ PacifiCorp currently tracks projects which include LED lamps at the measure level so applying an LED EUL should not be difficult. However, the database tracks lighting control savings in aggregate with lighting fixtures, and projects that may combine multiple technologies are often entered as “lighting packages.” PacifiCorp must list these technologies separately in order to apply varying EULs (see recommendation #2).³⁷

³⁶ See Figure 5 in section 3.4 for the direct impacts of EUL adjustments on PacifiCorp’s Total Resource Cost test.

³⁷ 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.

- » **Recommendation 4. Review and enhance the usability of the website.** Both trade allies and customers were challenged to find key information about the program for their purposes. Most participants in the web usability study struggled to navigate the pages, especially when presented with large blocks of text. The program will have greater reach if customers landing on the main *wattsmart* Business program site can find applicable information quickly. Improving website usability is particularly important if marketing messages will continue to direct traffic to the site.

5.2 PY 2009-2011 Recommendation Review

The evaluation team reviewed the recommendations made in the prior 2012-2013 program evaluation to track any progress made by RMP. The following lists the prior recommendations and the results of this review.

Review marketing messages to engage non-participating customers. The program has an estimated participation reach of 1.5 percent, and 51 percent of non-participants are aware that RMP offers some energy savings programs to customers of their class. However, nearly three-quarters of non-participants do not believe there are additional opportunities to improve electric efficiency at their firm. Marketing collateral that educates and challenges customers to reevaluate their position, focusing on non-energy benefits experienced by participants or cost savings, will be necessary to reach these customers. Revised marketing collateral that engages customers who currently think they have no energy efficiency opportunities should increase program participation.

Review Results – The marketing campaigns were revised to roll out the *wattsmart* Business program. It would be appropriate to reevaluate this measure in the next evaluation cycle, when the *wattsmart* Business program has been in place for the entire period.

Utilize email as part of the marketing strategy. Nearly 20 percent of non-participants indicated email as their preferred source of information about RMP programs and services. Currently, the program does not include email as a channel through which to market the program. In the future, as email addresses become available for customers, RMP could adapt current marketing materials to email and point customers to the *wattsmart* website. From there, customers can easily find more information about specific energy savings actions that they can take and services offered by RMP to help them. The outcome should be higher participation rates in programs and potentially lower marketing costs, as email is generally less expensive than mailing printed materials.

Review Results – Email is not available for a majority of customers. At this point, email marketing is not a reasonable option. This recommendation continues to be applicable if and when appropriate email addresses are available for customer sites.

Develop deeper trade ally relationships. The program logic indicates that one long-term outcome is expansion of active vendors and contractors in the trade ally network. Vendors are a critical program delivery mechanism for post-purchase incentive programs, like FinAnswer Express. While the program has about 300 vendors signed on to the Energy Efficiency Alliance, only 160 of them completed any projects between 2009 and 2011. More than a third of these (37 percent) completed a single project, while 10 percent completed 20 or more projects. The challenge is to keep trade allies supported and active with the program after their first project, especially as they are the largest source of participant awareness.

Third-party program administrators, serving as Trade Ally Coordinators, should continue their efforts to develop and nurture strong vendor relationships, focusing on coaching new trade allies through their first few projects. Trade Ally Coordinators can explore what is working with the few most active vendors to determine how best to meet the needs of less active vendors. Strong relationships between the program and trade allies encourage trade ally vendors to take the time to market the program effectively. Effective marketing at the point of sale can drive greater efficiency in purchases, ensuring that the target market, eligible customers who are prepared to replace equipment, know about the high efficiency options available to them.

Review Results – A minority of trade allies continue to do the majority of projects; however, this is not out of line with what is occurring for other utility’s trade ally delivered programs, and is not a cause for concern. Trade allies were mostly satisfied with the level and type of communication provided, although 28 percent would like communication that is more frequent. In addition, customers report learning of the program through vendors, indicating that marketing at the point of sale is happening.



Utah's FinAnswer Express Program (PY 2012 through 2013)

APPENDIX

Prepared for:
Rocky Mountain Power



Prepared by:



Navigant Consulting, Inc.
1375 Walnut Street
Suite 200
Boulder, CO 80302

303.728.2500
www.navigant.com



EMI Consulting
83 Columbia Street
Suite 400
Seattle, WA 98104

206.621.1160
www.emiconsulting.com



March 30, 2015

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Appendix A Glossary¹

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).

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

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

Database for Energy-Efficient Resources (DEER):

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

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

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

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

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

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

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

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

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

Error: Deviation of measurements from the true value.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Stipulated values: See "deemed savings."

Takeback effect: See "rebound effect."

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

Appendix B Sample to Population Extrapolation Methodology

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

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

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

Measure Category	2012-2013 Reported Energy Savings (kWh)	Sample as % of Total Population for that Measure	2012-2013 Realization Rate
Lighting	80,706,001	6.5%	87%
HVAC	8,928,085	3.3%	93%
Office	5,014,232	4.2%	81%
Building Shell	1,042,979	3.6%	102%
Irrigation	926,106	5.7%	67%
Motors	721,579	3.0%	92%
Food Service	688,530	0.0%	59%
Dairy Farm Equipment	354,926	0.0%	71%
Compressed Air	261,304	0.0%	81%
Refrigeration	50,744	94.6%	8%
Appliance	2,318	0.0%	56%
Controls	1,400	0.0%	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 1. Measure Category / Strata Level Realization Rate Detail

Sample Results	Claimed Savings in Population				Claimed kWh (sample)			Verified kWh (sample)			Realization Rate (sample)			RR Normalizing Factor (Population)			Weighted Realization Rate end goal
	Tier 1	Tier 2	Tier 3	Total	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3	Tier 1	Tier 2	Tier 3	
Lighting - CI	30,402,890	24,182,101	26,121,010	80,706,001	4,048,899	1,071,541	131,726	3,940,161	1,081,641	80,304	97%	101%	61%	0.3767	0.2996	0.3237	87%
HVAC - CI	2,818,998	3,756,053	2,353,034	8,928,085	139,596	151,780	0	119,565	182,988	0	86%	121%	56%	0.3157	0.4207	0.2636	93%
Motors - CI	21,928	454,734	244,917	721,579	21,928	0	0	58,820	0	0	268%	103%	56%	0.0304	0.6302	0.3394	92%
Food Service	0	38,577	649,953	688,530	0	0	0	0	0	0	100%	103%	56%	0.0000	0.0560	0.9440	59%
Compressed Air -	0	138,226	123,078	261,304	0	0	0	0	0	0	100%	103%	56%	0.0000	0.5290	0.4710	81%
Building Shell - CI	17,966	733,183	291,830	1,042,979	0	0	37,334	0	0	37,334	98%	103%	100%	0.0172	0.7030	0.2798	102%
Controls - CI	0	1,400	0	1,400	0	0	0	0	0	0	100%	103%	100%	0.0000	1.0000	0.0000	103%
Office	0	2,772,954	2,241,278	5,014,232	0	213,030	0	0	213,678	0	100%	100%	56%	0.0000	0.5530	0.4470	81%
Refrigeration - CI	0	2,744	48,000	50,744	0	0	48,000	0	0	998	100%	103%	2%	0.0000	0.0541	0.9459	8%
Appliance - CI	0	0	2,318	2,318	0	0	0	0	0	0	100%	100%	56%	0.0000	0.0000	1.0000	56%
Dairy Farm Equipr	0	114,257	240,669	354,926	0	0	0	0	0	0	100%	103%	56%	0.0000	0.3219	0.6781	71%
Irrigation - Ag	0	85,528	840,578	926,106	0	0	52,697	0	0	33,569	100%	103%	64%	0.0000	0.0924	0.9076	67%
Sub-Total	33,261,782	32,279,757	33,156,665	98,698,204	4,210,423	1,436,351	269,757	4,118,546	1,478,307	152,205							
Other	0	0	0	0	0	0	0	0	0	0	100%	100%	100%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
TOTAL	33,261,782	32,279,757	33,156,665	98,698,204	4,210,423	1,436,351	269,757	4,118,546	1,478,307	152,205	98%	103%	56%	0.3370049	0.3270552	0.3359399	86%

Appendix C RTF Reference Tables

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

Table 2. HVAC Interactive Factors (A)

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

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

Table 3. HVAC Interactive Factors (B)

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

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

Table 4. HVAC Interactive Factors (C)

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

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

Appendix D EM&V Best Practices

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

Table 5. EM&V Best Practice Studies Reviewed

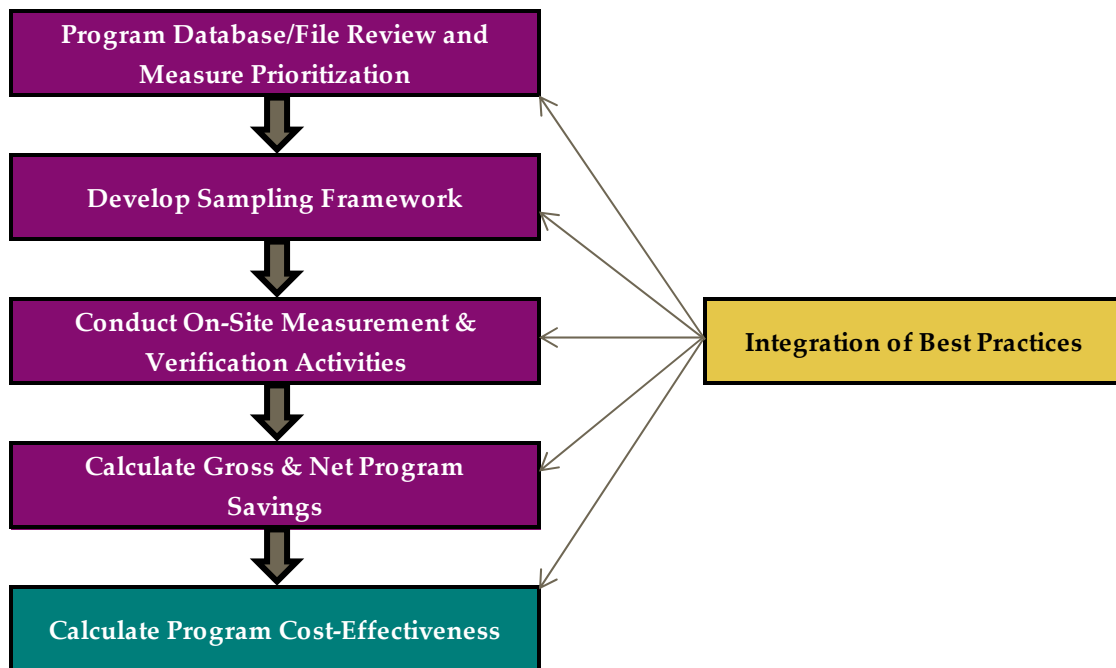
Organization	Study Name	Publication Year
National Renewable Energy Laboratory (NREL) Department of Energy (DOE)	The Uniform Methods Project: Methods for Determining Energy Efficiency Savings for Specific Measures	2013
The Brattle Group	Measurement and Verification Principles for Behavior-Based Efficiency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

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

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

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

Figure 2. Overview of Impact Evaluation Strategy



Appendix E *wattsmart* Business Program Logic Model

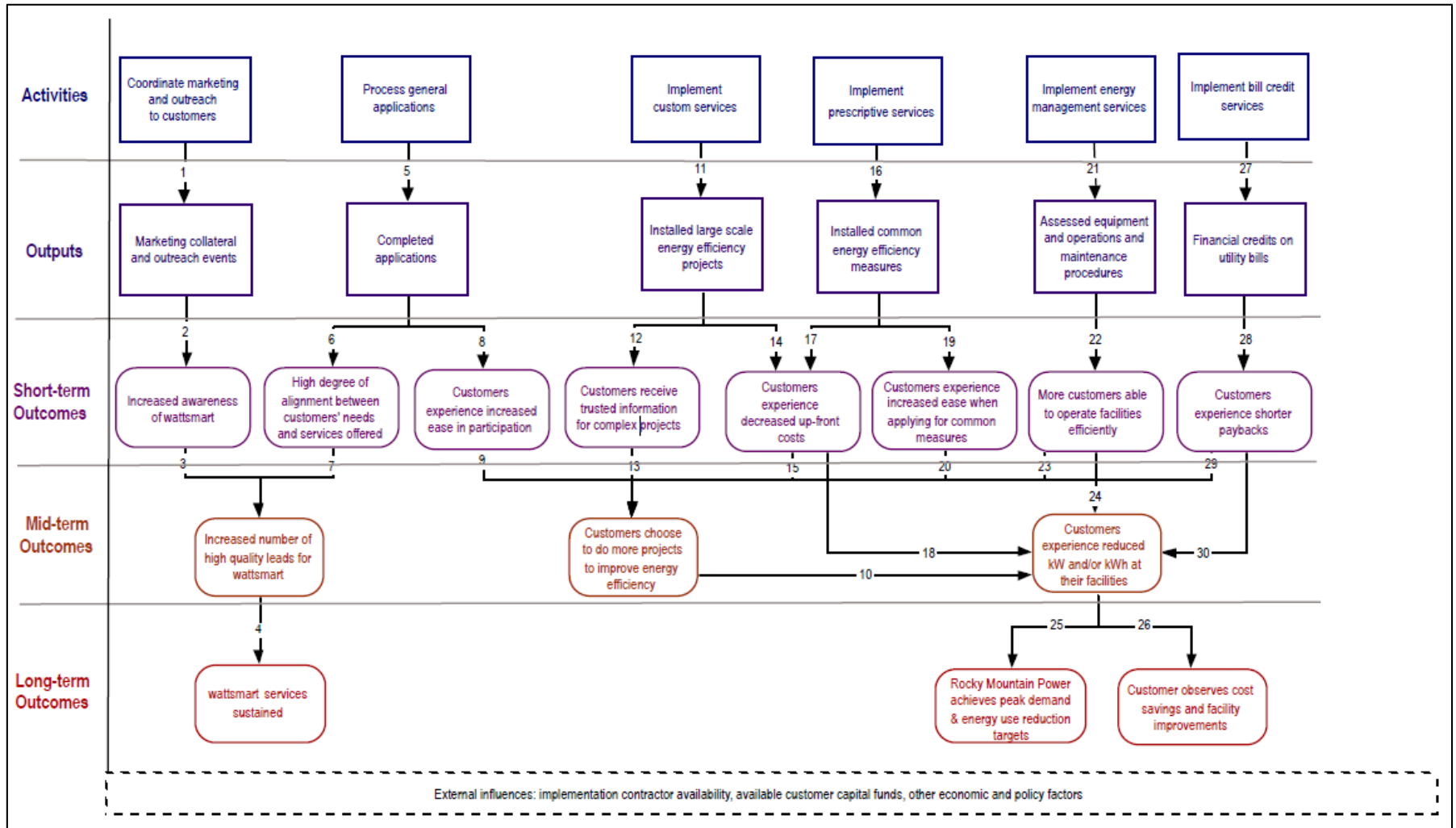
The *wattsmart* program is an umbrella program encompassing all of Rocky Mountain Power’s energy efficiency services. The *wattsmart* program provides customers with a suite of programs based on the former Rocky Mountain Power energy efficiency programs:

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

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

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

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



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

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

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

Appendix F Web Usability Sessions

In order to evaluate the usability of the *wattsmart* incentive website, the evaluation team conducted a series of web usability sessions with customers and trade allies.

The evaluation team recruited customers and trade allies in Utah who had previously participated in the Company's *wattsmart* or FinAnswer Express incentive programs. The evaluation team randomly contacted 150 commercial and industrial (C&I) customers from a sample of past incentive program participants and completed web usability sessions with eleven customers. For the trade ally web usability session, the evaluation team deliberately targeted trade allies across a broad range of activity levels making sure to include those who are most active in the incentive program, so that our findings would be applicable across all levels of participation. In addition, because the lighting incentives are the most popular and pervasive choice in the incentive program, the evaluation team focused on trade allies in the lighting business. The evaluation team contacted 38 trade allies and conducted sessions with 11 (10 lighting trade allies and one HVAC trade ally).

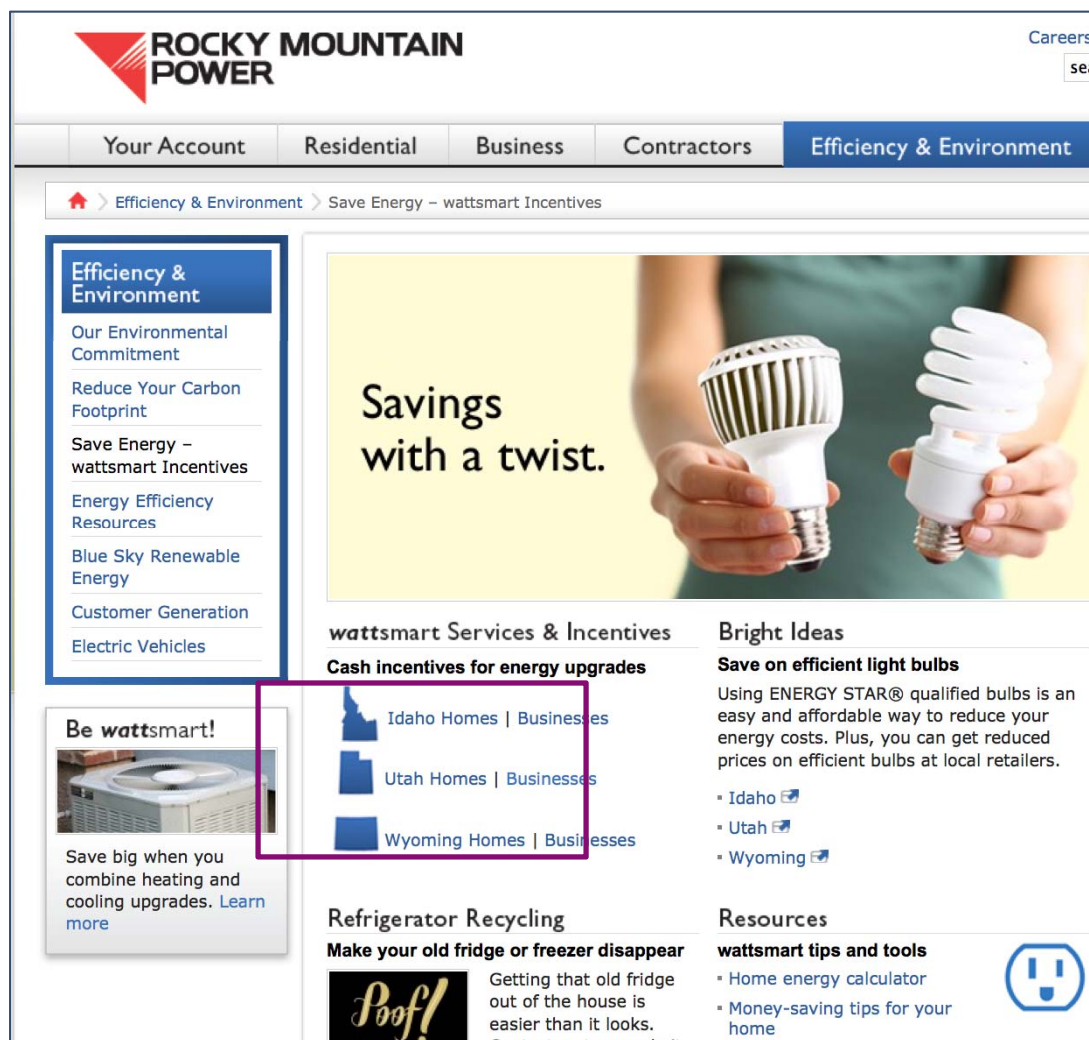
To help recruit usability session participants, the evaluation team offered \$75 Amazon gift cards for participation. The evaluation team conducted and recorded both usability sessions using GoToMeeting screen-sharing software. The evaluation team used the moderator guides to lead participants through the *wattsmart* website and observe whether customers and trade allies were able to navigate the website easily in order to find information relevant to their needs. The evaluation team designed the questions in the moderator guide to be open-ended in order to allow participants to interact with the website as naturally as possible. The evaluation team conducted customer sessions remotely via GoToMeeting, while they conducted the trade ally sessions on site in the Salt Lake City metropolitan area. Conducting the trade ally sessions in person allowed the evaluation team to observe in detail how the trade allies conducted business and the limitations of their technological set-ups. The evaluation team used the usability session recordings to synthesize findings as well as create a presentation in order to share these findings with the Company.

F.1 C&I Customers

The evaluation team conducted 11 usability sessions with C&I customers across Utah representing a wide array of business types and job titles. Using the moderator guides, the evaluation team led customers through four scenarios in which the customers might use the *wattsmart* site as a source of information and guidance. The scenarios were all related to finding information about lighting incentives, because lighting incentives are the most pervasive of the incentives offered by Rocky Mountain Power. The evaluation team instructed customers to think aloud during the process of navigating the website to provide valuable insight into what parts of the website customers found useful or frustrating and to illustrate how customers took their cues in navigating the site from design signposts that can be unintentionally misleading.

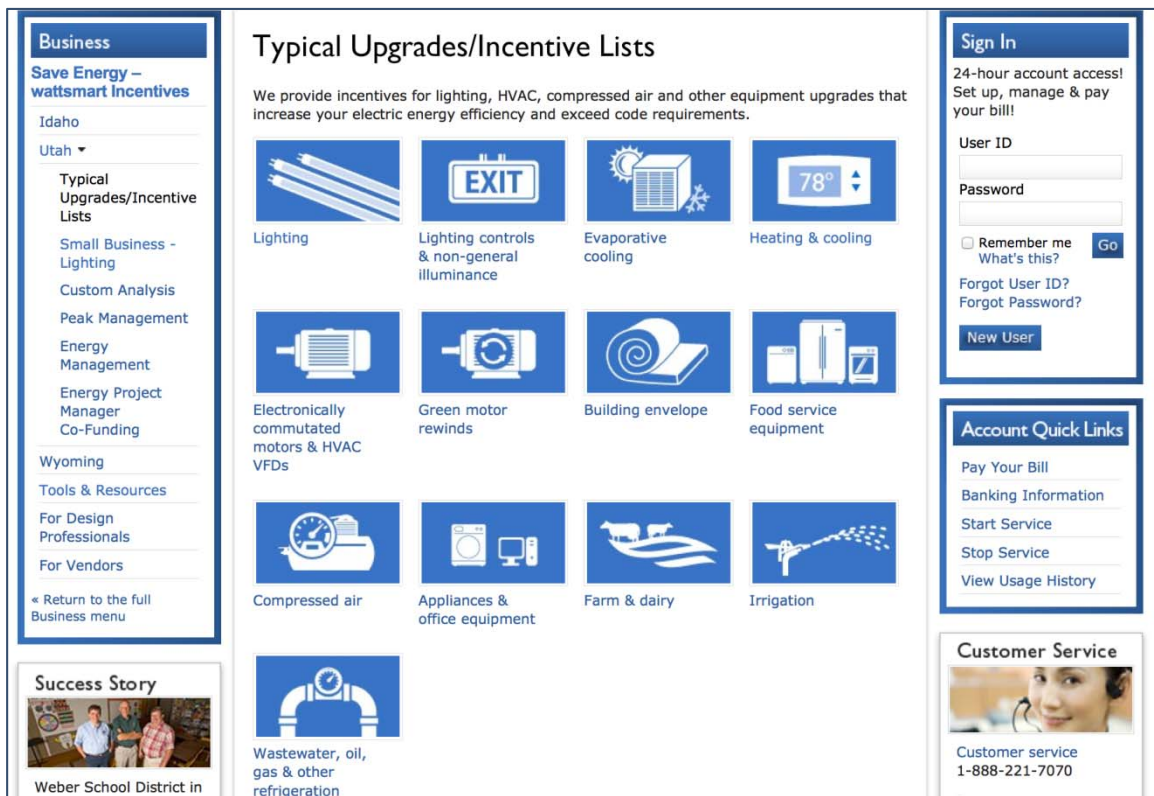
There were issues with consistency in the interface and descriptions across several pages of the website, most markedly in the Utah, Idaho, and Wyoming icons on the *wattsmart* entry page (Figure F-1.)—while almost every other image on the site is linked to another page, these icons do not contain links. Additionally, there are several images that link to case studies; however, there is no text or other indication that these images contain links. Finally, the descriptions on the sidebar and in the block of text above the icons on the “*wattsmart* Services & Incentives for Utah” page do not match the links exactly and are in different order in different places. While these are small issues, they make the site more cognitively challenging to navigate, which increases the risk that customers will become frustrated and choose not to pursue an incentive through the *wattsmart* program.

Figure F-1. *wattsmart* Entry Page



Nearly all respondents reacted very positively to simple and highly graphical layouts, in particular the “Typical Upgrades/Incentives List” page and the “Overview of incentive programs for Utah businesses” PDF. Respondents found the “Typical Upgrades/Incentives List” page, shown in Figure F-2., easy to understand and easy to use in large part because the layout was so simple and there was so little text on the page. Respondents reacted negatively to very text-heavy pages, such as the “Lighting—Small Business and Lighting” pages. Typically, once customers reached these pages, customers reported that they would be likely to contact Rocky Mountain Power for assistance.

Figure F-2. Typical Upgrades/Incentives List Page



The diversity among respondents demonstrates the broad potential audience for the *wattsmart* website. Most of the respondents had reasonable technical skills, yet still encountered difficulties in navigating the *wattsmart* website. With improvements in navigation consistency across pages, customers will be better able to navigate the website and use it as a resource in determining whether to seek an incentive through Rocky Mountain Power.

F.2 Trade Allies

The evaluation team conducted 11 usability sessions with trade allies in the Salt Lake City region, including: five distributors/suppliers, four contractors, and two manufacturing reps. As with the customer usability study, the evaluation team followed the moderator guide to discuss four scenarios. These scenarios were possible ways trade allies may use the website in order to research the *wattsmart* incentive program and see whether or not it is the right choice for their customers. The evaluation team instructed respondents to think out-loud during the process of navigating the website in order to discover how the trade allies' experiences of the website differed from the customers' experiences, and how their experiences overlapped.

The trade allies' experiences of the overall layout and design of the website were very similar to the customers' experience, particularly in the popularity and ease of use of graphical, simply laid out pages, as opposed to the more text-heavy pages, which they found difficult to navigate. Trade allies also encountered the same issues as the customers with inconsistency in interface and descriptions particularly in the Utah icon, case study links, and page descriptions. Like the customers, most trade ally respondents had rarely interacted with the website before the usability session was conducted.

While for the most part the customer and trade ally experiences of the website were very similar, there were several important differences. In particular, *wattsmart* intends the website's Energy Efficiency Alliance (EEA) portal as a tool exclusively for trade allies, who set a username and password to access this part of the website (see Figure F-3.). All but two of the trade allies we spoke to had rarely, if ever visited, this part of the website and most experienced difficulty in recalling their username and password or had this information written on a piece of paper stored in their workstation. Once the trade allies were able to access this part of the website, the only facet of this portal unavailable on the rest of the website was an incentive calculator tool that the vast majority of trade allies already had stored on their computer desktop for easy access.

Figure F-3. EEA Website Access Page

ROCKY MOUNTAIN POWER

Home Programs Training & Events Forms & Resources Join the EEA Find a Vendor About Us Contact Us

Energy Efficiency Alliance

Announcements

Idaho Proposes Consolidating Programs to wattsmart Business

IMPORTANT! Rocky Mountain Power has filed an application with the Idaho Public Utilities Commission to consolidate the existing commercial, industrial and agricultural energy efficiency programs into a single program called wattsmart Business. If approved by the Commission, the effective date of the changes will be November 1, 2014.

The proposed changes will streamline the incentive process and include an enhanced lighting retrofit offering for small business customers. View a summary of the [planned changes and planned revisions to the incentive tables \(PDF\)](#) . If you have questions or need more information, please [contact us](#) .

Wyoming Program Changes Pending

IMPORTANT! Rocky Mountain Power has filed an application with the Wyoming Public Service Commission to consolidate the existing commercial and industrial energy efficiency programs into a single program called, wattsmart Business. If approved by the Commission, the effective date of the changes will be on or before January 1, 2015.

The proposed changes will streamline the incentive process and - in most cases - increase the value of the incentives. View a summary of the [planned changes \(PDF\)](#) . If you have questions or need more information, please [contact us](#) .

Bid Request for Idaho Lighting Contractors:
Your Opportunity to Offer Exclusive Idaho wattsmart® Business Lighting Incentives

Join the EEA

Join the Energy Efficiency Alliance and start enjoying the many benefits today.

Find a Vendor

To find an Energy Efficiency Alliance vendor, please [click here](#).

Looking for Pacific Power?

PACIFIC POWER

[Click here](#) to go to the California and Washington EEA website.

In fact, most trade allies had access to this incentive calculator because a member of the program staff had emailed it to them, as well as any other program documents they might need. The majority of trade allies we spoke with worked closely with program staff and would be much more likely to simply call or email their contact than seek information on the website. On the one hand, the finding reveals that trade allies trust and seek out the guidance of program staff. On the other hand, if trade allies were empowered to use the website and the website was organized to point them in the direction of relevant materials, staff resources could be dedicated to other projects, potentially making more time to recruit new trade allies.

Appendix G FinAnswer Express Participant Survey

Variables

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

Introduction and Screen

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

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

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

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

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

3. NO/REFUSED → **TERMINATE**

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

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

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

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

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

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

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

IS2c. May I speak with that person?

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

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

1. &MEASURE_1
2. &MEASURE_2
3. &INSTALLED_MEASURES
4. None of these
88. DON'T KNOW/NOT SURE
99. REFUSED

[IF IS2a < 4, SKIP TO IS3]

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

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

99. REFUSED

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

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

Project Recall

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

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

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

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

Awareness & Participation

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

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

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

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

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

[IF MORE THAN ONE RESPONSE TO AP2]

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

[ALLOW ONLY ONE RESPONSE..]

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

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

Website Section

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

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

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

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

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

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

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

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

Pre-Installation Section

[IF &PROG_CODE=2 OR &PREDATE not NULL, ask EE1; ELSE, skip to EE3]

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

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

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

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

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

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

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

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

[IF &PROG_CODE=2 OR &PM=1, ASK EE5; ELSE, skip to IM1]

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

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

EE6. Why not?

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

Installed Measures

[IF &NC=1, SKIP to FR1]

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

[SET &MEASURE_# = &MEASURE_1]

IM1. Did the &MEASURE_# installed through the program replace existing equipment or was it a new installation?

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

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

1. [COLLECT: IM_CONTACT_NAME, IM_CONTACT_PHONE, and IM_CONTACT_EMAIL]
→ SKIP TO IC1

IM2. What was the operating condition of the equipment that the &MEASURE_# replaced?

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

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

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

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

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

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

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

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

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

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

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

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

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

[IF MULT_MEASURES=1 SET &MEASURE_#=&MEASURE_2 GO BACK TO IM1; ELSE GO TO NEXT SECTION]

Post-Installation

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

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

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

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

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

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

Free Ridership

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

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

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

[IF &MULT_MEASURES=1, say “I’ll be asking the next questions first about &MEASURE_1 and again for &MEASURE_2]

[SET &MEASURE_# = &MEASURE_1]

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

[

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

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

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

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

FR3. Without the program, would you have installed any &MEASURE_# equipment?

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

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

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

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

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

FR6. Would you have installed more, less, or the same amount of &MEASURE_#?

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

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

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

[IF MULT_MEASURES=1 SET &MEASURE_#=&MEASURE_2 GO BACK TO FR2A; ELSE GO TO NEXT SECTION]

Spillover

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

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

[IF &MULT_MEASURES=1, say "I'll be asking the next questions first about &MEASURE_1 and again for &MEASURE_2]

[SET &MEASURE_# = &MEASURE_1]

SP2. Did you purchase or install any energy efficiency improvements that are the same as &MEASURE_#?

1. YES --> SP3
2. NO --> **[IF MULT_MEASURES=1 SET &MEASURE_#=&MEASURE_2 GO BACK TO SP2; ELSE GO TO SP9]**
3. 88. DON'T KNOW/NOT SURE → **SKIP TO SP9**
4. 99. REFUSED → **SKIP TO SP9**

SP3. How many did you purchase or install?

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

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

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

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

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

SP6. What program or sponsor provided an incentive?

1. **&PACIFICORP**

2. [RECORD RESPONSE]

88. DON'T KNOW/NOT SURE

99. REFUSED

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

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

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

[IF SP6 < 1]

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

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

[IF MULT_MEASURES=1 SET &MEASURE_#=&MEASURE_2 GO BACK TO SP2; ELSE GO TO SP9]

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

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

Barriers

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

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

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

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

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

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

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

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

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

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

[IF MORE THAN ONE RESPONSE TO B5]

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

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

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

Satisfaction

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

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

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

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

Firmographics

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

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

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

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

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

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

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

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

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

[THANK RESPONDENT AND TERMINATE SURVEY]

Appendix H FinAnswer Express Trade Ally Survey Guide

Introduction

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

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

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

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

State	Population			Target Completes		
	N	% Active	% Inactive	Active	Inactive	Total
UT	242	45%	55%	25	31	56
WY	133	42%	58%	15	21	36
WA	87	54%	46%	12	11	23
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 2012-2013 in **[RESPONSE TO A6]**?

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

[ASK IF E1=2]

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

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

[ASK IF E1=2]

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

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

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

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

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

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

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

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

E6. How influential has the FinAnswer Express Program been in motivating your firm to stock program-eligible equipment at in **[Response to A6]**, on a scale of 1 to 5, with 1 being not at all influential and 5 being extremely influential? **[CREATE MATRIX BASED ON RESPONSES FROM A6; RANDOMIZE ORDER OF MATRIX ENTRIES; RANDOMIZE ORDER OF RESPONSES]**

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

Program Communications

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

[SLIDER BAR]

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

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

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

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

1. **[RECORD RESPONSE]**
2. None
- 8. Don't know

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

[SLIDER BAR]

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

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

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

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

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

Program Participation

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Value to Business

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

1. FinAnswer Express customer incentives
2. Knowledge gained through the Energy Efficiency Alliance
3. [**\$_PACIFICORP**] brochures summarizing customer incentives
3. Use of the Online Lighting Tool
4. Your firm's name on the list of qualifying vendors

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

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

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

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

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

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

Program Improvement

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

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

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

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

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

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

Recruitment for Web Usability Study

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

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

H2. [ASK IF H1 = 1] The study would take place in-person, at your office and last approximately 30 to 45 minutes. Studies will occur during the week of August 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]**