



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

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RMP



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Executive Summary

This report describes the findings from Navigant’s impact and process evaluation of Idaho’s Energy FinAnswer program years 2012 through 2013 (PY 2012-2013), including program- and project-level gross and net realization rates, program cost-effectiveness results, feedback from program participants concerning satisfaction, and areas for improvement for the program as a whole. These evaluation results generated recommendations for improving program processes, methods, and delivery as Energy FinAnswer transitions to the *wattsmart* Business program.

Program Background

The Energy FinAnswer program offered custom incentives and engineering services to commercial and industrial (C&I) customers in Idaho for implementation of energy efficiency measures (EEMs).¹

The EEMs included both equipment installed as upgrades (i.e., retrofits) to existing equipment and equipment installed as part of new construction projects. Commercial retrofit projects must have covered a minimum size of 20,000 square feet per electric meter to be eligible. Commercial new construction and all industrial projects were eligible regardless of facility size. Rocky Mountain Power (RMP) project managers implemented the Energy FinAnswer program with support from an established network of energy engineering firms under contract with RMP.

Evaluation Objectives

This evaluation addressed the following objectives:

- » Verify the annual and combined PY 2012-2013 gross and net energy and demand impacts of RMP’s Energy FinAnswer program
- » Review the effectiveness of program operations, highlighting achievements and identifying opportunities for process improvement
- » Characterize participant and near-participant motivations
- » Perform cost-effectiveness calculations on evaluated results for each year evaluated and in total

Impact Evaluation

The impact evaluation of RMP’s Energy FinAnswer program quantified energy and demand impacts for incented technologies, including the following:

¹ Qualifying rate schedules are: 6, 6A, 8, 9, 12, 19, 23, 23A, 24, 35 and 35A. Dairy barns on residential rates qualify as commercial facilities per the Energy FinAnswer Tariff 125.1

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

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

- » Gross program demand and energy savings estimates and realization rates for projects
- » Energy usage profiles for 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, spreadsheet reviews, weather-normalized utility meter analysis, and interviews with facility staff to determine the evaluated savings for each project sampled during the PY 2012-2013 evaluation. The verification sample included 14 of the 24 projects that participated in PY 2012-2013 and represented 88 percent of reported program savings. This sample achieved a 90/2 confidence and precision at the program level.

The PY 2012-2013 gross program energy savings realization rate was 95 percent while the gross program demand savings was 93 percent. Table ES-1 provides the *program-level* reported and evaluated gross kilowatt (kW) and gross kWh realization rates at the customer meter.

Table ES-1. Gross Program-Level Realization Rates for ID Energy FinAnswer (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	18	8	45%	318,915	327,180	103%
2013	147	145	99%	2,339,279	2,199,950	94%
All	165	153	93%	2,658,194	2,527,130	95%

Net-to-Gross Ratio (NTGR)

The evaluation team used the results from program participant surveys to calculate an NTGR of 0.79 for Idaho’s Energy FinAnswer PY 2012-2013. Section 3.2 provides further detail on the NTG results.

Cost-Effectiveness

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

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

Benefit/Cost Test Performed	Evaluated Gross kWh Savings	Evaluated Net kWh Savings	Evaluated Costs	Evaluated Benefits	B/C Ratio
PacifiCorp's Total Resource Cost Test (PTRC)	2,527,130	1,996,433	\$824,738	\$1,616,286	1.96
Total Resource Cost Test (TRC)	2,527,130	1,996,433	\$824,738	\$1,469,351	1.78
Utility Cost Test (UCT)	2,527,130	1,996,433	\$488,472	\$1,469,351	3.01
Rate Impact Measure Test (RIM)	2,527,130	1,996,433	\$2,038,836	\$1,469,351	0.72
Participant Cost Test (PCT)	2,527,130	1,996,433	\$713,248	\$2,189,686	3.07

Process Evaluation

The process evaluation characterized the Energy FinAnswer program from the perspective of program staff, participants, and near participants in order to identify both existing strengths and areas for refinement that may better serve the Idaho commercial and industrial market as Energy FinAnswer transitions to the *wattsmart* Business program. The evaluation team surveyed 61 participants in 2012 and 2013 and interviewed 10 near-participants in August 2014, and combined results with information from program staff interviews to create a comprehensive view of the Energy FinAnswer program from 2012 to 2013.

Important findings from the process evaluation include the following:

- » **The program information delivery is providing customers useful information.** All participants (100 percent) found the Energy Analysis Report (EAR) to be useful and were satisfied with their initial inspection. Additionally, no customers reported disappointment with measure performance, indicating that they were prepared with accurate information on expected performance.
- » **The program has very high repeat participation.** More than half of participant respondents had worked with RMP on a project other than the one discussed in the survey. This success at repeat participation indicates satisfaction with the program and understanding of program steps. A small portion of respondents indicated hearing about the program directly from a RMP program representative, and no respondents mentioned advertising.
- » **Participants report expecting and experiencing non-energy benefits stemming from their projects.** Nearly half (4 of 9) of the participants anticipated receiving other benefits beyond energy efficiency from the installed EEMs. Two anticipated better quality, one expected increased flexibility, and one anticipated increased water pressure. All four participants confirmed observing these non-energy benefits, as anticipated, after their projects were completed and were satisfied that the new EEMs met their expectations.
- » **Program satisfaction was high for participants.** Eighty-nine percent of participant respondents were satisfied with the program overall. No participant respondents were dissatisfied. The one respondent who was neutral wanted a higher incentive for the measure. Customers who are aware of the performance of their measures indicate that the measures are meeting expected energy and non-energy benefits.

Program Evaluation Recommendations

Based on the findings from this evaluation, the evaluation team provides a summary of recommendations to enhance the delivery efficiency and effectiveness of the Energy FinAnswer Program during the transition to the *wattsmart* Business program.

- » **Recommendation 1: Include demand savings in tracking database.** Several projects provided demand savings and included the calculations in the project files but the program database showed zero demand savings for most projects. This inconsistency resulted in a realization rate (820%) that does not provide a meaningful insight enabling RMP to assess the effectiveness of procedures such as on-site verification. In addition, incomplete demand savings from the tracking database prevents RMP from using the tracking database to perform QC analysis on incentive calculations at both the project-levels and program level.
- » **Recommendation 2: Utilize advertising and increase outreach to build awareness of the program and its benefits.** The most effective messages include the program incentives, energy savings, and non-energy benefits. Monitor effectiveness in low cost ways, such as adding a question to the application to identify how customers learned about the program or surveying contractors.

- » **Recommendation 3: Verify that post-installation inspections are occurring as expected and that quality control and assurance procedures are in place to validate sufficient post inspections.**

Program tracking data did not include completion dates for the post-installation inspection for any of the program participants surveyed. The evaluation team anticipates post-installation inspections for all measures, and while tracking the date of the post-installation inspection is not a step in the program logic, it is one way to verify the proper installation and working condition of these measures. It also ensures the accuracy of both the applied incentive and energy savings estimates. The new program tracking processes involved in the new *wattsmart* Business program will likely remedy this issue.

1 Introduction

This report describes the findings from Navigant Consulting, Inc.'s (Navigant's) impact and process evaluation of Idaho's Energy FinAnswer program years 2012 through 2013 (PY 2012-2013). This section provides a description of Idaho's Energy FinAnswer program, along with a discussion of the underlying program theory and logic model depicting the activities, outputs, and desired outcomes of the program.²

1.1 Program Description

The Energy FinAnswer program offers custom incentives and engineering services to commercial and industrial (C&I) customers in Idaho for implementation of energy efficiency measures (EEMs).³

The EEMs included both equipment installed as upgrades (i.e., retrofits) to existing equipment and equipment installed as part of new construction projects. Commercial retrofit projects covered a minimum size of 20,000 square feet per electric meter to be eligible. Commercial new construction and all industrial projects were eligible regardless of facility size. Rocky Mountain Power (RMP) project managers implemented the Energy FinAnswer program with support from an established network of energy engineering firms under contract with RMP. The program offering included the following:

- » A vendor-neutral, investment-grade energy analysis to identify energy efficiency opportunities
- » Financial incentives equal to \$0.12 per kilowatt-hour (kWh) of first-year energy savings plus \$50 per kilowatt (kW) of average monthly demand savings (up to 60 percent of project costs)
- » Design team honorariums and incentives for engineers and designers for new construction projects that exceeded the current Idaho commercial code International Energy Conservation Code (IECC) or ASHRAE 90.1 by a minimum of 10 percent

Incentives offered through this program were subject to a cap that prevented the incentive from reducing the payback period for a project below one year.⁴ The Energy FinAnswer program included a commissioning requirement and post-installation verification to document the energy savings and measure costs for installed measures.

1.2 Program Changes from 2012 to 2013

During the evaluated period from January 2012 to December 2013, there were no major changes to the Energy FinAnswer program (Tariff 125). RMP began marketing the Energy FinAnswer program under the *wattsmart* campaign during PY 2011, and in November 2014 formally transitioned Energy FinAnswer to become the custom portion of the *wattsmart* Business program. Future evaluations will no longer include a separate Energy FinAnswer program as part of the evaluation portfolio.

² In November 2014, the program transitioned to become the custom portion of the *wattsmart* Business program in Idaho and RMP no longer offers the program as Energy FinAnswer. However, for purposes of the PY 2012-2013 program evaluation cycle, the Energy FinAnswer program title, description, and theory still apply.

³ Qualifying rate schedules are 6, 6A, 8, 9, 12, 19, 23, 23A, 24, 35 and 35A. Dairy barns on residential rates qualify as commercial facilities per the Energy FinAnswer Tariff 125.1

⁴ Lighting only projects qualified under either the FinAnswer Express or Self-Direction Credit programs but are now all handled by *wattsmart* Business.

1.3 Program Participation

Program years 2012 to 2013 results included 24 Energy FinAnswer completed projects in Idaho: seven projects in 2012 and 17 in 2013. The 24 projects included the installation of 37 EEMs as some projects included multiple measures. Over the two-year period, the program reported 2,658,194 kWh in energy savings; Table 1 summarizes the program project counts that included the installation of the associated measure category.⁵

Table 1. Idaho’s Energy FinAnswer Measure Details for PY 2012-2013

Measure Category	Measure Type Counts ⁶	Reported kWh Savings
Motors	19	1,105,643
Controls	1	362,311
HVAC	8	350,156
Refrigeration	4	327,359
Additional Measures	2	236,902
Compressed Air	1	150,293
Lighting	1	97,846
Irrigation	1	27,684
All	37	2,658,194

Totals do not match due to rounding.

1.4 Program Theory and Logic Model

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

Developing a logic model that clearly provides the theory of action and change is an important step in evaluation, allowing the evaluator and program actors to see inside the program “black box.”⁷ Program

⁵ Measure categories here are from the program database and do not adjust for any incorrect classifications.

⁶ 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.

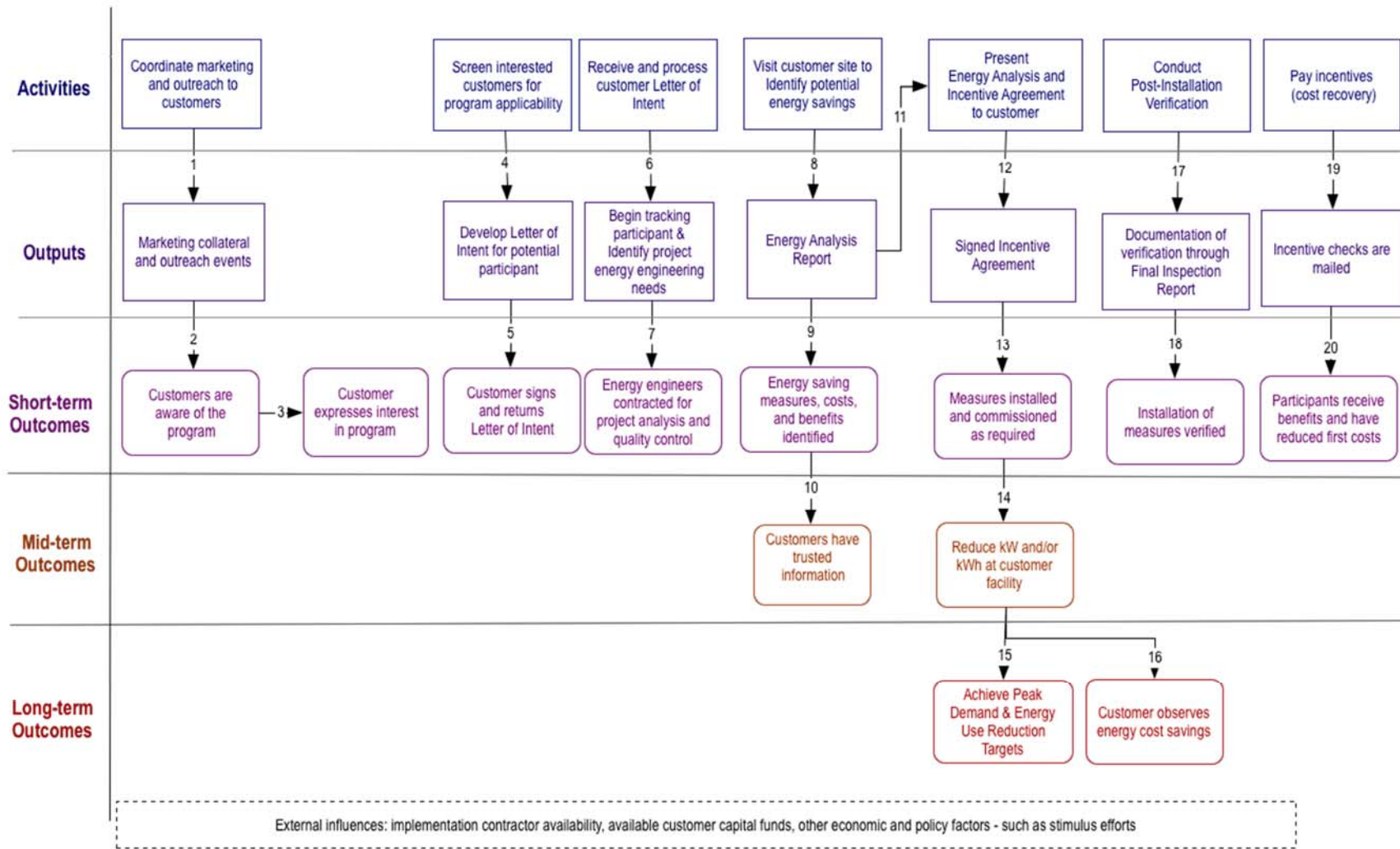
⁷ Sue Funnell and Patricia Rogers, 2011, *Purposeful Program Theory: Effective Use of Theories of Change and Logic Models*, John Wiley & Sons.

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 which could cause program shortfalls in achieving the intended outcome(s).⁸ 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 logic model (Figure 1).⁹

⁸ Section 4.2, Question 3 provides more specifics on the logic model review.

⁹ The Energy FinAnswer 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 C provides the new logic model and theory developed for the *wattsmart* program.

Figure 1. Energy FinAnswer Program Logic Model (2011)



RMP designed their Energy FinAnswer program to overcome two C&I customer barriers to implementing energy efficiency projects: *lack of trusted information* and *high upfront capital costs*. The program's primary intervention for overcoming these barriers is through the provision of technical assistance and incentives. Incentives improve customer economics while technical assistance helps to quantify opportunities in advance of customer investment. The following list describes the linkages within the program logic, with numbers corresponding to those shown in the logic model (Figure 1).

1. RMP coordinates marketing efforts with outreach through account managers. By design, RMP markets the portfolio of energy efficiency programs to customers instead of individual programs.
2. Customers become aware of the program through marketing and account managers.
3. Customers submit Letters of Intent (LOIs) directly, or express interest through the RMP efficiency program's phone number, online inquiry form, email to the energy expert, or their customer or community manager. Participants do not have to be familiar with the Energy FinAnswer program by name when expressing interest in energy efficiency or demand reduction projects.
4. RMP Project Manager (PM) screens interested customers to identify projects that are candidates for Energy FinAnswer and ensure program eligibility criteria are met.
5. PM drafts LOI and provides it to the customer along with program information.
6. The customer submits signed LOI to begin the program process. RMP receives and reviews applications. PM coordinates customer contacts with account manager, asks project screening questions, and determines the general scope of the project.
7. RMP PM selects an appropriate energy engineer from a list of prequalified engineering firms that support RMP. The PM contracts with the energy engineer to scope and analyze the project potential.
8. The energy engineer visits the customer's facility and identifies savings opportunities. The engineer develops an Energy Analysis Report (EAR), which includes EEMs that could improve efficiency as well as potential costs, savings, and any commissioning necessary to ensure proper EEM operation and savings.¹⁰ In many cases, the energy engineer visits the customer's facility and submits an initial scoping report, called an Initial Site Visit Report or Preliminary Energy Analysis Report (PEAR), to the PM before conducting a detailed energy analysis. PM discusses scoping with customer, conducts further screening, and decides to move forward with energy analysis. Small or well-defined projects may go forward with a PEAR to avoid unnecessary analysis expense; the PM will make the determination to go ahead based on project timeline and size.
9. As a quality control measure, RMP requires that EARs be peer-reviewed by a second energy engineering consultant before delivering the report to the customer. The EAR and peer review ensure the identification of appropriate EEMs, costs, and savings.

¹⁰ For some Energy FinAnswer projects, RMP requires the customer to commission certain measures. The EAR provides details regarding these requirements on a measure-specific basis. If the customer chooses not to commission the project, when it is required, their incentive will be based on kWh savings and allowed project costs that are reduced by 20 percent. Commissioning reports are submitted to RMP along with invoices and other documentation before the incentive is awarded to the customer.

10. The customer can rely on this information to make decisions, reducing information barriers. Throughout the customer's participation, RMP provides technical support, as needed, to ensure that implementation meets the intent and requirements of the program.
11. The customer receives the EAR and Incentive Agreement highlighting incentives and stipulations for recommended measures.
12. RMP and the customer reach an agreement on which measures to implement, and the customer signs the Incentive Agreement. Before purchasing or installing equipment, the customer is required to sign an incentive agreement with RMP based on the EAR estimates.
13. The customer or contractor implements the EEMs, completing commissioning for those EEMs prescribed in the EAR. The customer notifies RMP of project completion and the status of any expected commissioning.
14. EEMs reduce energy consumption (and, in some cases, demand) at the facility.
15. Reduced energy consumption contributes to meeting annual program targets.
16. Customers experience reduced energy costs.
17. An energy engineer verifies proper installation of measures, reviews commissioning report (if any) and obtains invoicing information.
18. RMP receives a Final Inspection Report (FIR). The FIR documents verification of energy savings; verification ensures that expected savings occur.
19. RMP processes incentives after final incentive calculation.
20. RMP mails the incentive to the customer, reducing the customer costs for the project.

The process evaluation team compared actual program outcomes with the outcomes expected in the logic model by identifying indicators for each expected outcome. The process evaluation team sourced the indicator data either from directly observable program tracking data or other archives, or through analysis of survey or interview responses. Table 2 identifies these indicators and corresponding data sources.

Table 2. Indicators and Data Sources for Program Outcomes

Outcome	Indicator	Data Source
Short-Term Outcomes		
Customers are aware of the program.	Non-participant awareness	Customer surveys
Customer expresses interest in the program.	Program attracts interested participants; participation	Customer surveys; program tracking data; non-participant data
Customer signs and returns LOI.	LOI in project file	Project files; customer surveys
Energy engineers selected for project analysis and quality control.	Engineers identified for projects	Program tracking data; energy engineer interviews
Energy-saving measures, costs, and benefits identified.	Energy analysis report includes measures, costs, and benefits.	Project files; customer surveys; energy engineer interviews
Measures installed and commissioned as required.	Commissioning report in project file; final inspection report; invoices	Project files; customer surveys; energy engineer interviews
Installation of measures verified.	Verification in project file	Project files; energy engineer interviews
Customers receive benefits and have reduced first costs.	Customers receive benefits	Cost recovery in program tracking data; customer surveys
Mid-Term Outcomes		
Customers have trusted information.	Customers find technical assistance valuable.	Customer surveys
Reduce kW and/or kWh at customer facility.	Customers realize expected savings.	Customer surveys
Long-Term Outcomes		
Achieve peak demand and energy use reduction targets.	RMP meets targets.	Program goals; program tracking data
Customers observe energy cost savings.	Customers realize expected savings.	Customer surveys

2 Evaluation Methodology

The following chapter describes the evaluation methodologies used in Idaho’s 2012-2013 Energy FinAnswer program. The evaluation team developed and informed these methods through an independent review of evaluation best practices.¹¹

2.1 Impact Evaluation Methodology

This section summarizes the impact evaluation methods used to develop project- and program-level realization rates for the Energy FinAnswer program. Findings provide RMP staff with the feedback to increase program efficacy and to advance the research and policy requirements of the Idaho Public Utilities Commission by providing an independent quantitative review of program achievements.

The impact evaluation of Idaho’s Energy FinAnswer program aimed to characterize energy and demand impacts for incented projects in the 2012 through 2013 program years, including the following:

- » 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 C&I technologies obtained through measurement and verification (M&V) activities

See section 0 for gross and net impact results.

The Energy FinAnswer program includes only custom projects. The most common evaluation method employed for these projects typically involves a combination of International Performance and Measurement Verification Protocol (IPMVP) Options A and B in which the evaluation team either metered the individual equipment power consumption, or obtained facility data showing records of equipment operation.¹² In cases where the project affected a significant portion of energy use on a utility meter, such as with many of the variable frequency drive (VFD) installations on ventilation fans in potato storage cellars, the evaluation team employed IPMVP Option C for savings analysis, normalized by short-term measurements and logged trend data.

¹¹ See Appendix B for detail on EM&V best practices.

¹² 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.

2.1.1 Project File Reviews

A thorough review of the Energy FinAnswer project files allowed the evaluation team to increase the accuracy of calculated measure savings and demand reductions, thereby ensuring that they were representative of installation conditions. The evaluation team reviewed each project file, characterizing any data gaps, looking for consistency issues, and checking the accuracy of the information used to estimate project-level savings. The team also assessed the variability and uncertainty between RMP’s input assumptions and secondary studies, along with the relative impact on energy and demand savings. This primarily involved weather data from the National Oceanic and Atmospheric Administration and Typical Meteorological Year Three.

Figure 2 presents an example of the overview of parameters verified through the project file review process. Overall, the evaluation team found the Energy FinAnswer project files and assumptions to be sound and within industry standards. Note: the values below are fictitious and not actual examples from the RMP database.

Figure 2. Parameters Verified Through Project File Reviews (Example)

Site Name	Sample
Site Address	Address
Project #	EF000_000604
Program	Idaho Energy FinAnswer
Customer Name	Contact name
Program Year	2013
Project Description	Install VFDs on ventilation fans
Measure Category[ies]	Motors
Installation Date	September 2012*
Incentive Amount	\$6,780
NCI M&V Report Author	Navigant
NCI Field Staff Present On-Site	Navigant
Site Visit Date(s)	11/5/2014
Site Visit Type	Verification and measurement

**Several projects completed in 2012 were verified and credited in 2013.*

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 within the population.

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 a 90/2 confidence and precision across PY 2012-2013 by energy (kWh) savings.¹³ Table 3 provides an overview of the impact evaluation framework representing 88 percent of the reported Energy FinAnswer program savings.

Table 3. Overview of the Impact 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 ¹⁴
1	400,000	3	3	1,408	1,408	100%
2	150,000	3	3	538	538	100%
3	0	18	8	712	400	56%
Total	-	24	14	2,658	2,346	88%

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

¹³ The evaluation team planned for 90/10 by program and state.

¹⁴ 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.

- » 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 projects¹⁵

The program-level realization rate is the ratio of the product of case weights and *verified* savings estimates and the product of case weights and *reported* savings estimates, as illustrated in the following equation:

$$\text{Program Realization Rate}_i = \frac{\sum_{i=1}^n \text{Case Weight}_i \times \text{Verified Savings Estimate}_i}{\sum_{i=1}^n \text{Case Weight}_i \times \text{Reported Savings Estimate}_i}$$

See section 4 for energy and demand realization rate results.

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.¹⁶ 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 (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 4 presents details of the cost-effectiveness tests accepted by RMP.

¹⁵ The evaluation team combined individual measure-strata realization rates into a weighted average realization rate for the given measure, as well as for the sample as a whole. The team applied the sample-level weighted realization rate to measures in the population not reflected or underrepresented in the sample. The team also applied measure-level weighted realization rates to measures with sufficient representation in the sample (i.e., lighting and PC Power management) in order to extrapolate them to the population.

¹⁶ 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.

Table 4. Details of Cost-Effectiveness Tests¹⁷

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

Section 3.3 provides the cost-effectiveness results and findings for each of the evaluated program years.

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 Energy FinAnswer program. Examples of such sources include the following:

- » Sample selection bias
- » Physical measurement bias (e.g., meter bias, sensor placement, and non-random selection of equipment or circuits to monitor)
- » Limitations of short-term trend data for projects with seasonal year variations
- » Engineering analysis error (e.g., baseline construction, 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.

¹⁷ National Action Plan for Energy Efficiency (NAPEE), November 2008, “Understanding Cost Effectiveness of Energy Efficiency Programs: Best Practices, Technical Methods, and Emerging Issues for Policy – Makers”, <http://www.epa.gov/cleanenergy/documents/suca/cost-effectiveness.pdf>.

2.2.1 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 Energy FinAnswer program, a large measurement effort involved installing lighting/current/power loggers to determine the operating characteristics of incanted 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:

- » **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 (e.g., time delay), to ensure proper data comparisons across a uniform period.
- » **Logger Placement:** The field staff used a prescribed protocol for the placement and installation of loggers on circuits (i.e., current transformer placement) and fixtures (i.e., uniform distance from the lamps) to minimize biases arising from the improper placement of loggers.
- » **Logging Period:** Usage patterns for retrofit measures may vary from month to month, so sampling for a short duration could introduce a degree of error into the overall results. The evaluation team reduced this type of error by typically deploying loggers for a minimum of four weeks, and supplemented them with available facility records (e.g., 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.

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
- » Data collection protocols that yielded appropriate inputs into the analysis models and review of all field observations with the evaluation team
- » Independent review of all calculations used in ex post savings analysis

2.3 *Net-to-Gross 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 what was 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 “like” 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” (NTGR). This ratio is the net program savings divided by the gross program savings, or:

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

The evaluation team calculated the Idaho Energy FinAnswer NTGR of 0.79 using a sample of 61 projects representing nearly 40 percent of the total reported savings. Section 3.2 provides the results of the NTG analysis.¹⁸

2.4 Process Methodology

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

2.4.1 Overview of Steps in the Process Evaluation

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

- » **Develop Process Evaluation Research Questions.** The evaluation team and RMP staff established key process evaluation questions through the development of the 2012-2013 evaluation plan.
- » **Review Program Documentation.** The evaluation team reviewed program documentation including regulatory filings, brochures, application forms, and websites.
- » **Verify Logic Model.** The evaluation team worked with program staff to verify that the logic model for the Energy FinAnswer program describes the intended program design, activities, outputs, and outcomes.
- » **Collect Process Data.** The evaluation team collected process data through interviews with program staff, interviews with near-participants, and telephone surveys with participating customers.
- » **Analyze and Synthesize Process Data.** The evaluation team assessed the effectiveness of the program processes by analyzing in-depth interview data and participant survey data.

¹⁸ 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]).

2.4.2 Process Evaluation Research Questions

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

1. What are the program goals, concept, and design?
2. Do program staff and administrators have the resources and capacity to implement the program as planned, and if not, what more is needed?
3. Is the program being delivered in accordance with the logic model?
4. Is the program marketing effective? Specifically, how do customers find out about the program?
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)?
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 5 shows the seven research questions and associated methods used to answer each. Section 4.2 provides the answers to these questions.

Table 5. Process Evaluation Research Question Approach

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

2.4.3 Program Documentation Review

The evaluation team reviewed program marketing materials, websites, program manuals, savings measurement tools regulatory filings, annual reports, previous evaluations, and project tracking data. This review was designed to identify how the program is marketed, how trade allies are supported, and how the process for enrollment, administration, and tracking works.

2.4.4 Logic Model Verification

The evaluation team verified that the existing program logic model, developed in 2011 for the Energy FinAnswer program in Idaho, continued to represent the program theory during the current evaluation.¹⁹ To do so, the team used results from program administrator interviews and reviewed evaluation findings to assess whether the program produced the intended activities, outputs, and outcomes as defined in the 2011 model.

2.4.5 Process Data Collection Activities

Interviews and surveys with program staff and participants supported the development of the program overview and logic model, as well as aided in the evaluation conclusions and recommendations for the Energy FinAnswer program. The evaluation team reviewed all interview response data for missing or erroneous entries before tabulating the frequency of similar responses within categories. After analyzing data from each data collection activity individually, the evaluation team identified common process findings across activities.

2.4.5.1 Program Management Staff Interviews

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

- » Understand the design and goals of the Energy FinAnswer program
- » Understand any program changes that have been implemented in Idaho going into the 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

¹⁹ RMP recently revamped the Energy FinAnswer program in Idaho to be a part of the *wattsmart* Business program. However, this change occurred just after the completion of the 2012-2013 process evaluation; therefore, the program theory and logic model created for the 2011 Energy FinAnswer program remained current as of this writing. Appendix C displays the logic model for the new *wattsmart* Business program theory.

2.4.5.2 Participant Surveys

The evaluation team surveyed nine participants out of the 19 unique participants over two surveys completed in October and November 2014. Table 6 provides the timing and sampling frame for participant surveys and interviews.

Table 6. Sample Frame for Participant Surveys in 2012 and 2013

Time Period	Sample	Unique Sites	Program Projects
First Half 2012 (Projects completed Jan. 1, 2012-June 30, 2012)	1	1	2
Second Half 2012 through 2013 (Projects completed July 1, 2012-Dec. 31, 2012)	8	18	22
Total	9	19	24

Participant survey research objectives included the following:

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

3 Impact Evaluation Findings

This section summarizes the impact evaluation findings for projects included in the 2012 through 2013 impact evaluation sample.

The evaluation team characterized savings as “reported” and “evaluated.” Reported savings present project savings estimated at the time of measure installation. Evaluated savings represents sampled energy savings verified at the time of evaluation, with results extrapolated to the entire population.

3.1 Gross kW and kWh Savings

The impact evaluation team conducted on-site verification activities for 14 of the 24 projects (representing 88 percent of reported savings) that participated during Idaho’s Energy FinAnswer PY 2012-2013. The PY 2012-2013 gross program energy savings realization rate was 95 percent while the gross program demand savings was 93 percent. Table 7 provides the *program-level* reported and evaluated kW and kWh realization rates.

Table 7. Program-Level Realization Rates for Idaho Energy FinAnswer

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	18	8	45%	318,915	327,180	103%
2013	147	145	99%	2,339,279	2,199,950	94%
All	165	153	93%	2,658,194	2,527,130	95%

The realization rates reflect the difference between expected savings at the time of installation and evaluated savings one to three years after project completion. However, customers often modify their operating profiles for reasons unrelated to program influence. For example, the C&I sector is particularly sensitive to economic changes as production throughput, occupancy, and customer demand drive operating schedules. Changes in equipment usage also affect the efficiency of the baseline and replacement technologies for completed projects in the Energy FinAnswer program. Throughout the impact evaluation, the evaluation team remained cognizant of these factors, which can influence project-level and measure-level savings. Table 8 provides *project-level* energy savings and realization rates for the 14 projects in the impact evaluation sample.

Table 8. Idaho’s Energy FinAnswer Project-Level Energy (kWh) Realization Rates

Project ID	Year	Reported kWh	Evaluated kWh	Realization Rate
EFSen_8400	2013	516,634	462,257	89%
EF000_000565	2013	466,134	602,751	129%
EFSen_8965	2013	425,205	335,514	79%
EFSen_6090	2013	228,447	253,349	111%
EF000_000480	2013	159,380	122,299	77%
EF000_000302	2012	150,293	162,908	108%
EF000_000481	2013	96,087	68,938	72%
EF000_000343	2012	62,680	48,393	77%
EF000_000604	2013	56,501	49,114	87%
EF000_000482	2013	49,640	50,233	101%
EF000_000479	2013	49,171	43,366	88%
EF000_000517	2012	36,904	35,498	96%
EF000_000435	2013	34,103	22,849	67%
EF000_000603	2013	15,068	13,493	90%

Some projects included multiple measures with high levels of realization rate variability. Table 9 provides a breakdown of the measures within a project that yielded evaluated energy savings that varied from reported values by more than 30 percent. The table includes the *measure-level* reported kWh and realization rates, as well as the *project-level* reported kWh and realization rate for reference. Note: Table 9 does not include all measures within a listed project since some measures do not fall outside the +/-30 percent variability threshold.

Table 9. Idaho Energy FinAnswer Measure-Level kWh Realization Rate Explanations

Project ID	Project Reported kWh	Project Realization Rate	Measure within Project	Measure Reported kWh	Measure Realization Rate	Notes
EFSen_8400	516,634	89%	VFDs on ventilation fans	110,478	48%	Fan controls did not follow outside air temperature, as used in <i>ex-ante</i> savings calculations.
EF000_000565	466,134	129%	VFD on compressed air and cycling dryer	336,953	129%	Logging determined average power of the VFD compressor and cycling air dryer was 24% less than estimated in the <i>ex-ante</i> analysis.
			Floating head pressure controls			257,872
EFSen_8965	425,205	79%	LED case lighting	31,235	169%	<i>Ex-ante</i> savings did not include interactive cooling savings
			Floating suction pressure control	17,782	61%	Compressor was operating at lower power than used in the <i>ex-ante</i> calculations, resulting in lower savings from controls
EF000_000480	159,380	77%	VFDs on ventilation fans	109,713	67%	The VFDs on the fans operated at higher speeds than used for the <i>ex-ante</i> calculations, resulting in reduced savings.
EF000_000481	96,087	72%	VFDs on ventilation fans	51,240	67%	The VFDs on the fans operated at higher speeds than used for the <i>ex-ante</i> calculations, resulting in reduced savings.
EF000_000517	36,904	96%	Transfer pump VFD	4,246	5%	Measure as installed only included heat exchanger, and heat exchanger did not perform as well as expected.
EF000_000435	34,103	67%	VFDs on ventilation fans	34,103	67%	The potato storage cellar was not in use this year. Navigant applied a 2/3 realization rate to this project to account for the idling of the equipment one year out of three since the project was implemented.

Note: individual project- and measure-level realization rates may not have a significant impact on the overall program-level weighted realization rates and are shown for informational purposes only.

Further explanation for a few of the more atypical *measure-level* realization rates is as follows:

- » **Project EFSen_8965** was a grocery store which installed a number of refrigeration measures. Overall savings for the project were lower than the *ex-ante* values because the system had a decreased load at the time of the evaluation compared to the originally reported load. This decreased the baseline as well as the efficient case and resulted in decreased savings.
- » **Projects, EF000_000480, EF000_000481, and EF000_000435** all consisted of the installation of VFDs on ventilation fans in potato storage cellars. The *ex-ante* calculations were based on operation at overall lower speeds (around 50% for much of the year) than were actually observed (60% or higher), resulting in reduced savings despite the fact that many of the fans ran for a greater part of the year than was expected. Navigant confirmed these results with billing data and short-term trend data.

- » **Project EFSen_8400** also included one measure for the installation of VFDs on a potato storage area at a larger facility. These savings had a low realization rate because the controls were originally modeled assuming temperature dependent operation which was not reflected in the data gathered for this evaluation.

Table 10 displays the *project-level* demand (kW) savings and realization rates for the 14 projects in the impact evaluation sample.²⁰

Table 10. Idaho’s Energy FinAnswer Project-Level Demand (kW) Realization Rates

Project ID	Year	Reported kW	Evaluated kW	Realization Rate
EFSen_8400	2013	35	28	80%
EF000_000565	2013	7	5	74%
EFSen_8965	2013	38	26	69%
EFSen_6090	2013	27	67	248%
EF000_000480	2013	0	0	NA
EF000_000302	2012	0	11	NA
EF000_000481	2013	0	0	NA
EF000_000343	2012	12	0	0%
EF000_000604	2013	0	0	NA
EF000_000482	2013	0	0	NA
EF000_000479	2013	0	0	NA
EF000_000517	2012	6	10	167%
EF000_000435	2013	0	0	NA
EF000_000603	2013	0	0	NA

²⁰ Sites with no claimed demand savings show a realization rate of “NA.”

3.2 Program-Level Net Savings Results

The evaluation team calculated an average NTG ratio of 0.79 using self-reported participant responses to free-ridership and spillover survey and interview questions for the current 2012-2013 evaluation (Table 11).

Table 11. Savings-Weighted Program Influence for PY 2012-2013

Part of Year	Free Ridership Score	Like Spillover Score	Unlike Spillover Score ²¹	Net Savings Ratio
First Half 2012 (completed Jan. 1, 2012-June 30, 2012)	0.0	0	Yes, Not Scored	1.000
Second Half 2012 (completed July 1, 2012-December 31, 2012)	0.212	0	Yes, Not Scored	0.788
Savings Weighted Total	0.21	0.0	NA	0.79

Table 6 in section 2.4.5 provides the number of surveys completed during the identified timeframes.

Table 12 provides evaluated program-level demand and energy savings with the NTG ratio of 0.79 applied.

Table 12. Net Program-Level Realization Rates for Idaho Energy FinAnswer (0.79 NTG)

Program Year	Program Reported kW	Net Program Evaluated kW	Net kW Realization Rate	Program Reported kWh	Net Program Evaluated kWh	Net Program kWh Realization Rate
2012	18	6	36%	318,915	258,473	81%
2013	147	115	78%	2,339,279	1,737,960	74%
All	165	121	73%	2,658,194	1,996,433	75%

3.3 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 13 provides an overview of cost-effectiveness input values used by the evaluation team in the cost-effectiveness analysis.

²¹ Research determined that 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.

Table 13. Idaho Energy FinAnswer Cost-Effectiveness Evaluation Input Values

Input Description	2012	2013	2012-2013
Discount Rate	7.17%	6.88%	-
Inflation Rate	1.80%	1.90%	-
Commercial Line Loss	10.75%	10.75%	10.75%
Industrial Line Loss	7.52%	7.52%	7.52%
Measure Life	15 Years	15 Years	15 Years
Commercial Retail Rate	\$0.084	\$0.089	-
Industrial Retail Rate	\$0.055	\$0.069	-
Gross Customer Costs	\$61,143	\$652,105	\$713,248
Program Costs	\$159,599	\$328,873	\$488,472
Program Delivery	\$135,064	\$126,208	\$261,272
Incentives	\$24,535	\$202,665	\$227,200

The discount rates and inflation rates are based on the 2011 Integrated Resource Plan (IRP) for 2012 and the 2013 IRP for 2013. Measure-specific load shapes and the System Load Shape Decrement were used for all program years.

Program Delivery includes: engineering, program implementation, marketing, and utility administration costs.

Table 14 through Table 16 illustrate the costs, benefits, and benefit/cost ratio for the cost-effectiveness tests used in this evaluation using the calculated NTGR of 0.79.

Table 14. ID Energy FinAnswer Cost-Effectiveness Results - 2012 (0.79 NTG)

Benefit/Cost Test Performed	Evaluated Gross kWh Savings	Evaluated Net kWh Savings	Evaluated Costs	Evaluated Benefits	B/C Ratio
Total Resource Cost Test (PTRC)	327,180	258,473	\$183,367	\$260,140	1.42
Total Resource Cost Test (TRC)	327,180	258,473	\$183,367	\$236,491	1.29
Utility Cost Test (UCT)	327,180	258,473	\$159,599	\$236,491	1.48
Rate Impact Test (RIM)	327,180	258,473	\$313,425	\$236,491	0.75
Participant Cost Test (PCT)	327,180	258,473	\$61,143	\$219,252	3.59

Table 15. ID Energy FinAnswer Cost-Effectiveness Results - 2013 (0.79 NTG)

Benefit/Cost Test Performed	Evaluated Gross kWh Savings	Evaluated Net kWh Savings	Evaluated Costs	Evaluated Benefits	B/C Ratio
Total Resource Cost Test (PTRC)	2,199,950	1,737,960	\$641,371	\$1,356,145	2.11
Total Resource Cost Test (TRC)	2,199,950	1,737,960	\$641,371	\$1,232,860	1.92
Utility Cost Test (UCT)	2,199,950	1,737,960	\$328,873	\$1,232,860	3.75
Rate Impact Measure Test (RIM)	2,199,950	1,737,960	\$1,725,411	\$1,232,860	0.71
Participant Cost Test (PCT)	2,199,950	1,737,960	\$652,105	\$1,970,434	3.02

Table 16. ID Energy FinAnswer Cost-Effectiveness Results – 2012-2013 Combined (0.79 NTG)

Benefit/Cost Test Performed	Evaluated Gross kWh Savings	Evaluated Net kWh Savings	Evaluated Costs	Evaluated Benefits	B/C Ratio
Total Resource Cost Test (PTRC)	2,527,130	1,996,433	\$824,738	\$1,616,286	1.96
Total Resource Cost Test (TRC)	2,527,130	1,996,433	\$824,738	\$1,469,351	1.78
Utility Cost Test (UCT)	2,527,130	1,996,433	\$488,472	\$1,469,351	3.01
Rate Impact Measure Test (RIM)	2,527,130	1,996,433	\$2,038,836	\$1,469,351	0.72
Participant Cost Test (PCT)	2,527,130	1,996,433	\$713,248	\$2,189,686	3.07

4 Process Evaluation Findings

This section describes the findings from the Energy FinAnswer process evaluation data collection activities including participant, near-participant, and program staff interviews.

4.1 Participant Findings

The evaluation team surveyed nine of the program’s 19 unique participants over two surveys completed in October and November 2014.

The dairy and agricultural sector made up the majority of program respondents with one representative of the food service industry, and one from the manufacturing industry (Table 17).

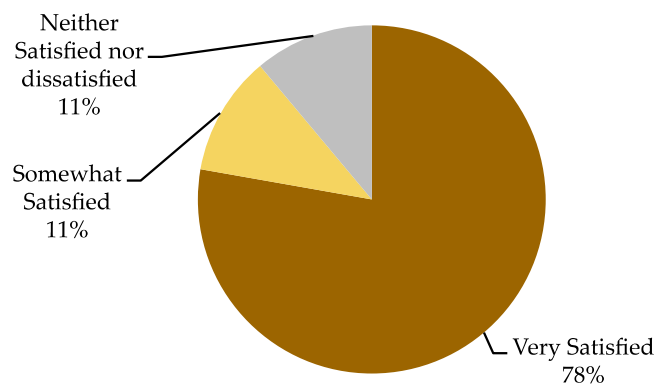
Table 17. Primary Industry of Energy FinAnswer Survey Respondents

Primary Industry	Count
Dairy/Agricultural	7
Food Services	1
Manufacturing	1
Total	9

4.1.1 Program Satisfaction

The majority of respondents, 78 percent (n = 9), rated their overall satisfaction with the Energy FinAnswer program as “very satisfied,” and no one indicated any dissatisfaction with the program (Figure 3).²²

Figure 3. Participant Satisfaction with the Energy FinAnswer Program Overall (n=9)



The respondent who was “neither satisfied nor dissatisfied” suggested that RMP provide more incentives as a means of improving customer satisfaction. This opinion, however, looks to be in the minority.

²² The team used a satisfaction scale from one to five, where 1= Very Dissatisfied, 2= Somewhat Dissatisfied, 3= Neutral (Neither Satisfied nor Dissatisfied), 4= Somewhat Satisfied, and 5= Very Satisfied.

4.1.2 Program Awareness and Motivation

Participants found out about the Energy FinAnswer program from several sources, described in Table 18.

Table 18. How Participants Became Aware of the Energy FinAnswer Program

Source of Awareness	Respondent Count	Percent
Trade ally, vendor, or contractor	3	33%
Another business colleague	2	22%
RMP account representative	1	11%
Previous participation in RMP programs	1	11%
Family, friend, or neighbor	1	11%
USDA Natural Resources Conservation Service	1	11%
Total	9	100%

Only one participant indicated previous program participation as the source of program awareness, but two-thirds (6 of 9) recalled completing prior projects with RMP. Furthermore, five of six had worked with RMP since the project discussed in the survey (Table 19). This indicates a significant level of repeat participation.

Table 19. Participant Project Activity Before and After the Project Discussed in Survey

Previous project with RMP programs before this one	Worked with RMP on a project since this one	Did not work on a project with RMP since this one	Total
Yes	5	1	6
No	1	2	3
Total	6	3	9

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

Table 20. Participant Motivations for Participation

Motivation for Participation	Mentions	Most Important	Percent Most Important
To obtain an incentive	3	3	33%
To save money on electric bills	3	2	22%
To save money on maintenance costs	2	2	22%
To save energy (no costs mentioned)	3	1	11%
To acquire the latest technology	1	1	4%
Total	12	9	100%

Program marketing materials include directing customers to the RMP website. However, of the eight respondents asked, only two recalled going to the website, and one of these only visited the site once. Both respondents indicated they were able to find the information they needed from the website, but neither recalled why they went there in the first place. It does not appear that participants in this program, with high program involvement, need the website materials as much as perhaps those participating in a more prescriptive program.

4.1.3 Program Participation Process

4.1.3.1 Pre-Installation

Before participants install equipment with the Energy FinAnswer program, an energy engineer conducts a site visit. All eight respondents asked about this site visit reported being very satisfied with the energy engineer that inspected their site.²³

After the initial inspection and discussions with the project manager, participants receive an Energy Analysis Report that describes the specific measures for their project. All nine respondents (100 percent) recalled receiving an EAR from RMP and found the report valuable.

4.1.3.2 Installed Energy Efficiency Measures

The nine projects discussed with Energy FinAnswer participants included 13 measures, including 11 variable frequency drives (VFDs) for motors and fans, one lighting project, and one floating head pressure control on refrigeration equipment.

Installation of energy efficiency measures can include new installations or retrofits of existing equipment. The majority of project measures (77 percent, or 10 out of 13) were new installations; this is four new construction measures and six totally new measures (includes two multiple measure projects). The remaining 23 percent (three out of 13) replaced existing equipment (includes one multiple measure project). All of the equipment replaced by the three measures was working with no problems.

The team asked about the expected energy and non-energy benefits of the efficiency measures installed. The respondents' energy savings expectations were met for 38 percent of measures (five out of 13). Respondents did not know about the performance for the remaining 62 percent of measures (eight out of

²³ The one respondent who finished their project in the first half of 2012 was not asked this question.

13) and expected 38 percent (five out of 13) measures to provide other benefits besides energy savings. Four respondents were able to describe other benefits: better quality (two), increased flexibility (one), and increased water pressure (one). For one measure, the respondent was not sure how to describe the non-energy benefit. Respondents said they had seen all of the non-energy benefits they expected. There were no cases where respondents indicated that equipment did not meet their expectations for energy or non-energy benefits. This may be a contributing factor in high program satisfaction and repeat participation.

Two-thirds (6 of 9) respondents were very satisfied with their measures installed through the program.

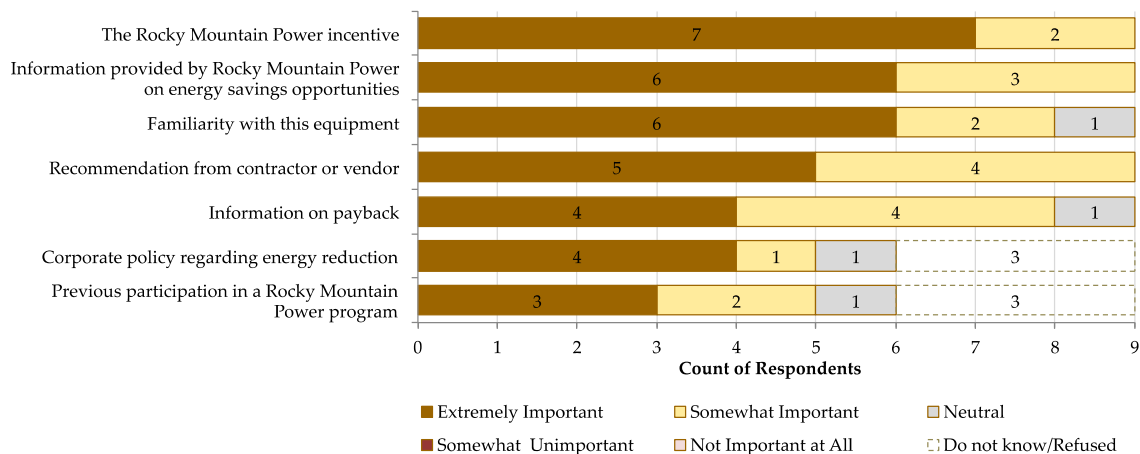
4.1.3.3 Post-Installation

Program administrators may choose to send a representative to the site to verify the installation. None of the surveyed respondents had a post-installation inspection date in the tracking data so the team did not ask about this inspection.

4.1.4 Program Influence

The evaluation team asked participants several questions about the program’s influence on the project that they completed with the Energy FinAnswer program, including seven factors influencing purchasing decisions. Respondents rated the importance of each factor on a scale of one to five, with one being “not at all important” and five being “extremely important.” As shown in Figure 4, the most commonly identified responses were RMP’s incentive, information provided on energy savings opportunities, and familiarity with the equipment. Corporate policies on energy savings and previous participation appeared to be least influential on the decision of which equipment to purchase. These responses are reasonable even with high repeat participation because each project may have different needs, resulting in different kinds of equipment installed.

Figure 4. Factors Influencing Project Decisions (n = 9)



4.1.5 Further Energy Efficiency Opportunities and Barriers

To assess additional energy efficiency opportunities with the surveyed customers, the team asked respondents if they thought there were additional energy efficiency improvements their organizations

could make. Most (seven of nine) respondents affirmed there were additional energy efficiency opportunities. When asked what these improvements might be, respondents indicated: lighting, sprinklers, irrigation pumps, and VFDs. One respondent said that the opportunities were “too numerous to list.” Two respondents (of nine) stated that there were no further energy efficiency opportunities for their firms.

Of the seven respondents who identified additional energy efficiency improvements, three indicated that plans were in place to make these changes and all plans included assistance from RMP. When asked about factors preventing them from making these changes, one respondent said there were no barriers. The other six respondents all identified high upfront costs as barriers. Incentives offered by the program help to overcome high upfront costs for some customers.

4.2 Overall Process Findings

The evaluation team surveyed nine Energy FinAnswer unique participants from project years 2012 and 2013. The evaluation team sought to answer seven process evaluation research questions. This section includes these questions along with short summary answers.

» **What are the program goals, concept, and design?**

The Energy FinAnswer program in Idaho sought to improve energy efficiency of existing equipment at C&I sites by offering custom incentives and engineering services to customers for implementing large energy efficiency projects. Program engineers conduct site visits and calculate energy savings for these larger projects that customers could not do themselves.

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

» **Is the program being delivered in accordance with the logic model?**

Nearly all activities and expected outputs and outcomes occurred; two activities and outcomes were not verified. The program logic is succeeding in getting customers trusted information about energy savings opportunities, as indicated by high satisfaction with pre-inspection reports and the EAR. Customers who are aware of the performance of their measures indicate that the measures are meeting expected energy and non-energy benefits. In addition, customers are indicating high repeat participation. One activity that could not be verified is post-installation inspections. Post-installation inspections are anticipated for all measures, but dates were not in the tracking data; tracking the date is not a step in the program logic, but it is one way to verify the step occurs.

One output that could not be verified by surveying participants is how well the program outreach is working. Most of these participants had already participated in RMP programs and indicated learning about the program through vendors or word of mouth. The program logic suggests a greater dependency on Customer Account Managers and advertising.

- » **Is the program marketing effective? Specifically, how do customers find out about the program?**
Participants most commonly reported to learn about the program through vendors and word of mouth. A small portion of respondents indicated hearing about the program directly from a RMP program representative, and no respondents mentioned advertising.
- » **What is the program influence on participant actions? Specifically, what do participants identify as most important to their projects (e.g., program information, incentive/credit, payback, engineering, and their own company goals)?**
The evaluation team found the ability to obtain an incentive (33 percent), save money on electric bills (22 percent), and save money on maintenance costs (22 percent), as the most influential factors motivating respondents to participate in the program. Additionally, 11 percent of respondents were motivated to save energy, and 4 percent were motivated to acquire the latest technology. When asked about important items influencing their decisions, most customers also reported the incentive as extremely important. Information provided on energy savings opportunities and recommendations by contractors were equally important when considering extremely and somewhat important responses together. This is in keeping with the program theory that supplying information and incentives will help customers overcome barriers to energy-efficient purchases.
- » **What barriers are preventing customers from taking actions to reduce energy consumption and demand, and which jeopardize program cost-effectiveness?**
Participant respondents reported costs to be a major barrier to conducting more energy efficiency projects. All participant respondents who identified future projects and barriers reported high upfront costs as a barrier. One participant respondent indicated that there were no barriers preventing completion of further energy efficiency improvements. Participants identified no other barriers to completing energy efficiency actions. Also, there were no indications of concerns that jeopardize program cost-effectiveness.
- » **Are participants achieving planned outcomes? Specifically, are participants feeling satisfied?**
Yes, participants are achieving planned outcomes. Nearly all (89 percent) of respondents were satisfied with the program, and no respondents were dissatisfied. All respondents indicated that the Energy Analysis Reports were useful, and they were satisfied with their measures. These outcomes are positive and in line with the program logic.

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 Energy FinAnswer program transitions to the *wattsmart* Business program.

- » **Recommendation 1: Include demand savings in tracking database.** Several projects provided demand savings and included the calculations in the project files but the program database showed zero demand savings for most projects. This inconsistency resulted in a realization rate (820%) that does not provide a meaningful insight enabling RMP to assess the effectiveness of procedures such as on-site verification. In addition, incomplete demand savings from the tracking database prevents RMP from using the tracking database to perform QC analysis on incentive calculations at both the project-levels and program level.
- » **Recommendation 2: Utilize advertising and increase outreach to build awareness of the program and its benefits.** The most effective messages include the program incentives, energy savings, and non-energy benefits. Monitor effectiveness in low cost ways, such as adding a question to the application to identify how customers learned about the program or surveying contractors.
- » **Recommendation 3: Verify that post-installation inspections are occurring as expected and that quality control and assurance procedures are in place to validate sufficient post inspections.** Program tracking data did not include completion dates for the post-installation inspection for any of the program participants surveyed. The evaluation team anticipates post-installation inspections for all measures, and while tracking the date of the post-installation inspection is not a step in the program logic, it is one way to verify the proper installation and working condition of these measures. It also ensures the accuracy of both the applied incentive and energy savings estimates. The new program tracking processes involved in the new *wattsmart* Business program will likely remedy this issue.

5.2 PY 2009-2011 Recommendation Review

The evaluation team reviewed the recommendations made by Navigant in the prior 2009-2011 program evaluation to track any progress made by RMP. The following lists the prior recommendations and the results of this review.

- » **Consider revised marketing strategies to increase lead generation.** A revised marketing strategy may be necessary to reach eligible customers who are not learning about the program through existing marketing and outreach efforts; just 14 out of 50 non-participants were aware that RMP offers any assistance to improve energy efficiency, and none were aware of the technical assistance offered by this program. Project managers, program managers, and energy engineers understand the potential for cost-effective improvements across industries. Data from previous projects can be used to identify cost savings and operational improvements from common efficiency efforts in particular industries in order to interest more eligible customers. Emphasis on non-energy benefits may motivate the portion of customers (78 percent of surveyed non-participants) who do not believe there are actions that they could take to improve efficiency. Customers who do not believe there are actions that they can take may not respond to traditional approaches promoting energy efficiency programs. Reaching out to customers on their terms helps increase awareness and participation in the program. Increasing participation is important to ensure continued program success.

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

- » **Closely track project status.** In 2011, the program's reported savings did not meet savings goals, and the reported savings in 2011 were about one-third of the reported savings in 2009 and 2010. Over the period from 2009 to 2011, the program had 32 participants and 11 near participants (not including projects that are considered "cancelled"). The four near participants interviewed as part of this evaluation indicated that the project status of "on hold" was not correct. Even though these near participants were listed as "on hold" with their project status last updated on or before June of 2011, none of the near participants we interviewed had plans to continue their projects with the program. Follow-up with these customers to check on their status could have informed the project manager that their true status was "cancelled." Closely tracking the status of projects should alert the program manager when savings goals may not be met by existing projects. The program manager could then determine alternative strategies to meeting savings goals. Depending on the projects in the pipeline at the time, the approach may be to seek out new participants, to encourage project completion, or to encourage customers to take action on measures identified in their EARs that were not currently being addressed. Ensuring that projects are completed as expected decreases uncertainty and risk for projects where RMP has already invested time and resources.

Review Results – Program staff indicated that project tracking software has been updated to improve tracking. With the advent of the wattsmart Business program, approved and in place in November of 2014, the program has been changed to provide levels of support depending on the customer’s need. Participants get direct contact from program staff at the beginning of the project and at key project milestones to ensure that they are prepared to move forward.

- » **Clarify baseline conditions, particularly for lighting projects.** There were two lighting projects in the Energy FinAnswer program impact evaluation sample which did not include any description of baseline equipment. Project files simply stated that premium efficiency T8s were being installed, and no calculations were provided. Without information on any removed fixtures, or baseline assumptions in the case of new construction, it is not possible to accurately determine how savings were calculated for the projects.

Review Results – Navigant did not encounter difficulties determining baselines for the 2012 through 2013 program cycle, but also did not see lighting projects similar to those which exhibited the issues in the last evaluation.

- » **Include energy and demand savings calculations in a spreadsheet format.** By providing this information in one consolidated location, future evaluation efforts will be more efficient and reduce the potential for comparing verified savings to incorrect or outdated project assumptions.

- Although each project properly documented the reported energy and demand savings estimates, the absence of savings calculations (particularly for demand savings) reduces the transparency of reported savings, along with the efficiency of evaluation efforts. Providing both the input assumptions and savings calculation methodologies will ensure the comparability and accuracy of reported and evaluated savings and will reduce associated evaluation costs.

Review Results – Although spreadsheets were not included for many of the ex-ante savings calculations, the calculations were generally more clearly explained in the project files than they had been in the past.

- Include the clearly identified final Energy Savings table in project files for the evaluation. The data should include both baseline and current energy and demand usage as well as savings estimates. Utilizing consistent formats based on the FINAL numbers is important for all follow-up activities, and will provide decision makers the key information needed to quickly assess the situation and take appropriate action relative to the inspections conducted. The key elements are included in the documentation for each project; however, it is often difficult to identify the final set of parameters used because the project files capture multiple changes/revisions to the application process.

Review Results – The Final Inspection Reports (FIRs) still frequently do not include baseline information, however the Energy Analysis Reports (EARs) usually do and these were generally provided with the project files. Navigant still recommends that FIRs should include the baseline information for completeness.



Idaho's Energy FinAnswer Program (PY 2012-2013)

APPENDIX

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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 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 1 details the specific evaluation, measurement, and verification (EM&V) studies reviewed for this effort.

Table 1. EM&V Best Practice Studies Reviewed

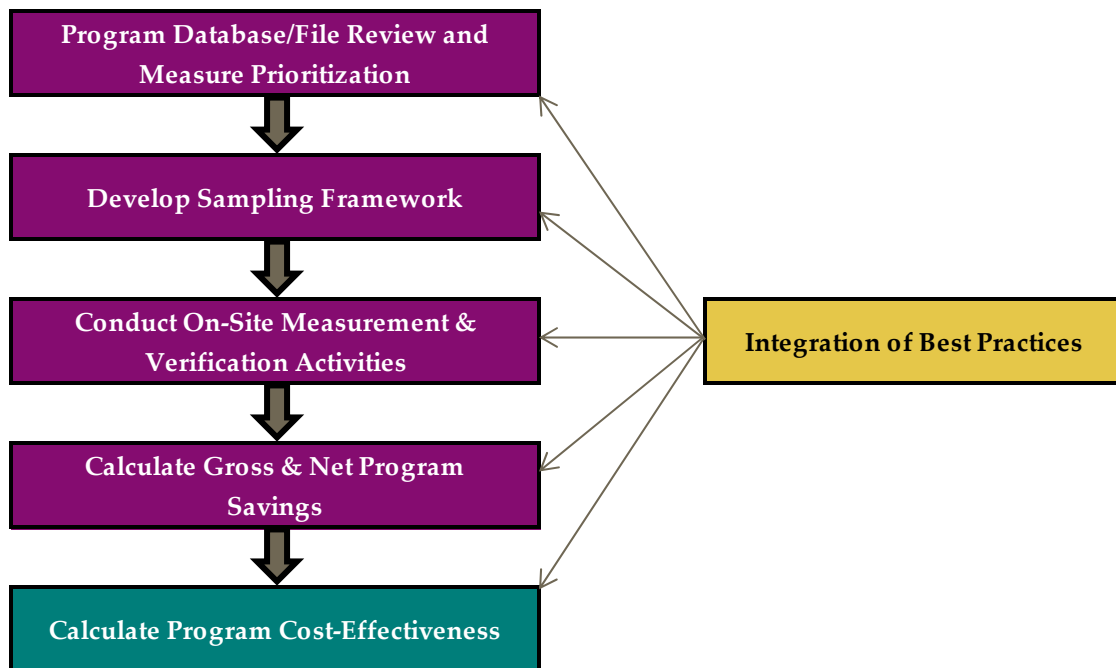
Organization	Study Name	Publication Year
National Renewable Energy Laboratory (NREL) Department of Energy (DOE)	The Uniform Methods Project: Methods for Determining Energy Efficiency Savings for Specific Measures	2013
The Brattle Group	Measurement and Verification Principles for Behavior-Based Efficiency 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 Washington's 2012-2013 C&I Programs reflect the outcome of this independent review. Figure 1 provides an illustration of how the Best Practices Review informed the overall evaluation methods chosen for this effort.

Figure 1. Overview of Impact Evaluation Strategy



Appendix C *wattsmart* Business Program Logic Model

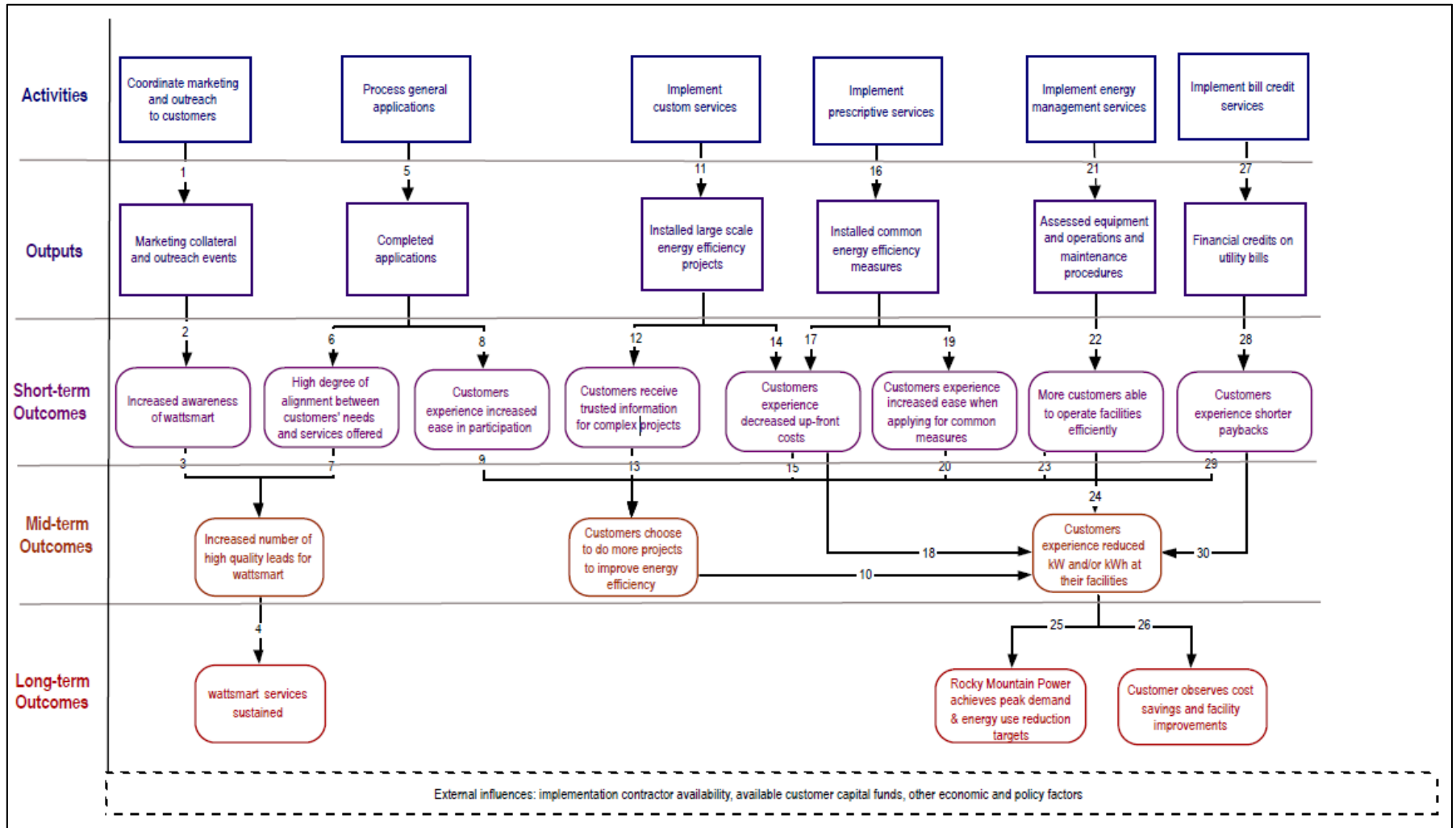
The *wattsmart* program is an umbrella program encompassing all of Rocky Mountain Power’s energy efficiency services. The *wattsmart* program provides customers with a suite of programs based on the former Rocky Mountain Power energy efficiency programs:

- » Energy FinAnswer – offered incentives for large-scale custom 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 C-1, therefore, depicts the logic for each activity carried out by implementers as part of the *wattsmart* program.

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 C-1 describes the detailed program theory by referencing the numbered links in the figure.

Figure C-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 D Energy FinAnswer 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 to 10 TIMES)
- 3. ABOUT ONCE PER MONTH (10 to 13 TIMES)
- 4. FREQUENTLY (MORE THAN ONCE PER MONTH; MORE THAN 13 TIMES)
- 88. DON'T KNOW/NOT SURE
- 99. REFUSED

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

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

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

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

Pre-Installation Section

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

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

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

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

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

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

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

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

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

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

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

1. YES → **SKIP TO IM1**
2. NO

- 3. DON'T RECALL RECEIVING A REPORT → SKIP TO IM1
- 88. DON'T KNOW/NOT SURE → SKIP TO IM1
- 99. REFUSED → SKIP TO IM1

EE6. Why not?

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

Installed Measures

[IF &NC=1, SKIP to FR1]

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

[SET &MEASURE_# = &MEASURE_1]

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

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

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

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

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

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

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

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

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

- 1. YES
- 2. NO → SKIP TO IM5

- 88. DON'T KNOW/NOT SURE → SKIP TO IM5
- 99. REFUSED → SKIP TO IM5

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

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

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

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

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

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

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

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

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

Post-Installation

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

P11. After your project was installed, [IF &POSTDATE >0, "around &POSTDATE"], a program representative came out to your facility to verify your installation. Using a scale of 1 to 5 where 1 indicates 'very dissatisfied' and 5 indicates 'very satisfied', how satisfied were you with the inspection?

- 1. VERY DISSATISFIED
- 2. SOMEWHAT DISSATISFIED

- 3. NEITHER SATISFIED NOR DISSATISFIED
- 4. SOMEWHAT SATISFIED → **SKIP TO FR1**
- 5. VERY SATISFIED → **SKIP TO FR1**
- 88. DON'T KNOW/NOT SURE → **SKIP TO FR1**
- 99. REFUSED → **SKIP TO FR1**

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

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

Free Ridership

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

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

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

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

[SET &MEASURE_# = &MEASURE_1]

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

[

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

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

99. REFUSED → **SKIP TO FR3**

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

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

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

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

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

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

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

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

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

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

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

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

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

Spillover

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

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

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

[SET &MEASURE_# = &MEASURE_1]

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

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

SP3. How many did you purchase or install?

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

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

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

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

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

SP6. What program or sponsor provided an incentive?

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

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

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

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

[IF SP6 < 1]

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

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

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

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

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

Barriers

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

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

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

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

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

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

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

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

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

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

[IF MORE THAN ONE RESPONSE TO B5]

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

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

Satisfaction

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

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

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

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

Firmographics

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

1. ACCOMMODATION
2. ARTS, ENTERTAINMENT, AND RECREATION
3. CONSTRUCTION
4. DAIRY / AGRICULTURAL
5. EDUCATIONAL SERVICES
6. FINANCE AND INSURANCE
7. FOOD SERVICES
8. FOOD PROCESSING
9. HEALTH CARE
10. MANUFACTURING

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

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

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

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

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

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

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

[THANK RESPONDENT AND TERMINATE SURVEY]

Appendix E Energy FinAnswer Near Participant Interview Guide

E.1 Introduction

As part of the evaluation of the 2012-2013 Recommissioning Program, EMI Consulting will be conducting interviews with the census of near participants in Utah (N=52). Near participants are defined as those customers who began a Recommissioning project but cancelled it or had the project on hold for longer than six months, at the time the participant data was collected for this evaluation. Objectives for the near participant interviews are identified in the below bullets:

- Describe how customers come to participate in the program
- Characterize the current status of projects identified as on hold or cancelled
- Understand overall customer satisfaction with the program, while participating
- Understand what it would take to motivate near participants to participate
- Understand barriers customers are facing that prevent increasing energy efficiency
- Characterize near-participant firms

Interview Instructions

The evaluation team plans to interview near participants in Utah (n=10), Washington (n=10), and Wyoming (n=10). To solicit interviews and unbiased responses, the evaluation team will offer a \$25 Amazon gift card to customers who complete an interview.

Prior to calling each interviewee, the interviewer will confirm from which utility the interviewee is buying their power. Washington interviewees will be Rocky Mountain Power customers while Wyoming and Utah interviewees will be Rocky Mountain Power customers.

The evaluation team designed the interview questions to be open-ended. The interviewer will code responses following the interviews. The interviewer understands that the program name in UT and WA has now changed from Energy FinAnswer to Wattsmart. Because of this change, the interviewer will attempt to frame questions in terms of incentivized equipment rather than referring specifically to the Energy FinAnswer Program.

² Note: There are six projects listed in the “on hold-cancelled” list, but one of those projects was listed as canceled because it was a duplicate entry; therefore the evaluation team did not include them as a qualifying near participant for these interviews.

E.2 Interview Guide

Introduction and Screen

IS1. Hello, this is [INTERVIEWER'S NAME] from EMI Consulting, calling on behalf of Rocky Mountain Power. May I please speak with [CONTACT]?

IS2. We are conducting an independent evaluation of Rocky Mountain Power's energy efficiency programs and I understand that you considered getting financial support from Rocky Mountain Power for an energy efficiency upgrade, but did not complete the project through the program and get an incentive, is this correct?

[IF NO, ASK IF SOMEONE ELSE IS FAMILIAR WITH THE PROJECT. PROBE TO LEARN ANY MORE DETAILS THAT WOULD EXPLAIN DATA AND THEN TERMINATE.]

IS3. Are you the person most familiar with your firm's decision to begin this project?

[IF NO, ASK IF SOMEONE ELSE IS BETTER POSITIONED TO RESPOND TO QUESTIONS.]

IS4. Do you have a few minutes to answer questions about your experience with the program? This survey is for research purposes only. It will take about 15-20 minutes and as a thank you, we will provide a \$25 Amazon.com gift card.

IS5. Great thanks. All of your responses will be kept confidential and will not be revealed to anyone outside of the research team. Is it OK if I record the conversation for note taking purposes?

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

Awareness & Participation

AP1. How did you first become aware of the financial incentives offered through Rocky Mountain Power?

AP2. Why did you initially decide to participate in the program?

PROBE: Were there other reasons or driving factors?

PROBE IF MULTIPLE REASONS: Of those reasons, which one was most influential in your initial decision to participate in the program?

Near Participant

NP1. What is the status of the [EQUIPMENT] project today? (i.e. Is the project still on hold or was it canceled?)

NP2. [IF NP1= PROJECT IS ON HOLD/DELAYED] Why was the project delayed?

PROBE: Will the project be completed under a Rocky Mountain Power program?

[IF YES] What are the next steps to completing the project? (i.e. Who would you contact and how?)

[THEN SKIP TO B1]

- NP3. **[IF NP1= COMPLETED BUT WITHOUT UTILITY INCENTIVE]** Why did you decide to do the project without participating in a Rocky Mountain Power program?
- NP4. **[IF NP1= PROJECT WAS CANCELED]** Why did you decide not to do the project?
- NP5. Can you think of anything that would need to change for you to participate in a Rocky Mountain Power program?

Barriers

- B1. Do you think there are any changes you could make at your organization to improve electric efficiency at your organization?
[IF YES]: Can you provide some examples?
[IF NO, SKIP TO S1]
- B2. Are plans in place to make any of those changes?
PROBE: Do you plan to apply for incentives from Rocky Mountain Power or another organization? If yes, how would you go about it? (i.e. Who would you contact and how?)
- B3. What factors could prevent your organization from making these changes?
PROBE IF MORE THAN ONE RESPONSE: Which of these do you think is the most challenging factor?

Satisfaction

- S1. I understand you did not *complete* a project through Rocky Mountain Power, but I am interested in your overall experience and interactions with the program. Using a scale of 1 to 5 where 1 indicates 'very dissatisfied' and 5 indicates 'very satisfied', how satisfied were you with your experiences with the program?
PROBE: Why would you give it that score?
- S2. When you were considering applying for a financial incentive from Rocky Mountain Power for the [EQUIPMENT] project, did you ever contact Rocky Mountain Power with questions or requests for assistance?
[IF NO, SKIP TO F1] What did you discuss?
- S3. Were Rocky Mountain Power and its representatives timely in addressing your questions regarding the program?
PROBE if not: Can you explain or provide an example?
- S4. Were Rocky Mountain Power and its representatives knowledgeable regarding the program and the program eligibility requirements?

PROBE if not: Can you explain or provide an example?

S5. Do you have any suggestions for how Rocky Mountain Power could improve its program?

Firmographics

F1. Now I have a few final, general questions about your company for comparison purposes only. What is the primary activity at your organization?

PROBE: How would you classify your organization's facilities?

F2. Has [FIRM] participated in any other energy efficiency programs?

[IF YES, ASK FOLLOWING PROBES]

Did Rocky Mountain Power sponsor the programs? **[IF NOT, who sponsored the programs?]**

F3. Approximately what percentage of your overall operating costs does electricity represent?

F4. About how many people does your firm employ?

F5. Does your organization have a staff person whose role is to manage energy usage?

IF NOT FULL TIME: What percentage of that person's role is energy and energy efficiency?

F6. Does your organization have a specific policy regarding energy efficiency or conservation?

IF YES: What is it?

End

END1. Those are all of the questions that I have for you. Is there anything about your experiences with the Rocky Mountain Power energy efficiency programs you'd like to mention that we did not talk about today?

END2. Great. Thank you very much for your input and time. In order to send the gift card, can you please provide me with your email address?

IF DECLINED: Would you be interested in donating the \$25 to a non-profit or charity?

Thanks again. You should receive the gift card in the next few weeks.