



PacifiCorp
Energy FinAnswer
2008 Idaho Program Evaluation

Prepared for
PacifiCorp

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1. Executive Summary

The Energy FinAnswer Program offers Idaho customers an opportunity to increase their energy efficiency through the energy-efficient design, construction, and retrofitting of commercial and industrial processes and buildings. Customers are eligible to participate if served under Rocky Mountain Power's general service commercial and industrial rate schedules. The program applies to equipment purchases and design decisions for existing facilities as well as new construction and major renovation projects.

PacifiCorp offers this program throughout the five state service territories where it manages demand-side management programs. Together these programs acquired more than 68,000 MWhs of first year energy savings in 2008. Within the state of Idaho, this program was responsible for 11% of the savings that the utility realizes from commercial and industrial efficiency programs¹.

The Program was cost-effective from multiple perspectives in Idaho, using 2008 IRP decrement values.²

Expected savings and other program-related data were obtained from Rocky Mountain Power's tracking database. Expected savings were those calculated for each installed project, and documented based on pre and post-installation conditions as determined by Rocky Mountain Power and its energy engineering contractors. Rocky Mountain Power provides detailed engineering studies that determine the savings potential for each project. Customers are responsible for installation and commissioning to ensure energy savings are achieved. At the completion of the project Rocky Mountain Power conducts a post-installation inspection to verify the achieved savings and project costs. The incentive paid is based on the savings and costs documented in the post-installation inspection report. These values were then entered in Rocky Mountain Power's database at the conclusion of each project.

Table 1 summarizes expected savings, evaluated savings, and the realization rate for participants who completed projects in Idaho in 2008. Evaluated savings were savings for each installed project, as documented in this evaluation.

Table 1. Energy Savings and Realization Rates

	No. Projects	Expected Saving Estimates (kWh)	Evaluated Savings (kWh)	Realization Rates	Alternative Analysis Realization Rates
Warehouse	1	190,800	164,026	86%	86%
Industrial	4	204,381	103,200	50% ³	100%
Total	5	395,181	267,226	68%	91%

Table 2 summarizes expected demand savings, evaluated demand savings, and realization rates.

¹ PacifiCorp manages demand-side management programs in five of its six state jurisdictions. Program in Oregon are managed by the Energy Trust of Oregon.

² The program did not pass the RIM test, as is typically the case for energy efficiency programs.

³ Low commercial energy and demand realization rates were due to one large participant closing operations after measure installation. Section 6 of this report provides an alternative analysis excluding the facility that had suspended operations

Table 2. Demand Savings and Realization Rates

Sector	Expected Saving Estimates (kW)	Evaluated Savings (kW)	Realization Rates	Alternative Analysis Realization Rates
Warehouse	22	21.8	99%	99%
Industrial	19	12.9	68%	97%
Total	41	34.7	85%	98%

To evaluate achieved energy savings, Cadmus performed site visits at three of the five customer sites. We were unable to schedule a visit to the fourth site, and the fifth site was at a plant had suspended its operation until 2011. Due to uncertainty regarding this site resuming operations, Cadmus has taken a conservative approach and not credited the full savings from that project⁴. Section 6 of this report provides an alternative analysis which shows the realization rates and cost effectiveness results for the program excluding the facility in question. These verified projects represented 73 percent of expected savings.

Cadmus calculated realization rates for both energy and demand savings based on measurements and observations obtained from the site visits, in addition to data in the project files and conversations with facility staff. The pre-project engineering studies and the post-installation commissioning reports included in the files provided detailed project implementation information.

Table 3 shows energy savings realization rates by measure type. Realization rates were highest for motor and refrigeration measures (100%)⁵.

Table 3. Evaluated Energy Savings by Measure Type

	Expected Saving Estimates (kWh)	Evaluated Savings Estimates (kWh)	Realization Rates	Alternative Analysis Realization Rates
Lighting	128,514	101,740	79%	79%
Motors	74,562	74,562	100%	100%
Refrigeration	85,796	85,798	100%	100%
Additional Measures	106,309	5,126 ⁶	5%	-
Total	395,181	267,226	68%	91%

Table 4 shows demand savings realization rates by measure type. Realization rates were highest for motor measures (100%).

⁴ Section 6 of this report provides an alternative analysis excluding the facility that had suspended operations.

⁵ Realization rates are typically reflective of how the equipment is used once its installed, when this is the case it is outside of the program's control.

⁶ One customer's site suspended operations after installation of program measures. Thus, the verified energy savings were reduced to reflect only the time the customer was in operation. This is consistent with methods approved by the California Public Utilities Commission; http://www.calmac.org/publications/SCIA_06-08_Eval_Final_Report.pdf

Table 4. Evaluated Demand Savings by Measure Type

	Expected Saving Estimates (kW)	Evaluated Savings Estimates (kW)	Realization Rates	Alternative Analysis Realization Rates
Lighting	15	14.8	99%	99%
Motors	7	7	100%	97%
Refrigeration	13	12.6	97%	100%
Additional Measures	6	0.3 ⁷	5%	-
Total	41	34.7	85%	98%

Cadmus determined free-ridership to be 25% through self-reporting surveys. For this evaluation free-ridership was the only factor used to calculate the Net-to-Gross ratio⁸. After applying the Net-to-Gross ratio of 75 percent to the evaluated savings, the net program savings were 200,420 kWh.

Program cost-effectiveness was analyzed using Idaho-specific assumptions.

Table 5. Cost-Effectiveness Summary for the Program in 2008 – IRP 65% LF Decrement

Cost Effectiveness Test	Levelized \$ / kWh	Costs	Benefits	Net Benefits	Benefit / Cost Ratio
Total Resource + Conservation Adder (PTRC)	\$0.074	\$153,420	\$170,795	\$17,375	1.11
Total Resource No Adder (TRC)	\$0.074	\$153,420	\$155,268	\$1,848	1.01
Utility (UCT)	\$0.058	\$121,190	\$155,268	\$34,078	1.28
Ratepayer Impact (RIM)	\$0.122	\$254,461	\$155,268	-\$99,193	.61
Participant (PCT)	\$0.029	\$59,946	\$160,988	\$101,042	2.69
Lifecycle Revenue Impact (\$/kWh)				\$ 0.000003022	
Discounted Participant Payback (years)				2.74	

Conclusions

The Energy FinAnswer program as run in 2008 was cost-effective from the PTRC, TRC, UCT, and PCT perspectives and operates well. Customers who have completed projects are satisfied with the professionalism of all the staff and contractors they have dealt with. Recommendations below reflect only minor enhancements to make the program even more effective.

Recommendations

- Continue to conduct training for contractors and architects; so they can better understand the Energy FinAnswer program and encourage customers to undertake energy-efficiency measures in a project's early stages.
- Encourage greater discussion and presentation on the financial benefits resulting from undertaking efficiency projects.

⁷ As noted, measures were specially categorized for the closed customer's site.

⁸ This method is consistent with the Model Energy Efficiency Program Impact Evaluation Guide authored by the EPA as part of the National Action Plan for Energy Efficiency.

2. Introduction

Program Description

The Energy FinAnswer program offers customers an opportunity to increase their operations' electric energy efficiency through evaluation and implementation of Energy Efficiency Measures (EEMs) for existing facilities and new construction. Prior to May 1, 2008 the only program Idaho customers had available to them was FinAnswer Express which was operated with a funding cap⁹. Consequently some of the 2008 Energy FinAnswer participants may have initiated their projects with the FinAnswer Express program and completed them in Energy FinAnswer once that program became available. The program is available to commercial new construction and industrial projects of any size, as well as commercial retrofit projects larger than 20,000 square feet per electric meter. All customers served under the company's general service commercial and industrial rate schedules in Idaho are eligible, excluding special contracts. The program is implemented by Rocky Mountain Power staff utilizing approved energy engineering firms.

Customers who elect to participate in the program first receive an Energy Analysis (EA), paid for by Rocky Mountain Power, to identify energy savings opportunities and potential costs and incentives. The savings estimates for new construction projects, where energy code applies, uses the state energy code as a baseline. For retrofit projects the baseline can be the existing equipment, common practice or code depending on the nature of the project. This EA is performed by one of several Rocky Mountain Power contracted engineering firms. The firms under contract were all selected after responding to a Rocky Mountain Power issued request for proposal and are evaluated on their performance annually to assure that their performance meets Rocky Mountain Power's standards. Rocky Mountain Power also uses an engineering consultant peer review process as a quality assurance/quality control method on the work performed in the EAs. Before the EA findings are presented to the customer a second Rocky Mountain Power contracted engineering firm reviews the report, the savings, and cost estimates. Quality control review and comments are addressed before the report is delivered.

Customers are required to sign an incentive agreement, based on the estimated savings and project costs contained within the EA, before they proceed with making any equipment purchases. Once the implementation of the EEMs is complete, including any required commissioning and the customer has provided Rocky Mountain Power with all the appropriate documentation, Rocky Mountain Power will perform an on-site post-installation inspection. Based on the results of the inspection the final incentive is calculated and paid to the customer.

To help ensure persistence of electric savings from measures receiving an incentive, Rocky Mountain Power requires that the owner commission most mechanical measures prior to receiving an incentive payment. If the customer chooses not to commission the project, when it's required, they receive only a partial incentive. The company provides measure-specific

⁹ The Energy FinAnswer program actually began in Idaho in the early 90's and included optional funding repaid on the electric bill. It also offered energy engineering services similar to the 2008 program. This program ended when the company transitioned from a loan based financial offering to cash incentives in 2006.

commissioning procedures in the energy analysis report to facilitate this work. The required commissioning reports contain systematic functional performance testing plans, results, and corrective actions taken (if any) to ensure persistence of energy savings¹⁰.

In 2008, basic program incentives for the program were calculated as the lesser of:

- First-year energy savings (kWh), multiplied by \$0.12/kWh, plus average monthly on-peak kW reduction multiplied by \$50/kW; or
- Fifty-percent of the project costs.

Qualifying measures' pre-incentive simple paybacks had to equal or be greater than one year.

For EEMs retrofitted in existing buildings, measure cost was the total, installed cost of the measure. For new buildings, the measure cost was the installed cost, minus the cost of code compliance or common-practice equipment. For calculating the incentive, lighting measure savings were limited to no more than half of total savings of the project. The 2008 program had five Idaho projects completed in two facility types with expected savings of 395,181 kWh. Expected energy savings were largest for warehouse buildings.

Table 6. Expected Program Savings by Facility Type

	Projects		Expected Savings	
	Frequency	%	kWh	%
Warehouse	1	20%	204,381	52%
Industrial	4	80%	190,800	48%
Total	5	100%	395,181	100%

Table 7 shows expected savings distribution by end use. Lighting measures represented the greatest percentage of program savings, at 32% of expected savings.

Table 7. Expected Savings by End Use

	Expected Savings	
	KWh	%
Lighting	128,514	32%
Motors	74,562	19%
Refrigeration	85,796	22%
Additional Measures	106,309	27%
Total	395,181	100%

¹⁰ For a process flow diagram of the program please see Appendix E of this report.

3. Impact Evaluation

Methodology

Cadmus used engineering calculations to verify savings estimates for all 2008 projects.

Overall, energy analyses conducted for the evaluation were intended to verify the reasonableness of original analyses underlying the utility's savings estimates. Original savings estimates contained within the EA were based on a thorough review of prior studies and/or site inspections. The Rocky Mountain Power project files were very detailed and thorough, greatly facilitating this evaluation.

The evaluation sought to confirm that the basic assumptions used in the analysis were correct, the analysis method was appropriate, measures had been installed and operated as planned and the customer's facility remained in use. Consequently, our analysis primarily focused on verifying the original analyses and providing revised energy and demand savings estimates where operational changes were identified.

As described below, several steps were conducted in the energy analysis verification process.

Energy Savings Calculation Method

We applied the basic level of rigor in conducting our analyses as specified in the California Public Utilities Commission's Protocols published in 2006¹¹ and IPMVP option A. Analysis of projects began with a complete review of project files, which included one or more reports at various project stages, presenting energy savings, costs, and incentive calculations and estimates. Evaluated energy (or demand) savings were calculated by taking evaluated post-consumption less estimated pre-consumption.

Engineering Calculations

We reviewed the original engineering analysis, and determined whether our site visits or phone calls identified any changes in assumptions used in the original analysis. We also contacted the utility program manager and energy engineer, as needed, to resolve any issues, changes, or discrepancies that might affect estimated energy savings. If necessary, we adjusted original savings estimates using the same basic methodology, various engineering algorithms were used to estimate savings, based on specific measures.

As variations can occur in calculated savings due to particular engineering methods and assumptions used, our savings calculation methods, for the most part, duplicated the engineering method used when savings were first derived. Observation of operational characteristics became a critical element in estimating actual savings. We used our observations of key assumptions, validation of engineering methods, and recalculations based on observed differences to provide evaluated savings estimates.

¹¹ http://www.calmac.org/events/EvaluatorsProtocols_Final_AdoptedviaRuling_06-19-2006.pdf

Realization Rate Analysis Method

For each EEM in the projects, we calculated energy and demand savings realization rates as the ratio of evaluated savings to expected savings. The energy realization rate was calculated as a percentage, using evaluated energy savings from our calculation and the utility's expected energy savings. The demand realization rate was calculated similarly.

As discussed, evaluated energy and demand savings from a project reflected any changes observed in the assumptions used in the original analyses. The realization rate accounted for these changes in estimating evaluated savings, but the rate was always calculated relative to the utility's expected savings estimate, without any adjustments.

Evaluation Approach

Step 1: Categorization

While there were more projects in various stages of completion, there were five completed projects in 2008. Cadmus selected all of these for site visits. We were unable to access two sites, one of which was at a facility now shut down; at the other site, it was not possible to schedule a time acceptable to the customer. Consequently we visited three sites and performed a telephone interview with the fourth. The closed site was not visited.

Step 2: Methodology Selection

Cadmus analyzed all projects using engineering calculation methods described above.

Step 3: Site Visits and Data Collection

Analyses for all projects required site visits to: verify equipment installation and operations; obtain data needed to perform calculations; and meet with building maintenance staff. Site visits were completed in January 2010. Site visit information and summaries of our analyses are provided in Appendix G.

Step 4: Analysis

Energy savings for four projects were determined using engineering calculations that incorporated measurements and observations obtained from the site visits, in addition to data provided in the project files and from interviews. The fifth project was given a realization rate of 5% to reflect the period that the plant was in operation before closing.

Overall, the program achieved a 68% energy savings realization rate, as seen in Table 8, which shows savings by facility type. The overall rate was brought down by the closed facility; an alternative analysis is presented in section 6.

Table 8. Evaluated Energy Savings by Facility Type

Building Type	Expected Saving Estimates (kWh)	Evaluated Savings Estimates (kWh)	Realization Rates
Warehouse	190,800	164,026	86%
Industrial	204,381	103,200	50% ¹²
All Buildings	395,181	267,226	68%

Table 9 presents energy savings and realization rates by measure type.

Table 9. Evaluated Energy Savings by Measure Type

	Expected Saving Estimates (kWh)	Evaluated Savings Estimates (kWh)	Realization Rates
Lighting	128,514	101,740	79%
Motors	74,562	74,562	100%
Refrigeration	85,796	85,798	100%
Additional Measures	106,309	5,126 ¹³	5%
Total	395,181	267,226	68%

Table 10 shows demand savings realization rates by measure type.

Table 10. Demand Savings Realization Rates by Measure Type

	Expected Saving Estimates (kW)	Evaluated Savings Estimates (kW)	Realization Rates
Lighting	15	14.8	99%
Motors	7	7	100%
Refrigeration	13	12.6	97%
Additional Measures	6	0.3 ¹⁴	5%
Total	41	34.7	85%

Net-to-Gross

Net savings are the savings “net” of what would have occurred in the absence of the program.¹⁷

Net-to-gross (NTG) consists of free-ridership and spillover. For this evaluation, we only quantified free-ridership. Spillover is noted separately in Section 4 but not quantified due to the

¹² Low commercial energy and demand realization rates were due to a large participant suspending operations after measure installation.

¹³ As noted, one customer’s site closed after measure installation. Verified energy savings were reduced to reflect the period that the plant was in operation, with the measure installed. This is consistent with methods approved by the California Public Utilities Commission; http://www.calmac.org/publications/SCIA_06-08_Eval_Final_Report.pdf

¹⁴ As noted, one customer’s site closed after measure installation. Verified energy savings were reduced to reflect the period that the plant was in operation, with the measure installed. This is consistent with methods approved by the California Public Utilities Commission; http://www.calmac.org/publications/SCIA_06-08_Eval_Final_Report.pdf

¹⁷ Model Energy Efficiency Program Impact Evaluation Guide authored by the EPA as part of the National Action Plan for Energy Efficiency.

level of complexity involved in determining the potential savings associated with Spillover for commercial measures.

Free-ridership

Free-ridership represents the percentage of program participants who would have implemented the program measure or practice in the absence of the program. This was quantified through fielding telephone surveys with program participants who completed projects. While asking participants to self-report for calculating free ridership is a standard approach, it should be noted this methodology has some limitations in that it does not account for longer-term market trends among contractors and supply houses, which typically occur with multiyear programs. For example, a multiyear program may alter stocking practices at suppliers or even the market share of higher-efficiency products available in a region. Consequently, the customer, choosing between various makes and models of a given product, may not be aware available choices were altered by a program. Therefore, while the customer may correctly state a choice was offered between two efficient products, the choices available may have resulted from a program. In this case, while the customer would count as a freerider, had the program not been running, a less-efficient option may have been available to the customer—an option they may have otherwise chosen.

Accuracy of self-report surveys partly depends on the respondent's memory of their decisions. For the Energy FinAnswer program, some interviewees were asked to recall actions taken over a year before. Participant candor may also be a factor, as respondents may tend to seek a "halo" effect, where the customer indicates they would have made the energy-efficient choice because they perceive it as the response preferred by the interviewer.

In calculating free-ridership, Cadmus surveyed three program participants who completed projects over the 2008 program year. Free-ridership analysis results are presented in Table 11, along with evaluated savings numbers from Table 9 and Table 10. These savings include all measures (not just measures for which respondents were surveyed). The free-ridership value was applied across all measures to arrive at net savings¹⁵.

Table 11. Free-ridership Analysis

2008 kWh	Net-to-Gross Ratio (1-Free-ridership)	75%
	Evaluated Savings	267,226
	<i>Net Savings</i>	<i>200,420</i>
2008 kW	Net-to-Gross Ratio (1-Free-ridership)	75%
	Evaluated Savings	34.7
	<i>Net Savings</i>	<i>26</i>

As a result of the program funding cap experienced in 2007, the addition of the Energy FinAnswer program in 2008, removal of the funding caps and the subsequent management of the

¹⁵ For a full description of the scoring matrix refer to Appendix J

remaining customers on the waiting list, there may have been some customer confusion regarding the two programs and the funding available which may be reflected in the participant surveys and interpreted as free-ridership.

4. Process Evaluation

Process Evaluation Overview

With customer, implementer, and company perspectives in mind, the evaluation determined what program elements worked well and which could be improved, and, based on these results, developed modifications to refine the program. This evaluation phase relied on interviews with utility and program staff as well as on surveys of program participants who completed projects, nonparticipants, energy engineers, and trade allies. Interview and survey activities also informed evaluation of spillover and free-ridership impacts.

In total, 10 interviews and surveys were conducted for the process evaluation, as shown in Table 12.

Table 12. Rocky Mountain Power FY 2010 Process Evaluation Samples

Group	Goal	Achieved
Participants (with completed projects)	5	3
Nonparticipants	25	4
Implementers	2	1
Market Actors	5	2

Process Evaluation

Organizational Data/Firmographics

In the 2008 program year, the Idaho Energy FinAnswer program had five participants with completed projects. Three of them were dairies, one was a refrigerated warehouse, and the other was a chemical plant. The evaluators attempted to conduct a census of these participants, and were able to interview contacts at the refrigerated warehouse and two dairies. Evaluators were not able to interview anyone at the chemical plant because the plant closed down in the fall of 2009. The two dairies interviewed were small operations, with three to four employees. Under the program, all three dairies purchased variable frequency drives and controls for milk extraction vacuum pumps. The two dairies also installed milk-transfer pump variable frequency drives (VFDs) and controls, and one dairy installed two well water plate coolers used to pre-cool milk.

The refrigerated warehouse was a larger operation, with approximately 40 employees. Under the program, the warehouse completed a lighting retrofit and installed two floating head pressure controls. All three respondents indicated their electric bills were the largest utility contributors to their annual operating costs. All three responded their electric bills represented 10% or less of their total annual operating costs.

A total of eight eligible customers not participating in the Idaho Energy FinAnswer program were identified and selected for interviews. We completed surveys with four of these nonparticipants.

Those responding were diverse. One was a public school district, while the other three were private companies providing real estate, professional, or retail services. The school district had

more than 100 employees; the real estate firm had 40 employees, and the other two companies had one employee each. Although none of the respondents were able to provide specific estimates, all stated their energy costs made up a significant portion of their total annual operating costs.

Participation

During this time period, company staff noted that the program was actively marketed, both to customers and contractors. Customers were reached through contacts with Rocky Mountain Power account management staff and/or trade allies, the Rocky Mountain Power Web site and the quarterly Energy Insights newsletter. Additional promotion occurred through print and radio advertisements and energy engineers were encouraged to find additional opportunities at sites they visited.

All three participants who were interviewed learned of the Energy FinAnswer program through business associates. The two dairies learned of the program through equipment installers or suppliers. The refrigerated warehouse respondent learned of the Energy FinAnswer program from a business colleague. All three respondents said they participated in the program to save money on their utility bills. One dairy also indicated they participated to obtain the program incentive, and because it was beneficial for the dairy as equipment installed through the program provided more cooling for milk. The respondent added the new motors ran slower, resulting in lower energy use and a longer useful life for the motors.

There were no program aspects that initially caused respondents concern. One respondent mentioned there was a learning curve to understanding what would be funded under the program.

Three program nonparticipants had never heard of the program and were not aware incentives were available to nonresidential customers. None of the customers participated in the Energy FinAnswer program before 2006 or after 2008.

One nonparticipating customer, the school district, had heard of the Energy FinAnswer program through a local contractor.

Enrollment

As part of a new strategy implemented concurrently with the evaluation period, account managers were assigned a single project manager to work with their assigned customers' Energy FinAnswer projects. For this program, the energy engineer assigned to a project made an initial site visit and review to obtain additional detail on projects under consideration. The project manager considered this visit as "program neutral" in that the energy engineer was tasked with finding energy-saving opportunities eligible through Energy FinAnswer or other Rocky Mountain Power programs.

The initial no-cost site visit and review was a way to address customers' cost barriers. The energy engineer interviewed felt the no-cost site visit and follow-on consulting services were very influential. Many prospective participants were not familiar with the services or their value, and would be unwilling to pay for consulting services on their own. The initial visit and review also served to determine whether customers were interested in participating and whether they would have sufficient funds to implement their projects.

No respondents encountered any problems, delays, or difficulties during the program application, review, or approval processes. One respondent added all parties he encountered were polite and professional. None of the businesses had participated in the Energy FinAnswer program before or after 2008. One dairy had participated in an irrigation pump load-shedding program sponsored by Rocky Mountain Power, and felt that program's application process was about the same as the Energy FinAnswer's application process.

Efficiency Measures

Two respondents indicated they did not install some items recommended through the program. One respondent did not install some recommended lighting measures because the lights and fixtures he wanted were not available through the program. Another respondent declined to install some light switch controls in some high-traffic office areas because he did not think they would pay off in those particular areas.

All measures installed through the program replaced existing equipment that was old, but in working condition and experiencing no problems. One participant replaced working equipment as part of a facility remodel/expansion. All respondents rated their satisfaction with the new equipment highly.

Table 13. Equipment Satisfaction

Respondent Number	How satisfied are you with the performance of the measure? With 0 being extremely dissatisfied and 10 being extremely satisfied.
1	9
2	10
3	8.5

One nonparticipant installed lighting and controls through the Energy FinAnswer program in 2009 and was very satisfied with the new equipment. Other than the lighting retrofit project, the respondent had not taken any other actions to save energy, but was considering upgrading to high-efficiency lighting in additional buildings. Only one other nonparticipant had installed any energy-efficiency measures, having installed insulation and a high-efficiency water heater over that last several years without a financial incentive or tax credit. However, none of these energy-efficiency improvements had been made in 2008.

Operational Changes

At the time respondents participated in the program, only one had an overall plan to increase operational energy efficiency. Two respondents indicated they changed the manner that they operated equipment after installing new measures, and these changes were part of an overall plan to increase their operations' energy efficiency. The refrigerated warehouse representative stated they had installed automatic sensors in their office rooms; so lights would not remain on when no occupants were in the room. One dairy mentioned they had changed operating hours or operation schedules since installing the new measures as their newly remodeled barn was larger, resulting in fewer milking hours; therefore, the pumps ran less.

Installation

No measures at the dairies had been removed since installation through the program. In the refrigerated warehouse, two defective ballasts had to be replaced. This occurred within two months of installation. The respondent indicated no more equipment had required replacement.

Only one respondent—the one completing a barn remodel—indicated equipment installed through the program had been scheduled for replacement or upgrade before the program. Both dairies indicated equipment installed through the program was included in their most recent capital budgets.

All respondents expected to save money on their electric bills and all respondents felt the electric savings met their expectations.

Two respondents did not anticipate additional benefits from installation of new equipment, other than energy savings; however, one dairy farmer anticipated the life of his new pumps would be greater.

The two dairies highly rated their satisfaction with the cost of measures installed under the program, with scores of 8 and 9. The warehouse rated satisfaction somewhat lower, with a 7, because the cost of measures installed proved slightly higher than expected.

Company staff and the trade allies interviewed noted that the program had a strong quality control element leading to high-quality project plans and installations. Contributing to this is the peer review process in which the energy analysis reports prepared by the assigned energy engineers were peer reviewed by firms with similar capabilities.

Company staff also felt that the energy analysis report peer review resulted in competing firms sharing project knowledge and approaches. The program and customers benefitted from increased sharing of program knowledge.

Spillover

Spillover is defined as the amount of additional savings generated by program participants, but not captured by program records. We used the same participant survey instrument to qualify spillover, which results when customers purchase energy-efficient measures or adopt energy-efficient practices because of a program, yet choose not to participate in the program or are otherwise unable to participate. The nature of that behavior makes it difficult to actually quantify the savings from each action or measure.

Since participating in the program, two of the respondents have installed other energy efficiency measures without any assistance from a utility or other organization. The measures installed by the respondents were timers for outdoor lighting and a new well pump. Regarding the influence of the program on their decisions to install additional energy efficiency measures on their own, only one of the two gave a response above a 5.

Energy-Efficiency Decision Making

The respondents rated energy efficiency's importance to operations and management of their company, with numbers ranging from 7 to 9. When asked for reasons supporting their ratings, two respondents who rated energy efficiency the lowest (7 and 8) stressed there was only so much money to go around, and there were other efficiencies to consider, such as time and labor.

One respondent mentioned employee comfort was also an important consideration, and another stated, although energy efficiency was important, it was not their highest priority. The respondent (a dairy) who rated energy efficiency's importance the highest (8 to 9) noted that because the price of milk was so low, their business was struggling to meet budgets; therefore, every dollar they saved was important. In fact, if the program were offered today, they would not be able to use it because they could not afford to spend money on anything not absolutely necessary.

When asked if their business had sufficient in-house technical resources to address energy and water cost management, both dairies said no, but that Rocky Mountain Power and Nexant were able to provide the required assistance. The refrigerated warehouse felt they had sufficient in-house technical resources to address energy and water cost management on their own.

Three of four nonparticipant survey respondents rated energy efficiency's importance to company operations and management as an 8. When asked about their rating, the three respondents gave similar responses. While they indicated energy efficiency and cost savings were important, they felt they were not their highest priorities. A real estate firm indicated it was typically not cost-effective to install energy-efficient measures in its investment properties since the tenants typically pay their own electric bill. Another respondent indicated energy-efficient equipment was often more expensive and could require a greater effort to find, install, and operate than conventional equipment.

The respondent giving the importance of energy efficiency the highest rating (a 9) indicated anything that could be done to save energy costs was very important since it was such a large expenditure for that customer. This respondent was the only nonparticipant that had made energy-efficiency improvements in the last few years without assistance from a utility or other organization. Three of four respondents indicated they had sufficient technical resources in house to address energy and water cost management.

Trade allies we spoke with felt if you could show customers energy management efforts improved bottom lines, they would more likely invest in the Energy FinAnswer program. Customers were generally motivated by incentives to undertake energy-efficiency upgrades following the audit, particularly when, shortly after the audit, they received a significant incentive. However, some trade allies stated incentives offered by Rocky Mountain Power were slightly low, preventing customers from investing in improvements. Moreover, the price of electricity has been low in Idaho, reducing the impetus to make energy-efficiency upgrades. One trade ally noted they had conducted quite a few audits, but not many of their prospective customers followed through on energy efficiency measures, probably due to low-cost electricity and long payback periods. Another respondent stated more customers would invest in energy management if Rocky Mountain Power developed a stronger message (e.g., convincing customers that investing in energy efficiency now would reduce their costs over the long-term).

Interaction with Rocky Mountain or Third-Party Staff

All three Idaho Energy FinAnswer respondents reported they worked with three to four program staff members. All three remembered working with the project manager, and two said they worked with their Rocky Mountain Power account representative. Other staff members mentioned were: Nexant project managers, engineers, auditors, external consultants, and suppliers. All three described their experiences working with program staff members in the most

positive terms. One respondent said program the staff were: “Very professional. They answered my questions, had all documents prepared, and did their job....” Another stated program staff were “very helpful and I am very pleased.” The last respondent simply that stated program staff “were all great.”

Only one nonparticipant had contact with Rocky Mountain Power or other program staff. The respondent had a positive experience working with Rocky Mountain Power account representatives and the installation contractor to complete a 2009 lighting retrofit project. The respondent would not change anything about the program.

All trade allies said Rocky Mountain Power was easy to work with on the Energy FinAnswer program, especially as they were familiar with them from other energy-management programs. They also noted Rocky Mountain Power staff were effective project managers, and helped facilitate the program’s progress. One trade ally strongly encouraged Rocky Mountain Power to conduct additional workshops and training for contractors and architects; so they could learn more about the program and broaden its implementation¹⁶. Training could also encourage contractors and architects to become involved in the Energy FinAnswer program earlier, rather than making later change orders, which could be expensive and time consuming.

Satisfaction

When asked whether they would participate in the program again, all respondents said yes. One respondent qualified his yes with “if I had the money.” When asked for suggestions for improving the program, all three requested a bigger incentive. All three respondents also rated their overall satisfaction with the program as a 9. One respondent explained his rating by adding: “The equipment is working; it saves me money every month, and is doing what I hoped it would.”

In general, most trade allies stated the Energy FinAnswer program, similarly with the FinAnswer Express program, was effective in leading customers to make energy management changes. Trade allies also noted the incentives worked to involve customers. However, they noted the incentives were slightly low—in fact, lower than other utilities they were familiar with—and payback periods for customers were too long , potentially lasting five to seven years. Another trade ally said the energy audit results took too long to reach the customer; though Rocky Mountain Power improved its turnaround time on audits, they still sometimes lagged behind other utilities.

Key Findings

The program had five Idaho participants who completed projects in 2008, overall satisfaction was high among the three respondents interviewed, all of whom indicated their level of satisfaction was a 9 out of a possible 10, with 10 being ‘extremely satisfied’. Program staff were very highly regarded and appreciated for their assistance and professionalism. Notably, none of the three interviewees first heard about the program through contact with a program representative; all had learned about it through business associates. Since this is inconsistent with our understanding of how the program is marketed, it maybe that these customers were originally

¹⁶ Currently, the Company offers annual training sessions.

going through the FinAnswer Express program until their options had expanded. Although all three interviewees indicated they would participate in the program again, the economy and its impact on their businesses' bottom lines definitely tempered their decisions at this time. In addition, all three respondents indicated that although energy efficiency was important to them, it was one of many competing priorities under consideration in their business.

Three of the four nonparticipants interviewed had never heard of the Energy FinAnswer program. Even though they stated energy efficiency was important to them, none of these respondents installed any energy-efficient measures in the year before the interviews. The one respondent who indicated that they were in fact aware of the program learned about it through a contractor. This fact helps to support the continued outreach and support of trade allies as a means of increasing participation. Once aware, the respondent decided to participate in the program in 2009. That respondent had a positive experience with the program and program staff.

Quality control on the audit reports appears to be working very well, resulting in competing energy engineering firms sharing project knowledge and approaches. This has improved report quality, and the program has benefitted by the increased communication of best practice information.

The current project tracking system does not readily track disposition of various projects, including projects moving to other programs. This has created a minor level of uncertainty in maintaining a complete picture of program status and influence.

Trade allies seemed well educated about Rocky Mountain Power's various offerings. They noted key areas reducing customer involvement have been perceived longer paybacks and low electricity costs.

Recommendations

- Continue to conduct training for contractors and architects; so they can better understand the Energy FinAnswer program and encourage customers to undertake energy-efficiency measures in a project's early stages.
- Encourage greater discussion and presentation on the financial benefits resulting from undertaking efficiency projects.
- If Rocky Mountain Power chooses to evaluate the program in the future it is recommended that the partial participants, who did not complete a project in the evaluation year, as well as those customers who started but elected not to complete their project be surveyed.

5. Cost-Effectiveness Analysis

To assess cost-effectiveness, evaluators conducted an analysis of program costs and benefits from five perspectives, using Cadmus' DSM Portfolio Pro model. These perspectives include:

- (1) **PacifiCorp Total Resource Cost Test (PTRC):** This test examined program benefits and costs from Rocky Mountain Power's and Rocky Mountain Power customers' perspectives, combined. On the benefit side, it includes avoided energy costs, capacity costs, and line losses plus a 10% adder to reflect non-quantified benefits. On the cost side, it includes costs incurred by both the utility and participants.
- (2) **Total Resource Cost Test (TRC):** This test examined program benefits and costs from Rocky Mountain Power's and Rocky Mountain Power customers' perspectives, combined. On the benefit side, it included avoided energy costs, capacity costs, and line losses. On the cost side, it included costs incurred by both the utility and participants.
- (3) **Utility Cost Test (UCT):** From Rocky Mountain Power's perspective, benefits were through avoided energy and capacity costs and line losses. Costs included any program administration, implementation or incentive costs associated with funding the program.
- (4) **Ratepayer Impact (RIM):** All ratepayers (participants and nonparticipants) may experience increases in rates to recover lost revenues. This test included all Rocky Mountain Power program costs as well as lost revenues. As benefits, this test included all avoided energy costs, capacity costs, and line losses.
- (5) **Participant Cost Test (PCT):** From this perspective, program benefits included bill reductions. Costs included any customer contribution to the measure cost.

Table 14 summarizes various components of the five tests.

Table 14. Benefits and Costs Included in Various Tests

Test	Benefits	Costs
PTRC	Present Value of Avoided Energy and Capacity Costs with 10% Adder for Non-quantified Benefits	Program Administrative and Marketing Cost + Participant Cost
TRC	Present Value of Avoided Energy and Capacity Costs	Program Administrative and Marketing Cost + Participant Cost
UCT	Present Value of Avoided Energy and Capacity Costs	Program Administrative, Marketing and Incentive Cost
RIM	Present Value of Avoided Energy and Capacity Costs	Program Administrative and Marketing Cost + Present Value of Lost Revenues
PCT	Present Value of Bill Savings	Participant Share of Measure Cost

Table 15 provides selected inputs to the cost analysis. These include the evaluated energy savings for 2008 (from Table 8 above), discount rate, line loss, and program costs. Other than the energy savings, these values are provided by Rocky Mountain Power. The discount rate is from Rocky Mountain Power's 2008 Integrated Resource Plan. Rocky Mountain Power also provided the values for line loss and the program costs.

Table 15. Selected Cost-Effectiveness Analysis Inputs

Input Description	2008
Net Program Savings (kWh/year)	267,226
Discount Rate	7.40%
Line Loss	10.70% Commercial 10.39% Industrial
Commercial Retail Rate	\$0.064
Industrial Retail Rate	\$0.035
Net Participant Costs	\$59,946
Program Costs	
Program Management Costs	\$3,981
Engineering Costs	\$82,059
Incentive Costs	\$27,716
Utility Administrative Costs	\$7,434
Total Program Costs	\$121,190

Program benefits are comprised of energy savings and their associated avoided costs. The energy savings used in the cost-effectiveness analysis are the evaluated kWh savings from this study. Benefits are accrued over the expected useful life of the installed measure. Measure lives are shown in Table 16.

Table 16. Measure Life Summary¹⁷

Measure Type	Average Measure Life (years)
2008	14.58

Table 17 presents the results of the cost-effectiveness analysis for the Program in 2008. All analyses are based on the Rocky Mountain Power 2008 IRP 65% Eastside Decrement¹⁸.

¹⁷ Measures lives were calculated based on information from California's DEER database, the New England State Program Working Group report for the ISO Forward Capacity Market, and ACEEE's report on updating Energy Efficiency Standards. The average is achieved by weighting the savings associated with each of the measure types. See Appendix H for a detailed explanation.

¹⁸ IRP decrements are detailed in Appendix G of PacifiCorp's 2008 Integrated Resource Plan Volume II Appendices:
http://www.pacificorp.com/content/dam/pacificorp/doc/Environment/Environmental_Concerns/Integrated_Resource_Planning_6.pdf

Table 17. Cost-Effectiveness Summary for the Program in 2008 – IRP 65% LF Decrement

Cost Effectiveness Test	Levelized \$ / kWh	Costs	Benefits	Net Benefits	Benefit / Cost Ratio
Total Resource + Conservation Adder (PTRC)	\$0.074	\$153,420	\$170,795	\$17,375	1.11
Total Resource No Adder (TRC)	\$0.074	\$153,420	\$155,268	\$1,848	1.01
Utility (UCT)	\$0.058	\$121,190	\$155,268	\$34,078	1.28
Ratepayer Impact (RIM)	\$0.122	\$254,461	\$155,268	-\$99,193	0.61
Participant (PCT)	\$0.029	\$59,946	\$160,988	\$101,042	2.69
Lifecycle Revenue Impact (\$/kWh)				\$ 0.000003022	
Discounted Participant Payback (years)				2.74	

6. Alternative Analysis

During an evaluation period in which there are a small number of completed projects, the overall results can be significantly influenced if even one of those projects differs from its original assumptions, as was the case with Project 6588.

Project 6588 involved a calciner at an industrial facility which had suspended operations subsequent to the customer's participation in the program. Because the facility was no longer in operation the verified energy savings were significantly reduced to reflect only the time that the customer's facility was in operation with the rebated measure installed. The fact that the facility had suspended operations was clearly outside of the program's control, as a result we reran the cost effectiveness and realization rate analysis for the Idaho Energy FinAnswer program excluding project 6588 to provide another perspective. For this scenario we removed the energy savings, incentive costs, and measure costs for the project. Table 18 shows the results of the revised cost effectiveness analysis. Table 19 shows the results of the revised realization rate analysis.

Table 18. Alternative Cost-Effectiveness Summary for 2008 – IRP 65% LF Decrement

Cost Effectiveness Test	Levelized \$ / kWh	Costs	Benefits	Net Benefits	Benefit / Cost Ratio
Total Resource + Conservation Adder (PTRC)	\$0.073	\$148,341	\$167,485	\$19,145	1.13
Total Resource No Adder (TRC)	\$0.073	\$148,341	\$152,259	\$3,919	1.03
Utility (UCT)	\$0.059	\$119,633	\$152,259	\$32,627	1.27
Ratepayer Impact (RIM)	\$0.123	\$250,718	\$152,259	-\$98,459	.61
Participant (PCT)	\$0.027	\$54,867	\$157,244	\$102,377	2.87
Lifecycle Revenue Impact (dollars)				\$0.000002999	
Discounted Participant Payback (years)				2.46	

Table 19. Alternative Evaluated Energy Savings by Measure Type

	Expected Saving Estimates (kWh)	Evaluated Savings Estimates (kWh)	Realization Rates
Lighting	128,514	101,740	79%
Motors	74,562	74,562	100%
Refrigeration	85,796	85,798	100%
Total	288,872	262,100	91%

Appendix A. Participant Survey

PacifiCorp FinAnswer Participant Interview Guide For Completed Projects

Company: _____ Telephone: _____

Name: _____ Cell phone: _____

Title: _____ Fax: _____

City: _____ State: _____ Zip: _____

Interview date: _____ Time: _____

Measure with the greatest savings, and amount of savings (from column U): _____
(Refer to this measure in the 'Installed Efficiency Measures' section.)

Hello, my name is _____ from The Cadmus Group, calling on behalf of:

[UTAH OR IDAHO] Rocky Mountain Power

[WASHINGTON] Pacific Power

[PACIFIC POWER/ROCKY MOUNTAIN POWER] is evaluating its FinAnswer program and would appreciate your input. "It is important for [PACIFIC POWER/ROCKY MOUNTAIN POWER] to include your opinions in this study so they can serve your needs better."

[NOTE: If the customer has received a FinAnswer site visit, state: 'This is a brief follow up to the site visit you recently received.']

[NOTE: If the customer has been selected for a FinAnswer site visit but the visit has not yet happened, state: 'We are conducting this survey to prepare for an upcoming site visit to see your FinAnswer project. We perform site visits to get a better understanding of the energy savings you are actually getting from the program.']

This survey is for research purposes only and this is not a marketing call. Your responses will remain confidential. This survey will take approximately 20 minutes. *As a Thank You for your assistance, at the end of the survey you we would like to offer you a \$50 gift card, which will be mailed to you.* Do you have a moment to answer questions about your experience with the program?

[If a customer asks if this is the Total Quality Service survey, or states that he has recently participated in the Total Quality Service survey, say 'this is a separate survey about your participation and satisfaction with the FinAnswer program.']

[If “No – Not a convenient time,” ask if Respondent would like to 1. Start now and do part of the survey, or 2. Arrange a more convenient time we can call them at home. Emphasize that]

[If customer wants to verify the validity of the survey, tell them that they are welcome to contact Nancy Goddard, PacifiCorp Program Manager, at (503)813-5183.

[IF “NO” – ARRANGE CALLBACK]

-

-

-

- **Confirmation**

1. The [PACIFIC POWER/ROCKY MOUNTAIN POWER] records show that you participated in the FinAnswer program during [Month] of [Year], and installed (a) *[MEASURE(S)]* at *[ADDRESS OF INSTALLATION]*

Is that correct?

1. Yes *[IF YES → GO TO QUESTION 4.]*

2. No, measure is/are incorrect

3. No, date is incorrect *(SKIP TO 3)*

98 DK *(TERMINATE)*

2. *[IF Q1= NO, MEASURE IS/ARE INCORRECT, ASK]* What measures were installed?
_____ *[RECORD RESPONSE]*

3. *[IF Q1= NO, DATE IS INCORRECT, ASK]* About when were the measures installed?

1. _____MONTH _____YEAR

98. DK *(DO NOT TERMINATE)*

99. REF *(TERMINATE)*

4. Which of the following best describes your company’s primary activities?

1. Manufacturing
2. Retail
3. Dairy / Agricultural
4. Finance and Insurance
5. Food Processing

6. Refrigerated Warehouse
7. Professional, Scientific, and Technical Services
8. Educational Services
9. Health Care
10. Public Administration
11. Arts, Entertainment, and Recreation
12. Accommodation
13. Food Services
14. Real Estate
15. Other [SPECIFY] _____

Participation

5. How did you learn about the Energy FinAnswer Program?
[DO NOT READ RESPONSES; MARK ALL THAT APPLY]
 1. Contacted by my [PACIFIC POWER/ROCKY MOUNTAIN POWER] account representative or other [PACIFIC POWER/ROCKY MOUNTAIN POWER] staff.
 2. Contacted by program representative [IF YES ASK 'Do you remember what company they were from.']
 3. Program sponsored conference or workshop
 4. Program sponsored technology demonstration
 5. Program sponsored integrated audit
 6. Trade Publication
 7. Marketing by Trade Ally, vendor or contactor
 8. Firm approached/contacted by Trade Ally, vendor or contractor
 9. Word of mouth; from another business colleague
 10. Through a trade organization or professional organization/association
 11. Through printed material or outreach materials sent by the Program
 12. At a trade show
 13. Through family, friend, or neighbor
 14. Participation in other [PACIFIC POWER/ROCKY MOUNTAIN POWER] Programs
 15. Past Program participants
 16. Internet research/found Program on the [PACIFIC POWER/ROCKY MOUNTAIN POWER] website
 17. Other [SPECIFY] _____
 98. Don't know
 99. Refused

6. Why did you decide to participate in the Program?

[DO NOT READ RESPONSES; MARK ALL THAT APPLY]

1. To save money on utility bills; save money on electric bills
2. To obtain a program incentive
3. To replace old equipment
4. To replace broken equipment
5. To acquire the latest technology
6. To reduce maintenance costs
7. Because the Program was sponsored by [PACIFIC POWER/ROCKY MOUNTAIN POWER]
8. Previous experience with other [PACIFIC POWER/ROCKY MOUNTAIN POWER] Programs
9. To help protect the environment
10. To save energy
11. Recommended by Program contact
12. Recommended by contractors/trade allies
13. Recommended by another [PACIFIC POWER/ROCKY MOUNTAIN POWER] customer; word of mouth
14. Recommended by family, friend, or neighbor
15. Part of a broader remodeling or renovation
16. Other [SPECIFY] _____
98. Don't know
99. Refused

7. Thinking back to when you were first involved with the Program, were there any aspects of the Program that initially caused you concern?

1. Yes
2. No *[SKIP TO 8]*
98. Don't know *[SKIP TO 8]*
99. Refused *[SKIP TO 8]*

7a. What caused your concern?

_____ *[RECORD RESPONSE]*

7b. Was this issue resolved?

1. Yes *[Ask 7C]*
2. No *[SKIP TO 8]*

98 Don't know [*SKIP TO 8*]

99 Refused [*SKIP TO 8*]

7c. How was it resolved?

_____ [*RECORD RESPONSE*]

Enrollment

8. Did you encounter any problems, delays or difficulties during the application, review or approval processes for the Program?

1. Yes

2. No [*SKIP TO 11*]

98 Don't know [*SKIP TO 11*]

99 Refused [*SKIP TO 11*]

9. [*IF 8 = YES*] What problems, delays or difficulties did you encounter?

[*DO NOT READ RESPONSES; MARK ALL THAT APPLY*]

1. The process took too long

2. Too many delays between steps in the process

3. The process was too complex

4. The applications materials were difficult to understand

5. Lack of coordination and communication among Program staff

6. The Program staff was not responsive; could not get questions answered

7. The Program staff was not knowledgeable

8. The incentives were less than I expected

9. Unable to get information on the status of the application

10. Multiple requests for more information from[PACIFIC POWER/ROCKY MOUNTAIN POWER] throughout the process

11. Disagreement over initial energy savings calculations

12. Disagreement over final energy savings calculations

13. Other [*SPECIFY*] _____

98. Don't know

99. Refused

9a. [*IF 9 = MORE THAN ONE ANSWER*]: What was the **most** difficult issue for you?

_____ [*RECORD RESPONSE*]

10. If you could change anything about the application process, what would you change?

_____ [*RECORD RESPONSE*]

11. Besides this project did your company participate in the FinAnswer program before 2006 or after 2008?

1. Yes
2. No
- 98 Don't know
- 99 Refused

11a. Have you participated in other energy efficiency programs?

1. Yes
2. No [skip to 12]
98. Don't know [skip to 12]
99. Refused [skip to 12]

11b. *[IF 11a = YES]* What other energy efficiency programs have you participated in?

_____ *[RECORD RESPONSE]*

11c. *[IF 11a = YES]* Who were the sponsors for these programs?

_____ *[RECORD RESPONSE]*

11d. *[IF 11a = YES]* How did this Program's application process compare to your prior experience? Was it easier, harder, or about the same?

1. Easier
2. Harder
3. About the same

11e. *[IF 11d = EASIER OR HARDER]* Why do you say that?

_____ *[RECORD RESPONSE]*

Recommended Efficiency Measures

12. Was any equipment, controls or other item recommended through this Program that you did not install?

1. Yes
2. No *[IF NO SKIP TO 13]*
98. Don't know
99. Refused

12a. *[IF YES]* What was recommended but not installed?
 _____ *[RECORD RESPONSE]*

12b. *[IF YES]* Why did you choose not to install these items?
 _____ *[RECORD RESPONSE]*

Installed Efficiency Measures

[REFER TO THE SPREADSHEET FOR "INSTALLED MEASURE." IF MORE THAN ONE MEASURE INSTALLED, PLEASE CHOOSE MEASURE WITH LARGEST SAVINGS]

13. Did the *[INSTALLED MEASURE]* installed through the Program replace existing equipment or was it a totally new installation?
1. Replaced existing equipment
 2. Totally new *[IF TOTALLY NEW, "PLEASE DESCRIBE" AND, SKIP TO 15]*
 98. Don't know
 99. Refused
14. What was the operating condition of the equipment that the *[INSTALLED MEASURE]* replaced?
1. Old equipment had failed or burned out
 2. Old equipment had problems, but still working
 3. Old equipment in working condition with no problems
 4. Expanding services or production line; wanted efficient equip
 5. Other *[SPECIFY]* _____
 98. Don't know
 99. Refused
15. On a scale of 0 to 10, where 0 is not at all satisfied and 10 is very satisfied, how satisfied would you say you are with the performance of the new *[INSTALLED MEASURE]*?
 _____ *[RECORD RESPONSE]*
98. Don't know
 99. Refused
- 15a. *[If 15 <=5]* Why do you say that?
 _____ *[RECORD RESPONSE]*
98. Don't know
 99. Refused

Operational Changes

[INTERVIEWER: RESPONDENT WILL RECEIVE ONLY ONE SET OF QUESTIONS REFERRING TO OPERATIONAL CHANGES FOR A SINGLE MEASURE TYPE]

16. At the time that you installed these measures, did you have an overall plan to increase the energy efficiency of your operations?
1. Yes
 2. No
 98. Don't know
 99. Refused

16A. Did you change the manner in which you operated [MEASURE TYPE] after the new [MEASURE TYPE] was installed?

1. Yes
2. No *[SKIP TO 18]*
98. Don't know
99. Refused

16b. Were these changes part of the overall plan to increase the energy efficiency of your operations?

1. Yes
2. No *[SKIP TO 18]*
98. Don't know
99. Refused

16c. What did you change?

_____ *[RECORD RESPONSE]*

17. *[ASK IF 16C MENTIONS HOURS OF OPERATION]* Did you change the number of operating hours or change the operation schedules since measures were installed?

1. Yes
2. No *[SKIP TO 18]*
98. Don't know
99. Refused

17a. Please explain what changes were made

_____ *[RECORD RESPONSE]*

18. Have any *[INSTALLED MEASURE]* been removed since they were installed with this program?

1. Yes
2. No *[SKIP TO 19]*
98. Don't know
99. Refused

18a. **What** was removed?

_____ *[RECORD RESPONSE]*

18b. **Why** was it removed or replaced?

_____ *[RECORD RESPONSE]*

18c. **About when** was it removed or replaced?

_____ *[RECORD RESPONSE]*

19. How did **installation** of the *[INSTALLED MEASURE]* fit with planned replacement and/or maintenance? Was any of this equipment scheduled for replacement/upgrade before the program?

1. Yes *[IF YES, PROBE]*
2. No *[SKIP TO 20]*
98. Don't know
99. Refused

19a. Which equipment?

_____ *[RECORD RESPONSE]*

98. Don't know

99. Refused

20. Was the installation of the *[INSTALLED MEASURE]* **INCLUDED YOUR MOST RECENT CAPITAL BUDGET BEFORE YOU PARTICIPATED IN THE PROGRAM?**

1. Yes
2. No
98. Don't know
99. Refused

21. When you installed the new *[INSTALLED MEASURE]*, did you expect savings on:

21a. Electricity?				
21b. Water?				
21c. Natural Gas?				

21d. *[ASK IF 21a = YES]* Do the electric energy savings meet your expectations?

1. Yes *[SKIP TO 22]*
2. No
98. Don't know
99. Refused

21e. *[ASK IF 21a = No]* When do you expect these energy savings?

1. Immediately
2. Within the next 6 Months *[SKIP TO 22]*
3. Within the next year *[SKIP TO 22]*
4. Within the next two years *[SKIP TO 22]*
5. Never
98. Don't know *[SKIP TO 22]*
99. Refused *[SKIP TO 22]*

21f. Why do you not expect savings from the *[INSTALLED MEASURE]* in the future?
 _____ *[SKIP TO 23]*

22. Are there any other benefits that you anticipate?

[PROBE IF NEEDED: HAVE YOU OBSERVED ANY CHANGES IN LEVEL OF PRODUCTION OR SALES? PRODUCT QUALITY?]

_____ *[RECORD RESPONSE]*

23. How satisfied are you with the final cost to you of the *[INSTALLED MEASURE]*? Please use a scale from 0 to 10, with 0 being extremely dissatisfied and 10 being extremely satisfied.

_____ *[RECORD RESPONSE]*

98. Don't know
99. Refused

23a. *[IF Q23<=5]* Why do you say that?

24. How satisfied are you with the performance of the *[INSTALLED MEASURE]*?
Please use a scale from 0 to 10, with 0 being extremely dissatisfied and 10 being extremely satisfied.

_____ *[RECORD RESPONSE]*

98. Don't know

99. Refused

24a. *[If 24 <=5]* Why do you say that?

_____ *[RECORD RESPONSE]*

Free Ridership and Market Effects

[NOTE: ONLY ASK FOR SAME MEASURES AS PRIOR QUESTIONS]

25. On a scale from 1 to 10, how important were the following factors in deciding which measures to install:

Factor	Score
A. Information provided by program staff on measure savings	
B. Information on payback for the measure	
C. The project incentive	
D. Familiarity with these measures	
E. Had purchased these measures in the past	

26. Regarding the installation of *[INSTALLED MEASURE/MEASURE(S)]*, would you have installed the *[MEASURE/ MEASURES]* without this program?

1. Yes

2. No *[IF 'NO', ASK Q27, THEN SKIP TO Q30]*

98. Don't know

99. Refused

27. Before the incentive program, had you previously installed the same type of *[MEASURE]* without the program?

3. Yes

4. No

98. Don't know

99. Refused

_____ *[RECORD RESPONSE]*

28. Without the program, would you have installed units to the same level of efficiency?

1. Yes
2. No
98. Don't know
99. Refused

29. Without the program, would you have installed all of the measures or some of the measures?

1. All
2. Some
98. Don't know
99. Refused

29a. [If 29=Some] Which measures would you have installed?

_____ *[RECORD RESPONSE]*

30. Without the program, would you have installed these measures...

1. In the same year?
2. In one to two years?
3. In three to five years?
4. More than five years out?
98. Don't know
99. Refused

31. Would you have installed the exact same unit(s) if the amount of the program incentive was less than the current value?

1. Yes
2. No
98. Don't know
99. Refused

32. How much less? Would you say...

1. 25% less
2. 50% less
3. 75% less
98. Don't know
99. Refused

33. In your opinion was the difference in price between the energy efficient models and the conventional models:
1. Very dramatic
 2. Somewhat dramatic but significant
 3. Not at all different
 98. Don't know
 99. Refused

Energy Efficiency Decision Making

Next, I would like to ask you some questions about the decision making process in regards to energy efficiency purchases and upgrades.

34. Using a 0 to 10 rating scale, where 0 means not at all important and 10 means extremely important, please rate how important energy efficiency is to the operations and management of your company?
1. _____ [*RECORD RESPONSE*]
 98. Don't know
 99. Refused

34a. Why do you say that?

35. Do you have sufficient in house technical resources to address the management of energy and water costs?
1. Yes
 2. No
 98. Don't know
 99. Refused

35b. [*IF35=NO*] For this project, were [*PACIFIC POWER/ROCKY MOUNTAIN POWER*] or Nexant able to provide you with the needed technical assistance?

_____ [*RECORD RESPONSE*]

Spillover

36. Besides installing the measures through this program, since this project have you made any other energy efficiency improvements or purchases on your own without any assistance from a utility or other organization?
1. Yes
 2. No [*SKIP TO 37*]
 98. Don't know [*SKIP TO 37*]
 99. Refused [*SKIP TO 37*]

36a. What did you purchase or install?

_____ [RECORD RESPONSE]

36b. [IF 36 = YES] I'm going to read a statement about the equipment that you purchased on your own. On a scale from 0 to 10, with 0 indicating that you strongly disagree, and 10 indicating that you strongly agree, please rate the following statement.

"My experience with the [Program] influenced my decision to install other high efficiency equipment on my own."

_____ [RECORD RATING]

98. Don't know

99. Refused

Interaction with [PACIFIC POWER/ROCKY MOUNTAIN POWER] or 3rd Party Staff

We are also interested in learning more about your interactions with the Program staff

37. How many people did you work with throughout your participation in the Program? This would include people from Nexant, [PACIFIC POWER/ROCKY MOUNTAIN POWER], contractors, etc.

_____ Number of people

[SKIP TO 40 IF =0]

38. In what capacity did they work with you?

[PROBE IF NEEDED. WAS IT PROJECT MANAGERS, ACCOUNT REPS, THIRD PARTY STAFF, CONTRACTORS; MULTIPLE RESPONSE]

1. _____ [PACIFIC POWER/ROCKY MOUNTAIN POWER] Account Representatives
2. _____ [PACIFIC POWER/ROCKY MOUNTAIN POWER] Energy Efficiency Project Managers
3. _____ Nexant Energy Efficiency Project Managers
4. _____ Installation Contractors
5. _____ External Consultant
6. _____ Other [SPECIFY] _____

[RECORD COMMENTS]

39. Please describe your overall experience working with these people in relation to this project. _____ [RECORD RESPONSE]

Satisfaction

40. Would you participate in the Program again?

1. Yes
2. No

40a. *[IF 40 = NO]* Why not?

_____ *[RECORD RESPONSE]*

41. If you could change anything about the Program, what would you change?

_____ *[RECORD RESPONSE]*

98. Don't know
99. Refused

42. Using a scale from 0 to 10, with 0 being extremely dissatisfied and 10 being extremely satisfied, how satisfied are you with your overall experience with the Program?

_____ *[RECORD RESPONSE]*

98. Don't know
99. Refused

42a. *[IF Q42 <=5]* Why do you say that?

Organizational Data/Firmographics

I have a few last questions about your business or organization

43. Approximately, what percent of your total annual operating costs does your electricity bill represent?

_____ *[RECORD RESPONSE]*

98. Don't know
99. Refused

44. Approximately, what percent of your total annual operating costs does your natural gas bill represent?

_____ *[RECORD RESPONSE]*

98. Don't know
99. Refused

45. Approximately, what percent of your total annual operating costs does your water bill represent?

_____ [RECORD RESPONSE]

98. Don't know

99. Refused

46. How many people does your firm employ?

_____ [RECORD RESPONSE]

98. Don't know

99. Refused

Thank you for your time. Your opinions are very valuable to this research for [PACIFIC POWER/ROCKY MOUNTAIN POWER].

Appendix B. Nonparticipant Survey

FinAnswer Nonparticipant Interview Guide

Company: _____ Telephone: _____
 Name: _____ Cell phone: _____
 Title: _____ Fax: _____
 City: _____ State: _____ Zip: _____
 Interview date: _____ Time: _____

Hello, my name is _____ from _____, calling on behalf of [PACIFIC POWER/ROCKY MOUNTAIN POWER]. We are conducting a study on behalf of [PACIFIC POWER/ROCKY MOUNTAIN POWER] regarding energy efficiency programs. May I speak with *[designated respondent]* or with the person who is responsible for overseeing energy management for your organization?

[IF DIRECTED TO A DIFFERENT RESPONDENT, REPEAT INTRODUCTION]

My questions are for research purposes only. We are interested in your opinions to help improve our programs, and understand how to assist customers in saving money on their utility bills. Your individual answers will be used by [PACIFIC POWER/ROCKY MOUNTAIN POWER] to evaluate energy efficiency programs. *[IF RESPONDENT ASKS HOW LONG, SAY: "APPROXIMATELY 15 MINUTES."]*

[If a customer asks if this is the Total Quality Service survey, or states that he has recently participated in the Total Quality Service survey, say 'this is a separate survey about our energy efficiency programs.']

[If customer wants to verify the validity of the survey, tell them that they are welcome to contact Nancy Goddard, PacifiCorp Program Manager, at (503)813-5183.

Screening:

S2. First, I need to validate my records.

S3. Which electric company provides electric power to your business?

- 1 Pacific Power/Rocky Mountain Power CONTINUE
 2 OTHER..... TERMINATE AND TALLY
 98 DON'T KNOW RETURN TO Q.B AND RESCREEN

Introduction

1. Which of the following best describes your company's primary activities?

1. Manufacturing
2. Retail
3. Dairy / Agricultural
4. Finance and Insurance
5. Food Processing
6. Refrigerated Warehouse
7. Professional, Scientific, and Technical Services
8. Educational Services
9. Health Care
10. Public Administration
11. Arts, Entertainment, and Recreation
12. Accommodation
13. Food Services
14. Real Estate
15. Other [*SPECIFY*] _____

Participation

2. Have you heard of the [PACIFIC POWER/ROCKY MOUNTAIN POWER] FinAnswer Program?

1. Yes [*CONTINUE*]
2. No [*SKIP TO 10*]
98. Don't know
99. Refused

3. How did you learn about the FinAnswer Program?

[DO NOT READ RESPONSES; MARK ALL THAT APPLY]

1. Contacted by my [PACIFIC POWER/ROCKY MOUNTAIN POWER] account representative or other [PACIFIC POWER/ROCKY MOUNTAIN POWER] staff
2. Contacted by program representative [IF YES ASK 'Do you remember what company they were from?']
3. Firm contacted the Program
4. Program sponsored conference or workshop
5. Program sponsored technology demonstration
6. Program sponsored integrated audit
7. Trade Publication
8. Marketing by Trade Ally, vendor or contactor
9. Firm approached/contacted by Trade Ally, vendor or contractor
10. Word of mouth; from another business colleague
11. Through a trade organization or professional organization/association
12. Through printed material or outreach materials sent by the Program
13. At a trade show
14. Through family, friend, or neighbor
15. Participation in other [PACIFIC POWER/ROCKY MOUNTAIN POWER] Programs
16. Past Program participants
17. Internet research/found Program on [PACIFIC POWER/ROCKY MOUNTAIN POWER] website
18. Other *[SPECIFY]* _____
98. Don't know
99. Refused

4. What are the reasons you have not had the opportunity to participate in the Program?

*[DO NOT READ RESPONSES; MARK ALL THAT APPLY]*_____ *[RECORD RESPONSE]*

98. Don't know
99. Refused

5. Regarding the FinAnswer program, have you either begun participation in the program and dropped out, or had a project application rejected?

1. Dropped out
2. Application rejected
3. No *[SKIP TO 10]*
98. Don't know *[SKIP TO 10]*
99. Refused *[SKIP TO 10]*

Program Drop-Outs and Rejected Applications

ASK THIS SECTION ONLY IF RESPONDENT IS: (1) PROGRAM DROP-OUT (2) REJECTED APPLICATION

6. Thinking back to when you were first considered the Program, were there any aspects of the Program that initially caused you concern?

- 1 Yes
- 2 No *[SKIP TO 5D]*
- 98 Don't know *[SKIP TO 5D]*
- 99 Refused *[SKIP TO 5D]*

6a. What caused your concern?

_____ *[RECORD RESPONSE]*

6b. Was this issue resolved?

- 1. Yes
- 2. No *[SKIP TO 5D]*
- 98 Don't know *[SKIP TO 5D]*
- 99 Refused *[SKIP TO 5D]*

6c. How was it resolved?

_____ *[RECORD RESPONSE]*

ASK ONLY IF RESPONDENT IS A PROGRAM DROP-OUT

6d. Why did your business drop out of the Program?

_____ *[RECORD RESPONSE]*

ASK ONLY IF RESPONDENT'S APPLICATION WAS REJECTED

6e. Do you know why your application to participate in the program was denied?

_____ *[RECORD RESPONSE]*

ASK FOR BOTH GROUPS

6f. Was the underlying problem resolved to your satisfaction? If not, why not?

We are also interested in learning more about your interactions and experience with the Program staff.

7. How many people did you work with during your time with the Program? This would include people from Nexant, [PACIFIC POWER/ROCKY MOUNTAIN POWER], contractors, etc.

_____ number of people

8. Who worked with you with you on this project?

[PROBE IF NEEDED. WAS IT PROJECT MANAGERS, ACCOUNT REPS, THIRD PARTY STAFF, CONTRACTORS; MULTIPLE RESPONSE]

7. _____ [PACIFIC POWER/ROCKY MOUNTAIN POWER] Account Representatives
8. _____ [PACIFIC POWER/ROCKY MOUNTAIN POWER] Energy Efficiency Project Managers
9. _____ Another Energy Efficiency Project Manager [IF YES ASK 'Do you remember what company they were from.']
10. _____ Installation Contractors
11. _____ External Consultant
12. _____ Other [*SPECIFY*] _____

[RECORD COMMENTS]

9. If you could change anything about the Program, what would you change?

_____ *[RECORD RESPONSE]*

98. Don't know
99. Refused

10. Did your company participate in the FinAnswer program before 2006? After 2008?

Installed Efficiency Measures

11. In the past year, have you installed any energy efficiency measures in your building(s)?

3. Yes *[CONTINUE]*
4. No *[IF NO, SKIP TO ENERGY EFFICIENCY DECISION MAKING]*
98. Don't know
99. Refused

- 11a. What measures have you installed? *[DO NOT READ. RECORD ALL EQUIPMENT, LIGHTING, CONTROLS, OTHER ITEMS INSTALLED]*

1. Lighting
2. HVAC

3. Controls
4. VFD
5. Compressed Air measures
6. Other [*SPECIFY*] _____
98. Don't know
99. Refused

11b. Did you receive a financial incentive or tax credit for installing this equipment?

1. Yes [Specify the incentive and/ or tax credit amount, and the agency/program offering the incentive/tax credit.]
2. No [*IF NO, SKIP TO ENERGY EFFICIENCY DECISION MAKING*]
98. Don't know
99. Refused

12. Why did you decide to install this equipment?

[DO NOT READ RESPONSES; MARK ALL THAT APPLY]

1. To save money on electric bills
2. To obtain a rebate; Program incentive
3. It was scheduled for replacement/upgrade
4. To replace old equipment
5. To replace broken equipment
6. To acquire the latest technology
7. To reduce maintenance costs
8. Because [*PACIFIC POWER/ROCKY MOUNTAIN POWER*] account manager suggested it
9. Because Nexant engineer suggested it
10. Because we had funds available in this fiscal year
11. Because we lose funds if we don't replace it now.
12. Because the Program was sponsored by [*PACIFIC POWER/ROCKY MOUNTAIN POWER*]
13. Previous experience with other [*PACIFIC POWER/ROCKY MOUNTAIN POWER*] Programs
14. To help protect the environment
15. To save energy
16. Recommended by Program contact
17. Recommended by contractors/trade allies
18. Recommended by another word of mouth
19. Recommended by family, friend, or neighbor
20. Part of a broader remodeling or renovation
21. Other [*SPECIFY*] _____
98. Don't know
99. Refused

12a. Have you taken any other actions to save energy in your buildings?

_____ [RECORD RESPONSE]

13. What actions have you taken?

_____ [RECORD RESPONSE]

98. Don't know

99. Refused

Energy Efficiency Decision Making

Next, I will ask some questions about the decision making process in regards to energy efficiency purchases and upgrades.

14. Using a 0 to 10 rating scale, where 0 means not at all important and 10 means extremely important, please rate how important energy efficiency is to the operations and management of your company?

_____ [RECORD RESPONSE]

98. Don't know

99. Refused

15. Why do you say that?

_____ [RECORD RESPONSE]

16. Do you have sufficient technical resources in house to address the management of energy and water costs?

1. Yes [SKIP NEXT QUESTION]

2. No

98. Don't know

99. Refused

Organizational Data/Firmographics

I have a few last questions about your business or organization

17. Approximately, what percentage of your total annual operating costs is spent in electricity bills?

_____ [RECORD RESPONSE]

98. Don't know

99. Refused

18. Approximately, what percentage of your total annual operating costs is spent in natural gas bills?
_____ [RECORD RESPONSE]
98. Don't know
99. Refused
19. Approximately, what percentage of your total annual operating costs is spent in water bills?
_____ [RECORD RESPONSE]
98. Don't know
99. Refused
20. How many people does your firm employ?
_____ [RECORD RESPONSE]
98. Don't know
99. Refused

Thank you for your time. Your opinions are very valuable to this research for [PACIFIC POWER/ROCKY MOUNTAIN POWER].

Appendix C. Staff Interview Guide

Program Discussion Guide - Energy FinAnswer Program

Name

Title

Company

Program

Date

Program Overview

1. Can you briefly describe how the program operates?
 - a. What is the program theory – how do you expect the programs to change the way that the target market behaves with respect to energy efficiency?
2. How has the program evolved or changed since the last evaluation in 2004?
3. How do you coordinate activities internally? [marketing, service delivery, work with TAs, etc.]
4. Are you providing training to:
 - a. PacifiCorp staff
 - b. Implementers
 - c. Trade allies
 - d. What feedback have you gotten back?
5. What improvements could be made in the administration of the programs?

Application process

6. Could you please describe your understanding of the application process:
 - a. How do the participants enter the program?
 - b. What issues are there?

Eligibility criteria and the verification process

7. Please describe the verification process?
 - a. Participant eligibility
 - b. What if they are not eligible?

Marketing

8. Do you do anything to promote the program? [What marketing and outreach activities have been and are being conducted? What's worked best?]

Savings estimation techniques

9. How are savings estimated for the program as a whole and for individual projects?
10. Are the estimations generally felt to be accurate? Is there a way to improve the manner in which savings are calculated?
11. How are savings verified for the individual projects?
 - a. What materials had to be submitted with the applications [invoices, drawings]?
 - b. Who received the applications and what the steps were for reviewing and approving applications and setting up payments?
 - c. What post-inspections are required?

Participant interaction and satisfaction

12. What aspects of the programs do customers seem to be most interested in or most satisfied with?
 - a. Any concerns? How were they addressed?

Program data collection

13. Who is responsible for collecting and tracking participation data?
 - a. How effective and accurate is the data-tracking and data collection system?
 - b. Are data entered and reported in a timely fashion?
 - c. Have there been any difficulties with the data tracking systems?
14. Have the implementers had any problems meeting the tracking and reporting requirements?
15. Would you recommend any changes to the procedures?

Trade Allies – Communication

16. Is PacifiCorp involved in the recruitment or management of Trade Allies, retailers or contractors?
 - a. Describe the relationship between these parties
17. How frequently do you contact people, and how is the communication carried out?
18. How often do trade allies contact you?
19. Have you had any particular challenges in working with trade allies?
20. How are their problems and questions dealt with?
21. What kinds of things have been done or are being planned to identify trade allies and get them involved?
22. What has/has not worked well?
23. How would you change or improve communications, either within the program, or with trade allies?

Implementation Barriers

24. Has the level of program participation met your expectations?
 - a. Why do you think this has been the case?
25. Have any challenges resulted from perceptions or attitudes about the value of the program among the *target population*? If so, what?
26. How have you dealt with those perceptions and attitudes?
27. How about any challenges resulting from perceptions or attitudes about the value of the programs among the vendors?
 - a. How have these been dealt with?

Close

28. What would you say are the program's strongest points?
29. What are its weakest points?
30. Other than what we've discussed above, what would you change about the program?

Appendix D. Market Actor Interview Guide

Market Actor Interview Survey Guide – Energy FinAnswer Program

Interviewee information:

Name:

Organization:

Title:

Telephone

Hello, my name is _____ from The Cadmus Group, calling on behalf of:

[Utah or Idaho] Rocky Mountain Power

[Washington] Pacific Power

[Rocky Mountain Power, Pacific Power] is evaluating its FinAnswer program and would appreciate your input. This survey is for research purposes only and this is not a marketing call. Your responses will remain confidential. The questions focus on how the program operated in the 2006-2008 time period. Do you have a moment to answer questions about your experience with the program?

[If “No – Not a convenient time,” ask if Respondent would like to 1. Start now and do part of the survey, or 2. Arrange a more convenient time we can call them at home. Emphasize that]

“It is important for Rocky Mountain Power/Pacific Power to include your opinions in this study so they can serve your needs better.”

[If “No” – Arrange callback]

Program Overview

1. When did you first start providing services for the program?
2. What did you see as the purpose of the program?
3. Who else was involved in carrying out the program? How were they involved? [PROBE on contractors, engineering firms, energy services companies, retailers, and equipment manufacturers.]
4. Have there been changes over time in the services or measures people are interested in? What are the changes?

Program Entry

5. How did a prospective customer find out about the program?
6. Who provided program leads? [DO NOT READ]
 - a. Program staff
 - b. Nexant (program implementer)
 - c. Engineering firms,
 - d. Energy services companies
 - e. Retailers
 - f. Other _____

Participant interaction and satisfaction

7. Did customers express any concerns about the program? How were the concerns addressed?

Pacific Power/Rocky Mountain Power Communication

8. Did your company have any particular challenges in working with Rocky Mountain Power?
9. How were these challenges dealt with?

Implementation Barriers

10. Did any challenges result from perceptions or attitudes about the value of the program among the Pacific Power/Rocky Mountain Power customers? If so, what were they?
11. How did you deal with those perceptions and attitudes?
12. Did anything else make it difficult for you to bring in participants and/or carry out program requirements? If so, what?
13. How have you dealt with those perceptions and attitudes?

Program data collection

14. Please describe the program's data collection and tracking requirements.
 - a. Were there any difficulties meeting those requirements?

15. Would you recommend any changes to the procedures?

Close

16. Other than what we've discussed above, what would you have changed about the program as it operated in 2006 through 2008?

17. What would you change about the program as it is currently operated?

18. Is there anything else you would like to add?

Appendix E. Energy FinAnswer Process Flow Diagram

Provided under separate cover.

Appendix F. Energy FinAnswer Evaluation Plan

Provided under separate cover.

Appendix G. Project Reports

Provided under separate cover.

Project 6588

Project 8078

Project 8101

Project 8128

Project 8133

Appendix H. Measure Life Methodology

Measure lifetimes by general measure type were determined for various states and program years (2005-2008) for the following PC programs:

- Energy Finanswer
- Finanswer Express
- Self Direction
- Retrocommissioning

This analysis was performed in an Excel workbook. Comprehensive economic useful life (EUL) information for the various individual measures in the portfolio, including sources, were compiled on a master sheet named “Measure Life.” Some of the sources used were DEER 2008, ACEEE, and the “Measure Life Report” prepared by GDS Associates in 2007. When multiple values for the same measure were available, an average was taken. For example, the measure life of air compressor improvements in the GDS report was 13 and 15 years for retrofit and new construction, respectively. Therefore, the final average measure life used in this analysis was 14 years for air compressor improvements. Where measure names in the data sets or in the sources were open to interpretation, comments were added to clarify to what measure was being referenced.

Project data, such as measure name, type, and savings, were organized as sets on individual worksheets representing each state/program/year combination. Measure type includes the following main categories (shown with their respective sources):

Measure Type	GDS	DEER	ACEEE	Other
Refrigeration	X	X		
Lighting	X	X		
HVAC	X	X	X	Calmac Report 2007
Controls	X	X		
Motors	X	X		
Additional Measures	X		X	
Air Compressors	X			
Building Shell	X	X		
Nonlighting	X	X		
Hot Water	X	X		Energy Star
Traffic Signals	X			

For each data set, the EUL for the applicable measure types was determined by weighting the EULs of component measures by total kWh savings. Using the Idaho Energy Finanswer Express 2008 project data as an example, there are 3 measure types (Lighting, HVAC, and Motors). Lighting measures include Package, Package Trade Ally, and Other. Each of these individual measures has an associated lifetime (14, 14, and 15, respectively). To determine what the overall EUL should be, the total kWh savings for each measure from this data set was used to weight the EULs. This process was repeated for the HVAC and Motor measure types to complete the analysis.

Appendix I. Participant and Nonparticipant Survey Results

Provided under separate cover.

Appendix J. Freeridership Analyses

Freeridership quantifies the percentage of participants who report they would have installed a measure in the absence of the program.

Energy FinAnswer Program

Freeridership survey data was analyzed for the Energy FinAnswer program using a scoring matrix approach. This approach is acknowledged in the National Action Plan for Energy Efficiency: Model Energy Efficiency Program Impact Evaluation Guide¹⁹ (Guide).

A survey was designed to understand why customers installed a given measure, and the influence the program had over those decisions.

In conducting surveys with the battery of questions, Cadmus randomly selected customers participating in the Energy FinAnswer program. Results of the survey questions were used in a scoring matrix to determine each participant's freeridership score between 0 and 100%.

There are six core questions asked in the survey are written to obtain objective responses and are used in the freeridership scoring matrix:

- Would the participant have installed the measure without the program?
- Had the participant already ordered or installed the measure before learning about the program?
- Would the participant have installed the measure to the same level efficiency without the program incentive?
- Would the participant have installed the same quantity of measures without the program?
- In absence of the program, when would the respondent have installed the measures?
- Was the measure included in included the participant's most recent capital budget?

Cadmus has developed a transparent, straightforward matrix approach to assign a score to all participants based on their responses.

Patterns of responses to these questions are assigned freerider scores, and confidence and precision estimates are calculated based on the distribution of the scores.

The table below shows the scoring matrix that was used for Energy FinAnswer. This matrix is expanded from the general format of the scoring matrix included in the Guide. If a respondent had a non-response, "Don't Know" or "Refused", the respondent was assigned a "Partial" for that given question. This allows for respondents who had a non-response, "Don't Know" or "Refused" answer for a question to be left in the analysis sample.

¹⁹ http://www.epa.gov/cleanenergy/documents/suca/evaluation_guide.pdf

Would have Installed without Program	Already Ordered or Installed	Same Efficiency	Would have Installed All of the Measures	Planning to Install Soon	Already in Budget	Pattern	Freeridership Score
Yes	Partial	x	x	x	x	YesPartial	100.00%
Yes	Yes	x	x	x	x	YesYes	100.00%
Partial	Yes	x	x	x	x	PartialYes	100.00%
No	x	x	x	x	x	No	0.00%
Partial	No	x	x	x	x	PartialNo	0.00%
Partial	Partial	x	x	x	x	PartialPartial	25.00%
Yes	No	No	x	x	x	YesNoNo	0.00%
Yes	No	Partial	No	No	Yes	YesNoPartialNoNoYes	0.00%
Yes	No	Partial	No	No	Partial	YesNoPartialNoNoPartial	0.00%
Yes	No	Partial	No	No	No	YesNoPartialNoNoNo	0.00%
Yes	No	Partial	No	Partial	Yes	YesNoPartialNoPartialYes	0.00%
Yes	No	Partial	No	Partial	Partial	YesNoPartialNoPartialPartial	0.00%
Yes	No	Partial	No	Partial	No	YesNoPartialNoPartialNo	0.00%
Yes	No	Partial	No	Yes	Yes	YesNoPartialNoYesYes	12.50%
Yes	No	Partial	No	Yes	Partial	YesNoPartialNoYesPartial	0.00%
Yes	No	Partial	No	Yes	No	YesNoPartialNoYesNo	0.00%
Yes	No	Partial	Partial	No	Yes	YesNoPartialPartialNoYes	0.00%
Yes	No	Partial	Partial	No	Partial	YesNoPartialPartialNoPartial	0.00%
Yes	No	Partial	Partial	No	No	YesNoPartialPartialNoNo	0.00%
Yes	No	Partial	Partial	Partial	Yes	YesNoPartialPartialPartialYes	0.00%
Yes	No	Partial	Partial	Partial	Partial	YesNoPartialPartialPartialPartial	0.00%
Yes	No	Partial	Partial	Partial	No	YesNoPartialPartialPartialNo	0.00%
Yes	No	Partial	Partial	Yes	Yes	YesNoPartialPartialYesYes	12.50%
Yes	No	Partial	Partial	Yes	Partial	YesNoPartialPartialYesPartial	0.00%
Yes	No	Partial	Partial	Yes	No	YesNoPartialPartialYesNo	0.00%
Yes	No	Partial	Yes	No	Yes	YesNoPartialYesNoYes	0.00%
Yes	No	Partial	Yes	No	Partial	YesNoPartialYesNoPartial	0.00%
Yes	No	Partial	Yes	No	No	YesNoPartialYesNoNo	0.00%
Yes	No	Partial	Yes	Partial	Yes	YesNoPartialYesPartialYes	12.50%
Yes	No	Partial	Yes	Partial	Partial	YesNoPartialYesPartialPartial	0.00%
Yes	No	Partial	Yes	Partial	No	YesNoPartialYesPartialNo	0.00%
Yes	No	Partial	Yes	Yes	Yes	YesNoPartialYesYesYes	25.00%
Yes	No	Partial	Yes	Yes	Partial	YesNoPartialYesYesPartial	12.50%
Yes	No	Partial	Yes	Yes	No	YesNoPartialYesYesNo	0.00%
Yes	No	Yes	No	No	Yes	YesNoYesNoNoYes	0.00%
Yes	No	Yes	No	No	Partial	YesNoYesNoNoPartial	0.00%
Yes	No	Yes	No	No	No	YesNoYesNoNoNo	0.00%
Yes	No	Yes	No	Partial	Yes	YesNoYesNoPartialYes	0.00%
Yes	No	Yes	No	Partial	Partial	YesNoYesNoPartialPartial	0.00%
Yes	No	Yes	No	Partial	No	YesNoYesNoPartialNo	0.00%
Yes	No	Yes	No	Yes	Yes	YesNoYesNoYesYes	0.00%
Yes	No	Yes	No	Yes	Partial	YesNoYesNoYesPartial	0.00%
Yes	No	Yes	No	Yes	No	YesNoYesNoYesNo	0.00%
Yes	No	Yes	Partial	No	Yes	YesNoYesPartialNoYes	0.00%
Yes	No	Yes	Partial	No	Partial	YesNoYesPartialNoPartial	0.00%
Yes	No	Yes	Partial	No	No	YesNoYesPartialNoNo	0.00%
Yes	No	Yes	Partial	Partial	Yes	YesNoYesPartialPartialYes	12.50%
Yes	No	Yes	Partial	Partial	Partial	YesNoYesPartialPartialPartial	0.00%
Yes	No	Yes	Partial	Partial	No	YesNoYesPartialPartialNo	0.00%
Yes	No	Yes	Partial	Yes	Yes	YesNoYesPartialYesYes	25.00%
Yes	No	Yes	Partial	Yes	Partial	YesNoYesPartialYesPartial	12.50%
Yes	No	Yes	Partial	Yes	No	YesNoYesPartialYesNo	0.00%
Yes	No	Yes	Yes	No	Yes	YesNoYesYesNoYes	0.00%
Yes	No	Yes	Yes	No	Partial	YesNoYesYesNoPartial	0.00%
Yes	No	Yes	Yes	No	No	YesNoYesYesNoNo	0.00%
Yes	No	Yes	Yes	Partial	Yes	YesNoYesYesPartialYes	25.00%
Yes	No	Yes	Yes	Partial	Partial	YesNoYesYesPartialPartial	12.50%
Yes	No	Yes	Yes	Partial	No	YesNoYesYesPartialNo	0.00%
Yes	No	Yes	Yes	Yes	Yes	YesNoYesYesYesYes	50.00%
Yes	No	Yes	Yes	Yes	Partial	YesNoYesYesYesPartial	25.00%
Yes	No	Yes	Yes	Yes	No	YesNoYesYesYesNo	12.50%

The Freeridership Designation

If customers both did not know about the measure before hearing about the program and had no plans to install the measure, they are not freeriders. Likewise, if they knew about the program, but had no plans to install the measure, they are not freeriders. Customers who indicated they would have installed the measure without the program or had already installed the measure when they learned of the program are 100-percent freeriders.

Customers can also be partial freeriders. Partial scores are assigned to customers that indicated a likelihood that they would have installed the measure without the program, but that the program had some influence over the timing of their decision, the level of efficiency they would have chosen or the number of measures they would have chosen.

The Energy *Fin*Answer® Process

Consultant Deliverable

Project Manager (PM) Activities

Preliminary Project Development

Customer signs
Letter of Intent

Scoping Project
Development Mtg.

Initial Visit
Report/Scoping Report

Energy Analysis (EA)
Proposal

PacifiCorp Approval
Task Order for EA

- Coordinate customer contact with account manager
- Provide collateral
- Ask project screening questions
- Determine general scope of project
- Assign scoping to consultant
- If >16 hrs for scoping, get estimate from consultant, obtain internal approval and send Task Order Agreement (TOA)

Initial visit/scoping report
(e-mail to PM)

- Obtain customer feedback on report
- Finish screening questions
- Based on PM assessment of customer intent to implement, request EA proposal

EA Proposal
(can be attached to end of
initial visit)
e-mail to PM

- Review EA Proposal with Customer
- Based on PM assessment of customer intent to implement request internal approval of EA Proposal

Engineering Phase

Perform Energy Analysis (EA)

Quality Control (QC)
Review of EA

Finalize EA

Present EA and
Proposed incentive

Draft EA report
including commissioning
(email to PM and QC)

Review and provide comments

QC letter
(email to PM and EA consultant)

Review and provide comments

**QC response letter,
Final EA Report**
(email to PM and QC)

- Review report
- Prepare incentive offer
- Discuss report distribution with account manager
- Distribute report to customer

Present EA in person
or via phone
(as requested by PM)

Arrange for report presentation

Consultant Deliverable

Project Manager (PM) Activities

