PacifiCorp
Energy FinAnswer
Washington Program Evaluation
2005-2008

Prepared for
PacifiCorp

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1. Executive Summary

The Energy FinAnswer program includes a vendor neutral investment grade energy analysis and cash incentives calculated based on energy savings and project costs. The program includes a commissioning requirement and post-installation verification. This program was enhanced with incentives in October 2000[1]. Design assistance services and special incentives available for new construction and major renovation projects where energy code applies were added to the program in 2007.

Customers become eligible to participate if served under Pacific Power's general service commercial, industrial, or irrigation rate schedules. The program applies to retrofit projects as well as major renovations and the construction of new facilities.

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 Washington, this program was responsible for 78% of the savings that the utility realizes from commercial and industrial efficiency programs in 2008[2].

The Program was cost-effective from multiple perspectives in Washington, using 2005-2008 IRP decrement values.

Expected savings and other program-related data were downloaded from Pacific 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 Pacific Power. Pacific 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 Pacific Power conducts a post-installation study 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 Pacific Power's database at the conclusion of each project. Table 1 summarizes expected savings, evaluated savings, and the realization rate for 2005-2008 Washington participants. Savings were evaluated for each installed project.

[1] Prior to October 2000, the program offered energy efficiency funding repaid with interest on the customer's electric bill.

[2] PacifiCorp manages demand-side management programs in five of its six state jurisdictions. Programs in Oregon are managed by the Energy Trust of Oregon.

Table 1. Energy Savings and Realization Rates

	No. Buildings	Expected Saving Estimates (kWh)	Evaluated Savings (kWh)	Realization Rates
Food Store	2	418,177	415,234	99%
Industrial	68	71,473,211	67,835,882	95%
Lodging	1	4,035	4,035	100%
Office	2	237,168	237,168	100%
Health	3	4,496,363	4,494,138	100%
Irrigation	1	43,056	43,056	100%
Other	3	455,621	449,074	99%
Retail	2	952,593	952,592	100%
School	4	901,199	901,080	100%
Service	1	142,896	143,042	100%
Total	87	79,124,319	75,475,300	95%

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

Table 2. Demand Savings and Realization Rates

Sector	Expected Saving Estimates (kW)	Evaluated Savings (kW)	Realization Rates
Food Store	50	48	97%
Industrial	4,953	4,744	96%
Lodging	-	-	-
Office	-	-	-
Health	528	527	100%
Irrigation	-	-	-
Other	27	27	99%
Retail	110	110	100%
School	206	206	100%
Service	15	15	100%
Total	5,889	5,676	96%

To evaluate achieved energy savings, Cadmus performed site visits for 42 projects at 29 customer locations, covering 93 unique incentives. We also verified 43 additional projects, covering 95 unique incentives, by reviewing project documentation and speaking with facility staff. Verified projects represented 85 percent of expected savings.

Based on measurements and observations obtained from the site visits, in addition to data in the project files and conversations with facility staff, Cadmus calculated realization rates for both energy and demand savings

Table 3 shows energy savings realization rates by measure type. Realization rates were highest for lighting and refrigeration measures (101%).

Table 3. Evaluated Energy Savings by Measure Type[3]

	Expected Saving Estimates (kWh)	Evaluated Savings Estimates (kWh)	Realization Rates
Additional Measures	15,317,824	14,808,211	97%
Air Compressors	2,853,232	2,363,155	83%
Building Shell	293,145	293,145	100%
Hot Water	4,035	4,035	100%
Controls	1,008,767	1,008,767	100%
HVAC	5,699,874	5,697,477	100%
Lighting	1,141,676	1,152,209	101%
Motors	7,143,989	5,316,412	74%
Refrigeration	45,661,777	44,831,889	101%
Total	79,124,319	75,475,300	95%

Table 4 shows demand savings realization rates by measure type.

Table 4. Evaluated Demand Savings by Measure Type

Measure	Expected Saving Estimates (kW)	Evaluated Savings Estimates (kW)	Realization Rates
Additional Measures	1,145	1,124	98%
Air Compressors	234	218	93%
Building Shell	96	96	100%
Hot Water	-	-	100%
Controls	38	38	100%
HVAC	668	667	100%
Lighting	148	148	100%
Motors	467	367	79%
Refrigeration	3,093	3,019	98%
Total	5,889	5,676	96%

Cadmus determined freeridership to be 11% through self-reporting surveys. For this evaluation freeridership was the only factor used to calculate the Net-to-Gross ratio[4]. After applying the Net-to-Gross ratio of 89 percent to the evaluated savings, the net program savings were 67,173,017kWh.

Program cost-effectiveness was analyzed using Washington-specific assumptions in accordance with the I-937 order.

[3] Realization rates are calculated by dividing the evaluated savings estimates by the expected savings estimates. PacifiCorp tries to be conservative in their expected savings estimates but since the evaluated savings estimates account for variables like 'hours of operation', realization rates are difficult to predict and are typically reflective of how the equipment is used by the customer once its installed..

[4] 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.

Table 5. Cost-Effectiveness Summary for the Program in 2005 – IRP 67% LF Decrement[5]

Cost Effectiveness Test	Levelized $ / kWh	Costs	Benefits	Net Benefits	Benefit / Cost Ratio
Total Resource + Conservation Adder (PTRC)	$0.028	$2,777,909	$7,329,539	$4,551,631	2.64
Total Resource No Adder (TRC)	$0.028	$2,777,909	$6,663,218	$3,885,309	2.40
Utility (UCT)	$0.018	$1,740,300	$6,663,218	$4,922,918	3.83
Ratepayer Impact (RIM)	$0.069	$6,751,693	$6,663,218	-$88,476	0.99
Participant (PCT)	$0.018	$1,796,971	$5,770,755	$3,973,784	3.21
Lifecycle Revenue Impact (dollars)				$0.00000206	
Discounted Participant Payback (years)				2.38	

Table 6. Cost-Effectiveness Summary for the Program in 2006 – IRP 67% LF Decrement

Cost Effectiveness Test	Levelized $ / kWh	Costs	Benefits	Net Benefits	Benefit / Cost Ratio
Total Resource + Conservation Adder (PTRC)	$0.024	$7,889,469	$26,408,748	$18,519,279	3.35
Total Resource No Adder (TRC)	$0.024	$7,889,469	$24,007,953	$16,118,484	3.04
Utility (UCT)	$0.012	$4,019,225	$24,007,953	$19,988,728	5.97
Ratepayer Impact (RIM)	$0.065	$21,302,358	$24,007,953	$2,705,595	1.13
Participant (PCT)	$0.021	$6,951,603	$20,364,492	$13,412,889	2.93
Lifecycle Revenue Impact (dollars)				-$0.00006179	
Discounted Participant Payback (years)				2.60	

Table 7. Cost-Effectiveness Summary for the Program in 2007 – IRP 67% LF Decrement

Cost Effectiveness Test	Levelized $ / kWh	Costs	Benefits	Net Benefits	Benefit / Cost Ratio
Total Resource + Conservation Adder (PTRC)	$0.025	$3,962,114	$13,987,264	$10,025,150	3.53
Total Resource No Adder (TRC)	$0.025	$3,962,114	$12,715,694	$8,753,580	3.21
Utility (UCT)	$0.013	$2,105,486	$12,715,694	$10,610,208	6.04
Ratepayer Impact (RIM)	$0.07	$11,084,823	$12,715,694	$1,630,871	1.15
Participant (PCT)	$0.02	$3,218,669	$10,341,378	$7,122,709	3.21
Lifecycle Revenue Impact (dollars)				-$0.00003488	
Discounted Participant Payback (years)				2.45	

[5] The West System 67% load factor decrement was used for the Cost-Effectiveness

Table 8. Cost-Effectiveness Summary for the Program in 2008 – IRP 67% LF Decrement

Cost Effectiveness Test	Levelized $ / kWh	Costs	Benefits	Net Benefits	Benefit / Cost Ratio
Total Resource + Conservation Adder (PTRC)	$0.029	$5,357,823	$17,488,511	$12,130,688	3.26
Total Resource No Adder (TRC)	$0.029	$5,357,823	$15,898,647	$10,540,824	2.97
Utility (UCT)	$0.015	$2,698,867	$15,898,647	$13,199,780	5.89
Ratepayer Impact (RIM)	$0.071	$13,211,108	$15,898,647	$2,687,539	1.20
Participant (PCT)	$0.024	$4,509,701	$12,362,986	$7,853,285	2.74
Lifecycle Revenue Impact (dollars)				-$0.00005908	
Discounted Participant Payback (years)				2.95	

Table 9. Cost-Effectiveness Summary for the Program Across 2005-2008 – IRP 67% LF Decrement

Cost Effectiveness Test	Levelized $ / kWh	Costs	Benefits	Net Benefits	Benefit / Cost Ratio
Total Resource + Conservation Adder (PTRC)	$0.026	$17,883,612	$58,161,797	$40,278,185	3.25
Total Resource No Adder (TRC)	$0.026	$17,883,612	$52,874,361	$34,990,749	2.96
Utility (UCT)	$0.014	$9,486,491	$52,874,361	$43,387,870	5.57
Ratepayer Impact (RIM)	$0.068	$46,860,375	$52,874,361	$6,013,986	1.13
Participant (PCT)	$0.021	$14,700,289	$43,677,051	$28,976,763	2.97
Lifecycle Revenue Impact (dollars)				-$0.00013990	

Conclusions

Overall the program is functioning well, savings realization rates are high, and the program is cost-effective. Customers who have completed projects are satisfied with the professionalism of all the staff and consultants they have dealt with. Recommendations below reflect only minor enhancements to make the program even more effective.

Table 10. Overall Experience with the Program

Rating (0 to 10)	Number of Respondents
10.0	11
9.5	1
9.0	13
8.5	3
8.0	7
7.5	1

Recommendations

- Most of the participation appears to come through word of mouth, and interaction with Pacific Power staff or representatives, which is evidenced by the lack of awareness amongst nonparticipants. The company may wish to consider using other means to help

expand awareness to customers who don't often interact with consultants or Pacific Power staff.

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. The program is available to commercial new construction and industrial and agricultural 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, industrial, and irrigation rate schedules in Washington are eligible. The program is implemented by Pacific Power staff utilizing an established network of energy engineering firms.

Customers who elect to participate in the program first receive an Initial Site Visit Report (ISVR), paid for by Pacific Power, to identify energy savings opportunities and potential costs and incentives. If the project economics are favorable to the customer, Pacific Power pays for further analysis to quantify energy savings and incentives and provides an Energy Analysis Report (EAR) to the customer for final review before purchase and installation begin. 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 Pacific Power contracted engineering firms. The firms under contract were all selected after responding to a Pacific Power issued request for proposal and are evaluated on their performance annually to assure that their performance meets Pacific Power's standards. Pacific Power also uses a 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 Pacific Power contracted energy engineering firm reviews the report, the savings, and cost estimates. Quality control review and comments are addressed before the report is delivered.

Customers are then asked 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 Pacific Power with all the appropriate documentation, Pacific Power's energy engineering consultant will perform a 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, Pacific Power requires that the owner commission certain 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 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 savings[6].

[6] For a process flow diagram of the program please see Appendix E of this report

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 (elective retrofits), 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 installation. For calculating the incentive, lighting measure savings were limited to no more than half of total savings of the project.

Washington Energy FinAnswer Program customers completed 272 EEMs in 87 facilities from 2005–2008. Expected energy savings were largest for industrial facilities.

Table 11. Expected Program Savings by Facility Type

	No. Buildings		Expected Savings	
	Frequency	%	kWh	%
Food Store	2	2%	418,177	0.5%
Industrial	68	78%	71,473,211	90.3%
Lodging	1	1%	4,035	0.0%
Office	2	2%	237,168	0.3%
Health	3	3%	4,496,363	5.7%
Irrigation	1	1%	43,056	0.1%
Other	3	3%	455,621	0.6%
Retail	2	2%	952,593	1.2%
School	4	5%	901,199	1.1%
Service	1	1%	142,896	0.2%
Total	87	100%	79,124,319	100.0%

Table 12 shows expected savings' distribution by end use. Refrigeration measures represented the greatest percentage of program savings, at 57.7% of expected savings.

Table 12. Expected Savings by End Use

Measure	Expected Savings	
	KWh	%
Additional Measures	15,317,824	19.4%
Air Compressors	2,853,232	3.6%
Building Shell	293,145	0.4%
Hot Water	4,035	0.0%
Controls	1,008,767	1.3%
HVAC	5,699,874	7.2%
Lighting	1,141,676	1.4%
Motors	7,143,989	9.0%
Refrigeration	45,661,777	57.7%
Total	79,124,319	100.0%

3. Impact Evaluation

Methodology

Cadmus used engineering calculations to verify savings estimates for 69% of the 272 EEMs installed under the program from 2005–2008, representing 85% of expected savings.

Overall, energy analyses evaluations conducted were intended to verify how reasonable original analyses were 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 Pacific 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. During the review, we noted projects where changes in operating conditions were identified and provided revised energy and demand savings estimates. The revised analyses contained instances of decreased and increased savings

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 2006[7] and IPMVP option A. This approach is also consistent with the Commission's order in docket UE-100170. 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

Cadmus reviewed the original engineering analysis, and determined whether the site visits or phone calls identified any changes in assumptions used in the original analysis. Cadmus also contacted the utility program/project manager and energy engineer, as needed, to resolve any issues, changes, or discrepancies that might affect estimated energy savings. If necessary, Cadmus 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, the 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. Cadmus used the observations of key assumptions, validation of engineering methods, and recalculations based on observed differences to provide evaluated savings estimates.

[7] http://www.calmac.org/events/EvaluatorsProtocols_Final_AdoptedviaRuling_06-19-2006.pdf

Realization Rate Analysis Method

For each EEM in the projects, Cadmus 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 the 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

Cadmus performed verification work on projects totaling 86% of expected savings. The realization rates for the 84 EEMs outside of the sample frame were extrapolated from the results engineering analysis.

Step 2: Methodology Selection

Cadmus analyzed all projects using engineering calculation methods described above.

Step 3: Site Visits and Data Collection

On-site verification was used to verify equipment installation and operations, obtain data needed to perform calculations, and meet with building maintenance staff. Site visits were completed in May 2010. Site visit information and summaries ofthe analyses are provided in Appendix G.

Step 4: Analysis

Energy savings were determined for 188 EEMs using engineering calculations incorporating measurements and observations obtained from the site visits, project files and interviews. Remaining project realization rates were determined through extrapolation. To extrapolate the realization rates to the other measures, Cadmus first weighted the evaluated realization rates, by energy savings, for each measure category. The weighted realization rate was then applied to the remaining measures within that category that did not have a realization rate calculated directly through the site visit or file review process.

Overall, the program achieved a 95% energy savings realization rate, as seen in Table 13 which shows savings by facility type.

Table 13. Evaluated Energy Savings by Facility Type

Measure Type		Count	Expected Savings Estimates (kWh)	Evaluated Savings Estimates (kWh)	Realization Rates
2005	Industrial	18	10,500,281	9,182,914	87%
	Lodging	1	4,035	4,035	100%
	Office	1	167,218	167,218	100%
	Health	1	405,872	405,872	100%
	Sub Total	21	11,077,406	9,760,039	88%
2006	Food Store	1	175,848	177,309	101%
	Industrial	26	32,091,287	31,234,870	97%
	Irrigation	1	43,056	43,056	100%
	Other	3	455,621	449,074	99%
	School	3	690,545	690,426	100%
	Service	1	142,896	143,042	100%
	Sub Total	35	33,599,253	32,737,777	97%
2007	Food Store	1	242,329	237,925	98%
	Industrial	14	11,146,173	10,791,381	97%
	Health	3	4,090,491	4,088,266	100%
	Sub Total	18	15,478,993	15,117,571	98%
2008	Industrial	28	17,735,470	16,626,717	94%
	Office	1	69,950	69,950	100%
	Retail	2	952,593	952,592	100%
	School	1	210,654	210,654	100%
	Sub Total	31	18,968,667	17,859,913	94%
Total All Years		106	79,124,319	75,475,300	95%

Table 14 presents energy savings and realization rates by measure type.

Table 14. Evaluated Energy Savings by Measure Type

Measure Type		Count	Expected Savings Estimates (kWh)	Evaluated Savings Estimates (kWh)	Realization Rates
2005	Additional Measures	1	6,500	11,259	173%
	Air Compressors	5	561,491	307,290	55%
	Building Shell	1	7,745	7,745	100%
	Hot Water	1	4,035	4,035	100%
	HVAC	2	573,090	573,090	100%
	Motors	6	1,937,725	1,267,863	65%
	Refrigeration	26	7,986,820	7,588,756	95%
	Sub Total	42	11,077,406	9,760,039	88%
2006	Additional Measures	2	13,409,966	12,905,587	96%
	Air Compressors	6	988,595	917,461	93%
	Building Shell	1	156,730	156,730	100%
	Controls	2	1,008,767	1,008,767	100%

Measure Type		Count	Expected Savings Estimates (kWh)	Evaluated Savings Estimates (kWh)	Realization Rates
	HVAC	5	703,461	703,290	100%
	Lighting	6	186,320	196,853	106%
	Motors	7	836,416	840,377	100%
	Refrigeration	64	16,308,998	16,008,711	98%
	Sub Total	93	33,599,253	32,737,777	97%
2007	Additional Measures	6	1,667,043	1,657,049	99%
	Air Compressors	6	573,784	524,783	91%
	HVAC	5	4,253,694	4,251,469	100%
	Lighting	3	128,620	128,620	100%
	Motors	4	1,464,245	1,199,441	82%
	Refrigeration	24	7,391,607	7,356,209	100%
	Sub Total	48	15,478,993	15,117,571	98%
2008	Additional Measures	2	234,315	234,315	100%
	Air Compressors	8	729,362	613,621	84%
	Building Shell	2	128,670	128,670	100%
	HVAC	5	169,629	169,628	100%
	Lighting	4	826,736	826,736	100%
	Motors	11	2,905,603	2,008,731	69%
	Refrigeration	57	13,974,352	13,878,212	99%
	Sub Total	89	18,968,667	17,859,913	94%
Total All Years		272	79,124,319	75,475,300	95%

Table 15 shows demand savings realization rates by measure type.

Table 15. Demand Savings Realization Rates by Measure Type

Measure Type		Count	Expected Savings Estimates (KW)	Evaluated Savings Estimates (KW)	Realization Rates
2005	Additional Measures	1	-	-	0%
	Air Compressors	5	24	13	56%
	Building Shell	1	10	10	100%
	Hot Water	1	-	-	0%
	HVAC	2	56	56	100%
	Motors	6	181	168	93%
	Refrigeration	26	421	388	92%
	Sub Total	42	692	635	92%
2006	Additional Measures	2	872	851	98%
	Air Compressors	6	112	111	99%
	Building Shell	1	40	40	100%
	Controls	2	38	38	100%
	HVAC	5	128	128	100%
	Lighting	6	27	27	101%
	Motors	7	(5)	(6)	121%
	Refrigeration	64	1,001	974	97%
	Sub Total	93	2,213	2,163	98%

Measure Type		Count	Expected Savings Estimates (KW)	Evaluated Savings Estimates (KW)	Realization Rates
2007	Additional Measures	6	277	277	100%
	Air Compressors	6	55	53	96%
	HVAC	5	440	440	100%
	Lighting	3	30	29	97%
	Motors	4	162	111	69%
	Refrigeration	24	688	683	99%
	Sub Total	48	1,652	1,592	96%
2008	Additional Measures	2	(4)	(4)	100%
	Air Compressors	8	43	40	93%
	Building Shell	2	46	46	100%
	HVAC	5	44	43	99%
	Lighting	4	91	92	101%
	Motors	11	129	94	73%
	Refrigeration	57	983	975	99%
	Sub Total	89	1,332	1,286	97%
Total All Years		272	5,889	5,676	96%

Net-to-Gross

Net savings are the savings "net" of what would have occurred in the absence of the program[8]. Net-to-gross (NTG) consists of freeridership and spillover. For this evaluation, Cadmus only quantified freeridership. Spillover is noted separately in Section 4 but not quantified due to the level of complexity involved in determining the potential savings associated with Spillover for commercial measures.

Freeridership

Freeridership 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 lighting design practices of contractors. 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.

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

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 up to several years prior. 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 freeridership, Cadmus surveyed 37 program participants. The project numbers were sampled randomly. To minimize the customer inconvenience when a customer was selected they were only asked about the measure with the highest savings in that given project. As a result they were not asked about multiple projects, measures or years.

The surveys resulted in an 11% freeridership score[9]. Results from the freeridership analysis are presented in Table 16, along with evaluated savings numbers from Table 14 and Table 15. These savings include all measures (not just measures for which respondents were surveyed). The freeridership value was applied across all measures to arrive at net savings.

Table 16. Freeridership Analysis

2005-2008 kWh	Net-to-Gross Ratio (1-Freeridership)	89% (+/- 8%)[10]
	Evaluated Savings	75,475,300
	Net Savings	*67,173,017*
2005-2008 kW	Net-to-Gross Ratio (1-Freeridership)	89%
	Evaluated Savings	5,676
	Net Savings	*5,052*

[9] For a full description of the scoring matrix refer to Appendix J
[10] Reported at 90% confidence

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 freeridership impacts.

In total, 49 interviews and surveys were conducted for the process evaluation, as shown in Table 17.

Table 17. Pacific Power Process Evaluation Samples

Group	Goal	Achieved
Participants (with completed projects)	50	37
Nonparticipants	25	6
Implementers	2	2
Market Actors	10	4

Process Evaluation

Organizational Data/Firmographics

A total of 37 participants were interviewed for this study. Responding participants were a diverse group. Table 18 shows respondents' primary business activities. The largest number of respondents (35%) were dairies or agricultural farms, followed by food processors (14%) and refrigerated warehouses (14%).

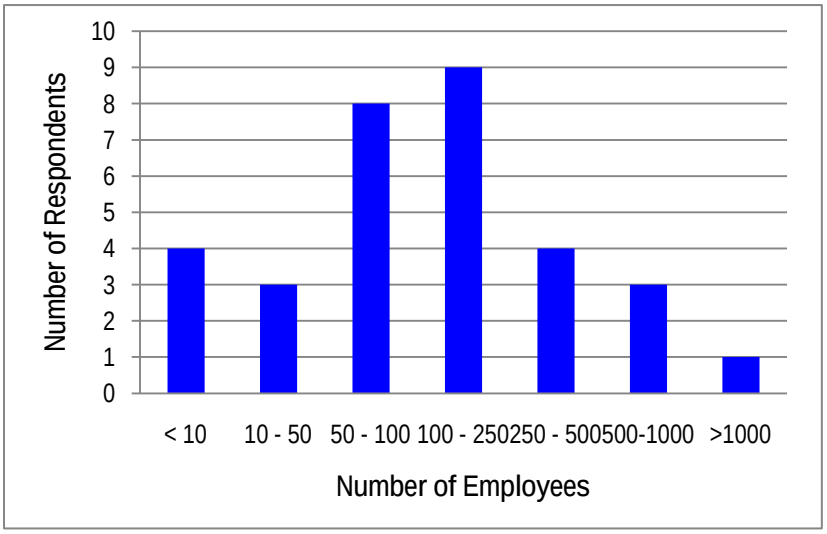
Table 18. Primary Business Activities of Participants

Primary Business Activities	Number of Respondents
Manufacturing	3
Retail	2
Dairy / Agricultural	13
Food Processing	5
Refrigerated Warehouse	5
Educational Services	1
Health Care	1
Public Administration	4
Accommodation	1
Other	2

Respondents had between 3 and 1800 employees. Of the respondents reporting the number of employees, approximately 22% had less than 50, 25% had between 50 and 100, 28% had

between 100 and 250, and 25% had over 250 employees. The median number of employees was 100. Figure 1 shows the frequency of respondents with corresponding numbers of employees.

Figure 1. Number of Employees



Approximately 50% of respondents were able to estimate the percentage their electric, gas, and water bills represented of their total annual operating costs. Of the respondents that were able to estimate these percentages, their electric bills represented roughly 9% of total annual operating costs on average.

Nonparticipants

Nonparticipants were selected from a list of PacifiCorp customers who were eligible under the guidelines of the FinAnswer program. A total of eight eligible customers were identified and selected for interviews. Cadmus completed surveys with six of these nonparticipants.

The primary business activities of these respondents were diverse. There was a community service center, a seed processing plant, a packaging distributor, a manufacturer, a farm, and a company involved in the accommodation industry. Four of the six respondents had less than 10 employees. The farm had up to 50 employees depending on the season, and the packaging distributor had 38 employees.

Implementers

Cadmus interviewed Pacific Power, the program administrator, and Nexant, the implementer for the FinAnswer Express program. Even though Nexant does not implement the Energy FinAnswer program they were interviewed in an effort to learn more about areas of potential overlap and program mechanics.

Market Actors

Cadmus spoke with four market actors in Washington. They were identified either by their presence in Pacific Power's program database as having been a contractor on a projector by their presence on the lists of contractors maintained by Pacific Power.

Participation

Thirty-eight percent of participants learned about the FinAnswer program through marketing or contact with a trade ally. Nearly a quarter of respondents were contacted by a Pacific Power account representative or other staff member.

Table 19 indicates how respondents learned about the program. Respondents could indicate multiple methods.

Table 19. How Participants Learned of the Energy FinAnswer Program

Method	Number of Respondents
Contacted by a Pacific Power Representative	9
Marketing by Trade Ally, vendor or contactor	6
Contacted by Trade Ally, vendor or contractor	8
Word of mouth; from another business colleague	5
Program outreach materials	2
Through family, friend, or neighbor	1
Participation in other Pacific Power Programs	2
Past Program participants	1
Other	6
Don't Know / No Response	4

When asked to list all reasons why they participated in the FinAnswer program, over 86% of all respondents participated to save money on their utility bills. Nearly 41% also indicated they participated to receive the program incentive. The third-largest number of respondents (30%) decided to participate in the program to save energy. Their responses are shown in Table 20.

Table 20. Reason for Participating in the Program

Reason	Number of Respondents
To save money on bills	25
To obtain a program incentive	16
To replace old equipment	6
To replace broken equipment	2
To acquire the latest technology	4
To reduce maintenance costs	1
To help protect the environment	1
To save energy	5
Part of a broader remodeling or renovation	1
Other	1

None of the program nonparticipants had heard of the FinAnswer program, and none had participated in the program before 2005 or after 2008.

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 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 Pacific 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.

Six of the participants interviewed expressed aspects of the program caused them some initial concern. These concerns included the amount of the rebate, the timeframe of the process, and the type of equipment and operational changes required. One of these respondents chose not to install one type of measure due to concerns, but the rest stated that the issue causing initial concern was resolved. None of the participants indicated that they experienced any problems, delays, or difficulties during the program's application, review, or approval processes.

Fourteen of the respondents (38%) said they had participated in the FinAnswer program either before 2005 or after 2008. Fourteen respondents also indicated that they had participated in other energy efficiency programs. When asked who sponsored the other efficiency programs, 6 of the respondents indicated Pacific Power, 4 indicated another power utility, 1 indicated Washington State, and the rest were unsure of the sponsor. Table 21 shows the measures installed through other programs. Three of the respondents indicated that the FinAnswer application process was easier than that of other programs; 7 indicated that it was about the same; and 4 did not know or state how it compared.

Table 21. Measures installed Through Other Energy Efficiency Programs

Type of Benefit	Number of Respondents
Lighting	5
Motors	2
Refrigeration equipment	1
Multiple Measures	3
Don't Know / No Response	3

Efficiency Measures

Six participants interviewed indicated they did not install items recommended through the program. These measures included additional lighting, an air compressor upgrade, motor VFDs, and electronic expansion valves. Four of the respondents indicated that a lack of funding or adequate payback was the reason for not installing the recommended measures; one ran out of time; and one had concerns about the recommended equipment.

The energy-saving measures installed through the program replaced existing equipment for 46% of respondents, was a new installation for 43%, and was a combination of replacement and new installation for 8%. The other 3% of respondents did not know. When asked about operating

condition of equipment replaced, 45% of respondents said it had no problems, while 50% of respondents indicated that it was old and had problems, but was still working.

Most participants rated their satisfaction with the new equipment highly. None of the respondents rated their satisfaction less than 8. Over 70% of respondents rated their satisfaction as 9 or higher on a 10-point scale. The ratings are provided in Table 22.

Table 22. Satisfaction with Installed Measures

Rating (0-10)	Number of Respondents
10.0	17
9.5	1
9.0	8
8.5	1
8.0	9
Don't Know / Refused	1

Three of the nonparticipants had installed energy-efficiency lighting in the past year without a financial incentive or tax credit. These respondents stated that the reason they decided to install the efficient lighting was to save money on electricity bills. One company noted that that they are redoing their irrigation system to save on water costs.

Operational Changes

At the time respondents participated in the program, 62% had an overall plan to increase their operations' energy efficiency. Eleven of the respondents indicated they changed the manner they operated equipment after installing the new measures. Many of these respondents were able to use equipment less or more efficiently after the measure was installed. Ten of these respondents making operational changes did so as part of their overall plan to increase their operations' energy efficiency.

Installation

Of the 20 respondents that replaced existing equipment through the program, 45% had scheduled the equipment for replacement or upgrade before the program. Additionally, 45% had included the project in their most recent capital budgets.

All respondents expected to save money on their electric bills. Approximately 14% of respondents expected to save on gas, and 15% expected to save on their water costs. Nearly 76% of respondents felt the electric savings met their expectations. Just over 5% felt the savings did not meet their expectations, and the remaining 19% did not know or did not respond to the question. Most respondents (68%) reported benefits other than energy savings from the new measures installed. The largest additional benefit reported was that the new equipment better meets the needs of the facility or that it performs better, as shown in Table 23.

Table 23. Additional Benefits Associated with Measure

Type of Benefit	Number of Respondents
Better quality equipment	3
Better meets facility needs / improved performance	10
Reduced Maintenance	3
Better work environment / improved health and safety	2
Longer life of equipment	3
Easier to use	1
More reliable	1
Other	2
No benefits	11
Don't Know / Refused	1

When asked to rate their satisfaction with the final cost of the measure on a 10-point scale, 57% or all respondents rated it as 9 or 10, while 5% rated it as less than 7. Table 24 shows ratings provided by the respondents.

Table 24. Satisfaction with the Final Cost of Measure

Rating (0 to 10)	Number of Respondents
10.0	13
9.0	8
8.5	1
8.0	7
7.0	4
6.5	1
2.0	1
Don't Know/ No Response	2

Spillover

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

Since participating in the program, 13 respondents (35%) installed other energy-efficiency measures without assistance from a utility or another organization. High efficiency measures installed by respondents included: lighting and occupancy sensors, pumps, heat exchangers, boiler upgrades, and HVAC upgrades. Regarding the program's influence on their decisions to install additional energy-efficiency measures on their own, the median was a rating of 6 on a ten-point scale.

Energy-Efficiency Decision Making

Program participants were asked to rate the importance of energy efficiency to the operations and management of their organization. All but two respondents rated energy efficiency as a 7 or above. Further, over 51% gave a rating of 9 or above. Table 25 shows results for program participants. Nearly all respondents mentioned the importance of energy efficiency to cut costs. A few respondents also mentioned that it is important to save energy for environmental reasons.

Table 25. Importance of Energy Efficiency to Program Participants

Rating (0 to 10)	Number of Respondents
10.0	13
9.5	1
9.0	5
8.0	8
7.5	1
7.0	6
6.0	1
2.0	1
Don't Know / No Response	1

When asked if their business had sufficient in-house technical resources to address management of energy and water costs, 41% of respondents answered "yes" and 59% answered "no".

Three of six nonparticipant survey respondents rated energy efficiency's importance to company operations and management as a seven or higher. When asked about their rating, the three respondents all stressed the potential for increased energy efficiency to cut costs.

Interaction with Pacific Power or Third-Party Staff

On average, participants worked with 8 people throughout their participation in the Program, including people from Pacific Power, energy engineering consultant firms, contractors, etc. The median was 5 people. Twenty-four program participants (65%) reported that they worked with Pacific Power account representatives or energy efficiency project managers. All respondents described their experiences working with program staff members in positive terms. Many respondents said the experience was "good" or "very good." One respondent had a negative experience working with an engineer involved with the project, but had a positive experience with Pacific Power staff.

Satisfaction

All 37 respondents indicated that they would participate in the program again. When asked for suggestions to improve the program, 48% of the participants indicated that they would not change anything at all. Approximately 30% of respondents suggested that the incentive be increased or expanded to include additional measures. Other suggestions included additional outreach and program information, a quicker process, an easier process, more assistance from program staff, and eliminating the time limit on the program. The types of suggestions made by respondents are shown in Table 26.

Table 26. Suggestions to Improve the Program

Response	Number of Respondents
Nothing	18
Increase/expand incentive	11
Additional outreach/ information	1
Quicker process	2
Easier process; greater assistance or communication with staff	1
Eliminate time limit on program	1
Don't Know/ No response	3

Overall, most respondents were highly satisfied with the program. All respondents rated their overall experience with the program at least a 7 on a ten point scale. Approximately 68% of respondents rated their satisfaction with the program as a 9 or higher. Table 27 shows the respondents' ratings.

Table 27. Overall Experience with the Program

Rating (0 to 10)	Number of Respondents
10.0	11
9.5	1
9.0	13
8.5	3
8.0	7
7.5	1
7.0	1

The trade allies interviewed stated the Energy FinAnswer 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.

Key Findings

Among the 37 participants interviewed, satisfaction with the program and program staff was high. In addition, most respondents indicated energy efficiency was important to them because of its potential to cut costs: nearly all respondents indicated they participated in the program to save on energy costs. Many participants also reported the program incentive was an important part of their participation. Most participants learned of the program after being contacted by a trade ally or Pacific Power.

Nonparticipant interviews revealed many customers not participating in the FinAnswer program were unaware of it. None of the six nonparticipants interviewed had heard of the Energy FinAnswer program. Most of the respondents stated energy efficiency was important to them, and three of the six had completed projects to install energy efficient lighting in the last year.

Recommendations

- Most of the participation appears to come through word of mouth, and interaction with Pacific Power staff or representatives, which is evidenced by the lack of awareness amongst nonparticipants. The company may wish to consider using other means to help expand awareness to customers who don't often interact with contractors or Pacific Power staff. This could include various means of direct marketing from phone calls to bill messaging.

5. Cost-Effectiveness Analysis

To assess cost-effectiveness, evaluators conducted an analysis of program costs and benefits from a Total Resource Cost test perspective including a 10% benefit for DSM, as well as from the Participant, Program Administrator, Rate Impact, and standard Total Resource Cost perspectives, using Cadmus' DSM Portfolio Pro model. These five perspectives follow methods and guidelines consistent with the California Standard Practice Manual. The perspectives are defined as follows:

(1) **PacifiCorp Total Resource Cost Test (PTRC):** This test examined program benefits and costs from Pacific Power's and Pacific 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 Pacific Power's and Pacific 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 Pacific 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 Pacific 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 28 summarizes various components of the five tests.

Table 28. 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 29 provides selected inputs to the cost analysis. These include the evaluated energy savings for each year (from Table 13 above), discount rate, line loss, and program costs. Other than the energy savings, these values are provided by Pacific Power. The discount rate is from Pacific Power's 2008 Integrated Resource Plan. Pacific Power also provided the values for line loss and the program costs.

Table 29. Selected Cost-Effectiveness Analysis Inputs

Input Description	2005	2006	2007	2008
Net Program Savings (kWh/year)	9,760,039	32,737,777	15,117,571	17,859,913
Discount Rate	7.40%	7.40%	7.40%	7.40%
Line Loss	10.83% Commercial 9.14% Industrial	10.83% Commercial 9.14% Industrial	10.83% Commercial 9.14% Industrial	10.83% Commercial 9.14% Industrial
Commercial Retail Rate	$0.0553	$0.0553	$0.0553	$0.0553
Industrial Retail Rate	$0.0462	$0.0462	$0.0462	$0.0462
Net Participant Costs	$1,796,971	$6,951,603	$3,218,669	$4,509,701
Program Costs				
Program Management Costs	$9,414	$156,123	$96,653	$28,323
Engineering Costs	$686,226	$533,620	$407,169	$592,134
Incentive Costs	$759,362	$3,081,359	$1,362,041	$1,850,745
Utility Administrative Costs	$285,297	$248,124	$239,623	$227,665
Total Program Costs	$1,740,300	$4,019,613	$2,105,486	$2,698,867

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 30.

Table 30. Measure Life Summary[11]

Measure Type	Average Measure Life (years)
2005	14.04
2006	13.51
2007	14.55
2008	14.13
Weighted Average	13.93

Table 31, Table 32, Table 33, and Table 34 present the results of the cost-effectiveness analysis for the Program in 2005, 2006, 2007, and 2008 respectively at 100% net-to-gross. Analyses are based on the Pacific Power West System 67% load factor decrement[12].

[11] 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.

[12] 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 31. Cost-Effectiveness Summary for the Program in 2005 – IRP 67% LF Decrement[13]

Cost Effectiveness Test	Levelized $ / kWh	Costs	Benefits	Net Benefits	Benefit / Cost Ratio
Total Resource + Conservation Adder (PTRC)	$0.028	$2,777,909	$7,329,539	$4,551,631	2.64
Total Resource No Adder (TRC)	$0.028	$2,777,909	$6,663,218	$3,885,309	2.40
Utility (UCT)	$0.018	$1,740,300	$6,663,218	$4,922,918	3.83
Ratepayer Impact (RIM)	$0.069	$6,751,693	$6,663,218	-$88,476	0.99
Participant (PCT)	$0.018	$1,796,971	$5,770,755	$3,973,784	3.21
Lifecycle Revenue Impact (dollars)				$0.00000206	
Discounted Participant Payback (years)				2.38	

Table 32. Cost-Effectiveness Summary for the Program in 2006 – IRP 67% LF Decrement

Cost Effectiveness Test	Levelized $ / kWh	Costs	Benefits	Net Benefits	Benefit / Cost Ratio
Total Resource + Conservation Adder (PTRC)	$0.024	$7,889,469	$26,408,748	$18,519,279	3.35
Total Resource No Adder (TRC)	$0.024	$7,889,469	$24,007,953	$16,118,484	3.04
Utility (UCT)	$0.012	$4,019,225	$24,007,953	$19,988,728	5.97
Ratepayer Impact (RIM)	$0.065	$21,302,358	$24,007,953	$2,705,595	1.13
Participant (PCT)	$0.021	$6,951,603	$20,364,492	$13,412,889	2.93
Lifecycle Revenue Impact (dollars)				-$0.00006179	
Discounted Participant Payback (years)				2.60	

Table 33. Cost-Effectiveness Summary for the Program in 2007 – IRP 67% LF Decrement

Cost Effectiveness Test	Levelized $ / kWh	Costs	Benefits	Net Benefits	Benefit / Cost Ratio
Total Resource + Conservation Adder (PTRC)	$0.025	$3,962,114	$13,987,264	$10,025,150	3.53
Total Resource No Adder (TRC)	$0.025	$3,962,114	$12,715,694	$8,753,580	3.21
Utility (UCT)	$0.013	$2,105,486	$12,715,694	$10,610,208	6.04
Ratepayer Impact (RIM)	$0.07	$11,084,823	$12,715,694	$1,630,871	1.15
Participant (PCT)	$0.02	$3,218,669	$10,341,378	$7,122,709	3.21
Lifecycle Revenue Impact (dollars)				-$0.00003488	
Discounted Participant Payback (years)				2.45	

[13] The West System 67% load factor decrement was used for all cost effectiveness analysis.

Table 34. Cost-Effectiveness Summary for the Program in 2008 – IRP 67% LF Decrement

Cost Effectiveness Test	Levelized $ / kWh	Costs	Benefits	Net Benefits	Benefit / Cost Ratio
Total Resource + Conservation Adder (PTRC)	$0.029	$5,357,823	$17,488,511	$12,130,688	3.26
Total Resource No Adder (TRC)	$0.029	$5,357,823	$15,898,647	$10,540,824	2.97
Utility (UCT)	$0.015	$2,698,867	$15,898,647	$13,199,780	5.89
Ratepayer Impact (RIM)	$0.071	$13,211,108	$15,898,647	$2,687,539	1.20
Participant (PCT)	$0.024	$4,509,701	$12,362,986	$7,853,285	2.74
Lifecycle Revenue Impact (dollars)				-$0.00005908	
Discounted Participant Payback (years)				2.95	

Cost-Effectiveness at 11% Freeridership

In Table 35, Table 36, Table 37, and Table 38 below, cost-effectiveness analysis is presented for all years using a freeridership of 11% as described in Section three of this report. All analyses are based on the Pacific Power West System 67% load factor decrement

Table 35. Cost-Effectiveness Summary for the Program in 2005 – IRP 67% LF Decrement – 11% Freeridership

Cost Effectiveness Test	Levelized $ / kWh	Costs	Benefits	Net Benefits	Benefit / Cost Ratio
Total Resource + Conservation Adder (PTRC)	$0.03	$2,580,242	$6,523,290	$3,943,048	2.53
Total Resource No Adder (TRC)	$0.03	$2,580,242	$5,930,264	$3,350,022	2.30
Utility (UCT)	$0.02	$1,740,300	$5,930,264	$4,189,964	3.41
Ratepayer Impact (RIM)	$0.071	$6,200,440	$5,930,264	-$270,176	0.96
Participant (PCT)	$0.018	$1,599,304	$5,219,502	$3,620,198	3.26
Lifecycle Revenue Impact (dollars)				$0.00000629	
Discounted Participant Payback (years)				2.15	

Table 36. Cost-Effectiveness Summary for the Program in 2006 – IRP 67% LF Decrement – 11% Freeridership

Cost Effectiveness Test	Levelized $ / kWh	Costs	Benefits	Net Benefits	Benefit / Cost Ratio
Total Resource + Conservation Adder (PTRC)	$0.024	$7,124,793	$23,503,786	$16,378,993	3.30
Total Resource No Adder (TRC)	$0.024	$7,124,793	$21,367,078	$14,242,285	3.00
Utility (UCT)	$0.014	$4,019,225	$21,367,078	$17,347,853	5.32
Ratepayer Impact (RIM)	$0.066	$19,401,214	$21,367,078	$1,965,864	1.10
Participant (PCT)	$0.021	$6,186,927	$18,463,347	$12,276,421	2.98
Lifecycle Revenue Impact (dollars)				-$0.00004489	
Discounted Participant Payback (years)				2.33	

Table 37. Cost-Effectiveness Summary for the Program in 2007 – IRP 67% LF Decrement – 11% Freeridership

Cost Effectiveness Test	Levelized $ / kWh	Costs	Benefits	Net Benefits	Benefit / Cost Ratio
Total Resource + Conservation Adder (PTRC)	$0.026	$3,608,060	$12,448,665	$8,840,604	3.45
Total Resource No Adder (TRC)	$0.026	$3,608,060	$11,316,968	$7,708,907	3.14
Utility (UCT)	$0.015	$2,105,486	$11,316,968	$9,211,482	5.37
Ratepayer Impact (RIM)	$0.072	$10,097,096	$11,316,968	$1,219,872	1.12
Participant (PCT)	$0.02	$2,864,615	$9,353,651	$6,489,036	3.45
Lifecycle Revenue Impact (dollars)				-$0.00002609	
Discounted Participant Payback (years)				2.23	

Table 38. Cost-Effectiveness Summary for the Program in 2008 – IRP 67% LF Decrement – 11% Freeridership

Cost Effectiveness Test	Levelized $ / kWh	Costs	Benefits	Net Benefits	Benefit / Cost Ratio
Total Resource + Conservation Adder (PTRC)	$0.029	$4,861,756	$15,564,775	$10,703,019	3.20
Total Resource No Adder (TRC)	$0.029	$4,861,756	$14,149,795	$9,288,040	2.91
Utility (UCT)	$0.016	$2,698,867	$14,149,795	$11,450,928	5.24
Ratepayer Impact (RIM)	$0.073	$12,054,761	$14,149,795	$2,095,034	1.17
Participant (PCT)	$0.024	$4,013,634	$11,206,639	$7,193,005	2.79
Lifecycle Revenue Impact (dollars)				-$0.00004605	
Discounted Participant Payback (years)				2.69	

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] Pacific 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 TO18]*
    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 TO18]*
    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.

3914	6056	7065	7500	7377	7316	7883
4465	6227	7080	7986	7415	7317	7885
6061	6425	7080	5968	7430	7454	7975
6439	6479	7093	6060	7555	7502	7986
6587	6644	7099	6340	7593	7546	8011
6589	6720	7100	6444	7612	7557	8023
6592	6727	7107	6597	7714	7561	8039
6597	6749	7147	6694	6056	7574	8106
6633	6813	7176	6857	6438	7583	8151
6638	6814	7185	7023	6579	7598	8151
6664	6820	7194	7033	6633	7605	
6747	6864	7236	7111	6961	7607	
6782	6891	7237	7118	6980	7609	
6812	6946	7262	7122	7007	7610	
6846	6957	7289	7148	7063	7650	
6922	7042	7299	7182	7114	7683	
7007	7045	7311	7203	7121	7684	
7021	7046	7330	7332	7124	7700	
7056	7048	7371	7342	7250	7741	
7157	7052	7416	7376	7302	7824	

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." The primary sources for the measure lifetimes analysis were the Regional Technical Forum (RTF) and Northwest Power Planning Council's 6th Plan. Technologies that were not found in the primary sources database other secondary sources were referenced such as DEER 2008, ACEEE, and the "Measure Life Report" prepared by GDS Associates in 2007. When multiple secondary sources for the same measure were available, an average was taken. Primary sources of a measure technology were not averaged with secondary sources. 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	RTF/6th Plan	GDS	DEER	ACEEE	Other
Refrigeration	X	X	X		
Lighting	X	X	X		
HVAC	X	X	X	X	Calmac Report 2007
Controls	X	X	X		
Motors	X	X	X		
Additional Measures		X		X	
Air Compressors	X	X			
Building Shell	X	X	X		
Hot Water	X	X	X		Energy Star
Traffic Signals	X	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 various lighting technology packages with various individual measure

lives. 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 s approachis acknowledged in the National Action Plan for Energy Efficiency: Model Energy Efficiency Program Impact Evaluation Guide[14] (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.

[14] http://www.epa.gov/cleanenergy/documents/suca/evaluation_guide.pdf

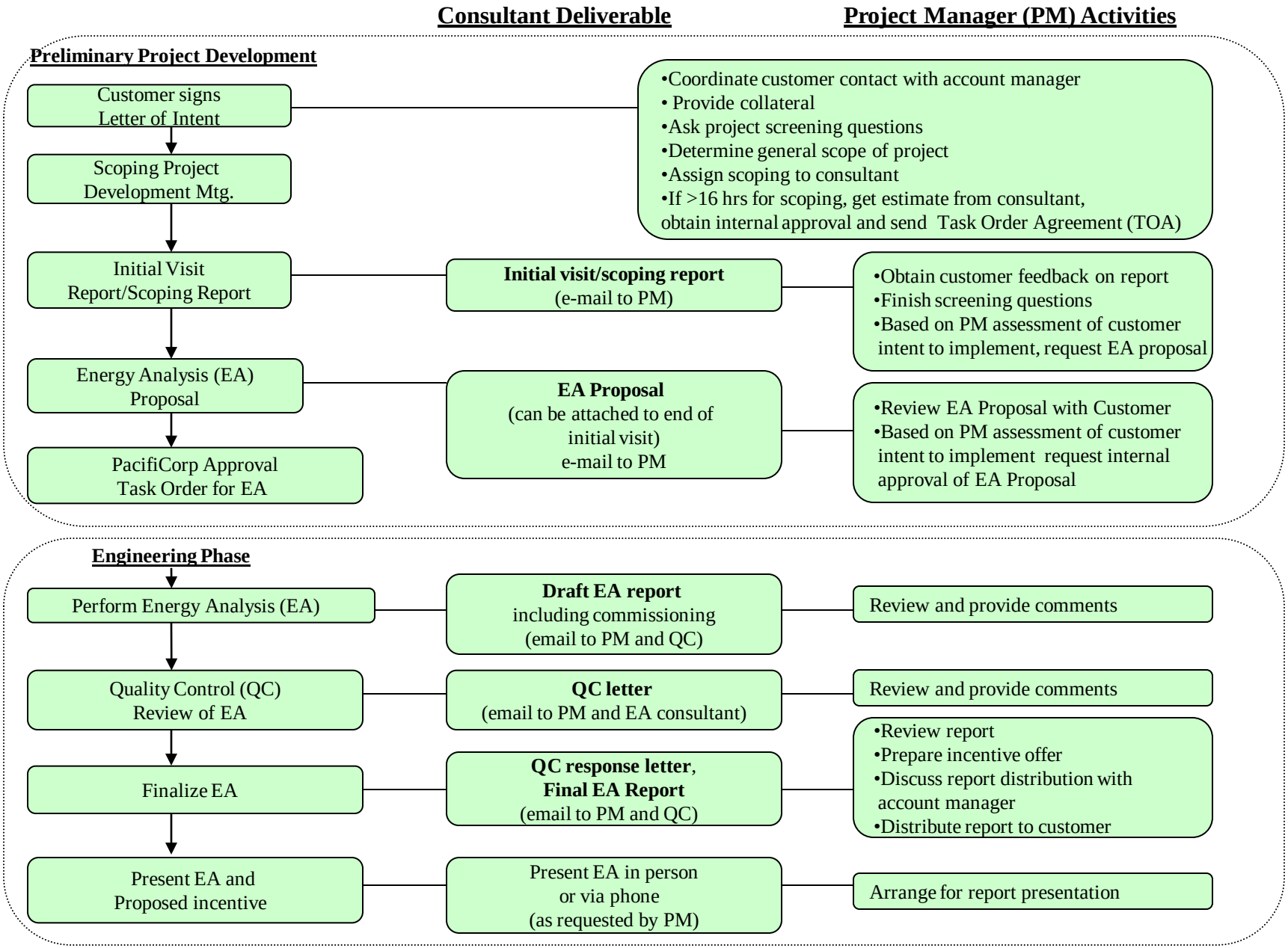
Would have Installed without Program	Already Ordered or Installed	Same Efficiency	Would have Installed All of the Measures	Planning to Install Soon	Already in Budget	Pattern	Freeridership Score
Yes	Partial	x	x	x	x	YesPartial	100.00%
Yes	Yes	x	x	x	x	YesYes	100.00%
Partial	Yes	x	x	x	x	PartialYes	100.00%
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

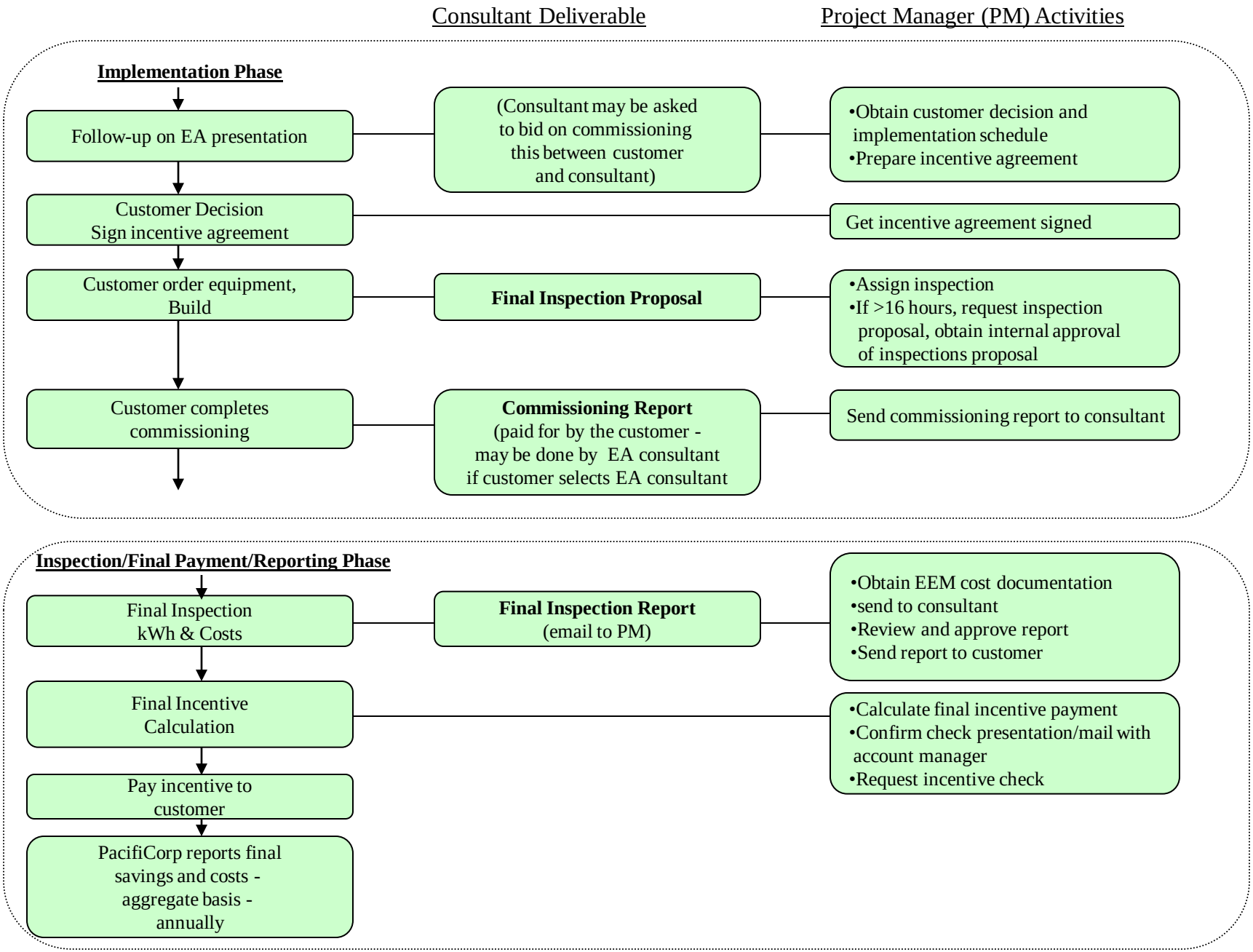
If customers both did not know about the measure before hearing about the program and had no plans to install the measure, they are not freeriders. Likewise, if they knew about the program, but had no plans to install the measure, they are not freeriders. Customers who indicated they would have installed 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



V04/03


Consultant Deliverable
Project Manager (PM) Activities
Implementation Phase
Follow-up on EA presentation
(Consultant may be asked to bid on commissioning this between customer and consultant)
•Obtain customer decision and implementation schedule
•Prepare incentive agreement
Customer Decision
Sign incentive agreement
Get incentive agreement signed
Customer order equipment, Build
Final Inspection Proposal
•Assign inspection
•If >16 hours, request inspection proposal, obtain internal approval of inspections proposal
Customer completes commissioning
Commissioning Report
(paid for by the customer - may be done by EA consultant if customer selects EA consultant
Send commissioning report to consultant
Inspection/Final Payment/Reporting Phase
Final Inspection kWh & Costs
Final Inspection Report
(email to PM)
•Obtain EEM cost documentation
•send to consultant
•Review and approve report
•Send report to customer
Final Incentive Calculation
•Calculate final incentive payment
•Confirm check presentation/mail with account manager
•Request incentive check
Pay incentive to customer
PacifiCorp reports final savings and costs - aggregate basis - annually

V04/03