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# Utah Self-Direction Credit Program 2007–2008

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Prepared for:  
Rocky Mountain Power

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# Table of Contents

<b>1. Executive Summary .....</b>	<b>3</b>
Program Summary	3
Impact Evaluation Methods and Findings	4
Process Evaluation Findings	6
Cost-Effectiveness Findings	7
Conclusions	7
Recommendations	8
<b>2. Introduction .....</b>	<b>9</b>
Program Description	9
Evaluation Approach	11
<b>3. Impact Evaluation.....</b>	<b>15</b>
Energy Calculation Methods	15
Energy Savings Calculation Method	15
Realization Rate Analysis Method	16
Engineering Results	16
Findings	16
Freeridership Estimation	18
<b>4. Process Evaluation .....</b>	<b>21</b>
Overview	21
Awareness	21
Participant Experience and Program Administration	21
Satisfaction	22
Energy-Efficiency Decision Making	24
Application Process	26
Program Administrator Goals	26
Current Issues	27
<b>5. Cost-Effectiveness .....</b>	<b>29</b>
<b>6. Conclusions and Recommendations .....</b>	<b>32</b>

Conclusions	32
Recommendations	32
<b>Appendix A: Individual Site Reports .....</b>	<b>33</b>
<b>Appendix B: Logic Model .....</b>	<b>34</b>
<b>Appendix C: Participant Survey.....</b>	<b>35</b>
<b>Appendix D: Program Administrator Survey.....</b>	<b>52</b>
Marketing.....	54
Savings Estimation.....	55
Participant Interaction and Satisfaction .....	55
Program Data Collection.....	55
Implementation Barriers .....	55
Close .....	55

# 1. Executive Summary

## Program Summary

The Self-Direction Credit Program seeks to obtain verifiable and persistent electric energy reduction for customers meeting minimum usage requirements. This opportunity is offered to large business customers with electrical usage exceeding 5,000,000 kWh or 1,000 kW over the prior 12 months. These customers may submit projects that increase electric energy efficiency or provide more efficient electric energy load management at their facilities. Upon review and approval by Rocky Mountain Power, customers will receive a credit of the Customer Efficiency Services Charge on their monthly electric bills equaling 80% of the project's eligible cost. Eligible customers must self-fund energy engineering and implementation of conservation projects at their facilities.

The program is administered on behalf of the company by a third party, Nexant, Inc., hereafter referred to as the program administrator. Responsibilities of the program administrator include reviewing and approving customer engineering calculations, managing credit utilization, notifying customers of availability of credits and preparing an annual report for the Company and the Commission.

Projects completed under this program during 2007-2008 included:

- Lighting improvements
- Control systems and variable speed drives
- Efficient compressed air systems (distribution piping, control sequencing)
- High-efficiency motors
- Heating, ventilation, and cooling (HVAC) measures
- Miscellaneous other commercial/industrial equipment

This evaluation assessed the program for 2007 and 2008 using a combination of onsite verification, engineering analysis and survey results to determine net energy savings.

### ***Participation***

During 2007 and 2008, 53 projects were completed and approved for credit by the program administrator. Table 1 summarizes the number, measure type, and reported savings for these projects.

During the evaluation period, program customers completed projects using multiple measure types. Lighting was the dominant measure but motors and other industrial mechanical measures (shown as additional measures) had a greater reported savings impact per project.

**Table 1. Reported Savings by Measure Type**

Year	Measure Type	Count	% of Annual Total	Expected Savings (kWh)	% of Annual Total
2007	Lighting	25	69%	6,877,646	43%
	Additional Measures	4	14%	4,090,489	26%
	Motors	3	9%	2,512,110	16%
	Air Compressors	2	6%	1,542,721	10%
	HVAC	1	3%	900,977	6%
	<b>2007 Total</b>	<b>35</b>	<b>100%</b>	<b>15,923,943</b>	<b>100%</b>
2008	Lighting	14	78%	4,538,976	68%
	Motors	3	17%	2,037,353	31%
	Additional Measures	1	6%	94,498	1%
	<b>2008 Total</b>	<b>18</b>	<b>100%</b>	<b>6,670,827</b>	<b>100%</b>

### ***Evaluation Approach***

This study includes both an impact and process evaluation. The impact evaluation focused on the program's energy savings and costs. Energy savings were evaluated using the methods detailed below. Project costs were reviewed for reasonableness based on invoices and project details in the project files. These values were combined in the cost effectiveness analysis. The process evaluation examined the program from a qualitative perspective to better understand how the program has worked.

Primary research activities include surveys, interviews, site audits, and verification activities, as shown in Table 2. For the impact study, evaluators visited 37 project sites. For projects where a site visit was not conducted, the engineering staff verified a measure's efficiency by reviewing project documents and interviewing appropriate staff from each organization.

**Table 2. Summary of Evaluation Approach**

Action	Impact	Process	Completed	Details
Participant Surveys	X	X	18	Used for calculating freeridership and spillover.
Nonparticipant Surveys		X	2	Used to understand awareness and barriers.
Program Staff		X	2	Provided insight into program design and delivery.
Implementation Firm		X	1	Provided insight into program administration.
Market Actor		X	1	Provided insight into program operation.
Site Audits	X		37	Verified equipment installation and savings.
Verification / File Reviews	X		11	Verified equipment installation and savings.

### **Impact Evaluation Methods and Findings**

The evaluation used a combination of site audits and verification reviews to determine actual realized savings for each project. These methods are described in some detail below, and in the Individual Site Reports included as Appendix A. We were unable to contact the customer for project 70090, a lighting project for a government entity. The combined realization rate for all other lighting projects was used to estimate savings for this project.

### Energy Calculations

Overall, the evaluation's energy calculations were intended to verify the realized savings. The original estimates usually were based on a thorough review of prior studies and site inspections. This evaluation sought to confirm: basic assumptions used in the original analysis were correct; the basic analysis method was appropriate and the measures had been installed and operated as planned. Where fundamental differences were identified, our calculations revised energy and demand savings estimates.

The tables below summarize energy (kWh) and demand (kW) savings for all projects completed during the 2007–2008 evaluation period.

**Table 3. Self Direction Projects, Energy Savings (kWh), and Realization Rate by Measure Type**

Year	Measure Type	Sentry Count	Expected Savings (kWh)	Evaluated Savings (kWh)	Realization Rate
2007	Lighting	25	6,877,646	6,960,754	101%
	Additional Measures	4	4,090,489	4,317,289	106%
	Motors	3	2,512,110	2,557,910	102%
	Air Compressors	2	1,542,721	1,453,724	94%
	HVAC	1	900,977	667,468	74%
	<b>2007 Total</b>		<b>35</b>	<b>15,923,943</b>	<b>15,957,145</b>
2008	Lighting	14	4,538,976	4,548,131	100%
	Motors	3	2,037,353	1,741,622	85%
	Additional Measures	1	94,498	94,498	100%
	<b>2008 Total</b>	<b>18</b>	<b>6,670,827</b>	<b>6,384,250</b>	<b>96%</b>
<b>Total All Years</b>		<b>53</b>	<b>22,594,770</b>	<b>22,341,395</b>	<b>99%</b>

**Table 4. Self Direction Projects, Demand Savings (kW), and Realization Rate by Measure Type**

Year	Measure Type	Sentry Count	Expected Savings (kW)	Evaluated Savings (kW)	Realization Rate
2007	Lighting	25	1,089	1,098	101%
	Additional Measures	4	373	400	107%
	Motors	3	251	267	106%
	Air Compressors	2	78	71	91%
	HVAC	1	177	131	74%
	<b>2007 Total</b>		<b>35</b>	<b>1,968</b>	<b>1,967</b>
2008	Lighting	14	714	718	101%
	Motors	3	181	171	95%
	Additional Measures	1	5	5	100%
	<b>2008 Total</b>	<b>18</b>	<b>900</b>	<b>894</b>	<b>99%</b>
<b>Total All Years</b>		<b>53</b>	<b>2,868</b>	<b>2,861</b>	<b>100%</b>

Freeridership, defined as the percentage of savings that would have occurred in the program's absence, was calculated based on responses of program participants to telephone surveys. We determined the savings weighted freeridership to be 13% and the net-to-gross ratio (NTG) to be 87%.

After adjusting evaluated savings for freeriders, resulting net savings represented savings attributable to the program.

**Table 5. Summary of Evaluated and Net Savings**

Program Year	Evaluated Savings		NTG Ratio	Net Savings	
	kWh	kW		kWh	kW
2007	15,957,145	1,967	87%	13,822,079	1,704
2008	6,384,250	894	87%	5,530,038	774
Total	22,341,395	2,861	87%	19,352,116	2,478

## Process Evaluation Findings

### ***Awareness***

Of participants surveyed, 83% reported they first heard about the program from Rocky Mountain Power—either through their account representative or another staff person. Nonparticipants, defined as organizations that were eligible based on energy usage but had not participated, were also surveyed. Both nonparticipants surveyed reported they were aware of the program. These reports indicated program awareness was high among eligible customers.

### ***Participant Experience and Program Administration***

Participants generally had positive experiences with the program. Nearly all participants reported that program processes such as application, review, or approval worked smoothly and effectively. Feedback from other sources was consistent with the participant input: all program administration and operations functioned well. These other sources included utility staff, the program implementer, and the head of an engineering firm that provides consulting services on Self Direction projects.

### ***Satisfaction***

Participants were highly satisfied with the program from every aspect addressed by the survey including overall experience with the program; performance of installed energy-efficiency measures; and final costs to their organizations. When asked if they would participate in the program again, all participants surveyed said yes.



## Cost-Effectiveness Findings

**Table 6: Cost Effectiveness Summary 2007 - IRP 65% Decrement**

Cost Effectiveness Test	Benefits	Costs	Net Benefits	Benefit / Cost Ratio	Cost \$ / kWh
Total Resource + Conservation Adder (PTRC)	\$9,648,035	\$3,334,758	\$6,313,277	2.89	\$0.025
Total Resource No Adder (TRC)	\$8,770,941	\$3,334,758	\$5,436,183	2.63	\$0.025
Utility (UCT)	\$8,770,941	\$3,092,798	\$5,678,143	2.84	\$0.023
Ratepayer Impact (RIM)	\$8,770,941	\$10,187,553	-\$1,416,611	0.86	\$0.076
Participant (PCT)	\$10,018,728	\$3,165,934	\$6,852,794	3.16	\$0.024
Lifecycle Revenue Impact				\$0.00000593	
Discounted Participant Payback (years)				0.88	

**Table 7: Cost Effectiveness Summary 2008 - IRP 65% Decrement**

Cost Effectiveness Test	Benefits	Costs	Net Benefits	Benefit / Cost Ratio	Cost \$ / kWh
Total Resource + Conservation Adder (PTRC)	\$4,530,090	\$1,669,404	\$2,860,686	2.71	\$0.03
Total Resource No Adder (TRC)	\$4,118,264	\$1,669,404	\$2,448,860	2.47	\$0.03
Utility (UCT)	\$4,118,264	\$1,557,801	\$2,560,463	2.64	\$0.028
Ratepayer Impact (RIM)	\$4,118,264	\$5,102,052	-\$983,788	0.81	\$0.092
Participant (PCT)	\$4,892,927	\$1,460,279	\$3,432,648	3.35	\$0.026
Lifecycle Revenue Impact				\$0.00000401	
Discounted Participant Payback (years)				0.87	

**Table 8: Cost Effectiveness Summary 2007-2008 - IRP 65% Decrement**

Cost Effectiveness Test	Benefits	Costs	Net Benefits	Benefit / Cost Ratio	Cost \$ / kWh
Total Resource + Conservation Adder (PTRC)	\$ 13,865,996	\$4,889,138	\$8,976,858	2.84	\$0.026
Total Resource No Adder (TRC)	\$12,605,451	\$4,889,138	\$7,716,313	2.58	\$0.024
Utility (UCT)	\$12,605,451	\$4,543,265	\$8,062,187	2.77	\$0.024
Ratepayer Impact (RIM)	\$12,605,451	\$14,938,067	-\$2,332,615	0.84	\$0.08
Participant (PCT)	\$14,574,526	\$4,525,598	\$10,048,928	3.22	\$0.024
Lifecycle Revenue Impact				\$0.00000977	

## Conclusions

- During the 2007-2008 evaluation period, 53 Standard projects were completed. Thirty eight of the projects—72% of the total—were primarily made up lighting measures. These projects accounted for 51% of the 22.6 million kWh total expected energy savings.

- The evaluation is based on project reviews and interviews. Engineers verified each project's measures through file reviews (all projects), site visits (37 projects) and interviews (11 projects). Interviews were conducted with participants, nonparticipants, the utility, the implementer, and an engineering consultant.
- The impact evaluation found
  - Gross energy savings were 22.3 million kWh – a realization rate of 99%.
  - Gross demand savings were 2,861 kW – a realization rate of 100%.
- Freeridership was determined using survey responses from 18 participants. The kWh weighted average of the freeridership scores is 13%. Therefore the ratio of Net Savings to Gross Savings is 87%.
- The Process Evaluation found
  - Awareness of the program is high. Most participants hear of the program directly from their Rocky Mountain Power representative. Both nonparticipants surveyed were aware of the program but had limited knowledge of it.
  - Participants, the utility, and the program implementer that administers the program all agreed that the program processes such as application, approval and payment are working well and had no issues to report.
  - Participants were highly satisfied with the program and the performance of the installed measures.
  - The most important factors in measure selection are the general information provided by program staff, the use-it-or-lose-it funding, and the measure payback.
- The program was found to be cost-effective in both years.

## Recommendations

- The program is well established and no major issues were identified.
- Qualifying nonparticipants had very limited knowledge of the program. Additional education about the program and its structure might encourage future participation.

## 2. Introduction

### Program Description

The Self-Direction Credit Program seeks to obtain verifiable and persistent electric energy and/or demand reductions for customers meeting minimum usage requirements. This opportunity is offered to large business customers with electrical usage exceeding 5,000,000 kWh or 1,000 kW during the prior 12 months. These customers submit projects increasing electric energy efficiency or providing more efficient management of electric energy loads at their facilities. Upon review and approval by Rocky Mountain Power, customers receive a credit of the Customer Efficiency Services Charge on their monthly electric bills equal to 80% of the eligible project cost. Eligible customers must self-fund energy engineering and implementation of conservation projects at their facilities.

The program was created on September 23, 2003 when the Utah Public Service Commission (PSC) approved the Self-Direction Credit program. Since customers were not billed for self direct charges until April 2004, they had the intervening six months to develop projects including transition projects completed before PSC approval. The project has been available to large customers continuously since that time.

In March 2004 and again in December 2008, Nexant, Inc, was selected by Rocky Mountain Power to serve as the Self-Direction Administrator.

The following three project types may be submitted to the Self-Direction Credit program:

- **Transition Projects** were cost-effective electric conservation projects completed by customers before commission approval of Schedule 192 and not receiving incentives from any other Rocky Mountain Power DSM program. In the four years following the Effective Date of Schedule 192, five transition projects were approved and received Self-Direction credits amounting to 56% of eligible expenses. Transition projects are no longer eligible for the program.
- **Standard Projects** are cost-effective electric conservation projects completed by customers on or after the commission approval of Schedule 192. Approved projects receive a Self-Direction credit of 80% of eligible expenses. During this period, Self-Direction credits for standard projects were capped at \$1,500,000 in any given year.
- **Opt-out Projects** pertain to customers who demonstrate no remaining, cost-effective electric DSM projects are available that have a payback period of eight years or less at any of eligible customer's facilities used to meet minimum usage requirements. To qualify for the opt-out credit, customers must hire an auditor retained by the Self-Direction Administrator to study eligible facilities to ensure no remaining projects exist. During this period, Self-Direction credits for opt-out projects were capped at \$100,000 in any given year. No customer has qualified for the opt-out credit.

### ***Selection of the Evaluation Period and Program Activity during the Evaluation Period***

The program was approved in September 2003 and there were no reported savings in 2003. In 2004, reported savings in 2004 were 583,139 kWh which reflects the program ramp up. Savings increased substantially in 2005 and 2006 when compared to 2004 and are comparable to 2007 and 2008 in aggregate. Since delivery of the program has not changed significantly since introduction, the program administrator is the same since introduction and an annual report which includes an assessment of program performance is filed with the Commission, this evaluation focused on 2007 and 2008 projects to help insure the finding incorporated the most current data available<sup>1</sup>.

Of the three project types described above, all program activity during the evaluation period fell into the Standard project category.

Program projects completed during this period included the following measures:

- Lighting improvements
- Control systems and variable speed drives
- Efficient compressed air systems (distribution piping, control sequencing)
- High-efficiency motors
- Heating, ventilation, and cooling (HVAC) measures
- Miscellaneous other commercial/industrial equipment

Each project was classified with a single facility type and measure type. In a few cases where more than one measure type was implemented, the project was classified using the measure type responsible for the largest share of savings.

As shown in Table 9, program customers completed projects for a variety of facility types during the evaluation period.

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<sup>1</sup> While the availability of transition credits did change during the initial period, the limited availability was included in the initial program design and approved tariff and does not represent a material change to on-going delivery.

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**Table 9. Expected Savings by Facility Type<sup>2</sup>**

Year	Facility Type	Count	% of Annual Total	Expected Savings (kWh)	% of Annual Total
2007	Other	30	86%	13,517,561	85%
	Industrial	3	9%	1,884,026	12%
	Office	1	3%	428,648	3%
	University	1	3%	93,708	1%
	<b>2007 Total</b>	<b>35</b>	<b>100%</b>	<b>15,923,943</b>	<b>100%</b>
2008	Other	13	72%	5,312,779	80%
	School	3	17%	1,249,812	19%
	Office	1	6%	66,283	1%
	Warehouse	1	6%	41,953	1%
	<b>2008 Total</b>	<b>18</b>	<b>100%</b>	<b>6,670,827</b>	<b>100%</b>

As shown in Table 10, program customers completed projects using several measure types during the evaluation period. Lighting was the dominant measure type but motors and other industrial mechanical measures (shown as additional measures) had a greater expected savings impact per project.

**Table 10. Expected Savings by Measure Type**

Year	Measure Type	Count	% of Annual Total	Expected Savings (kWh)	% of Annual Total
2007	Lighting	25	69%	6,877,646	43%
	Additional Measures	4	14%	4,090,489	26%
	Motors	3	9%	2,512,110	16%
	Air Compressors	2	6%	1,542,721	10%
	HVAC	1	3%	900,977	6%
	<b>2007 Total</b>	<b>35</b>	<b>100%</b>	<b>15,923,943</b>	<b>100%</b>
2008	Lighting	14	78%	4,538,976	68%
	Motors	3	17%	2,037,353	31%
	Additional Measures	1	6%	94,498	1%
	<b>2008 Total</b>	<b>18</b>	<b>100%</b>	<b>6,670,827</b>	<b>100%</b>

## Evaluation Approach

This study includes both an impact evaluation and a process evaluation. The impact evaluation focused on the program's energy savings and costs. Energy savings were evaluated using the methods detailed below. Project costs were reviewed for reasonableness based on invoices and project details in the project files. These values were combined in the cost effectiveness analysis. The process evaluation examined the program from a qualitative perspective to better understand how the Program has worked.

<sup>2</sup> The Other category in the Sentry database was utilized widely for this program and captures a number of industrial manufacturing/processing facilities as well as large government facilities, a ski resort, a university, and other facilities that do not align well with the categories listed in Table 8. 43 of 51 projects were defined as "Other" in the program tracking database (Sentry).

Primary research activities included surveys, interviews, site audits, and verification activities, as shown in Table 11. For the impact study, evaluators visited most project sites. For projects where site visits were not conducted, engineering staff verified efficiency measures by reviewing project documents and interviewing appropriate staff at each organization.

**Table 11. Summary of Evaluation Approach**

Action	Impact	Process	Completed	Details
Participant Surveys	X	X	18	Used for calculating free ridership and spillover.
Nonparticipant Surveys		X	2	Used to understand awareness and barriers.
Program Staff		X	2	Provided insight into program design and delivery.
Implementation Firm		X	1	Provided insight into program administration.
Market Actor		X	1	Provided insight into program operation.
Site Audits	X		37	Verified equipment installation and savings.
Verification/File Reviews	X		11	Verified equipment installation and savings.

The evaluation was designed to address the following questions about the program:

### ***Impact Questions***

1. What were gross and net energy savings generated by each Self-Direction project?
2. How did evaluated savings compare to previously reported savings for each program year?
3. What were the program's actual costs and benefits?

### ***Process Questions***

1. How did participants become aware of the program?
2. How aware were nonparticipants of the program and how much did they know about it?
3. Why did nonparticipants elect not to participate? What would have increased their likelihood of participation?
4. How effective were Rocky Mountain Power's materials and activities in informing and educating customers about the program?
5. How efficient, simple, and understandable were all stages of the participation process?
6. How efficient and effective were the utility's internal administration and implementation processes?
7. What role did vendors play in the program?
8. How effective was the program in minimizing the barriers to increased energy-efficiency?
9. How satisfied were all parties with the way the program worked?
10. How could the program be improved to increase participation, efficiency, or effectiveness?
11. What would the participants have done in the program's absence?
12. What other actions did participants and nonparticipants take due to the program?







### **3. Impact Evaluation**

This section describes work done to determine net savings resulting from program activities. The Sentry tracking database supplied by Rocky Mountain Power provided expected savings from each project funded by the program. The evaluation used a combination of site audits and verification reviews to determine actual realized savings for each project. These methods are described below, and the Individual Site Reports are included in Appendix A.

Every project had either a site audit or remote verification, except for Project 70090, a lighting project for the Utah State Division of Facilities Construction Management. Evaluators learned the project spanned several sites, including parts of the state capital. Site audit engineers were denied access because state government was in session. Consequently, the combined realization rate for all other lighting projects was applied to this project.

Once the program's realized savings impact was known, the next task was to determine how much of savings could be reasonably attributed to the program. To do this, the evaluation used participant survey data to determine the extent that some participants were freeriders. The resulting freeridership value was used to calculate net program savings.

#### **Energy Calculation Methods**

Overall, the energy calculations performed for the evaluation were intended to verify the original analyses underlying the customer's savings estimates. Typically, the original estimates were based on a thorough review of prior studies and site inspections. The evaluation's purpose was to confirm: 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 was still in use. Consequently, our energy calculations focused on verifying the validity and findings of the original analysis. In cases where fundamental differences were identified, our analysis provided revised energy and demand savings estimates.

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

#### **Energy Savings Calculation Method**

##### **Engineering Calculations**

We reviewed the original engineering analysis, and determined whether our site visits or phone calls identified any changes in assumptions used in the original analysis. We also contacted program staff at Rocky Mountain Power, and energy engineer, as needed, to resolve any issues, changes, or discrepancies that might affect estimated energy savings.

Various engineering algorithms were used to estimate savings, based on specific measures. As variations can occur in calculated savings due to particular engineering method and assumptions used, our savings calculation methods, for the most part, duplicated the engineering method used when savings were first derived. Thus, observation of operational characteristics became a critical element in estimating actual savings. We used our observations of key assumptions, validation of engineering methods, and recalculations based on observed differences to provide evaluated savings estimates. Cadmus did not analyze interactive effects for lighting projects.

## Realization Rate Analysis Method

For each Self-Direction project, we calculated energy and demand savings realization rates as the ratio of evaluated savings to expected savings. The demand realization rate was calculated similarly. If the evaluation confirmed the original savings estimate, the realization rate was 100%.

## Engineering Results

### ***Step 1: Categorization***

Cadmus conducted site visits at 37 of the 49 projects. Of the remaining 12 projects, Cadmus used a combination of the file review and verification over the telephone to evaluate 11 projects. The evaluators were unable to access one site as noted near the beginning of Section 3 above.

### ***Step 2: Methodology Selection***

Cadmus analyzed projects using engineering calculation methods described above.

### ***Step 3: Site Visits and Data Collection***

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

### ***Step 4: Analysis***

Energy savings for 48 projects were determined using engineering calculations that incorporated measurements and observations obtained from the site visits, in addition to data provided in the project files and from interviews.

## Findings

The tables below summarize the energy (kWh) and demand (kW) savings for all projects completed during the 2007–2008 evaluation period.

**Table 12. Self-Direction Projects, Energy Savings (kWh), and Realization Rate by Measure Type.**

Year	Measure Type	Sentry Count	Expected Savings (kWh)	Evaluated Savings (kWh)	Realization Rate
2007	Lighting	24	6,877,646	6,960,754	101%
	Additional Measures	5	4,090,489	4,317,289	106%
	Motors	3	2,512,110	2,557,910	102%
	Air Compressors	2	1,542,721	1,453,724	94%
	HVAC	1	900,977	667,468	74%
	<b>2007 Total</b>	<b>35</b>	<b>15,923,943</b>	<b>15,957,145</b>	<b>100%</b>
2008	Lighting	14	4,538,976	4,548,131	100%
	Motors	3	2,037,353	1,741,622	85%
	Additional Measures	1	94,498	94,498	100%
	<b>2008 Total</b>	<b>18</b>	<b>6,670,827</b>	<b>6,384,250</b>	<b>96%</b>
<b>Total All Years</b>		<b>53</b>	<b>22,594,770</b>	<b>22,341,395</b>	<b>99%</b>

**Table 13. Self-Direction Projects, Demand Savings (kW), and Realization Rate by Measure Type**

Year	Measure Type	Sentry Count	Expected Savings (kW)	Evaluated Savings (kW)	Realization Rate
2007	Lighting	24	1,089	1,098	101%
	Additional Measures	5	373	400	107%
	Motors	3	251	267	106%
	Air Compressors	2	78	71	91%
	HVAC	1	177	131	74%
	<b>2007 Total</b>	<b>35</b>	<b>1,968</b>	<b>1,967</b>	<b>100%</b>
2008	Lighting	14	714	718	101%
	Motors	3	181	171	95%
	Additional Measures	1	5	5	100%
	<b>2008 Total</b>	<b>18</b>	<b>900</b>	<b>894</b>	<b>99%</b>
<b>Total All Years</b>		<b>53</b>	<b>2,868</b>	<b>2,861</b>	<b>100%</b>

**Table 14. Self-Direction Projects, Energy Savings (kWh), and Realization Rate by Facility Type**

Year	Facility Type	Sentry Count	Expected Savings (kWh)	Evaluated Savings (kWh)	Realization Rate
2007	Other	30	13,517,561	13,463,948	100%
	Industrial	3	1,884,026	1,872,662	99%
	Office	1	428,648	488,509	114%
	University	1	93,708	132,025	141%
	<b>2007 Total</b>	<b>35</b>	<b>15,923,943</b>	<b>15,957,145</b>	<b>100%</b>
2008	Other	13	5,312,779	5,008,094	94%
	University	3	1,249,812	1,249,812	100%
	Office	1	66,283	65,880	99%
	Warehouse	1	41,953	60,465	144%
	<b>2008 Total</b>	<b>18</b>	<b>6,670,827</b>	<b>6,384,250</b>	<b>96%</b>
<b>Total All Years</b>		<b>53</b>	<b>22,594,770</b>	<b>22,341,395</b>	<b>99%</b>

**Table 15. Self-Direction Projects, Demand Savings (kW), and Realization Rate by Facility Type**

Year	Facility Type	Sentry Count	Expected Savings (kW)	Evaluated Savings (kW)	Realization Rate
2007	Other	30	1,700	1,690	99%
	Industrial	3	40	47	118%
	Office	1	193	194	101%
	University	1	35	36	102%
	<b>2007 Total</b>	<b>35</b>	<b>1,968</b>	<b>1,967</b>	<b>101%</b>
2008	Other	13	765	759	99%
	University	3	108	108	100%
	Office	1	15	14	96%
	Warehouse	1	12	12	98%
	<b>2008 Total</b>	<b>18</b>	<b>900</b>	<b>894</b>	<b>99%</b>
<b>Total All Years</b>		<b>53</b>	<b>2,868</b>	<b>2,861</b>	<b>100%</b>

### Freeridership Estimation

Freeridership is defined as the percentage of savings that would have occurred in a program's absence. Freeridership was calculated based on program participants' responses to telephone surveys. While asking participants to self-report for calculating freeridership has been accepted as an industry standard, it should be noted this methodology has limitations. The accuracy of self-report surveys partly depends on the memory of respondents regarding their decisions. For this evaluation the participants interviewed were asked to recall decisions that may have been made one or two years earlier.

During telephone surveys, the person representing an organization was asked to answer a series of questions about a specific Self-Direction project. Their responses were combined with a freeridership matrix to determine a specific freeridership score for that specific project. Table 16 provides the general matrix used to develop scores for surveyed participants. Once all participant/project surveys were scored, evaluated savings for each was used to weight responses and determine an overall freeridership score.

**Table 16. Freeridership Matrix**

Would have Installed w/o Program	Already Ordered or Installed	Same Efficiency	Would have Installed all of the Measures	Planning to Install Soon	Already in Budget	Freeridership Score
Yes	Yes	x	x	x	x	100%
No	x	x	x	x	x	0%
Yes	No	No	x	x	x	0%
Yes	No	Yes	Yes	Yes	Yes	50%
Yes	No	Yes	Yes	No	Yes	25%
Yes	No	Yes	Yes	Yes	No	25%
Yes	No	Yes	Yes	No	No	0%
Yes	No	Yes	No	Yes	Yes	25%
Yes	No	Yes	No	No	Yes	12.50%
Yes	No	Yes	No	Yes	No	12.50%
Yes	No	Yes	No	No	No	0%

The kWh weighted average of the freeridership scores is 13%. Table 17 summarizes the net savings.

**Table 17. Summary of Evaluated and Net Savings**

Program Year	Evaluated Savings		NTG Ratio	Net Savings	
	kWh	kW		kWh	kW
2007	15,957,145	1,967	87%	13,822,079	1,704
2008	6,384,250	894	87%	5,530,038	774
<b>Total</b>	<b>22,341,395</b>	<b>2,861</b>	<b>87%</b>	<b>19,352,116</b>	<b>2,478</b>



## 4. Process Evaluation

### Overview

The process evaluation sought to determine program aspects that work well, those less effective, and specific modifications that might improve the program. The evaluation team conducted in-depth interviews with: program staff at Rocky Mountain Power; the program administrator; and a consultant providing technical services on some projects. In addition, evaluators surveyed program participants and nonparticipants. Nonparticipants were defined as firms eligible to participate in the program but did not. Five firms meeting this definition were identified by the evaluator from customer information provided by Rocky Mountain Power. Evaluators were able to complete 18 participant surveys, as shown in Table 11. This represented 55% of all participants and 72% of the goal defined in the Evaluation Plan. Two nonparticipant surveys were also completed from the available pool of five firms.

Participant surveys also provided data on freeridership and spillover, as presented in Section 3.

### Awareness

Of participants surveyed, 83% reported they first heard about the program from Rocky Mountain Power, either through their account representative or another staff person. Other responses included one person learning about the program from a program representative, one hearing about it through word of mouth, and one learning about the program through a professional organization.

Both nonparticipants surveyed reported they were aware of the program. One learned of the program through word of mouth, but the other could not recall how they learned of the program. When asked why their organizations had not yet participated, both nonparticipants said they were uncertain. One reported they had looked for more information on Rocky Mountain Power's Web site, but could not find a link for the program.

When asked whether their organizations installed energy-efficiency measures in the last year, both nonparticipants said they had installed lighting upgrades. These nonparticipants also reported energy efficiency was very important to the operation and management of their companies. However, when asked whether they had "sufficient technical resources in house to address the management of energy" responses were "no" and "don't know."

### Participant Experience and Program Administration

#### ***Participant Perspective***

Participants generally had positive experiences with the program. In addition, 12 of 18 participants reported their organizations had used the program before 2006 or after 2008. When asked whether their organization participated in other energy-efficiency programs, seven reported they had (and three did not know), with six identifying Energy FinAnswer as a program in which they participated.

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

Fourteen of 18 respondents had no initial concerns. Two specific concerns were identified: that inspections would be a burden; and it was unclear whether Self-Direct was better than Energy FinAnswer. Both respondents told the interviewer their concerns had been resolved.

*Did you encounter any problems, delays or difficulties during the application, review or approval processes for the program?*

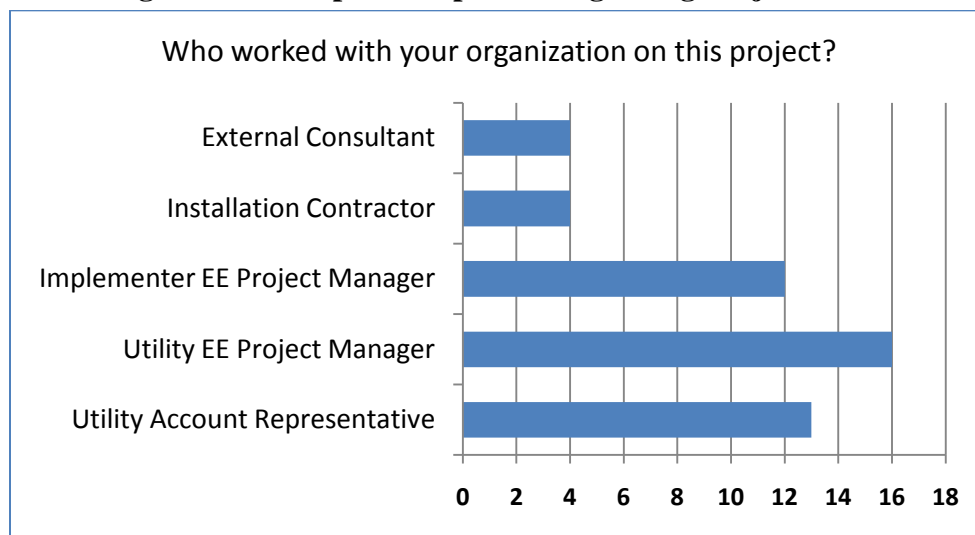
Seventeen of 18 participants said they had no problems. The one participant that said yes explained the “the process took too long.”

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

All respondents said there was nothing they would change.

Participants were asked who they had worked with on their project(s). As shown in Figure 1 most worked with Rocky Mountain Power and the program administrator. Responses did not show a strong participation pattern by other vendors (such as installation contractors or consultants).

**Figure 1. Participant Responses Regarding Project Team**

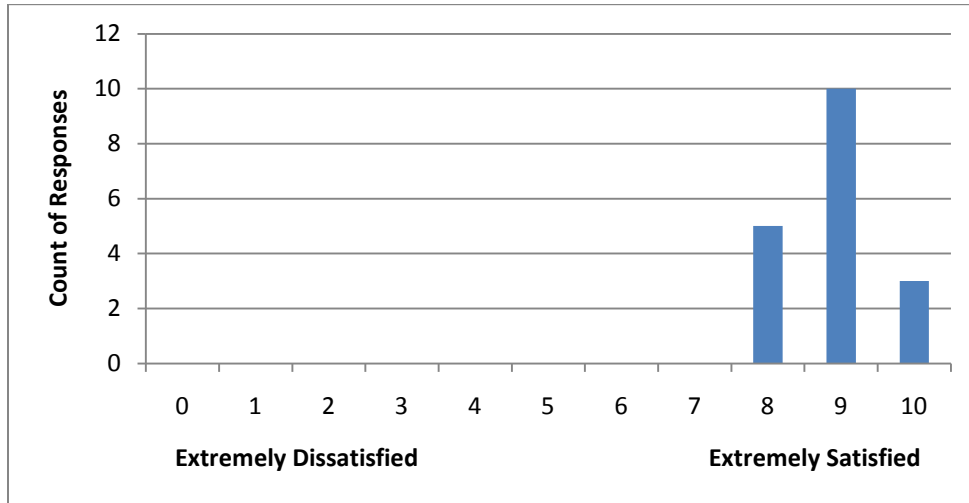


## Satisfaction

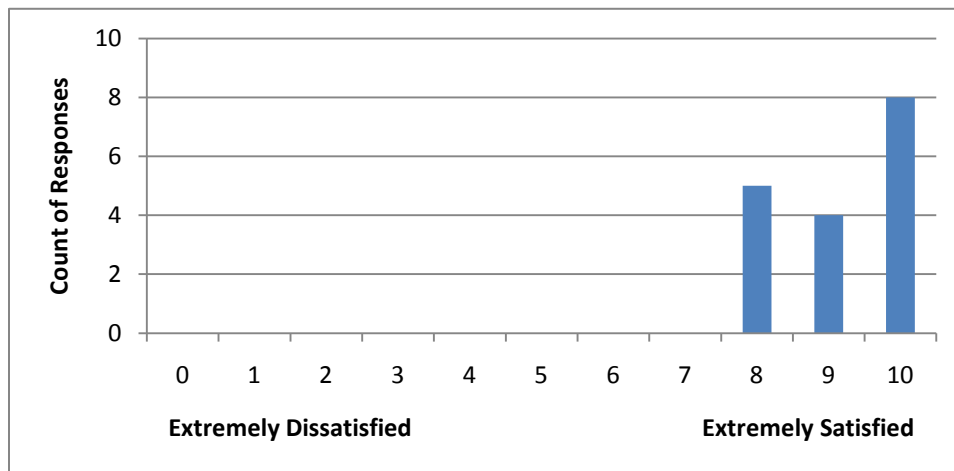
Participants were highly satisfied with the program and with the measures installed. The responses of the 18 participants surveyed are shown in the figures below. Figure 2 shows that they were highly satisfied with their overall experience with the program. Figure 3 and Figure 4 show that they were also very satisfied with the performance and cost of the measures installed.



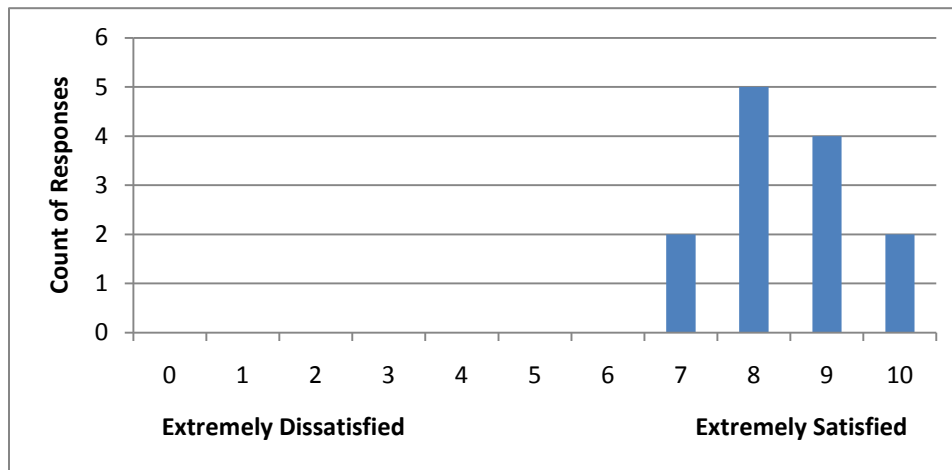
**Figure 2. How satisfied are you with your overall experience with the Program? (n=18)**



**Figure 3. How satisfied are you say with the performance of the new [MEASURE]? (n=17)**



**Figure 4. How satisfied are you with the final cost to you of the [MEASURE]? (n=13)**



Responses to two additional questions provided further evidence the program was well-regarded:

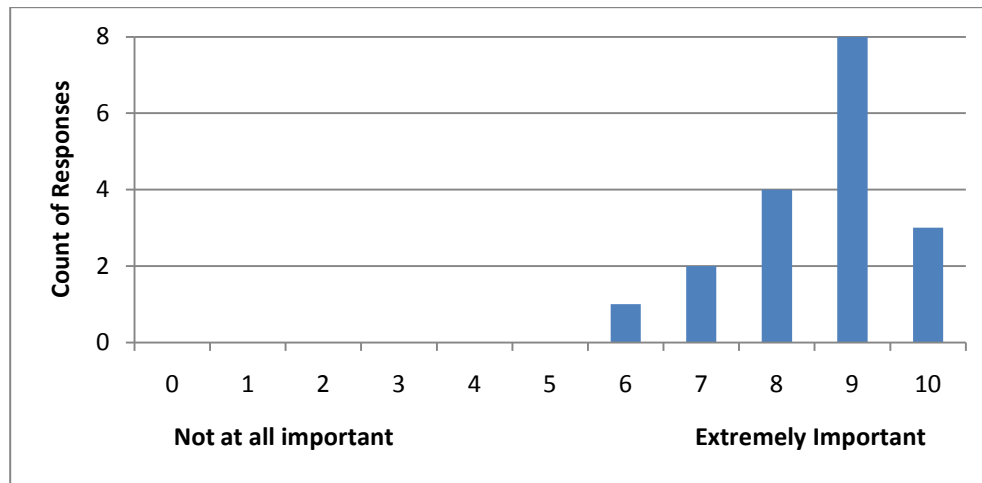
- When asked if they would participate in the program again, all participants surveyed said yes.
- When asked “If you could change anything about the Program, what would you change?” 10 of 18 participants surveyed said there was nothing they would change. Of the remainder,
  - Three participants would prefer not to pay the Customer Efficiency Services Charge (or “surcharge”) and are uncomfortable with the program since “it forces them to work to get their own money back.”
  - Three participants suggested “expansion of program options” although only one of these included a specific measure—cogeneration—that they would add.
  - One participant suggested that the program would be more effective “if program manager from RMP would contact facility manager directly”

## Energy-Efficiency Decision Making

### ***Participant Perspective***

When asked about the importance of energy efficiency to their companies, most participants responded that it was very or extremely important as shown in Figure 5.

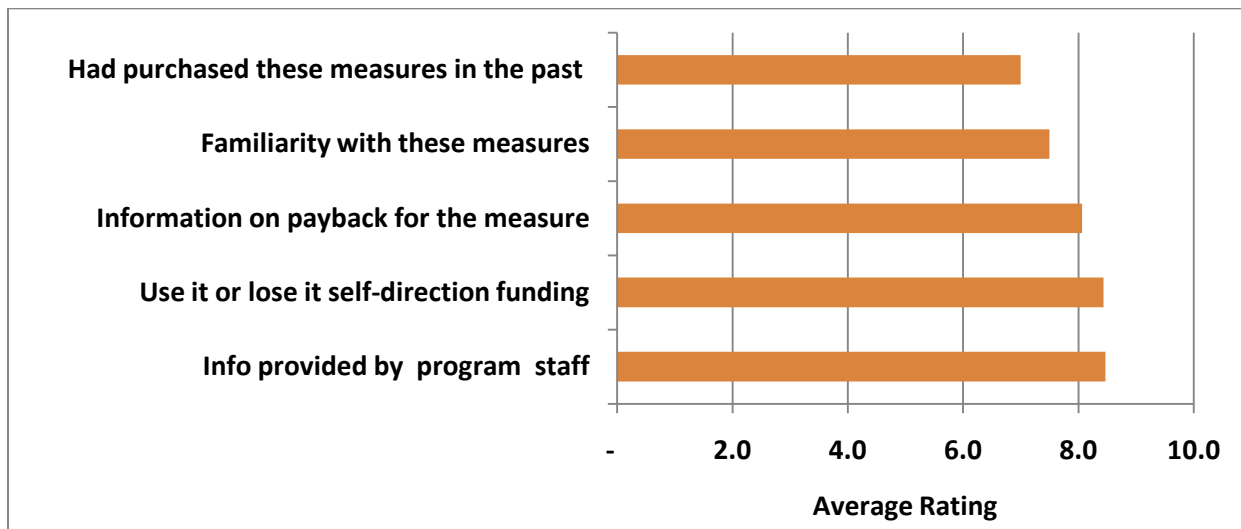
**Figure 5. How important energy efficiency is to the operations and management of your company? (n=18)**



Next, interviewers asked a series of questions to better understand the relative importance of various factors in deciding about specific measures. Participants were asked to rate the importance of each factor on a scale from 1 to 10 with 10 being very important. The average ratings graphed in Figure 6. show that all of these factors are fairly important to the participants.

Information provided by program staff and the Use-it-or-lose-it feature of the program structure received the highest ratings. Information on payback was nearly as important while familiarity and prior purchase were somewhat less important to participants.

**Figure 6. Relative Importance of Factors in Measure Selection (n=18)**



## ***Program Administrator Perspective***

### **Application Process**

There is considerable flexibility in the application process based on the description obtained from the program administrator and supported by the participants, the utility staff, and the market actor. Every project request is submitted by a qualifying utility customer and must be approved by the program administrator (also known as the implementer). The identification of projects and the development of the proposal is often done with contributions from a number of these parties. Overall, the process worked well during the evaluation period.

A few perspectives on the process from the program administrator:

- Potential projects can be identified by the administrator, a program manager, an account manager, or a vendor.
- The project submittal process starts with a customer inquiry, or with the administrator hearing about a customer project. If it is deemed appropriate for the program, the administrator provides the customer an outline for a written report.
- The administrator will provide a written response to the submitted report, identifying deficiency areas and what wasn't clear; or stating that it was an excellent report. There is usually a second request for corrections or for additional information.
- Prequalification is used frequently. It is an opportunity for the customer and administrator to confirm that a project will qualify for credits. Most projects do choose to pursue prequalification, and most pass.
- Past participants in a successful Energy FinAnswer project may decide to participate in a Self-Direction project. The participant may decide that they don't need the consulting services available through Energy FinAnswer, and also might be interested in the higher incentive level.
- The pattern of which project to do and when to do it is customer-dependent. A customer might complete a large Self-Direction project that will be credited over several years. In this case, they may wait or take a project through another program.
- If the project is complicated, the administrator may recommend the customer participate through Energy FinAnswer, which features consulting services and a collaborative approach between customer, Rocky Mountain Power, and the service provider.

### **Program Administrator Goals**

The program administrator's metrics for success include completed projects, saving per year, and customer satisfaction. Customer satisfaction is very important as these are the largest customers in Rocky Mountain Power territory. The utility and Nexant want repeat business (program participation) from these customers; the key metric is for customers to repeatedly participate in the Self-Direction Credit Program and also to participate in other programs in the portfolio.

## Current Issues

A change in the Demand Side Management Cost Adjustment has increased program participation. For several years, the charge was an average of 2.1 % of each monthly bill. Raising or lowering the charge changes the time period over which a project can be paid for. The rate was adjusted in late 2009 to 4.6%, shortening project payback time. The rate increase was comparatively large (according to the program manager) and “customers scurried” to submit projects.

The recent rush to submit projects was corroborated in comments made by the program administrator:

“The current challenge for the program is project volume. There have been many more inquiries in the last eight months due to the increased surcharge from last September. There are many first-time new customers since this increase; and a lot more Web hits and first-time inquiries. Part of the increase is from firms directing customers to the program, particularly lighting firms. Lighting is straightforward to do under the Self-Direction program, with customers being able to complete with little or no assistance. For more comprehensive projects such as HVAC systems, assistance is typically needed by the customer. As such these projects are more appropriate as Energy FinAnswer projects.”



## 5. Cost-Effectiveness

To assess cost-effectiveness, evaluators conducted an analysis of program costs and benefits from the following four perspectives, using Cadmus' DSM Portfolio Pro model:

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

Table 18 summarizes the five tests' components.

**Table 18. Benefits and Costs Included in Various Tests**

Test	Benefits	Costs
PTRC	Present value of avoided energy and capacity costs, with 10% adder for nonquantified 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 19 provides selected inputs to the cost analysis. These include the evaluated energy savings for each year (from Section 3 above), discount rate, line loss, and program costs. Other than the energy savings, these values are provided by Rocky Mountain Power. Project costs were reviewed for reasonableness base on invoices and project details contained in the project files. The discount rate is from Rocky Mountain Power's 2008 Integrated Resource Plan. Rocky Mountain Power also provided the values for line loss and the program costs.

**Table 19: Selected Cost-Effectiveness Analysis Inputs**

Input Description	2007	2008
Net Program Savings (kWh/year)	13,822,079	5,530,038
Discount Rate	7.40%	7.40%
Retail Rate – Commercial ( \$ / kWh)	\$ 0.0640	\$ 0.0654
Retail Rate – Industrial ( \$ / kWh)	\$ 0.0434	\$ 0.0441
Line Loss	9.35% Commercial 6.33% Industrial	9.35% Commercial 6.33% Industrial
<b>Program Costs</b>		
Implementation Cost	\$ 133,886	\$ 170,853
Incentive Costs	\$ 2,923,974	\$ 1,348,676
Utility Administrative Costs	\$ 34,938	\$ 38,272
<b>Total Program Costs</b>	<b>\$ 3,092,798</b>	<b>\$ 1,557,800</b>

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, shown in Table 20, are consistent with the original program filing and those utilized in the annual reports prepared by the program administrator<sup>3</sup>.

**Table 20: Measure Life Summary**

Measure Type	Measure Life (years)
Lighting	14
Motors	15
HVAC	10
Air Compressors	14
Additional Measures	13

<sup>3</sup> Measure lives reflect the weighting of actual measures installed.



Table 21 and

Table 22 present the results of the cost-effectiveness analysis for the Program in 2007 and 2008 respectively. All analyses are based on the Rocky Mountain Power 2008 IRP 65% Eastside Decrement.

**Table 21: Cost Effectiveness Summary 2007 - IRP 65% Decrement**

Cost Effectiveness Test	Benefits	Costs	Net Benefits	Benefit / Cost Ratio	Cost \$ / kWh
Total Resource + Conservation Adder (PTRC)	\$9,648,035	\$3,334,758	\$6,313,277	2.89	\$0.025
Total Resource No Adder (TRC)	\$8,770,941	\$3,334,758	\$5,436,183	2.63	\$0.025
Utility (UCT)	\$8,770,941	\$3,092,798	\$5,678,143	2.84	\$0.023
Ratepayer Impact (RIM)	\$8,770,941	\$10,187,553	-\$1,416,611	0.86	\$0.076
Participant (PCT)	\$10,018,728	\$3,165,934	\$6,852,794	3.16	\$0.024
Lifecycle Revenue Impact				\$0.00000593	
Discounted Participant Payback (years)				0.88	

**Table 22: Cost Effectiveness Summary 2008 - IRP 65% Decrement**

Cost Effectiveness Test	Benefits	Costs	Net Benefits	Benefit / Cost Ratio	Cost \$ / kWh
Total Resource + Conservation Adder (PTRC)	\$4,530,090	\$1,669,404	\$2,860,686	2.71	\$0.03
Total Resource No Adder (TRC)	\$4,118,264	\$1,669,404	\$2,448,860	2.47	\$0.03
Utility (UCT)	\$4,118,264	\$1,557,801	\$2,560,463	2.64	\$0.028
Ratepayer Impact (RIM)	\$4,118,264	\$5,102,052	-\$983,788	0.81	\$0.092
Participant (PCT)	\$4,892,927	\$1,460,279	\$3,432,648	3.35	\$0.026
Lifecycle Revenue Impact				\$0.00000401	
Discounted Participant Payback (years)				0.87	

## 6. Conclusions and Recommendations

### Conclusions

- During the 2007-2008 evaluation period, 53 Standard projects were completed. Thirty eight of the projects—72% of the total—were primarily made up lighting measures. These projects accounted for 51% of the 22.6 million kWh total expected energy savings.
- The evaluation is based on project reviews and interviews. Engineers verified each project's measures through file reviews (all projects), site visits (37 projects) and interviews (11 projects). Interviews were conducted with participants, nonparticipants, the utility, the program administrator, and an engineering consultant.
- The impact evaluation found
  - Gross energy savings were 22.3 million kWh – a realization rate of 99%.
- Gross demand savings were 2,861 kW – a realization rate of 100%.
- Freeridership was determined using survey responses from 18 participants. The kWh weighted average of the freeridership scores is 13%. Therefore the ratio of Net Savings to Gross Savings is 87%.
- The Process Evaluation found
  - Awareness of the program is high. Most participants hear of the program directly from their Rocky Mountain Power representative. Both nonparticipants surveyed were aware of the program but had limited knowledge of it.
  - Participants, the utility, and the program implementer that administers the program all agreed that the program processes such as application, approval and payment are working well and had no issues to report.
  - Participants were highly satisfied with the program and the performance of the installed measures.
  - The most important factors in measure selection are the general information provided by program staff, the use-it-or-lose-it funding, and the measure payback.
- The program was found to be cost-effective in both years.

### Recommendations

- The program is well established and no major issues were identified.
- Qualifying nonparticipants had very limited knowledge of the program. Additional education about the program and its structure might encourage future participation

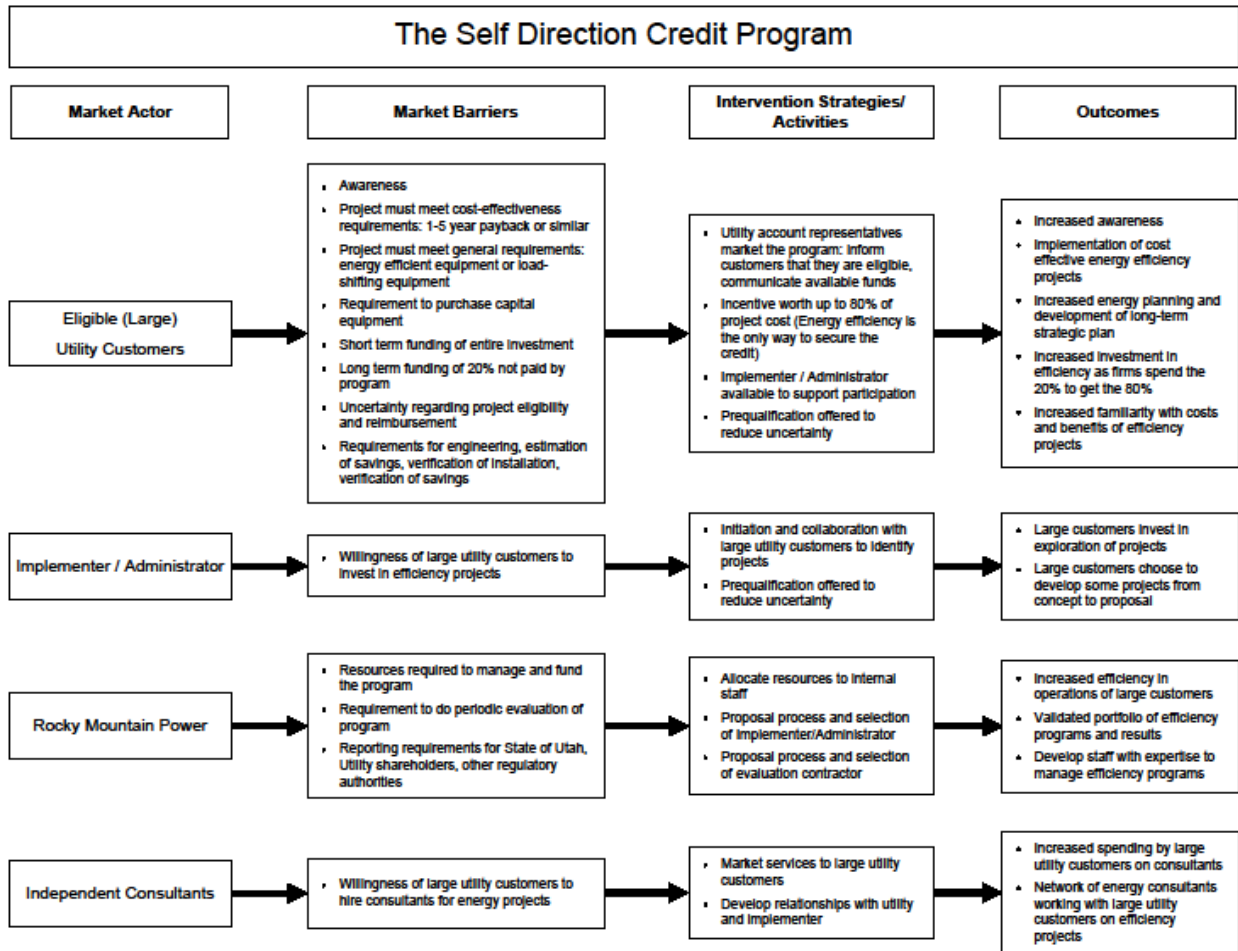
## Appendix A: Individual Site Reports

The individual site and verification reports are included in a separate file in the order shown in the table below.

Project Number	Measure Type
70037	Air Compressors
70045	Lighting
70046	Lighting
70047	Lighting
70048	Air Compressors
70057	Lighting
70058	Lighting
70060	Lighting
70062	Lighting
70064	Lighting
70065	Lighting
70066	Motors
70067	Lighting
70070	Lighting
70071	Pipeline Process
70072	Industrial Mechanical
70073	Industrial Mechanical
70075	Other Efficiency Measures
70076	Motors
70077	Lighting
70078	HVAC
70079	Lighting
70080	Lighting
70081	Lighting

Project Number	Measure Type
70082	Lighting
70083	Lighting
70084	Lighting
70085	Motors
70087	Lighting
70089	Lighting
70091	Lighting
70063	Lighting
70074	Industrial Mechanical
70088	Lighting
70092	Lighting
70093	Motors
70094	Lighting
70095	Lighting
70096	Lighting
70097	Lighting
70098	Lighting
70099	Lighting
70101	Motors
70103	Lighting
70105	Lighting
70107	Motors
70111	Lighting
70112	Lighting

## Appendix B: Logic Model



## Appendix C: Participant Survey

### Self-Direction Credit Program Participant Interview Guide

Company: \_\_\_\_\_ Telephone: \_\_\_\_\_  
 Name: \_\_\_\_\_ Cell phone: \_\_\_\_\_  
 Title: \_\_\_\_\_ Fax: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Interview date: \_\_\_\_\_ Time: \_\_\_\_\_  
 SIC Code (4-digit) NAIC: \_\_\_\_\_

Hello, my name is \_\_\_\_\_ from The Cadmus Group, calling on behalf of Rocky Mountain Power.

Rocky Mountain Power is evaluating its Self-Direction Credit program and would appreciate your input. “It is important for Rocky Mountain Power to include your opinions in this study so they can serve your needs better.”

[NOTE: If the customer has received a Self-Direction Credit site visit, state: ‘This is a brief follow up survey to the site visit you recently received.’]

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 Self-Direction Credit 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.]

[If customer wants to verify the validity of the survey, tell them that they are welcome to contact Don Jones, PacifiCorp Program Manager, at (503) 813-5184.

[If “No” – Arrange callback]

In this survey, I will be asking about your participation in the Rocky Mountain Power  
Recommissioning Program during the 2007-2008 time period.

### Confirmation

1. The Rocky Mountain Power records show that you participated in the Self-Direction Credit program during [Month] of [Year], at [*LOCATION OF SELF-DIRECTION CREDIT, IF KNOWN*], and installed (a) [*MEASURE(S)*].

Is that correct?

1. Yes [*IF YES → GO TO QUESTION 4.*]
  2. No, measure is/are incorrect (*SKIP TO 2*)
  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*] When were the measures installed?

1. \_\_\_\_\_MONTH \_\_\_\_\_YEAR
98. DK (*DO NOT TERMINATE*)
99. REF (*TERMINATE*)

### Participation

4. How did you first learn about the Self-Direction Credit Program?
  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. Marketing by Trade Ally, vendor or contactor
  4. Firm approached/contacted by Trade Ally, vendor or contractor
  5. Word of mouth; from another business colleague
  6. Through the Utah Association of Energy Users

7. Through a trade organization or professional organization/association
8. Through printed material or outreach materials sent by the Program
9. Participation in other [PACIFIC POWER/ROCKY MOUNTAIN POWER] Programs
10. Internet research/found Program on the [PACIFIC POWER/ROCKY MOUNTAIN POWER] website
11. Other [SPECIFY] \_\_\_\_\_
98. Don't know
99. Refused

6. Why did you decide to participate in the Self Direction Credit Program for this project?

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

1. To save money on utility bills; save money on electric bills
2. To receive a credit of the Customer Efficiency Services Charge on my monthly electric bill
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 Rocky Mountain Power
8. Previous experience with other Rocky Mountain Power Programs
9. To help protect the environment
10. To save energy
11. Recommended by Program contact/Nexant
12. Recommended by a contractor, architecture or engineering firm, energy services company, or equipment manufacturer
13. Recommended by another Rocky Mountain Power customer; word of mouth
14. Recommended by family, friend, or neighbor
15. Part of a broader remodeling or renovation
16. A better deal than other Rocky Mountain Power programs for this project
17. Other [SPECIFY] \_\_\_\_\_
98. Don't know
99. Refused

6a. Of the options you selected, what was the most important reason?

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 Program staff 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 Self-Direction Credit 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] When did you participate in these programs?  
\_\_\_\_\_

\_\_\_\_\_ [RECORD RESPONSES, BE SPECIFIC BY PROGRAM AND DATE]

[IF 11a = YES] How did the Self-Direction Credit Program's application process compare to your prior experience with other programs? 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]

### **Installed Efficiency Measures**

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

12. 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 14]
98. Don't know
99. Refused

13. 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 equipment
5. Other [SPECIFY] \_\_\_\_\_
98. Don't know
99. Refused

14. 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

14a. [If 14 <=5] Why do you say that?  
\_\_\_\_\_ [RECORD RESPONSE]

### Operational Changes

[INTERVIEWER: RESPONDENT WILL RECEIVE ONLY ONE SET OF QUESTIONS REFERRING TO OPERATIONAL CHANGES FOR A SINGLE MEASURE TYPE (LIGHTING, HVAC, CONTROLS, OR OTHER)]

15. At the time that you participated in the program, did you have an overall plan to increase the energy efficiency of your operations?

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

15a. Did you change the manner in which you operated the [INSTALLED MEASURE TYPE] after the [INSTALLED MEASURE TYPE] was installed?

3. Yes
4. No [SKIP TO 18]
98. Don't know
99. Refused

15b. Were these changes part of the overall plan to increase the energy efficiency of your operations?

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

15c. What did you change?  
\_\_\_\_\_ [RECORD RESPONSE]

16. [ASK IF 15C 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 17]
98. Don't know
99. Refused

16a. Please explain what changes were made  
\_\_\_\_\_ [RECORD RESPONSE]

17. Have any *[INSTALLED MEASURE TYPE]* been removed since they were installed with this program?
1. Yes
  2. No *[SKIP TO 18]*
    98. Don't know
    99. Refused

17a. **What** was removed?  
\_\_\_\_\_ *[RECORD RESPONSE]*

17b. **Why** was it removed or replaced?  
\_\_\_\_\_ *[RECORD RESPONSE]*

17c. **About when** was it removed or replaced?  
\_\_\_\_\_ *[RECORD RESPONSE]*

18. How did **installation** of the *[INSTALLED MEASURE TYPE]* 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 25]*
    98. Don't know
    99. Refused

18a. Which equipment?  
\_\_\_\_\_ *[RECORD RESPONSE]*

98. Don't know
99. Refused

19. *[FR]* Was the installation of the *[INSTALLED MEASURE TYPE]* INCLUDED YOUR MOST RECENT CAPITAL BUDGET BEFORE YOU PARTICIPATED IN THE PROGRAM?
1. Yes
  2. No
    98. Don't know
    99. Refused

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

End Use	Yes/No
20a. Electricity?	
20b. Water?	
20c. Natural Gas?	

20d. *[ASK IF 20a = YES]* Do the electric energy savings meet your expectations?

1. Yes *[SKIP TO 21]*
2. No
  98. Don't know
  99. Refused

20e. *[ASK IF 20d = No]* When do you expect these energy savings?

1. Immediately
2. Within the next 6 Months
3. Within the next year
4. Within the next two years
5. Never *[IF NEVER, ASK 'Why do you not expect savings from the *[INSTALLED MEASURE]* in the future?']*
  98. Don't know
  99. Refused

21. 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]*

22. 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

22a. *[IF Q22<=5]* Why do you say that?

23. 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

23a. \_\_\_\_\_ *[If 23 <=5]* Why do you say that?

\_\_\_\_\_ *[RECORD RESPONSE]*

### **Free Ridership and Market Effects**

24. [FR] Would this project have been undertaken whether or not self-direction credit was available?

25. [FR] Was this project a continuation of a larger, multi-stage project?

1. Yes *[IF YES, "Please describe that project." PROBE on measures, location (this location, another location, both?) number of stages, start and end date.]*
2. No *[SKIP TO 27]*

26. [FR] Regarding previous stages of this project, did self-direction credits pay for were none, some or all of the previous stages of the program?

1. None
2. Some
3. All
98. DK
99. Refused

27. Was this project the first stage of a multi-stage project?

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

28. [SP] Did this Self Direction project use all of the Self Direction credits available to you, or some of the available credits?
1. All [SKIP TO 30]
  2. Some [IF SOME, ask “Are additional projects planned to use the remaining credits?”]
    98. Don’t know
    99. Refused

29. [SP] For this project, about what percent of the cost of the energy conservation measures did the Self Direction credits cover?

\_\_\_\_\_ [RECORD RESPONSE]

98. Don’t know [SKIP TO 32]
99. Refused

30. [SP] As a result of the Self-Direction Credit Program did you spend more on energy efficiency than you normally would have?

1. Yes
2. No [SKIP TO 32]
98. Don’t know [SKIP TO 32]
99. Refused [SKIP TO 32]

31. [SP] About how much more did you spend than you normally would have, in terms of percent?

\_\_\_\_\_ [RECORD RESPONSE]

32. On a scale from 1 to 10, how important were the following factors in deciding which measures to install through the Self-Direct program:

<b>Factor</b>	<b>Score</b>
A. Information provided by program staff on measure savings	
B. Use it or lose it self-direction funding	
C. Information on payback for the measure	
E. Familiarity with these measures	
F. Had purchased these measures in	

the past	
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33. [FR] Before this project, had you previously installed the same type of [MEASURE/MEASURES] without participating in the Self-Direct program or another Rocky Mountain Power Program?
1. Yes
  2. No
  98. Don't know
  99. Refused
- \_\_\_\_\_ [RECORD RESPONSE]
34. [FR] Regarding the installation of [MEASURE/MEASURE(S)], if you hadn't installed it through the Self-Direction Credit Program, would you have installed the [MEASURE/MEASURES] by going through another Rocky Mountain Power program, or would you have installed it without going through another program?
1. Installed by going through another Rocky Mountain program
  2. Installed without going through another program [SKIP TO 36]
  98. Don't know
  99. Refused
35. Why was this measure chosen to go through the Self Direction Credit instead of another Rocky Mountain Power program?
- [DO NOT READ RESPONSES; MARK ALL THAT APPLY]
1. Better incentive/payback
  2. More straightforward to do through this program
  3. Didn't want to wait as long to get the project done
  4. Didn't need the additional support provided by other programs
  5. Other [SPECIFY] \_\_\_\_\_
  98. Don't know
  99. Refused
36. [FR] Without the program, would you have installed the [MEASURE/MEASURE(S)] to the same level of efficiency?
1. Yes
  2. No
  98. Don't know
  99. Refused



37. [FR] 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

37a. [FR] [If 30=Some] Which measures would you have installed?

\_\_\_\_\_ [RECORD RESPONSE]

38. [FR] 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

39. [FR] Would you have installed the exact same unit(s) if the available credit was less than the current value?

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

40. [FR] How much less? Would you say...

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

41. In your opinion was the difference in price between the energy efficient measures and the conventional measures:

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.

42. 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

42a. Why do you say that?

43. 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

- 43 a. [IF43=NO] Was Rocky Mountain Power or Nexant able to provide you with the needed technical assistance?

\_\_\_\_\_ [RECORD RESPONSE]

### Spillover

44. Besides the energy efficiency improvements made 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 45]

98. Don't know [SKIP TO 45]

99. Refused [SKIP TO 45]

44a. What did you purchase or install?

\_\_\_\_\_ [RECORD RESPONSE]

44b. [IF 44 = 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 Self-Direction Credit Program influenced my decision to make additional energy efficiency improvements on my own.”

\_\_\_\_\_ [RECORD RATING]

98. Don't know

99. Refused

### Interaction with Rocky Mountain Power or 3rd Party Staff

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

45. How many people did you work with throughout your participation in the Program? This would include people from Nexant, Rocky Mountain Power, contractors, etc.

\_\_\_\_\_ Number of people

[SKIP TO 45 IF =0]

46. Who worked with you on this project?

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

1. \_\_\_\_\_ Rocky Mountain Power Account Representatives
2. \_\_\_\_\_ Rocky Mountain Power Energy Efficiency Project Managers
3. \_\_\_\_\_ Nexant Energy Efficiency Project Managers
4. \_\_\_\_\_ Self-Direction Credit Service Providers
5. \_\_\_\_\_ Installation Contractors
6. \_\_\_\_\_ External Consultant
7. \_\_\_\_\_ Other [SPECIFY] \_\_\_\_\_

[RECORD COMMENTS]

47. Please describe your overall experience working with these people in relation to this project. \_\_\_\_\_ [RECORD RESPONSE]

**Satisfaction**

48. Would you participate in this Program again?

1. Yes
2. No

48a. *[IF 48 = NO]* Why not?

\_\_\_\_\_ *[RECORD RESPONSE]*

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

\_\_\_\_\_ *[RECORD RESPONSE]*

98. Don't know
99. Refused

50. 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

50a. *[IF Q50 <=5]* Why do you say that?

**Organizational Data/Firmographics**

I have a few last questions about your business or organization

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

\_\_\_\_\_ *[RECORD RESPONSE]*

98. Don't know
99. Refused

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

\_\_\_\_\_ *[RECORD RESPONSE]*

98. Don't know
99. Refused

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

\_\_\_\_\_ [RECORD RESPONSE]

98. Don't know

99. Refused

54. How many people does your firm employ?

\_\_\_\_\_ [RECORD RESPONSE]

98. Don't know

99. Refused

55. For my final question, I would like your mailing address so I can send you the \$50 gift card as a thank you for your participation today.

Name \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_

Zip \_\_\_\_\_

Phone \_\_\_\_\_

56. Thank you for your time. Your opinions are very valuable to this research for Rocky Mountain Power.

## Appendix D: Program Administrator Survey

### Implementer Interview – Utah Self Direction Credit Program

Hello, my name is \_\_\_\_\_ from The Cadmus Group, calling on behalf of Rocky Mountain Power.

Rocky Mountain Power is evaluating its Self Direction Credit program and would like your input regarding the program and how it has operated over time. This interview is part of a process evaluation we are conducting for Rocky Mountain Power to understand how the program has functioned over time, and identify opportunities for improving the program. Our focus is on the program as it was operating in 2007 through 2008.

This survey is for research purposes only and this is not a marketing call. Your responses will remain confidential. 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 to include your opinions in this study so they can serve your needs better.”**

**[If “No” – Arrange callback]**

#### Program Purpose and History

1. How would you describe the Self-Direction Program?
2. What do you see as the purpose of the Self-Direction Program?
3. What challenges did you face when the program was starting? How were these challenges resolved?  
[PROBE:” How could the initial uptake of the program have been accelerated?]
4. How has the Self-Direction Credit program changed over the course of 2007 and 2008?  
How has your role in the program changed over time?

#### Eligibility

5. How is a prospective customer brought into the program?

6. What effect do the eligibility requirements (usage requirement of 1,000 kW or 5,000,000 kWh annually) project compliant with industry standards, simple payback of 1 to 5 years) have on participation?
7. How well does the eligibility screening work in terms of rate of follow through? Why do you think the screening works as it does?
8. Are there projects that are phased over a multiyear period? Do you propose multi-year projects to customers, do the customers request them or both? Besides covering multiple years are there other particular characteristics to multiyear programs/

#### Program Qualification

9. What is the purpose of this process? Is it serving its purpose?
10. Have particular issues come about related to this phase? How have they been resolved?

#### Project Submittal

11. Briefly describe the project submittal application process.
12. Have particular issues come about related to the project submittal application process? How have they been resolved?

#### Project Commissioning

13. When was the commissioning plan requirement added to the program? Why do think it was added?
14. In what cases is a commissioning plan required?
15. What benefits, if any, does the commissioning plan provide?

#### Project Approval

16. Have particular issues come about related to the project approval process? How have they been resolved?
17. Regarding administration of the program, what are the differences between retrofit and new construction projects in terms of marketing, application processes, and review and approval processes?

18. What are the differences between retrofit and new construction projects in terms of Market Actor participation?
19. What is the estimated number/percent of projects that are new construction? Retrofit?
20. What has been the demand for the program over time? Have changes in program demand affected program delivery? Has change in program volume impacted time-sensitive projects?
21. What have you done to address this or other issues related to changes in program demand?
22. From your perspective as an implementer what energy-efficiency improvements were participants already making prior to participating in Self Direction Credit program?
23. Has the Self Direction Credit program influenced participants to make additional energy-efficiency improvements? What additional improvements have they made?
24. What brings about a situation where the amount disbursed exceeds the amount approved?
25. 50% credit – I understand that no applications for 50% Credit (No remaining cost effective DSM potential) have been submitted to date. Why do you think this is? Does the 50% credit encourage energy saving behavior by customers? What type of behavior?

#### Marketing

26. How is the program marketed? (Who does marketing and how?)
27. Do you think it is marketed effectively?
28. Do you feel that the credit levels (80% of eligible project costs; 50% credit if there are no remaining eligible measures) are appropriate?
29. How effective do you think marketing is? How can marketing be improved?

#### Customer Characterization

30. Why do customers choose to do the self-direct approach? [Probe on customer size, knowledge, experience with programs; project type; project cost.]
31. Are customers aware of the 'use or lose' provision of the program?



### Savings Estimation

32. How are savings calculated for the program as a whole and for individual projects? What issues if any arise related to verifying savings? How are these issues addressed?
33. Is there a way to improve the manner in which savings are calculated?

### Participant Interaction and Satisfaction

34. How do you get feedback from customers regarding the program? What concerns if any, have you heard from customers regarding the program?

### Program Data Collection

35. Have your company had any problems meeting the tracking and reporting requirements?
36. Would you recommend any changes to the tracking and reporting procedures?

### Implementation Barriers

37. Has the level of program participation met your expectations? Why do you think this has been the case?
38. Have any challenges resulted from perceptions or attitudes about the value of the program among prospective customers? If so, what?
39. How have those perceptions and attitudes been addressed?
40. How about any challenges resulting from perceptions or attitudes about the value of the programs among the vendors? How have these been dealt with?

### Close

41. What would you say are the program's strongest points? What are its weakest points?
42. Other than what we've discussed above, what would you change about the program?
43. What do you see as the program's potential for PacifiCorp? For the region? What would you do to expand the potential of the program?