



Evaluation Report for Wyoming's Self-Direction Credit Program (PYs 2011 through 2013)

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Rocky Mountain Power



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Executive Summary

This report describes the findings from the Impact and Process Evaluation of Wyoming’s 2011-2013 Self-Direction Credit program years including program- and project-level gross and net realization rates, program cost-effectiveness results, and feedback from program participants concerning satisfaction and areas for improvement for the program as a whole. These evaluation results generated thoughtful recommendations for improving program processes, methods, and delivery in future program cycles.

Program Overview

The Self-Direction Credit program offers custom incentives to Rocky Mountain Power’s large commercial and industrial (C&I) customers for implementation of energy efficiency measures.¹ The program allows maximum customer control to self-direct the Customer Efficiency Services Charge into qualified cost-effective efficiency improvement projects. To be eligible for the program, customers must meet one of the two following requirements:

- » Minimum annual usage of 5,000,000 kilowatt-hours (kWh)
- » Minimum peak load of 1,000 kilowatts (kW)

Customers may aggregate commonly owned meters to meet the 5,000,000 kWh requirement, but the 1,000 peak kW load must come from a single site. New construction projects are eligible for the program if the projected annual electricity use meets one of the aforementioned requirements. Upon review and approval by Rocky Mountain Power, customers completing a Self-Direction Credit project receive a credit for the Customer Efficiency Services Charge on their monthly electric bills. The total program cap for new projects is \$5 million in credits per year, with credits approved on a first-come, first-served basis. A third party, Nexant, Inc., administers the Self-Direction Credit program on behalf of Rocky Mountain Power, hereafter referred to as the Program Administrator.

Evaluation Objectives

This evaluation addressed the following objectives:

- » Verify the annual and combined 2011-2013 gross and net energy and demand impacts of Rocky Mountain Power’s Self-Direction Credit program
- » Review the effectiveness of program operations, highlight achievements, and identify opportunities for process improvements
- » Characterize participant motivations

¹ Self-Direction Credit program description information was adapted from Rocky Mountain Power Annual Reports, program brochures and promotional material, descriptive content in prior evaluations, and interviews with program administrative staff.

- » Perform cost-effectiveness calculations on evaluated results for each year evaluated and in total

Impact Evaluation

The impact evaluation of Rocky Mountain Power's Self-Direction Credit program involved the following activities:

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

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

- » Gross program demand and energy savings estimates and realization rates
- » Energy usage profiles for commercial and industrial (C&I) technologies obtained through measurement & verification (M&V) activities

The evaluation team conducted a combination of in-depth project file reviews, interviews with facility staff, and on-site M&V activities involving spot measurements and end-use metering of incented equipment to determine the evaluated savings for each project sampled during the 2011-2013 evaluation period. From 2011 to 2013, there were four Self-Direction projects completed in Wyoming: two projects in 2011, zero in 2012, and two projects in 2013.

The 2011 through 2013 program-level demand savings realization rate was 100 percent and the program-level energy savings realization rate was 99 percent. Table ES-1 provides the *program-level* reported and evaluated kW and kWh realization rates at the customer meter.

Table ES-1. Program-Level Realization Rates for Wyoming's Self-Direction

Program Year	Program Reported kW	Program Evaluated kW	kW Realization Rate	Program Reported kWh	Program Evaluated kWh	kWh Realization Rate
2011	4	4	100%	305,468	300,858	98%
2012	-	-	N/A	-	-	N/A
2013	77	77	100%	713,785	708,744	99%
All	81	81	100%	1,019,253	1,009,602	99%

Net-To-Gross Ratio

The evaluation team calculated a net-to-gross (NTG) ratio using the limited number of participants in the program. One customer had a NTG ratio of 1.0 and the other had a NTG ratio of 0.5, with a weighted

average of 0.65.² With only two participants in the sample, the team used both the 0.65 NTG ratio and the 0.8 used in the prior evaluation, to compare Wyoming’s 2011-2013 Self-Direction Credit program results.

Cost-Effectiveness

The evaluation team used a cost-effectiveness model, calibrated and updated with Rocky Mountain Power’s input parameters, to produce results for five primary cost tests: PacifiCorp’s Total Resource Cost test (PTRC), Total Resource Cost test (TRC), Utility Cost Test (UCT), Rate Impact Measure test (RIM), and the Participant Cost Test (PCT), for calculating the program’s benefit-cost ratios. Table ES-2 provides the cost-effectiveness results for the five cost tests over the 2011 through 2013 evaluated program years using a NTG ratio of 0.8. Table ES-3 provides the same results using a NTG ratio of 0.65.

Table ES-2. WY Self-Direction Cost-Benefit Results – 2011-2013 Combined (0.8 NTG)

Benefit/Cost Test Performed	Evaluated Gross kWh Savings	Evaluated Net kWh Savings	Evaluated Costs	Evaluated Benefits	B/C Ratio
PacifiCorp Total Resource Cost Test (PTRC)	1,009,602	807,682	\$286,269	\$475,763	1.66
Total Resource Cost Test (TRC)	1,009,602	807,682	\$286,269	\$432,512	1.51
Utility Cost Test (UCT)	1,009,602	807,682	\$297,082	\$432,512	1.46
Rate Impact Test (RIM)	1,009,602	807,682	\$687,089	\$432,512	0.63
Participant Cost Test (PCT)	1,009,602	807,682	\$259,981	\$706,306	2.72

² The design of the Self-Directed Credit program in Wyoming creates a significant financial incentive for companies to pursue energy efficient measures when they otherwise would not because they face a charge on their electric bills that they can only offset by completing those measures. Therefore, it is reasonable to believe that companies are facing a different decision regarding their investment in energy efficiency when they are being assessed the charge than if they are not being assessed the charge. The calculated NTGR value of 0.65, if used by the program, can be expected to be a conservative estimate. However, due to only two responses with one not a free-rider and the other a partial free-rider, the evaluation team cannot be certain of the true value in the population beyond saying that it is likely between 0.5 and 1.0. Assuming a value of 1.0 could open the program to risk and is not conservative, Navigant recommends either using the 2011-2013 evaluation calculated value of 0.65 or continuing with the assumed 0.8 value used for planning purposes and during the 2009-2010 program evaluation.

Table ES-3. WY Self-Direction Cost-Benefit Results – 2011-2013 Combined (0.65 NTG)

Benefit/Cost Test Performed	Evaluated Gross kWh Savings	Evaluated Net kWh Savings	Evaluated Costs	Evaluated Benefits	B/C Ratio
PacifiCorp Total Resource Cost Test (PTRC)	1,009,602	656,241	\$247,272	\$386,558	1.56
Total Resource Cost Test (TRC)	1,009,602	656,241	\$247,272	\$351,416	1.42
Utility Cost Test (UCT)	1,009,602	656,241	\$297,082	\$351,416	1.18
Rate Impact Test (RIM)	1,009,602	656,241	\$613,962	\$351,416	0.57
Participant Cost Test (PCT)	1,009,602	656,241	\$259,981	\$706,306	2.72

Process Evaluation

The process evaluation sought to characterize the Self-Direction Credit program from the perspective of program staff and participants, in order to identify both existing strengths and areas for refinement that may better serve the Wyoming C&I market in future years.

The evaluation team surveyed one participant in 2013 and interviewed one participant from 2011, and combined the results with the information gathered from program staff interviews to create a view of the Self-Direction Credit program from 2011 to 2013. The two participants represent two of three unique participants in the program during these years; the team tried to reach the third unique participant, but the participant did not respond to repeated attempts.

Findings from the process evaluation include the following:

- » **The Self-Direction Credit program is a key factor in pushing capital energy efficiency projects.** Both participants indicated that the credit was a key factor in meeting capital justifications for their projects. Without the credit, these projects are not attractive due to long payback periods.
- » **Participants were satisfied with the program.** Both respondents were satisfied with the program and would work with offered programs in the future.

Program Evaluation Recommendations

The evaluation team offers the following recommendations, in no particular order, to improve future Self-Direction Credit program cycles.

- » **Recommendation 1. Ensure measure classifications in database are correct.** Impact evaluation activities found incorrect measure classifications in the Rocky Mountain Power program database for three out of the four completed projects. Ensuring correct classifications will help with future sampling efforts and file reviews.

1 Introduction

This section provides a description of the Self-Direction Credit program, along with a discussion of the underlying program theory and logic model depicting the activities, outputs, and desired outcomes of the program.

1.1 Program Description

The Self-Direction Credit program offers custom incentives to Rocky Mountain Power's large commercial and industrial (C&I) customers for implementation of energy efficiency measures (EEMs).³ The program's primary objective is to allow maximum customer control to self-direct the Customer Efficiency Services Charge into qualified cost-effective efficiency improvement projects. To be eligible for the program, customers must meet one of the two following requirements: minimum annual usage of 5,000,000 kilowatt-hours (kWh) or a peak load of 1,000 kilowatts (kW). Customers may aggregate meters under common ownership to meet this requirement. New construction projects are eligible for the program if the projected annual electricity use meets one of the above requirements. Upon review and approval by Rocky Mountain Power, customers completing a Self-Direction project will receive a credit for the Customer Efficiency Services Charge on their monthly electric bills. A third party, Nexant, Inc., administers the Self-Direct program on behalf of Rocky Mountain Power, hereafter referred to as the Program Administrator.

The following three project types are eligible under the 2011-2013 Self-Direction Credit program:

- » **Completed Projects.** Cost-effective electric conservation projects completed by customers between January 1, 2011 and December 31, 2013. Customers must not have received incentives for the project through any other Rocky Mountain Power energy efficiency (EE) program. Approved projects receive a Self-Direction credit of 80 percent of eligible expenses and had a \$750,000 cap in any given year.
- » **Pre-Approved Projects.** Similar to "Completed Projects," except that customers complete a pre-approval process consisting of an application to the Program Administrator. Approved applications receive a Self-Direction credit of 80 percent of eligible expenses, reserved for a limited time, ensuring that 1) the customer's project will be approved (assuming execution of project as designed) and 2) funding will be available in the program upon completion of the project.
- » **Opt-Out Projects.** Customers that demonstrate no remaining EE projects with a payback period of less than eight years are eligible for a 50 percent Self-Direction credit. The credit must be renewed every two years through the performance of a new energy audit. This 50 percent credit

³ Self-Direction Credit program description information was adapted from Rocky Mountain Power Annual Reports, program brochures and promotional material, descriptive content in prior evaluations, and interviews with program administrative staff.

will not be available to a customer during any time they are receiving another eligible credit under the program.

Customers interested in completing a Pre-Approved Self-Direction Credit Project first submit a Pre-Qualification Project Submittal and then repay any incurred engineering costs to Rocky Mountain Power, if any. The Program Administrator may elect to perform an inspection based on the specifics of the project and would ultimately approve or reject the project. If approved, the customer signs and returns the Pre-Qualification Approval Letter and Program Agreement. The Program Administrator then reserves the credit funding for a limited time and the customer completes the project. For both pre-approved and completed projects, a Complete Project Submittal is submitted to the Program Administrator, who arranges for an inspection and approves or rejects the project submittal. If the project is approved, the customer signs and returns the Approval Letter and Program Agreement and the Program Administrator credits the customer’s account and notifies the customer of the final credit.

1.2 Program Changes from 2011 to 2013

No changes to the Wyoming Self-Direction Credit Program were filed from 2011 to 2013.

1.3 Program Participation

From 2011 to 2013, there were four Self-Direction projects completed in Wyoming: two projects in 2011, zero in 2012, and two projects in 2013. Through 2013 the program reported 1,019,253 kWh in energy savings. Table 1 summarizes the projects present in the program by measure category.

Table 1. Wyoming’s Self-Direction Project Details for Program Years 2011-2013

Measure Category	Number of Measures	Reported kWh Savings	Percent of Total Savings
Motors	3	345,151	34%
Custom ⁴	1	674,102	66%
All	4	1,019,253	

1.4 Program Theory and Logic Model

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

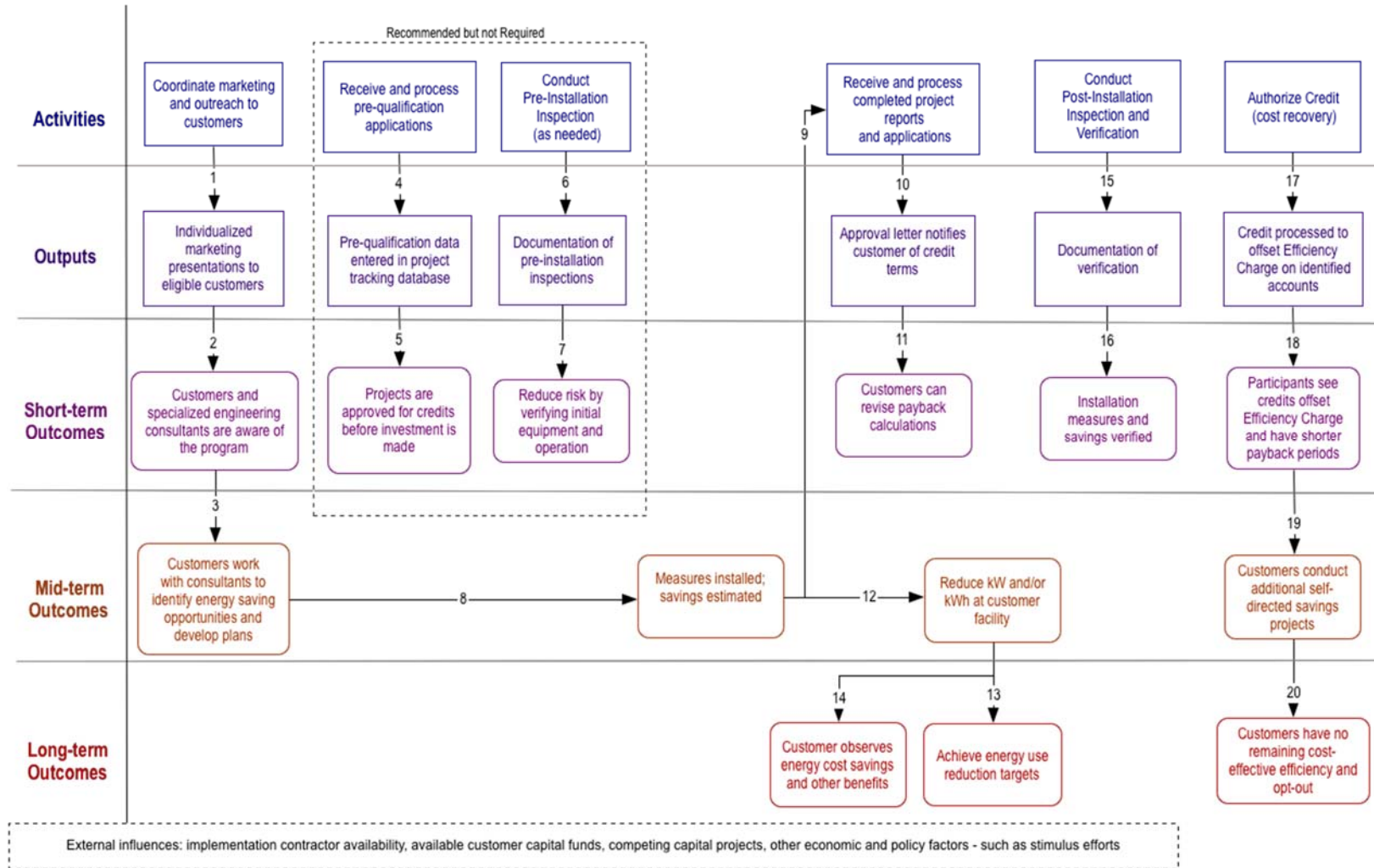
⁴ This custom measure consisted of “piping replacement”.

Developing a logic model that clearly provides the theory of action and change is an important step in evaluation, allowing the evaluator and program actors to see inside the program “black box.”⁵ Program logic models provide a framework for an evaluation by highlighting key linkages between program activities and expected outcomes. The process and impact evaluations focus on these linkages, particularly those on the critical path to achieving savings goals. The evaluation identifies properly working linkages in the program logic model, as well as weak or broken linkages which could cause program shortfalls in achieving the intended short-, mid-, or long-term outcome(s). With this foundation, the evaluation team can then make informed choices related to the prioritization and focus of evaluation resources.

The evaluation team reviewed program documentation and spoke with two program managers and program administrators to verify the underlying theory for the Self-Direction Credit program Logic Model (Figure 1).

⁵ Sue Funnell and Patricia Rogers, 2011, *Purposeful Program Theory: Effective Use of Theories of Change and Logic Models*. John Wiley & Sons.

Figure 1. Wyoming Self-Direction Credit Program Logic Model



Each number in the list below corresponds to a linkage in the logic model diagram and provides further details for the Self-Direction program theory.

1. The Rocky Mountain Power Project Manager (PM), Program Administrator, and account managers coordinate efforts to ensure program marketing directly to large customers. Individual presentations at the customer site provide comprehensive program information. The Program Administrator works with identified engineering firms to ensure they are aware of program requirements and have program-approved templates for project submittals.
2. Eligible customers and specialized engineering firms are aware of the program.
3. Customers identify projects that may qualify for the Self-Direction Credit, either alone, through Rocky Mountain Power provided energy analyses, or through energy analyses performed by independent engineering firms.
4. Customers or their engineering firm may choose to submit a pre-qualification application to the program administrator to ensure the project qualifies before moving forward with implementation.
5. Pre-qualification applications are documented in the project tracking database. Projects receive pre-approval, reducing uncertainty.
6. If deemed necessary, based on the project pre-qualification application, the Program Administrator may conduct an inspection of the customer facility before approving or rejecting the identified project.
7. Pre-qualification inspections reduce discrepancies between reported and verified energy savings by verifying initial equipment and operating conditions.
8. The customer or their contractor purchase and/or install EEMs.
9. Customers, or their engineering firm, submit project submittal reports and invoices to the Program Administrator. The Program Administrator reviews the project submittal report for quality control and insures the project qualifies. In general, the project is submitted by an engineering firm with existing program experience, easing communication constraints to ensure proper documentation. For projects that did not receive pre-qualification, this can be the first formal communication of the project between the customer and the Program Administrator. The program logic anticipates that some projects originating under the Energy FinAnswer program may be transferred to the Self-Direction Credit program; these projects would enter the Self-Direction Credit program at this step with a buyout of engineering funded by Rocky Mountain Power.
10. An approval letter notifies the customer or project acceptance for credits.
11. Customers can revise payback calculations to include the credits. This can free up capital to invest in other projects.
12. EEMs reduce energy consumption at the customer's facility.
13. Reduced energy consumption contributes to meeting annual program targets.
14. Customers see energy cost reductions and possibly operations/maintenance benefits.

15. The Program Administrator (and sometimes the PM) inspect and verify installation of measures.
16. A final report documents verification. Verification ensures that expected savings occur.
17. The Program Administrator notifies Rocky Mountain Power of project completion. Program Administrator conducts a quality control review and assigns the project for cost recovery. Rocky Mountain Power processes program credits to the customer account.
18. The customer receives program credit. Credit on monthly bills for length of credit term reduces the payback period for the project. Rocky Mountain Power recovers cost for engineering analysis used to identify the project, if applicable.
19. Customers conduct additional self-directed capital improvements due to familiarity with costs and benefits of efficiency projects and success with credit on bills.
20. Customers can opt out of 50 percent of efficiency charge, so long as they have no remaining cost-effective EE projects (cost-effective being with payback periods from one to five years before the credit).

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

Table 2. Indicators and Data Sources for Program Outcomes

Outcome	Indicator	Data Source
Short-Term Outcomes		
Customers and specialized engineering consultants are aware of the program.	Non-participant awareness; energy engineers identified by Rocky Mountain Power	Customer interviews; engineer resource list
Projects are approved for credits before investment is made.	Timeline for pre-approved projects	Program tracking data; customer interviews
Risk is reduced by verifying initial equipment and operation.	Site visits occurring for pre-approved projects	Program tracking data; customer interviews
Customers can revise payback calculations.	Customers use pre-approval in decision process	Customer interviews
Installation of measures and savings is verified.	Verification in project file; inspection date	Project files; program tracking data
Participants see Credit offset Efficiency Charge and have shorter payback periods.	Customers receive credits; cost-recovery date	Program tracking data; customer interviews
Mid-Term Outcomes		
Customers work with specialized consultants to identify opportunities and establish plans.	Customers choose to self-direct savings through consultants	Customer interviews
Measures are installed and savings are estimated.	Applications include measures and savings	Customer interviews; energy engineer interviews
kW and/or kWh are reduced at customer facility.	Customers realize expected savings	Customer interviews; ex post impact savings
Customers conduct additional self-directed savings projects.	Repeat participation	Program tracking data; customer interviews
Long-Term Outcomes		
Energy use reduction targets are achieved.	Rocky Mountain Power meets targets	Reported savings
Customers observe energy cost savings and other benefits.	Customers realize expected savings	Customer interviews
Customers have no remaining cost-effective efficiency and opt out.	Opt out of participation	Program tracking database

2 Evaluation Methodology

The following chapter describes the evaluation methodologies used in Wyoming’s 2011-2013 Self-Direction Credit program. The evaluation team developed and informed these methods through an independent review of evaluation best practices.⁶

2.1 Impact Methodology

This section summarizes the impact evaluation methods used to develop project- and program-level realization rates for the Self-Direction Credit program. Findings provide Rocky Mountain Power staff with the feedback they need to increase program efficacy and to advance the research and policy objectives of the Wyoming Public Service Commission by providing an independent quantitative review of program achievements.

The impact evaluation of Wyoming’s Self-Direction program aimed to characterize energy and demand impacts for incented projects in the 2011 through 2013 program years, including the following:

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

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

- » Gross program demand and energy savings estimates and realizations rates for incented projects
- » Energy usage profiles for C&I technologies metered through on-site M&V activities

The Self-Direction programs include only custom projects. The evaluation team used the International Performance Measurement and Verification Protocol (IPMVP) Option B as the most common evaluation method employed for these projects, where the evaluation team either metered the individual equipment power consumption or obtained facility data showing records of equipment operation.⁷ In the case of the largest project in the sample, no single direct measurement option could determine savings so the evaluation team employed a combination of IPMVP Options A, B, and C to review the data in the project file and confirm results.

⁶ See Appendix B for detail on EM&V Best Practices.

⁷ For more information regarding IPMVP options and definitions, see http://www.evo-world.org/index.php?option=com_content&view=article&id=272&Itemid=397&lang=en.

2.1.1 Project File Reviews

A thorough review of the Self-Direction project files allowed the evaluation team to increase the accuracy of calculated measure savings and demand reductions, thereby ensuring that they were representative of installed conditions.

The evaluation team reviewed each project file, characterizing any data gaps, looking for consistency issues, and checking the accuracy of the information used to estimate project-level savings. The team also assessed the variability and uncertainty between Rocky Mountain Power's input assumptions and secondary studies, along with the relative impact on energy and demand savings. This type of sensitivity analysis was crucial in prioritizing and aligning task resources. The results of this effort informed the development of recommendations for input assumption revisions based on prior evaluation studies, upcoming policy requirements, and geographic factors. Examples of secondary sources leveraged through this task include the following:

- » Regional Technical Forum (RTF)⁸
- » Data on oil viscosity and flow

⁸ Regional Technical Forum, RTF Unit Energy Savings (UES) Measures and Supporting Documentation, <http://www.nwcouncil.org/energy/rtf/measures/Default.asp>.

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

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

Site Name	Sample
Site Address	Address
Project #	SDC00_000085
Program	Wyoming Self-Direct
Customer Name	Contact name
Program Year	2013
Project Description	LED lighting retrofit
Measure Category(ies)	Lighting
Installation Date	May 2013
Incentive Amount	\$30,860
Navigant M&V Report Author	Navigant
Navigant Field Staff Present on Site	Navigant
Site Visit Date(s)	August 26, 2014
Site Visit Type	Verification and logger installation

2.1.2 Sampling Frame Development

The Self-Direction Credit program population consisted of only four projects in the 2011-2013 program years. The Impact Evaluation sample, detailed in Table 3, included all four projects and 100 percent of reported savings.

Table 3. Overview of the Impact Evaluation Sampling Framework

Projects in the 2011 through 2013 Program Year	Program Population kWh Savings	Projects in Impact Evaluation Sample	Sample kWh Savings	% of Population Savings Evaluated
4	1,019,253	4	1,019,253	100%

2.1.3 Gross Energy and Demand Realization Rate Calculation

The impact evaluation team combined gross energy and demand realization rates for each project in the impact evaluation sample to form *program-level* realization rates for each program year. The team researched the following technical issues in order to accurately determine *gross* program impacts and realization rates:

- » The appropriateness of the pre-installation technology performance baseline via project file and secondary literature review
- » Installation and quantity of claimed measures
- » Baseline and measure performance characteristics of the measures installed, and revision of performance variables (e.g., operating hours), as needed
- » Demand savings (kW) and energy savings (kWh) impacts of the measures installed for projects sampled.

The program-level realization rate is the ratio between the *verified* savings estimates and the *reported* savings estimates.

2.1.4 Program Cost-Effectiveness

The cost-effectiveness of utility-funded programs in the state are typically analyzed using cost-effectiveness tests prescribed by the California Standard Practice Manual.⁹ For the purposes of this evaluation, Rocky Mountain Power specifically required the following cost-effectiveness tests:

- » PacifiCorp Total Resource Cost Test (PTRC)
- » Total Resource Cost Test (TRC)
- » Utility Cost Test (UCT)
- » Ratepayer Impact Measure (RIM)
- » Participant Cost Test (PCT)

⁹ The California Standard Practice Manual is an industry-accepted manual identifying cost and benefit components and cost-effectiveness calculation procedures. Definitions and methodologies of these cost-effectiveness tests can be found at http://www.energy.ca.gov/greenbuilding/documents/background/07-I_CPUC_STANDARD_PRACTICE_MANUAL.PDF.

The evaluation team worked with Rocky Mountain Power to understand the PTRC and construct a tool that calculates the PTRC at measure, program, and portfolio levels. Table 4 presents descriptions of generally accepted cost-effectiveness tests.

Table 4. Details of Cost-Effectiveness Tests¹⁰

Test	Acronym	Key Question Answered	Summary Approach
Participant Cost Test	PCT	Will the participants benefit over the measure life?	Comparison of costs and benefits of the customer installing the measure
Utility Cost Test	UCT	Will utility revenue requirements increase?	Comparison of Program Administrator costs to supply-side resource costs
Ratepayer Impact Measure ¹¹	RIM	Will utility rates increase? Considers rate impacts on all participants, and potential for cross-subsidization.	Comparison of Program Administrator costs and utility bill reductions to supply-side resource costs
Total Resource Cost Test	TRC	Will the total costs of energy in the utility service territory decrease?	Comparison of Program Administrator and customer costs to utility resource savings
PacifiCorp Total Resource Cost Test	PTRC	Will the total costs of energy in the utility service territory decrease when a proxy for benefits of conservation resources is included?	Comparison of Program Administrator and customer costs to utility resource savings, including 10 percent benefits adder

Section 3.3 provides the benefit/cost results and findings for each of the evaluated program years.

2.2 *Validity and Reliability of M&V Findings*

The evaluation team identified several sources of uncertainty associated with estimating the impacts of the Self-Direction Credit program. Examples of such sources include the following:

- » Sample selection bias
- » Physical measurement bias (e.g., meter bias, sensor placement, non-random selection of equipment or circuits to monitor)
- » Engineering analysis error (e.g., baseline construction, engineering model bias, and modeler bias)

¹⁰ Navigant modified Table 2-2 from: “Understanding Cost Effectiveness of Energy Efficiency Programs: Best Practices, Technical Methods, and Emerging Issues for Policy – Makers” NAPEE, November 2008. <http://www.epa.gov/cleanenergy/documents/suca/cost-effectiveness.pdf>.

¹¹ The RIM test is a measure of the difference between the change in total revenues paid to a utility and the change in total costs to a utility resulting from an energy efficiency program. If retail rates are higher than marginal costs, few programs that significantly reduce energy consumption will pass this test.

The evaluation team remained cognizant of these issues throughout the evaluation process and adopted methods to reduce the uncertainty arising from these sources, thereby improving the validity and reliability of study findings.

2.2.1 Reducing Uncertainty from Physical Measurement Error

Inevitable error occurs with all physical measurement. For the impact evaluation of the Self-Direction Credit program, a large measurement effort involved installing current/power loggers to determine the operating characteristics of incanted technologies across a broad range of applications. The evaluation team took several steps to minimize the possible introduction of uncertainty resulting from bias/error by this process:

- » To minimize measurement error from improper calibration of the current/power loggers, the evaluation team checked all loggers used in the field to ensure proper calibration prior to deployment. Field staff received training to use consistent measurement intervals whenever possible, and to synchronize the logger deployment activities (e.g., time delay), to ensure proper data comparisons across a uniform time period.
- » The field staff used a prescribed protocol for the placement and installation of loggers on circuits (e.g., current transformer (CT) placement) to minimize biases arising from the improper placement of loggers.
- » Usage patterns for retrofit measures may vary from month to month, so sampling for a short duration could introduce a degree of error into the overall results. The evaluation team reduced this type of error by typically deploying loggers for a minimum of four weeks, and supplemented them with available facility records (e.g., Energy Management System (EMS) trends, production logs). The team calibrated the facility records, which spanned multiple months or years, with the collected logger data.
- » Poor quality data can also be a significant source of error and uncertainty. The evaluation team applied various quality assurance checks to minimize the potential impact of this problem, including the use of consistent spot measurements comparable against both the EMS and logger data, and qualified analysts reviewed all logger files to ensure results represented the investigated technologies.¹²

2.2.2 Reducing Uncertainty from Engineering Analysis Error

The evaluation team adopted the following protocols to minimize uncertainty from engineering analysis error in this study:

- » Peer review of all project analysis findings to ensure the consistent use of methods and assumptions throughout the impact evaluation
- » Data collection methods to yield appropriate inputs into the analysis models and review of all field observations with the evaluation team

¹² Current/power loggers were reviewed to ensure that consumption was representative of the technology being investigated. Suspect operating characteristics were reviewed with field staff and facility managers to clarify usage pattern anomalies. As with the lighting loggers, inaccurate findings were removed from the analysis.

2.3 *Net-to-Gross Methodology*

The evaluation team used interviewee self-reported responses to assess the program’s influence on the participants’ decisions to implement EEMs and determine what would have occurred absent program intervention. This estimation included an examination of the program’s influence on three key characteristics of the project: its timing, its level of efficiency, and its scope (i.e., the size of the project). This estimate represents the amount of savings attributed to the program that would have occurred without its intervention, referred to as “free-ridership.”

The team’s measurement of net savings then estimated program influence on the broader market because of the indirect effects of the program’s activities. This estimate, referred to as “spillover,” represents the amount of savings that occurred because of the program’s intervention and influence but not currently reported by any PacifiCorp program. Navigant classified spillover savings into two categories based on measure types: “like” spillover and “unlike” spillover.

- » **“Like” spillover** – energy savings associated with additional high efficiency equipment installed outside of the program of the same end-use as what that participant installed through the program. For example, if the participant installed high-efficiency lighting fixtures as part of the program, “like” spillover would be limited to any additional high efficiency lighting installed without any assistance from RMP but influenced by program activity. This type of spillover is quantifiable using program tracking savings as a proxy.
- » **“Unlike” spillover** – the savings associated with any other high efficiency equipment installed outside of the program that are not of the same end-use category as what was installed through the program. Continuing the example above, if the participant installed high efficiency lighting through the program, the high efficiency HVAC equipment installed outside of the program would be considered “unlike” spillover as it is not the same end-use. This type of spillover is not quantifiable, but it is useful to document and track.

A program’s net savings are adjusted by both free-ridership and spillover savings at the measure level and then extrapolated to the program. The net savings are the program-reported savings minus any free-ridership savings, plus any identified spillover savings – as shown in the following equation:

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

Often, this finding is described as a “net-to-gross ratio,” defined as the net program savings divided by the gross program savings, or:

$$\text{Net-to-Gross (NTG) Ratio} = \text{Net Program Savings} / \text{Gross Program Savings}$$

Section 4.1.4 provides the detailed results of the NTG calculations.¹³

¹³ Where possible, Navigant adhered to the NTG guidelines as set forth by the Department of Energy (DOE) Uniform Methods Project (UMP) when calculating the NTG ratios. (Dan Violette and Pamela Rathbun, 2014, *Estimating Net Savings: Common Practices*, National Renewable Energy Laboratory [NREL]).

2.4 *Process Methodology*

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

2.4.1 Overview of Steps in the Process Evaluation

To meet the objectives of this evaluation, the evaluation team undertook the following activities:

- » **Process Evaluation Research Question Development.** The evaluation team and Rocky Mountain Power staff established key evaluation questions through the development of the 2011 through 2013 evaluation plan.
- » **Program Documentation Review.** The evaluation team reviewed program documentation, including regulatory filings, brochures, application forms, and websites.
- » **Logic Model Verification.** The evaluation team worked with program staff to verify the logic model for the Self-Direction Credit program, which describes the intended program design, activities, outputs, and outcomes.
- » **Process Data Collection Activities.** The evaluation team collected process data through interviews with program staff and telephone surveys with participating customers.
- » **Process Data Analysis and Synthesis.** The evaluation team assessed the effectiveness of the program processes by analyzing in-depth interview data and participant survey data.

2.4.2 Process Evaluation Research Questions

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

1. What are the program goals, concept, and design?
2. Do program staff and administrators have the resources and capacity to implement the program as planned? If not, what more is needed?
3. Is the program being delivered in accordance with the logic model?
4. Is the program marketing effective? Specifically, how do customers find out about the programs? How do participants and trade allies get and use information provided on the *wattsmart* Business program website?
5. What is the program influence on participant actions? Specifically, what do participants identify as most important to their projects (i.e., program information, incentive/credit, payback, engineering, and their own company goals)? What would they have done differently without the program?
6. What barriers are preventing customers from taking actions to reduce energy consumption and demand, and which jeopardize program cost-effectiveness?
7. Are participants achieving planned outcomes? Specifically, are participants feeling satisfied?

Evaluation staff used a mixed-methods approach to explore these questions including program documentation review, a web usability assessment, and interviews of program staff, near-participants, and participants. Table 5 shows the seven research questions and associated methods used to answer each.

Table 5. Data Sources to Answer Research Questions

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

2.4.3 Program Documentation Review

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

2.4.4 Logic Model Verification

The evaluation team verified that the existing program logic model, developed in 2011, continued to represent the program theory for the current 2011-2013 Self-Direction Credit program years. To do so, the team used results from program administrator interviews and reviewed evaluation findings to assess whether the program produced the intended activities, outputs, and outcomes as defined in the 2011 program logic model.

2.4.5 Process Data Collection Activities

Interviews and surveys with program staff and participants supported the development of the program overview and logic model, as well as aided in the evaluation conclusions and recommendations for the Self-Direction program.

2.4.5.1 Program Staff Interviews

The evaluation team interviewed one program manager and one program administrator with the following objectives:

- » Understand the design and goals of the Self-Direction Credit program
- » Understand any program changes that have been implemented in Wyoming going into the 2011-2013 cycle, and changes occurring during this cycle
- » Follow up on how recommendations were implemented (or not) from previous evaluations
- » Support confirmation or revision of the existing program logic model

- » Identify program strengths from program staff perspective
- » Identify program weaknesses and opportunities for improvement from the program staff perspective
- » Identify other actionable ideas the program staff hopes to gain from the evaluation

2.4.5.2 Participant Surveys

The evaluation team attempted to survey all three unique participants of the Wyoming Self-Direction Credit program, but was only able to complete one survey. The team therefore reached out through telephone interviews to the other non-responding participants, but only completed one additional interview.

Table 6 provides the timing and sampling frame for participant surveys and interviews.

Table 6. Sample Frame for Participant Surveys and Interviews in 2011-2013¹⁴

Year	Sample	Unique Participants	Program Projects	Sample Savings (kWh)	Program Savings (kWh)
2011	1	2	2	177,140	305,468
2012	0	0	0	0	0
2013	1	2	2	674,102	713,785
Total	2	4	4	851,242	1,019,253

Participant interview research objectives included the following:

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

2.4.6 Process Data Analysis and Synthesis

The evaluation team reviewed all interview response data for missing or erroneous entries before tabulating the frequency of similar responses within categories. After analyzing data from each data collection activity individually, the evaluation team identified common process findings across activities.

¹⁴ After the first semi-annual survey, the program evaluation direction was to focus only on net savings excluding the process evaluation. The program direction changed again before the last survey to re-include process evaluation.

3 Impact Evaluation Findings

The following section summarizes the impact evaluation findings for projects included in the 2011 through 2013 impact evaluation sample.

The evaluation team characterized savings as “reported” and “evaluated.” Reported savings present project savings estimated at the time of measure installation. Evaluated savings represent energy savings verified at the time of evaluation.

3.1 Gross kW and kWh Savings

The impact evaluation team conducted on-site verification activities at all four projects that participated in the 2011 through 2013 Self-Direction Credit program years. The 2011 through 2013 program-level demand savings realization rate was 100 percent, and the gross program energy savings realization rate was 99 percent. Table 7 provides the *program-level* reported and evaluated kW and kWh realization rates.

Table 7. Gross Program-Level Realization Rates for the Wyoming Self-Direction Credit Program

Program Year	Program Reported kW	Gross Program Evaluated kW	Gross Program kW Realization Rate	Program Reported kWh	Gross Program Evaluated kWh	Gross Program kWh Realization Rate
2011	4	4	100%	305,468	300,858	98%
2012	-	-	N/A	-	-	N/A
2013	77	77	100%	713,785	708,744	99%
All	81	81	100%	1,019,253	1,009,602	99%

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

Table 8. Wyoming’s Self-Direction Project-Level Demand (kW) Realization Rates

Project ID	Year	Measure Group ¹⁵	Reported kW	Evaluated kW	Realization Rate
SDC00_000037	2011	Motors	4.0	4.0	100%
SDC00_000038	2011	Motors	0.0	0.0	N/A
SDC00_000090	2013	Additional Measures	77.0	77.0	100%
SDC00_000099	2013	Motors	0.0	0.0	N/A

Sites with N/A realization rates did not claim demand savings.

Table 9 details the energy savings realization rates for all projects in the evaluation sample.

Table 9. Wyoming’s Self-Direction Project-Level Energy (kWh) Realization Rates

Project ID	Year	Measure Group ¹⁶	Reported kWh	Evaluated kWh	Realization Rate
SDC00_000037	2011	Motors	128,328	143,178	112%
SDC00_000038	2011	Motors	177,140	157,680	89%
SDC00_000090	2013	Additional Measures	674,102	674,102	100%
SDC00_000099	2013	Motors	39,683	34,642	87%

3.1.1 Project-Level Observations and Considerations for Self-Direction

The 2011 through 2013 program evaluation effort revealed very little variance in program-level energy savings claims as indicated by the 99 percent overall realization rate.

Table 10 provides variation explanations for realization rates at the project level.

¹⁵ Measure groups reported here are not those provided in the program database but reflect the categories which accurately describe the projects as detailed in Table 11.

¹⁶ Ibid

Table 10. Wyoming Self-Direction Credit Project-Level Realization Rate Explanations

Project ID	Energy (kWh) Realization Rate	Demand (kW) Realization Rate	Notes and Explanations
SDC00_000037	112%	100%	Lower VFD power compared to ex ante due to production variations.
SDC00_000038	89%	N/A	Increased VFD power compared to ex ante.
SDC00_000090	100%	100%	Ex post analysis based on same data as ex ante.
SDC00_000099	87%	N/A	Variations in production levels from ex ante resulting in higher VFD use.

Other notable project-level observations include category discrepancies in the Rocky Mountain Power database that did not match the actual measures observed during the on-site activities. Table 11 summarizes these discrepancies.

Table 11. Project-Level Database Category Discrepancies

Project ID	Rocky Mtn. Power Database Category	Verified Measure Category
SDC00_000037	Additional Measures	Pump VSD
SDC00_000038	Lighting	Pump VSD
SDC00_000090	Compressed Air	Line Replacement
SDC00_000099	Motors	Pump VSD

The evaluation team also identified issues at one site (Project ID: SDC00_000090) with measuring savings on the 54 wells listed in the Self-Direct report. Original savings used pre- and post-pressure changes for calculation estimates, which the team could not duplicate during verification since the pre- installation measurements no longer reflected current production conditions. However, a detailed review of documented pre- and post-pressure changes for all 54 wells together showed that results fell within reasonable ranges.

3.2 Program-Level Net Savings Results

The evaluation team calculated an average NTG ratio of 0.65 based on only two participant responses to free-ridership and spillover survey and interview questions for the current 2011-2013 evaluation. Due to the limited response data, the team conducted the cost-effectiveness tests using both the 0.65 NTGR, and the 0.8 NTGR used in the prior Wyoming Self-Direction Credit study for comparison. Table 12 provides evaluated program-level demand and energy savings with the applied 0.80 NTG ratio, while Table 13 provides the same savings applying the 0.65 NTGR.

Table 12. Program-Level Net Realization Rates for WY Self-Direction Credit Program (0.8 NTG)

Program Year	Net Program kW	Net Program Evaluated kW	Net kW Realization Rate	Net Program kWh	Net Program Evaluated kWh	Net kWh Realization Rate
2011	4	3	80%	305,468	240,686	79%
2012	-	-	-	-	-	-
2013	77	62	80%	713,785	566,995	79%
All	81	65	80%	1,019,253	807,682	79%

Table 13. Program-Level Net Realization Rates for WY Self-Direction Credit Program (0.65 NTG)

Program Year	Net Program kW	Net Program Evaluated kW	Net kW Realization Rate	Net Program kWh	Net Program Evaluated kWh	Net kWh Realization Rate
2011	4	3	65%	305,468	195,558	64%
2012	-	-	-	-	-	-
2013	77	50	65%	713,785	460,684	65%
All	81	53	65%	1,019,253	656,241	64%

3.3 Cost-Effectiveness Results

The evaluation team initialized and validated the cost-effectiveness model used for this evaluation using prior inputs and outputs from previous evaluation cycles, to ensure similar inputs yielded similar outputs for the current cycle. The evaluation team worked through a range of input assumptions pertaining to avoided cost data formats, financial assumptions regarding discount and escalation rates, participant costs and benefits, and other input parameters. Table 14 provides an overview of cost-effectiveness input values used by the evaluation team in the cost-effectiveness analysis.

Table 14. Wyoming Self-Direction Cost-Effectiveness Evaluation Input Values

Input Description	2011	2012	2013	2011 - 2013
Discount Rate	7.17%	7.17%	6.88%	-
Inflation Rate	1.80%	1.80%	1.90%	-
Industrial Line Loss	4.76%	5.61%	5.61%	-
Measure Life	13 yrs.	13 yrs.	9.33 yrs.	
Commercial Retail Rate (\$/kWh)	-	-	-	-
Industrial Retail Rate (\$/kWh)	\$0.0523	\$0.0583	\$0.0613	-
Gross Customer Costs	\$88,284	\$0	\$171,697	\$259,981
Program Costs	\$121,240	\$18,234	\$157,609	\$297,082
Program Delivery	\$39,800	\$18,234	\$20,251	\$78,284
Incentive Costs	\$81,440	\$0	\$137,358	\$218,798

The discount rates and inflation rates are based on the 2011 IRP for 2011-2012 and the 2013 IRP for 2013. Measure specific load shapes and the System Load Shape Decrement were used for all program years. Program Delivery includes: engineering, program implementation, marketing, and utility administration costs.

Table 15 through Table 18 illustrate the costs, benefits, and benefit/cost ratio for the cost-effectiveness tests with a 0.65 NTGR calculated using the limited number of respondents in the process evaluation for PY 2011-2013.

Table 15. WY Self-Direction Credit Program Cost-Benefit Results – 2011 (0.65 NTG)

Benefit/Cost Test Performed	Evaluated Gross kWh Savings	Evaluated Net kWh Savings	Evaluated Costs	Evaluated Benefits	B/C Ratio
PacifiCorp Total Resource Cost Test (PTRC)	300,858	195,558	\$97,184	\$160,961	1.66
Total Resource Cost Test (TRC)	300,858	195,558	\$97,184	\$146,328	1.51
Utility Cost Test (UCT)	300,858	195,558	\$121,240	\$146,328	1.21
Rate Impact Measure Test (RIM)	300,858	195,558	\$222,519	\$146,328	0.66
Participant Cost Test (PCT)	300,858	195,558	\$88,284	\$237,253	2.69

Table 16. WY Self-Direction Credit Program Cost-Benefit Results – 2012 (0.65 NTG)

Benefit/Cost Test Performed	Evaluated Gross kWh Savings	Evaluated Net kWh Savings	Evaluated Costs	Evaluated Benefits	B/C Ratio
PacifiCorp Total Resource Cost Test (PTRC)	-	-	\$18,234	\$0	0.00
Total Resource Cost Test (TRC)	-	-	\$18,234	\$0	0.00
Utility Cost Test (UCT)	-	-	\$18,234	\$0	0.00
Rate Impact Measure Test (RIM)	-	-	\$18,234	\$0	0.00
Participant Cost Test (PCT)	-	-	\$0	\$0	0.00

Table 17. WY Self-Direction Credit Program Cost-Benefit Results – 2013 (0.65 NTG)

Benefit/Cost Test Performed	Evaluated Gross kWh Savings	Evaluated Net kWh Savings	Evaluated Costs	Evaluated Benefits	B/C Ratio
PacifiCorp Total Resource Cost Test (PTRC)	708,744	460,684	\$131,854	\$225,597	1.71
Total Resource Cost Test (TRC)	708,744	460,684	\$131,854	\$205,088	1.56
Utility Cost Test (UCT)	708,744	460,684	\$157,609	\$205,088	1.30
Rate Impact Measure Test (RIM)	708,744	460,684	\$373,210	\$205,088	0.55
Participant Cost Test (PCT)	708,744	460,684	\$171,697	\$469,052	2.73

Table 18. WY Self-Direction Credit Program Cost-Benefit Results – 2011-2013 Combined (0.65 NTG)

Benefit/Cost Test Performed	Evaluated Gross kWh Savings	Evaluated Net kWh Savings	Evaluated Costs	Evaluated Benefits	B/C Ratio
PacifiCorp Total Resource Cost Test (PTRC)	1,009,602	656,241	\$247,272	\$386,558	1.56
Total Resource Cost Test (TRC)	1,009,602	656,241	\$247,272	\$351,416	1.42
Utility Cost Test (UCT)	1,009,602	656,241	\$297,082	\$351,416	1.18
Rate Impact Measure Test (RIM)	1,009,602	656,241	\$613,962	\$351,416	0.57
Participant Cost Test (PCT)	1,009,602	656,241	\$259,981	\$706,306	2.72

The evaluation team ran the 2011-2013 combined cost-benefit numbers using the 0.80 NTGR used in the previous evaluation for comparison purposes (Table 19).

Table 19. WY Self-Direction Credit Program Cost-Benefit Results – 2011-2013 Combined (0.80 NTG)

Benefit/Cost Test Performed	Evaluated Gross kWh Savings	Evaluated Net kWh Savings	Evaluated Costs	Evaluated Benefits	B/C Ratio
PacifiCorp Total Resource Cost Test (PTRC)	1,009,602	807,682	\$286,269	\$475,763	1.66
Total Resource Cost Test (TRC)	1,009,602	807,682	\$286,269	\$432,512	1.51
Utility Cost Test (UCT)	1,009,602	807,682	\$297,082	\$432,512	1.46
Rate Impact Measure Test (RIM)	1,009,602	807,682	\$687,089	\$432,512	0.63
Participant Cost Test (PCT)	1,009,602	807,682	\$259,981	\$706,306	2.72

4 Process Evaluation Findings

This section describes the findings from the Self Direction Credit process evaluation data collection activities including participant and program staff interviews.

4.1 Participant Findings

Three unique participants from the heavy industrial oil, mining, and gas sectors completed the four projects listed in the 2011-2013 Wyoming Self-Direction Credit program database. The evaluation team contacted two participants who represented 84 percent of the savings claimed during this period.

The process evaluation team identified the following key findings as a result of interviews and surveys with program participants:

- » **The Self-Direction Credit program is a key factor in pushing capital EE projects.** Both participants indicated that the credit was a key factor in meeting capital justifications for their projects. Without the credit, these projects are not attractive due to long payback periods.
- » **Participants were satisfied with the program.** Both respondents were satisfied with the program and would work with offered programs in the future.

4.1.1 Program Satisfaction

Both participants were satisfied with the program and did not have any suggestions for how to improve the program in the future.

4.1.2 Program Awareness and Motivation

One participant reported learning about the program through word of mouth.¹⁷ This participant had not personally completed any prior projects, but colleagues had experience with the program.

Motivation for program participation varied between the two respondents; one pointed to an equipment failure and the other citing a simple desire to replace existing inefficient equipment.

4.1.3 Program Participation Process

Both participants completed their projects through a third-party engineering firm. One participant indicated that they did not experience any challenges with the program qualification, application, or completion. The other respondent provided responses to a survey that focused on program influence and not program processes; however, that respondent did not indicate any challenges when given the opportunity to provide feedback at the end of the survey.

¹⁷ Only one participant provided responses to process questions.

4.1.4 Program Influence

The evaluation team found that the potential to obtain the credit strongly influenced participation in the Self-Direction Credit program. Both participants indicated that the credit allowed them to adjust capital expenditures in their return on investment calculations to present to management.

4.1.4.1 Free-Ridership

In order to determine to what extent the program affected installation decisions, the survey team asked respondents what would have been different about their installations had the program not been an option. For both participants, the equipment purchased with the program was a replacement for existing equipment. One participant’s equipment had failed. The other participant’s equipment was operable, but not efficient. Given the low number of responses, Navigant urges strong caution when considering results.

4.1.4.2 Spillover

The evaluation team found no quantifiable program spillover.

Table 20. Weighted Program Influence for PY2011-2013

Period	Free-ridership Score	Like Spillover Score	Unlike Spillover Score	Net Savings Ratio
2011 (completed Jan 1, 2011-Dec 31, 2011)	0.00	0.00	None	1.000
2012 (completed Jan 1, 2012-Dec 31, 2012)	-	-	-	-
2013 (completed Jan 1, 2013-Dec 31, 2013)	0.50	0.00	None	0.500
Weighted Total	0.350	0.00	-	0.650

4.1.5 Further EE Opportunities and Barriers

Both participants indicated they would participate in future programs.

5 Program Evaluation Recommendations

5.1 PY 2011-2013 Recommendations

The evaluation team recommends that Rocky Mountain Power consider undertaking the following steps to improve the program experience for participants, engineers, and program staff in the Self-Direction Credit program for future program cycles.

- » **Recommendation 1. Ensure measure classifications in database are correct.** Impact evaluation activities found incorrect measure classifications in the Rocky Mountain Power program database for three out of the four completed projects. Ensuring correct classifications will help with future sampling efforts and file reviews.

5.2 PY 2009-2011 Recommendation Review

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

- » **Recommendation 1.** Both evaluated projects included a significant amount of detail, including pump curves, and detailed calculation spreadsheets. The evaluation team recommended that these data continue to be included in project files.
Review Results – the team found adequate detail in project files.
- » **Recommendation 2.** Although the project files included detailed calculations and reports for both self-direct projects, the *reasoning* behind the calculations for one project was not clear. More specifically, the project file described adjustments to calculated and measured power values, but did not clarify the reason for the adjustments. The evaluation team recommended that project files provide both qualitative, in addition to quantitative, detail on energy consumption and demand adjustments.
Review Results – the team found improvements to project files even within the limited number of program participants.
- » **Recommendation 3.** Future Net-to-Gross Evaluation Recommendations:
 - The evaluation team recommended increasing the frequency of data collection activities to minimize recall issues. This recommendation has been implemented through semi-annual survey efforts.
Review Results – the evaluation team increased survey efforts to a semi-annual cycle.
 - The evaluation team recommended prioritizing quantitative spillover as an area of inquiry on subsequent evaluations to ensure balanced and comprehensive net savings estimates.
Review Results – the evaluation team increased the number of survey questions concerning spillover, however due to the low participation in the survey, the evaluation team cautions against using the 2011-2013 spillover results.

- The evaluation team recommended increasing the level of documentation on customer interactions with Rocky Mountain Power. This will serve to better codify the baseline customer situation and enhance the accuracy of net savings estimates.
Review Results – the team verified the increase in documentation even within the limited number of program participants.
- » **Recommendation 4.** While the evaluation team is not advocating for Rocky Mountain Power taking over the technical steps of this process, account managers or program/project managers may be able to provide additional guidance on paperwork requirements and program rules. Rocky Mountain Power may ease this process by providing qualifying customers with templates of necessary engineering reports, a list of general project milestones, and a list of points during the project where the participant should communicate with the program administrator. Rocky Mountain Power’s plan to provide a co-funded Energy Project Manager (EPM) as part of this program, recently approved by the commission, can help significantly toward improved in-house project lifecycle management.
Review Results – surveyed program participants for the 2011-2013 evaluation did not indicate the need for further assistance from Rocky Mountain Power. The engineering firms used in the Self-Direction Credit program are knowledgeable enough to provide the customers with sufficient information.
- » **Recommendation 5.** Ensure that eligibility requirements on project documentation sheets are current. This could be accomplished by adding a “current as of [DATE]” field to the project documentation sheet or by adding a check on “verified eligibility criteria are current” field. The program administrator has advised that the program documentation sheet has been revised to properly note current eligibility criteria for the Self-Direction Credit program.
Review Results – the team verified that documentation sheets remain current through a link to the website to review program updates.
- » **Recommendation 6.** Document regular communications to both systematically ensure that large customers are kept informed of program offerings and to ensure that when these customers choose to participate, the program influence on their choices is codified.
Review Results – participant survey results verified that large customers have adequate communication with program staff around current program offerings.